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# ***Golden Prairie Wind Farm Contingency Analysis and Dynamic Stability Analysis***

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Section

1

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## Executive Summary

Power Technologies, Inc.® was retained by Xcel Energy, Inc. to evaluate the capability of the transmission network to accommodate the integration of a 162-MW wind farm, 40 miles south of the Lamar Substation. In order to evaluate the impact of this wind farm, we utilized a 2003 heavy summer case without the HVDC converter installation at the Lamar Substation, and a 2005 heavy summer case with the planned HVDC converter installed at the Lamar Substation and an interchange schedule of 48 MW coming into Lamar from Kansas. For both cases, the Golden Prairie wind farm was connected to the transmission system by a 40-mile 230-kV circuit from the wind farm to Lamar Substation. In the 2005 heavy summer case, the 230-kV circuit was modeled to terminate in Xcel Energy's service territory, which is west of the HVDC converter at Lamar.

For the 2005 case, the HVDC converter at Lamar Substation is serving as an interconnection point between the WECC and SPP regions. In the 2005 heavy summer case, the HVDC converter is modeled at the 230-kV bus at Lamar as a 48-MW constant power source simulating the planned interchange schedule between the SPP region and the WECC region.

To evaluate the impact of the connection of the wind farm on the transmission system, we performed steady-state contingency analyses, along with dynamic stability analyses using both of these annual transmission scenarios. For each yearly transmission scenario, we also developed a list of potential transmission upgrades and operational procedures to alleviate the thermal overloads and voltage issues. The transmission upgrades that have been proposed in this study are to address existing local transmission issues and do not have an effect on the installation of the Golden Prairie wind farm.

Based upon the results of the analyses, the integration of the wind farm south of Lamar Substation will essentially have a minimal effect on the magnitude of overloaded facilities under the studied contingencies or on the low voltages observed under certain outages. Additionally, there will be slightly higher impacts associated with thermal overloads with the additional 48 MW from the HVDC converter at Lamar in the 2005 heavy summer case.

In order to meet reliability criteria, transmission system operational procedures have been developed for the 2003 and 2005 power flow cases to prevent the overloading of the 100-MVA transformer at Lamar. These operational procedures will require a combined reduction of both the wind farm output and the HVDC converter output to 100 MVA or less for the outage of the Boone – Lamar 230-kV line.

The dynamic simulations that were performed assessed system performance with and without the Golden Prairie wind farm. From the simulations that were performed showing the system conditions with the contingencies that were studied, the transient stability of the bulk transmission system is not degraded by the proposed Golden Prairie wind farm. However, based on the results of the stability analyses, there are a number of system disturbances that could result in the tripping of the wind turbines due to periods of low voltage until the faults are cleared. While the wind farm would be disconnected, the balance of the system is stable, with voltages returning to acceptable levels after the fault is removed. For those system disturbances where the wind farm remains in operation, the results indicate

that the Golden Prairie facility will not adversely impact transmission system stability. Under the assumption that the dynamics model for the wind turbines that was provided to PTI for this study represents the actual characteristics and behavior of the wind turbines to the system disturbances that were studied, the addition of the wind farm will not adversely impact the transient stability of the transmission system in the southeastern Colorado area.

Section

2

## Introduction

GE Wind Energy is pursuing the development of a 162-MW wind farm to be located in southeastern Colorado and is planning for the project to be in service in late-2003. The wind turbines that have been proposed for this wind farm will be GE's 1.5 MW induction machines that incorporate DVAR technology. The proposed facility is expected to consist of 108 individual 1.5-MW units that would be connected together through a 34.5-kV collector system. The output from this wind farm project would be delivered to the 230-kV transmission system at the Lamar Substation through a developer-provided 40-mile 230-kV transmission line from the collector site to the Lamar Substation. The general location of the proposed wind farm and the major transmission facilities in southeastern Colorado are shown in Figure 1.

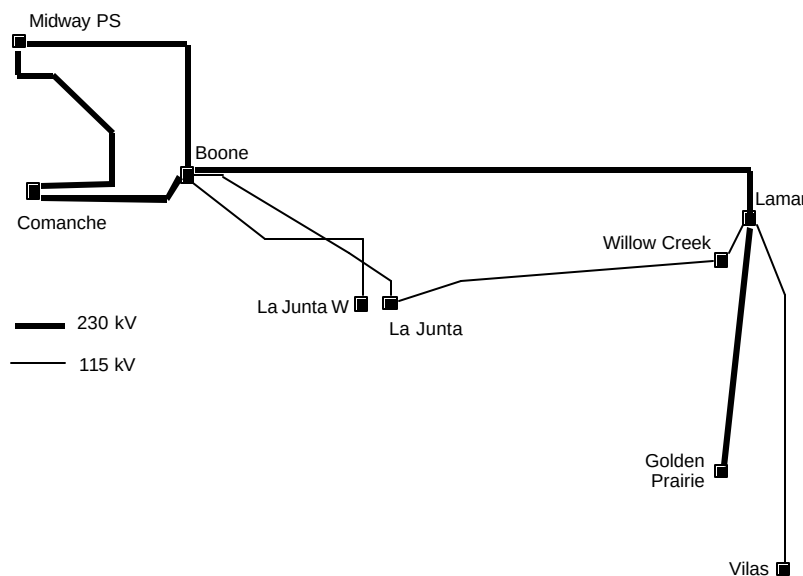


**Figure 1 - Expected Major Transmission in Southeastern Colorado With Golden Prairie – 2003**

Power Technologies, Inc.® (PTI) was retained to perform a study to evaluate the impact that the proposed facility would have on the transmission system in southeastern Colorado and to determine if any additional facilities would be needed to maintain system integrity. The principal objectives of this impact study were to:

- 1) identify any system problems associated with the connection of the proposed wind farm to the transmission system,

- 2) determine potential system modifications that may be needed to accommodate the operation of the project while maintaining system reliability and stability, and
- 3) estimate the costs associated with any required system modifications.

The study included a steady-state contingency analysis, a transient stability analysis, and a short circuit analysis. The steady-state analysis was performed to evaluate the impact of the wind farm on transmission facility loading and transmission bus voltages for normal operating conditions and for the outage of single transmission circuits and transformers. The stability analysis considered the effects of the new facility on the stability of other generating facilities in the region. This effort is concerned with the system's recovery from faults on the transmission system that are in close proximity to the generating facilities. The short circuit analysis provided information to determine whether the interruption capabilities of the existing circuit breakers are exceeded with the addition of the new generation.

Since the wind farm could be capable of operating late in the summer of 2003, the interconnection study needed to evaluate the impact of the wind farm on the transmission system at that point in time. Xcel is also proceeding with the installation of an HVDC converter facility that should be in operation before the summer of 2005 and that would be connected to the Lamar Substation with the capability of delivering about 210 MW to the Lamar 230-kV bus. Since this 210-MW tie between SPP and WECC has been committed to prior to this wind farm project, for this transmission system impact study, we performed contingency analyses and dynamic stability analyses for the two summer peak cases. The first case is the heavy summer 2003 peak load power flow case, which does not include the future HVDC converter at Lamar Substation. The second is the heavy summer 2005 peak load power flow case, which includes the HVDC converter. While the HVDC facility is rated at 210 MW, a 48-MW transfer level through the Lamar HVDC has been used in this study. This 48-MW level has been used to simulate an east-to-west scheduled interchange coupled with the maximum wind farm generation that would be replacing the originally expected 210-MW HVDC delivery to the Lamar 230-kV Substation from the east.

Due to the fact that the transmission system in southeast Colorado is relatively weak, we evaluated whether the existing system near the point of interconnection at Lamar would be capable of accommodating the significant output from the wind farm. In addition, the overall load in this region of Colorado is relatively low. Therefore, the study recognized that the delivery of the full output from the wind farm would require adequate transmission capability to the 230-kV transmission system west of Boone. PTI performed not only a steady-state contingency analysis but also a dynamic stability in the vicinity of Lamar Substation to more completely consider the impact of the addition of this new wind farm facility. Xcel supplied PTI with a list of contingencies to be evaluated along with monitored equipment. In addition to those contingencies, PTI expanded the list to include other reasonable local outages and monitored other local buses and facilities to ensure that the potential impacts on the 115- and 69-kV subtransmission facilities in the region were adequately considered.

Section

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## Steady-State Analyses

### 3.1 Methodology

### 3.2 Methodology

Two cases, described below, were supplied to PTI by Xcel Energy for use in the analyses. In both cases, the system dispatch showed heavy generation in the south coupled with the wind farm output that was scheduled at full output (162 MW). This configuration should stress the southeastern Colorado transmission system with high transmission line flows from the Pueblo area toward Denver.

- 2003 heavy summer base case without the HVDC converter and without an interchange tie between the WECC and SPP regions, in order to establish a system reference point.
- 2005 heavy summer base case with the HVDC converter at Lamar Substation connected to the 230-kV system, and an interchange tie between the WECC and SPP regions. The interchange schedule has 210 MW flowing from Kansas (SPP region) west to Colorado (WECC region).

For the 2003 summer peak case, without the Lamar HVDC converter in the model, we performed contingency analysis without the wind farm online or the Golden Prairie – Lamar 230-kV circuit in service. Using that configuration as a system reference point, the voltage impacts as well as changes in power flows on heavily loaded transmission facilities as a result of integrating the new 162-MW wind farm could be determined. We also investigated the system behavior with the Lamar – Golden Prairie 230-kV circuit in service but with no wind generation in order to compare results between initial reference points.

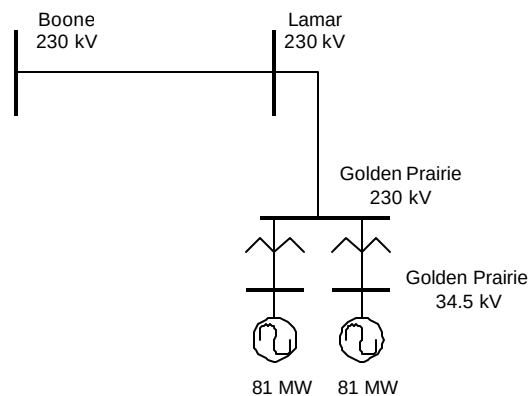
After the contingency analyses for the 2003 summer peak case were performed, the impacts of the wind farm on the transmission system for the 2005 summer peak period were analyzed with the Lamar HVDC converter modeled in the case. Contingency analyses on this peak summer case were performed for three different transmission scenarios. The first contingency analysis considered a case with the wind farm offline and the Lamar HVDC converter out of service. This scenario was used to establish the base case issues on the southeast Colorado transmission system independent of these two new sources and serve as a reference point for the other two scenarios. The second contingency analysis that was performed on the 2005 summer peak case incorporated no power output from the wind farm or 230-kV line between Lamar and Golden Prairie but did include 48 MW of east-to-west scheduled flow through the Lamar HVDC converter. This analysis was utilized to establish the potential voltage impacts due to the Lamar HVDC Substation. For the 2005 first and second scenarios, without the wind farm online, the analysis was run without the Lamar – Golden Prairie 230-kV circuit in service to provide a reference point to determine the system impact of the wind farm on local area voltages. The third contingency analysis for the 2005 summer peak case reflected the wind farm at full output (162 MW) and the scheduled flow through the Lamar HVDC converter at 48 MW output into

the Lamar Substation from Kansas. The results from the third contingency analysis were compared with the results from the heavy summer 2005-system reference point (first contingency analysis) to identify stresses to the transmission system resulting from the addition of the wind farm.

The 40-mile 230-kV circuit from the Golden Prairie wind farm to Lamar Substation was modeled in the 2003 and 2005 heavy summer cases with the following station terminations:

- Golden Prairie Station – The southern end of the 230-kV circuit was terminated on the 230-kV bus with two 230/34.5-kV 100-MVA transformers. For the thermal analyses, an 81 MW generator was connected to the 34.5-kV side of each transformer to represent the net delivery of 162 MW into the 230-kV transmission system at Golden Prairie.
- Lamar Substation – The northern end of the 230-kV circuit was terminated on the Lamar 230-kV bus on the WECC side of the HVDC converter. The connection in 2003 is shown in Figure 2.

**Figure 2 - Golden Prairie Interconnection – 2003**



These base case models for the steady-state analyses were set up using Version 28 of PSS/E. From these base case models, the contingency analyses were performed to determine whether there would be any overloaded facilities or low voltages associated with each alternative. These evaluations were performed utilizing PTI's MUST (Managing and Utilizing System Transmission) Version 5 software model.

For those contingency conditions in the transmission planning cases for 2003 and 2005 summer peak conditions where the planning criteria was not met, transmission reinforcements and operational procedures have been proposed to resolve the thermal or voltage problems that were encountered. The proposed solutions were then added to the transmission models with and without the HVDC converter at Lamar Substation and the analyses were repeated to confirm that the system with those proposed solutions would be able to meet the planning criteria.

The final step for the steady-state analyses was the development of capital cost estimates for any proposed system reinforcements necessary to address any identified adverse impact associated with the development of the 162 MW wind farm. The cost estimates were developed for the reinforcements with and without HVDC converter in the base case. These estimated costs include the cost of the



transmission lines and installation of substation equipment that would be necessary to meet the planning criteria. The purpose of this effort was to derive the relative costs associated with integrating the Golden Prairie 162-MW wind farm into the system before and after integrating the new HVDC converter at Lamar Substation while meeting the planning criteria for southeast Colorado.

### 3.3 Assumptions

#### 3.3.1 Planning Criteria

This study has been performed under the criteria that there should be no loss of load for the outage of a single system element. Additionally, all facilities should operate within their respective normal or emergency ratings under normal or contingency conditions respectively. The contingency analyses for this planning study have been performed for the wind farm without and with the HVDC converter at Lamar Substation for the years 2003 and 2005, respectively.

##### 3.3.1.1 Thermal Criteria

The transmission power flow models that were provided generally reflected a single rating for lines and transformers located within southeastern Colorado, which includes the transmission areas of Xcel and Tri-State Generation and Transmission Association (Tri-State). In order to evaluate the impact of the addition of the proposed wind farm on system performance, WECC criteria was used to identify facility overloads and voltage violations. For the purpose of identifying overloaded facilities and proposing system reinforcements or developing operating procedures, only those facilities that were found to be loaded above 100 percent of their respective ratings were addressed.

To reasonably compare loadings on facilities operating at or above 69 kV and for all flowgates (TOTs) that could potentially be overloaded under one or more cases, we used 90% of circuit and transformer ratings as a conservative threshold level to begin monitoring facility loads. By using this level, the MUST software indicated all facilities that would become overloaded under either normal operations or contingency situations, as well as identified those facilities that were nearly fully loaded and that could be a problem in the near future or under different studied generation or peak load conditions.

##### 3.3.1.2 Voltage Criteria

All buses with voltage violations within Xcel and Tri-State transmission areas for any of the power flow cases and transmission scenarios have been noted and included in this report. Specifically, all monitored buses that had per-unit voltages above 1.10 or below 0.92 under either normal or contingency conditions have been included in the appropriate table of voltage violations.

#### 3.3.2 Solution Parameters

The system swing bus is located at PSS/E bus number 30000, Pittsburg. This generator is connected to the 230-kV system in the San Francisco bay area.

For the process of solving cases for the different scenarios within PSS/E, we have used the following parameters:

|                     |                                             |
|---------------------|---------------------------------------------|
| Solution            | Fixed slope decoupled Newton-Raphson (FDNS) |
| Solution iterations | 50                                          |

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|                          |                                      |
|--------------------------|--------------------------------------|
| Tap adjustments          | Stepping                             |
| Solution options         | Phase shift adjustment were not made |
| Area interchange control | Tie lines only                       |
| VAR limits               | Apply immediately                    |

For all of the steady-state contingency analyses, PTI's MUST software was used. Except as noted, the contingency analysis evaluated the outage of each branch (line or transformer) rated at 69 kV or above in Xcel's Denver, Southern, and San Luis Valley Regions, as well as the Westplains Region, Eastern Colorado Region, and Colorado Springs (zones 700, 704, 710, 712, 752, and 757). In addition, the contingency analyses included the outage of all individual ties to those zones. Facilities that were monitored for overloads consisted of all branches 69 kV and above in Xcel's Denver, Southern, and San Luis Valley Regions, as well as the Westplains Region and the ties between the various zones in eastern Colorado. Voltages were monitored for buses operated at 69 kV and above in Xcel's Denver, Southern, San Luis Valley, and Westplains Regions. Flows across the various flowgates (TOTs) in Colorado were also monitored, although they are electrically remote with respect to the proposed wind facility. Data used in the monitored elements file, the contingency file, and the subsystem file are presented in Appendix A. These files were used for both 2003 and 2005 heavy summer transmission base cases.

### 3.3.3 Capital Costs

Listed below are the costs of the various components that are part of the system additions that have been considered for the 2003 and 2005 transmission models. These costs are based on generic per-unit costs for the year 2002, which include right-of-way and engineering costs, but do not include protective relaying or circuit breakers or interest during construction charges. These cost estimates were gathered from recent planning studies in Colorado. These costs, however, may need to be revised with costs relevant to Xcel Energy's pricing standards.

- Construction of 230-kV transmission line                      \$ 300,000/mile
- Construction of 115-kV transmission line                      \$ 150,000/mile
- Reconductoring of 115-kV transmission line                      \$ 50,000/mile
- Installation of additional 150-MVA  
230/115-kV transformer                      \$ 1.2 million per bank
- Installation of additional 100-MVA  
230/115-kV transformer                      \$ 1.0 million per bank
- Installation of additional 25-MVA  
115/69-kV transformer                      \$ 0.4 million per bank

Section

4

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## Results of Steady-State Analysis

### 4.1 2003 Analysis

The starting point for the interconnection study was the 2003 heavy summer power flow case. The first step undertaken in the analysis was to establish a reference point from which the impacts associated with integrating the Golden Prairie 162-MW wind farm could be determined. Therefore, the wind generation at Golden Prairie and the 230-kV circuit between Golden Prairie and Lamar were set offline. For the 2003 analyses, there was no SPP/WECC interchange scheduled or modeled, since the future HVDC converter located at Lamar would not be in operation until 2005.

#### 4.1.1 Base Case Contingency Analysis

In addition to determining which facilities would be overloaded under normal operation with all lines and transformers in service, we performed a contingency analysis on the base case transmission model for the 2003 heavy summer load period. The objective of this effort was to identify those facilities that would become overloaded under certain contingency conditions without the addition of the proposed 162-MW wind farm. The transmission circuits and transformers that were found to be overloaded in this base case were generally considered to be pre-existing conditions. The resolution of these problems would be the responsibility of the local transmission owner independently of any transmission system requirements associated with this new wind farm.

##### 4.1.1.1 Base Case Branch Loadings

For the 2003 summer peak case, the 25-MVA 115/69-kV transformer at La Junta West Station is loaded at 96.4% of its thermal rating under base case conditions with all facilities in service. Since the threshold for reporting loading issues is 90%, this transformer was found to be repeatedly reported as a potential violation (loaded above 90% of rating) for all contingency conditions studied, although there were only 5 contingencies where the transformer was loaded above its 25 MVA rating. While this transformer is geographically close to the proposed wind farm at Golden Prairie, the transmission scenarios that were developed for the wind farm do not include any direct connection to the 115-kV or 69-kV system at or near the La Junta West Station. Therefore, any reinforcements for this overloaded transformer are a local transmission issue and should not be associated with the development of the wind farm or the future HVDC interconnection tie between the SPP and WECC regions. While recognizing that this transformer is a constraining facility in the area, this transformer has been excluded from the monitored elements, even though there could be a small number of contingencies that would not cause this transformer to become thermally loaded above the 90% monitoring threshold.

#### 4.1.1.2 Contingency Analysis

The results of the contingency analysis are shown in Appendix B-1, where reports covering branch violation frequency, branch violations by contingency, voltage violation frequency by bus, and voltage violations by contingency are shown. The power flow case used in this MUST analysis reflected both the wind farm and the Golden Prairie – Lamar 230-kV circuit out of service. The results of the contingency analyses for the summer 2003 peak period indicate several facilities in Colorado would be overloaded or experience voltages below the indicated criteria under specific contingencies. From the results presented in Appendix B-1, under the studied single contingency outages for the 2003 summer peak period, a total of eight branches in the southeastern Colorado area have been identified as facilities that would become overloaded. A list of these base case overloads that are independent of the integration of the proposed 162-MW wind farm is presented in Table 4-1.

**Table 4-1 - Summary of 2003 Thermal Violations on Monitored Branches  
In Southeastern Colorado Without the Wind Farm  
(Appendix B1)**

| **    | From bus | **   | Monitored Branches<br>** to bus | **     | Circuit | Type | Number of<br>Violations | Worst Flow Violation-<br>% Over Rating |
|-------|----------|------|---------------------------------|--------|---------|------|-------------------------|----------------------------------------|
| 70305 | OVERTON  | 69.0 | 70054                           | BMONT  | TP69.0  | 1 LN | 1                       | 1.9                                    |
| 70060 | BOONE    | 115  | 70062                           | BOONE  | 69.0    | 1 TR | 2                       | 30.8                                   |
| 70062 | BOONE    | 69.0 | 70063                           | BOONE  | TP69.0  | 1 LN | 2                       | 6.6                                    |
| 70352 | READER   | 115  | 70353                           | READER | 69.0    | 1 TR | 3                       | 56.5                                   |
| 70352 | READER   | 115  | 70353                           | READER | 69.0    | 2 TR | 3                       | 56.5                                   |
| 70366 | ROCKYFRD | 69.0 | 70372                           | S FWL  | TP69.0  | 1 LN | 2                       | 1.7                                    |
| 70425 | T BUTTES | 69.0 | 70460                           | WALSH  | 69.0    | 1 LN | 1                       | 9.6                                    |
| 70453 | VILAS    | 69.0 | 70460                           | WALSH  | 69.0    | 1 LN | 1                       | 15.7                                   |

The two 115/69-kV transformers at Reader are loaded above the 90% level in the base case prior to any contingency analysis. Since these are further west by Pueblo, they will be excluded from the monitored elements as shown in the “exclude” files in Appendix A. These transformers have been considered to be a local issue, not directly in the normal flow path for significant impact from the wind farm generation, and have been excluded from the monitored facilities file.

The loss of the Boone – La Junta West 115-kV circuit (contingency number 266) results in three of the overloads shown in the preceding table, including the 30.8% overload on the Boone 115/69-kV transformer and overload on the Boone – Boone Tap 69-kV circuit. An outage of the Aspen Tap – Reader 69-kV circuit will result in minor overloads of nearby 69-kV circuits. All other branches that were monitored in the southeastern Colorado area remained within their ratings under the single contingencies that were studied.

From a review of the MUST reports, there are two contingencies where the power flow case would not solve in MUST due to voltage collapse. The first is the loss of the Willow Creek 115/69-kV transformer, and the second is the outage of the Poncha – San Luis Valley 230-kV circuit. Since the 230-kV circuit to the San Luis Valley is west of the Comanche – Midway – Denver transmission system, this contingency has been excluded from further consideration.

- With the loss of Willow Creek 115/69-kV transformer, the underlining 69-kV system becomes radially fed from the 69-kV circuit leaving Vilas Substation. With the expected 2003 summer

load levels, the 69-kV circuit from Vilas to Walsh was thermally loaded to just under its capability. The Vilas – Walsh 69-kV circuit was loaded to 95.5%, and its thermal capacity is 33.9 MVA. Also, a low voltage of 0.9198 p.u. was observed at the Eads 69-kV bus.

- After the loss of San Luis to Poncha 230-kV line, the underlining 115/69-kV system can not maintain voltages at the local buses, as the case does not solve due to a voltage collapse. This circuit, located in south central Colorado, is electrically and geographically located far enough from the proposed wind farm that it has been excluded from further MUST analyses (Appendix A). Reinforcements to support the San Luis Valley area should not have any significant impact on the local transmission system around Boone, Lamar, and Vilas.

We also performed the contingency analysis on the system reference point with the Golden Prairie – Lamar 230-kV circuit in service but with the wind farm offline. Shown in Appendix B-2, the MUST results indicate that the 230-kV line provides adequate reactive support in the Lamar and Willow Creek area to avoid voltage collapse on the 69-kV system with the loss of the Willow Creek 115/69-kV transformer. In order for the case without the new 230-kV circuit to Golden Prairie to properly solve for the Willow Creek 115/69-kV transformer outage, it was necessary to add a 5.4 MVAR capacitor bank on the Willow Creek 69-kV bus. This addition of a capacitor bank on the Willow Creek 69-kV bus is required due to the fact that most of the reactive for the 69-kV system is being backfed through the Vilas 115/69-kV transformer to support the 115-kV network between Boone and Lamar. Without the additional 12 to 14 MVAR produced by the Golden Prairie – Lamar 230-kV circuit, we found it necessary to add reactive support on the Willow Creek 69-kV bus to support the local 69-kV subtransmission voltage issues.

The loss of the Boone – Lamar 230-kV circuit, which was found to be a critical outage in the analyses with the wind farm in operation, does not result in severe voltage drops or overloaded facilities on the underlying 115-kV system, either with or without the 230-kV line between the wind farm and Lamar in service. The results with the transmission configuration including the 230-kV wind farm line in service are shown by excerpts of the PSS/E power flow analyses in Appendix B-3. Other extracts of PSS/E analysis included in Appendix B-3 show an increase in bus voltage at the Eads 69-kV bus as a result of adding the 5.4 MVAR capacitor bank on the Willow Creek 69-kV bus for the Willow Creek 115/69-kV transformer outage.

#### **4.1.1.3 Transmission Upgrades**

For the base configuration, the capacitor bank upgrade at Willow Creek is independent of integrating the 162-MW wind farm and Lamar HVDC converter into the transmission network. This is an upgrade that needs to be performed, due to the contingency of the 115/69-kV transformer at Willow Creek causing depressed voltages on the Willow Creek – Vilas – City of Lamar 69-kV subtransmission network. The 115/69-kV source transformer at Vilas and the three capacitor banks at Walsh are electrically remote from Willow Creek Station and do not supply enough reactive and voltage support to sustain the entire 69-kV transmission loop back to the City of Lamar Station. The estimated cost is \$150,000, which includes the costs of protective relaying and switching equipment, in addition to the capacitor bank. The thermal capability of the Vilas – Walsh 69-kV circuit should be reviewed. This evaluation is needed since the Vilas – Walsh 69-kV circuit is almost loaded to its thermal limit for the Willow Creek 115/69-kV transformer outage.

As previously indicated, reinforcements that are added to address the identified overloaded facilities or low voltages that are local transmission or subtransmission issues are independent of the integration of the Golden Prairie wind farm. Other reinforcements may be considered for the

area's 115- and 69-kV system to further improve voltages or load serving capability to take the place of the suggested capacitor bank. In any case, the costs to undertake those reinforcements have not been included with capital costs for the 162-MW Golden Prairie wind farm.

#### **4.1.2 Wind Farm Online**

To evaluate the impact of the wind farm on transmission loading, generation output from the wind farm was set at 162 MW leaving Golden Prairie Station flowing towards Lamar Substation. To offset this new generation from the wind farm and to provide the greatest stress on the transmission system, output from the Arapahoe, Zuni, and Cherokee plants facilities, all in the Denver area were collectively reduced by 162 MW upon modeling in the new wind farm. The following sections describe the results of contingency analyses for the full output from the Golden Prairie wind farm.

##### **4.1.2.1 Contingency Analysis**

The main contingency that causes problems, relative to the base case, is the loss of the Boone – Lamar 230-kV circuit due to the limiting element of the Lamar 230/115-kV transformer with its 100-MVA rating. With generation at the Golden Prairie wind farm reduced to 100 MW, the case contains no additional violations. The results of the contingency analysis using MUST have been included in Appendix B-4. Due to the fact that we could not get this critical contingency to solve utilizing MUST with 2003 Heavy Summer wind farm case, we excluded it in the MUST Lamar.exc file. Refer to Appendix A for this exclusion.

In order to get this contingency (Boone – Lamar 230-kV circuit outage) to solve, we placed a static var compensator (SVC) at La Junta Station to compensate for the lack of a supportive reactive source on the underlying parallel 115-kV transmission system using PSS/E version 28. This SVC was used solely as a solution technique in order to gauge how much fixed or switched reactive support would need to be installed and available at La Junta Substation on the 115-kV bus for the Boone – Lamar 230-kV circuit outage. The two high impedance 115-kV circuits out of La Junta Station, the Boone – La Junta 115-kV and La Junta – Lamar 115-kV lines, were creating enough of a reactive sink to cause a voltage collapse scenario without reactive support based at La Junta. In reviewing the results the SVC at La Junta Station, it was determined that 30 MVAR of reactive power would need to be installed at La Junta for this contingency to solve.

With the outage of the Boone – Lamar 230-kV circuit, the only outlet for the 162 MW from the wind farm is through the 100-MVA 230/115-kV transformer at Lamar. After resolving the 162% overload on the existing Lamar transformer with the addition of a second parallel 100-MVA 230/115-kV transformer at Lamar Substation, we found the following single overload from the tables in Appendix B-5:

- La Junta – Willow Creek 115-kV circuit - 111.4%

The only other contingency of concern was the Willow Creek 115/69-kV transformer outage. With the loss of Willow Creek 115/69-kV transformer and full output from the wind farm, the underlining 69-kV system becomes radially fed from the 69-kV circuit leaving Vilas Station. With the expected 2003 summer load levels, the 69-kV circuit from Vilas to Walsh was thermally loaded to just under its capability. The Vilas – Walsh 69-kV circuit was loaded to 95.7%, and the thermal capacity of this circuit is 33.9 MVA. Also, we observed a low voltage of 0.8990 p.u. at the EADS 69-kV bus.

Therefore, in order to resolve the observed low voltage, we reran the analysis with the addition of the 5.4 MVAR capacitor bank on the Willow Creek 69-kV bus. Through this investigation, we found that the 69-kV voltage issues around Willow Creek Substation were resolved, but there is overloading on the Vilas – Walsh 69-kV circuit as it is loaded to 104.1% its thermal capability. We are recommending that the local transmission owner re-evaluate the rating of the Vilas – Walsh 69-kV circuit, in order to determine the steps needed to take to resolve this overloaded facility.

#### **4.1.2.2 Operational Procedures**

With the connection of the wind farm to the 230-kV bus at Lamar, an operational procedure was developed for one critical contingency scenario, the loss of the Boone – Lamar 230-kV circuit. This circuit is the only major power carrying transmission path between Lamar and Boone. All of the other parallel lines are 115-kV and 69-kV circuits with insufficient transmission capacity to handle the 162 MW output from the wind farm.

The maximum output for the Golden Prairie wind farm is scheduled to be 162 MW. With the significant amount of power flow into Lamar Substation from the wind farm when it is at full output, this area will no longer be a load sink relative to Boone Station. Depending upon the level of wind generation, the flow of power could be from Lamar Substation into Boone Station, as opposed to the current situation where Boone is supplying the Lamar area. Under normal system conditions, coupled with 162 MW of wind generation flowing from Golden Prairie to Lamar, the Boone – Lamar 230-kV circuit outage would result in a thermal loading on the existing Lamar 230/115-kV transformer at 162% of its rating.

In order to meet reliability criteria, we are proposing that the total wind farm output level be reduced with the loss of the Boone – Lamar 230-kV circuit to, at most, 100 MVA coming into Lamar Substation at the 230-kV level. The primary justification for the power flow reduction to 100 MVA is the capability of the limiting element under this 230-kV circuit contingency, which is the 100-MVA 230/115-kV transformer at Lamar. All other parallel circuits and equipment will be able to thermally withstand the Boone – Lamar 230-kV circuit outage at this reduced power flow (100 MVA) from the Golden Prairie wind farm.

Under certain generation levels, especially if the Comanche Station has units offline, there has to be an evaluation of the ability of the Boone 230/115-kV transformer to be backfed from the 115-kV network to the 230-kV network under the Boone – Lamar 230-kV circuit contingency. The potential exists that a greater reduction in power output from the wind farm, under the 100 MVA level, may be required in order to diminish the chances of losing a key source to the Boone – Lamar 115-kV and 69-kV transmission networks. This critical source is the Boone 230/115-kV transformer.

#### **4.1.2.3 Transmission Upgrades**

In the absence of remedial operating procedures for the identified critical contingency, for this scenario with the wind farm at full output in 2003, the following upgrades would be required for integrating the Golden Prairie wind farm into the transmission network:

- **Installation of a 5.4 MVAR capacitor bank on the 69-kV bus at Willow Creek Station.** This is an upgrade that is required due to the contingency of the 115/69-kV transformer at Willow Creek causing depressed voltages on the Willow Creek – Vilas – City of Lamar 69-kV subtransmission network. The 115/69-kV source transformer at Vilas and the three capacitor banks at Walsh are electrically remote from Willow Creek

Station and do not supply enough reactive and voltage support to sustain the entire 69-kV transmission loop back to the City of Lamar Substation. We are estimating this cost to be \$150,000, which includes the costs of protective relaying and switching equipment, in addition to the capacitor bank. We would also suggest that the transmission provider evaluate the thermal capability of the Vilas – Walsh 69-kV circuit. This evaluation is needed since the Vilas – Walsh 69-kV circuit is almost loaded to its thermal limit for the Willow Creek 115/69-kV transformer outage.

- **Reconductoring the existing 60-mile 115-kV transmission network from La Junta Station to Willow Creek Station, in conjunction with the installation of a second 100-MVA 230/115-kV transformer at Lamar Substation.** The existing high impedance, low capacity 115-kV transmission circuit would need to be reconducted with low impedance, high capacity 115-kV conductor in order to withstand the Boone – Lamar 230-kV circuit outage. We also found it necessary to install 30 MVAR of reactive support on the La Junta bus, in order to maintain the area voltages for the Boone – Lamar 230-kV circuit outage. Since Lamar Substation would be importing a significant amount of power into southeast Colorado, a second transformer would be recommended if the wind farm and future HVDC converter will not have their operating levels reduced. The estimated costs for the 115-kV transmission circuit reconductoring on the La Junta – Willow Creek 115-kV circuit would be \$3,000,000, the costs for the Lamar 100-MVA 230/115-kV transformer would be \$1,000,000, and the cost for the 30 MVAR of capacitors would be \$200,000, which makes the grand total \$4,200,000.

Applying these upgrades to the transmission model with the 162 MW wind farm generation, we found loading on the initially overloaded facilities reduced to the following levels based on the values shown in the tables in Appendix B-5:

- Lamar 230/115-kV No. 1 transformer – 79.6%
- Lamar 230/115-kV No. 2 transformer – 79.6%
- Lamar – Willow Creek 115-kV circuit - 81%
- La Junta – Willow Creek 115-kV circuit - 62%
- Boone – La Junta 115-kV circuit - 91%

The new La Junta – Willow Creek 115-kV circuit would be rebuilt with 954 MCM conductor. For the thermal branch values listed above that are under 100% of rating, they were extracted directly from the case. In addition, 30 MVAR of switched capacitors were needed at La Junta Station on the 115-kV bus to have this case solve for the Boone – Lamar 230-kV circuit outage and newly reconducted La Junta – Willow Creek 115-kV circuit.

## 4.2 2005 Analysis

### 4.2.1 No Wind Farm and No HVDC Converter Located at Lamar Substation

During the analytical portion for this scenario, there was no SPP/WECC interchange scheduled or modeled, as well as no HVDC converter located at Lamar. This case was used solely as a reference



point for the base case issues prior to integrating the HVDC at Lamar with the Golden Prairie 162-MW wind farm offline in 2005.

The results of the contingency analysis for the 2005 summer peak case, which are summarized in Table 4-2, indicate some additional facilities would be overloaded under specific contingencies. These overloaded facilities are generally subtransmission facilities that would be overloaded with the loss of nearby 69- or 115-kV branches. The only exception is the loss of the 230-kV line between Comanche and Walsenburg, which will result in the overload of the 115-kV circuits between West Station and Walsenburg that parallel this circuit.

**Table 4-2**

**Base Case Summary of 2005 Thermal Violations on Monitored Branches  
Without the Wind Farm and With the Lamar HVDC at 0 MW  
(Appendix B-6)**

| Monitored Branches |              |       |              |    |         | Number of Violations | Worst Flow Violation-<br>% Over Rating | Number of Contingency With Worst Violation |
|--------------------|--------------|-------|--------------|----|---------|----------------------|----------------------------------------|--------------------------------------------|
| **                 | From bus     | ** ** | to bus       | ** | Circuit | Type                 |                                        |                                            |
| 70305              | OVERTON 69.0 | 70054 | BMONT TP69.0 | 1  | LN      | 1                    | 5.5                                    | 270                                        |
| 70455              | W.STATON69.0 | 70054 | BMONT TP69.0 | 1  | LN      | 1                    | 1.1                                    | 270                                        |
| 70060              | BOONE 115    | 70062 | BOONE 69.0   | 1  | TR      | 2                    | 32.7                                   | 281                                        |
| 70062              | BOONE 69.0   | 70063 | BOONE TP69.0 | 1  | LN      | 2                    | 5.8                                    | 281                                        |
| 70249              | LAJUNTAW 115 | 70250 | LAJUNTAW69.0 | 1  | TR      | 5                    | 26.0                                   | 283                                        |
| 70336              | PUEB-TAP 115 | 70412 | STEM BCH 115 | 1  | LN      | 1                    | 55.2                                   | 191                                        |
| 70336              | PUEB-TAP 115 | 70456 | W.STATON 115 | 1  | LN      | 1                    | 65.7                                   | 191                                        |
| 70352              | READER 115   | 70353 | READER 69.0  | 1  | TR      | 3                    | 48.2                                   | 343                                        |
| 70352              | READER 115   | 70353 | READER 69.0  | 2  | TR      | 3                    | 48.2                                   | 342                                        |
| 70412              | STEM BCH 115 | 70458 | WALSENBG 115 | 1  | LN      | 1                    | 20.1                                   | 191                                        |
| 70425              | T BUTTES69.0 | 70460 | WALSH 69.0   | 1  | LN      | 1                    | 6.2                                    | 355                                        |
| 70453              | VILAS 69.0   | 70460 | WALSH 69.0   | 1  | LN      | 1                    | 17.5                                   | 355                                        |
| 70455              | W.STATON69.0 | 70456 | W.STATON 115 | 1  | TR      | 1                    | 2.8                                    | 270                                        |
| 70455              | W.STATON69.0 | 70456 | W.STATON 115 | 2  | TR      | 1                    | 0.6                                    | 270                                        |

The following branches have been identified from the analysis as the contingencies that result in the largest overloads shown in the preceding table:

- Contingency 191– Comanche – Walsenburg 230-kV circuit
- Contingency 270 – Aspen Tap – Reader 69-kV circuit
- Contingency 281 – Boone – La Junta West 115-kV circuit
- Contingency 283 – Boone – Boone Tap 69-kV circuit
- Contingency 342 – Reader 115/69-kV #1 Transformer
- Contingency 343 – Reader 115/69-kV #2 Transformer

- Contingency 355 – Willow Creek 115/69-kV #1 Transformer

#### 4.2.1.1 Contingency Analysis

As previously indicated the La Junta 115/69-kV transformer was loaded to 93.6% of its thermal rating in this base case prior to any contingency analysis. The results of the contingency analysis are shown in Appendix B-6, where reports covering branch violation frequency, branch violations by contingency, voltage violation frequency by bus, and voltage violations by contingency are shown. For the first portion of this analysis, we kept the Golden Prairie – Lamar 230-kV circuit in service, providing an extra 12 to 14 MVAR to the local transmission system. From our review of these reports, there are three contingency problems in the southeastern Colorado area:

- During the loss of Comanche to Walsenburg 230-kV line, the underlining 115-kV system from West Station to Walsenburg, rated at 77 MVA, becomes overloaded. The following circuits are loaded above their ratings at the indicated levels without the HVDC converter installed for this contingency: West Station – Pueblo Tap 115-kV circuit (166%), Pueblo Tap – Stem Beach 115-kV circuit (155%), and Stem Beach – Walsenburg 115-kV circuit (120%). These are shown in Appendix B-6 under Branch Violations. This is due in part to the tie to Gladstone Station in New Mexico.
- With the loss of Willow Creek 115/69-kV transformer, the underlining 69-kV system becomes radially fed from the 69-kV circuit leaving Vilas Station. With the expected summer load levels, critical low voltages were observed on the 69-kV subtransmission network closest to Willow Creek Substation. This contingency does not solve, due to a voltage collapse event, and has been excluded during the MUST analysis in the Lamar.exc file.
- After the loss of San Luis to Poncha 230-kV line, the underlining 115/69-kV system can not maintain voltages at the local buses. In addition, the case does not solve due to a voltage collapse. This circuit is electrically far from the wind farm and Lamar HVDC converter and has not been further addressed in this particular study.

For our second run on the system reference point, we took the Golden Prairie – Lamar 230-kV circuit out of service. Then, we evaluated how much of an impact the line charging for this 230-kV circuit had on the 2005 heavy summer case with no wind farm output and the HVDC converter out of service at Lamar. Without the Golden Prairie – Lamar 230-kV circuit in service, we did observe about a 1.5-% decrease in voltage on the Lamar 230-kV bus from 1.03475 p.u. to 1.01842 p.u. prior to any contingency analysis.

There is a loss of nearly 14 MVAR associated with line charging when this 230-kV circuit is removed of service. Without the availability of the line charging from this 230-kV circuit, there is a significant increase on the var support supplied from the Vilas – Willow Creek 69-kV subtransmission system to support the reactive demand on the Boone – Lamar 115-kV transmission corridor.

The results of these two contingency analyses, with the Lamar – Golden Prairie 230-kV circuit either in service or offline, do not indicate any criteria violations with the loss of the Boone – Lamar 230-kV circuit.

#### 4.2.1.2 Transmission Upgrades

For the base configuration, the following possible upgrades are independent of integrating the wind farm and the Lamar HVDC converter into the transmission network in 2005:

- **Installation of a 25-MVA 115/69-kV transformer at La Junta West Station.** This construction would provide another adequate source into the La Junta West 69-kV subtransmission network back to Boone Station for the loss of the existing 115/69-kV transformer at La Junta West Station or at Boone Station. In order to address the base case loading, a 25-MVA rating was selected to match the existing 115/69-kV transformer installed at La Junta West Station. This upgrade would be performed at a cost of \$400,000.
- **Upgrade the 50-mile 115-kV transmission network between West Station and Walsenburg in conjunction with the installation of another 100-MVA 230/115-kV transformer at Walsenburg Station.** This reinforcement is required to resolve the thermal overloading on the existing 115-kV network due to the loss of the parallel 230-kV circuit between Comanche and Walsenburg. This improvement would include the construction of a higher capacity, parallel 115-kV circuit between West Station and Walsenburg. The additional transformer at Walsenburg Station would provide another path for energy to flow through Walsenburg en route to Gladstone Station. This upgrade would be performed at a cost of \$3,750,000 for the 50-mile 115-kV transmission circuit and \$1,000,000 for the 100-MVA 230/115-kV transformer at Walsenburg, making the grand total for this construction \$4,750,000.
- **Installation of a 5.4 MVAR capacitor bank on the 69-kV bus at Willow Creek Station.** This is an upgrade that needs to be performed, due the contingency of the 115/69-kV transformer at Willow Creek causing depressed voltages on the Willow Creek – Vilas – City of Lamar 69-kV subtransmission network. The 115/69-kV source transformer at Vilas and the three capacitor banks at Walsh are electrically remote from Willow Creek Station and do not supply enough reactive and voltage support to sustain the entire 69-kV transmission loop back to the City of Lamar Substation. We are estimating this cost to be \$150,000, which includes the costs of protective relaying and switching equipment in addition to the capacitor bank.

As previously indicated, the addition of these reinforcements to address the identified overloaded facilities or low voltages are local transmission or subtransmission issues and independent of the integration of the wind farm and Lamar HVDC converter. Therefore, the costs to undertake these reinforcements have not been included with capital costs associated with the development of either the wind farm or the Lamar HVDC converter.

#### 4.2.2 No Wind Farm and 48 MW Output on the HVDC Converter Located at Lamar Substation

For the analytical portion of this configuration, the interchange schedule was set at 48 MW coming in from Kansas and being delivered to Colorado. The following sections describe the results of contingency analyses for 48 MW output scheduled from HVDC converter to the Lamar Substation with the wind farm out of service.

#### **4.2.2.1 Contingency Analysis**

There were no contingencies that caused additional problems relative to the base case. The results of the contingency analysis using MUST have been included in Appendix B-7. However, there were two contingencies (Boone – Lamar 230-kV circuit and Willow Creek 115/69-kV transformer) that did not solve utilizing MUST with the flow in the case through the Lamar HVDC converter at 48 MW. Therefore, we excluded the Boone – Lamar 230-kV circuit outage and the Willow Creek 115/69-kV transformer outage in the MUST Lamar.exc file. Refer to Appendix A for this exclusion.

In order to get the Boone – Lamar 230-kV circuit contingency outage to solve, we utilized PSS/E version 28 and placed a SVC at the La Junta Substation to compensate for the lack of reactive power on the underlying parallel 115-kV transmission system. This SVC was utilized only as a means to solve the base case and to determine how much fixed reactive support would need to be located on the 115-kV bus at the La Junta Substation for the outage of the Boone – Lamar 230-kV circuit. The two high impedance 115-kV circuits out of La Junta Station, the Boone – La Junta 115-kV and La Junta – Lamar 115-kV lines, were creating enough of a reactive sink to cause a voltage collapse scenario without reactive support based at La Junta. With the SVC at La Junta Station, it was determined that 10 MVAR of reactive power would need to be installed at La Junta for this contingency to solve.

With the outage of the Boone – Lamar 230-kV circuit, the only outlet for the 48 MW from the HVDC tie is through the 100-MVA 230/115-kV transformer at Lamar. With just 48 MW flowing into Colorado from Kansas, the existing 230/115-kV Lamar transformer and the Lamar to Boone 115-kV subtransmission network would not be overloaded. The results from this analysis can be found in the tables in Appendix B-10:

#### **4.2.2.2 Operational Procedures**

For the installation of the new HVDC converter in this transmission system, we identified the potential need for operational procedures for one particular contingency scenario, the loss of the Boone – Lamar 230-kV circuit. This circuit is the only major load carrying transmission path between Lamar and Boone; all other parallel lines are 115-kV and 69-kV circuits that do not have the sufficient transmission capacity to handle the potential 210 MW of imported power that could be scheduled for delivery at 230-kV to the Lamar Substation.

In this segment of the study, the interchange schedule for the HVDC converter, east to west flow, was scheduled to be 48 MW. After the Boone – Lamar 230-kV circuit outage, the HVDC converter would still be injecting 48 MW of power to the Lamar 230-kV bus. Under normal system conditions, coupled with the 48 MW flowing from Lamar to Boone, the Boone – Lamar 230-kV circuit outage would only thermally load the existing Lamar 230/115-kV transformer to just under half its capability.

Since the power delivery to Lamar through the HVDC converter could be higher, we are cognizant that the limiting element for the critical contingency is rated at 100 MVA, which is the Lamar 230/115-kV transformer. In order to meet criteria for situations where the flow from the HVDC converter to the Lamar 230-kV bus is greater than 100 MVA, an operating procedure will need to limit the HVDC converter output level to 100 MVA coming from the east for the loss of the Boone – Lamar 230-kV circuit and the wind farm out of service. All other parallel circuits and equipment will be able to thermally withstand this level of power flow from the HVDC converter without the wind farm online.

Under certain generation levels, especially if the Comanche Station has units down, there has to be an evaluation of the potential for the Boone 230/115-kV transformer to be backfed from the 115-kV network to the 230-kV network under the Boone – Lamar 230-kV circuit contingency. Under this

modified generation schedule and transmission outage, a more reduced east to west interchange schedule, under the 100 MVA level on the HVDC converter, may be needed to diminish the chances of losing a key source to the Boone – Lamar 115-kV and 69-kV transmission networks, which is then the Boone 115/69-kV transformer.

#### **4.2.2.3 Transmission Upgrades**

For this scenario with the wind farm out of service and only 48 MW flowing through the Lamar HVDC converter, the local transmission network would not require any upgrades. The operating procedures for the identified critical contingency (loss of the Boone – Lamar 230-kV line) will need to be taken into consideration if the scheduled import was raised above 100 MVA.

We also ran this analysis without the Golden Prairie – Lamar 230-kV circuit in service. This results in the loss of about 13 MVAR being supplied to the local transmission network. This had negligible effects on the local 230-kV and 115-kV voltages. We noticed a marginal decrease in the .0004 p.u. range across the board without this 230-kV circuit in service, shown in Appendix B-10.

### **4.2.3 Full Wind Farm Output and 48 MW Output on Lamar Substation HVDC Converter**

The interchange schedule was set at 48 MW coming from Kansas to Colorado for this analysis. The following sections describe the results of contingency analyses for the wind farm set at a maximum output of 162 MW coupled with 48 MW of power output from the HVDC converter located at Lamar Substation.

#### **4.2.3.1 Contingency Analysis**

The only contingency that causes additional problems (relative to the base case) is the loss of the Boone – Lamar 230-kV circuit due to the limiting element of the Lamar 230/115-kV transformer with its 100 MVA rating. With both the wind farm output and the Lamar HVDC converter reduced to a combined output level of 100 MVA, the case will not contain any thermal violations. The results of the contingency analysis using MUST have been included in Appendix B-8. Due to the fact that we could not get this contingency, the Boone – Lamar 230-kV circuit outage, to solve utilizing MUST, we excluded it in the MUST Lamar.exc file. Refer to Appendix A for this exclusion.

To get the Boone – Lamar 230-kV circuit outage to solve, we utilized PSS/E version 28 and placed a SVC at the La Junta Substation to compensate for the lack of reactive power on the underlying parallel 115-kV transmission system. Again, this SVC was utilized only as a means to solve the base case and to determine how much fixed reactive support would need to be located on the 115-kV bus at the La Junta Substation for the outage of the Boone – Lamar 230-kV circuit. The two high impedance 115-kV circuits out of La Junta Station, the Boone – La Junta 115-kV and La Junta – Lamar 115-kV circuits, were creating enough of a reactive sink to cause a voltage collapse scenario without locating, a reactive source at La Junta. With the SVC at La Junta Station, it was determined that 90 MVAR of reactive power would need to be installed at La Junta for this contingency to solve. This is 60 MVAR more than was needed for 2003 summer peak case.

With the outage of the Boone – Lamar 230-kV circuit, the only outlet for the combined 210 MW from the wind farm and the Lamar HVDC tie is through the 100-MVA 230/115-kV transformer at Lamar. To resolve the 210% loading on the existing Lamar transformer, we added a second 100-MVA

transformer at Lamar Substation. Upon adding the second transformer and 90 MVAR of shunt capacitance at La Junta Station, the following overloads were observed in the tables in Appendix B-11:

- Lamar 230/115-kV No. 1 transformer – 101.3%
- Lamar 230/115-kV No. 2 transformer – 101.3%
- Lamar – Willow Creek 230-kV circuit - 106.5%
- La Junta – Willow Creek 230-kV circuit - 153.6%
- Boone – La Junta 230-kV circuit - 107.4%

#### **4.2.3.2 Operational Procedures**

For the installation of this 162-MW wind farm and new Lamar HVDC converter in this transmission system, we also developed operational procedures for one particular contingency scenario, the loss of the Boone – Lamar 230-kV circuit. This circuit is the only major load carrying transmission path between Lamar and Boone; all of the other parallel lines are 115-kV and 69-kV circuits with insufficient transmission capacity to handle the 210 MW of imported power into Lamar Substation.

The interchange schedule for the HVDC converter, east to west flow, is scheduled to be 48 MW and the maximum output from the wind farm is 162 MW. This will give a combined injection of 210 MW of power to the 230-kV bus at the Lamar Substation. The significant amount of power flowing into Lamar Substation will no longer make this area a load sink relative to Boone Station. The normal flow of energy will then be from Lamar Substation into Boone Substation, as opposed to Boone supplying the Lamar area. Under normal system conditions with the 210 MW flowing to Lamar from the wind farm and HVDC converter, the Boone – Lamar 230-kV circuit outage would create a thermal overload of over 200% on the existing Lamar 230/115-kV transformer.

In order to meet reliability criteria, an operating procedure is being proposed where the combined wind farm output and Lamar HVDC converter output would be reduced to a total of 100-MVA injection into Lamar Substation for the loss of the Boone – Lamar 230-kV circuit. The primary justification for the combined power flow reduction to 100 MVA is due to the limiting element after this 230-kV circuit contingency, which is the 100-MVA 230/115-kV transformer at Lamar. All other parallel circuits and equipment were able to thermally withstand this combined reduced power flow from the wind farm and Lamar HVDC converter, based on the results in Appendix B-11.

Under certain generation levels, especially if the Comanche Station has units down, there has to be an evaluation of the potential for the Boone 230/115-kV transformer to be backfed from the 115-kV network to the 230-kV network under the Boone – Lamar 230-kV circuit contingency. A more reduced east to west interchange schedule, under the 100 MW level, may be needed to diminish the chances of losing a key source to the Boone – Lamar 115-kV and 69-kV transmission networks. The key source referred to is the Boone 115/69-kV transformer.

#### **4.2.3.3 Transmission Upgrades**

In the absence of remedial operating procedures, we evaluated the upgrades required for integrating the wind farm in conjunction with the Lamar HVDC converter into the transmission network. For this

scenario, with the wind farm and Lamar HVDC converter combining for a 210 MW injection into the 230-kV bus at the Lamar Substation, the following upgrades would be required:

- **Reconductoring the existing 105-mile 115-kV transmission network from Lamar Substation to Boone Substation via La Junta Substation, in conjunction with the installation of a second 100-MVA 230/115-kV transformer at Lamar Substation.** The high impedance, low capacity 115-kV transmission corridor would need to be reconducted with low impedance, high capacity 115-kV conductor in order to withstand the Boone – Lamar 230-kV circuit outage. We also found it necessary to install 90 MVAR of reactive support on the La Junta bus, in order to maintain the area voltages for the Boone – Lamar 230-kV circuit outage. Since the Lamar Substation would be importing a significant amount of power into southeast Colorado, a second transformer would be recommended if the wind farm and Lamar HVDC converter do not have their combined import level reduced. The costs for the 115-kV transmission circuit reconductoring are estimated to be \$5,250,000, and the costs for the Lamar 100-MVA 230/115-kV transformer would be \$1,000,000, which makes the grand total \$6,250,000.

With this reconductoring upgrade applied to the solved case in addition to the new 100-MVA transformer at Lamar Substation, loading levels on the previously overloaded facilities were reduced to the following values, based on the tables in Appendix B-11:

- Lamar 230/115-kV No. 1 transformer – 102.5%
- Lamar 230/115-kV No. 2 transformer – 102.5%
- Lamar – Willow Creek 230-kV circuit - 93.5%
- La Junta – Willow Creek 230-kV circuit - 86%
- Boone – La Junta 230-kV circuit - 65%

The new Boone – Lamar 115-kV circuit, via La Junta Substation, would be rebuilt with 954 MCM conductor. For the branch loading values under 90% of rating, they were extracted directly from the case. This case also included the 90 MVAR that were added at La Junta Substation on the 115-kV bus to the original 2005 summer peak case to have this case solve for the Boone – Lamar 230-kV circuit outage.

From the results shown in Appendix B-11 for this reinforcement option, the loading on the two Lamar 100-MVA 230/115-kV transformers are slightly higher than its thermal limits under the Boone – Lamar 230-kV circuit contingency, but still within Xcel's criteria. Therefore, the reconductoring option (\$5.25 million) with the second 100-MVA 230/115-kV transformer (\$1.00 million) and 90 MVAR of switched capacitors (\$ 0.5 million) will result in a grand total of \$ 6.75 million.

### 4.3 Capital Costs

For the basic connection of the wind farm 40 miles south of Lamar Substation, the only significant difference in the 2003 and 2005 heavy summer cases is the Lamar HVDC converter installed in the 2005 case. Given the preliminary nature of this study, any cost differences associated with substation configurations and the Lamar HVDC converter itself have been ignored.

If operating procedures are implemented to limit the combined flow from the wind farm and the HVDC converter to not more than 100 MVA for the loss of the Boone – Lamar 230-kV circuit, then no reinforcements will be needed to interconnect the wind farm with the transmission system at Lamar. Since the operating procedure would be utilized in both years studied to avoid overloads, no system reinforcement costs have been assigned for either year.

The results of the contingency analyses for the wind farm and the Lamar HVDC converter dictate that most of the same facilities in 2003 and 2005 need reinforcements to avoid overloads. These reinforcements consist of the reconductoring the 105-mile 115-kV transmission corridor from Lamar Substation to Boone, the installation of an additional 100-MVA transformer at Lamar Substation, and switched capacitors at La Junta Station.

In summary, the difference in capital costs for the 2003 and 2005 heavy summer cases comes down to reconductoring just a portion of the Boone – Willow Creek 115-kV transmission corridor (La Junta – Willow Creek 115-kV circuit) in 2003 as opposed to the entire 115-kV loop in 2005. There is also a difference in the reactive requirements at La Junta Substation, with 30 MVAR needed in 2003 and 90 MVAR required in 2005, for the Boone – Lamar 230-kV circuit outage. We have estimated a capital cost for reinforcements for 2003 to be \$4.20 million, covering the reconductoring 60 miles of 115-kV line between La Junta and Willow Creek and the 30 MVAR capacitors at La Junta. The remaining 45 miles of 115-kV line between Boone and La Junta would need to be reconducted by 2005 along with 60 MVAR of additional capacitors added at La Junta for a further capital cost of \$2.55 million. Total capital cost for reinforcements would be \$6.25 million.



## Section

## 5

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## Stability Analysis

### 5.1 Database Development

The power flow models used in the stability analysis were the same as those used for the power flow study, with the proposed wind farm connected to the Lamar Substation at 230 kV. For the stability analysis, the starting point reflected none of the system reinforcements that were discussed in the previous section. Operating procedures to avoid prolonged equipment overloads, as necessary, were assumed to be implemented.

The models and parameters for existing generating units in the stability database were provided by Xcel. The power flow files that were provided also included some future generating projects. The stability models for those future generating units were developed from plant information that had been provided by Xcel Energy where available and typical data added for those generating units where no data was currently available. These machine models were then added to the database of existing generator models for the WECC. The list of new generating units for which machine models were added is shown in Table 5-1.

The generator model applicable for the wind turbines at the proposed plant was developed by Electrotech in collaboration with the turbine manufacturer. The input data for the model of the wind turbine units is shown in Appendix D-1. Embedded within the wind turbine generator model there are several protection schemes with low voltage and over-voltage thresholds and frequency deviations that will cause the wind turbines to be tripped. To protect the controller, if the voltage falls below 0.687 p.u. or rises above 1.1304 p.u., even momentarily, the unit will be tripped after appropriate breaker delay. Prolonged operation (over 1 second) with voltage levels above 1.10 or below 0.90 will also result in the disconnection of the turbine from the system. The wind turbine model, which was provided by GE Wind Energy, was then combined with the other generator models for the WECC system.

The Lamar DC tie was modeled as a back to back AC-DC-AC converter with a generator on the eastern side supplying power to the western interconnected system.

**Table 5-1 - Dynamic Data Added for New Generation Units**

| <u>Name</u>       | <u>Bus<br/>Number</u> | <u>Location</u>         | <u>Size</u> | <u>Year</u> |
|-------------------|-----------------------|-------------------------|-------------|-------------|
| Pub Diesel        | 70334                 | Pueblo                  | 10 MW       | 2003        |
| Pueblo 1-2        | 70337                 | Pueblo                  | 29 MW       | 2003        |
| R.F. Diesel       | 70344                 | Rocky Ford              | 10 MW       | 2003        |
| Rawhide 1         | 70351                 | Rawhide Plant           | 65 MW       | 2003        |
| Arapahoe 7        | 70554                 | Arapahoe Plant          | 45 MW       | 2005        |
| QF BCP 3          | 70556                 | Brush Creek Plant       | 55 MW       | 2003        |
| Valmont 8         | 70558                 | Valmont Plant           | 37 MW       | 2003        |
| Spruce 1          | 70562                 | Boxelder Substation     | 135 MW      | 2003        |
| Spruce 2          | 70563                 | Boxelder Substation     | 135 MW      | 2003        |
| Barr Lake 1       | 70565                 | Barr Lake               | 64 MW       | 2003        |
| Barr Lake 2       | 70566                 | Barr Lake               | 64 MW       | 2003        |
| Rawhide B         | 70568                 | Rawhide Plant           | 63 MW       | 2003        |
| Rawhide C         | 70569                 | Rawhide Plant           | 63 MW       | 2003        |
| Fountain Valley 1 | 70577                 | Fountain Valley         | 40 MW       | 2005        |
| Fountain Valley 2 | 70577                 | Fountain Valley         | 40 MW       | 2005        |
| Fountain Valley 3 | 70578                 | Fountain Valley         | 40 MW       | 2005        |
| Fountain Valley 4 | 70578                 | Fountain Valley         | 40 MW       | 2005        |
| Fountain Valley 5 | 70579                 | Fountain Valley         | 40 MW       | 2005        |
| Fountain Valley 6 | 70579                 | Fountain Valley         | 40 MW       | 2005        |
| Vauxmont 1        | 70580                 | Rocky Flats Area        | 54 MW       | 2003        |
| Vauxmont 2        | 70580                 | Rocky Flats Area        | 54 MW       | 2003        |
| Hudson 1          | 70588                 | Green Valley Substation | 293 MW      | 2005        |
| Hudson 2          | 70589                 | Green Valley Substation | 293 MW      | 2005        |
| Big Sandy 1       | 73505                 | Limon Area              | 64 MW       | 2003        |
| Nixon 3           | 73507                 | Nixon Plant             | 160 MW      | 2003        |
| Nixon 4           | 73508                 | Nixon Plant             | 150 MW      | 2003        |
| Nixon 5           | 73509                 | Nixon Plant             | 150 MW      | 2005        |
| Lincoln 1         | 73552                 | Lincoln                 | 77 MW       | 2003        |
| Lincoln 2         | 70533                 | Lincoln                 | 77 MW       | 2005        |
| Lamar DC          | 70560                 | Lamar Area              | 210 MW      | 2005        |

As discussed in the steady-state analysis, the wind farm was represented as two 81-MW units connected to the transmission system through separate 34.5/230-kV step up transformers. Much of the stability analyses that were performed continued with that representation. The 108 units that will make up the proposed wind farm will be dispersed over a large geographical area and will require an extensive 34.5-kV system to collect the output from all these units for delivery to the 230-kV system. The transmission characteristics of the 34.5-kV collector system could affect the voltage levels seen at the individual generators such that their individual behavior could be different from a concentrated unit. In order to evaluate whether a more-detailed representation might have some significant impact on the overall results, the developer provided an extended collector system with 21 units representing the turbines at the site during the course of the study. This configuration is shown in Appendix D-2.

## 5.2 Methodology

PTI's PSS/E (Power System Simulator) software, version 26, was used to conduct the stability analysis. The objective of this assessment was to compare system performance both with and without generation from the Golden Prairie wind farm in the years 2003 and 2005.

## 5.3 Disturbance and Performance Criteria

This study has been performed under the criteria that there should be no loss of load for the outage of a single system element. Additionally, all facilities should operate within their respective normal or emergency ratings under normal or contingency conditions, respectively.

The WECC reliability criteria states the following for 3-phase faults with normal clearing. With loss of a single element, the maximum voltage dip is 25% with a maximum duration of voltage dip exceeding 20% of 20 cycles. The maximum post-transient voltage deviation for a single element is 5%. While the loss of a bus section's criteria is similar to loss of a single element's criteria, the maximum voltage dip is 30%. Then with the loss of two elements including 2 generating units, the maximum voltage dip is 30% like the loss of a bus section, but the maximum duration of voltage dip exceeding 20% is 40 cycles, while the post-transient voltage deviation must be within 10%. Transient voltage parameters are measured at load buses (including generating unit auxiliary loads); however, the transient voltage dip should not exceed 30% for any bus. Allowable post-transient voltage deviations apply to all buses.

## 5.4 Contingencies

The initial stability studies that were conducted simulated 3-phase faults on 230-kV and 115-kV lines in the southeastern Colorado region. For this study, some of the contingencies on the 230-kV system were developed to evaluate the impact of the addition of the wind farm to the underlying relatively weak 115- and 69-kV systems in the area. Other contingencies were designed to stress the 230-kV system to study the response of that system both with and without the wind farm. The list of contingencies used in the evaluation is presented in Table 5-2. The faults were assumed to be near the indicated end of the circuit that was subsequently opened. These contingencies were used to evaluate the response of the system to disturbances in each of the two years and also the stability impacts from the new wind turbine units. For the initial analyses, all contingencies except Contingency 37 (line opening only) were evaluated with 3-phase faults and used 4 cycles for normal clearing time. No breaker failure or prior outage contingencies were studied.

Generation units throughout Colorado were monitored for their voltage, angle, and frequency deviation. For selected units at the Comanche, Pueblo, Nixon, and the City of Lamar plants, electric, mechanical power, and speed were also monitored. For the wind farm, the real and reactive outputs from the two composite wind turbines were recorded along with the 34.5-kV bus voltage and angle. We also monitored voltages at many of the 230-kV buses including Lamar, Boone, Comanche, Walsenburg, Midway, Daniels Park, as well as Golden Prairie. In order to assess impacts on the local 115-kV transmission system, voltages at Lamar, Boone, Willow Creek, La Junta, La Junta West, Vilas, Stem Beach, and Northridge were recorded. Data that was recorded for Manzanola, Springfield, Ft. Holly, Cheney, Walsh, and Willow Creek 69-kV buses provided the means to evaluate the impacts of the wind farm generation on the local transmission system.

**Table 5-2 - Contingencies Evaluated for Golden Prairie Project – 2003**

| <u>No.</u> | <u>Fault Location</u> | <u>Facilities Opened</u>                    |
|------------|-----------------------|---------------------------------------------|
| 1          | Boone 230 kV          | 230-kV Line From Boone To Lamar             |
| 2          | Boone 230 kV          | 230-kV Line From Boone To Midway            |
| 3          | Daniels Park 230 kV   | 230-kV Line From Daniels Park To Midway     |
| 4          | Midway 230 kV         | 230-kV Line From Midway To Midway CB        |
| 5          | Comanche 230 kV       | 230-kV Line From Comanche To Midway         |
| 6          | Comanche 230 kV       | 230-kV Line From Comanche To Walsenburg     |
| 7          | Comanche 230 kV       | 230-kV Line From Comanche To Fuller         |
| 8          | Comanche 230 kV       | 230-kV Line From Comanche To CF & I Furnace |
| 9          | Comanche 230 kV       | 230-kV Line From Comanche To Boone          |
| 10         | Lamar 230 kV          | 230-kV Line From Lamar To Golden Prairie    |
| 11         | Lamar 230 kV          | Lamar 230/115-kV Transformer                |
| 12         | Boone 230 kV          | Boone 230/115-kV Transformer                |
| 13         | Lamar 115 kV          | 115-kV Line From Lamar To Willow Creek      |
| 14         | Lamar 115 kV          | 115-kV Line From Lamar To Vilas             |
| 15         | La Junta 115 kV       | 115-kV Line From La Junta To Willow Creek   |
| 16         | Boone 115 kV          | 115-kV Line From Boone To La Junta          |
| 17         | Boone 115 kV          | 115-kV Line From Boone To La Junta West     |
| 18         | Willow Creek 115 kV   | Willow Creek 115/69-kV Transformer          |
| 19         | Lamar 230 kV          | 230-kV Line From Boone To Lamar             |
| 20         | Midway 230 kV         | 230-kV Line From Boone To Midway            |
| 21         | Midway 230 kV         | 230-kV Line From Daniels Park To Midway     |
| 22         | Midway CB 230 kV      | 230-kV Line From Midway To Midway CB        |
| 23         | Midway 230 kV         | 230-kV Line From Comanche To Midway         |
| 24         | Walsenburg 230 kV     | 230-kV Line From Comanche To Walsenburg     |
| 25         | Fuller 230 kV         | 230-kV Line From Comanche To Fuller         |
| 26         | CF & I Furnace 230 kV | 230-kV Line From Comanche To CF & I Furnace |
| 27         | Boone 230 kV          | 230-kV Line From Comanche To Boone          |
| 28         | Golden Prairie 230 kV | 230-kV Line From Lamar To Golden Prairie    |
| 29         | Lamar 115 kV          | Lamar 230/115-kV Transformer                |
| 30         | Boone 115 kV          | Boone 230/115-kV Transformer                |
| 31         | Willow Creek 115 kV   | 115-kV Line From Lamar To Willow Creek      |
| 32         | Vilas 115 kV          | 115-kV Line From Lamar To Vilas             |
| 33         | Willow Creek 115 kV   | 115-kV Line From La Junta To Willow Creek   |
| 34         | La Junta 115 kV       | 115-kV Line From Boone To La Junta          |
| 35         | La Junta West 115 kV  | 115-kV Line From Boone To La Junta West     |
| 36         | Willow Creek 69 kV    | Willow Creek 115/69-kV Transformer          |
| 37         | N/A                   | 230-kV Line From Boone To Lamar             |
| 38*        | Smoky Hill 345-kV     | 345-kV Line from Smoky Hill – Midway        |
| 39*        | Midway 345-kV         | 345-kV Line from Smoky Hill – Midway        |

\* 2005 only

## 5.5 Results

The stability analyses were performed for the 2003 base case transmission system, without the wind farm generation for 3-phase faults as described for 36 contingencies (excludes line opening of the

Boone – Lamar 230-kV circuit) listed in Table 5-2. The same analyses were then performed with the wind farm in operation generating 162 MW and delivering the output to the Lamar 230-kV bus. Appendix D-3 contains several stability plots for each of the contingencies illustrating the system responses to valid contingencies listed in Table 5-2 without the proposed Golden Prairie wind farm in operation. Stability plots showing system response to the applied contingencies with the proposed wind farm on-line are presented in Appendix D-4. These results are based on the preliminary dynamic data and wind turbine model provided by the merchant plant developer and their equipment vendor. From the plots shown in Appendix D-4, the wind farm was tripped in 31 of the 36 contingency cases with a 3-phase fault modeled. In each of these cases, the voltage seen on the 34.5-kV bus by the composite wind turbines dropped below the 0.687 p.u. cutoff threshold during the fault. While wind farm generation was lost to the system, the system remained stable, with voltages returning to acceptable levels, consistent with WECC criteria.

Similar results were obtained for the 2005 peak cases both with and without the wind farm generation, portions of which are included in Appendix D-5. For 3-phase faults that result in the voltage dips below 0.687 at Golden Prairie, the wind turbines will be tripped, with the primary impact on the system being the loss of generation. Since there is an additional input source at Lamar through the DC tie, the voltage level at Lamar and hence Golden Prairie does not drop as low during the studied disturbances as in the 2003 analysis. However, the number of contingencies with trips for the wind farm for three-phase faults is similar to the 2003 analysis. For the most severe contingencies, numbers 1 and 19, which consider a fault on either end of the Boone – Lamar 230-kV circuit, the wind turbines need to be disconnected as soon as possible when the Boone – Lamar 230-kV circuit is opened to avoid overloading the only remaining outlet for power, the Lamar 230/115-kV transformer with its 100 MVA rating.

The analysis has shown that the transmission system is not adversely impacted by the addition of the wind farm under the contingencies with the 3-phase faults studied. The transmission system can meet WECC criteria with respect to voltage criteria and service to other interconnected entities with the more severe 3-phase faults. While the Golden Prairie wind farm would be tripped off under a number of conditions, there would be no loss of load. The primary impact would be on Xcel and primarily operational in nature, in addressing the loss of up to 162 MW of generation. While 3-phase faults have the most significant impact on the system by causing large voltage drops where the fault occurs, their frequency of occurrence is much lower than that of single-phase faults.

A supplemental analysis was performed to evaluate whether the wind farm would be able to remain online for the more frequent but less severe single-phase faults. To enable this evaluation process, Xcel provided the fault impedances for fault locations (except at Lamar) where the wind turbines were observed to be tripped due to low voltages during 3-phase faults. The stability analysis was then rerun for those contingencies where 3-phase faults will trip the wind farm to see whether the wind turbines would remain online for single-phase faults. The results of the analysis, presented in Appendix D-6 indicate that the apparent voltage during the fault for 13 different contingencies is in the .65 to .70 p.u. range. While the voltage calculations are correct for balanced 3-phase operations and during balanced 3-phase faults, the voltages derived during a single-phase unbalanced fault will only approximate the actual value without additional calculation. Since the intent of the analysis was to ascertain whether the wind farm could potentially ride through some of the single-phase faults, the results suggest that it is possible. However, a more detailed analysis, beyond the scope of this generation impact study, would be needed.

The low voltage cutoff of 0.687 p.u. for the wind turbines can apparently be lowered to improve the ride-through capability, although at a cost. Therefore, investigations were made with a lower threshold to evaluate the predicted behavior of the wind turbine and the resultant impact on the transmission

system in the area. For this analysis, a level of 0.45 p.u. was used. At this value, 8 fewer 3-phase faults in southeastern Colorado would result in the tripping of the wind farm, still leaving 23 of the studied contingencies leading to the loss of wind farm generation. The results suggest that some lowering of the cutoff voltage could enhance the ability of the wind farm to ride through single-phase faults, while not otherwise adversely impacting the local transmission system.

Since the representation of the wind turbines was simplified to two composite turbines, there was some concern that that representation might be causing low voltage since the units are tied directly to the step-up transformer. GE Wind Energy submitted a more detailed representation of their turbine and collector system, as shown in Appendix D-2. The representation was incorporated into the power flow model and the target generator voltages raised to move the leading/lagging power factor closer to unity. Once the steady-state representation appeared reasonable, the stability analysis was performed for 2003 with the detailed representation of the wind farm and the 37 contingencies. The results of this effort, shown in Appendix D-7 for the 2003 summer case, indicate minimal changes in the wind farm behavior compared to the less sophisticated 2-unit model.

In summary, with the operating conditions noted and the assumptions made, the system response is stable and positively damped for all the contingencies studied. These results are based on the preliminary dynamic data provided by the merchant plant developer and its equipment vendors. These results could change based on final test data and adjustments to the wind turbine model.

**Section**
**6**

## Short-Circuit Analysis

The objective of the short-circuit analysis portion of the study is to determine if the system with the proposed generation will cause breakers to become overstressed. In this evaluation, the analysis focused solely on the system with the addition of the proposed wind generation.

The analysis was performed on the 2003 heavy summer power flow case, using PSS/E version 28. The Golden Prairie wind farm was modeled conservatively, using the two 81-MW generating units. Each 81-MW unit was then connected to the 230-kV system through its own 34.5/230-kV step-up transformer. Both of the generation step-up transformers were assumed to be identical in impedance and rating characteristics, as used in the steady-state analyses.

For this analysis, 3-phase to ground faults were studied for four locations on the 230-kV system, at Lamar, Boone, Comanche, and Midway. The underlying 115-kV system was also studied, with 3-phase to ground faults studied at Lamar, Willow Creek, and Boone.

The results of the analysis, summarized in Table 6-1, indicate that the fault MVA is relatively low and within breaker ratings. The analytical process also provided a means to compare the voltages at the Golden Prairie wind farm during the fault under this steady-state analysis with those obtained from the stability analyses.

**Table 6-1 – 3-Phase Steady-State Fault Analysis for Golden Prairie Wind Farm**

| <u>Fault Location</u> | <u>Fault MVA<br/>at Fault Location</u> | <u>Per-Unit Voltage During Fault<br/>at Either Golden Prairie 34.5-kV Bus</u> |                                                          |
|-----------------------|----------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------|
|                       |                                        | <u>Steady-State<br/>Fault Current Analysis</u>                                | <u>Instantaneous Voltage<br/>From Stability Analysis</u> |
| Lamar 230 kV          | 855.2                                  | 0.2395                                                                        | 0.1753                                                   |
| Boone 230 kV          | 2,773.8                                | 0.4633                                                                        | 0.3455                                                   |
| Comanche 230 kV       | 4,468.8                                | 0.5917                                                                        | 0.4482                                                   |
| Midway 230 kV         | 5,381.7                                | 0.6396                                                                        | 0.4913                                                   |
| Lamar 115 kV          | 622.5                                  | 0.5412                                                                        | 0.4444                                                   |
| Willow Creek 115 kV   | 541.1                                  | 0.6692                                                                        | 0.5790                                                   |
| Boone 115 kV          | 1,360.5                                | 0.7339                                                                        | 0.6326                                                   |

The results could change based on final test data and comparison of actual performance with model parameters, but such changes would not materially impact the fault current levels that have been calculated.





## Section

## 7

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## Conclusion

Upon receiving the 2003 and 2005 heavy summer base cases from Xcel Energy, we were able to establish a reference point to determine which facilities were adversely affected by the installation of the new wind farm at Golden Prairie, forty miles south of Lamar Substation. For each heavy summer peak case, we performed contingency analyses and dynamic stability analyses. In both studies, the results of the case with the wind farm online were compared with those for the case without the wind farm online. Based on the data, models provided, and the analyses performed, PTI has concluded that the Golden Prairie wind farm can be successfully integrated into the southeastern Colorado 230-kV transmission system at Lamar without any transmission system reinforcements as long as an operating procedure is followed for the most critical contingency, the Boone – Lamar 230-kV circuit.

If our proposed operational procedure is not adopted, reconductoring of the Boone – Lamar 115-kV corridor will be required. This could be undertaken in two stages, with the La Junta – Willow Creek segment completed for 2003 and the Boone – La Junta segment completed by 2005. A second 100-MVA 230/115-kV transformer would need to be added at Lamar in 2003. Reactive support at La Junta would also be required, with 30 MVAR in 2003 increasing to 90 MVAR in 2005, to maintain voltages with the loss of the Boone – Lamar 230-kV circuit. Total capital costs have been estimated to be \$6.75 million for these reinforcements if the operating procedures are not implemented and a total 210 MW is injected at Lamar from the two identified sources, the proposed wind farm and the HVDC facility.

From our observation of the new one-line diagram of the Lamar 230-kV Substation, we would suggest that Xcel Energy consider installing automatic sectionalizing equipment on the Golden Prairie – Lamar 230-kV circuit at Lamar Substation. This automatic equipment could be in the form of a motorized operated air break (MOAB) switch. Xcel Energy will have to determine whether or not installation of a load interrupting or line dropping attachment on the switch is required. Our recommendation will improve the reliability at Lamar by reestablishing the ring bus at the 230-kV Lamar Substation for scheduled maintenance or an automatic operation on the Golden Prairie – Lamar 230-kV circuit. The addition of this switch to the Lamar 230-kV ring bus is not a requirement, but only a suggestion to improve, from an operational perspective, the station's integration into the local transmission network.

Dynamic simulations were performed to assess system performance with and without the plant. Simulations show that for the system conditions and contingencies studied, the proposed new generation at Golden Prairie does not degrade the transient stability performance of the bulk transmission system. However, the results are based on the preliminary dynamic model provided by the merchant plant developer and its equipment vendors. The results could change based on final test data and comparison of actual performance with model parameters.



**Appendix**

**A**

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# **MUST Input Files**

busnumbers

monitor branches in zones 700 712 in kvrage 60 999

monitor voltage range zones 700 712 kvrage 60 999 .92 1.1

monitor tie from zones 700 757 in kvrage 60 999

MONITOR FLOWGATE 11 'TOT 1A' RATING 650 MW / For flows East to West into ENE Utah from NW Colorado

BRANCH FROM BUS 79005 TO BUS 65193 CKT 1 / Bears Ears - Bonanza 345 kV circuit

BRANCH FROM BUS 79038 TO BUS 79001 CKT 1 / Hayden - Artesia 138 kV circuit

BRANCH FROM BUS 79046 TO BUS 66278 CKT 1 / Meeker - Rangely 138 kV circuit

END

MONITOR FLOWGATE 21 'TOT 2A' RATING 690 MW / For flows West to Southwest Colorado towards New Mexico

BRANCH FROM BUS 79072 TO BUS 79060 CKT 1 / Herperus - San Jaun 345 kV circuit

BRANCH FROM BUS 79023 TO BUS 79191 CKT 1 / Durango - Glade Tap 115 kV circuit

BRANCH FROM BUS 79045 TO BUS 79061 CKT 1 / Lost Canyon - Shiprock 230 kV circuit

END

MONITOR FLOWGATE 211 'TOT 2A\*' RATING 690 MW / For flows Southwest to Northwest into New Mexico from SW Colorado

BRANCH FROM BUS 79049 TO BUS 79072 CKT 1 / Montrose - Herperus 345 kV circuit

BRANCH FROM BUS 79052 TO BUS 79011 CKT 1 / Nucla - Cahone 115 kV circuit

BRANCH FROM BUS 79021 TO BUS 79045 CKT 1 / Curecanti - Lost Canyon 230 kV circuit

END

MONITOR FLOWGATE 3 'TOT 3' RATING 1588 MW / For flows North to South into NE Colorado from SE Wyoming

BRANCH FROM BUS 73009 TO BUS 73011 CKT 1 / Archer - Ault 230 kV circuit

BRANCH FROM BUS 73108 TO BUS 73012 CKT 1 / Laramie River - Ault 345 kV circuit

BRANCH FROM BUS 73108 TO BUS 73193 CKT 1 / Laramie River - Story 345 kV circuit

BRANCH FROM BUS 73043 TO BUS 73172 CKT 1 / Cheyenne - Rockport 115 kV circuit

BRANCH FROM BUS 73179 TO BUS 73150 CKT 1 / Sidney - Sterling 115 kV circuit

BRANCH FROM BUS 73180 TO BUS 73143 CKT 1 / Sidney - North Yuma 230 kV circuit

END

MONITOR FLOWGATE 41 'TOT 4A' RATING 810 MW / For flows Northeast to Southwest into Southwest Wyoming

BRANCH FROM BUS 66305 TO BUS 66740 CKT 1 / Riverton - Wyopo 230 kV circuit

BRANCH FROM BUS 65420 TO BUS 65460 CKT 1 / Dave Johnston - Difficulty 230 kV circuit

BRANCH FROM BUS 66410 TO BUS 66020 CKT 1 / Spence - Mustang 230 kV circuit

END

MONITOR FLOWGATE 42 'TOT 4B' RATING 680 MW / For flows Southeast to Northwest towards Montana

BRANCH FROM BUS 66725 TO BUS 65235 CKT 1 / Wyodak - Buffalo 230 kV circuit

BRANCH FROM BUS 66410 TO BUS 65095 CKT 1 / Spence - Thermopolis 230 kV circuit

BRANCH FROM BUS 73004 TO BUS 73162 CKT 1 / Alcova - Raderville 115 kV circuit

BRANCH FROM BUS 65300 TO BUS 65955 CKT 1 / Capser - Midwest 230 kV circuit

BRANCH FROM BUS 66305 TO BUS 66535 CKT 1 / Riverton - Thermopolis 230 kV circuit

BRANCH FROM BUS 66305 TO BUS 73170 CKT 1 / Riverton #1 230/115 kV transformer

END

MONITOR FLOWGATE 5 'TOT 5' RATING 1675 MW / For flows West to East into the Front Range (Central Colorado)

BRANCH FROM BUS 79039 TO BUS 79165 CKT 1 / Hayden - Archer 230 kV circuit

BRANCH FROM BUS 79014 TO BUS 73012 CKT 1 / Craig - Ault 345 kV circuit

BRANCH FROM BUS 79033 TO BUS 70053 CKT 1 / Gore Pass - Blue Rive 230 kV circuit

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BRANCH FROM BUS 79038 TO BUS 73072 CKT 1 / Hayden - Gore Pass 138 kV circuit
BRANCH FROM BUS 79033 TO BUS 73072 CKT 1 / Gore Pass #1 230/115 kV transformer
BRANCH FROM BUS 79037 TO BUS 70327 CKT 1 / Gunnison - Poncha 115 kV circuit
BRANCH FROM BUS 79021 TO BUS 79054 CKT 1 / Curecanti - Poncha 230 kV circuit
BRANCH FROM BUS 79004 TO BUS 70274 CKT 1 / Basalt - Malta 230 kV circuit
BRANCH FROM BUS 70231 TO BUS 79003 CKT 1 / Basalt - Hopkins 115 kV circuit
BRANCH FROM BUS 70358 TO BUS 70232 CKT 1 / Rifle - Hopkins 230 kV circuit
END
MONITOR FLOWGATE 7 'TOT 7' RATING 890 MW / For flow North to South into Denver
BRANCH FROM BUS 73011 TO BUS 70474 CKT 1 / Ault - Fort St. Vrain 230 kV circuit
BRANCH FROM BUS 70471 TO BUS 70410 CKT 1 / Weld - Fort St. Vrain 230 kV circuit
BRANCH FROM BUS 73116 TO BUS 70410 CKT 1 / Longs Peak - Fort St. Vrain 230 kV
circuit
END
end
```

```
add areas 70 73 scale load suffix _LD
add areas 70 73 scale generation suffix _ScGen with pmax greater 50 mw
add areas 70 73 for export suffix _exp with pmax greater 50 mw
add areas 70 73 for import suffix _imp with pmax greater 50 mw

end
```

trace

single branch in zone 700 in kvrage 69 999  
single branch in zone 704 in kvrage 69 999  
single branch in zone 710 in kvrage 69 999  
single branch in zone 712 in kvrage 69 999  
single branch in zone 752 in kvrage 69 999  
single branch in zone 757 in kvrage 69 999

single tie from zones 700 757 in kvrage 60 999

end

```
/ EXCLUDE file generated on Wed Aug 14 15:44:52 2002
/
busnumbers/ ===== excluded contingencies
exclude contingency name '70061 BOONE      230 70254 LAMAR CO 230 1 '
exclude contingency name '70472 WILLOW CK 115 70473 WILLOW CK69.0 1 '
exclude contingency name '70375 SAN LUIS 230 79054 PONCHABR 230 1 '
/ ===== Excluded Monitored Branches:
/
exclude branch from bus 70249 to bus 70250 ckt 1    in all contingencies / = 70249
LAJUNTAW 115 70250 LAJUNTAW69.0 1
exclude branch from bus 70352 to bus 70353 ckt 1    in all contingencies / = 70352
READER 115 70353 READER 69.0 1
exclude branch from bus 70352 to bus 70353 ckt 2    in all contingencies / = 70352
READER 115 70353 READER 69.0 2
END
```



**Appendix**

**B**

---

## **MUST and PSS/E Analysis Reports**



**B-1 - Contingency Analysis –2003 Heavy Summer**

**No wind farm in service and no 230-kV circuit between Golden Prairie and Lamar**

# Contingency Violation Summary

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:15 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File none

**Note: This case does not have the Golden Prairie - Lamar 230kV circuit in service.**

\*\*\* Statistics on monitored constraints:

Monitored Branches: 563  
Monitored Voltages: 421  
Monitored Flowgates: 8  
Contingencies : 521

\*\*\* Summary on Constraint Violations \*\*\*  
\*\*\* Violations with flow changes less 0.00 MVA or voltage change less 0.000 % ignored  
I Initial Violations I  
I Base Case I Contingency cases I  
Constraint I Numb. Worst I Numb. Worst Contin I  
Type I Viol Viol I Viol Viol Number I  
MVA flow I - --- 23 50.1 482 I  
VoltMagn I - --- 140 91.9 482 I  
  
Total contingency violations : 163  
Number of contingencies with violations: 24

\*\*\* Contingency Results Summary. \*\*\*  
Total No. tested = 521 Total LF iterations 1205  
Converged = 519  
Voltage Collapse = 2  
Not Converged = 0

\*\*\*\*\* No violations encountered among selected monitored elements \*\*\*\*\*

# Frequency of Branch Violations

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:16 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSC0\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSC0\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSC0\Lamar091102\Lamar.con  
Exclud.File none

Summary on Monitored Branches contingency violations

| Monitored Branches |          |       |        | PreShift Violations |        |          |      |          |      |
|--------------------|----------|-------|--------|---------------------|--------|----------|------|----------|------|
| **                 | From bus | ** ** | To bus | **                  | CNviol | WorstToV | Ncon | WorstFro | Ncon |
| 70305              | OVERTON  | 69.0  | 70054  | BMONT               | TP69.0 | 1        | -    | 1.9      | 255  |
| 70060              | BOONE    | 115   | 70062  | BOONE               | 69.0   | 1        | -    | 30.8     | 266  |
| 70062              | BOONE    | 69.0  | 70063  | BOONE               | TP69.0 | 1        | -    | 6.6      | 266  |
| 70231              | HOPKINS  | 115   | 79003  | BASALT              | 115    | 1        | -    | 13       | 490  |
| 70249              | LAJUNTAW | 115   | 70250  | LAJUNTAW            | 69.0   | 1        | -    | 25.4     | 268  |
| 70292              | MOSCA    | 69.0  | 70376  | SAN LUIS            | 69.0   | 1        | -    | 3        | 197  |
| 70327              | PONCHA   | 115   | 70379  | SARGENT             | 115    | 1        | -    | 46.3     | 482  |
| 70352              | READER   | 115   | 70353  | READER              | 69.0   | 1        | -    | 56.5     | 326  |
| 70352              | READER   | 115   | 70353  | READER              | 69.0   | 2        | -    | 56.5     | 325  |
| 70366              | ROCKYFRD | 69.0  | 70372  | S FWL               | TP69.0 | 1        | -    | 1.7      | 266  |
| 70425              | T BUTTES | 69.0  | 70460  | WALSH               | 69.0   | 1        | -    | 9.6      | 338  |
| 70453              | VILAS    | 69.0  | 70460  | WALSH               | 69.0   | 1        | -    | 15.7     | 338  |
|                    |          |       |        |                     |        |          |      |          |      |

## Branch Violations

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:18 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* Report on violations \*\*\*\*\*

Branches with MVA flow more than 90.0 % of nominal rating

| **    | From bus     | **    | To bus | **           | CKT      | T  | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                             |
|-------|--------------|-------|--------|--------------|----------|----|---------|----------|--------|----------|------|-----------------------------------------|
| 70060 | BOONE        | 115   | 70062  | BOONE        | 69.0     | 1  | TR      | 43.2     | 9.1    | 33       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70060 | BOONE        | 115   | 70062  | BOONE        | 69.0     | 1  | TR      | 42.9     | 9.1    | 33       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70062 | BOONE        | 69.0  | 70063  | BOONE        | TP69.0   | 1  | LN      | 43.3     | 9      | 40.6     | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70062 | BOONE        | 69.0  | 70063  | BOONE        | TP69.0   | 1  | LN      | 42.9     | 9      | 40.6     | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70088 | CAPHILL2     | 115   | 70148  | DENVTM       | 115      | 1  | LN      | 137.7    | 86     | 150      | 53   | 70109 CHEROKES 115 70276 MAPLET01 115 1 |
| 70088 | CAPHILL2     | 115   | 70148  | DENVTM       | 115      | 1  | LN      | 137.2    | 86     | 150      | 73   | 70148 DENVTM 115 70208 GRAY ST 115 1    |
| 70088 | CAPHILL2     | 115   | 70148  | DENVTM       | 115      | 1  | LN      | 135.3    | 86     | 150      | 109  | 70259 LEETSDAL 115 70260 LEETSDAL 230 1 |
| 70108 | CHEROKEN     | 115   | 70175  | FEDERHT2     | 115      | 2  | LN      | 174.6    | 132.7  | 186      | 92   | 70174 FEDERHT1 115 70382 SEMPER 115 1   |
| 70108 | CHEROKEN     | 115   | 70175  | FEDERHT2     | 115      | 2  | LN      | 174.5    | 132.7  | 186      | 52   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70230 | HOOPERTP69.0 | 70376 | SAN    | LUIS69.0     | 1        | LN | 45.3    | 33.1     | 50     | 90.5     | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70231 | HOPKINS      | 115   | 79003  | BASALT       | 115      | 1  | LN      | 75.6     | 27.5   | 66.9     | 490  | 79091 WOLCOTTP 230 79039 HAYDEN 230 1   |
| 70249 | LAJUNTAW     | 115   | 70250  | LAJUNTAW69.0 | 1        | TR | 24.1    | 24.1     | 25     | 96.4     | **   | Base Case **                            |
| 70292 | MOSCA        | 69.0  | 70376  | SAN          | LUIS69.0 | 1  | LN      | 24.6     | 9.7    | 23.9     | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70305 | OVERTON      | 69.0  | 70054  | BMONT        | TP69.0   | 1  | LN      | 67.2     | 19.1   | 66       | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70327 | PONCHA       | 115   | 70379  | SARGENT      | 115      | 1  | LN      | 158.1    | 25.3   | 108      | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70352 | READER       | 115   | 70353  | READER       | 69.0     | 1  | TR      | 42.8     | 42.8   | 47       | **   | Base Case **                            |
| 70352 | READER       | 115   | 70353  | READER       | 69.0     | 2  | TR      | 42.8     | 42.8   | 47       | **   | Base Case **                            |
| 70353 | READER       | 69.0  | 70042  | ASPEN        | TP69.0   | 1  | LN      | 59.9     | 41.9   | 66       | 260  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1 |
| 70353 | READER       | 69.0  | 70042  | ASPEN        | TP69.0   | 1  | LN      | 59.9     | 41.9   | 66       | 261  | 70054 BMONT TP69.0 70455 W.STATON69.0 1 |
| 70354 | RIDGE        | 115   | 70355  | RIDGE        | 230      | 1  | TR      | 93.1     | 74.1   | 100      | 136  | 70354 RIDGE 115 70355 RIDGE 230 2       |
| 70366 | ROCKYFRD69.0 | 70372 | S      | FWL          | TP69.0   | 1  | LN      | 41.3     | 7.1    | 40.6     | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70366 | ROCKYFRD69.0 | 70372 | S      | FWL          | TP69.0   | 1  | LN      | 40.9     | 7.1    | 40.6     | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70374 | SAN LUIS     | 115   | 70376  | SAN          | LUIS69.0 | 1  | TR      | 41.2     | 27.2   | 42       | 237  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 2 |
| 70374 | SAN LUIS     | 115   | 70376  | SAN          | LUIS69.0 | 2  | TR      | 41.2     | 27.2   | 42       | 236  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 1 |

LF: 2003hs-Nowind34-5\_noGP\_230ckt.sav  
Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| **    | From bus     | **    | **       | To bus   | **   | CKT | T  | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                               |
|-------|--------------|-------|----------|----------|------|-----|----|---------|----------|--------|----------|------|-------------------------------------------|
| 70382 | SEMPER       | 115   | 70174    | FEDERHT1 | 115  | 1   | LN | 132.6   | 74.6     | 134.8  | 98.4     | 49   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2   |
| 70425 | T BUTTES69.0 | 70101 | CHEN     | TAP69.0  | 1    | LN  |    | 33.6    | 1.5      | 33.9   | 99.1     | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70425 | T BUTTES69.0 | 70460 | WALSH    | 69.0     | 1    | LN  |    | 37.2    | 2.6      | 33.9   | 109.6    | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70453 | VILAS        | 69.0  | 70460    | WALSH    | 69.0 | 1   | LN | 39.2    | 10.7     | 33.9   | 115.7    | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70455 | W.STATON69.0 | 70054 | BMONT    | TP69.0   | 1    | LN  |    | 67.4    | 19.1     | 69     | 97.7     | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 | W.STATON69.0 | 70456 | W.STATON | 115      | 1    | TR  |    | 39.2    | 15.9     | 42     | 93.4     | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 | W.STATON69.0 | 70456 | W.STATON | 115      | 2    | TR  |    | 38.4    | 15.5     | 42     | 91.4     | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
|       |              |       |          |          |      |     |    |         |          |        |          |      |                                           |

# Frequency of Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:17 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSC0\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSC0\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSC0\Lamar091102\Lamar.con  
Exclud.File none

Summary on Monitored Voltages contingency violations

| Bus # | Bus Name | KV  | Area | Zone | # Violations | Worst Load | Ncon | Worst Hi | Ncon |
|-------|----------|-----|------|------|--------------|------------|------|----------|------|
| 70022 | APT TAP2 | 69  | 70   | 712  | 1            | 0.037      | 262  | -        | -    |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2            | 0.808      | 482  | -        | -    |
| 70025 | ALMSA TM | 115 | 70   | 710  | 1            | 0.779      | 482  | -        | -    |
| 70026 | ALMSA TM | 69  | 70   | 710  | 1            | 0.799      | 482  | -        | -    |
| 70028 | ANSEL TS | 69  | 70   | 710  | 1            | 0.793      | 482  | -        | -    |
| 70029 | ANTONITO | 69  | 70   | 710  | 1            | 0.855      | 482  | -        | -    |
| 70030 | APT PARK | 115 | 70   | 712  | 1            | 0.031      | 262  | -        | -    |
| 70031 | APT TAP  | 115 | 70   | 712  | 1            | 0.025      | 262  | -        | -    |
| 70042 | ASPEN TP | 69  | 70   | 712  | 1            | 0.046      | 255  | -        | -    |
| 70049 | BELMONT  | 69  | 70   | 712  | 1            | 0.017      | 255  | -        | -    |
| 70051 | BLENDE   | 69  | 70   | 712  | 2            | 0.045      | 255  | -        | -    |
| 70055 | BNVST    | 115 | 70   | 709  | 1            | 0.025      | 482  | -        | -    |
| 70056 | BNVSTATP | 115 | 70   | 709  | 1            | 0.024      | 482  | -        | -    |
| 70060 | BOONE    | 115 | 70   | 712  | 1            | 0.051      | 262  | -        | -    |
| 70062 | BOONE    | 69  | 70   | 712  | 1            | 0.064      | 262  | -        | -    |
| 70063 | BOONE TP | 69  | 70   | 712  | 1            | 0.068      | 262  | -        | -    |
| 70090 | CARMEL   | 69  | 70   | 710  | 1            | 0.851      | 482  | -        | -    |
| 70092 | CENTER   | 69  | 70   | 710  | 1            | 0.867      | 482  | -        | -    |
| 70101 | CHEN TAP | 69  | 70   | 712  | 1            | 0.301      | 338  | -        | -    |
| 70102 | CHENEY   | 69  | 70   | 712  | 1            | 0.306      | 338  | -        | -    |
| 70113 | CLIFTON  | 230 | 70   | 708  | 1            | 0.006      | 478  | -        | -    |



| Bus # | Bus Name | KV  | Area | Zone | # Violations | Worst Load | Ncon | Worst High | Ncon |
|-------|----------|-----|------|------|--------------|------------|------|------------|------|
| 70118 | COCENTER | 69  | 70   | 710  | 1            | 0.79       | 482  | -          | -    |
| 70129 | CREEDE   | 69  | 70   | 710  | 1            | 0.82       | 482  | -          | -    |
| 70132 | CTY LAJ  | 69  | 70   | 712  | 1            | 0.014      | 262  | -          | -    |
| 70136 | CTY LAM  | 69  | 70   | 712  | 1            | 0.445      | 338  | -          | -    |
| 70143 | DELNORTE | 69  | 70   | 710  | 1            | 0.813      | 482  | -          | -    |
| 70158 | DOT      | 115 | 70   | 712  | 2            | 0.052      | 262  | -          | -    |
| 70159 | DOT TAP  | 115 | 70   | 712  | 1            | 0.049      | 262  | -          | -    |
| 70161 | EADS     | 69  | 70   | 712  | 1            | 0.456      | 338  | -          | -    |
| 70178 | FOWLER   | 69  | 70   | 712  | 4            | 0.224      | 266  | -          | -    |
| 70184 | FT HOLLY | 69  | 70   | 712  | 1            | 0.373      | 338  | -          | -    |
| 70185 | FT. LYON | 69  | 70   | 712  | 1            | 0.453      | 338  | -          | -    |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 2            | 0.919      | 482  | -          | -    |
| 70187 | FTGARLND | 69  | 70   | 710  | 2            | 0.918      | 482  | -          | -    |
| 70203 | GRAN TAP | 69  | 70   | 712  | 1            | 0.386      | 338  | -          | -    |
| 70204 | GRANADA  | 69  | 70   | 712  | 1            | 0.386      | 338  | -          | -    |
| 70205 | GRANDJCT | 230 | 70   | 708  | 1            | 0.006      | 478  | -          | -    |
| 70206 | GRANDJPS | 230 | 70   | 708  | 1            | 0.005      | 478  | -          | -    |
| 70221 | HILANDSL | 69  | 70   | 710  | 1            | 0.813      | 482  | -          | -    |
| 70222 | HILLTOP  | 69  | 70   | 712  | 1            | 0.102      | 338  | -          | -    |
| 70223 | HLTP TAP | 69  | 70   | 712  | 1            | 0.102      | 338  | -          | -    |
| 70225 | HOLL TAP | 69  | 70   | 712  | 1            | 0.369      | 338  | -          | -    |
| 70228 | HOMELAKE | 69  | 70   | 710  | 1            | 0.802      | 482  | -          | -    |
| 70229 | HOOPER   | 69  | 70   | 710  | 1            | 0.87       | 482  | -          | -    |
| 70230 | HOOPERTP | 69  | 70   | 710  | 1            | 0.861      | 482  | -          | -    |
| 70233 | HORIZON  | 230 | 70   | 708  | 1            | 0.003      | 478  | -          | -    |
| 70235 | HUERFANO | 69  | 70   | 712  | 1            | 0.07       | 262  | -          | -    |
| 70243 | LA SECPA | 69  | 70   | 712  | 1            | 0.01       | 262  | -          | -    |
| 70245 | LAGARITA | 69  | 70   | 710  | 1            | 0.892      | 482  | -          | -    |
| 70246 | LAJ IP   | 69  | 70   | 712  | 1            | 0.015      | 262  | -          | -    |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 1            | 0.023      | 262  | -          | -    |
| 70248 | LAJUNTAT | 69  | 70   | 712  | 1            | 0.008      | 262  | -          | -    |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 2            | 0.283      | 266  | -          | -    |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 3            | 0.238      | 266  | -          | -    |
| 70271 | LS ANMAS | 69  | 70   | 712  | 3            | 0.256      | 266  | -          | -    |
| 70275 | MANZANOL | 69  | 70   | 712  | 3            | 0.213      | 266  | -          | -    |
| 70289 | MOFFAT   | 69  | 70   | 710  | 2            | 0.917      | 482  | -          | -    |
| 70292 | MOSCA    | 69  | 70   | 710  | 1            | 0.822      | 482  | -          | -    |
| 70301 | NTHRIDGE | 115 | 70   | 712  | 1            | 0.009      | 262  | -          | -    |

| Bus # | Bus Name  | KV  | Area | Zone | # Violations | Worst Load | Ncon | Worst High | Ncon |
|-------|-----------|-----|------|------|--------------|------------|------|------------|------|
| 70303 | ORDWAY    | 69  | 70   | 712  | 4            | 0.225      | 266  | -          | -    |
| 70304 | OTEROTP   | 115 | 70   | 709  | 1            | 0.001      | 482  | -          | -    |
| 70305 | OVERTON   | 69  | 70   | 712  | 1            | 0.008      | 255  | -          | -    |
| 70316 | PDA       | 69  | 70   | 712  | 1            | 0.062      | 255  | -          | -    |
| 70317 | PDA TAP   | 69  | 70   | 712  | 1            | 0.058      | 255  | -          | -    |
| 70319 | PHILLIPS  | 69  | 70   | 712  | 3            | 0.246      | 266  | -          | -    |
| 70320 | PHLPS TP  | 69  | 70   | 712  | 3            | 0.245      | 266  | -          | -    |
| 70325 | PLAZA     | 69  | 70   | 710  | 1            | 0.904      | 482  | -          | -    |
| 70326 | PONCHA    | 69  | 70   | 710  | 1            | 0.089      | 482  | -          | -    |
| 70327 | PONCHA    | 115 | 70   | 710  | 1            | 0.099      | 482  | -          | -    |
| 70330 | PORTLAND  | 115 | 70   | 712  | 1            | 0.003      | 323  | -          | -    |
| 70333 | PROMERS   | 69  | 70   | 712  | 1            | 0.449      | 338  | -          | -    |
| 70347 | RAMON     | 115 | 70   | 710  | 1            | 0.802      | 482  | -          | -    |
| 70348 | RAMON     | 69  | 70   | 710  | 1            | 0.807      | 482  | -          | -    |
| 70360 | RIOGRAND  | 69  | 70   | 710  | 1            | 0.809      | 482  | -          | -    |
| 70361 | RIOGRDTP  | 69  | 70   | 710  | 1            | 0.793      | 482  | -          | -    |
| 70366 | ROCKYFRD  | 69  | 70   | 712  | 3            | 0.186      | 266  | -          | -    |
| 70367 | ROMEO     | 69  | 70   | 710  | 1            | 0.842      | 482  | -          | -    |
| 70372 | S FWL TP  | 69  | 70   | 712  | 3            | 0.077      | 266  | -          | -    |
| 70373 | S.ACACIO  | 69  | 70   | 710  | 1            | 0.865      | 482  | -          | -    |
| 70374 | SAN LUIS  | 115 | 70   | 710  | 1            | 0.787      | 482  | -          | -    |
| 70375 | SAN LUIS  | 230 | 70   | 710  | 1            | 0.793      | 482  | -          | -    |
| 70376 | SAN LUIS  | 69  | 70   | 710  | 1            | 0.806      | 482  | -          | -    |
| 70378 | SANTFETP  | 69  | 70   | 712  | 1            | 0.032      | 255  | -          | -    |
| 70379 | SARGENT   | 115 | 70   | 710  | 1            | 0.76       | 482  | -          | -    |
| 70380 | SARGENT   | 69  | 70   | 710  | 1            | 0.788      | 482  | -          | -    |
| 70383 | SFORK SL  | 69  | 70   | 710  | 1            | 0.808      | 482  | -          | -    |
| 70394 | SMELTER   | 115 | 70   | 710  | 1            | 0.082      | 482  | -          | -    |
| 70399 | SNEPESTA  | 69  | 70   | 712  | 3            | 0.072      | 262  | -          | -    |
| 70404 | SPRNGFLD  | 69  | 70   | 712  | 1            | 0.104      | 338  | -          | -    |
| 70405 | ST. CHAS. | 69  | 70   | 712  | 1            | 0.053      | 255  | -          | -    |
| 70411 | STANLEY   | 115 | 70   | 710  | 1            | 0.791      | 482  | -          | -    |
| 70414 | STOCKADE  | 69  | 70   | 710  | 1            | 0.854      | 482  | -          | -    |
| 70425 | T BUTTES  | 69  | 70   | 712  | 1            | 0.21       | 338  | -          | -    |
| 70452 | VILAS     | 115 | 70   | 712  | 1            | 0.065      | 338  | -          | -    |
| 70453 | VILAS     | 69  | 70   | 712  | 1            | 0.097      | 338  | -          | -    |
| 70457 | WALSENBG  | 69  | 70   | 704  | 1            | 0.151      | 190  | -          | -    |
| 70460 | WALSH     | 69  | 70   | 712  | 1            | 0.148      | 338  | -          | -    |

| Bus # | Bus Name  | KV  | Area | Zone | # Violations | Worst Load | Ncon | Worst Hi | Ncon |
|-------|-----------|-----|------|------|--------------|------------|------|----------|------|
| 70467 | WAVERLY   | 115 | 70   | 710  | 1            | 0.812      | 482  | -        | -    |
| 70468 | WAVERLY   | 69  | 70   | 710  | 1            | 0.846      | 482  | -        | -    |
| 70473 | WILLOW CK | 69  | 70   | 712  | 1            | 0.441      | 338  | -        | -    |
| 70477 | ZINZER    | 69  | 70   | 710  | 1            | 0.868      | 482  | -        | -    |
| 70505 | MIRGEJCT  | 69  | 70   | 710  | 2            | 0.904      | 482  | -        | -    |
| 70506 | SAGUACHE  | 69  | 70   | 710  | 3            | 0.882      | 482  | -        | -    |
| 70507 | MEARSJCT  | 69  | 70   | 710  | 1            | 0.088      | 482  | -        | -    |
| 70508 | VILLA     | 69  | 70   | 710  | 1            | 0.086      | 482  | -        | -    |
| 70509 | KERBERCK  | 69  | 70   | 710  | 1            | 0.086      | 482  | -        | -    |
| 70510 | MIRGEJC0  | 69  | 70   | 710  | 1            | 0.086      | 482  | -        | -    |
| 70549 | APT MEM   | 115 | 70   | 712  | 1            | 0.034      | 262  | -        | -    |
|       |           |     |      |      |              |            |      |          |      |

# Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:19 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

Note: This case does not have the Golden Prairie - Lamar 230kV circuit in service.  
\*\*\*\*\* Report on violations \*\*\*\*\*

Buses with voltage violations

| Bus # | Bus NameKV | Area | Zone | ContVol | BaseVol | LowLim | Upplim | VoltDro | VoltRis | Viol | Ncon | Contin.Description                        |
|-------|------------|------|------|---------|---------|--------|--------|---------|---------|------|------|-------------------------------------------|
| 70024 | ALMSA ST   | 69   | 70   | 710     | 0.9005  | 1.0194 | 0.92   | 1.1     | -       | L    | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70024 | ALMSA ST   | 69   | 70   | 710     | 0.1116  | 1.0194 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70025 | ALMSA TM   | 115  | 70   | 710     | 0.1411  | 1.0378 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70026 | ALMSA TM   | 69   | 70   | 710     | 0.121   | 1.0233 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70028 | ANSEL TS   | 69   | 70   | 710     | 0.1269  | 1.0265 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70029 | ANTONITO   | 69   | 70   | 710     | 0.0654  | 0.9937 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70549 | APT MEM    | 115  | 70   | 712     | 0.8861  | 0.9976 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70030 | APT PARK   | 115  | 70   | 712     | 0.8888  | 0.9949 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70031 | APT TAP    | 115  | 70   | 712     | 0.8952  | 0.9935 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70022 | APT TAP2   | 69   | 70   | 712     | 0.8834  | 1.0002 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70042 | ASPEN TP   | 69   | 70   | 712     | 0.8736  | 1.0127 | 0.92   | 1.1     | -       | L    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70049 | BELMONT    | 69   | 70   | 712     | 0.9027  | 0.9987 | 0.92   | 1.1     | -       | L    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70051 | BLLENDE    | 69   | 70   | 712     | 0.9151  | 1.0103 | 0.92   | 1.1     | -       | L    | 254  | 70042 ASPEN TP69.0 70051 BLENDE 69.0 1    |
| 70051 | BLLENDE    | 69   | 70   | 712     | 0.8746  | 1.0103 | 0.92   | 1.1     | -       | L    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70055 | BNVAST     | 115  | 70   | 709     | 0.8949  | 1.0267 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70056 | BNVSTATP   | 115  | 70   | 709     | 0.896   | 1.0277 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70060 | BOONE      | 115  | 70   | 712     | 0.8885  | 1.0241 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70062 | BOONE      | 69   | 70   | 712     | 0.8557  | 1.0121 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70063 | BOONE TP   | 69   | 70   | 712     | 0.8521  | 1.0101 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70090 | CARMEL     | 69   | 70   | 710     | 0.0688  | 0.9995 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70092 | CENTER     | 69   | 70   | 710     | 0.0531  | 1.0068 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70101 | CHEN TAP   | 69   | 70   | 712     | 0.6192  | 1.0193 | 0.92   | 1.1     | -       | L    | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70102 | CHENEY     | 69   | 70   | 712     | 0.6143  | 1.016  | 0.92   | 1.1     | -       | L    | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70113 | CLIFTON    | 230  | 70   | 708     | 0.9141  | 0.9534 | 0.92   | 1.1     | -       | L    | 478  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70118 | COCENTER   | 69   | 70   | 710     | 0.1302  | 1.0243 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70129 | CREEDE     | 69   | 70   | 710     | 0.0996  | 1.0345 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70132 | CTY LAJ    | 69   | 70   | 712     | 0.9062  | 1.0153 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70136 | CTY LAM    | 69   | 70   | 712     | 0.475   | 1.0274 | 0.92   | 1.1     | -       | L    | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70143 | DELNORTE   | 69   | 70   | 710     | 0.1074  | 1.0104 | 0.92   | 1.1     | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70158 | DOT        | 115  | 70   | 712     | 0.919   | 1.0161 | 0.92   | 1.1     | -       | L    | 264  | 70060 BOONE 115 70159 DOT TAP 115 1       |
| 70158 | DOT        | 115  | 70   | 712     | 0.8878  | 1.0161 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70159 | DOT TAP    | 115  | 70   | 712     | 0.871   | 1.0188 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |

| Bus # | Bus Name | KV  | Area | Zone | ContVol | BaseVol | LowLim | Upplim | VoltDrd | VoltRis | Ncon | Contin.Description                        |
|-------|----------|-----|------|------|---------|---------|--------|--------|---------|---------|------|-------------------------------------------|
| 70161 | EADS     | 69  | 70   | 712  | 0.4641  | 1.0235  | 0.92   | 1.1    | -       | -       | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.9166  | 0.9701  | 0.92   | 1.1    | -       | -       | 307  | 70250 LAJUNTAW69.0 70366 ROCKYFRD69.0 1   |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.7957  | 0.9701  | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.7018  | 0.9701  | 0.92   | 1.1    | -       | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.6957  | 0.9701  | 0.92   | 1.1    | -       | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70184 | FT HOLLY | 69  | 70   | 712  | 0.5472  | 1.0179  | 0.92   | 1.1    | -       | -       | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70185 | FT. LYON | 69  | 70   | 712  | 0.4667  | 1.0225  | 0.92   | 1.1    | -       | -       | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 0.8259  | 0.9564  | 0.92   | 1.1    | -       | -       | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 0.0913  | 0.9564  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70187 | FTGARLND | 69  | 70   | 710  | 0.8237  | 0.9546  | 0.92   | 1.1    | -       | -       | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70187 | FTGARLND | 69  | 70   | 710  | 0.0918  | 0.9546  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70203 | GRAN TAP | 69  | 70   | 712  | 0.5344  | 1.0219  | 0.92   | 1.1    | -       | -       | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70204 | GRANADA  | 69  | 70   | 712  | 0.5337  | 1.0214  | 0.92   | 1.1    | -       | -       | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70205 | GRANDJCT | 230 | 70   | 708  | 0.9141  | 0.9552  | 0.92   | 1.1    | -       | -       | 478  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70206 | GRANDJPS | 230 | 70   | 708  | 0.9145  | 0.9529  | 0.92   | 1.1    | -       | -       | 478  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70221 | HILANDSL | 69  | 70   | 710  | 0.1107  | 1.0376  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70222 | HILLTOP  | 69  | 70   | 712  | 0.818   | 1.0135  | 0.92   | 1.1    | -       | -       | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70223 | HLTP TAP | 69  | 70   | 712  | 0.8182  | 1.0137  | 0.92   | 1.1    | -       | -       | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70225 | HOLL TAP | 69  | 70   | 712  | 0.5509  | 1.0202  | 0.92   | 1.1    | -       | -       | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70228 | HOMELAKE | 69  | 70   | 710  | 0.1181  | 1.0181  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70229 | HOOPER   | 69  | 70   | 710  | 0.0498  | 1.0048  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70230 | HOOPERTP | 69  | 70   | 710  | 0.0588  | 1.0099  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70233 | HORIZON  | 230 | 70   | 708  | 0.9173  | 0.9543  | 0.92   | 1.1    | -       | -       | 478  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70235 | HUEFANO  | 69  | 70   | 712  | 0.8499  | 1.0082  | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70509 | KERBECK  | 69  | 70   | 710  | 0.8337  | 1.0441  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70243 | LA SECPA | 69  | 70   | 712  | 0.9095  | 1.0185  | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70245 | LAGARTTA | 69  | 70   | 710  | 0.0279  | 0.993   | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70246 | LAJ IP   | 69  | 70   | 712  | 0.9053  | 1.0144  | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70248 | LAJUNTAT | 69  | 70   | 712  | 0.9122  | 1.0206  | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 0.8973  | 0.9991  | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.8496  | 1.0204  | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 0.8094  | 0.9695  | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.6879  | 1.0204  | 0.92   | 1.1    | -       | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 0.6374  | 0.9695  | 0.92   | 1.1    | -       | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70271 | LS ANNAS | 69  | 70   | 712  | 0.8354  | 1.0093  | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70271 | LS ANNAS | 69  | 70   | 712  | 0.67    | 1.0093  | 0.92   | 1.1    | -       | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70271 | LS ANNAS | 69  | 70   | 712  | 0.6635  | 1.0093  | 0.92   | 1.1    | -       | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70275 | MANZANOL | 69  | 70   | 712  | 0.8056  | 0.9781  | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70275 | MANZANOL | 69  | 70   | 712  | 0.7126  | 0.9781  | 0.92   | 1.1    | -       | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70275 | MANZANOL | 69  | 70   | 712  | 0.7066  | 0.9781  | 0.92   | 1.1    | -       | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70507 | MEARSJCT | 69  | 70   | 710  | 0.8317  | 1.0408  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70510 | MIRGEJC0 | 69  | 70   | 710  | 0.8338  | 1.0441  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70505 | MIRGEJCT | 69  | 70   | 710  | 0.8935  | 0.9642  | 0.92   | 1.1    | -       | -       | 222  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70505 | MIRGEJCT | 69  | 70   | 710  | 0.916   | 0.9642  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70289 | MOFFAT   | 69  | 70   | 710  | 0.8917  | 0.9715  | 0.92   | 1.1    | -       | -       | 222  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70289 | MOFFAT   | 69  | 70   | 710  | 0.0927  | 0.9715  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70292 | MOSCA    | 69  | 70   | 710  | 0.0983  | 1.0266  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |

| Bus # | Bus Name | KV  | Area | Zone | ContVo | BaseVo | LowLim | UppLim | VoltDrd | VoltRis | Ncon | Contin. Description                      |
|-------|----------|-----|------|------|--------|--------|--------|--------|---------|---------|------|------------------------------------------|
| 70301 | NTHRIDGE | 115 | 70   | 712  | 0.9112 | 0.9898 | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1        |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.9159 | 0.9694 | 0.92   | 1.1    | -       | -       | 307  | 70250 LAJUNTAW69.0 70366 ROCKYFRD69.0 1  |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.7948 | 0.9694 | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1        |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.7068 | 0.9694 | 0.92   | 1.1    | -       | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1  |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.6947 | 0.9694 | 0.92   | 1.1    | -       | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1     |
| 70304 | OTEROTP  | 115 | 70   | 709  | 0.9185 | 1.0295 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70305 | OVERTON  | 69  | 70   | 712  | 0.912  | 0.9989 | 0.92   | 1.1    | -       | -       | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1   |
| 70316 | PDA      | 69  | 70   | 712  | 0.8578 | 0.999  | 0.92   | 1.1    | -       | -       | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1   |
| 70317 | PDA TAP  | 69  | 70   | 712  | 0.8615 | 1.0022 | 0.92   | 1.1    | -       | -       | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1   |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.8438 | 1.0159 | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1        |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.6985 | 1.0159 | 0.92   | 1.1    | -       | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1  |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.6742 | 1.0159 | 0.92   | 1.1    | -       | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1     |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.8445 | 1.0165 | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1        |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.6813 | 1.0165 | 0.92   | 1.1    | -       | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1  |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.6749 | 1.0165 | 0.92   | 1.1    | -       | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1     |
| 70325 | PLAZA    | 69  | 70   | 710  | 0.0163 | 0.9866 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70326 | PONCHA   | 69  | 70   | 710  | 0.8313 | 1.0399 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70327 | PONCHA   | 115 | 70   | 710  | 0.8211 | 1.0272 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70330 | PORTLAND | 115 | 70   | 712  | 0.9166 | 0.9705 | 0.92   | 1.1    | -       | -       | 323  | 70330 PORTLAND 115 70456 W.STATION 115 1 |
| 70333 | PROMERS  | 69  | 70   | 712  | 0.4712 | 1.0253 | 0.92   | 1.1    | -       | -       | 338  | 70472 WILOW CK 115 70473 WILOW CK69.0 1  |
| 70347 | RAMON    | 115 | 70   | 710  | 0.1185 | 1.0231 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70348 | RAMON    | 69  | 70   | 710  | 0.1128 | 1.0402 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70360 | RIOGRAND | 69  | 70   | 710  | 0.1113 | 1.0125 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70361 | RIOGRTP  | 69  | 70   | 710  | 0.1269 | 1.0209 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.8305 | 0.9983 | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1        |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.7401 | 0.9983 | 0.92   | 1.1    | -       | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1  |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.7343 | 0.9983 | 0.92   | 1.1    | -       | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1     |
| 70367 | ROME0    | 69  | 70   | 710  | 0.0777 | 1.0004 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.8477 | 1.0057 | 0.92   | 1.1    | -       | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1  |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.8433 | 1.0057 | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1        |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.8431 | 1.0057 | 0.92   | 1.1    | -       | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1     |
| 70373 | S.ACACIO | 69  | 70   | 710  | 0.0555 | 0.9947 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70506 | SAGUACHE | 69  | 70   | 710  | 0.9114 | 0.9514 | 0.92   | 1.1    | -       | -       | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1  |
| 70506 | SAGUACHE | 69  | 70   | 710  | 0.8692 | 0.9514 | 0.92   | 1.1    | -       | -       | 222  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1    |
| 70506 | SAGUACHE | 69  | 70   | 710  | 0.038  | 0.9514 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70374 | SAN LUIS | 115 | 70   | 710  | 0.1332 | 1.0265 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70375 | SAN LUIS | 230 | 70   | 710  | 0.1269 | 0.9837 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70376 | SAN LUIS | 69  | 70   | 710  | 0.114  | 1.039  | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70378 | SANFETP  | 69  | 70   | 712  | 0.8879 | 1.0048 | 0.92   | 1.1    | -       | -       | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1   |
| 70379 | SARGENT  | 115 | 70   | 710  | 0.1597 | 1.0287 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70380 | SARGENT  | 69  | 70   | 710  | 0.132  | 1.0232 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70383 | SFORK SL | 69  | 70   | 710  | 0.112  | 1.0398 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70394 | SMEILTER | 115 | 70   | 710  | 0.8384 | 1.0271 | 0.92   | 1.1    | -       | -       | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70399 | SNEPESTA | 69  | 70   | 712  | 0.8881 | 1.008  | 0.92   | 1.1    | -       | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1  |
| 70399 | SNEPESTA | 69  | 70   | 712  | 0.8839 | 1.008  | 0.92   | 1.1    | -       | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1     |
| 70399 | SNEPESTA | 69  | 70   | 712  | 0.8478 | 1.008  | 0.92   | 1.1    | -       | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1        |
| 70404 | SPRNGFLD | 69  | 70   | 712  | 0.8163 | 1.0121 | 0.92   | 1.1    | -       | -       | 338  | 70472 WILOW CK 115 70473 WILOW CK69.0 1  |
| 70405 | ST.CHAS. | 69  | 70   | 712  | 0.8668 | 1.0068 | 0.92   | 1.1    | -       | -       | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1   |

| Bus # | Bus Name  | KV  | Area | Zone | ContVol | BaseVol | LowLim | Upplim | VoltDrd | Voltris | Viol | Ncon | Contin.Description                        |
|-------|-----------|-----|------|------|---------|---------|--------|--------|---------|---------|------|------|-------------------------------------------|
| 70411 | STANLEY   | 115 | 70   | 710  | 0.1293  | 1.0252  | 0.92   | 1.1    | -       | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70414 | STOCKADE  | 69  | 70   | 710  | 0.0659  | 0.9993  | 0.92   | 1.1    | -       | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70425 | T BUTTES  | 69  | 70   | 712  | 0.7098  | 1.0229  | 0.92   | 1.1    | -       | -       | L    | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70452 | VILAS     | 115 | 70   | 712  | 0.8546  | 1.0242  | 0.92   | 1.1    | -       | -       | L    | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70453 | VILAS     | 69  | 70   | 712  | 0.8229  | 1.0177  | 0.92   | 1.1    | -       | -       | L    | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70508 | VILLA     | 69  | 70   | 710  | 0.8336  | 1.0438  | 0.92   | 1.1    | -       | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70457 | WALSENBG  | 69  | 70   | 704  | 0.769   | 1.0034  | 0.92   | 1.1    | -       | -       | L    | 190  | 70457 WALSENBG69.0 70458 WALSENBG 115 1   |
| 70460 | WALSH     | 69  | 70   | 712  | 0.7716  | 1.0273  | 0.92   | 1.1    | -       | -       | L    | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70467 | WAVERLY   | 115 | 70   | 710  | 0.1077  | 1.0163  | 0.92   | 1.1    | -       | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70468 | WAVERLY   | 69  | 70   | 710  | 0.0738  | 1.0023  | 0.92   | 1.1    | -       | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70473 | WILLOW CK | 69  | 70   | 712  | 0.4793  | 1.0308  | 0.92   | 1.1    | -       | -       | L    | 338  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70477 | ZINZER    | 69  | 70   | 710  | 0.0523  | 0.9907  | 0.92   | 1.1    | -       | -       | L    | 482  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |      |      |         |         |        |        |         |         |      |      |                                           |

# Flowgate Violations

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:20 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* No violations encountered among selected elements \*\*\*\*\*

| FgID***** | Type | Rating | PreShift | BaseCaseFl |
|-----------|------|--------|----------|------------|
|           |      |        |          |            |
|           |      |        |          |            |



# Exclude Report

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:18 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\* There are no excluded contingencies

===== List of excluded Monitored Branches:

70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 TR Excluded in all contingencies  
70352 READER 115 70353 READER 69.0 1 TR Excluded in all contingencies  
70352 READER 115 70353 READER 69.0 2 TR Excluded in all contingencies



**B-2 - Contingency Analysis –2003 Heavy Summer**

**No wind farm in service but with 230-kV circuit between Golden Prairie and Lamar**

# Contingency Violation Summary

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:36 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File none

\*\*\* Statistics on monitored constraints:

Monitored Branches: 563  
Monitored Voltages: 422  
Monitored Flowgates: 8  
Contingencies : 522

\*\*\* Summary on Constraint Violations \*\*\*  
\*\*\* Violations with flow changes less 0.00 MVA or voltage change less 0.000 % ignored  
I Initial Violations I  
I Base Case I Contingency cases I  
Constraint I Numb. Worst I Numb. Worst Contin I  
Type I Viol I Viol Viol Number I  
MVA flow I - --- 22 50.2 483 I  
VoltMagn I - --- 162 92.0 483 I  
Total contingency violations : 184  
Number of contingencies with violations: 25

\*\*\* Contingency Results Summary. \*\*\*  
Total No. tested = 522 Total LF iterations 1205  
Converged = 520  
Voltage Collapse = 2  
Not Converged = 0

\*\*\*\*\* No violations encountered among selected monitored elements \*\*\*\*\*

# Frequency of Branch Violations

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:36 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSC0\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSC0\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSC0\Lamar091102\Lamar.con  
Exclud.File none

Summary on Monitored Branches contingency violations

| Monitored Branches |              |       |              | PreShift Violations |                    |                  |
|--------------------|--------------|-------|--------------|---------------------|--------------------|------------------|
| **                 | From bus     | ** ** | To bus       | **                  | PreShift<br>Cnviol | WorstToV<br>Ncon |
|                    |              |       |              |                     |                    | WorstFro<br>Ncon |
| 70305              | OVERTON 69.0 | 70054 | BMONT TP69.0 | 1                   | -                  | 1.8              |
| 70060              | BOONE 115    | 70062 | BOONE 69.0   | 2                   | -                  | 30               |
| 70062              | BOONE 69.0   | 70063 | BOONE TP69.0 | 2                   | -                  | 5.5              |
| 70231              | HOPKINS 115  | 79003 | BASALT 115   | 1                   | -                  | 13               |
| 70249              | LAJUNTAW 115 | 70250 | LAJUNTAW69.0 | 5                   | -                  | 25.6             |
| 70292              | MOSCA 69.0   | 70376 | SAN LUIS69.0 | 1                   | -                  | 3                |
| 70327              | PONCHA 115   | 70379 | SARGENT 115  | 1                   | -                  | 46.5             |
| 70352              | READER 115   | 70353 | READER 69.0  | 3                   | -                  | 56.6             |
| 70352              | READER 115   | 70353 | READER 69.0  | 3                   | -                  | 56.6             |
| 70366              | ROCKYFRD69.0 | 70372 | S FWL TP69.0 | 1                   | -                  | 0.8              |
| 70425              | T BUTTES69.0 | 70460 | WALSH 69.0   | 1                   | -                  | 10.1             |
| 70453              | VILAS 69.0   | 70460 | WALSH 69.0   | 1                   | -                  | 15.6             |
|                    |              |       |              |                     |                    |                  |

# Branch Violations

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:37 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* Report on violations \*\*\*\*\*

| 90.0 % of nominal rating                                  |              |       |          |              |        |     |    |         |          |        |          |      |                                          |
|-----------------------------------------------------------|--------------|-------|----------|--------------|--------|-----|----|---------|----------|--------|----------|------|------------------------------------------|
| Branches with MVA flow more than 90.0 % of nominal rating |              |       |          |              |        |     |    |         |          |        |          |      |                                          |
| **                                                        | From bus     | **    | **       | To bus       | **     | CKT | T  | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                              |
| 70060                                                     | BOONE        | 115   | 70062    | BOONE        | 69.0   | 1   | TR | 42.9    |          | 9      | 33       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1     |
| 70060                                                     | BOONE        | 115   | 70062    | BOONE        | 69.0   | 1   | TR | 42.7    |          | 9      | 33       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1  |
| 70062                                                     | BOONE        | 69.0  | 70063    | BOONE        | TP69.0 | 1   | LN | 42.8    | 8.9      |        | 40.6     | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1     |
| 70062                                                     | BOONE        | 69.0  | 70063    | BOONE        | TP69.0 | 1   | LN | 42.5    | 8.9      |        | 40.6     | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1  |
| 70088                                                     | CAPHILL2     | 115   | 70148    | DENVTM       | 115    | 1   | LN | 137.7   | 86       |        | 150      | 53   | 70109 CHEROKES 115 70276 MAPLET01 115 1  |
| 70088                                                     | CAPHILL2     | 115   | 70148    | DENVTM       | 115    | 1   | LN | 137.2   | 86       |        | 150      | 73   | 70148 DENVTM 115 70208 GRAY ST 115 1     |
| 70088                                                     | CAPHILL2     | 115   | 70148    | DENVTM       | 115    | 1   | LN | 135.3   | 86       |        | 150      | 109  | 70259 LEETSDAL 115 70260 LEETSDAL 230 1  |
| 70108                                                     | CHEROKEN     | 115   | 70175    | FEDERHT2     | 115    | 2   | LN | 174.6   | 132.7    |        | 186      | 92   | 70174 FEDERHT1 115 70382 SEMPER 115 1    |
| 70108                                                     | CHEROKEN     | 115   | 70175    | FEDERHT2     | 115    | 2   | LN | 174.5   | 132.7    |        | 186      | 52   | 70109 CHEROKES 115 70174 FEDERHT1 115 1  |
| 70230                                                     | HOOPERTP69.0 | 70376 | SAN LUIS | 69.0         | 1      | LN  |    | 45.3    | 33.1     |        | 50       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70231                                                     | HOPKINS      | 115   | 79003    | BASALT       | 115    | 1   | LN | 75.6    | 27.5     |        | 66.9     | 491  | 79091 WOLCOTTP 230 79039 HAYDEN 230 1    |
| 70249                                                     | LAJUNTAW     | 115   | 70250    | LAJUNTAW69.0 | 1      | TR  |    | 24.2    | 24.2     |        | 25       | **   | Base Case **                             |
| 70292                                                     | MOSCA        | 69.0  | 70376    | SAN LUIS     | 69.0   | 1   | LN | 24.6    |          |        | 23.9     | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1  |
| 70305                                                     | OVERTON      | 69.0  | 70054    | BMONT        | TP69.0 | 1   | LN | 67.2    | 9.7      |        | 66       | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1   |
| 70327                                                     | PONCHA       | 115   | 70379    | SARGENT      | 115    | 1   | LN | 158.2   | 19.1     |        | 66       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1  |
| 70352                                                     | READER       | 115   | 70121    | COMANCHE     | 115    | 1   | LN | 200     | 25.3     |        | 108      | 177  | 70122 COMANCHE 230 70459 WALSENBG 230 1  |
| 70352                                                     | READER       | 115   | 70121    | COMANCHE     | 115    | 1   | LN | 199.9   | 160.8    |        | 217      | 191  | 70458 WALSENBG 115 70459 WALSENBG 230 1  |
| 70352                                                     | READER       | 115   | 70353    | READER       | 69.0   | 1   | TR | 42.8    | 42.8     |        | 47       | **   | Base Case **                             |
| 70352                                                     | READER       | 115   | 70353    | READER       | 69.0   | 2   | TR | 42.8    | 42.8     |        | 47       | **   | Base Case **                             |
| 70353                                                     | READER       | 69.0  | 70042    | ASPEN        | TP69.0 | 1   | LN | 59.9    | 41.9     |        | 66       | 260  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1  |
| 70353                                                     | READER       | 69.0  | 70042    | ASPEN        | TP69.0 | 1   | LN | 59.9    | 41.9     |        | 66       | 261  | 70054 BMONT TP69.0 70455 W.STATION69.0 1 |
| 70354                                                     | RIDGE        | 115   | 70355    | RIDGE        | 230    | 1   | TR | 93.1    | 74.1     |        | 100      | 136  | 70354 RIDGE 115 70355 RIDGE 230 2        |
| 70366                                                     | ROCKYFRD69.0 | 70372 | S FWL    | TP69.0       | 1      | LN  |    | 40.9    | 7.1      |        | 40.6     | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1     |
| 70366                                                     | ROCKYFRD69.0 | 70372 | S FWL    | TP69.0       | 1      | LN  |    | 40.6    | 7.1      |        | 40.6     | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1  |

| **    | From bus     | **    | **           | To bus       | **   | CKT | T  | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                           |                   |   |
|-------|--------------|-------|--------------|--------------|------|-----|----|---------|----------|--------|----------|------|---------------------------------------|-------------------|---|
| 70374 | SAN LUIS     | 115   | 70376        | SAN LUIS69.0 | 1    | TR  |    | 41.2    | 27.2     | 42     | 98       | 237  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 | 2                 |   |
| 70374 | SAN LUIS     | 115   | 70376        | SAN LUIS69.0 | 2    | TR  |    | 41.2    | 27.2     | 42     | 98       | 236  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 | 1                 |   |
| 70382 | SEMPER       | 115   | 70174        | FEDERHT1     | 115  | 1   | LN | 132.6   | 74.6     | 134.8  | 98.4     | 49   | 70108 CHEROKEN 115 70175 FEDERHT2     | 115 2             |   |
| 70425 | T BUTTES69.0 | 70101 | CHEN TAP69.0 | 1            | LN   |     |    | 33.9    | 1.5      | 33.9   | 99.9     | 339  | 70472 WTLow CK 115 70473 WTLow CK69.0 | 1                 |   |
| 70425 | T BUTTES69.0 | 70460 | WALSH        | 69.0         | 1    | LN  |    | 37.3    | 2.6      | 33.9   | 110.1    | 339  | 70472 WTLow CK 115 70473 WTLow CK69.0 | 1                 |   |
| 70453 | VILAS        | 69.0  | 70460        | WALSH        | 69.0 | 1   | LN | 39.2    | 10.7     | 33.9   | 115.6    | 339  | 70472 WTLow CK 115 70473 WTLow CK69.0 | 1                 |   |
| 70455 | W.STATON69.0 | 70054 | BMONT        | TP69.0       | 1    | LN  |    | 67.4    | 19.1     | 69     | 97.6     | 255  | 70042 ASPEN TP69.0                    | 70353 READER 69.0 | 1 |
| 70455 | W.STATON69.0 | 70456 | W.STATON     | 115          | 1    | TR  |    | 39.2    | 15.9     | 42     | 93.4     | 255  | 70042 ASPEN TP69.0                    | 70353 READER 69.0 | 1 |
| 70455 | W.STATON69.0 | 70456 | W.STATON     | 115          | 2    | TR  |    | 38.4    | 15.6     | 42     | 91.4     | 255  | 70042 ASPEN TP69.0                    | 70353 READER 69.0 | 1 |
|       |              |       |              |              |      |     |    |         |          |        |          |      |                                       |                   |   |

# Frequency of Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:36 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSC0\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSC0\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSC0\Lamar091102\Lamar.con  
Exclud.File none

Summary on Monitored Voltages contingency violations

| Bus # | Bus Name | KV  | Area | Zone | # Violations | Worst Load | Ncon | Worst Hi | Ncon |
|-------|----------|-----|------|------|--------------|------------|------|----------|------|
| 70022 | APT TAP2 | 69  | 70   | 712  | 1            | 0.036      | 262  | -        | -    |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2            | 0.81       | 483  | -        | -    |
| 70025 | ALMSA TM | 115 | 70   | 710  | 1            | 0.78       | 483  | -        | -    |
| 70026 | ALMSA TM | 69  | 70   | 710  | 1            | 0.8        | 483  | -        | -    |
| 70028 | ANSEL TS | 69  | 70   | 710  | 1            | 0.794      | 483  | -        | -    |
| 70029 | ANTONITO | 69  | 70   | 710  | 1            | 0.856      | 483  | -        | -    |
| 70030 | APT PARK | 115 | 70   | 712  | 1            | 0.031      | 262  | -        | -    |
| 70031 | APT TAP  | 115 | 70   | 712  | 1            | 0.024      | 262  | -        | -    |
| 70042 | ASPEN TP | 69  | 70   | 712  | 1            | 0.045      | 255  | -        | -    |
| 70049 | BELMONT  | 69  | 70   | 712  | 1            | 0.016      | 255  | -        | -    |
| 70051 | BLENDE   | 69  | 70   | 712  | 2            | 0.045      | 255  | -        | -    |
| 70055 | BNVST    | 115 | 70   | 709  | 1            | 0.025      | 483  | -        | -    |
| 70056 | BNVSTATP | 115 | 70   | 709  | 1            | 0.024      | 483  | -        | -    |
| 70060 | BOONE    | 115 | 70   | 712  | 1            | 0.051      | 262  | -        | -    |
| 70062 | BOONE    | 69  | 70   | 712  | 1            | 0.064      | 262  | -        | -    |
| 70063 | BOONE TP | 69  | 70   | 712  | 1            | 0.067      | 262  | -        | -    |
| 70090 | CARMEL   | 69  | 70   | 710  | 1            | 0.852      | 483  | -        | -    |
| 70092 | CENTER   | 69  | 70   | 710  | 1            | 0.868      | 483  | -        | -    |
| 70101 | CHEN TAP | 69  | 70   | 712  | 2            | 0.288      | 339  | -        | -    |
| 70102 | CHENEY   | 69  | 70   | 712  | 2            | 0.293      | 339  | -        | -    |
| 70113 | CLIFTON  | 230 | 70   | 708  | 1            | 0.006      | 479  | -        | -    |



| Bus # | Bus Name | KV  | Area | Zone | # Violations | Worst Load | Ncon | Worst High | Ncon |
|-------|----------|-----|------|------|--------------|------------|------|------------|------|
| 70118 | COCENTER | 69  | 70   | 710  | 1            | 0.791      | 483  | -          | -    |
| 70129 | CREEDE   | 69  | 70   | 710  | 1            | 0.821      | 483  | -          | -    |
| 70132 | CTY LAJ  | 69  | 70   | 712  | 1            | 0.021      | 262  | -          | -    |
| 70136 | CTY LAM  | 69  | 70   | 712  | 2            | 0.433      | 339  | -          | -    |
| 70143 | DELNORTE | 69  | 70   | 710  | 1            | 0.814      | 483  | -          | -    |
| 70158 | DOT      | 115 | 70   | 712  | 2            | 0.052      | 262  | -          | -    |
| 70159 | DOT TAP  | 115 | 70   | 712  | 1            | 0.049      | 262  | -          | -    |
| 70161 | EADS     | 69  | 70   | 712  | 2            | 0.444      | 339  | -          | -    |
| 70178 | FOWLER   | 69  | 70   | 712  | 4            | 0.217      | 266  | -          | -    |
| 70184 | FT HOLLY | 69  | 70   | 712  | 2            | 0.361      | 339  | -          | -    |
| 70185 | FT. LYON | 69  | 70   | 712  | 2            | 0.442      | 339  | -          | -    |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 2            | 0.92       | 483  | -          | -    |
| 70187 | FTGARLND | 69  | 70   | 710  | 2            | 0.917      | 483  | -          | -    |
| 70203 | GRAN TAP | 69  | 70   | 712  | 2            | 0.373      | 339  | -          | -    |
| 70204 | GRANADA  | 69  | 70   | 712  | 2            | 0.374      | 339  | -          | -    |
| 70205 | GRANDJCT | 230 | 70   | 708  | 1            | 0.006      | 479  | -          | -    |
| 70206 | GRANDJPS | 230 | 70   | 708  | 1            | 0.005      | 479  | -          | -    |
| 70221 | HILANDSL | 69  | 70   | 710  | 1            | 0.814      | 483  | -          | -    |
| 70222 | HILLTOP  | 69  | 70   | 712  | 2            | 0.089      | 339  | -          | -    |
| 70223 | HLTP TAP | 69  | 70   | 712  | 2            | 0.089      | 339  | -          | -    |
| 70225 | HOLL TAP | 69  | 70   | 712  | 2            | 0.357      | 339  | -          | -    |
| 70228 | HOMELAKE | 69  | 70   | 710  | 1            | 0.803      | 483  | -          | -    |
| 70229 | HOOPER   | 69  | 70   | 710  | 1            | 0.871      | 483  | -          | -    |
| 70230 | HOOPERTP | 69  | 70   | 710  | 1            | 0.862      | 483  | -          | -    |
| 70233 | HORIZON  | 230 | 70   | 708  | 1            | 0.003      | 479  | -          | -    |
| 70235 | HUERFANO | 69  | 70   | 712  | 1            | 0.069      | 262  | -          | -    |
| 70243 | LA SECPA | 69  | 70   | 712  | 1            | 0.018      | 262  | -          | -    |
| 70245 | LAGARITA | 69  | 70   | 710  | 1            | 0.893      | 483  | -          | -    |
| 70246 | LAJ IP   | 69  | 70   | 712  | 1            | 0.022      | 262  | -          | -    |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 1            | 0.023      | 262  | -          | -    |
| 70248 | LAJUNTAT | 69  | 70   | 712  | 1            | 0.015      | 262  | -          | -    |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 2            | 0.275      | 266  | -          | -    |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 3            | 0.231      | 266  | -          | -    |
| 70253 | LAMAR CO | 115 | 70   | 712  | 1            | 0.035      | 267  | -          | -    |
| 70254 | LAMAR CO | 230 | 70   | 712  | 1            | 0.026      | 267  | -          | -    |
| 70271 | LS ANMAS | 69  | 70   | 712  | 3            | 0.249      | 266  | -          | -    |
| 70275 | MANZANOL | 69  | 70   | 712  | 3            | 0.206      | 266  | -          | -    |
| 70289 | MOFFAT   | 69  | 70   | 710  | 2            | 0.916      | 483  | -          | -    |

LF: 2003hs-NOwind34-5.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| Bus # | Bus Name  | KV  | Area | Zone | # Violations | Worst Load | Ncon | Worst High | Ncon |
|-------|-----------|-----|------|------|--------------|------------|------|------------|------|
| 70292 | MOSCA     | 69  | 70   | 710  | 1            | 0.823      | 483  | -          | -    |
| 70301 | NTHRIDGE  | 115 | 70   | 712  | 1            | 0.008      | 262  | -          | -    |
| 70303 | ORDWAY    | 69  | 70   | 712  | 4            | 0.218      | 266  | -          | -    |
| 70304 | OTEROTP   | 115 | 70   | 709  | 1            | 0.001      | 483  | -          | -    |
| 70305 | OVERTON   | 69  | 70   | 712  | 1            | 0.007      | 255  | -          | -    |
| 70316 | PDA       | 69  | 70   | 712  | 1            | 0.061      | 255  | -          | -    |
| 70317 | PDA TAP   | 69  | 70   | 712  | 1            | 0.058      | 255  | -          | -    |
| 70319 | PHILLIPS  | 69  | 70   | 712  | 3            | 0.238      | 266  | -          | -    |
| 70320 | PHLPS TP  | 69  | 70   | 712  | 3            | 0.237      | 266  | -          | -    |
| 70325 | PLAZA     | 69  | 70   | 710  | 1            | 0.905      | 483  | -          | -    |
| 70326 | PONCHA    | 69  | 70   | 710  | 1            | 0.089      | 483  | -          | -    |
| 70327 | PONCHA    | 115 | 70   | 710  | 1            | 0.099      | 483  | -          | -    |
| 70330 | PORTLAND  | 115 | 70   | 712  | 1            | 0.003      | 324  | -          | -    |
| 70333 | PROMERS   | 69  | 70   | 712  | 2            | 0.437      | 339  | -          | -    |
| 70347 | RAMON     | 115 | 70   | 710  | 1            | 0.802      | 483  | -          | -    |
| 70348 | RAMON     | 69  | 70   | 710  | 1            | 0.808      | 483  | -          | -    |
| 70360 | RIOGRAND  | 69  | 70   | 710  | 1            | 0.81       | 483  | -          | -    |
| 70361 | RIOGRDTP  | 69  | 70   | 710  | 1            | 0.794      | 483  | -          | -    |
| 70366 | ROCKYFRD  | 69  | 70   | 712  | 3            | 0.179      | 266  | -          | -    |
| 70367 | ROMEO     | 69  | 70   | 710  | 1            | 0.843      | 483  | -          | -    |
| 70372 | S FWL TP  | 69  | 70   | 712  | 3            | 0.076      | 262  | -          | -    |
| 70373 | S.ACACIO  | 69  | 70   | 710  | 1            | 0.866      | 483  | -          | -    |
| 70374 | SAN LUIS  | 115 | 70   | 710  | 1            | 0.788      | 483  | -          | -    |
| 70375 | SAN LUIS  | 230 | 70   | 710  | 1            | 0.794      | 483  | -          | -    |
| 70376 | SAN LUIS  | 69  | 70   | 710  | 1            | 0.807      | 483  | -          | -    |
| 70378 | SANTFETP  | 69  | 70   | 712  | 1            | 0.031      | 255  | -          | -    |
| 70379 | SARGENT   | 115 | 70   | 710  | 1            | 0.761      | 483  | -          | -    |
| 70380 | SARGENT   | 69  | 70   | 710  | 1            | 0.789      | 483  | -          | -    |
| 70383 | SFORK SL  | 69  | 70   | 710  | 1            | 0.809      | 483  | -          | -    |
| 70394 | SMELTER   | 115 | 70   | 710  | 1            | 0.082      | 483  | -          | -    |
| 70399 | SNEPESTA  | 69  | 70   | 712  | 3            | 0.071      | 262  | -          | -    |
| 70404 | SPRINGFLD | 69  | 70   | 712  | 2            | 0.091      | 339  | -          | -    |
| 70405 | ST. CHAS. | 69  | 70   | 712  | 1            | 0.052      | 255  | -          | -    |
| 70411 | STANLEY   | 115 | 70   | 710  | 1            | 0.792      | 483  | -          | -    |
| 70414 | STOCKADE  | 69  | 70   | 710  | 1            | 0.855      | 483  | -          | -    |
| 70425 | T BUTTES  | 69  | 70   | 712  | 2            | 0.197      | 339  | -          | -    |
| 70452 | VILAS     | 115 | 70   | 712  | 2            | 0.047      | 339  | -          | -    |
| 70453 | VILAS     | 69  | 70   | 712  | 2            | 0.084      | 339  | -          | -    |

| Bus # | Bus Name  | KV  | Area | Zone | # Viol | WorstLd | Ncon | WorstHi | Ncon |
|-------|-----------|-----|------|------|--------|---------|------|---------|------|
| 70457 | WALSEN BG | 69  | 70   | 704  | 1      | 0.15    | 190  | -       | -    |
| 70460 | WALSH     | 69  | 70   | 712  | 2      | 0.135   | 339  | -       | -    |
| 70467 | WAVERLY   | 115 | 70   | 710  | 1      | 0.813   | 483  | -       | -    |
| 70468 | WAVERLY   | 69  | 70   | 710  | 1      | 0.847   | 483  | -       | -    |
| 70472 | WILOW CK  | 115 | 70   | 712  | 1      | 0.035   | 267  | -       | -    |
| 70473 | WILOW CK  | 69  | 70   | 712  | 2      | 0.429   | 339  | -       | -    |
| 70477 | ZINZER    | 69  | 70   | 710  | 1      | 0.869   | 483  | -       | -    |
| 70505 | MIRGEJCT  | 69  | 70   | 710  | 2      | 0.903   | 483  | -       | -    |
| 70506 | SAGUACHE  | 69  | 70   | 710  | 3      | 0.881   | 483  | -       | -    |
| 70507 | MEARSJCT  | 69  | 70   | 710  | 1      | 0.088   | 483  | -       | -    |
| 70508 | VILLA     | 69  | 70   | 710  | 1      | 0.086   | 483  | -       | -    |
| 70509 | KERBERCK  | 69  | 70   | 710  | 1      | 0.086   | 483  | -       | -    |
| 70510 | MIRGEJC0  | 69  | 70   | 710  | 1      | 0.086   | 483  | -       | -    |
| 70549 | APT MEM   | 115 | 70   | 712  | 1      | 0.034   | 262  | -       | -    |
| 70700 | GOB_KNOB  | 230 | 70   | 712  | 1      | 0.023   | 267  | -       | -    |
|       |           |     |      |      |        |         |      |         |      |

# Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:38 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* Report on violations \*\*\*\*\*

Buses with voltage violations

| Bus # | Bus NameKV | Area | Zone | ContVol | BaseVol       | LowLim | UppLim | VoltDro | VoltRis | Viol | Ncon | Contin.Description                        |
|-------|------------|------|------|---------|---------------|--------|--------|---------|---------|------|------|-------------------------------------------|
| 70024 | ALMSA ST   | 69   | 70   | 710     | <b>0.9009</b> | 1.0196 | 0.92   | 1.1     | -       | L    | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70024 | ALMSA ST   | 69   | 70   | 710     | <b>0.1105</b> | 1.0196 | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70025 | ALMSA TM   | 115  | 70   | 710     | <b>0.14</b>   | 1.038  | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70026 | ALMSA TM   | 69   | 70   | 710     | <b>0.1199</b> | 1.0235 | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70028 | ANSEL TS   | 69   | 70   | 710     | <b>0.1259</b> | 1.0267 | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70029 | ANTONITO   | 69   | 70   | 710     | <b>0.0643</b> | 0.9939 | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70549 | APT MEM    | 115  | 70   | 712     | <b>0.8865</b> | 1.0002 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70030 | APT PARK   | 115  | 70   | 712     | <b>0.8892</b> | 0.9974 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70031 | APT TAP    | 115  | 70   | 712     | <b>0.8955</b> | 0.9958 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70022 | APT TAP2   | 69   | 70   | 712     | <b>0.8838</b> | 1.0029 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70042 | ASPEN TP   | 69   | 70   | 712     | <b>0.8745</b> | 1.0136 | 0.92   | 1.1     | -       | L    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70049 | BELMONT    | 69   | 70   | 712     | <b>0.9036</b> | 0.9996 | 0.92   | 1.1     | -       | L    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70051 | BLLENDE    | 69   | 70   | 712     | <b>0.916</b>  | 1.0112 | 0.92   | 1.1     | -       | L    | 254  | 70042 ASPEN TP69.0 70051 BLENDE 69.0 1    |
| 70051 | BLLENDE    | 69   | 70   | 712     | <b>0.8755</b> | 1.0112 | 0.92   | 1.1     | -       | L    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70055 | BNVAST     | 115  | 70   | 709     | <b>0.8949</b> | 1.0269 | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70056 | BNVSTATP   | 115  | 70   | 709     | <b>0.896</b>  | 1.0279 | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70060 | BOONE      | 115  | 70   | 712     | <b>0.8889</b> | 1.0275 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70062 | BOONE      | 69   | 70   | 712     | <b>0.8564</b> | 1.0153 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70063 | BOONE TP   | 69   | 70   | 712     | <b>0.8529</b> | 1.0133 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70090 | CARMEL     | 69   | 70   | 710     | <b>0.0679</b> | 0.9998 | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70092 | CENTER     | 69   | 70   | 710     | <b>0.0521</b> | 1.007  | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70101 | CHEN TAP   | 69   | 70   | 712     | <b>0.8954</b> | 1.027  | 0.92   | 1.1     | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR C0 230 1      |
| 70101 | CHEN TAP   | 69   | 70   | 712     | <b>0.6317</b> | 1.027  | 0.92   | 1.1     | -       | L    | 339  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70102 | CHENEY     | 69   | 70   | 712     | <b>0.8917</b> | 1.0237 | 0.92   | 1.1     | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR C0 230 1      |
| 70102 | CHENEY     | 69   | 70   | 712     | <b>0.6268</b> | 1.0237 | 0.92   | 1.1     | -       | L    | 339  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70113 | CLIFTON    | 230  | 70   | 708     | <b>0.9141</b> | 0.9535 | 0.92   | 1.1     | -       | L    | 479  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70118 | COCENTER   | 69   | 70   | 710     | <b>0.1292</b> | 1.0245 | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70129 | CREEDE     | 69   | 70   | 710     | <b>0.0986</b> | 1.0348 | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70132 | CTY LAJ    | 69   | 70   | 712     | <b>0.8992</b> | 1.0152 | 0.92   | 1.1     | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70136 | CTY LAM    | 69   | 70   | 712     | <b>0.9173</b> | 1.0342 | 0.92   | 1.1     | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR C0 230 1      |
| 70136 | CTY LAM    | 69   | 70   | 712     | <b>0.4868</b> | 1.0342 | 0.92   | 1.1     | -       | L    | 339  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70143 | DELNORTE   | 69   | 70   | 710     | <b>0.1064</b> | 1.0107 | 0.92   | 1.1     | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |

| Bus # | Bus Name | KV  | Area | Zone | ContVol | BaseVol | LowLim | Upplim | VoltDro | VoltRis | Viol | Ncon | Contin. Description                     |
|-------|----------|-----|------|------|---------|---------|--------|--------|---------|---------|------|------|-----------------------------------------|
| 70158 | D0T      | 115 | 70   | 712  | 0.9198  | 1.0394  | 0.92   | 1.1    | -       | -       | L    | 264  | 70060 BOONE 115 70159 D0T TAP 115 1     |
| 70158 | D0T      | 115 | 70   | 712  | 0.8982  | 1.0394  | 0.92   | 1.1    | -       | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70159 | D0T TAP  | 115 | 70   | 712  | 0.8714  | 1.022   | 0.92   | 1.1    | -       | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70161 | EADS     | 69  | 70   | 712  | 0.9106  | 1.0311  | 0.92   | 1.1    | -       | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70161 | EADS     | 69  | 70   | 712  | 0.4759  | 1.0311  | 0.92   | 1.1    | -       | -       | L    | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.9191  | 0.9732  | 0.92   | 1.1    | -       | -       | L    | 307  | 70250 LAJUNTAW69.0 70366 ROCKYFRD69.0 1 |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.7982  | 0.9732  | 0.92   | 1.1    | -       | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.7092  | 0.9732  | 0.92   | 1.1    | -       | -       | L    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.7032  | 0.9732  | 0.92   | 1.1    | -       | -       | L    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70184 | FT HOLLY | 69  | 70   | 712  | 0.8981  | 1.0255  | 0.92   | 1.1    | -       | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70184 | FT HOLLY | 69  | 70   | 712  | 0.5593  | 1.0255  | 0.92   | 1.1    | -       | -       | L    | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70185 | FT. LYON | 69  | 70   | 712  | 0.9119  | 1.0293  | 0.92   | 1.1    | -       | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70185 | FT. LYON | 69  | 70   | 712  | 0.4785  | 1.0293  | 0.92   | 1.1    | -       | -       | L    | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 0.8263  | 0.9566  | 0.92   | 1.1    | -       | -       | L    | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 0.0901  | 0.9566  | 0.92   | 1.1    | -       | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70187 | FTGARLND | 69  | 70   | 710  | 0.8241  | 0.9548  | 0.92   | 1.1    | -       | -       | L    | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70187 | FTGARLND | 69  | 70   | 710  | 0.063   | 0.9548  | 0.92   | 1.1    | -       | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70700 | GOB_KNOB | 230 | 70   | 712  | 0.8974  | 1.0336  | 0.92   | 1.1    | -       | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70203 | GRAN TAP | 69  | 70   | 712  | 0.9039  | 1.0295  | 0.92   | 1.1    | -       | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70203 | GRAN TAP | 69  | 70   | 712  | 0.5465  | 1.0295  | 0.92   | 1.1    | -       | -       | L    | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70204 | GRANADA  | 69  | 70   | 712  | 0.9033  | 1.029   | 0.92   | 1.1    | -       | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70204 | GRANADA  | 69  | 70   | 712  | 0.5457  | 1.029   | 0.92   | 1.1    | -       | -       | L    | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70205 | GRANDJCT | 230 | 70   | 708  | 0.9141  | 0.9552  | 0.92   | 1.1    | -       | -       | L    | 479  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70206 | GRANDJPS | 230 | 70   | 708  | 0.9146  | 0.9529  | 0.92   | 1.1    | -       | -       | L    | 479  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70221 | HILANDSL | 69  | 70   | 710  | 0.106   | 1.0379  | 0.92   | 1.1    | -       | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70222 | HILLTOP  | 69  | 70   | 712  | 0.8942  | 1.0208  | 0.92   | 1.1    | -       | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70222 | HILLTOP  | 69  | 70   | 712  | 0.831   | 1.0208  | 0.92   | 1.1    | -       | -       | L    | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70223 | HLTP TAP | 69  | 70   | 712  | 0.8945  | 1.0211  | 0.92   | 1.1    | -       | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70223 | HLTP TAP | 69  | 70   | 712  | 0.8313  | 1.0211  | 0.92   | 1.1    | -       | -       | L    | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70225 | HOLL TAP | 69  | 70   | 712  | 0.9007  | 1.0279  | 0.92   | 1.1    | -       | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70225 | HOLL TAP | 69  | 70   | 712  | 0.563   | 1.0279  | 0.92   | 1.1    | -       | -       | L    | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70228 | HOMELAKE | 69  | 70   | 710  | 0.1171  | 1.0183  | 0.92   | 1.1    | -       | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70229 | HOOPER   | 69  | 70   | 710  | 0.9487  | 1.0051  | 0.92   | 1.1    | -       | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70230 | HOOPERTP | 69  | 70   | 710  | 0.0578  | 1.0101  | 0.92   | 1.1    | -       | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70233 | HORIZON  | 230 | 70   | 708  | 0.9173  | 0.9544  | 0.92   | 1.1    | -       | -       | L    | 479  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70235 | HUERFANO | 69  | 70   | 712  | 0.8507  | 1.0115  | 0.92   | 1.1    | -       | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70509 | KERBERCK | 69  | 70   | 710  | 0.8337  | 1.0443  | 0.92   | 1.1    | -       | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70243 | LA SECPA | 69  | 70   | 712  | 0.9025  | 1.0184  | 0.92   | 1.1    | -       | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70245 | LAGARTTA | 69  | 70   | 710  | 0.0269  | 0.9932  | 0.92   | 1.1    | -       | -       | L    | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70246 | LAJ IP   | 69  | 70   | 712  | 0.8982  | 1.0144  | 0.92   | 1.1    | -       | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70248 | LAJUNTAT | 69  | 70   | 712  | 0.9052  | 1.0205  | 0.92   | 1.1    | -       | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 0.8965  | 1.0055  | 0.92   | 1.1    | -       | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.8109  | 1.0236  | 0.92   | 1.1    | -       | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.6954  | 1.0236  | 0.92   | 1.1    | -       | -       | L    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.6892  | 1.0236  | 0.92   | 1.1    | -       | -       | L    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 0.6445  | 0.9727  | 0.92   | 1.1    | -       | -       | L    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70254 | LAMAR CO | 230 | 70   | 712  | 0.8944  | 1.0301  | 0.92   | 1.1    | -       | -       | L    | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |

| Bus # | Bus NameKV | Area | Zone | ContVol | BaseVol | LowLim | UppLim | VoltDro | VoltRis | Ncon | Contin.Description                        |
|-------|------------|------|------|---------|---------|--------|--------|---------|---------|------|-------------------------------------------|
| 70253 | LAMAR CO   | 115  | 70   | 712     | 0.8848  | 1.0354 | 0.92   | 1.1     | -       | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70271 | LS ANNAS   | 69   | 70   | 712     | 0.8377  | 1.0326 | 0.92   | 1.1     | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70271 | LS ANNAS   | 69   | 70   | 712     | 0.6777  | 1.0326 | 0.92   | 1.1     | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70271 | LS ANNAS   | 69   | 70   | 712     | 0.6713  | 1.0326 | 0.92   | 1.1     | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70275 | MANZANOL   | 69   | 70   | 712     | 0.8078  | 0.9812 | 0.92   | 1.1     | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70275 | MANZANOL   | 69   | 70   | 712     | 0.7199  | 0.9812 | 0.92   | 1.1     | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70275 | MANZANOL   | 69   | 70   | 712     | 0.714   | 0.9812 | 0.92   | 1.1     | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70507 | MEARSJCT   | 69   | 70   | 710     | 0.8317  | 1.0411 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70510 | MIRGEJCO   | 69   | 70   | 710     | 0.8337  | 1.0444 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70505 | MIRGEJCT   | 69   | 70   | 710     | 0.8837  | 0.9645 | 0.92   | 1.1     | -       | 222  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70505 | MIRGEJCT   | 69   | 70   | 710     | 0.0172  | 0.9645 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70289 | MOFFAT     | 69   | 70   | 710     | 0.8918  | 0.9718 | 0.92   | 1.1     | -       | 222  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70289 | MOFFAT     | 69   | 70   | 710     | 0.0938  | 0.9718 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70292 | MOSCA      | 69   | 70   | 710     | 0.0973  | 1.0269 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70301 | NTHRIDGE   | 115  | 70   | 712     | 0.9115  | 0.9918 | 0.92   | 1.1     | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70303 | ORDWAY     | 69   | 70   | 712     | 0.9184  | 0.9725 | 0.92   | 1.1     | -       | 307  | 70250 LAJUNTAW69.0 70366 ROCKYFRD69.0 1   |
| 70303 | ORDWAY     | 69   | 70   | 712     | 0.7973  | 0.9725 | 0.92   | 1.1     | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70303 | ORDWAY     | 69   | 70   | 712     | 0.7082  | 0.9725 | 0.92   | 1.1     | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70303 | ORDWAY     | 69   | 70   | 712     | 0.7022  | 0.9725 | 0.92   | 1.1     | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70304 | OTERTOP    | 115  | 70   | 709     | 0.9185  | 1.0296 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70305 | OVERTON    | 69   | 70   | 712     | 0.9129  | 0.9999 | 0.92   | 1.1     | -       | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70316 | PDA        | 69   | 70   | 712     | 0.8587  | 0.9999 | 0.92   | 1.1     | -       | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70317 | PDA TAP    | 69   | 70   | 712     | 0.8625  | 1.0031 | 0.92   | 1.1     | -       | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70319 | PHILLIPS   | 69   | 70   | 712     | 0.8459  | 1.0192 | 0.92   | 1.1     | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70319 | PHILLIPS   | 69   | 70   | 712     | 0.6881  | 1.0192 | 0.92   | 1.1     | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70319 | PHILLIPS   | 69   | 70   | 712     | 0.6818  | 1.0192 | 0.92   | 1.1     | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70320 | PHLPS TP   | 69   | 70   | 712     | 0.8465  | 1.0197 | 0.92   | 1.1     | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70320 | PHLPS TP   | 69   | 70   | 712     | 0.6889  | 1.0197 | 0.92   | 1.1     | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70320 | PHLPS TP   | 69   | 70   | 712     | 0.6826  | 1.0197 | 0.92   | 1.1     | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70325 | PLAZA      | 69   | 70   | 710     | 0.0152  | 0.9869 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70326 | PONCHA     | 69   | 70   | 710     | 0.8312  | 1.0402 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70327 | PONCHA     | 115  | 70   | 710     | 0.8211  | 1.0275 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70330 | PORTLAND   | 115  | 70   | 712     | 0.9173  | 0.9711 | 0.92   | 1.1     | -       | 324  | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70333 | PROWERS    | 69   | 70   | 712     | 0.9149  | 1.032  | 0.92   | 1.1     | -       | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70333 | PROWERS    | 69   | 70   | 712     | 0.483   | 1.032  | 0.92   | 1.1     | -       | 339  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70347 | RAMON      | 115  | 70   | 710     | 0.1175  | 1.0234 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70348 | RAMON      | 69   | 70   | 710     | 0.1119  | 1.0405 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70360 | RIOGRAND   | 69   | 70   | 710     | 0.1103  | 1.0128 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70361 | RIOGRDTP   | 69   | 70   | 710     | 0.126   | 1.0212 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70366 | ROCKYFRD   | 69   | 70   | 712     | 0.8321  | 1.0013 | 0.92   | 1.1     | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70366 | ROCKYFRD   | 69   | 70   | 712     | 0.7472  | 1.0013 | 0.92   | 1.1     | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70366 | ROCKYFRD   | 69   | 70   | 712     | 0.7414  | 1.0013 | 0.92   | 1.1     | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70367 | ROMEOW     | 69   | 70   | 710     | 0.0766  | 1.0006 | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70372 | S FWL TP   | 69   | 70   | 712     | 0.8535  | 1.0088 | 0.92   | 1.1     | -       | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70372 | S FWL TP   | 69   | 70   | 712     | 0.8489  | 1.0088 | 0.92   | 1.1     | -       | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70372 | S FWL TP   | 69   | 70   | 712     | 0.8444  | 1.0088 | 0.92   | 1.1     | -       | 262  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70373 | S.ACACIO   | 69   | 70   | 710     | 0.0545  | 0.995  | 0.92   | 1.1     | -       | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70506 | SAGUACHE   | 69   | 70   | 710     | 0.9118  | 0.9516 | 0.92   | 1.1     | -       | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |

| Bus # | Bus NameKV | Area | Zone | ContVol | BaseVol       | LowLim | Upplim | VoltDrd | VoltrisViol | Ncon | Contin.Description                      |
|-------|------------|------|------|---------|---------------|--------|--------|---------|-------------|------|-----------------------------------------|
| 70506 | SAGUACHE   | 69   | 70   | 710     | <b>0.8694</b> | 0.9516 | 0.92   | 1.1     | -           | 222  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1   |
| 70506 | SAGUACHE   | 69   | 70   | 710     | <b>0.0393</b> | 0.9516 | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70374 | SAN LUIS   | 115  | 70   | 710     | <b>0.1323</b> | 1.0267 | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70375 | SAN LUIS   | 230  | 70   | 710     | <b>0.126</b>  | 0.984  | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70376 | SAN LUIS   | 69   | 70   | 710     | <b>0.113</b>  | 1.0393 | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70378 | SANTFETP   | 69   | 70   | 712     | <b>0.8888</b> | 1.0057 | 0.92   | 1.1     | -           | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70379 | SARGENT    | 115  | 70   | 710     | <b>0.1588</b> | 1.029  | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70380 | SARGENT    | 69   | 70   | 710     | <b>0.131</b>  | 1.0234 | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70383 | SFORK SL   | 69   | 70   | 710     | <b>0.111</b>  | 1.0401 | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70394 | SMELTER    | 115  | 70   | 710     | <b>0.8384</b> | 1.0274 | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70399 | SNEPESTA   | 69   | 70   | 712     | <b>0.8934</b> | 1.0111 | 0.92   | 1.1     | -           | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70399 | SNEPESTA   | 69   | 70   | 712     | <b>0.8893</b> | 1.0111 | 0.92   | 1.1     | -           | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70404 | SPRNGFLD   | 69   | 70   | 712     | <b>0.826</b>  | 1.0194 | 0.92   | 1.1     | -           | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70404 | SPRNGFLD   | 69   | 70   | 712     | <b>0.8294</b> | 1.0194 | 0.92   | 1.1     | -           | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70405 | ST.CHAS.   | 69   | 70   | 712     | <b>0.8678</b> | 1.0077 | 0.92   | 1.1     | -           | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70411 | STANLEY    | 115  | 70   | 710     | <b>0.1284</b> | 1.0254 | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70414 | STOCKADE   | 69   | 70   | 710     | <b>0.0649</b> | 0.9996 | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70425 | T BUTTES   | 69   | 70   | 712     | <b>0.8951</b> | 1.0306 | 0.92   | 1.1     | -           | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70425 | T BUTTES   | 69   | 70   | 712     | <b>0.7228</b> | 1.0306 | 0.92   | 1.1     | -           | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70452 | VILAS      | 115  | 70   | 712     | <b>0.9009</b> | 1.0378 | 0.92   | 1.1     | -           | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70453 | VILAS      | 69   | 70   | 712     | <b>0.8889</b> | 1.025  | 0.92   | 1.1     | -           | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70452 | VILAS      | 115  | 70   | 712     | <b>0.8731</b> | 1.0378 | 0.92   | 1.1     | -           | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70453 | VILAS      | 69   | 70   | 712     | <b>0.8359</b> | 1.025  | 0.92   | 1.1     | -           | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70508 | VILLA      | 69   | 70   | 710     | <b>0.8336</b> | 1.0441 | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70457 | WALSENBG   | 69   | 70   | 704     | <b>0.7702</b> | 1.0043 | 0.92   | 1.1     | -           | 190  | 70457 WALSENBG69.0 70458 WALSENBG 115 1 |
| 70460 | WALSH      | 69   | 70   | 712     | <b>0.8975</b> | 1.0349 | 0.92   | 1.1     | -           | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70460 | WALSH      | 69   | 70   | 712     | <b>0.7848</b> | 1.0349 | 0.92   | 1.1     | -           | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70467 | WAVERLY    | 115  | 70   | 710     | <b>0.1067</b> | 1.0166 | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70468 | WAVERLY    | 69   | 70   | 710     | <b>0.0728</b> | 1.0025 | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70473 | WILOW CK   | 69   | 70   | 712     | <b>0.9191</b> | 1.0383 | 0.92   | 1.1     | -           | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70472 | WILOW CK   | 115  | 70   | 712     | <b>0.8849</b> | 1.0057 | 0.92   | 1.1     | -           | 267  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70473 | WILOW CK   | 69   | 70   | 712     | <b>0.4912</b> | 1.0383 | 0.92   | 1.1     | -           | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70477 | ZINZER     | 69   | 70   | 710     | <b>0.0513</b> | 0.991  | 0.92   | 1.1     | -           | 483  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |

# Flowgate Violations

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:39 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* No violations encountered among selected elements \*\*\*\*\*

| FgID***** | Type | Rating | PreShift | BaseCaseFl |
|-----------|------|--------|----------|------------|
|           |      |        |          |            |
|           |      |        |          |            |



# Exclude Report

\*\*\* MUST 5.0 \*\*\* WED, OCT 09 2002 9:37 \*\*\*  
2003HSV2 MASTER-2/11/02  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\* There are no excluded contingencies

===== List of excluded Monitored Branches:

|                |                          |                                  |
|----------------|--------------------------|----------------------------------|
| 70249 LAJUNTAW | 115 70250 LAJUNTAW69.0 1 | TR Excluded in all contingencies |
| 70352 READER   | 115 70353 READER 69.0 1  | TR Excluded in all contingencies |
| 70352 READER   | 115 70353 READER 69.0 2  | TR Excluded in all contingencies |



**B-3 - Power Flow Analysis –2003 Heavy Summer**

**No wind farm in service**

**A - Boone – Lamar 230-kV circuit outage with the 230-kV  
circuit in service between Golden Prairie and Lamar Substations**

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      FRI, OCT 04 2002   8:27
2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003      RATING
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS      SET A

BUS 70254 LAMAR CO 230 AREA CKT      MW      MVAR      MVA %I 1.0817PU 25.20 70254
      70      248.80KV
TO 70253 LAMAR CO 115 70 1      0.0      14.0      14.0 13 1.0000LK
TO 70700 GOB_KNOB 230 70 1      0.0      -14.0      14.0 3

BUS 70253 LAMAR CO 115 AREA CKT      MW      MVAR      MVA %I 1.0702PU 25.20 70253
      70      123.07KV
TO 70254 LAMAR CO 230 70 1      0.0      -13.8      13.8 13 1.0000UN
TO 70452 VILAS 115 70 1      10.7      -18.6      21.5 12
TO 70472 WILOW CK 115 70 1      -10.7      32.5      34.2 19

BUS 70452 VILAS 115 AREA CKT      MW      MVAR      MVA %I 1.1154PU 22.99 70452
      70      128.28KV
TO 70253 LAMAR CO 115 70 1      -10.5      14.0      17.4 9
TO 70453 VILAS 69.0 70 1      10.5      -14.0      17.4 19 1.1000HI

BUS 70472 WILOW CK 115 AREA CKT      MW      MVAR      MVA %I 1.0447PU 25.95 70472
      70      120.14KV
TO 70247 LAJUNTAT 115 70 1      -35.7      21.1      41.4 36
TO 70253 LAMAR CO 115 70 1      10.8      -33.0      34.7 19
TO 70473 WILOW CK69.0 70 1      24.8      11.9      27.5 63 0.9565LK

BUS 70473 WILOW CK69.0 AREA CKT      MW      MVAR      MVA %I 1.0766PU 24.39 70473
      70      74.288KV
TO LOAD-PQ      2.7      0.9      2.9
TO 70136 CTY LAM 69.0 70 1      9.7      9.7      13.7 67
TO 70161 EADS 69.0 70 1      2.1      -0.2      2.1 6
TO 70203 GRAN TAP69.0 70 1      10.3      0.6      10.3 28
TO 70472 WILOW CK 115 70 1      -24.8      -11.1      27.1 60 0.9565UN

BUS 70132 CTY LAJ 69.0 AREA CKT      MW      MVAR      MVA %I 1.0137PU 31.04 70132
      70      69.942KV
TO LOAD-PQ      15.9      5.2      16.7
TO 70131 CTY LAJ 13.8 70 1      0.0      0.0      0.0 0 1.0000LK
TO 70246 LAJ IP 69.0 70 1      2.4      0.7      2.5 6
TO 70248 LAJUNTAT69.0 70 1      -18.3      -5.9      19.2 49

BUS 70133 CTY LAM 14.4 AREA CKT      MW      MVAR      MVA %I 1.0547PU 26.34 70133
      70      15.187KV
GENERATION      24.0      -8.3L 25.4 85
TO 70134 CTY LAM 25.0 70 1      24.0      -8.3 25.4 96 1.0000UN

BUS 70247 LAJUNTAT 115 AREA CKT      MW      MVAR      MVA %I 1.0105PU 33.83 70247
      70      116.21KV
TO 70060 BOONE 115 70 1      -56.5      13.5      58.1 53
TO 70248 LAJUNTAT69.0 70 1      19.2      6.5      20.3 80 0.9750RG
TO 70472 WILOW CK 115 70 1      37.3      -20.0      42.3 38

BUS 70249 LAJUNTAW 115 AREA CKT      MW      MVAR      MVA %I 0.9701PU 40.20 70249
      70      111.56KV

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|          |         |      |    |   |       |       |      |           |    |
|----------|---------|------|----|---|-------|-------|------|-----------|----|
| TO 70060 | BOONE   | 115  | 70 | 1 | -20.3 | -13.0 | 24.1 | 23        |    |
| TO 70250 | LAJUNTA | 69.0 | 70 | 1 | 20.3  | 13.0  | 24.1 | 99 1.0693 | UN |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:27  
 2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003 RATING  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS SET A

|           |              |        |      |     |        |       |       |    |          |       |       |
|-----------|--------------|--------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70060 | BOONE        | 115    | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0248PU | 42.63 | 70060 |
|           |              |        |      | 70  |        |       |       |    | 117.85KV |       |       |
| TO 70061  | BOONE        | 230    | 70   | 1   | -113.2 | -23.2 | 115.6 | 75 | 1.0250RG |       |       |
| TO 70062  | BOONE        | 69.0   | 70   | 1   | 9.0    | -0.8  | 9.1   | 27 | 0.9875UN |       |       |
| TO 70159  | DOT TAP      | 115    | 70   | 1   | 24.3   | 20.9  | 32.1  | 27 |          |       |       |
| TO 70247  | LAJUNTAT     | 115    | 70   | 1   | 59.0   | -8.2  | 59.5  | 53 |          |       |       |
| TO 70249  | LAJUNTAW     | 115    | 70   | 1   | 20.9   | 11.3  | 23.8  | 21 |          |       |       |
| BUS 70061 | BOONE        | 230    | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0156PU | 46.06 | 70061 |
|           |              |        |      | 70  |        |       |       |    | 233.59KV |       |       |
| TO 70060  | BOONE        | 115    | 70   | 1   | 113.4  | 30.4  | 117.4 | 77 | 1.0250UN |       |       |
| TO 70122  | COMANCHE     | 230    | 70   | 1   | -129.5 | -26.2 | 132.1 | 30 |          |       |       |
| TO 70286  | MIDWAYPS     | 230    | 70   | 1   | 16.1   | -4.2  | 16.6  | 3  |          |       |       |
| BUS 70700 | GOB_KNOB     | 230    | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0854PU | 25.18 | 70700 |
|           |              |        |      | 70  |        |       |       |    | 249.65KV |       |       |
| TO 70254  | LAMAR CO     | 230    | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  |          |       |       |
| TO 70701  | GOB_KNOB     | 34.5   | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000LK |       |       |
| TO 70702  | GOB_KNOB     | 34.5   | 70   | 2   | 0.0    | 0.0   | 0.0   | 0  | 1.0000LK |       |       |
| BUS 70701 | GOB_KNOB     | 34.5   | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0854PU | 25.18 | 70701 |
|           |              |        |      | 70  |        |       |       |    | 37.448KV |       |       |
| TO 70700  | GOB_KNOB     | 230    | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| BUS 70702 | GOB_KNOB     | 34.5   | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0854PU | 25.18 | 70702 |
|           |              |        |      | 70  |        |       |       |    | 37.448KV |       |       |
| TO 70700  | GOB_KNOB     | 230    | 70   | 2   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| BUS 70286 | MIDWAYPS     | 230    | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0129PU | 45.51 | 70286 |
|           |              |        |      | 70  |        |       |       |    | 232.96KV |       |       |
| TO 70061  | BOONE        | 230    | 70   | 1   | -16.0  | -8.7  | 18.2  | 4  |          |       |       |
| TO 70122  | COMANCHE     | 230    | 70   | 1   | -81.9  | -20.0 | 84.3  | 16 |          |       |       |
| TO 70139  | DANIELPK     | 230    | 70   | 1   | 125.6  | 5.9   | 125.7 | 25 |          |       |       |
| TO 70285  | MIDWAYPS     | 115    | 70   | 1   | 26.8   | -3.9  | 27.1  | 27 | 0.9764UN |       |       |
| TO 70577  | FTNVL1-213.8 | 70     | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| TO 70578  | FTNVL3-413.8 | 70     | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| TO 70579  | FTNVL5-613.8 | 70     | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| TO 73413  | MIDWAYBR     | 230    | 73   | 1   | -54.5  | 26.7  | 60.7  | 12 |          |       |       |
| BUS 70459 | WALSENBG     | 230    | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0209PU | 46.49 | 70459 |
|           |              |        |      | 70  |        |       |       |    | 234.82KV |       |       |
| TO 70122  | COMANCHE     | 230    | 70   | 1   | -59.1  | -14.8 | 60.9  | 13 |          |       |       |
| TO 70458  | WALSENBG     | 115    | 70   | 1   | 59.1   | 14.8  | 60.9  | 60 | 1.0000LK |       |       |
| BUS 70122 | COMANCHE     | 230    | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0316PU | 48.79 | 70122 |
|           |              |        |      | 70  |        |       |       |    | 237.27KV |       |       |
| TO 70061  | BOONE        | 230    | 70   | 1   | 130.3  | 24.7  | 132.6 | 30 |          |       |       |
| TO 70094  | CF&IFURN     | 230    | 70   | 1   | 100.1  | 25.5  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN        | 1 24.0 | 70   | 1   | -320.8 | -55.2 | 325.5 | 77 | 1.0564LK |       |       |

|          |          |     |      |    |   |        |       |       |    |          |
|----------|----------|-----|------|----|---|--------|-------|-------|----|----------|
| TO 70120 | COMAN    | 2   | 24.0 | 70 | 1 | -326.9 | -49.7 | 330.6 | 76 | 1.0564LK |
| TO 70121 | COMANCHE | 115 | 70   | 1  |   | 96.6   | 21.3  | 98.9  | 57 | 0.9688UN |
| TO 70121 | COMANCHE | 115 | 70   | 2  |   | 96.6   | 21.3  | 98.9  | 64 | 0.9688UN |
| TO 70286 | MIDWAYPS | 230 | 70   | 1  |   | 82.5   | 10.7  | 83.2  | 16 |          |
| TO 70459 | WALSENBG | 230 | 70   | 1  |   | 59.3   | 2.2   | 59.4  | 13 |          |
| TO 73477 | FULLER   | 230 | 73   | 1  |   | 82.3   | -0.8  | 82.3  | 16 |          |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:27  
2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS   | -----X | AREA | V(PU) | V(KV)  | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-------|--------|------|-------|--------|--------|-----|--------|------|-------|-------|
|        | 70452 | VILAS  | 115  | 70    | 1.1154 | 128.28 |     |        |      |       |       |

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:27  
 2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS  
 OUTPUT FOR AREA 70 [PSCOLORA]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.7    | 50.0   | 99.4    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.7    | 50.0   | 99.3    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.6    | 55.0   | 92.1    |
| 70133*               | CTY LAM  | 14.4 | 70   | 70134              | CTY LAM  | 25.0 | 70   | 1            | 24.1    | 25.0   | 96.3    |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 24.9    | 25.0   | 99.5    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 1            | 43.3    | 47.0   | 92.1    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 2            | 43.3    | 47.0   | 92.1    |
| 70439                | UNC      | 115  | 70   | 70502*             | QF UNC   | 13.8 | 70   | 1            | 71.1    | 76.8   | 92.6    |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:27  
 2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS  
 OUTPUT FOR AREA 73 [WAPA R.M]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES    | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.2    | 18.0   | 90.1    |
| 73056                | ESTES    | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.2    | 18.0   | 90.1    |
| 73062                | FREMONT  | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.3    | 29.0   | 90.6    |
| 73062                | FREMONT  | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.3    | 29.0   | 90.7    |
| 79007                | BLUEMESA | 115  | 73   | 79157*             | BMESA1-2 | 12.5 | 73   | 2            | 92.8    | 100.0  | 92.8    |
| 79052                | NUCLA    | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 64.1    | 70.0   | 91.5    |

**B - Willow Creek 115/69-kV transformer outage**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 13:48  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN -W/CAP CASE-LOCKED AREA SHUNTS SET A

|                        |      |      |       |       |      |     |          |          |       |       |
|------------------------|------|------|-------|-------|------|-----|----------|----------|-------|-------|
| BUS 70254 LAMAR CO 230 | AREA | CKT  | MW    | MVAR  | MVA  | %I  | 1.0754PU | 42.48    | 70254 |       |
|                        | 70   |      |       |       |      |     | 247.33KV |          |       |       |
| TO 70061 BOONE         | 230  | 70 1 | -41.0 | 21.4  | 46.2 | 11  |          |          |       |       |
| TO 70253 LAMAR CO 115  | 70   | 1    | 40.9  | -7.6  | 41.6 | 39  | 1.0000LK |          |       |       |
| TO 70700 GOB_KNOB 230  | 70   | 1    | 0.0   | -13.8 | 13.8 | 3   |          |          |       |       |
|                        |      |      |       |       |      |     |          |          |       |       |
| BUS 70253 LAMAR CO 115 | AREA | CKT  | MW    | MVAR  | MVA  | %I  | 1.0822PU | 40.69    | 70253 |       |
|                        | 70   |      |       |       |      |     | 124.45KV |          |       |       |
| TO 70254 LAMAR CO 230  | 70   | 1    | -40.9 | 8.9   | 41.9 | 39  | 1.0000UN |          |       |       |
| TO 70452 VILAS         | 115  | 70 1 | 39.0  | -15.1 | 41.8 | 23  |          |          |       |       |
| TO 70472 WILLOW CK 115 | 70   | 1    | 1.9   | 6.2   | 6.5  | 3   |          |          |       |       |
|                        |      |      |       |       |      |     |          |          |       |       |
| BUS 70452 VILAS        | 115  | AREA | CKT   | MW    | MVAR | MVA | %I       | 1.1064PU | 33.96 | 70452 |
|                        | 70   |      |       |       |      |     | 127.24KV |          |       |       |
| TO 70253 LAMAR CO 115  | 70   | 1    | -38.2 | 14.2  | 40.7 | 22  |          |          |       |       |
| TO 70453 VILAS         | 69.0 | 70 1 | 38.1  | -14.2 | 40.7 | 44  | 1.0938RG |          |       |       |
|                        |      |      |       |       |      |     |          |          |       |       |
| BUS 70453 VILAS        | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 1.0244PU | 31.76 | 70453 |
|                        | 70   |      |       |       |      |     | 70.685KV |          |       |       |
| TO 70223 HLTP TAP69.0  | 70   | 1    | 6.8   | 2.0   | 7.1  | 18  |          |          |       |       |
| TO 70452 VILAS         | 115  | 70 1 | -38.1 | 15.8  | 41.2 | 48  | 1.0938UN |          |       |       |
| TO 70460 WALSH         | 69.0 | 70 1 | 31.2  | -17.8 | 36.0 | 104 |          |          |       |       |
|                        |      |      |       |       |      |     |          |          |       |       |
| BUS 70223 HLTP TAP69.0 | AREA | CKT  | MW    | MVAR  | MVA  | %I  | 1.0205PU | 31.48    | 70223 |       |
|                        | 70   |      |       |       |      |     | 70.414KV |          |       |       |
| TO 70222 HILLTOP       | 69.0 | 70 1 | 4.0   | 1.3   | 4.2  | 12  |          |          |       |       |
| TO 70404 SPRNGFLD      | 69.0 | 70 1 | 2.8   | 0.8   | 2.9  | 7   |          |          |       |       |
| TO 70453 VILAS         | 69.0 | 70 1 | -6.8  | -2.1  | 7.1  | 18  |          |          |       |       |
|                        |      |      |       |       |      |     |          |          |       |       |
| BUS 70460 WALSH        | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 1.0318PU | 28.29 | 70460 |
|                        | 70   |      |       |       |      |     | 71.192KV |          |       |       |
| TO LOAD-PQ             |      |      | 4.0   | 1.3   | 4.2  |     |          |          |       |       |
| TO SWITCHED SHUNT      |      |      | 0.0   | -17.2 | 17.2 |     |          |          |       |       |
| TO 70425 T BUTTES      | 69.0 | 70 1 | 26.3  | -3.4  | 26.5 | 76  |          |          |       |       |
| TO 70453 VILAS         | 69.0 | 70 1 | -30.3 | 19.4  | 36.0 | 103 |          |          |       |       |
|                        |      |      |       |       |      |     |          |          |       |       |
| BUS 70425 T BUTTES     | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 1.0179PU | 25.57 | 70425 |
|                        | 70   |      |       |       |      |     | 70.233KV |          |       |       |
| TO LOAD-PQ             |      |      | 2.0   | 0.7   | 2.2  |     |          |          |       |       |
| TO 70101 CHEN TAP      | 69.0 | 70 1 | 23.7  | -5.0  | 24.2 | 70  |          |          |       |       |
| TO 70460 WALSH         | 69.0 | 70 1 | -25.8 | 4.3   | 26.1 | 76  |          |          |       |       |
|                        |      |      |       |       |      |     |          |          |       |       |
| BUS 70101 CHEN TAP     | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 1.0033PU | 21.31 | 70101 |
|                        | 70   |      |       |       |      |     | 69.228KV |          |       |       |
| TO 70102 CHENEY        | 69.0 | 70 1 | 2.9   | 0.7   | 3.0  | 9   |          |          |       |       |
| TO 70225 HOLL TAP      | 69.0 | 70 1 | 20.0  | -6.9  | 21.2 | 62  |          |          |       |       |
| TO 70425 T BUTTES      | 69.0 | 70 1 | -22.9 | 6.2   | 23.8 | 70  |          |          |       |       |

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, 1:48:52PM

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|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 0.9999PU | 21.09 | 70102 |
|                   |      | 70   |     |      |      |     |    | 68.995KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -2.9 | -1.0 | 3.1 | 9  |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 13:48  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN -W/CAP CASE-LOCKED AREA SHUNTS SET A

|                        |      |     |       |      |      |    |          |       |       |
|------------------------|------|-----|-------|------|------|----|----------|-------|-------|
| BUS 70225 HOLL TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9989PU | 17.88 | 70225 |
|                        | 70   |     |       |      |      |    | 68.925KV |       |       |
| TO 70101 CHEN TAP69.0  | 70   | 1   | -19.5 | 7.6  | 20.9 | 62 |          |       |       |
| TO 70184 FT HOLLY69.0  | 70   | 1   | 2.9   | 0.8  | 3.1  | 9  |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | 16.5  | -8.5 | 18.6 | 55 |          |       |       |
| BUS 70184 FT HOLLY69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9965PU | 17.72 | 70184 |
|                        | 70   |     |       |      |      |    | 68.757KV |       |       |
| TO LOAD-PQ             |      |     | 2.9   | 1.0  | 3.1  |    |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -2.9  | -1.0 | 3.1  | 9  |          |       |       |
| BUS 70203 GRAN TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9997PU | 17.00 | 70203 |
|                        | 70   |     |       |      |      |    | 68.980KV |       |       |
| TO 70204 GRANADA 69.0  | 70   | 1   | 1.6   | 0.5  | 1.7  | 5  |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -16.4 | 8.6  | 18.5 | 55 |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | 14.8  | -9.1 | 17.4 | 51 |          |       |       |
| BUS 70204 GRANADA 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9992PU | 16.97 | 70204 |
|                        | 70   |     |       |      |      |    | 68.945KV |       |       |
| TO LOAD-PQ             |      |     | 1.6   | 0.5  | 1.7  |    |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | -1.6  | -0.5 | 1.7  | 5  |          |       |       |
| BUS 70161 EADS 69.0    | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9994PU | 13.32 | 70161 |
|                        | 70   |     |       |      |      |    | 68.959KV |       |       |
| TO LOAD-PQ             |      |     | 2.0   | 0.7  | 2.2  |    |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -2.0  | -0.7 | 2.2  | 6  |          |       |       |
| BUS 70136 CTY LAM 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0072PU | 13.76 | 70136 |
|                        | 70   |     |       |      |      |    | 69.495KV |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 1   | 0.3   | -5.5 | 5.5  | 22 | 1.0000LK |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 2   | 0.1   | -1.8 | 1.9  | 17 | 1.0000LK |       |       |
| TO 70185 FT. LYON69.0  | 70   | 1   | 7.2   | 2.3  | 7.5  | 19 |          |       |       |
| TO 70333 PROWERS 69.0  | 70   | 1   | 2.0   | 0.4  | 2.1  | 5  |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -9.6  | 4.7  | 10.7 | 56 |          |       |       |
| BUS 70185 FT. LYON69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0021PU | 13.41 | 70185 |
|                        | 70   |     |       |      |      |    | 69.147KV |       |       |
| TO LOAD-PQ             |      |     | 7.2   | 2.4  | 7.5  |    |          |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -7.2  | -2.4 | 7.5  | 19 |          |       |       |
| BUS 70134 CTY LAM 25.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0159PU | 13.68 | 70134 |
|                        | 70   |     |       |      |      |    | 25.397KV |       |       |
| TO LOAD-PQ             |      |     | 24.3  | 8.0  | 25.6 |    |          |       |       |
| TO SWITCHED SHUNT      |      |     | 0.0   | -9.3 | 9.3  |    |          |       |       |
| TO 70133 CTY LAM 14.4  | 70   | 1   | -23.9 | -6.2 | 24.7 | 97 | 1.0000LK |       |       |
| TO 70135 CTY LAM 4.20  | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -0.3  | 5.6  | 5.6  | 22 | 1.0000UN |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 2   | -0.1  | 1.9  | 1.9  | 17 | 1.0000UN |       |       |

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|     |       |          |      |      |     |      |      |     |    |          |             |
|-----|-------|----------|------|------|-----|------|------|-----|----|----------|-------------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0  | 0.0  | 0.0 | 0  | 0.9999RG |             |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW   | MVAR | MVA | %I | 1.0763PU | 40.66 70472 |
|     |       |          |      | 70   |     |      |      |     |    | 123.77KV |             |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 1.9  | 7.6  | 7.9 | 7  |          |             |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -1.9 | -7.6 | 7.9 | 4  |          |             |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 13:48  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN -W/CAP CASE-LOCKED AREA SHUNTS SET A

|           |                |      |      |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0070PU | 13.98 | 70473 |
|           |                | 70   |      |       |      |      |    | 69.483KV |       |       |
| TO        | LOAD-PQ        |      |      | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | SWITCHED SHUNT |      |      | 0.0   | -5.5 | 5.5  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70 1 | 9.7   | -4.7 | 10.7 | 56 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70 1 | 2.1   | -0.1 | 2.1  | 6  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70 1 | -14.4 | 9.4  | 17.2 | 50 |          |       |       |
| BUS 70132 | CTY LAJ 69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0196PU | 38.08 | 70132 |
|           |                | 70   |      |       |      |      |    | 70.354KV |       |       |
| TO        | LOAD-PQ        |      |      | 15.9  | 5.2  | 16.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70 1 | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70 1 | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70 1 | -18.3 | -5.9 | 19.2 | 48 |          |       |       |



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 13:48  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN -W/CAP CASE-LOCKED AREA SHUNTS SET A

|                                  |        |       |       |    |          |       |       |
|----------------------------------|--------|-------|-------|----|----------|-------|-------|
| BUS 70133 CTY LAM 14.4 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0300PU | 15.72 | 70133 |
| GENERATION 70                    | 24.0   | 7.1R  | 25.0  | 83 | 14.832KV |       |       |
| TO 70134 CTY LAM 25.0 70 1       | 24.0   | 7.1   | 25.0  | 97 | 1.0000UN |       |       |
|                                  |        |       |       |    |          |       |       |
| BUS 70247 LAJUNTAT 115 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0422PU | 40.83 | 70247 |
| 70                               |        |       |       |    | 119.86KV |       |       |
| TO 70060 BOONE 115 70 1          | -17.4  | 5.7   | 18.3  | 16 |          |       |       |
| TO 70248 LAJUNTAT 69.0 70 1      | 19.2   | 6.5   | 20.3  | 78 | 1.0000RG |       |       |
| TO 70472 WILOW CK 115 70 1       | -1.8   | -12.2 | 12.4  | 11 |          |       |       |
|                                  |        |       |       |    |          |       |       |
| BUS 70249 LAJUNTAW 115 AREA CKT  | MW     | MVAR  | MVA   | %I | 0.9819PU | 41.16 | 70249 |
| 70                               |        |       |       |    | 112.92KV |       |       |
| TO 70060 BOONE 115 70 1          | -20.4  | -13.4 | 24.4  | 23 |          |       |       |
| TO 70250 LAJUNTAW 69.0 70 1      | 20.4   | 13.4  | 24.4  | 99 | 1.0630UN |       |       |
|                                  |        |       |       |    |          |       |       |
| BUS 70060 BOONE 115 AREA CKT     | MW     | MVAR  | MVA   | %I | 1.0368PU | 43.53 | 70060 |
| 70                               |        |       |       |    | 119.24KV |       |       |
| TO 70061 BOONE 230 70 1          | -77.4  | -24.1 | 81.1  | 52 | 1.0188RG |       |       |
| TO 70062 BOONE 69.0 70 1         | 8.9    | -0.8  | 8.9   | 26 | 0.9813UN |       |       |
| TO 70159 DOT TAP 115 70 1        | 29.9   | 21.8  | 37.0  | 31 |          |       |       |
| TO 70247 LAJUNTAT 115 70 1       | 17.6   | -8.5  | 19.6  | 17 |          |       |       |
| TO 70249 LAJUNTAW 115 70 1       | 21.0   | 11.6  | 24.0  | 21 |          |       |       |
|                                  |        |       |       |    |          |       |       |
| BUS 70061 BOONE 230 AREA CKT     | MW     | MVAR  | MVA   | %I | 1.0323PU | 45.79 | 70061 |
| 70                               |        |       |       |    | 237.43KV |       |       |
| TO 70060 BOONE 115 70 1          | 77.5   | 27.5  | 82.2  | 53 | 1.0188UN |       |       |
| TO 70122 COMANCHE 230 70 1       | -132.9 | 5.7   | 133.0 | 30 |          |       |       |
| TO 70254 LAMAR CO 230 70 1       | 41.4   | -50.2 | 65.1  | 16 |          |       |       |
| TO 70286 MIDWAYPS 230 70 1       | 14.0   | 17.0  | 22.0  | 4  |          |       |       |
|                                  |        |       |       |    |          |       |       |
| BUS 70700 GOB_KNOB 230 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0791PU | 42.46 | 70700 |
| 70                               |        |       |       |    | 248.19KV |       |       |
| TO 70254 LAMAR CO 230 70 1       | 0.0    | 0.0   | 0.0   | 0  |          |       |       |
| TO 70701 GOB_KNOB 34.5 70 1      | 0.0    | 0.0   | 0.0   | 0  | 1.0000LK |       |       |
| TO 70702 GOB_KNOB 34.5 70 2      | 0.0    | 0.0   | 0.0   | 0  | 1.0000LK |       |       |
|                                  |        |       |       |    |          |       |       |
| BUS 70701 GOB_KNOB 34.5 AREA CKT | MW     | MVAR  | MVA   | %I | 1.0791PU | 42.46 | 70701 |
| 70                               |        |       |       |    | 37.228KV |       |       |
| TO 70700 GOB_KNOB 230 70 1       | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
|                                  |        |       |       |    |          |       |       |
| BUS 70702 GOB_KNOB 34.5 AREA CKT | MW     | MVAR  | MVA   | %I | 1.0791PU | 42.46 | 70702 |
| 70                               |        |       |       |    | 37.228KV |       |       |
| TO 70700 GOB_KNOB 230 70 2       | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
|                                  |        |       |       |    |          |       |       |
| BUS 70286 MIDWAYPS 230 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0167PU | 45.42 | 70286 |
| 70                               |        |       |       |    | 233.83KV |       |       |
| TO 70061 BOONE 230 70 1          | -14.0  | -29.9 | 33.0  | 7  |          |       |       |
| TO 70122 COMANCHE 230 70 1       | -80.7  | -21.4 | 83.5  | 16 |          |       |       |

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|    |       |              |     |    |   |       |      |       |    |          |
|----|-------|--------------|-----|----|---|-------|------|-------|----|----------|
| TO | 70139 | DANIELPK     | 230 | 70 | 1 | 125.9 | 8.7  | 126.2 | 25 |          |
| TO | 70285 | MIDWAYPS     | 115 | 70 | 1 | 23.5  | -5.1 | 24.0  | 24 | 0.9764UN |
| TO | 70577 | FTNVL1-213.8 | 70  | 1  |   | 0.0   | 0.0  | 0.0   | 0  | 1.0000UN |
| TO | 70578 | FTNVL3-413.8 | 70  | 1  |   | 0.0   | 0.0  | 0.0   | 0  | 1.0000UN |
| TO | 70579 | FTNVL5-613.8 | 70  | 1  |   | 0.0   | 0.0  | 0.0   | 0  | 1.0000UN |
| TO | 73413 | MIDWAYBR     | 230 | 73 | 1 | -54.7 | 47.7 | 72.5  | 14 |          |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 13:48  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN -W/CAP CASE-LOCKED AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70459 | WALSENBG | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0254PU | 46.35 | 70459 |
|           |          |      | 70   |     |        |       |       |    | 235.85KV |       |       |
| TO 70122  | COMANCHE | 230  | 70   | 1   | -58.8  | -15.1 | 60.7  | 13 |          |       |       |
| TO 70458  | WALSENBG | 115  | 70   | 1   | 58.8   | 15.1  | 60.7  | 59 | 1.0000LK |       |       |
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0361PU | 48.62 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 238.31KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 133.7  | -7.4  | 133.9 | 30 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.5  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -320.8 | -40.9 | 323.4 | 76 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -326.9 | -35.8 | 328.9 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 95.8   | 21.8  | 98.3  | 57 | 0.9688UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 95.8   | 21.8  | 98.3  | 63 | 0.9688UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 81.3   | 11.8  | 82.2  | 16 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 59.1   | 2.2   | 59.1  | 13 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 81.8   | 1.0   | 81.8  | 16 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 13:48  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
NO GOBBLERS KNOB 34.5 KV GEN -W/CAP CASE-LOCKED AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS   | -----X | AREA | V(PU)  | V(KV)  | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-------|--------|------|--------|--------|--------|-----|--------|------|-------|-------|
| 70452  | VILAS | 115    | 70   | 1.1064 | 127.24 |        |     |        |      |       |       |

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 13:48  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
NO GOBBLERS KNOB 34.5 KV GEN -W/CAP CASE-LOCKED AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.7    | 50.0   | 99.3    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.3    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.6    | 55.0   | 92.0    |
| 70133*               | CTY LAM  | 14.4 | 70   | 70134              | CTY LAM  | 25.0 | 70   | 1            | 24.3    | 25.0   | 97.2    |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 24.8    | 25.0   | 99.4    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 1            | 43.1    | 47.0   | 91.7    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 2            | 43.1    | 47.0   | 91.7    |
| 70439                | UNC      | 115  | 70   | 70502*             | QF UNC   | 13.8 | 70   | 1            | 71.1    | 76.8   | 92.6    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 35.1    | 33.9   | 103.5   |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 13:48  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
NO GOBBLERS KNOB 34.5 KV GEN -W/CAP CASE-LOCKED AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |         |        |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|---------|--------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME    | BSKV   | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES    | 115  | 73   | 73307*             | ESTES2  | 6.90   | 73   | 2            | 16.2    | 18.0   | 90.1    |
| 73056                | ESTES    | 115  | 73   | 73308*             | ESTES3  | 6.90   | 73   | 3            | 16.2    | 18.0   | 90.1    |
| 73062                | FREMONT  | 115  | 73   | 73349*             | FREMONT | 112.0  | 73   | 1            | 26.3    | 29.0   | 90.6    |
| 73062                | FREMONT  | 115  | 73   | 73350*             | FREMONT | 212.0  | 73   | 1            | 26.3    | 29.0   | 90.7    |
| 79007                | BLUEMESA | 115  | 73   | 79157*             | BMESA1  | 212.5  | 73   | 2            | 92.8    | 100.0  | 92.8    |
| 79052                | NUCLA    | 115  | 73   | 79161*             | NUCLA   | 4 13.8 | 73   | 1            | 64.1    | 70.0   | 91.5    |

**C - Willow Creek 115/69-kV transformer outage with 5.4 MVAR capacitors added at Willow Creek 69 kV with the Golden Prairie - Lamar 230-kV circuit in service**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:19  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS SET A

|                   |           |      |      |     |       |       |      |     |          |       |       |
|-------------------|-----------|------|------|-----|-------|-------|------|-----|----------|-------|-------|
| BUS 70254         | LAMAR CO  | 230  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0554PU | 42.59 | 70254 |
|                   |           |      | 70   |     |       |       |      |     | 242.75KV |       |       |
| TO 70061          | BOONE     | 230  | 70   | 1   | -40.4 | 9.8   | 41.6 | 10  |          |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | 40.4  | -9.8  | 41.6 | 39  | 1.0000LK |       |       |
| BUS 70253         | LAMAR CO  | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0643PU | 40.75 | 70253 |
|                   |           |      | 70   |     |       |       |      |     | 122.39KV |       |       |
| TO 70254          | LAMAR CO  | 230  | 70   | 1   | -40.4 | 11.2  | 41.9 | 39  | 1.0000UN |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | 39.0  | -14.7 | 41.7 | 23  |          |       |       |
| TO 70472          | WILLOW CK | 115  | 70   | 1   | 1.4   | 3.5   | 3.8  | 2   |          |       |       |
| BUS 70452         | VILAS     | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0884PU | 33.80 | 70452 |
|                   |           |      | 70   |     |       |       |      |     | 125.16KV |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | -38.1 | 14.2  | 40.7 | 22  |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | 38.1  | -14.2 | 40.7 | 44  | 1.0750RG |       |       |
| BUS 70453         | VILAS     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0253PU | 31.60 | 70453 |
|                   |           |      | 70   |     |       |       |      |     | 70.742KV |       |       |
| TO 70223          | HLTP TAP  | 69.0 | 70   | 1   | 6.8   | 2.0   | 7.1  | 18  |          |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | -38.0 | 15.8  | 41.2 | 48  | 1.0750UN |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | 31.2  | -17.8 | 35.9 | 103 |          |       |       |
| BUS 70223         | HLTP TAP  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0213PU | 31.32 | 70223 |
|                   |           |      | 70   |     |       |       |      |     | 70.472KV |       |       |
| TO 70222          | HILLTOP   | 69.0 | 70   | 1   | 4.0   | 1.3   | 4.2  | 12  |          |       |       |
| TO 70404          | SPRNGFLD  | 69.0 | 70   | 1   | 2.8   | 0.8   | 2.9  | 7   |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -6.8  | -2.1  | 7.1  | 18  |          |       |       |
| BUS 70460         | WALSH     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0326PU | 28.15 | 70460 |
|                   |           |      | 70   |     |       |       |      |     | 71.248KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 4.0   | 1.3   | 4.2  |     |          |       |       |
| TO SWITCHED SHUNT |           |      |      |     | 0.0   | -17.3 | 17.3 |     |          |       |       |
| TO 70425          | T BUTTES  | 69.0 | 70   | 1   | 26.3  | -3.4  | 26.5 | 76  |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -30.3 | 19.3  | 35.9 | 103 |          |       |       |
| BUS 70425         | T BUTTES  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0186PU | 25.44 | 70425 |
|                   |           |      | 70   |     |       |       |      |     | 70.284KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 2.0   | 0.7   | 2.2  |     |          |       |       |
| TO 70101          | CHEN TAP  | 69.0 | 70   | 1   | 23.7  | -4.9  | 24.2 | 70  |          |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | -25.7 | 4.3   | 26.1 | 76  |          |       |       |
| BUS 70101         | CHEN TAP  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0039PU | 21.19 | 70101 |
|                   |           |      | 70   |     |       |       |      |     | 69.271KV |       |       |
| TO 70102          | CHENEY    | 69.0 | 70   | 1   | 2.9   | 0.7   | 3.0  | 9   |          |       |       |
| TO 70225          | HOLL TAP  | 69.0 | 70   | 1   | 20.0  | -6.8  | 21.1 | 62  |          |       |       |
| TO 70425          | T BUTTES  | 69.0 | 70   | 1   | -22.9 | 6.1   | 23.7 | 70  |          |       |       |
| BUS 70102         | CHENEY    | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0005PU | 20.96 | 70102 |



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|    |                    |    |    |  |      |      |     |          |
|----|--------------------|----|----|--|------|------|-----|----------|
|    |                    |    | 70 |  |      |      |     | 69.037KV |
| TO | LOAD-PQ            |    |    |  | 2.9  | 1.0  | 3.1 |          |
| TO | 70101 CHEN TAP69.0 | 70 | 1  |  | -2.9 | -1.0 | 3.1 | 9        |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:19  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS SET A

|                        |      |     |       |      |      |    |          |       |       |
|------------------------|------|-----|-------|------|------|----|----------|-------|-------|
| BUS 70225 HOLL TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9994PU | 17.76 | 70225 |
|                        | 70   |     |       |      |      |    | 68.958KV |       |       |
| TO 70101 CHEN TAP69.0  | 70   | 1   | -19.5 | 7.6  | 20.9 | 62 |          |       |       |
| TO 70184 FT HOLLY69.0  | 70   | 1   | 2.9   | 0.8  | 3.1  | 9  |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | 16.5  | -8.4 | 18.5 | 55 |          |       |       |
| BUS 70184 FT HOLLY69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9970PU | 17.60 | 70184 |
|                        | 70   |     |       |      |      |    | 68.790KV |       |       |
| TO LOAD-PQ             |      |     | 2.9   | 1.0  | 3.1  |    |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -2.9  | -1.0 | 3.1  | 9  |          |       |       |
| BUS 70203 GRAN TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0001PU | 16.89 | 70203 |
|                        | 70   |     |       |      |      |    | 69.010KV |       |       |
| TO 70204 GRANADA 69.0  | 70   | 1   | 1.6   | 0.5  | 1.7  | 5  |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -16.4 | 8.5  | 18.5 | 55 |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | 14.8  | -9.0 | 17.3 | 51 |          |       |       |
| BUS 70204 GRANADA 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9996PU | 16.86 | 70204 |
|                        | 70   |     |       |      |      |    | 68.975KV |       |       |
| TO LOAD-PQ             |      |     | 1.6   | 0.5  | 1.7  |    |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | -1.6  | -0.5 | 1.7  | 5  |          |       |       |
| BUS 70161 EADS 69.0    | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9997PU | 13.22 | 70161 |
|                        | 70   |     |       |      |      |    | 68.976KV |       |       |
| TO LOAD-PQ             |      |     | 2.0   | 0.7  | 2.2  |    |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -2.0  | -0.7 | 2.2  | 6  |          |       |       |
| BUS 70136 CTY LAM 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0074PU | 13.66 | 70136 |
|                        | 70   |     |       |      |      |    | 69.510KV |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 1   | 0.3   | -5.5 | 5.5  | 22 | 1.0000LK |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 2   | 0.1   | -1.8 | 1.8  | 17 | 1.0000LK |       |       |
| TO 70185 FT. LYON69.0  | 70   | 1   | 7.2   | 2.3  | 7.5  | 19 |          |       |       |
| TO 70333 PROWERS 69.0  | 70   | 1   | 2.0   | 0.4  | 2.1  | 5  |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -9.6  | 4.6  | 10.7 | 56 |          |       |       |
| BUS 70185 FT. LYON69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0024PU | 13.31 | 70185 |
|                        | 70   |     |       |      |      |    | 69.162KV |       |       |
| TO LOAD-PQ             |      |     | 7.2   | 2.4  | 7.5  |    |          |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -7.2  | -2.4 | 7.5  | 19 |          |       |       |
| BUS 70134 CTY LAM 25.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0160PU | 13.58 | 70134 |
|                        | 70   |     |       |      |      |    | 25.400KV |       |       |
| TO LOAD-PQ             |      |     | 24.3  | 8.0  | 25.6 |    |          |       |       |
| TO SWITCHED SHUNT      |      |     | 0.0   | -9.3 | 9.3  |    |          |       |       |
| TO 70133 CTY LAM 14.4  | 70   | 1   | -23.9 | -6.1 | 24.7 | 97 | 1.0000LK |       |       |
| TO 70135 CTY LAM 4.20  | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -0.3  | 5.5  | 5.5  | 22 | 1.0000UN |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 2   | -0.1  | 1.8  | 1.8  | 17 | 1.0000UN |       |       |

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|     |       |          |      |      |     |      |      |     |    |          |       |       |
|-----|-------|----------|------|------|-----|------|------|-----|----|----------|-------|-------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0  | 0.0  | 0.0 | 0  | 0.9999RG |       |       |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW   | MVAR | MVA | %I | 1.0606PU | 40.73 | 70472 |
|     |       |          |      | 70   |     |      |      |     |    | 121.96KV |       |       |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 1.4  | 5.0  | 5.2 | 4  |          |       |       |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -1.4 | -5.0 | 5.2 | 3  |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:19  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS SET A

|           |                |      |      |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0072PU | 13.88 | 70473 |
|           |                |      | 70   |       |      |      |    | 69.499KV |       |       |
| TO        | LOAD-PQ        |      |      | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | SWITCHED SHUNT |      |      | 0.0   | -5.5 | 5.5  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70 1 | 9.6   | -4.6 | 10.7 | 56 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70 1 | 2.1   | -0.1 | 2.1  | 6  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70 1 | -14.4 | 9.3  | 17.2 | 50 |          |       |       |
| BUS 70132 | CTY LAJ 69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0192PU | 38.10 | 70132 |
|           |                |      | 70   |       |      |      |    | 70.324KV |       |       |
| TO        | LOAD-PQ        |      |      | 15.9  | 5.2  | 16.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70 1 | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70 1 | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70 1 | -18.3 | -5.9 | 19.2 | 48 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:19  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS SET A

|                                 |        |       |       |    |          |       |       |
|---------------------------------|--------|-------|-------|----|----------|-------|-------|
| BUS 70133 CTY LAM 14.4 AREA CKT | MW     | MVAR  | MVA   | %I | 1.0300PU | 15.62 | 70133 |
| GENERATION 70                   | 24.0   | 7.0R  | 25.0  | 83 | 14.832KV |       |       |
| TO 70134 CTY LAM 25.0 70 1      | 24.0   | 7.0   | 25.0  | 97 | 1.0000UN |       |       |
|                                 |        |       |       |    |          |       |       |
| BUS 70247 LAJUNTAT 115 AREA CKT | MW     | MVAR  | MVA   | %I | 1.0353PU | 40.85 | 70247 |
| 70                              |        |       |       |    | 119.06KV |       |       |
| TO 70060 BOONE 115 70 1         | -17.9  | 3.1   | 18.1  | 16 |          |       |       |
| TO 70248 LAJUNTAT 69.0 70 1     | 19.2   | 6.5   | 20.3  | 78 | 0.9938RG |       |       |
| TO 70472 WILOW CK 115 70 1      | -1.3   | -9.6  | 9.7   | 9  |          |       |       |
|                                 |        |       |       |    |          |       |       |
| BUS 70249 LAJUNTAW 115 AREA CKT | MW     | MVAR  | MVA   | %I | 0.9819PU | 41.16 | 70249 |
| 70                              |        |       |       |    | 112.92KV |       |       |
| TO 70060 BOONE 115 70 1         | -20.4  | -13.4 | 24.4  | 23 |          |       |       |
| TO 70250 LAJUNTAW 69.0 70 1     | 20.4   | 13.4  | 24.4  | 99 | 1.0630UN |       |       |
|                                 |        |       |       |    |          |       |       |
| BUS 70060 BOONE 115 AREA CKT    | MW     | MVAR  | MVA   | %I | 1.0368PU | 43.54 | 70060 |
| 70                              |        |       |       |    | 119.24KV |       |       |
| TO 70061 BOONE 230 70 1         | -78.0  | -27.0 | 82.5  | 53 | 1.0250RG |       |       |
| TO 70062 BOONE 69.0 70 1        | 8.9    | -0.8  | 8.9   | 26 | 0.9813UN |       |       |
| TO 70159 DOT TAP 115 70 1       | 29.9   | 22.1  | 37.2  | 31 |          |       |       |
| TO 70247 LAJUNTAT 115 70 1      | 18.1   | -5.8  | 19.0  | 17 |          |       |       |
| TO 70249 LAJUNTAW 115 70 1      | 21.0   | 11.6  | 24.0  | 21 |          |       |       |
|                                 |        |       |       |    |          |       |       |
| BUS 70061 BOONE 230 AREA CKT    | MW     | MVAR  | MVA   | %I | 1.0278PU | 45.83 | 70061 |
| 70                              |        |       |       |    | 236.39KV |       |       |
| TO 70060 BOONE 115 70 1         | 78.0   | 30.6  | 83.8  | 54 | 1.0250UN |       |       |
| TO 70122 COMANCHE 230 70 1      | -132.7 | -3.0  | 132.7 | 30 |          |       |       |
| TO 70254 LAMAR CO 230 70 1      | 40.7   | -38.8 | 56.3  | 14 |          |       |       |
| TO 70286 MIDWAYPS 230 70 1      | 13.9   | 11.2  | 17.8  | 4  |          |       |       |
|                                 |        |       |       |    |          |       |       |
| BUS 70286 MIDWAYPS 230 AREA CKT | MW     | MVAR  | MVA   | %I | 1.0157PU | 45.43 | 70286 |
| 70                              |        |       |       |    | 233.61KV |       |       |
| TO 70061 BOONE 230 70 1         | -13.9  | -24.1 | 27.8  | 6  |          |       |       |
| TO 70122 COMANCHE 230 70 1      | -80.9  | -21.0 | 83.6  | 16 |          |       |       |
| TO 70139 DANIELPK 230 70 1      | 125.9  | 8.0   | 126.2 | 25 |          |       |       |
| TO 70285 MIDWAYPS 115 70 1      | 23.4   | -5.2  | 24.0  | 24 | 0.9764UN |       |       |
| TO 70577 FTNVL1-213.8 70 1      | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| TO 70578 FTNVL3-413.8 70 1      | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| TO 70579 FTNVL5-613.8 70 1      | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| TO 73413 MIDWAYBR 230 73 1      | -54.6  | 42.3  | 69.1  | 14 |          |       |       |
|                                 |        |       |       |    |          |       |       |
| BUS 70459 WALSENBG 230 AREA CKT | MW     | MVAR  | MVA   | %I | 1.0243PU | 46.37 | 70459 |
| 70                              |        |       |       |    | 235.58KV |       |       |
| TO 70122 COMANCHE 230 70 1      | -58.8  | -15.0 | 60.7  | 13 |          |       |       |
| TO 70458 WALSENBG 115 70 1      | 58.8   | 15.0  | 60.7  | 59 | 1.0000LK |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:19  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0349PU | 48.65 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 238.03KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 133.5  | 1.3   | 133.5 | 30 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.5  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -320.8 | -44.7 | 323.9 | 76 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -326.9 | -39.5 | 329.3 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 95.8   | 21.6  | 98.2  | 57 | 0.9688UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 95.8   | 21.6  | 98.2  | 63 | 0.9688UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 81.5   | 11.5  | 82.3  | 16 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 59.1   | 2.2   | 59.1  | 13 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 81.9   | 0.5   | 81.9  | 16 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:19  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:19  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.7    | 50.0   | 99.4    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.3    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.6    | 55.0   | 92.0    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 24.3    | 25.0   | 97.1    |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 24.8    | 25.0   | 99.4    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 1            | 43.1    | 47.0   | 91.8    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 2            | 43.1    | 47.0   | 91.8    |
| 70439                | UNC      | 115  | 70   | 70502*             | QF UNC   | 13.8 | 70   | 1            | 71.1    | 76.8   | 92.6    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 35.0    | 33.9   | 103.4   |



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:19  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |         |        |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|---------|--------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME    | BSKV   | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES    | 115  | 73   | 73307*             | ESTES2  | 6.90   | 73   | 2            | 16.2    | 18.0   | 90.1    |
| 73056                | ESTES    | 115  | 73   | 73308*             | ESTES3  | 6.90   | 73   | 3            | 16.2    | 18.0   | 90.1    |
| 73062                | FREMONT  | 115  | 73   | 73349*             | FREMONT | 112.0  | 73   | 1            | 26.3    | 29.0   | 90.6    |
| 73062                | FREMONT  | 115  | 73   | 73350*             | FREMONT | 212.0  | 73   | 1            | 26.3    | 29.0   | 90.7    |
| 79007*               | BLUEMESA | 115  | 73   | 79157              | BMESA1  | 212.5  | 73   | 2            | 92.8    | 100.0  | 92.8    |
| 79052                | NUCLA    | 115  | 73   | 79161*             | NUCLA   | 4 13.8 | 73   | 1            | 64.1    | 70.0   | 91.5    |

**D - Willow Creek 115/69-kV transformer outage with 5.4 MVAR capacitors added at Willow Creek 69 kV without the Golden Prairie - Lamar 230-kV circuit in service**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 14 2002 15:39  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS SET A

|                        |      |     |       |       |      |    |          |       |       |
|------------------------|------|-----|-------|-------|------|----|----------|-------|-------|
| BUS 70254 LAMAR CO 230 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0470PU | 42.70 | 70254 |
|                        | 70   |     |       |       |      |    | 240.80KV |       |       |
| TO 70061 BOONE 230     | 70   | 1   | -40.1 | 4.6   | 40.4 | 10 |          |       |       |
| TO 70253 LAMAR CO 115  | 70   | 1   | 40.2  | -4.6  | 40.4 | 39 | 1.0000LK |       |       |
| BUS 70253 LAMAR CO 115 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0514PU | 40.84 | 70253 |
|                        | 70   |     |       |       |      |    | 120.91KV |       |       |
| TO 70254 LAMAR CO 230  | 70   | 1   | -40.2 | 5.9   | 40.6 | 39 | 1.0000UN |       |       |
| TO 70452 VILAS 115     | 70   | 1   | 38.9  | -8.7  | 39.8 | 22 |          |       |       |
| TO 70472 WILLOW CK 115 | 70   | 1   | 1.3   | 2.7   | 3.0  | 2  |          |       |       |
| BUS 70452 VILAS 115    | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0562PU | 33.80 | 70452 |
|                        | 70   |     |       |       |      |    | 121.46KV |       |       |
| TO 70253 LAMAR CO 115  | 70   | 1   | -38.0 | 8.1   | 38.9 | 22 |          |       |       |
| TO 70453 VILAS 69.0    | 70   | 1   | 38.1  | -8.1  | 38.9 | 44 | 1.0375RG |       |       |
| BUS 70453 VILAS 69.0   | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0246PU | 31.64 | 70453 |
|                        | 70   |     |       |       |      |    | 70.700KV |       |       |
| TO 70223 HLTP TAP69.0  | 70   | 1   | 6.9   | 2.0   | 7.1  | 18 |          |       |       |
| TO 70452 VILAS 115     | 70   | 1   | -38.0 | 9.5   | 39.2 | 46 | 1.0375UN |       |       |
| TO 70460 WALSH 69.0    | 70   | 1   | 31.1  | -11.6 | 33.2 | 96 |          |       |       |
| BUS 70223 HLTP TAP69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0207PU | 31.36 | 70223 |
|                        | 70   |     |       |       |      |    | 70.429KV |       |       |
| TO 70222 HILLTOP 69.0  | 70   | 1   | 4.0   | 1.3   | 4.2  | 12 |          |       |       |
| TO 70404 SPRNGFLD69.0  | 70   | 1   | 2.8   | 0.8   | 2.9  | 7  |          |       |       |
| TO 70453 VILAS 69.0    | 70   | 1   | -6.8  | -2.1  | 7.2  | 18 |          |       |       |
| BUS 70460 WALSH 69.0   | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0219PU | 28.41 | 70460 |
|                        | 70   |     |       |       |      |    | 70.508KV |       |       |
| TO LOAD-PQ             |      |     | 4.0   | 1.3   | 4.2  |    |          |       |       |
| TO SWITCHED SHUNT      |      |     | 0.0   | -16.9 | 16.9 |    |          |       |       |
| TO 70425 T BUTTES69.0  | 70   | 1   | 26.3  | 2.8   | 26.5 | 76 |          |       |       |
| TO 70453 VILAS 69.0    | 70   | 1   | -30.3 | 12.8  | 32.9 | 95 |          |       |       |
| BUS 70425 T BUTTES69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9967PU | 25.89 | 70425 |
|                        | 70   |     |       |       |      |    | 68.772KV |       |       |
| TO LOAD-PQ             |      |     | 2.0   | 0.7   | 2.2  |    |          |       |       |
| TO 70101 CHEN TAP69.0  | 70   | 1   | 23.7  | 1.2   | 23.8 | 70 |          |       |       |
| TO 70460 WALSH 69.0    | 70   | 1   | -25.8 | -1.9  | 25.8 | 76 |          |       |       |
| BUS 70101 CHEN TAP69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9632PU | 21.84 | 70101 |
|                        | 70   |     |       |       |      |    | 66.459KV |       |       |
| TO 70102 CHENEY 69.0   | 70   | 1   | 3.0   | 0.8   | 3.1  | 9  |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | 20.1  | -0.8  | 20.1 | 61 |          |       |       |
| TO 70425 T BUTTES69.0  | 70   | 1   | -23.0 | 0.0   | 23.0 | 70 |          |       |       |
| BUS 70102 CHENEY 69.0  | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9596PU | 21.59 | 70102 |

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|    |                    |    |    |  |      |      |     |          |
|----|--------------------|----|----|--|------|------|-----|----------|
|    |                    |    | 70 |  |      |      |     | 66.214KV |
| TO | LOAD-PQ            |    |    |  | 2.9  | 1.0  | 3.1 |          |
| TO | 70101 CHEN TAP69.0 | 70 | 1  |  | -3.0 | -1.0 | 3.1 | 10       |

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2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS SET A

|                        |      |     |       |      |      |     |          |       |       |
|------------------------|------|-----|-------|------|------|-----|----------|-------|-------|
| BUS 70225 HOLL TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9418PU | 18.49 | 70225 |
|                        | 70   |     |       |      |      |     | 64.983KV |       |       |
| TO 70101 CHEN TAP69.0  | 70   | 1   | -19.5 | 1.6  | 19.6 | 61  |          |       |       |
| TO 70184 FT HOLLY69.0  | 70   | 1   | 3.0   | 0.8  | 3.1  | 10  |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | 16.6  | -2.4 | 16.8 | 53  |          |       |       |
| BUS 70184 FT HOLLY69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9392PU | 18.31 | 70184 |
|                        | 70   |     |       |      |      |     | 64.804KV |       |       |
| TO LOAD-PQ             |      |     | 2.9   | 1.0  | 3.1  |     |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -3.0  | -1.0 | 3.1  | 10  |          |       |       |
| BUS 70203 GRAN TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9378PU | 17.63 | 70203 |
|                        | 70   |     |       |      |      |     | 64.705KV |       |       |
| TO 70204 GRANADA 69.0  | 70   | 1   | 1.6   | 0.5  | 1.7  | 5   |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -16.5 | 2.5  | 16.7 | 52  |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | 14.9  | -3.0 | 15.2 | 48  |          |       |       |
| BUS 70204 GRANADA 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9372PU | 17.59 | 70204 |
|                        | 70   |     |       |      |      |     | 64.668KV |       |       |
| TO LOAD-PQ             |      |     | 1.6   | 0.5  | 1.7  |     |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | -1.6  | -0.5 | 1.7  | 5   |          |       |       |
| BUS 70161 EADS 69.0    | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9183PU | 13.85 | 70161 |
|                        | 70   |     |       |      |      |     | 63.365KV |       |       |
| TO LOAD-PQ             |      |     | 2.0   | 0.7  | 2.2  |     |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -2.1  | -0.7 | 2.2  | 7   |          |       |       |
| BUS 70136 CTY LAM 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9271PU | 14.37 | 70136 |
|                        | 70   |     |       |      |      |     | 63.967KV |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 1   | 0.3   | -5.2 | 5.2  | 22  | 1.0000LK |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 2   | 0.1   | -1.7 | 1.8  | 17  | 1.0000LK |       |       |
| TO 70185 FT. LYON69.0  | 70   | 1   | 7.2   | 2.3  | 7.6  | 21  |          |       |       |
| TO 70333 PROWERS 69.0  | 70   | 1   | 2.0   | 0.4  | 2.1  | 6   |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -9.7  | 4.2  | 10.6 | 60  |          |       |       |
| BUS 70185 FT. LYON69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9215PU | 13.95 | 70185 |
|                        | 70   |     |       |      |      |     | 63.586KV |       |       |
| TO LOAD-PQ             |      |     | 7.2   | 2.4  | 7.5  |     |          |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -7.2  | -2.4 | 7.6  | 21  |          |       |       |
| BUS 70134 CTY LAM 25.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9360PU | 14.28 | 70134 |
|                        | 70   |     |       |      |      |     | 23.399KV |       |       |
| TO LOAD-PQ             |      |     | 24.3  | 8.0  | 25.6 |     |          |       |       |
| TO SWITCHED SHUNT      |      |     | 0.0   | -7.9 | 7.9  |     |          |       |       |
| TO 70133 CTY LAM 14.4  | 70   | 1   | -24.1 | -7.2 | 25.1 | 107 | 1.0000LK |       |       |
| TO 70135 CTY LAM 4.20  | 70   | 1   | 0.0   | 0.0  | 0.0  | 0   | 1.0000LK |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -0.3  | 5.3  | 5.3  | 22  | 1.0000UN |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 2   | -0.1  | 1.8  | 1.8  | 17  | 1.0000UN |       |       |

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|     |       |          |      |      |     |      |      |     |    |          |       |       |
|-----|-------|----------|------|------|-----|------|------|-----|----|----------|-------|-------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0  | 0.0  | 0.0 | 0  | 0.9125RG |       |       |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW   | MVAR | MVA | %I | 1.0484PU | 40.81 | 70472 |
|     |       |          |      | 70   |     |      |      |     |    | 120.56KV |       |       |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 1.3  | 4.1  | 4.3 | 4  |          |       |       |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -1.3 | -4.1 | 4.3 | 2  |          |       |       |

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2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS SET A

|           |                |      |      |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 0.9271PU | 14.63 | 70473 |
|           |                | 70   |      |       |      |      |    | 63.967KV |       |       |
| TO        | LOAD-PQ        |      |      | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70 1 | 9.8   | -4.2 | 10.6 | 60 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70 1 | 2.1   | 0.0  | 2.1  | 7  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70 1 | -14.5 | 3.3  | 14.9 | 47 |          |       |       |
| BUS 70132 | CTY LAJ 69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0161PU | 38.14 | 70132 |
|           |                | 70   |      |       |      |      |    | 70.110KV |       |       |
| TO        | LOAD-PQ        |      |      | 15.9  | 5.2  | 16.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70 1 | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70 1 | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70 1 | -18.3 | -5.9 | 19.2 | 48 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 14 2002 15:39  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS SET A

|            |               |      |     |        |       |       |     |          |       |       |
|------------|---------------|------|-----|--------|-------|-------|-----|----------|-------|-------|
| BUS 70133  | CTY LAM 14.4  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9532PU | 16.68 | 70133 |
| GENERATION |               | 70   |     | 24.0   | 8.3H  | 25.4  | 85  | 13.726KV |       |       |
| TO 70134   | CTY LAM 25.0  | 70   | 1   | 24.2   | 8.3   | 25.6  | 107 | 1.0000UN |       |       |
|            |               |      |     |        |       |       |     |          |       |       |
| BUS 70247  | LAJUNTAT 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0258PU | 40.92 | 70247 |
|            |               | 70   |     |        |       |       |     | 117.97KV |       |       |
| TO 70060   | BOONE 115     | 70   | 1   | -18.0  | 2.2   | 18.1  | 16  |          |       |       |
| TO 70248   | LAJUNTAT 69.0 | 70   | 1   | 19.2   | 6.5   | 20.3  | 79  | 0.9875RG |       |       |
| TO 70472   | WILOW CK 115  | 70   | 1   | -1.2   | -8.7  | 8.8   | 8   |          |       |       |
|            |               |      |     |        |       |       |     |          |       |       |
| BUS 70249  | LAJUNTAW 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9765PU | 41.21 | 70249 |
|            |               | 70   |     |        |       |       |     | 112.29KV |       |       |
| TO 70060   | BOONE 115     | 70   | 1   | -20.2  | -12.7 | 23.9  | 22  |          |       |       |
| TO 70250   | LAJUNTAW 69.0 | 70   | 1   | 20.2   | 12.7  | 23.9  | 98  | 1.0630UN |       |       |
|            |               |      |     |        |       |       |     |          |       |       |
| BUS 70060  | BOONE 115     | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0299PU | 43.62 | 70060 |
|            |               | 70   |     |        |       |       |     | 118.43KV |       |       |
| TO 70061   | BOONE 230     | 70   | 1   | -77.5  | -25.7 | 81.7  | 53  | 1.0188RG |       |       |
| TO 70062   | BOONE 69.0    | 70   | 1   | 9.1    | -0.5  | 9.1   | 27  | 0.9875UN |       |       |
| TO 70159   | DOT TAP 115   | 70   | 1   | 29.4   | 20.1  | 35.6  | 30  |          |       |       |
| TO 70247   | LAJUNTAT 115  | 70   | 1   | 18.2   | -4.9  | 18.8  | 17  |          |       |       |
| TO 70249   | LAJUNTAW 115  | 70   | 1   | 20.8   | 11.0  | 23.5  | 21  |          |       |       |
|            |               |      |     |        |       |       |     |          |       |       |
| BUS 70061  | BOONE 230     | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0264PU | 45.91 | 70061 |
|            |               | 70   |     |        |       |       |     | 236.08KV |       |       |
| TO 70060   | BOONE 115     | 70   | 1   | 77.6   | 29.3  | 82.9  | 54  | 1.0188UN |       |       |
| TO 70122   | COMANCHE 230  | 70   | 1   | -132.3 | -5.4  | 132.4 | 30  |          |       |       |
| TO 70254   | LAMAR CO 230  | 70   | 1   | 40.4   | -33.6 | 52.5  | 13  |          |       |       |
| TO 70286   | MIDWAYPS 230  | 70   | 1   | 14.3   | 9.7   | 17.2  | 3   |          |       |       |
|            |               |      |     |        |       |       |     |          |       |       |
| BUS 70286  | MIDWAYPS 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0153PU | 45.49 | 70286 |
|            |               | 70   |     |        |       |       |     | 233.51KV |       |       |
| TO 70061   | BOONE 230     | 70   | 1   | -14.2  | -22.6 | 26.7  | 5   |          |       |       |
| TO 70122   | COMANCHE 230  | 70   | 1   | -81.0  | -21.0 | 83.7  | 16  |          |       |       |
| TO 70139   | DANIELPK 230  | 70   | 1   | 125.9  | 7.7   | 126.1 | 25  |          |       |       |
| TO 70285   | MIDWAYPS 115  | 70   | 1   | 23.6   | -4.0  | 23.9  | 24  | 0.9764UN |       |       |
| TO 70577   | FTNVL1-213.8  | 70   | 1   | 0.0    | 0.0   | 0.0   | 0   | 1.0000UN |       |       |
| TO 70578   | FTNVL3-413.8  | 70   | 1   | 0.0    | 0.0   | 0.0   | 0   | 1.0000UN |       |       |
| TO 70579   | FTNVL5-613.8  | 70   | 1   | 0.0    | 0.0   | 0.0   | 0   | 1.0000UN |       |       |
| TO 73413   | MIDWAYBR 230  | 73   | 1   | -54.3  | 39.9  | 67.4  | 13  |          |       |       |
|            |               |      |     |        |       |       |     |          |       |       |
| BUS 70459  | WALSENBG 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0238PU | 46.43 | 70459 |
|            |               | 70   |     |        |       |       |     | 235.47KV |       |       |
| TO 70122   | COMANCHE 230  | 70   | 1   | -58.9  | -15.0 | 60.8  | 13  |          |       |       |
| TO 70458   | WALSENBG 115  | 70   | 1   | 58.9   | 15.0  | 60.8  | 59  | 1.0000LK |       |       |



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2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0345PU | 48.71 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 237.93KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 133.1  | 3.7   | 133.1 | 30 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.5  | 103.3 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -320.8 | -46.1 | 324.1 | 76 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -326.9 | -40.8 | 329.4 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 95.9   | 21.8  | 98.4  | 57 | 0.9688UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 95.9   | 21.8  | 98.4  | 63 | 0.9688UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 81.6   | 11.5  | 82.4  | 16 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 59.1   | 2.3   | 59.2  | 13 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 82.0   | 0.3   | 82.0  | 16 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 14 2002 15:39  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS  | -----X | AREA | V(PU)  | V(KV)  | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|------|--------|------|--------|--------|--------|-----|--------|------|-------|-------|
| 70161  | EADS | 69.0   | 70   | 0.9183 | 63.365 |        |     |        |      |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 14 2002 15:39  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.7    | 50.0   | 99.4    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.3    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.6    | 55.0   | 92.0    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 26.8    | 25.0   | 107.3   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 24.5    | 25.0   | 97.8    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 1            | 43.2    | 47.0   | 91.9    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 2            | 43.2    | 47.0   | 91.9    |
| 70439                | UNC      | 115  | 70   | 70502*             | QF UNC   | 13.8 | 70   | 1            | 71.1    | 76.8   | 92.6    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 32.4    | 33.9   | 95.5    |

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2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
NO GOBBLERS KNOB 34.5 KV GEN-LINE CASE-LOCKED AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |         |        |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|---------|--------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME    | BSKV   | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES    | 115  | 73   | 73307*             | ESTES2  | 6.90   | 73   | 2            | 16.2    | 18.0   | 90.1    |
| 73056                | ESTES    | 115  | 73   | 73308*             | ESTES3  | 6.90   | 73   | 3            | 16.2    | 18.0   | 90.1    |
| 73062                | FREMONT  | 115  | 73   | 73349*             | FREMONT | 112.0  | 73   | 1            | 26.3    | 29.0   | 90.6    |
| 73062                | FREMONT  | 115  | 73   | 73350*             | FREMONT | 212.0  | 73   | 1            | 26.3    | 29.0   | 90.7    |
| 79007                | BLUEMESA | 115  | 73   | 79157*             | BMESA1  | 212.5  | 73   | 2            | 92.8    | 100.0  | 92.8    |
| 79052                | NUCLA    | 115  | 73   | 79161*             | NUCLA   | 4 13.8 | 73   | 1            | 64.1    | 70.0   | 91.5    |

**B-4 - Contingency Analysis – 2003 Heavy Summer**

**Wind farm in service and No HVDC Converter at Lamar**

# Contingency Violation Summary

\*\*\* MUST 5.0 \*\*\* WED, AUG 28 2002 15:12 \*\*\*  
2003HSV2 MASTER-2/11/02  
GOBBLERS KNOB 34.5 KV GEN  
Subsys.File C:\Xcel-PSCo\wind\Lamar-wind.sub  
Monit.File C:\Xcel-PSCo\wind\Lamar-wind.mon  
Contin.File C:\Xcel-PSCo\wind\Lamar-wind.con  
Exclud.File C:\Xcel-PSCo\wind\Lamar-wind.exc

\*\*\* Statistics on monitored constraints:

Monitored Branches: 563  
Monitored Voltages: 422  
Monitored Flowgates: 8  
Contingencies : 522

\*\*\* Summary on Constraint Violations \*\*\*  
\*\*\* Violations with flow changes less 0.00 MVA or voltage change less 0.000 % ignored  
I Initial Violations I  
I Base Case I Contingency cases I  
Constraint I Numb. Worst I Numb. Worst Contin I  
Type I Viol Viol I Viol Number I  
MVA flow I - --- 8 9.9 266 I  
VoltMagn I - --- 76 27.4 266 I  
Total contingency violations : 84  
Number of contingencies with violations: 13

\*\*\* Contingency Results Summary. \*\*\*  
Total No. tested = 519 Total LF iterations 1144  
Converged = 519  
Voltage Collapse = 0  
Not Converged = 0

\*\*\*\*\* No violations encountered among selected monitored elements \*\*\*\*\*

# Frequency of Branch Violations

\*\*\* MUST 5.0 \*\*\* WED, AUG 28 2002 15:13 \*\*\*  
2003HSV2 MASTER-2/11/02  
GOBBLERS KNOB 34.5 KV GEN  
Subsys.File C:\Xcel-PSCo\wind\Lamar-wind.sub  
Monit.File C:\Xcel-PSCo\wind\Lamar-wind.mon  
Contin.File C:\Xcel-PSCo\wind\Lamar-wind.con  
Exclud.File C:\Xcel-PSCo\wind\Lamar-wind.exc

Summary on Monitored Branches contingency violations

| Monitored Branches |          |       |                | PreShift Violations |       | Ncon | WorstFromV% | Ncon | WorstFromV% | Ncon |
|--------------------|----------|-------|----------------|---------------------|-------|------|-------------|------|-------------|------|
| **                 | From bus | ** ** | To bus         | ** CKT TYP          | Nviol |      |             |      |             |      |
| 70305              | OVERTON  | 69.0  | 70054 BMONT    | TP69.0 1 LN         | 1     | -    | 2.1         | -    | 2.1         | 255  |
| 70060              | BOONE    | 115   | 70062 BOONE    | 69.0 1 TR           | 2     | -    | 29.9        | -    | 29.9        | 266  |
| 70062              | BOONE    | 69.0  | 70063 BOONE    | TP69.0 1 LN         | 2     | -    | 5.2         | -    | 5.2         | 266  |
| 70231              | HOPKINS  | 115   | 79003 BASALT   | 115 1 LN            | 1     | -    | 13.9        | -    | 13.9        | 491  |
| 70292              | MOSCA    | 69.0  | 70376 SAN LUIS | 69.0 1 LN           | 1     | -    | 3.1         | -    | 3.1         | 197  |
| 70366              | ROCKYFRD | 69.0  | 70372 S FWL    | TP69.0 1 LN         | 1     | -    | 0.5         | -    | 0.5         | 266  |
|                    |          |       |                |                     |       |      |             |      |             |      |

## Branch Violations

\*\*\* MUST 5.0 \*\*\* WED, AUG 28 2002 15:13 \*\*\*  
2003HSV2 MASTER-2/11/02  
GOBBLERS KNOB 34.5 KV GEN

Subsys.File C:\Xcel-PSCO\wind\Lamar-wind.sub  
Monit.File C:\Xcel-PSCO\wind\Lamar-wind.mon  
Contin.File C:\Xcel-PSCO\wind\Lamar-wind.con  
Exclud.File C:\Xcel-PSCO\wind\Lamar-wind.exc

\*\*\*\*\* Report on violations \*\*\*\*\*

Branches with MVA flow more than 90.0 % of nominal rating

| **    | From bus     | **    | **       | To bus       | **   | CKT | TYP | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                             |
|-------|--------------|-------|----------|--------------|------|-----|-----|---------|----------|--------|----------|------|-----------------------------------------|
| 70060 | BOONE        | 115   | 70062    | BOONE        | 69.0 | 1   | TR  | 42.9    | 9.2      | 33     | 129.9    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70060 | BOONE        | 115   | 70062    | BOONE        | 69.0 | 1   | TR  | 42.6    | 9.2      | 33     | 129.1    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70062 | BOONE        | 69.0  | 70063    | BOONE TP69.0 | 1    | LN  |     | 42.7    | 9.1      | 40.6   | 105.2    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70062 | BOONE        | 69.0  | 70063    | BOONE TP69.0 | 1    | LN  |     | 42.4    | 9.1      | 40.6   | 104.3    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70108 | CHEROKEN     | 115   | 70175    | FEDERHT2     | 115  | 2   | LN  | 173.3   | 131.8    | 186    | 93.2     | 52   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70108 | CHEROKEN     | 115   | 70175    | FEDERHT2     | 115  | 2   | LN  | 173.4   | 131.8    | 186    | 93.2     | 92   | 70174 FEDERHT1 115 70382 SEMPER 115 1   |
| 70231 | HOPKINS      | 115   | 79003    | BASALT       | 115  | 1   | LN  | 76.2    | 28.1     | 66.9   | 113.9    | 491  | 79091 WOLCOTTP 230 79039 HAYDEN 230 1   |
| 70249 | LAJUNTAW     | 115   | 70250    | LAJUNTAW69.0 | 1    | TR  |     | 23.7    | 23.7     | 25     | 95       | **   | Base Case **                            |
| 70292 | MOSCA        | 69.0  | 70376    | SAN LUIS69.0 | 1    | LN  |     | 24.6    | 9.7      | 23.9   | 103.1    | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70305 | OVERTON      | 69.0  | 70054    | BMONT TP69.0 | 1    | LN  |     | 67.4    | 18.2     | 66     | 102.1    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70352 | READER       | 115   | 70353    | READER       | 69.0 | 1   | TR  | 43.2    | 43.2     | 47     | 91.9     | **   | Base Case **                            |
| 70352 | READER       | 115   | 70353    | READER       | 69.0 | 2   | TR  | 43.2    | 43.2     | 47     | 91.9     | **   | Base Case **                            |
| 70353 | READER       | 69.0  | 70042    | ASPEN TP69.0 | 1    | LN  |     | 60      | 42.7     | 66     | 91       | 260  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1 |
| 70353 | READER       | 69.0  | 70042    | ASPEN TP69.0 | 1    | LN  |     | 60      | 42.7     | 66     | 91       | 261  | 70054 BMONT TP69.0 70455 W.STATON69.0 1 |
| 70354 | RIDGE        | 115   | 70355    | RIDGE        | 230  | 1   | TR  | 98.1    | 78.1     | 100    | 98.1     | 136  | 70354 RIDGE 115 70355 RIDGE 230 2       |
| 70354 | RIDGE        | 115   | 70355    | RIDGE        | 230  | 1   | TR  | 93.1    | 78.1     | 100    | 93.1     | 20   | 70041 ARVADA 115 70109 CHEROKES 115 1   |
| 70366 | ROCKYFRD69.0 | 70372 | S FWL    | TP69.0       | 1    | LN  |     | 40.8    | 7.2      | 40.6   | 100.5    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70366 | ROCKYFRD69.0 | 70372 | S FWL    | TP69.0       | 1    | LN  |     | 40.5    | 7.2      | 40.6   | 99.7     | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70374 | SAN LUIS     | 115   | 70376    | SAN LUIS69.0 | 1    | TR  |     | 41.2    | 27.2     | 42     | 98       | 237  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 2 |
| 70374 | SAN LUIS     | 115   | 70376    | SAN LUIS69.0 | 2    | TR  |     | 41.2    | 27.2     | 42     | 98       | 236  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 1 |
| 70382 | SEMPER       | 115   | 70174    | FEDERHT1     | 115  | 1   | LN  | 131.8   | 74       | 134.8  | 97.7     | 49   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70455 | W.STATON69.0 | 70054 | BMONT    | TP69.0       | 1    | LN  |     | 67.6    | 18.2     | 69     | 98       | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70455 | W.STATON69.0 | 70456 | W.STATON | 115          | 1    | TR  |     | 39.1    | 15.4     | 42     | 93.1     | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70455 | W.STATON69.0 | 70456 | W.STATON | 115          | 2    | TR  |     | 38.3    | 15       | 42     | 91.1     | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |

LF: 2003hs-wind34-5.sav  
Sys: Lamar-wind.sub

Mon: Lamar-wind.mon  
Con: Lamar-wind.con  
Excl: Lamar-wind.exc



# Frequency of Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* WED, AUG 28 2002 15:13 \*\*\*

2003HSV2 MASTER-2/11/02

GOBBLERS KNOB 34.5 KV GEN

Subsys.File C:\Xcel-PSCO\wind\Lamar-wind.sub  
Monit.File C:\Xcel-PSCO\wind\Lamar-wind.mon  
Contin.File C:\Xcel-PSCO\wind\Lamar-wind.con  
Exclud.File C:\Xcel-PSCO\wind\Lamar-wind.exc

Summary on Monitored Voltages contingency violations

| Bus # | Bus Name | KV  | Area | Zone | # Violts | WorstLd | Ncon | WorstHi | Ncon |
|-------|----------|-----|------|------|----------|---------|------|---------|------|
| 70022 | APT TAP2 | 69  | 70   | 712  | 1        | 0.035   | 262  | -       | -    |
| 70024 | ALMSA ST | 69  | 70   | 710  | 1        | 0.02    | 197  | -       | -    |
| 70030 | APT PARK | 115 | 70   | 712  | 1        | 0.03    | 262  | -       | -    |
| 70031 | APT TAP  | 115 | 70   | 712  | 1        | 0.024   | 262  | -       | -    |
| 70042 | ASPEN TP | 69  | 70   | 712  | 1        | 0.049   | 255  | -       | -    |
| 70049 | BELMONT  | 69  | 70   | 712  | 1        | 0.02    | 255  | -       | -    |
| 70051 | BLENDE   | 69  | 70   | 712  | 2        | 0.048   | 255  | -       | -    |
| 70054 | BMONT TP | 69  | 70   | 712  | 1        | 0       | 255  | -       | -    |
| 70060 | BOONE    | 115 | 70   | 712  | 1        | 0.05    | 262  | -       | -    |
| 70062 | BOONE    | 69  | 70   | 712  | 1        | 0.057   | 262  | -       | -    |
| 70063 | BOONE TP | 69  | 70   | 712  | 1        | 0.061   | 262  | -       | -    |
| 70113 | CLIFTON  | 230 | 70   | 708  | 1        | 0.006   | 479  | -       | -    |
| 70132 | CTY LAJ  | 69  | 70   | 712  | 1        | 0.019   | 262  | -       | -    |
| 70158 | DOT      | 115 | 70   | 712  | 2        | 0.05    | 262  | -       | -    |
| 70159 | DOT TAP  | 115 | 70   | 712  | 2        | 0.047   | 262  | -       | -    |
| 70178 | FOWLER   | 69  | 70   | 712  | 4        | 0.215   | 266  | -       | -    |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 1        | 0.095   | 197  | -       | -    |
| 70187 | FTGARLND | 69  | 70   | 710  | 1        | 0.097   | 197  | -       | -    |
| 70205 | GRANDJCT | 230 | 70   | 708  | 1        | 0.006   | 479  | -       | -    |
| 70206 | GRANDJPS | 230 | 70   | 708  | 1        | 0.005   | 479  | -       | -    |
| 70233 | HORIZON  | 230 | 70   | 708  | 1        | 0.003   | 479  | -       | -    |
| 70235 | HUERFANO | 69  | 70   | 712  | 1        | 0.063   | 262  | -       | -    |

LF: 2003hs-wind34-5.sav

Sys: Lamar-wind.sub

Mon: Lamar-wind.mon  
Con: Lamar-wind.con  
Excl: Lamar-wind.exc

| Bus # | Bus Name  | KV  | Area | Zone | # Viol | Worst Ld | Ncon | Worst H | Ncon |
|-------|-----------|-----|------|------|--------|----------|------|---------|------|
| 70243 | LA SECPA  | 69  | 70   | 712  | 1      | 0.015    | 262  | -       | -    |
| 70246 | LAJ IP    | 69  | 70   | 712  | 1      | 0.02     | 262  | -       | -    |
| 70247 | LAJUNTAT  | 115 | 70   | 712  | 1      | 0.027    | 262  | -       | -    |
| 70248 | LAJUNTAT  | 69  | 70   | 712  | 1      | 0.013    | 262  | -       | -    |
| 70249 | LAJUNTAW  | 115 | 70   | 712  | 2      | 0.274    | 266  | -       | -    |
| 70250 | LAJUNTAW  | 69  | 70   | 712  | 3      | 0.229    | 266  | -       | -    |
| 70271 | LS ANMAS  | 69  | 70   | 712  | 3      | 0.247    | 266  | -       | -    |
| 70275 | MANZANOL  | 69  | 70   | 712  | 3      | 0.204    | 266  | -       | -    |
| 70289 | MOFFAT    | 69  | 70   | 710  | 1      | 0.029    | 222  | -       | -    |
| 70301 | NTHRIDGE  | 115 | 70   | 712  | 1      | 0.009    | 262  | -       | -    |
| 70303 | ORDWAY    | 69  | 70   | 712  | 4      | 0.216    | 266  | -       | -    |
| 70305 | OVERTON   | 69  | 70   | 712  | 1      | 0.01     | 255  | -       | -    |
| 70316 | PDA       | 69  | 70   | 712  | 1      | 0.065    | 255  | -       | -    |
| 70317 | PDA TAP   | 69  | 70   | 712  | 1      | 0.061    | 255  | -       | -    |
| 70319 | PHILLIPS  | 69  | 70   | 712  | 3      | 0.236    | 266  | -       | -    |
| 70320 | PHLPS TP  | 69  | 70   | 712  | 3      | 0.235    | 266  | -       | -    |
| 70330 | PORTLAND  | 115 | 70   | 712  | 1      | 0.007    | 324  | -       | -    |
| 70366 | ROCKYFRD  | 69  | 70   | 712  | 3      | 0.177    | 266  | -       | -    |
| 70372 | S FWL TP  | 69  | 70   | 712  | 3      | 0.07     | 262  | -       | -    |
| 70378 | SANTFETP  | 69  | 70   | 712  | 1      | 0.035    | 255  | -       | -    |
| 70390 | SKALA     | 115 | 70   | 712  | 1      | 0        | 324  | -       | -    |
| 70399 | SNEPESTA  | 69  | 70   | 712  | 3      | 0.066    | 262  | -       | -    |
| 70405 | ST. CHAS. | 69  | 70   | 712  | 1      | 0.056    | 255  | -       | -    |
| 70457 | WAL SENBG | 69  | 70   | 704  | 1      | 0.154    | 190  | -       | -    |
| 70505 | MIRGEJCT  | 69  | 70   | 710  | 1      | 0.037    | 222  | -       | -    |
| 70506 | SAGUACHE  | 69  | 70   | 710  | 2      | 0.051    | 222  | -       | -    |
| 70549 | APT MEM   | 115 | 70   | 712  | 1      | 0.032    | 262  | -       | -    |

## Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* WED, AUG 28 2002 15:14 \*\*\*  
2003HSV2 MASTER-2/11/02  
GOBBLERS KNOB 34.5 KV GEN  
Subsys.File C:\Xcel-PSCo\wind\Lamar-wind.sub  
Monit.File C:\Xcel-PSCo\wind\Lamar-wind.mon  
Contin.File C:\Xcel-PSCo\wind\Lamar-wind.con  
Exclud.File C:\Xcel-PSCo\wind\Lamar-wind.exc

\*\*\*\*\* Report on violations \*\*\*\*\*

Busess with voltage violations

| Bus # | Bus Name | KV  | Area | Zone | ContVol | BaseVol | LowLim | Upplim | VoltDr | VoltRis | Viol | Ncon | Contin.Description                      |
|-------|----------|-----|------|------|---------|---------|--------|--------|--------|---------|------|------|-----------------------------------------|
| 70024 | ALMSA ST | 69  | 70   | 710  | 0.9     | 1.0191  | 0.92   | 1.1    | -      | -       | L    | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70549 | APT MEM  | 115 | 70   | 712  | 0.8875  | 0.994   | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70030 | APT PARK | 115 | 70   | 712  | 0.8902  | 0.9913  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70031 | APT TAP  | 115 | 70   | 712  | 0.8963  | 0.9896  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70022 | APT TAP2 | 69  | 70   | 712  | 0.8848  | 0.9968  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70042 | ASPEN TP | 69  | 70   | 712  | 0.871   | 1.0113  | 0.92   | 1.1    | -      | -       | L    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70049 | BELMONT  | 69  | 70   | 712  | 0.9001  | 0.9969  | 0.92   | 1.1    | -      | -       | L    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70051 | BLLENDE  | 69  | 70   | 712  | 0.9127  | 1.0088  | 0.92   | 1.1    | -      | -       | L    | 254  | 70042 ASPEN TP69.0 70051 BLENDE 69.0 1  |
| 70051 | BLLENDE  | 69  | 70   | 712  | 0.872   | 1.0088  | 0.92   | 1.1    | -      | -       | L    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70054 | BMONT TP | 69  | 70   | 712  | 0.9196  | 0.9986  | 0.92   | 1.1    | -      | -       | L    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70060 | BOONE    | 115 | 70   | 712  | 0.8703  | 1.0221  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70062 | BOONE    | 69  | 70   | 712  | 0.8626  | 1.0157  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70063 | BOONE TP | 69  | 70   | 712  | 0.8589  | 1.0133  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70113 | CLIFTON  | 230 | 70   | 708  | 0.9141  | 0.9536  | 0.92   | 1.1    | -      | -       | L    | 479  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70132 | CTY LAJ  | 69  | 70   | 712  | 0.9014  | 1.016   | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70158 | DOT      | 115 | 70   | 712  | 0.915   | 1.0138  | 0.92   | 1.1    | -      | -       | L    | 264  | 70060 BOONE 115 70159 DOT TAP 115 1     |
| 70158 | DOT      | 115 | 70   | 712  | 0.8696  | 1.0138  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70159 | DOT TAP  | 115 | 70   | 712  | 0.918   | 1.0164  | 0.92   | 1.1    | -      | -       | L    | 264  | 70060 BOONE 115 70159 DOT TAP 115 1     |
| 70159 | DOT TAP  | 115 | 70   | 712  | 0.8728  | 1.0164  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.9196  | 0.9708  | 0.92   | 1.1    | -      | -       | L    | 307  | 70250 LAJUNTAW69.0 70366 ROCKYFRD69.0 1 |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.8025  | 0.9708  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.7108  | 0.9708  | 0.92   | 1.1    | -      | -       | L    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.705   | 0.9708  | 0.92   | 1.1    | -      | -       | L    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 0.8253  | 0.9561  | 0.92   | 1.1    | -      | -       | L    | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70187 | FTGARLND | 69  | 70   | 710  | 0.8232  | 0.9543  | 0.92   | 1.1    | -      | -       | L    | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70205 | GRANDJCT | 230 | 70   | 708  | 0.9142  | 0.9553  | 0.92   | 1.1    | -      | -       | L    | 479  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70205 | GRANDJPS | 230 | 70   | 708  | 0.9146  | 0.9531  | 0.92   | 1.1    | -      | -       | L    | 479  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70233 | HORIZON  | 230 | 70   | 708  | 0.9174  | 0.9545  | 0.92   | 1.1    | -      | -       | L    | 479  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70235 | HUERFANO | 69  | 70   | 712  | 0.8567  | 1.0115  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70243 | LA SECPA | 69  | 70   | 712  | 0.9047  | 1.0192  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70246 | LAJ IP   | 69  | 70   | 712  | 0.9005  | 1.0152  | 0.92   | 1.1    | -      | -       | L    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |

| Bus # | Bus Name  | KV  | Area | Zone | ContVol | BaseVo        | LowLim | Upplim | VoltDr | VoltRis | Viol | Ncon | Contin.Description                      |
|-------|-----------|-----|------|------|---------|---------------|--------|--------|--------|---------|------|------|-----------------------------------------|
| 70248 | LAJUNTAT  | 69  |      | 70   | 712     | <b>0.9074</b> | 1.0213 | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70247 | LAJUNTAT  | 115 |      | 70   | 712     | <b>0.8928</b> | 0.9997 | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70250 | LAJUNTAW  | 69  |      | 70   | 712     | <b>0.8548</b> | 1.0201 | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70249 | LAJUNTAW  | 115 |      | 70   | 712     | <b>0.8135</b> | 0.9687 | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70250 | LAJUNTAW  | 69  |      | 70   | 712     | <b>0.697</b>  | 1.0201 | 0.92   | 1.1    | -       | -    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70250 | LAJUNTAW  | 69  |      | 70   | 712     | <b>0.6911</b> | 1.0201 | 0.92   | 1.1    | -       | -    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70249 | LAJUNTAW  | 115 |      | 70   | 712     | <b>0.6463</b> | 0.9687 | 0.92   | 1.1    | -       | -    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70271 | LS ANMAS  | 69  |      | 70   | 712     | <b>0.841</b>  | 1.009  | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70271 | LS ANMAS  | 69  |      | 70   | 712     | <b>0.6794</b> | 1.009  | 0.92   | 1.1    | -       | -    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70271 | LS ANMAS  | 69  |      | 70   | 712     | <b>0.6733</b> | 1.009  | 0.92   | 1.1    | -       | -    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70275 | MANZANOL  | 69  |      | 70   | 712     | <b>0.8121</b> | 0.9788 | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70275 | MANZANOL  | 69  |      | 70   | 712     | <b>0.7215</b> | 0.9788 | 0.92   | 1.1    | -       | -    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70275 | MANZANOL  | 69  |      | 70   | 712     | <b>0.7158</b> | 0.9788 | 0.92   | 1.1    | -       | -    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70505 | WIRGEJCT  | 69  |      | 70   | 710     | <b>0.8833</b> | 0.9639 | 0.92   | 1.1    | -       | -    | 222  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1   |
| 70289 | HOFFAT    | 69  |      | 70   | 710     | <b>0.8915</b> | 0.9712 | 0.92   | 1.1    | -       | -    | 222  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1   |
| 70301 | NTHRIDGE  | 115 |      | 70   | 712     | <b>0.9114</b> | 0.9855 | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70303 | ORDWAY    | 69  |      | 70   | 712     | <b>0.9189</b> | 0.9701 | 0.92   | 1.1    | -       | -    | 307  | 70250 LAJUNTAW69.0 70366 ROCKYFRD69.0 1 |
| 70303 | ORDWAY    | 69  |      | 70   | 712     | <b>0.8016</b> | 0.9701 | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70303 | ORDWAY    | 69  |      | 70   | 712     | <b>0.7098</b> | 0.9701 | 0.92   | 1.1    | -       | -    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70303 | ORDWAY    | 69  |      | 70   | 712     | <b>0.704</b>  | 0.9701 | 0.92   | 1.1    | -       | -    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70305 | OVERTON   | 69  |      | 70   | 712     | <b>0.9096</b> | 0.997  | 0.92   | 1.1    | -       | -    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70316 | PDA       | 69  |      | 70   | 712     | <b>0.8551</b> | 0.9976 | 0.92   | 1.1    | -       | -    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70317 | PDA TAP   | 69  |      | 70   | 712     | <b>0.8589</b> | 1.0008 | 0.92   | 1.1    | -       | -    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70319 | PHILLIPS  | 69  |      | 70   | 712     | <b>0.8492</b> | 1.0156 | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70319 | PHILLIPS  | 69  |      | 70   | 712     | <b>0.6898</b> | 1.0156 | 0.92   | 1.1    | -       | -    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70319 | PHILLIPS  | 69  |      | 70   | 712     | <b>0.6838</b> | 1.0156 | 0.92   | 1.1    | -       | -    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70320 | PHLPS TP  | 69  |      | 70   | 712     | <b>0.8498</b> | 1.0161 | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70320 | PHLPS TP  | 69  |      | 70   | 712     | <b>0.6905</b> | 1.0161 | 0.92   | 1.1    | -       | -    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70320 | PHLPS TP  | 69  |      | 70   | 712     | <b>0.6845</b> | 1.0161 | 0.92   | 1.1    | -       | -    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70330 | PORTLAND  | 115 |      | 70   | 712     | <b>0.9135</b> | 0.968  | 0.92   | 1.1    | -       | -    | 324  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70366 | ROCKYFRD  | 69  |      | 70   | 712     | <b>0.8363</b> | 0.999  | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70366 | ROCKYFRD  | 69  |      | 70   | 712     | <b>0.7487</b> | 0.999  | 0.92   | 1.1    | -       | -    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70366 | ROCKYFRD  | 69  |      | 70   | 712     | <b>0.7432</b> | 0.999  | 0.92   | 1.1    | -       | -    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70372 | S FWL TP  | 69  |      | 70   | 712     | <b>0.8548</b> | 1.0079 | 0.92   | 1.1    | -       | -    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70372 | S FWL TP  | 69  |      | 70   | 712     | <b>0.8504</b> | 1.0079 | 0.92   | 1.1    | -       | -    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70372 | S FWL TP  | 69  |      | 70   | 712     | <b>0.8497</b> | 1.0079 | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70506 | SAGUACHE  | 69  |      | 70   | 710     | <b>0.911</b>  | 0.951  | 0.92   | 1.1    | -       | -    | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70506 | SAGUACHE  | 69  |      | 70   | 710     | <b>0.869</b>  | 0.951  | 0.92   | 1.1    | -       | -    | 222  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1   |
| 70378 | SANITEIP  | 69  |      | 70   | 712     | <b>0.8853</b> | 1.0032 | 0.92   | 1.1    | -       | -    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70390 | SKALA     | 115 |      | 70   | 712     | <b>0.9198</b> | 0.9712 | 0.92   | 1.1    | -       | -    | 324  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70399 | SNEPESTA  | 69  |      | 70   | 712     | <b>0.8946</b> | 1.0107 | 0.92   | 1.1    | -       | -    | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70399 | SNEPESTA  | 69  |      | 70   | 712     | <b>0.8907</b> | 1.0107 | 0.92   | 1.1    | -       | -    | 266  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70399 | SNEPESTA  | 69  |      | 70   | 712     | <b>0.8543</b> | 1.0107 | 0.92   | 1.1    | -       | -    | 262  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70405 | ST. CHAS. | 69  |      | 70   | 712     | <b>0.8642</b> | 1.0054 | 0.92   | 1.1    | -       | -    | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70457 | WALSENBG  | 69  |      | 70   | 704     | <b>0.7664</b> | 1.002  | 0.92   | 1.1    | -       | -    | 190  | 70457 WALSENBG69.0 70458 WALSENBG 115 1 |

*Flowgate Violations*

\*\*\* MUST 5.0 \*\*\* WED, AUG 28 2002 15:23 \*\*\*  
2003HSV2 MASTER-2/11/02  
GOBBLERS KNOB 34.5 KV GEN  
Subsys.File C:\Xcel-PSCO\wind\Lamar-wind.sub  
Monit.File C:\Xcel-PSCO\wind\Lamar-wind.mon  
Contin.File C:\Xcel-PSCO\wind\Lamar-wind.con  
Exclud.File C:\Xcel-PSCO\wind\Lamar-wind.exc

\*\*\*\*\* No violations encountered among selected elements \*\*\*\*\*

| FgID*** | Type | Rating | PreShift | BaseCaseFl |
|---------|------|--------|----------|------------|
|         |      |        |          |            |
|         |      |        |          |            |



**B-5 - Power Flow Analysis –2003 Heavy Summer**

**Wind farm in service and no HVDC converter at Lamar**

**A - Boone – Lamar 230-kV circuit outage with the second  
230/115-kV transformer added at Lamar station**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:31  
2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003 RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS SET A

|                   |          |      |      |     |        |       |       |     |          |        |       |
|-------------------|----------|------|------|-----|--------|-------|-------|-----|----------|--------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0177PU | 100.86 | 70254 |
|                   |          |      | 70   |     |        |       |       |     | 234.06KV |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 79.6   | 1.8   | 79.6  | 78  | 1.0000LK |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 2   | 79.6   | 1.8   | 79.6  | 78  | 1.0000LK |        |       |
| TO 70700          | GOB_KNOB | 230  | 70   | 1   | -159.2 | -3.6  | 159.3 | 36  |          |        |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0185PU | 96.94  | 70253 |
|                   |          |      | 70   |     |        |       |       |     | 117.13KV |        |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | -79.6  | 3.7   | 79.7  | 78  | 1.0000UN |        |       |
| TO 70254          | LAMAR CO | 230  | 70   | 2   | -79.6  | 3.7   | 79.7  | 78  | 1.0000UN |        |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 18.6   | -17.1 | 25.3  | 15  |          |        |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | 140.7  | 9.8   | 141.0 | 81  |          |        |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0587PU | 93.11  | 70452 |
|                   |          |      | 70   |     |        |       |       |     | 121.75KV |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -18.2  | 13.8  | 22.8  | 13  |          |        |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 18.2   | -13.8 | 22.8  | 26  | 1.0500RG |        |       |
| BUS 70472         | WILOW CK | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9945PU | 90.05  | 70472 |
|                   |          |      | 70   |     |        |       |       |     | 114.37KV |        |       |
| TO 70247          | LAJUNTAT | 115  | 70   | 1   | 120.6  | -7.1  | 120.8 | 111 |          |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -137.6 | 5.7   | 137.7 | 81  |          |        |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | 17.0   | 1.4   | 17.1  | 41  | 0.9565LK |        |       |
| BUS 70473         | WILOW CK | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0371PU | 88.86  | 70473 |
|                   |          |      | 70   |     |        |       |       |     | 71.560KV |        |       |
| TO LOAD-PQ        |          |      |      |     | 2.7    | 0.9   | 2.9   |     |          |        |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0    | -5.8  | 5.8   |     |          |        |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 1   | 9.7    | 4.9   | 10.8  | 55  |          |        |       |
| TO 70161          | EADS     | 69.0 | 70   | 1   | 2.1    | -0.2  | 2.1   | 6   |          |        |       |
| TO 70203          | GRAN TAP | 69.0 | 70   | 1   | 2.6    | 1.2   | 2.8   | 8   |          |        |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -17.0  | -1.0  | 17.0  | 39  | 0.9565UN |        |       |
| BUS 70132         | CTY LAJ  | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0169PU | 62.13  | 70132 |
|                   |          |      | 70   |     |        |       |       |     | 70.165KV |        |       |
| TO LOAD-PQ        |          |      |      |     | 15.9   | 5.2   | 16.7  |     |          |        |       |
| TO 70131          | CTY LAJ  | 13.8 | 70   | 1   | 0.0    | 0.0   | 0.0   | 0   | 1.0000LK |        |       |
| TO 70246          | LAJ IP   | 69.0 | 70   | 1   | 2.4    | 0.7   | 2.5   | 6   |          |        |       |
| TO 70248          | LAJUNTAT | 69.0 | 70   | 1   | -18.3  | -5.9  | 19.2  | 48  |          |        |       |
| BUS 70133         | CTY LAM  | 14.4 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0300PU | 90.81  | 70133 |
| GENERATION        |          |      | 70   |     | 24.0   | -2.9R | 24.2  | 81  | 14.832KV |        |       |
| TO 70134          | CTY LAM  | 25.0 | 70   | 1   | 24.0   | -2.9  | 24.2  | 94  | 1.0000UN |        |       |
| BUS 70247         | LAJUNTAT | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9876PU | 64.90  | 70247 |
|                   |          |      | 70   |     |        |       |       |     | 113.57KV |        |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0    | -31.6 | 31.6  |     |          |        |       |
| TO 70060          | BOONE    | 115  | 70   | 1   | 87.1   | -28.1 | 91.5  | 85  |          |        |       |



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|     |       |          |      |      |     |        |       |       |     |        |                |
|-----|-------|----------|------|------|-----|--------|-------|-------|-----|--------|----------------|
| TO  | 70248 | LAJUNTAT | 69.0 | 70   | 1   | 19.2   | 6.5   | 20.3  | 82  | 0.9500 | RG             |
| TO  | 70472 | WILOW CK | 115  | 70   | 1   | -106.3 | 53.2  | 118.9 | 110 |        |                |
| BUS | 70249 | LAJUNTAW | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9666 | PU 48.35 70249 |
|     |       |          |      | 70   |     |        |       |       |     | 111.16 | KV             |
| TO  | 70060 | BOONE    | 115  | 70   | 1   | -20.4  | -13.6 | 24.5  | 23  |        |                |
| TO  | 70250 | LAJUNTAW | 69.0 | 70   | 1   | 20.4   | 13.6  | 24.5  | 101 | 1.0819 | UN             |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:31  
2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003 RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS SET A

|            |              |      |      |     |        |       |       |    |          |        |       |
|------------|--------------|------|------|-----|--------|-------|-------|----|----------|--------|-------|
| BUS 70060  | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0232PU | 50.77  | 70060 |
|            |              |      | 70   |     |        |       |       |    | 117.67KV |        |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -0.2   | -72.4 | 72.4  | 47 | 1.0625RG |        |       |
| TO 70062   | BOONE        | 69.0 | 70   | 1   | 8.9    | -1.0  | 9.0   | 27 | 0.9938UN |        |       |
| TO 70159   | DOT TAP      | 115  | 70   | 1   | 51.1   | 14.5  | 53.1  | 45 |          |        |       |
| TO 70247   | LAJUNTAT     | 115  | 70   | 1   | -80.8  | 46.9  | 93.4  | 84 |          |        |       |
| TO 70249   | LAJUNTAW     | 115  | 70   | 1   | 21.0   | 12.0  | 24.2  | 22 |          |        |       |
| BUS 70061  | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0036PU | 50.72  | 70061 |
|            |              |      | 70   |     |        |       |       |    | 230.82KV |        |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | 0.3    | 75.4  | 75.4  | 50 | 1.0625UN |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -75.6  | -54.3 | 93.1  | 21 |          |        |       |
| TO 70286   | MIDWAYPS     | 230  | 70   | 1   | 75.3   | -21.1 | 78.2  | 16 |          |        |       |
| BUS 70700  | GOB_KNOB     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0300PU | 105.89 | 70700 |
|            |              |      | 70   |     |        |       |       |    | 236.90KV |        |       |
| TO 70254   | LAMAR CO     | 230  | 70   | 1   | 160.8  | 5.1   | 160.9 | 36 |          |        |       |
| TO 70701   | GOB_KNOB     | 34.5 | 70   | 1   | -80.4  | -2.6  | 80.4  | 94 | 1.0000LK |        |       |
| TO 70702   | GOB_KNOB     | 34.5 | 70   | 2   | -80.4  | -2.6  | 80.4  | 94 | 1.0000LK |        |       |
| BUS 70701  | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0432PU | 110.17 | 70701 |
| GENERATION |              |      | 70   |     | 81.0   | 8.7R  | 81.5  | 81 | 35.991KV |        |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 1   | 81.0   | 8.7   | 81.5  | 94 | 1.0000UN |        |       |
| BUS 70702  | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0432PU | 110.17 | 70702 |
| GENERATION |              |      | 70   |     | 81.0   | 8.7R  | 81.5  | 81 | 35.991KV |        |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 2   | 81.0   | 8.7   | 81.5  | 94 | 1.0000UN |        |       |
| BUS 70286  | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0077PU | 47.96  | 70286 |
|            |              |      | 70   |     |        |       |       |    | 231.77KV |        |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -74.8  | 11.9  | 75.7  | 15 |          |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -104.8 | -16.6 | 106.1 | 21 |          |        |       |
| TO 70139   | DANIELPK     | 230  | 70   | 1   | 166.5  | 7.5   | 166.7 | 33 |          |        |       |
| TO 70285   | MIDWAYPS     | 115  | 70   | 1   | 4.6    | -0.8  | 4.7   | 5  | 0.9764UN |        |       |
| TO 70577   | FTNVL1-213.8 | 70   | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |        |       |
| TO 70578   | FTNVL3-413.8 | 70   | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |        |       |
| TO 70579   | FTNVL5-613.8 | 70   | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |        |       |
| TO 73413   | MIDWAYBR     | 230  | 73   | 1   | 8.5    | -2.0  | 8.7   | 2  |          |        |       |
| BUS 70459  | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0166PU | 49.86  | 70459 |
|            |              |      | 70   |     |        |       |       |    | 233.82KV |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -60.4  | -14.7 | 62.1  | 14 |          |        |       |
| TO 70458   | WALSENBG     | 115  | 70   | 1   | 60.4   | 14.7  | 62.1  | 61 | 1.0000LK |        |       |
| BUS 70122  | COMANCHE     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0274PU | 52.23  | 70122 |
|            |              |      | 70   |     |        |       |       |    | 236.29KV |        |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | 76.0   | 49.6  | 90.7  | 20 |          |        |       |
| TO 70094   | CF&IFURN     | 230  | 70   | 1   | 100.1  | 25.5  | 103.3 | 23 |          |        |       |

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|          |          |      |    |   |        |       |       |    |          |
|----------|----------|------|----|---|--------|-------|-------|----|----------|
| TO 70119 | COMAN 1  | 24.0 | 70 | 1 | -320.8 | -68.4 | 328.0 | 78 | 1.0564LK |
| TO 70120 | COMAN 2  | 24.0 | 70 | 1 | -326.9 | -62.6 | 332.8 | 77 | 1.0564LK |
| TO 70121 | COMANCHE | 115  | 70 | 1 | 100.8  | 21.7  | 103.1 | 60 | 0.9688UN |
| TO 70121 | COMANCHE | 115  | 70 | 2 | 100.8  | 21.7  | 103.1 | 67 | 0.9688UN |
| TO 70286 | MIDWAYPS | 230  | 70 | 1 | 105.8  | 10.6  | 106.3 | 20 |          |
| TO 70459 | WALSENBG | 230  | 70 | 1 | 60.7   | 2.3   | 60.7  | 13 |          |
| TO 73477 | FULLER   | 230  | 73 | 1 | 103.6  | -0.4  | 103.6 | 20 |          |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:31  
2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:31  
 2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS  
 OUTPUT FOR AREA 70 [PSCOLORA]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.6    | 55.0   | 92.0    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 23.5    | 25.0   | 93.9    |
| 70247                | LAJUNTAT | 115  | 70   | 70472*             | WILOW CK | 115  | 70   | 1            | 121.5   | 109.0  | 111.4   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 25.4    | 25.0   | 101.5   |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 1            | 44.2    | 47.0   | 94.0    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 2            | 44.2    | 47.0   | 94.0    |
| 70439                | UNC      | 115  | 70   | 70502*             | QF UNC   | 13.8 | 70   | 1            | 71.0    | 76.8   | 92.4    |
| 70700                | GOB_KNOB | 230  | 70   | 70701*             | GOB_KNOB | 34.5 | 70   | 1            | 78.1    | 83.0   | 94.1    |
| 70700                | GOB_KNOB | 230  | 70   | 70702*             | GOB_KNOB | 34.5 | 70   | 2            | 78.1    | 83.0   | 94.1    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:31  
2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |         |        |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|---------|--------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME    | BSKV   | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES    | 115  | 73   | 73307*             | ESTES2  | 6.90   | 73   | 2            | 16.2    | 18.0   | 90.2    |
| 73056                | ESTES    | 115  | 73   | 73308*             | ESTES3  | 6.90   | 73   | 3            | 16.2    | 18.0   | 90.2    |
| 73062                | FREMONT  | 115  | 73   | 73349*             | FREMONT | 112.0  | 73   | 1            | 26.3    | 29.0   | 90.6    |
| 73062                | FREMONT  | 115  | 73   | 73350*             | FREMONT | 212.0  | 73   | 1            | 26.3    | 29.0   | 90.7    |
| 79007                | BLUEMESA | 115  | 73   | 79157*             | BMESA1  | 212.5  | 73   | 2            | 92.9    | 100.0  | 92.9    |
| 79052                | NUCLA    | 115  | 73   | 79161*             | NUCLA   | 4 13.8 | 73   | 1            | 64.1    | 70.0   | 91.6    |

**B - Boone – Lamar 230-kV circuit outage with the  
wind farm at Golden Prairie station reduced to 100 MW**

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:31  
2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003 RATING  
GOBBLERS KNOB 34.5 KV WITH REDUCED GEN - LOCK AREA SHUNTS SET A

|                   |          |      |      |     |       |       |       |    |          |       |       |
|-------------------|----------|------|------|-----|-------|-------|-------|----|----------|-------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0309PU | 75.10 | 70254 |
|                   |          |      | 70   |     |       |       |       |    | 237.12KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 98.9  | -8.9  | 99.3  | 96 | 1.0000LK |       |       |
| TO 70700          | GOB_KNOB | 230  | 70   | 1   | -98.9 | 8.9   | 99.3  | 22 |          |       |       |
|                   |          |      |      |     |       |       |       |    |          |       |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0421PU | 70.39 | 70253 |
|                   |          |      | 70   |     |       |       |       |    | 119.85KV |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | -98.9 | 17.2  | 100.4 | 96 | 1.0000UN |       |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 15.2  | -18.8 | 24.2  | 14 |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | 83.7  | 1.7   | 83.7  | 47 |          |       |       |
|                   |          |      |      |     |       |       |       |    |          |       |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0879PU | 67.27 | 70452 |
|                   |          |      | 70   |     |       |       |       |    | 125.10KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -14.9 | 14.9  | 21.1  | 11 |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 14.9  | -14.9 | 21.1  | 23 | 1.0750RG |       |       |
|                   |          |      |      |     |       |       |       |    |          |       |       |
| BUS 70472         | WILOW CK | 115  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0296PU | 66.50 | 70472 |
|                   |          |      | 70   |     |       |       |       |    | 118.41KV |       |       |
| TO 70247          | LAJUNTAT | 115  | 70   | 1   | 62.4  | -9.4  | 63.1  | 56 |          |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -82.7 | 2.6   | 82.7  | 47 |          |       |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | 20.3  | 6.8   | 21.4  | 49 | 0.9565LK |       |       |
|                   |          |      |      |     |       |       |       |    |          |       |       |
| BUS 70473         | WILOW CK | 69.0 | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0671PU | 65.18 | 70473 |
|                   |          |      | 70   |     |       |       |       |    | 73.629KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 2.7   | 0.9   | 2.9   |    |          |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -6.1  | 6.1   |    |          |       |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 1   | 9.7   | 10.0  | 13.9  | 69 |          |       |       |
| TO 70161          | EADS     | 69.0 | 70   | 1   | 2.1   | -0.2  | 2.1   | 6  |          |       |       |
| TO 70203          | GRAN TAP | 69.0 | 70   | 1   | 5.8   | 1.8   | 6.1   | 17 |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -20.3 | -6.3  | 21.2  | 47 | 0.9565UN |       |       |
|                   |          |      |      |     |       |       |       |    |          |       |       |
| BUS 70132         | CTY LAJ  | 69.0 | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0139PU | 51.57 | 70132 |
|                   |          |      | 70   |     |       |       |       |    | 69.958KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 15.9  | 5.2   | 16.7  |    |          |       |       |
| TO 70131          | CTY LAJ  | 13.8 | 70   | 1   | 0.0   | 0.0   | 0.0   | 0  | 1.0000LK |       |       |
| TO 70246          | LAJ IP   | 69.0 | 70   | 1   | 2.4   | 0.7   | 2.5   | 6  |          |       |       |
| TO 70248          | LAJUNTAT | 69.0 | 70   | 1   | -18.3 | -5.9  | 19.2  | 49 |          |       |       |
|                   |          |      |      |     |       |       |       |    |          |       |       |
| BUS 70133         | CTY LAM  | 14.4 | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0446PU | 67.17 | 70133 |
| GENERATION        |          |      | 70   |     | 24.0  | -8.3L | 25.4  | 85 | 15.042KV |       |       |
| TO 70134          | CTY LAM  | 25.0 | 70   | 1   | 24.0  | -8.3  | 25.4  | 97 | 1.0000UN |       |       |
|                   |          |      |      |     |       |       |       |    |          |       |       |
| BUS 70247         | LAJUNTAT | 115  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0172PU | 54.35 | 70247 |
|                   |          |      | 70   |     |       |       |       |    | 116.98KV |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -11.2 | 11.2  |    |          |       |       |
| TO 70060          | BOONE    | 115  | 70   | 1   | 39.6  | -12.9 | 41.6  | 38 |          |       |       |
| TO 70248          | LAJUNTAT | 69.0 | 70   | 1   | 19.2  | 6.5   | 20.3  | 80 | 0.9813RG |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -58.8 | 17.5  | 61.3  | 55 |          |       |       |

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|     |       |          |      |      |     |       |       |      |    |          |       |       |
|-----|-------|----------|------|------|-----|-------|-------|------|----|----------|-------|-------|
| BUS | 70249 | LAJUNTAW | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9695PU | 45.77 | 70249 |
|     |       |          |      | 70   |     |       |       |      |    | 111.49KV |       |       |
| TO  | 70060 | BOONE    | 115  | 70   | 1   | -20.1 | -12.6 | 23.8 | 23 |          |       |       |
| TO  | 70250 | LAJUNTAW | 69.0 | 70   | 1   | 20.1  | 12.6  | 23.8 | 98 | 1.0693UN |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:31  
2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003 RATING  
GOBBLERS KNOB 34.5 KV WITH REDUCED GEN - LOCK AREA SHUNTS SET A

|            |              |      |      |     |       |       |       |    |          |       |       |
|------------|--------------|------|------|-----|-------|-------|-------|----|----------|-------|-------|
| BUS 70060  | BOONE        | 115  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0229PU | 48.20 | 70060 |
|            |              |      | 70   |     |       |       |       |    | 117.64KV |       |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -34.0 | -39.7 | 52.3  | 34 | 1.0313RG |       |       |
| TO 70062   | BOONE        | 69.0 | 70   | 1   | 9.2   | -0.4  | 9.2   | 27 | 0.9938UN |       |       |
| TO 70159   | DOT TAP      | 115  | 70   | 1   | 42.5  | 15.5  | 45.2  | 38 |          |       |       |
| TO 70247   | LAJUNTAT     | 115  | 70   | 1   | -38.4 | 13.7  | 40.7  | 37 |          |       |       |
| TO 70249   | LAJUNTAW     | 115  | 70   | 1   | 20.7  | 10.9  | 23.4  | 21 |          |       |       |
| BUS 70061  | BOONE        | 230  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0141PU | 49.22 | 70061 |
|            |              |      | 70   |     |       |       |       |    | 233.25KV |       |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | 34.0  | 41.2  | 53.4  | 35 | 1.0313UN |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -92.0 | -33.4 | 97.8  | 22 |          |       |       |
| TO 70286   | MIDWAYPS     | 230  | 70   | 1   | 57.9  | -7.8  | 58.4  | 12 |          |       |       |
| BUS 70700  | GOB_KNOB     | 230  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0300PU | 78.22 | 70700 |
|            |              |      | 70   |     |       |       |       |    | 236.90KV |       |       |
| TO 70254   | LAMAR CO     | 230  | 70   | 1   | 99.5  | -16.1 | 100.8 | 23 |          |       |       |
| TO 70701   | GOB_KNOB     | 34.5 | 70   | 1   | -49.8 | 8.1   | 50.4  | 59 | 1.0000LK |       |       |
| TO 70702   | GOB_KNOB     | 34.5 | 70   | 2   | -49.8 | 8.1   | 50.4  | 59 | 1.0000LK |       |       |
| BUS 70701  | GOB_KNOB     | 34.5 | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0282PU | 80.96 | 70701 |
| GENERATION |              |      | 70   |     | 50.0  | -5.7R | 50.3  | 50 | 35.472KV |       |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 1   | 50.0  | -5.7  | 50.3  | 59 | 1.0000UN |       |       |
| BUS 70702  | GOB_KNOB     | 34.5 | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0282PU | 80.96 | 70702 |
| GENERATION |              |      | 70   |     | 50.0  | -5.7R | 50.3  | 50 | 35.472KV |       |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 2   | 50.0  | -5.7  | 50.3  | 59 | 1.0000UN |       |       |
| BUS 70286  | MIDWAYPS     | 230  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0108PU | 47.17 | 70286 |
|            |              |      | 70   |     |       |       |       |    | 232.48KV |       |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -57.7 | -3.2  | 57.7  | 12 |          |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -97.8 | -18.3 | 99.5  | 19 |          |       |       |
| TO 70139   | DANIELPK     | 230  | 70   | 1   | 154.4 | 8.4   | 154.7 | 30 |          |       |       |
| TO 70285   | MIDWAYPS     | 115  | 70   | 1   | 11.6  | -1.6  | 11.7  | 12 | 0.9764UN |       |       |
| TO 70577   | FTNVL1-213.8 | 70   | 70   | 1   | 0.0   | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| TO 70578   | FTNVL3-413.8 | 70   | 70   | 1   | 0.0   | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| TO 70579   | FTNVL5-613.8 | 70   | 70   | 1   | 0.0   | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| TO 73413   | MIDWAYBR     | 230  | 73   | 1   | -10.6 | 14.7  | 18.1  | 4  |          |       |       |
| BUS 70459  | WALSENBG     | 230  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0198PU | 48.78 | 70459 |
|            |              |      | 70   |     |       |       |       |    | 234.55KV |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -60.0 | -14.8 | 61.8  | 14 |          |       |       |
| TO 70458   | WALSENBG     | 115  | 70   | 1   | 60.0  | 14.8  | 61.8  | 61 | 1.0000LK |       |       |
| BUS 70122  | COMANCHE     | 230  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0305PU | 51.12 | 70122 |
|            |              |      | 70   |     |       |       |       |    | 237.03KV |       |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | 92.4  | 28.9  | 96.8  | 22 |          |       |       |
| TO 70094   | CF&IFURN     | 230  | 70   | 1   | 100.1 | 25.5  | 103.3 | 23 |          |       |       |

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|    |       |          |     |      |    |   |        |       |       |    |          |
|----|-------|----------|-----|------|----|---|--------|-------|-------|----|----------|
| TO | 70119 | COMAN    | 1   | 24.0 | 70 | 1 | -320.8 | -58.4 | 326.1 | 77 | 1.0564LK |
| TO | 70120 | COMAN    | 2   | 24.0 | 70 | 1 | -326.9 | -52.9 | 331.1 | 77 | 1.0564LK |
| TO | 70121 | COMANCHE | 115 |      | 70 | 1 | 99.5   | 21.6  | 101.9 | 59 | 0.9688UN |
| TO | 70121 | COMANCHE | 115 |      | 70 | 2 | 99.5   | 21.6  | 101.9 | 66 | 0.9688UN |
| TO | 70286 | MIDWAYPS | 230 |      | 70 | 1 | 98.7   | 11.1  | 99.3  | 19 |          |
| TO | 70459 | WALSENBG | 230 |      | 70 | 1 | 60.3   | 2.3   | 60.3  | 13 |          |
| TO | 73477 | FULLER   | 230 |      | 73 | 1 | 97.2   | 0.3   | 97.2  | 19 |          |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:31  
2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003  
GOBBLERS KNOB 34.5 KV WITH REDUCED GEN - LOCK AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:31  
2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003  
GOBBLERS KNOB 34.5 KV WITH REDUCED GEN - LOCK AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.6    | 55.0   | 92.0    |
| 70105*               | CHEROK3  | 20.0 | 70   | 70109              | CHEROKES | 115  | 70   | 1            | 165.7   | 180.0  | 92.0    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 24.3    | 25.0   | 97.2    |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 24.5    | 25.0   | 98.0    |
| 70253                | LAMAR CO | 115  | 70   | 70254*             | LAMAR CO | 230  | 70   | 1            | 96.3    | 100.0  | 96.3    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 1            | 43.5    | 47.0   | 92.6    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 2            | 43.5    | 47.0   | 92.6    |
| 70439                | UNC      | 115  | 70   | 70502*             | QF UNC   | 13.8 | 70   | 1            | 70.9    | 76.8   | 92.4    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, OCT 04 2002 8:31  
2003HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2003  
GOBBLERS KNOB 34.5 KV WITH REDUCED GEN - LOCK AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |         |        |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|---------|--------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME    | BSKV   | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES    | 115  | 73   | 73307*             | ESTES2  | 6.90   | 73   | 2            | 16.2    | 18.0   | 90.1    |
| 73056                | ESTES    | 115  | 73   | 73308*             | ESTES3  | 6.90   | 73   | 3            | 16.2    | 18.0   | 90.1    |
| 73062                | FREMONT  | 115  | 73   | 73349*             | FREMONT | 112.0  | 73   | 1            | 26.3    | 29.0   | 90.6    |
| 73062                | FREMONT  | 115  | 73   | 73350*             | FREMONT | 212.0  | 73   | 1            | 26.3    | 29.0   | 90.7    |
| 79007                | BLUEMESA | 115  | 73   | 79157*             | BMESA1  | -212.5 | 73   | 2            | 92.8    | 100.0  | 92.8    |
| 79052                | NUCLA    | 115  | 73   | 79161*             | NUCLA   | 4 13.8 | 73   | 1            | 64.1    | 70.0   | 91.6    |

**C - Boone – Lamar 230-kV circuit outage with the second  
230/115-kV transformer added at Lamar station and 115 kV circuit  
from Lamar to La Junta reconductored**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:17  
 2003HSV2 MSTR-2/11/02 BOONE-LAMAR 230 CKT OUTAGE REC 2003 RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS SET A

|                   |          |      |      |     |        |       |       |    |          |        |       |
|-------------------|----------|------|------|-----|--------|-------|-------|----|----------|--------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0128PU | 102.59 | 70254 |
|                   |          |      | 70   |     |        |       |       |    | 232.95KV |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 79.6   | 6.0   | 79.8  | 79 | 1.0000LK |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 2   | 79.6   | 6.0   | 79.8  | 79 | 1.0000LK |        |       |
| TO 70700          | GOB_KNOB | 230  | 70   | 1   | -159.2 | -11.9 | 159.7 | 36 |          |        |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0100PU | 98.62  | 70253 |
|                   |          |      | 70   |     |        |       |       |    | 116.15KV |        |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | -79.6  | -0.4  | 79.6  | 79 | 1.0000UN |        |       |
| TO 70254          | LAMAR CO | 230  | 70   | 2   | -79.6  | -0.4  | 79.6  | 79 | 1.0000UN |        |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 18.9   | -16.3 | 24.9  | 14 |          |        |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | 140.3  | 17.2  | 141.4 | 81 |          |        |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0477PU | 94.68  | 70452 |
|                   |          |      | 70   |     |        |       |       |    | 120.48KV |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -18.5  | 13.0  | 22.6  | 13 |          |        |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 18.5   | -13.0 | 22.6  | 26 | 1.0375RG |        |       |
| BUS 70472         | WILOW CK | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 0.9795PU | 91.64  | 70472 |
|                   |          |      | 70   |     |        |       |       |    | 112.64KV |        |       |
| TO 70247          | LAJUNTAT | 115  | 70   | 1   | 120.5  | 3.9   | 120.6 | 62 |          |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -137.2 | -1.2  | 137.2 | 81 |          |        |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | 16.7   | -2.7  | 16.9  | 41 | 0.9565LK |        |       |
| BUS 70473         | WILOW CK | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0266PU | 90.43  | 70473 |
|                   |          |      | 70   |     |        |       |       |    | 70.835KV |        |       |
| TO LOAD-PQ        |          |      |      |     | 2.7    | 0.9   | 2.9   |    |          |        |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0    | -5.7  | 5.7   |    |          |        |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 1   | 9.7    | 1.5   | 9.8   | 50 |          |        |       |
| TO 70161          | EADS     | 69.0 | 70   | 1   | 2.1    | -0.1  | 2.1   | 6  |          |        |       |
| TO 70203          | GRAN TAP | 69.0 | 70   | 1   | 2.2    | 0.4   | 2.3   | 7  |          |        |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -16.7  | 3.0   | 16.9  | 39 | 0.9565UN |        |       |
| BUS 70132         | CTY LAJ  | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0149PU | 63.51  | 70132 |
|                   |          |      | 70   |     |        |       |       |    | 70.030KV |        |       |
| TO LOAD-PQ        |          |      |      |     | 15.9   | 5.2   | 16.7  |    |          |        |       |
| TO 70131          | CTY LAJ  | 13.8 | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000LK |        |       |
| TO 70246          | LAJ IP   | 69.0 | 70   | 1   | 2.4    | 0.7   | 2.5   | 6  |          |        |       |
| TO 70248          | LAJUNTAT | 69.0 | 70   | 1   | -18.3  | -5.9  | 19.2  | 49 |          |        |       |
| BUS 70133         | CTY LAM  | 14.4 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0300PU | 92.30  | 70133 |
| GENERATION        |          |      | 70   |     | 24.0   | 0.6R  | 24.0  | 80 | 14.832KV |        |       |
| TO 70134          | CTY LAM  | 25.0 | 70   | 1   | 24.0   | 0.6   | 24.0  | 93 | 1.0000UN |        |       |
| BUS 70247         | LAJUNTAT | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 0.9923PU | 66.29  | 70247 |
|                   |          |      | 70   |     |        |       |       |    | 114.11KV |        |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0    | -21.3 | 21.3  |    |          |        |       |
| TO 70060          | BOONE    | 115  | 70   | 1   | 94.5   | -26.4 | 98.1  | 91 |          |        |       |



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|     |       |          |      |      |     |        |       |       |     |          |             |
|-----|-------|----------|------|------|-----|--------|-------|-------|-----|----------|-------------|
| TO  | 70248 | LAJUNTAT | 69.0 | 70   | 1   | 19.2   | 6.5   | 20.3  | 82  | 0.9563RG |             |
| TO  | 70472 | WILOW CK | 115  | 70   | 1   | -113.7 | 41.2  | 120.9 | 61  |          |             |
| BUS | 70249 | LAJUNTAW | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9658PU | 48.74 70249 |
|     |       |          |      | 70   |     |        |       |       |     | 111.07KV |             |
| TO  | 70060 | BOONE    | 115  | 70   | 1   | -20.4  | -13.6 | 24.5  | 23  |          |             |
| TO  | 70250 | LAJUNTAW | 69.0 | 70   | 1   | 20.4   | 13.6  | 24.5  | 101 | 1.0819UN |             |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:17  
 2003HSV2 MSTR-2/11/02 BOONE-LAMAR 230 CKT OUTAGE REC 2003 RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS SET A

|            |              |      |      |     |        |       |       |    |          |        |       |
|------------|--------------|------|------|-----|--------|-------|-------|----|----------|--------|-------|
| BUS 70060  | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0224PU | 51.17  | 70060 |
|            |              |      | 70   |     |        |       |       |    | 117.58KV |        |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | 5.1    | -73.3 | 73.5  | 48 | 1.0625RG |        |       |
| TO 70062   | BOONE        | 69.0 | 70   | 1   | 8.9    | -1.0  | 9.0   | 27 | 0.9938UN |        |       |
| TO 70159   | DOT TAP      | 115  | 70   | 1   | 52.3   | 14.0  | 54.1  | 46 |          |        |       |
| TO 70247   | LAJUNTAT     | 115  | 70   | 1   | -87.3  | 48.3  | 99.8  | 90 |          |        |       |
| TO 70249   | LAJUNTAW     | 115  | 70   | 1   | 21.0   | 12.0  | 24.2  | 22 |          |        |       |
| BUS 70061  | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0033PU | 50.95  | 70061 |
|            |              |      | 70   |     |        |       |       |    | 230.75KV |        |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | -5.0   | 76.4  | 76.6  | 51 | 1.0625UN |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -73.1  | -55.0 | 91.5  | 21 |          |        |       |
| TO 70286   | MIDWAYPS     | 230  | 70   | 1   | 78.1   | -21.4 | 80.9  | 16 |          |        |       |
| BUS 70700  | GOB_KNOB     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0300PU | 107.61 | 70700 |
|            |              |      | 70   |     |        |       |       |    | 236.90KV |        |       |
| TO 70254   | LAMAR CO     | 230  | 70   | 1   | 160.8  | 13.7  | 161.4 | 36 |          |        |       |
| TO 70701   | GOB_KNOB     | 34.5 | 70   | 1   | -80.4  | -6.9  | 80.7  | 94 | 1.0000LK |        |       |
| TO 70702   | GOB_KNOB     | 34.5 | 70   | 2   | -80.4  | -6.9  | 80.7  | 94 | 1.0000LK |        |       |
| BUS 70701  | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0473PU | 111.84 | 70701 |
| GENERATION |              |      | 70   |     | 81.0   | 13.0R | 82.0  | 82 | 36.133KV |        |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 1   | 81.0   | 13.0  | 82.0  | 94 | 1.0000UN |        |       |
| BUS 70702  | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0473PU | 111.84 | 70702 |
| GENERATION |              |      | 70   |     | 81.0   | 13.0R | 82.0  | 82 | 36.133KV |        |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 2   | 81.0   | 13.0  | 82.0  | 94 | 1.0000UN |        |       |
| BUS 70286  | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0075PU | 48.09  | 70286 |
|            |              |      | 70   |     |        |       |       |    | 231.72KV |        |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -77.5  | 12.5  | 78.5  | 16 |          |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -105.9 | -16.5 | 107.1 | 21 |          |        |       |
| TO 70139   | DANIELPK     | 230  | 70   | 1   | 168.4  | 7.5   | 168.5 | 33 |          |        |       |
| TO 70285   | MIDWAYPS     | 115  | 70   | 1   | 3.6    | -0.4  | 3.6   | 4  | 0.9764UN |        |       |
| TO 70577   | FTNVL1-213.8 | 70   | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |        |       |
| TO 70578   | FTNVL3-413.8 | 70   | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |        |       |
| TO 70579   | FTNVL5-613.8 | 70   | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |        |       |
| TO 73413   | MIDWAYBR     | 230  | 73   | 1   | 11.4   | -3.1  | 11.8  | 2  |          |        |       |
| BUS 70459  | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0164PU | 50.03  | 70459 |
|            |              |      | 70   |     |        |       |       |    | 233.78KV |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -60.5  | -14.7 | 62.2  | 14 |          |        |       |
| TO 70458   | WALSENBG     | 115  | 70   | 1   | 60.5   | 14.7  | 62.2  | 61 | 1.0000LK |        |       |
| BUS 70122  | COMANCHE     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0272PU | 52.40  | 70122 |
|            |              |      | 70   |     |        |       |       |    | 236.26KV |        |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | 73.5   | 50.2  | 89.0  | 20 |          |        |       |
| TO 70094   | CF&IFURN     | 230  | 70   | 1   | 100.1  | 25.5  | 103.3 | 23 |          |        |       |

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|          |          |      |    |   |        |       |       |    |          |
|----------|----------|------|----|---|--------|-------|-------|----|----------|
| TO 70119 | COMAN 1  | 24.0 | 70 | 1 | -320.8 | -68.8 | 328.1 | 78 | 1.0564LK |
| TO 70120 | COMAN 2  | 24.0 | 70 | 1 | -326.9 | -63.0 | 332.9 | 77 | 1.0564LK |
| TO 70121 | COMANCHE | 115  | 70 | 1 | 101.0  | 21.8  | 103.3 | 60 | 0.9688UN |
| TO 70121 | COMANCHE | 115  | 70 | 2 | 101.0  | 21.8  | 103.3 | 67 | 0.9688UN |
| TO 70286 | MIDWAYPS | 230  | 70 | 1 | 106.9  | 10.6  | 107.4 | 21 |          |
| TO 70459 | WALSENBG | 230  | 70 | 1 | 60.7   | 2.3   | 60.8  | 13 |          |
| TO 73477 | FULLER   | 230  | 73 | 1 | 104.5  | -0.3  | 104.5 | 20 |          |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:17  
2003HSV2 MSTR-2/11/02 BOONE-LAMAR 230 CKT OUTAGE REC 2003  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:17  
 2003HSV2 MSTR-2/11/02 BOONE-LAMAR 230 CKT OUTAGE REC 2003  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS  
 OUTPUT FOR AREA 70 [PSCOLORA]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70060                | BOONE    | 115  | 70   | 70247*             | LAJUNTAT | 115  | 70   | 1            | 98.9    | 109.0  | 90.7    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAMEO2   | 13.8 | 70   | 1            | 50.6    | 55.0   | 92.0    |
| 70133*               | CTY LAM  | 14.4 | 70   | 70134              | CTY LAM  | 25.0 | 70   | 1            | 23.3    | 25.0   | 93.2    |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 25.4    | 25.0   | 101.4   |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 1            | 44.2    | 47.0   | 94.0    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 2            | 44.2    | 47.0   | 94.0    |
| 70439                | UNC      | 115  | 70   | 70502*             | QF UNC   | 13.8 | 70   | 1            | 71.0    | 76.8   | 92.4    |
| 70700                | GOB_KNOB | 230  | 70   | 70701*             | GOB_KNOB | 34.5 | 70   | 1            | 78.3    | 83.0   | 94.4    |
| 70700                | GOB_KNOB | 230  | 70   | 70702*             | GOB_KNOB | 34.5 | 70   | 2            | 78.3    | 83.0   | 94.4    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:17  
2003HSV2 MSTR-2/11/02 BOONE-LAMAR 230 CKT OUTAGE REC 2003  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |         |        |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|---------|--------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME    | BSKV   | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES    | 115  | 73   | 73307*             | ESTES2  | 6.90   | 73   | 2            | 16.2    | 18.0   | 90.2    |
| 73056                | ESTES    | 115  | 73   | 73308*             | ESTES3  | 6.90   | 73   | 3            | 16.2    | 18.0   | 90.2    |
| 73062                | FREMONT  | 115  | 73   | 73349*             | FREMONT | 112.0  | 73   | 1            | 26.3    | 29.0   | 90.6    |
| 73062                | FREMONT  | 115  | 73   | 73350*             | FREMONT | 212.0  | 73   | 1            | 26.3    | 29.0   | 90.7    |
| 79007*               | BLUEMESA | 115  | 73   | 79157              | BMESA1  | 212.5  | 73   | 2            | 92.9    | 100.0  | 92.9    |
| 79052                | NUCLA    | 115  | 73   | 79161*             | NUCLA   | 4 13.8 | 73   | 1            | 64.1    | 70.0   | 91.6    |

**D - Willow Creek 115/69-kV transformer outage**

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      SAT, OCT 05 2002 12:37
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003      RATING
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT      SET A

BUS 70254 LAMAR CO 230 AREA CKT    MW    MVAR    MVA  %I 1.0308PU 58.76 70254
      70      237.09KV
TO 70061 BOONE    230 70 1    96.1   -12.2   96.8  24
TO 70253 LAMAR CO 115 70 1    63.1    -7.5   63.6  62 1.0000LK
TO 70700 GOB_KNOB 230 70 1   -159.2   19.7  160.4  36

BUS 70253 LAMAR CO 115 AREA CKT    MW    MVAR    MVA  %I 1.0387PU 55.76 70253
      70      119.45KV
TO 70254 LAMAR CO 230 70 1   -63.1   10.9   64.1  62 1.0000UN
TO 70452 VILAS   115 70 1    38.9    -7.4   39.6  22
TO 70472 WILLOW CK 115 70 1    24.2    -3.5   24.4  14

BUS 70452 VILAS   115 AREA CKT    MW    MVAR    MVA  %I 1.0398PU 48.55 70452
      70      119.58KV
TO 70253 LAMAR CO 115 70 1   -38.1    7.1   38.7  22
TO 70453 VILAS   69.0 70 1    38.0    -7.1   38.7  44 1.0312RG

BUS 70453 VILAS   69.0 AREA CKT    MW    MVAR    MVA  %I 1.0140PU 46.35 70453
      70      69.966KV
TO 70223 HLTP TAP69.0 70 1     6.8    2.0    7.1  18
TO 70452 VILAS   115 70 1   -38.0    8.6   38.9  46 1.0312UN
TO 70460 WALSH   69.0 70 1    31.1   -10.6   32.9  96

BUS 70223 HLTP TAP69.0 AREA CKT    MW    MVAR    MVA  %I 1.0100PU 46.06 70223
      70      69.692KV
TO 70222 HILLTOP 69.0 70 1     4.0    1.3    4.2  12
TO 70404 SPRNGFLD69.0 70 1     2.8    0.8    2.9   7
TO 70453 VILAS   69.0 70 1    -6.8   -2.1    7.1  18

BUS 70460 WALSH   69.0 AREA CKT    MW    MVAR    MVA  %I 1.0095PU 43.08 70460
      70      69.659KV
TO LOAD-PQ              4.0    1.3    4.2
TO SWITCHED SHUNT        0.0   -16.5   16.5
TO 70425 T BUTTES69.0 70 1    26.3    3.4   26.6  78
TO 70453 VILAS   69.0 70 1   -30.4   11.8   32.6  95

BUS 70425 T BUTTES69.0 AREA CKT    MW    MVAR    MVA  %I 0.9830PU 40.51 70425
      70      67.829KV
TO LOAD-PQ              2.0    0.7    2.2
TO 70101 CHEN TAP69.0 70 1    23.7    1.7   23.8  71
TO 70460 WALSH   69.0 70 1   -25.8   -2.4   25.9  78

BUS 70101 CHEN TAP69.0 AREA CKT    MW    MVAR    MVA  %I 0.9475PU 36.39 70101
      70      65.375KV
TO 70102 CHENEY   69.0 70 1     2.9    0.8    3.0   9
TO 70225 HOLL TAP69.0 70 1    20.0   -0.3   20.0  62
TO 70425 T BUTTES69.0 70 1   -22.9   -0.5   22.9  71

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|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 0.9439PU | 36.14 | 70102 |
|                   |      | 70   |     |      |      |     |    | 65.126KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -2.9 | -1.0 | 3.1 | 10 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:37  
 2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|                   |              |         |     |       |      |      |     |          |       |       |
|-------------------|--------------|---------|-----|-------|------|------|-----|----------|-------|-------|
| BUS 70225         | HOLL TAP69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9245PU | 32.97 | 70225 |
|                   |              |         |     |       |      |      |     | 63.789KV |       |       |
| TO 70101          | CHEN TAP69.0 | 70      | 1   | -19.5 | 1.1  | 19.5 | 62  |          |       |       |
| TO 70184          | FT HOLLY69.0 | 70      | 1   | 2.9   | 0.8  | 3.1  | 10  |          |       |       |
| TO 70203          | GRAN TAP69.0 | 70      | 1   | 16.5  | -1.9 | 16.6 | 53  |          |       |       |
| BUS 70184         | FT HOLLY69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9218PU | 32.78 | 70184 |
|                   |              |         |     |       |      |      |     | 63.606KV |       |       |
| TO LOAD-PQ        |              |         |     | 2.9   | 1.0  | 3.1  |     |          |       |       |
| TO 70225          | HOLL TAP69.0 | 70      | 1   | -2.9  | -1.0 | 3.1  | 10  |          |       |       |
| BUS 70203         | GRAN TAP69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9200PU | 32.09 | 70203 |
|                   |              |         |     |       |      |      |     | 63.483KV |       |       |
| TO 70204          | GRANADA 69.0 | 70      | 1   | 1.6   | 0.5  | 1.7  | 5   |          |       |       |
| TO 70225          | HOLL TAP69.0 | 70      | 1   | -16.4 | 2.1  | 16.5 | 53  |          |       |       |
| TO 70473          | WILOW CK69.0 | 70      | 1   | 14.8  | -2.6 | 15.0 | 48  |          |       |       |
| BUS 70204         | GRANADA 69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9195PU | 32.05 | 70204 |
|                   |              |         |     |       |      |      |     | 63.445KV |       |       |
| TO LOAD-PQ        |              |         |     | 1.6   | 0.5  | 1.7  |     |          |       |       |
| TO 70203          | GRAN TAP69.0 | 70      | 1   | -1.6  | -0.5 | 1.7  | 5   |          |       |       |
| BUS 70161         | EADS 69.0    | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.8990PU | 28.23 | 70161 |
|                   |              |         |     |       |      |      |     | 62.031KV |       |       |
| TO LOAD-PQ        |              |         |     | 2.0   | 0.7  | 2.2  |     |          |       |       |
| TO 70473          | WILOW CK69.0 | 70      | 1   | -2.0  | -0.7 | 2.2  | 7   |          |       |       |
| BUS 70136         | CTY LAM 69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9078PU | 28.76 | 70136 |
|                   |              |         |     |       |      |      |     | 62.639KV |       |       |
| TO 70134          | CTY LAM 25.0 | 70      | 1   | 0.4   | -4.9 | 4.9  | 22  | 1.0000LK |       |       |
| TO 70134          | CTY LAM 25.0 | 70      | 2   | 0.1   | -1.7 | 1.7  | 17  | 1.0000LK |       |       |
| TO 70185          | FT. LYON69.0 | 70      | 1   | 7.2   | 2.3  | 7.5  | 21  |          |       |       |
| TO 70333          | PROWERS 69.0 | 70      | 1   | 2.0   | 0.5  | 2.1  | 6   |          |       |       |
| TO 70473          | WILOW CK69.0 | 70      | 1   | -9.7  | 3.8  | 10.4 | 60  |          |       |       |
| BUS 70185         | FT. LYON69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9022PU | 28.33 | 70185 |
|                   |              |         |     |       |      |      |     | 62.252KV |       |       |
| TO LOAD-PQ        |              |         |     | 7.2   | 2.4  | 7.5  |     |          |       |       |
| TO 70136          | CTY LAM 69.0 | 70      | 1   | -7.1  | -2.4 | 7.5  | 21  |          |       |       |
| BUS 70134         | CTY LAM 25.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9164PU | 28.67 | 70134 |
|                   |              |         |     |       |      |      |     | 22.911KV |       |       |
| TO LOAD-PQ        |              |         |     | 24.3  | 8.0  | 25.6 |     |          |       |       |
| TO SWITCHED SHUNT |              |         |     | 0.0   | -7.6 | 7.6  |     |          |       |       |
| TO 70133          | CTY LAM 14.4 | 70      | 1   | -23.8 | -7.1 | 24.8 | 108 | 1.0000LK |       |       |
| TO 70135          | CTY LAM 4.20 | 70      | 1   | 0.0   | 0.0  | 0.0  | 0   | 1.0000LK |       |       |
| TO 70136          | CTY LAM 69.0 | 70      | 1   | -0.3  | 5.0  | 5.0  | 22  | 1.0000UN |       |       |
| TO 70136          | CTY LAM 69.0 | 70      | 2   | -0.1  | 1.7  | 1.7  | 17  | 1.0000UN |       |       |

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|     |       |          |      |      |     |       |      |      |    |        |    |
|-----|-------|----------|------|------|-----|-------|------|------|----|--------|----|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 0.9000 | LO |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0375 | PU |
|     |       |          |      | 70   |     |       |      |      |    | 119.32 | KV |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 24.1  | -2.6 | 24.2 | 21 |        |    |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -24.1 | 2.6  | 24.2 | 14 |        |    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:37  
 2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|           |                |      |      |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 0.9079PU | 29.02 | 70473 |
|           |                | 70   |      |       |      |      |    | 62.648KV |       |       |
| TO        | LOAD-PQ        |      |      | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70 1 | 9.7   | -3.8 | 10.4 | 60 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70 1 | 2.1   | 0.1  | 2.1  | 7  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70 1 | -14.5 | 2.9  | 14.7 | 48 |          |       |       |
|           |                |      |      |       |      |      |    |          |       |       |
| BUS 70132 | CTY LAJ 69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0156PU | 47.34 | 70132 |
|           |                | 70   |      |       |      |      |    | 70.074KV |       |       |
| TO        | LOAD-PQ        |      |      | 15.9  | 5.2  | 16.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70 1 | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70 1 | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70 1 | -18.3 | -5.9 | 19.2 | 48 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:37  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|            |          |      |      |     |        |       |       |     |          |       |       |
|------------|----------|------|------|-----|--------|-------|-------|-----|----------|-------|-------|
| BUS 70133  | CTY LAM  | 14.4 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9339PU | 31.14 | 70133 |
| GENERATION |          |      | 70   |     | 24.0   | 8.3H  | 25.4  | 85  | 13.448KV |       |       |
| TO 70134   | CTY LAM  | 25.0 | 70   | 1   | 23.9   | 8.3   | 25.3  | 108 | 1.0000UN |       |       |
| BUS 70247  | LAJUNTAT | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0188PU | 50.12 | 70247 |
|            |          |      | 70   |     |        |       |       |     | 117.16KV |       |       |
| TO 70060   | BOONE    | 115  | 70   | 1   | 4.4    | -6.3  | 7.7   | 7   |          |       |       |
| TO 70248   | LAJUNTAT | 69.0 | 70   | 1   | 19.2   | 6.5   | 20.3  | 80  | 0.9813RG |       |       |
| TO 70472   | WILOW CK | 115  | 70   | 1   | -23.6  | -0.2  | 23.6  | 21  |          |       |       |
| BUS 70249  | LAJUNTAW | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9726PU | 46.89 | 70249 |
|            |          |      | 70   |     |        |       |       |     | 111.85KV |       |       |
| TO 70060   | BOONE    | 115  | 70   | 1   | -20.3  | -13.1 | 24.2  | 23  |          |       |       |
| TO 70250   | LAJUNTAW | 69.0 | 70   | 1   | 20.3   | 13.1  | 24.2  | 100 | 1.0693UN |       |       |
| BUS 70060  | BOONE    | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0274PU | 49.31 | 70060 |
|            |          |      | 70   |     |        |       |       |     | 118.15KV |       |       |
| TO 70061   | BOONE    | 230  | 70   | 1   | -68.2  | -30.4 | 74.7  | 48  | 1.0250RG |       |       |
| TO 70062   | BOONE    | 69.0 | 70   | 1   | 9.0    | -0.8  | 9.0   | 27  | 0.9875UN |       |       |
| TO 70159   | DOT TAP  | 115  | 70   | 1   | 42.7   | 16.8  | 45.9  | 39  |          |       |       |
| TO 70247   | LAJUNTAT | 115  | 70   | 1   | -4.4   | 2.9   | 5.2   | 5   |          |       |       |
| TO 70249   | LAJUNTAW | 115  | 70   | 1   | 20.9   | 11.4  | 23.8  | 21  |          |       |       |
| BUS 70061  | BOONE    | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0202PU | 51.35 | 70061 |
|            |          |      | 70   |     |        |       |       |     | 234.65KV |       |       |
| TO 70060   | BOONE    | 115  | 70   | 1   | 68.3   | 33.4  | 76.0  | 50  | 1.0250UN |       |       |
| TO 70122   | COMANCHE | 230  | 70   | 1   | -63.2  | -25.6 | 68.2  | 15  |          |       |       |
| TO 70254   | LAMAR CO | 230  | 70   | 1   | -94.7  | -6.4  | 94.9  | 23  |          |       |       |
| TO 70286   | MIDWAYPS | 230  | 70   | 1   | 89.6   | -1.4  | 89.6  | 18  |          |       |       |
| BUS 70700  | GOB_KNOB | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0300PU | 63.80 | 70700 |
|            |          |      | 70   |     |        |       |       |     | 236.90KV |       |       |
| TO 70254   | LAMAR CO | 230  | 70   | 1   | 160.8  | -18.2 | 161.8 | 36  |          |       |       |
| TO 70701   | GOB_KNOB | 34.5 | 70   | 1   | -80.4  | 9.1   | 80.9  | 95  | 1.0000LK |       |       |
| TO 70702   | GOB_KNOB | 34.5 | 70   | 2   | -80.4  | 9.1   | 80.9  | 95  | 1.0000LK |       |       |
| BUS 70701  | GOB_KNOB | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0319PU | 68.19 | 70701 |
| GENERATION |          |      | 70   |     | 81.0   | -2.9R | 81.1  | 81  | 35.602KV |       |       |
| TO 70700   | GOB_KNOB | 230  | 70   | 1   | 81.0   | -3.0  | 81.1  | 95  | 1.0000UN |       |       |
| BUS 70702  | GOB_KNOB | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0319PU | 68.19 | 70702 |
| GENERATION |          |      | 70   |     | 81.0   | -2.9R | 81.1  | 81  | 35.602KV |       |       |
| TO 70700   | GOB_KNOB | 230  | 70   | 2   | 81.0   | -3.0  | 81.1  | 95  | 1.0000UN |       |       |
| BUS 70286  | MIDWAYPS | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0111PU | 48.23 | 70286 |
|            |          |      | 70   |     |        |       |       |     | 232.56KV |       |       |
| TO 70061   | BOONE    | 230  | 70   | 1   | -89.0  | -6.9  | 89.3  | 18  |          |       |       |
| TO 70122   | COMANCHE | 230  | 70   | 1   | -109.0 | -17.4 | 110.4 | 22  |          |       |       |

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|                       |     |    |   |       |      |       |    |          |
|-----------------------|-----|----|---|-------|------|-------|----|----------|
| TO 70139 DANIELPK     | 230 | 70 | 1 | 172.1 | 10.6 | 172.5 | 34 |          |
| TO 70285 MIDWAYPS     | 115 | 70 | 1 | 9.4   | -2.3 | 9.7   | 10 | 0.9764UN |
| TO 70577 FTNVL1-213.8 |     | 70 | 1 | 0.0   | 0.0  | 0.0   | 0  | 1.0000UN |
| TO 70578 FTNVL3-413.8 |     | 70 | 1 | 0.0   | 0.0  | 0.0   | 0  | 1.0000UN |
| TO 70579 FTNVL5-613.8 |     | 70 | 1 | 0.0   | 0.0  | 0.0   | 0  | 1.0000UN |
| TO 73413 MIDWAYBR     | 230 | 73 | 1 | 16.5  | 15.9 | 22.9  | 5  |          |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:37  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003 RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70459 | WALSENBG | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0211PU | 50.26 | 70459 |
|           |          |      | 70   |     |        |       |       |    | 234.85KV |       |       |
| TO 70122  | COMANCHE | 230  | 70   | 1   | -61.1  | -14.7 | 62.8  | 14 |          |       |       |
| TO 70458  | WALSENBG | 115  | 70   | 1   | 61.1   | 14.7  | 62.8  | 62 | 1.0000LK |       |       |
|           |          |      |      |     |        |       |       |    |          |       |       |
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0318PU | 52.64 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 237.32KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 63.4   | 19.2  | 66.3  | 15 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.5  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -320.8 | -54.5 | 325.4 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -326.9 | -49.0 | 330.5 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 102.8  | 21.6  | 105.1 | 61 | 0.9688UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 102.8  | 21.6  | 105.1 | 68 | 0.9688UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 110.1  | 11.8  | 110.8 | 21 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 61.4   | 2.2   | 61.4  | 13 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 107.0  | 1.7   | 107.0 | 20 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:37  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS      | -----X | AREA | V(PU)  | V(KV)  | X----- | BUS       | -----X | AREA | V(PU)  | V(KV)  |
|--------|----------|--------|------|--------|--------|--------|-----------|--------|------|--------|--------|
| 70134  | CTY LAM  | 25.0   | 70   | 0.9164 | 22.911 | 70135  | CTY LAM   | 4.20   | 70   | 0.9164 | 3.849  |
| 70136  | CTY LAM  | 69.0   | 70   | 0.9078 | 62.639 | 70161  | EADS      | 69.0   | 70   | 0.8990 | 62.031 |
| 70185  | FT. LYON | 69.0   | 70   | 0.9022 | 62.252 | 70204  | GRANADA   | 69.0   | 70   | 0.9195 | 63.445 |
| 70333  | PROWERS  | 69.0   | 70   | 0.9054 | 62.469 | 70473  | WILLOW CK | 69.0   | 70   | 0.9079 | 62.648 |



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:37  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.6    | 55.0   | 92.0    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 27.1    | 25.0   | 108.4   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 24.9    | 25.0   | 99.5    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 1            | 43.7    | 47.0   | 92.9    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 2            | 43.7    | 47.0   | 92.9    |
| 70439                | UNC      | 115  | 70   | 70502*             | QF UNC   | 13.8 | 70   | 1            | 71.0    | 76.8   | 92.4    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 32.4    | 33.9   | 95.7    |
| 70700*               | GOB_KNOB | 230  | 70   | 70701              | GOB_KNOB | 34.5 | 70   | 1            | 78.5    | 83.0   | 94.6    |
| 70700*               | GOB_KNOB | 230  | 70   | 70702              | GOB_KNOB | 34.5 | 70   | 2            | 78.5    | 83.0   | 94.6    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:37  
2003HSV2 MASTER-2/11/02 WILLOW CREEK XFMR OUTAGE 2003  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |         |        |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|---------|--------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME    | BSKV   | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES    | 115  | 73   | 73307*             | ESTES2  | 6.90   | 73   | 2            | 16.2    | 18.0   | 90.2    |
| 73056                | ESTES    | 115  | 73   | 73308*             | ESTES3  | 6.90   | 73   | 3            | 16.2    | 18.0   | 90.2    |
| 73062                | FREMONT  | 115  | 73   | 73349*             | FREMONT | 112.0  | 73   | 1            | 26.3    | 29.0   | 90.6    |
| 73062                | FREMONT  | 115  | 73   | 73350*             | FREMONT | 212.0  | 73   | 1            | 26.3    | 29.0   | 90.7    |
| 79007                | BLUEMESA | 115  | 73   | 79157*             | BMESA1  | 212.5  | 73   | 2            | 92.8    | 100.0  | 92.8    |
| 79052                | NUCLA    | 115  | 73   | 79161*             | NUCLA   | 4 13.8 | 73   | 1            | 64.1    | 70.0   | 91.6    |

**E - Willow Creek 115/69-kV transformer outage with 5.4 MVAR capacitors  
added at Willow Creek 69 kV**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:40  
 2003HSV2 MASTER-2/11/02 WLLW CRK XFMR OUTAGE 2003 WITH CAP A RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|                   |           |      |      |     |        |       |       |     |          |       |       |
|-------------------|-----------|------|------|-----|--------|-------|-------|-----|----------|-------|-------|
| BUS 70254         | LAMAR CO  | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0334PU | 58.65 | 70254 |
|                   |           |      | 70   |     |        |       |       |     | 237.69KV |       |       |
| TO 70061          | BOONE     | 230  | 70   | 1   | 95.6   | -10.9 | 96.3  | 23  |          |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | 63.6   | -13.5 | 65.0  | 63  | 1.0000LK |       |       |
| TO 70700          | GOB_KNOB  | 230  | 70   | 1   | -159.2 | 24.4  | 161.1 | 36  |          |       |       |
|                   |           |      |      |     |        |       |       |     |          |       |       |
| BUS 70253         | LAMAR CO  | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0465PU | 55.65 | 70253 |
|                   |           |      | 70   |     |        |       |       |     | 120.35KV |       |       |
| TO 70254          | LAMAR CO  | 230  | 70   | 1   | -63.6  | 17.0  | 65.8  | 63  | 1.0000UN |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | 39.1   | -14.4 | 41.7  | 23  |          |       |       |
| TO 70472          | WILLOW CK | 115  | 70   | 1   | 24.5   | -2.6  | 24.6  | 14  |          |       |       |
|                   |           |      |      |     |        |       |       |     |          |       |       |
| BUS 70452         | VILAS     | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0706PU | 48.45 | 70452 |
|                   |           |      | 70   |     |        |       |       |     | 123.12KV |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | -38.2  | 14.2  | 40.8  | 22  |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | 38.2   | -14.2 | 40.7  | 45  | 1.0625RG |       |       |
|                   |           |      |      |     |        |       |       |     |          |       |       |
| BUS 70453         | VILAS     | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0206PU | 46.23 | 70453 |
|                   |           |      | 70   |     |        |       |       |     | 70.418KV |       |       |
| TO 70223          | HLTP TAP  | 69.0 | 70   | 1   | 6.8    | 2.0   | 7.1   | 18  |          |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | -38.1  | 15.9  | 41.3  | 48  | 1.0625UN |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | 31.2   | -17.9 | 36.0  | 104 |          |       |       |
|                   |           |      |      |     |        |       |       |     |          |       |       |
| BUS 70223         | HLTP TAP  | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0166PU | 45.95 | 70223 |
|                   |           |      | 70   |     |        |       |       |     | 70.146KV |       |       |
| TO 70222          | HILLTOP   | 69.0 | 70   | 1   | 4.0    | 1.3   | 4.2   | 12  |          |       |       |
| TO 70404          | SPRNGFLD  | 69.0 | 70   | 1   | 2.8    | 0.8   | 2.9   | 7   |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -6.8   | -2.1  | 7.1   | 18  |          |       |       |
|                   |           |      |      |     |        |       |       |     |          |       |       |
| BUS 70460         | WALSH     | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0280PU | 42.73 | 70460 |
|                   |           |      | 70   |     |        |       |       |     | 70.935KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 4.0    | 1.3   | 4.2   |     |          |       |       |
| TO SWITCHED SHUNT |           |      |      |     | 0.0    | -17.1 | 17.1  |     |          |       |       |
| TO 70425          | T BUTTES  | 69.0 | 70   | 1   | 26.3   | -3.6  | 26.6  | 76  |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -30.3  | 19.4  | 36.0  | 103 |          |       |       |
|                   |           |      |      |     |        |       |       |     |          |       |       |
| BUS 70425         | T BUTTES  | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0145PU | 39.99 | 70425 |
|                   |           |      | 70   |     |        |       |       |     | 69.999KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 2.0    | 0.7   | 2.2   |     |          |       |       |
| TO 70101          | CHEN TAP  | 69.0 | 70   | 1   | 23.7   | -5.2  | 24.3  | 71  |          |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | -25.8  | 4.5   | 26.2  | 76  |          |       |       |
|                   |           |      |      |     |        |       |       |     |          |       |       |
| BUS 70101         | CHEN TAP  | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0006PU | 35.68 | 70101 |
|                   |           |      | 70   |     |        |       |       |     | 69.040KV |       |       |
| TO 70102          | CHENEY    | 69.0 | 70   | 1   | 2.9    | 0.7   | 3.0   | 9   |          |       |       |
| TO 70225          | HOLL TAP  | 69.0 | 70   | 1   | 20.0   | -7.2  | 21.2  | 63  |          |       |       |
| TO 70425          | T BUTTES  | 69.0 | 70   | 1   | -22.9  | 6.4   | 23.8  | 70  |          |       |       |

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|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 0.9972PU | 35.45 | 70102 |
|                   |      | 70   |     |      |      |     |    | 68.806KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -2.9 | -1.0 | 3.1 | 9  |          |       |       |

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 2003HSV2 MASTER-2/11/02 WLLW CRK XFMR OUTAGE 2003 WITH CAP A RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|                        |      |     |       |      |      |    |          |       |       |
|------------------------|------|-----|-------|------|------|----|----------|-------|-------|
| BUS 70225 HOLL TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9969PU | 32.21 | 70225 |
|                        | 70   |     |       |      |      |    | 68.784KV |       |       |
| TO 70101 CHEN TAP69.0  | 70   | 1   | -19.5 | 7.9  | 21.0 | 62 |          |       |       |
| TO 70184 FT HOLLY69.0  | 70   | 1   | 2.9   | 0.8  | 3.1  | 9  |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | 16.5  | -8.7 | 18.7 | 55 |          |       |       |
| BUS 70184 FT HOLLY69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9944PU | 32.05 | 70184 |
|                        | 70   |     |       |      |      |    | 68.616KV |       |       |
| TO LOAD-PQ             |      |     | 2.9   | 1.0  | 3.1  |    |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -2.9  | -1.0 | 3.1  | 9  |          |       |       |
| BUS 70203 GRAN TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9979PU | 31.33 | 70203 |
|                        | 70   |     |       |      |      |    | 68.854KV |       |       |
| TO 70204 GRANADA 69.0  | 70   | 1   | 1.6   | 0.5  | 1.7  | 5  |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -16.4 | 8.9  | 18.6 | 55 |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | 14.8  | -9.4 | 17.5 | 52 |          |       |       |
| BUS 70204 GRANADA 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9974PU | 31.30 | 70204 |
|                        | 70   |     |       |      |      |    | 68.819KV |       |       |
| TO LOAD-PQ             |      |     | 1.6   | 0.5  | 1.7  |    |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | -1.6  | -0.5 | 1.7  | 5  |          |       |       |
| BUS 70161 EADS 69.0    | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9984PU | 27.62 | 70161 |
|                        | 70   |     |       |      |      |    | 68.889KV |       |       |
| TO LOAD-PQ             |      |     | 2.0   | 0.7  | 2.2  |    |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -2.0  | -0.7 | 2.2  | 6  |          |       |       |
| BUS 70136 CTY LAM 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0063PU | 28.06 | 70136 |
|                        | 70   |     |       |      |      |    | 69.433KV |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 1   | 0.3   | -5.7 | 5.7  | 23 | 1.0000LK |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 2   | 0.1   | -1.9 | 1.9  | 17 | 1.0000LK |       |       |
| TO 70185 FT. LYON69.0  | 70   | 1   | 7.2   | 2.3  | 7.5  | 19 |          |       |       |
| TO 70333 PROWERS 69.0  | 70   | 1   | 2.0   | 0.4  | 2.1  | 5  |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -9.6  | 5.0  | 10.9 | 57 |          |       |       |
| BUS 70185 FT. LYON69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0012PU | 27.70 | 70185 |
|                        | 70   |     |       |      |      |    | 69.085KV |       |       |
| TO LOAD-PQ             |      |     | 7.2   | 2.4  | 7.5  |    |          |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -7.2  | -2.4 | 7.5  | 19 |          |       |       |
| BUS 70134 CTY LAM 25.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0153PU | 27.97 | 70134 |
|                        | 70   |     |       |      |      |    | 25.384KV |       |       |
| TO LOAD-PQ             |      |     | 24.3  | 8.0  | 25.6 |    |          |       |       |
| TO SWITCHED SHUNT      |      |     | 0.0   | -9.3 | 9.3  |    |          |       |       |
| TO 70133 CTY LAM 14.4  | 70   | 1   | -23.9 | -6.5 | 24.8 | 98 | 1.0000LK |       |       |
| TO 70135 CTY LAM 4.20  | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -0.3  | 5.8  | 5.8  | 23 | 1.0000UN |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 2   | -0.1  | 1.9  | 1.9  | 17 | 1.0000UN |       |       |

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|     |       |          |      |      |     |       |      |      |    |          |       |       |
|-----|-------|----------|------|------|-----|-------|------|------|----|----------|-------|-------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 0.9999RG |       |       |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0445PU | 54.51 | 70472 |
|     |       |          |      | 70   |     |       |      |      |    | 120.12KV |       |       |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 24.4  | -1.7 | 24.4 | 21 |          |       |       |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -24.4 | 1.7  | 24.4 | 14 |          |       |       |

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 2003HSV2 MASTER-2/11/02 WLLW CRK XFMR OUTAGE 2003 WITH CAP A RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|           |                |      |      |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0060PU | 28.28 | 70473 |
|           |                | 70   |      |       |      |      |    | 69.414KV |       |       |
| TO        | LOAD-PQ        |      |      | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | SWITCHED SHUNT |      |      | 0.0   | -5.5 | 5.5  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70 1 | 9.6   | -5.0 | 10.9 | 57 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70 1 | 2.1   | -0.1 | 2.1  | 6  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70 1 | -14.4 | 9.7  | 17.4 | 51 |          |       |       |
| BUS 70132 | CTY LAJ 69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0196PU | 47.31 | 70132 |
|           |                | 70   |      |       |      |      |    | 70.349KV |       |       |
| TO        | LOAD-PQ        |      |      | 15.9  | 5.2  | 16.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70 1 | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70 1 | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70 1 | -18.3 | -5.9 | 19.2 | 48 |          |       |       |



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 2003HSV2 MASTER-2/11/02 WLLW CRK XFMR OUTAGE 2003 WITH CAP A RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|                                  |        |       |       |     |          |       |       |
|----------------------------------|--------|-------|-------|-----|----------|-------|-------|
| BUS 70133 CTY LAM 14.4 AREA CKT  | MW     | MVAR  | MVA   | %I  | 1.0300PU | 30.01 | 70133 |
| GENERATION 70                    | 24.0   | 7.4R  | 25.1  | 84  | 14.832KV |       |       |
| TO 70134 CTY LAM 25.0 70 1       | 24.0   | 7.4   | 25.1  | 98  | 1.0000UN |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70247 LAJUNTAT 115 AREA CKT  | MW     | MVAR  | MVA   | %I  | 1.0226PU | 50.07 | 70247 |
| 70                               |        |       |       |     | 117.60KV |       |       |
| TO 70060 BOONE 115 70 1          | 4.6    | -5.3  | 7.1   | 6   |          |       |       |
| TO 70248 LAJUNTAT 69.0 70 1      | 19.2   | 6.5   | 20.3  | 79  | 0.9813RG |       |       |
| TO 70472 WILOW CK 115 70 1       | -23.8  | -1.2  | 23.9  | 21  |          |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70249 LAJUNTAW 115 AREA CKT  | MW     | MVAR  | MVA   | %I  | 0.9736PU | 46.86 | 70249 |
| 70                               |        |       |       |     | 111.97KV |       |       |
| TO 70060 BOONE 115 70 1          | -20.3  | -13.2 | 24.2  | 23  |          |       |       |
| TO 70250 LAJUNTAW 69.0 70 1      | 20.3   | 13.2  | 24.2  | 100 | 1.0693UN |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70060 BOONE 115 AREA CKT     | MW     | MVAR  | MVA   | %I  | 1.0286PU | 49.26 | 70060 |
| 70                               |        |       |       |     | 118.28KV |       |       |
| TO 70061 BOONE 230 70 1          | -68.1  | -29.7 | 74.3  | 48  | 1.0250RG |       |       |
| TO 70062 BOONE 69.0 70 1         | 9.0    | -0.8  | 9.0   | 27  | 0.9875UN |       |       |
| TO 70159 DOT TAP 115 70 1        | 42.8   | 17.1  | 46.0  | 39  |          |       |       |
| TO 70247 LAJUNTAT 115 70 1       | -4.6   | 1.9   | 5.0   | 4   |          |       |       |
| TO 70249 LAJUNTAW 115 70 1       | 20.9   | 11.5  | 23.9  | 21  |          |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70061 BOONE 230 AREA CKT     | MW     | MVAR  | MVA   | %I  | 1.0209PU | 51.30 | 70061 |
| 70                               |        |       |       |     | 234.82KV |       |       |
| TO 70060 BOONE 115 70 1          | 68.1   | 32.7  | 75.6  | 49  | 1.0250UN |       |       |
| TO 70122 COMANCHE 230 70 1       | -63.4  | -24.2 | 67.8  | 15  |          |       |       |
| TO 70254 LAMAR CO 230 70 1       | -94.3  | -8.0  | 94.6  | 23  |          |       |       |
| TO 70286 MIDWAYPS 230 70 1       | 89.5   | -0.5  | 89.5  | 18  |          |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70700 GOB_KNOB 230 AREA CKT  | MW     | MVAR  | MVA   | %I  | 1.0300PU | 63.69 | 70700 |
| 70                               |        |       |       |     | 236.90KV |       |       |
| TO 70254 LAMAR CO 230 70 1       | 160.8  | -22.9 | 162.4 | 36  |          |       |       |
| TO 70701 GOB_KNOB 34.5 70 1      | -80.4  | 11.5  | 81.2  | 95  | 1.0000LK |       |       |
| TO 70702 GOB_KNOB 34.5 70 2      | -80.4  | 11.5  | 81.2  | 95  | 1.0000LK |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70701 GOB_KNOB 34.5 AREA CKT | MW     | MVAR  | MVA   | %I  | 1.0297PU | 68.10 | 70701 |
| GENERATION 70                    | 81.0   | -5.3R | 81.2  | 81  | 35.525KV |       |       |
| TO 70700 GOB_KNOB 230 70 1       | 81.0   | -5.3  | 81.2  | 95  | 1.0000UN |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70702 GOB_KNOB 34.5 AREA CKT | MW     | MVAR  | MVA   | %I  | 1.0297PU | 68.10 | 70702 |
| GENERATION 70                    | 81.0   | -5.3R | 81.2  | 81  | 35.525KV |       |       |
| TO 70700 GOB_KNOB 230 70 2       | 81.0   | -5.3  | 81.2  | 95  | 1.0000UN |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70286 MIDWAYPS 230 AREA CKT  | MW     | MVAR  | MVA   | %I  | 1.0113PU | 48.19 | 70286 |
| 70                               |        |       |       |     | 232.60KV |       |       |
| TO 70061 BOONE 230 70 1          | -88.9  | -7.8  | 89.2  | 18  |          |       |       |
| TO 70122 COMANCHE 230 70 1       | -109.0 | -17.4 | 110.4 | 22  |          |       |       |

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|    |       |              |     |    |   |       |      |       |    |          |
|----|-------|--------------|-----|----|---|-------|------|-------|----|----------|
| TO | 70139 | DANIELPK     | 230 | 70 | 1 | 172.1 | 10.8 | 172.5 | 34 |          |
| TO | 70285 | MIDWAYPS     | 115 | 70 | 1 | 9.3   | -2.4 | 9.7   | 10 | 0.9764UN |
| TO | 70577 | FTNVL1-213.8 | 70  | 1  |   | 0.0   | 0.0  | 0.0   | 0  | 1.0000UN |
| TO | 70578 | FTNVL3-413.8 | 70  | 1  |   | 0.0   | 0.0  | 0.0   | 0  | 1.0000UN |
| TO | 70579 | FTNVL5-613.8 | 70  | 1  |   | 0.0   | 0.0  | 0.0   | 0  | 1.0000UN |
| TO | 73413 | MIDWAYBR     | 230 | 73 | 1 | 16.4  | 16.9 | 23.5  | 5  |          |

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 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70459 | WALSENBG | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0213PU | 50.22 | 70459 |
|           |          |      | 70   |     |        |       |       |    | 234.90KV |       |       |
| TO 70122  | COMANCHE | 230  | 70   | 1   | -61.1  | -14.7 | 62.8  | 14 |          |       |       |
| TO 70458  | WALSENBG | 115  | 70   | 1   | 61.1   | 14.7  | 62.8  | 62 | 1.0000LK |       |       |
|           |          |      |      |     |        |       |       |    |          |       |       |
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0320PU | 52.60 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 237.37KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 63.6   | 17.8  | 66.0  | 15 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.5  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -320.8 | -53.8 | 325.3 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -326.9 | -48.4 | 330.5 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 102.8  | 21.5  | 105.0 | 61 | 0.9688UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 102.8  | 21.5  | 105.0 | 68 | 0.9688UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 110.1  | 11.9  | 110.7 | 21 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 61.4   | 2.2   | 61.4  | 13 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 107.0  | 1.8   | 107.0 | 20 |          |       |       |

File: C:\GoldenPrairie wind\willow\_creek\_xfmr\_outage\_2003\_with-wind\_with-cap.dat 10/5/2002, 12:40:39PM

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:40  
2003HSV2 MASTER-2/11/02 WLLW CRK XFMR OUTAGE 2003 WITH CAP A  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:40  
 2003HSV2 MASTER-2/11/02 WLLW CRK XFMR OUTAGE 2003 WITH CAP A  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT  
 OUTPUT FOR AREA 70 [PSCOLORA]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.6    | 55.0   | 92.0    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 24.4    | 25.0   | 97.6    |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 24.9    | 25.0   | 99.5    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 1            | 43.7    | 47.0   | 92.9    |
| 70352*               | READER   | 115  | 70   | 70353              | READER   | 69.0 | 70   | 2            | 43.7    | 47.0   | 92.9    |
| 70439                | UNC      | 115  | 70   | 70502*             | QF UNC   | 13.8 | 70   | 1            | 71.0    | 76.8   | 92.4    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 35.3    | 33.9   | 104.1   |
| 70700*               | GOB_KNOB | 230  | 70   | 70701              | GOB_KNOB | 34.5 | 70   | 1            | 78.8    | 83.0   | 95.0    |
| 70700*               | GOB_KNOB | 230  | 70   | 70702              | GOB_KNOB | 34.5 | 70   | 2            | 78.8    | 83.0   | 95.0    |

File: C:\GoldenPrairie wind\willow\_creek\_xfmr\_outage\_2003\_with-wind\_with-cap.dat 10/5/2002, 12:40:39PM

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E SAT, OCT 05 2002 12:40  
2003HSV2 MASTER-2/11/02 WLLW CRK XFMR OUTAGE 2003 WITH CAP A  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |         |       |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|---------|-------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME    | BSKV  | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES    | 115  | 73   | 73307*             | ESTES2  | 6.90  | 73   | 2            | 16.2    | 18.0   | 90.2    |
| 73056                | ESTES    | 115  | 73   | 73308*             | ESTES3  | 6.90  | 73   | 3            | 16.2    | 18.0   | 90.2    |
| 73062                | FREMONT  | 115  | 73   | 73349*             | FREMONT | 112.0 | 73   | 1            | 26.3    | 29.0   | 90.6    |
| 73062                | FREMONT  | 115  | 73   | 73350*             | FREMONT | 212.0 | 73   | 1            | 26.3    | 29.0   | 90.7    |
| 79007                | BLUEMESA | 115  | 73   | 79157*             | BMESA1  | 212.5 | 73   | 2            | 92.8    | 100.0  | 92.8    |
| 79052                | NUCLA    | 115  | 73   | 79161*             | NUCLA 4 | 13.8  | 73   | 1            | 64.1    | 70.0   | 91.6    |

**B-6 - Contingency Analysis – 2005 Heavy Summer**

**No wind farm in service and the HVDC Converter at Lamar off line**

**With the Lamar – Golden Prairie 230kV circuit out of service**

# Contingency Violation Summary

\*\*\* MUST 5.0 \*\*\* MON, OCT 07 2002 17:43 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND OR LINE GEN 0 MW DC  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File none

\*\*\* Statistics on monitored constraints:

Monitored Branches: 584  
Monitored Voltages: 430  
Monitored Flowgates: 8  
Contingencies : 539

\*\*\* Summary on Constraint Violations \*\*\*  
\*\*\* Violations with flow changes less 0.00 MVA or voltage change less 0.000 % ignored  
I Initial Violations I  
I Base Case I Contingency cases I  
Constraint I Numb. Worst I Numb. Worst Contin I  
Type I Viol Viol I Viol Viol Number I  
MVA flow I - --- 35 64.3 499 I  
VoltMagn I - --- 144 91.8 499 I  
  
Total contingency violations : 179  
Number of contingencies with violations: 24

\*\*\* Contingency Results Summary. \*\*\*  
Total No. tested = 539 Total LF iterations 1293  
Converged = 537  
Voltage Collapse = 2  
Not Converged = 0

\*\*\*\*\* No violations encountered among selected monitored elements \*\*\*\*\*



## Frequency of Branch Violations

\*\*\* MUST 5.0 \*\*\* MON, OCT 07 2002 17:44 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND OR LINE GEN 0 MW DC  
Subsys.File T:\Xcel-PSC0\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSC0\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSC0\Lamar091102\Lamar.con  
Exclud.File none

Summary on Monitored Branches contingency violations

| Monitored Branches |           |       |        | PreShift Violations |        |          |      |          |      |
|--------------------|-----------|-------|--------|---------------------|--------|----------|------|----------|------|
| **                 | From bus  | ** ** | To bus | **                  | cNviol | WorstToV | Ncon | WorstFro | Ncon |
| 70305              | OVERTON   | 69.0  | 70054  | BMONT               | TP69.0 | 1        | -    | 5.5      | 270  |
| 70455              | W.STATION | 69.0  | 70054  | BMONT               | TP69.0 | 1        | -    | 1.2      | 270  |
| 70060              | BOONE     | 115   | 70062  | BOONE               | 69.0   | 2        | -    | 32.7     | 281  |
| 70062              | BOONE     | 69.0  | 70063  | BOONE               | TP69.0 | 2        | -    | 5.8      | 281  |
| 70382              | SEMPER    | 115   | 70065  | BROMFLD1            | 115    | 1        | -    | 17.1     | 56   |
| 70066              | BROMFLD2  | 115   | 70175  | FEDERHT2            | 115    | 2        | -    | 14.5     | 50   |
| 70108              | CHEROKEN  | 115   | 70109  | CHEROKES            | 115    | 1        | -    | 2.2      | 53   |
| 70108              | CHEROKEN  | 115   | 70175  | FEDERHT2            | 115    | 2        | -    | 5.6      | 50   |
| 70249              | LAJUNTAW  | 115   | 70250  | LAJUNTAW            | 69.0   | 5        | -    | 26       | 283  |
| 70292              | MOSCA     | 69.0  | 70376  | SAN LUIS            | 69.0   | 2        | -    | 90       | 499  |
| 70327              | PONCHA    | 115   | 70379  | SARGENT             | 115    | 1        | -    | 59.5     | 499  |
| 70336              | PUEB-TAP  | 115   | 70412  | STEM BCH            | 115    | 1        | -    | 55.2     | 191  |
| 70336              | PUEB-TAP  | 115   | 70456  | W.STATON            | 115    | 1        | -    | 65.7     | 191  |
| 70352              | READER    | 115   | 70353  | READER              | 69.0   | 3        | -    | 48.2     | 342  |
| 70352              | READER    | 115   | 70353  | READER              | 69.0   | 3        | -    | 48.2     | 341  |
| 70366              | ROCKYFRD  | 69.0  | 70372  | S FWL               | TP69.0 | 2        | -    | 1        | 281  |
| 70412              | STEM BCH  | 115   | 70458  | WALSENBG            | 115    | 1        | -    | 20.1     | 191  |
| 70425              | T BUTTES  | 69.0  | 70460  | WALSH               | 69.0   | 1        | -    | 6.2      | 354  |
| 70453              | VILAS     | 69.0  | 70460  | WALSH               | 69.0   | 1        | -    | 17.5     | 354  |
| 70455              | W.STATION | 69.0  | 70456  | W.STATON            | 115    | 1        | -    | 2.8      | 270  |
| 70455              | W.STATION | 69.0  | 70456  | W.STATON            | 115    | 2        | -    | 0.6      | 270  |

LF: 2005HS-nodc-nowind34-5\_No\_GP\_230ckt.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED



## Branch Violations

\*\*\* MUST 5.0 \*\*\* MON, OCT 07 2002 17:46 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND OR LINE GEN 0 MW DC  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* Report on violations \*\*\*\*\*

Branches with MVA flow more than 90.0 % of nominal rating

| **    | From bus     | **    | **    | To bus       | **     | CKT | T  | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                             |
|-------|--------------|-------|-------|--------------|--------|-----|----|---------|----------|--------|----------|------|-----------------------------------------|
| 70024 | ALMSA ST69.0 | 70026 | ALMSA | TM69.0       | 1      | LN  |    | 41.8    | 12.8     | 43.7   | 95.6     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70060 | BOONE        | 115   | 70062 | BOONE        | 69.0   | 1   | TR | 43.8    | 9.6      | 33     | 132.7    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70060 | BOONE        | 115   | 70062 | BOONE        | 69.0   | 1   | TR | 43.5    | 9.6      | 33     | 131.9    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70062 | BOONE        | 69.0  | 70063 | BOONE        | TP69.0 | 1   | LN | 43      | 9.3      | 40.6   | 105.8    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70062 | BOONE        | 69.0  | 70063 | BOONE        | TP69.0 | 1   | LN | 42.6    | 9.3      | 40.6   | 104.9    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70066 | BROMFLD2     | 115   | 70175 | FEDERHT2     | 115    | 1   | LN | 154.4   | 79.7     | 134.8  | 114.5    | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70066 | BROMFLD2     | 115   | 70175 | FEDERHT2     | 115    | 1   | LN | 146.5   | 79.7     | 134.8  | 108.7    | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70108 | CHEROKEN     | 115   | 70109 | CHEROKEN     | 115    | 1   | LN | 306.6   | 201.5    | 300    | 102.2    | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70108 | CHEROKEN     | 115   | 70175 | FEDERHT2     | 115    | 2   | LN | 196.4   | 124.4    | 186    | 105.6    | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70108 | CHEROKEN     | 115   | 70175 | FEDERHT2     | 115    | 2   | LN | 192.2   | 124.4    | 186    | 103.3    | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70109 | CHEROKES     | 115   | 70174 | FEDERHT1     | 115    | 1   | LN | 172.3   | 119.5    | 186    | 92.6     | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70121 | COMANCHE     | 115   | 70122 | COMANCHE     | 230    | 1   | TR | 192.6   | 107.9    | 200    | 96.3     | 189  | 70121 COMANCHE 115 70122 COMANCHE 230 2 |
| 70121 | COMANCHE     | 115   | 70122 | COMANCHE     | 230    | 2   | TR | 192.6   | 107.9    | 200    | 96.3     | 188  | 70121 COMANCHE 115 70122 COMANCHE 230 1 |
| 70249 | LAJUNTAW     | 115   | 70250 | LAJUNTAW69.0 | 1      | TR  |    | 23.3    | 23.3     | 25     | 93.3     | **   | Base Case **                            |
| 70285 | MIDWAYPS     | 115   | 70286 | MIDWAYPS     | 230    | 1   | TR | 91.5    | 44.6     | 100    | 91.5     | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70285 | MIDWAYPS     | 115   | 70301 | NTHRIDGE     | 115    | 1   | LN | 103.5   | 33.1     | 114.9  | 90.1     | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70292 | MOSCA        | 69.0  | 70376 | SAN LUIS69.0 | 1      | LN  |    | 45.4    | 9.3      | 23.9   | 190      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70292 | MOSCA        | 69.0  | 70376 | SAN LUIS69.0 | 1      | LN  |    | 24.5    | 9.3      | 23.9   | 102.4    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70305 | OVERTON      | 69.0  | 70054 | BMONT        | TP69.0 | 1   | LN | 69.7    | 20.2     | 66     | 105.5    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70327 | PONCHA       | 115   | 70379 | SARGENT      | 115    | 1   | LN | 172.3   | 22.2     | 108    | 159.5    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70336 | PUEB-TAP     | 115   | 70412 | STEM BCH     | 115    | 1   | LN | 119.5   | 19.3     | 77     | 155.2    | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70336 | PUEB-TAP     | 115   | 70456 | W.STATON     | 115    | 1   | LN | 127.6   | 25.5     | 77     | 165.7    | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70341 | QUAKER2      | 115   | 70342 | QUAKERTP     | 115    | 1   | LN | 77.5    | 76.3     | 85.8   | 90.3     | 77   | 70148 DENVTM 115 70173 FEDCTRTP 115 1   |
| 70341 | QUAKER2      | 115   | 70342 | QUAKERTP     | 115    | 1   | LN | 77.4    | 76.3     | 85.8   | 90.2     | 96   | 70173 FEDCTRTP 115 70342 QUAKERTP 115 1 |

LF: 2005HS-nodc-nowind34-5\_No\_GP\_230ckt.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| **    | From bus     | **    | **             | To bus         | **   | CKT | T  | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                               |
|-------|--------------|-------|----------------|----------------|------|-----|----|---------|----------|--------|----------|------|-------------------------------------------|
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 1   | TR | 69.7    | 40.7     | 47     | 148.2    | 342  | 70352 READER 115 70353 READER 69.0 2      |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 1   | TR | 50.8    | 40.7     | 47     | 108.1    | 275  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1   |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 1   | TR | 50.8    | 40.7     | 47     | 108.1    | 276  | 70054 BMONT TP69.0 70455 W.STATON69.0 1   |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 1   | TR | 46      | 40.7     | 47     | 97.8     | 272  | 70049 BELMONT 69.0 70305 OVERTON 69.0 1   |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 1   | TR | 43.5    | 40.7     | 47     | 92.6     | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 1   | TR | 43.1    | 40.7     | 47     | 91.8     | 352  | 70455 W.STATON69.0 70456 W.STATON 115 1   |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 1   | TR | 43      | 40.7     | 47     | 91.6     | 353  | 70455 W.STATON69.0 70456 W.STATON 115 2   |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 2   | TR | 69.7    | 40.7     | 47     | 148.2    | 341  | 70352 READER 115 70353 READER 69.0 1      |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 2   | TR | 50.8    | 40.7     | 47     | 108.1    | 275  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1   |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 2   | TR | 50.8    | 40.7     | 47     | 108.1    | 276  | 70054 BMONT TP69.0 70455 W.STATON69.0 1   |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 2   | TR | 46      | 40.7     | 47     | 97.8     | 272  | 70049 BELMONT 69.0 70305 OVERTON 69.0 1   |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 2   | TR | 43.5    | 40.7     | 47     | 92.6     | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 2   | TR | 43.1    | 40.7     | 47     | 91.8     | 352  | 70455 W.STATON69.0 70456 W.STATON 115 1   |
| 70352 | READER       | 115   | 70353          | READER         | 69.0 | 2   | TR | 43      | 40.7     | 47     | 91.6     | 353  | 70455 W.STATON69.0 70456 W.STATON 115 2   |
| 70353 | READER       | 69.0  | 70042          | ASPEN TP69.0 1 | LN   |     |    | 63.4    | 42.2     | 66     | 96.1     | 275  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1   |
| 70353 | READER       | 69.0  | 70042          | ASPEN TP69.0 1 | LN   |     |    | 63.4    | 42.2     | 66     | 96.1     | 276  | 70054 BMONT TP69.0 70455 W.STATON69.0 1   |
| 70366 | ROCKYFRD69.0 | 70372 | S FWL TP69.0 1 | LN             |      |     |    | 41      | 7.4      | 40.6   | 101      | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70366 | ROCKYFRD69.0 | 70372 | S FWL TP69.0 1 | LN             |      |     |    | 40.7    | 7.4      | 40.6   | 100.1    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70374 | SAN LUIS     | 115   | 70376          | SAN LUIS69.0 1 | TR   |     |    | 39.2    | 25.9     | 42     | 93.3     | 252  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 2   |
| 70374 | SAN LUIS     | 115   | 70376          | SAN LUIS69.0 2 | TR   |     |    | 39.2    | 25.9     | 42     | 93.3     | 251  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 1   |
| 70382 | SEMPER       | 115   | 70065          | BROMFLD1 115 1 | LN   |     |    | 157.9   | 37.5     | 134.8  | 117.1    | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1   |
| 70382 | SEMPER       | 115   | 70174          | FEDERHT1 115 1 | LN   |     |    | 122.4   | 69.6     | 134.8  | 90.8     | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2   |
| 70400 | SODALAKE     | 115   | 70023          | ALLISON 115 1  | LN   |     |    | 173.4   | 89.6     | 192    | 90.3     | 23   | 70045 BANCROFT 115 70242 KENDRICK 115 1   |
| 70412 | STEM BCH     | 115   | 70458          | WALSENBG 115 1 | LN   |     |    | 92.5    | 12.3     | 77     | 120.1    | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70425 | T BUTTES69.0 | 70101 | CHEN TAP69.0 1 | LN             |      |     |    | 32.4    | 0.5      | 33.9   | 95.6     | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70425 | T BUTTES69.0 | 70460 | WALSH 69.0 1   | LN             |      |     |    | 36      | 2.2      | 33.9   | 106.2    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70453 | VILAS        | 69.0  | 70460          | WALSH 69.0 1   | LN   |     |    | 39.8    | 7.4      | 33.9   | 117.5    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70455 | W.STATON69.0 | 70054 | BMONT TP69.0 1 | LN             |      |     |    | 69.8    | 20.2     | 69     | 101.2    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 | W.STATON69.0 | 70456 | W.STATON 115 1 | TR             |      |     |    | 43.2    | 18.9     | 42     | 102.8    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 | W.STATON69.0 | 70456 | W.STATON 115 2 | TR             |      |     |    | 42.2    | 18.5     | 42     | 100.6    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70550 | W CANON      | 115   | 73551          | W CANON 230 1  | TR   |     |    | 98.4    | 34.8     | 100    | 98.4     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |

## Frequency of Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* MON, OCT 07 2002 17:45 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND OR LINE GEN 0 MW DC  
Subsys.File T:\Xcel-PSC0\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSC0\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSC0\Lamar091102\Lamar.con  
Exclud.File none

Summary on Monitored Voltages contingency violations

| Bus # | Bus Name | KV  | Area | Zone | # Violts | Worst Ld | Ncon | Worst Hi | Ncon |
|-------|----------|-----|------|------|----------|----------|------|----------|------|
| 70022 | APT TAP2 | 115 | 70   | 712  | 1        | 0.022    | 277  | -        | -    |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2        | 0.856    | 499  | -        | -    |
| 70025 | ALMSA TM | 115 | 70   | 710  | 1        | 0.825    | 499  | -        | -    |
| 70026 | ALMSA TM | 69  | 70   | 710  | 1        | 0.871    | 499  | -        | -    |
| 70028 | ANSEL TS | 69  | 70   | 710  | 1        | 0.873    | 499  | -        | -    |
| 70029 | ANTONITO | 69  | 70   | 710  | 1        | 0.843    | 499  | -        | -    |
| 70030 | APT PARK | 115 | 70   | 712  | 1        | 0.015    | 277  | -        | -    |
| 70031 | APT TAP  | 115 | 70   | 712  | 1        | 0.007    | 277  | -        | -    |
| 70042 | ASPEN TP | 69  | 70   | 712  | 1        | 0.025    | 270  | -        | -    |
| 70051 | BLENDE   | 69  | 70   | 712  | 1        | 0.024    | 270  | -        | -    |
| 70055 | BNAVST   | 115 | 70   | 709  | 1        | 0.029    | 499  | -        | -    |
| 70056 | BNVSTATP | 115 | 70   | 709  | 1        | 0.028    | 499  | -        | -    |
| 70060 | BOONE    | 115 | 70   | 712  | 1        | 0.039    | 277  | -        | -    |
| 70062 | BOONE    | 69  | 70   | 712  | 1        | 0.037    | 277  | -        | -    |
| 70063 | BOONE TP | 69  | 70   | 712  | 1        | 0.041    | 277  | -        | -    |
| 70086 | CANONCTY | 115 | 70   | 712  | 1        | 0.004    | 339  | -        | -    |
| 70090 | CARMEL   | 69  | 70   | 710  | 1        | 0.893    | 499  | -        | -    |
| 70092 | CENTER   | 69  | 70   | 710  | 1        | 0.899    | 499  | -        | -    |
| 70101 | CHEN TAP | 69  | 70   | 712  | 1        | 0.296    | 354  | -        | -    |
| 70102 | CHENEY   | 69  | 70   | 712  | 1        | 0.301    | 354  | -        | -    |
| 70113 | CLIFTON  | 230 | 70   | 708  | 1        | 0.017    | 495  | -        | -    |

| Bus # | Bus Name | KV  | Area | Zone | # Violations | Worst Distance | Ncon | Worst High | Ncon |
|-------|----------|-----|------|------|--------------|----------------|------|------------|------|
| 70118 | COCENTER | 69  | 70   | 710  | 1            | 0.868          | 499  | -          | -    |
| 70129 | CREEDE   | 69  | 70   | 710  | 1            | 0.868          | 499  | -          | -    |
| 70130 | CRPLE CK | 69  | 70   | 712  | 1            | 0.042          | 339  | -          | -    |
| 70132 | CTY LAJ  | 69  | 70   | 712  | 1            | 0.008          | 277  | -          | -    |
| 70136 | CTY LAM  | 69  | 70   | 712  | 1            | 0.437          | 354  | -          | -    |
| 70143 | DELNORTE | 69  | 70   | 710  | 1            | 0.882          | 499  | -          | -    |
| 70158 | DOT      | 115 | 70   | 712  | 1            | 0.039          | 277  | -          | -    |
| 70159 | DOT TAP  | 115 | 70   | 712  | 1            | 0.036          | 277  | -          | -    |
| 70160 | E CANON  | 69  | 70   | 712  | 1            | 0.04           | 339  | -          | -    |
| 70161 | EADS     | 69  | 70   | 712  | 1            | 0.448          | 354  | -          | -    |
| 70176 | FLORENCE | 69  | 70   | 712  | 1            | 0.031          | 339  | -          | -    |
| 70178 | FOWLER   | 69  | 70   | 712  | 3            | 0.202          | 281  | -          | -    |
| 70184 | FT HOLLY | 69  | 70   | 712  | 1            | 0.366          | 354  | -          | -    |
| 70185 | FT. LYON | 69  | 70   | 712  | 1            | 0.446          | 354  | -          | -    |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 2            | 0.866          | 499  | -          | -    |
| 70187 | FTGARLND | 69  | 70   | 710  | 2            | 0.867          | 499  | -          | -    |
| 70203 | GRAN TAP | 69  | 70   | 712  | 1            | 0.378          | 354  | -          | -    |
| 70204 | GRANADA  | 69  | 70   | 712  | 1            | 0.379          | 354  | -          | -    |
| 70205 | GRANDJCT | 230 | 70   | 708  | 1            | 0.016          | 495  | -          | -    |
| 70206 | GRANDJPS | 230 | 70   | 708  | 1            | 0.016          | 495  | -          | -    |
| 70220 | HIGHLND  | 69  | 70   | 712  | 1            | 0.029          | 339  | -          | -    |
| 70221 | HILANDSL | 69  | 70   | 710  | 1            | 0.864          | 499  | -          | -    |
| 70222 | HILLTOP  | 69  | 70   | 712  | 1            | 0.097          | 354  | -          | -    |
| 70223 | HLTP TAP | 69  | 70   | 712  | 1            | 0.097          | 354  | -          | -    |
| 70225 | HOLL TAP | 69  | 70   | 712  | 1            | 0.362          | 354  | -          | -    |
| 70228 | HOMELAKE | 69  | 70   | 710  | 1            | 0.884          | 499  | -          | -    |
| 70229 | HOOPER   | 69  | 70   | 710  | 1            | 0.897          | 499  | -          | -    |
| 70230 | HOOPERTP | 69  | 70   | 710  | 1            | 0.902          | 499  | -          | -    |
| 70233 | HORIZON  | 230 | 70   | 708  | 1            | 0.013          | 495  | -          | -    |
| 70235 | HUERFANO | 69  | 70   | 712  | 1            | 0.043          | 277  | -          | -    |
| 70243 | LA SECPA | 69  | 70   | 712  | 1            | 0.005          | 277  | -          | -    |
| 70245 | LAGARITA | 69  | 70   | 710  | 1            | 0.886          | 499  | -          | -    |
| 70246 | LAJ IP   | 69  | 70   | 712  | 1            | 0.009          | 277  | -          | -    |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 1            | 0.016          | 277  | -          | -    |
| 70248 | LAJUNTAT | 69  | 70   | 712  | 1            | 0.002          | 277  | -          | -    |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 2            | 0.266          | 281  | -          | -    |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 3            | 0.221          | 281  | -          | -    |
| 70271 | LS ANMAS | 69  | 70   | 712  | 3            | 0.239          | 281  | -          | -    |

LF: 2005HS-nodc-nowind34-5\_No\_GP\_230ckt.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| Bus # | Bus Name    | KV  | Area | Zone | # Violations | Worst Date | Ncon | Worst High | Ncon |
|-------|-------------|-----|------|------|--------------|------------|------|------------|------|
| 70275 | MANZANOL    | 69  | 70   | 712  | 3            | 0.192      | 281  | -          | -    |
| 70289 | MOFFAT      | 69  | 70   | 710  | 2            | 0.907      | 499  | -          | -    |
| 70292 | MOSCA       | 69  | 70   | 710  | 1            | 0.878      | 499  | -          | -    |
| 70303 | ORDWAY      | 69  | 70   | 712  | 3            | 0.205      | 281  | -          | -    |
| 70304 | OTEROTP     | 115 | 70   | 709  | 1            | 0.005      | 499  | -          | -    |
| 70306 | P P MINE    | 69  | 70   | 712  | 1            | 0.039      | 339  | -          | -    |
| 70316 | PDA         | 69  | 70   | 712  | 1            | 0.041      | 270  | -          | -    |
| 70317 | PDA TAP     | 69  | 70   | 712  | 1            | 0.038      | 270  | -          | -    |
| 70318 | PENROSE     | 69  | 70   | 712  | 1            | 0.025      | 339  | -          | -    |
| 70319 | PHILLIPS    | 69  | 70   | 712  | 3            | 0.228      | 281  | -          | -    |
| 70320 | PHLPS TP    | 69  | 70   | 712  | 3            | 0.228      | 281  | -          | -    |
| 70325 | PLAZA       | 69  | 70   | 710  | 1            | 0.88       | 499  | -          | -    |
| 70326 | PONCHA      | 69  | 70   | 710  | 1            | 0.094      | 499  | -          | -    |
| 70327 | PONCHA      | 115 | 70   | 710  | 1            | 0.104      | 499  | -          | -    |
| 70329 | PORTLAND    | 69  | 70   | 712  | 1            | 0.02       | 339  | -          | -    |
| 70330 | PORTLAND    | 115 | 70   | 712  | 1            | 0.039      | 339  | -          | -    |
| 70333 | PROMERS     | 69  | 70   | 712  | 1            | 0.441      | 354  | -          | -    |
| 70347 | RAMON       | 115 | 70   | 710  | 1            | 0.856      | 499  | -          | -    |
| 70348 | RAMON       | 69  | 70   | 710  | 1            | 0.86       | 499  | -          | -    |
| 70360 | RIOGRAND    | 69  | 70   | 710  | 1            | 0.88       | 499  | -          | -    |
| 70361 | RIOGRDTP    | 69  | 70   | 710  | 1            | 0.87       | 499  | -          | -    |
| 70366 | ROCKYFRD    | 69  | 70   | 712  | 3            | 0.166      | 281  | -          | -    |
| 70367 | ROMEO       | 69  | 70   | 710  | 1            | 0.849      | 499  | -          | -    |
| 70372 | S FWL TP    | 69  | 70   | 712  | 3            | 0.057      | 281  | -          | -    |
| 70373 | S.ACACIO    | 69  | 70   | 710  | 1            | 0.89       | 499  | -          | -    |
| 70374 | SAN LUIS    | 115 | 70   | 710  | 1            | 0.846      | 499  | -          | -    |
| 70375 | SAN LUIS    | 230 | 70   | 710  | 1            | 0.847      | 499  | -          | -    |
| 70376 | SAN LUIS    | 69  | 70   | 710  | 1            | 0.894      | 499  | -          | -    |
| 70378 | SANTFETP    | 69  | 70   | 712  | 1            | 0.01       | 270  | -          | -    |
| 70379 | SARGENT     | 115 | 70   | 710  | 1            | 0.819      | 499  | -          | -    |
| 70380 | SARGENT     | 69  | 70   | 710  | 1            | 0.865      | 499  | -          | -    |
| 70383 | SFORK SL    | 69  | 70   | 710  | 1            | 0.86       | 499  | -          | -    |
| 70390 | SKALA       | 115 | 70   | 712  | 1            | 0.031      | 339  | -          | -    |
| 70394 | SMEILTER    | 115 | 70   | 710  | 1            | 0.087      | 499  | -          | -    |
| 70399 | SNEPESTA    | 69  | 70   | 712  | 3            | 0.046      | 277  | -          | -    |
| 70404 | SPRNGFLD    | 69  | 70   | 712  | 1            | 0.099      | 354  | -          | -    |
| 70405 | ST . CHAS . | 69  | 70   | 712  | 1            | 0.032      | 270  | -          | -    |
| 70411 | STANLEY     | 115 | 70   | 710  | 1            | 0.848      | 499  | -          | -    |

LF: 2005HS-nodc-nowind34-5\_No\_GP\_230ckt.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| Bus # | Bus Name  | KV  | Area | Zone | # Violations | Worst Load | Ncon | Worst High | Ncon |
|-------|-----------|-----|------|------|--------------|------------|------|------------|------|
| 70414 | STOCKADE  | 69  | 70   | 710  | 1            | 0.896      | 499  | -          | -    |
| 70425 | T BUTTES  | 69  | 70   | 712  | 1            | 0.208      | 354  | -          | -    |
| 70438 | UINTAH    | 230 | 70   | 708  | 1            | 0.001      | 495  | -          | -    |
| 70451 | VICTOR    | 69  | 70   | 712  | 1            | 0.036      | 339  | -          | -    |
| 70452 | VILAS     | 115 | 70   | 712  | 1            | 0.074      | 354  | -          | -    |
| 70453 | VILAS     | 69  | 70   | 712  | 1            | 0.093      | 354  | -          | -    |
| 70457 | WALSENBG  | 69  | 70   | 704  | 1            | 0.123      | 205  | -          | -    |
| 70460 | WALSH     | 69  | 70   | 712  | 1            | 0.148      | 354  | -          | -    |
| 70467 | WAVERLY   | 115 | 70   | 710  | 1            | 0.864      | 499  | -          | -    |
| 70468 | WAVERLY   | 69  | 70   | 710  | 1            | 0.889      | 499  | -          | -    |
| 70473 | WILLOW CK | 69  | 70   | 712  | 1            | 0.433      | 354  | -          | -    |
| 70477 | ZINZER    | 69  | 70   | 710  | 1            | 0.889      | 499  | -          | -    |
| 70505 | MIRGEJCT  | 69  | 70   | 710  | 2            | 0.912      | 499  | -          | -    |
| 70506 | SAGUACHE  | 69  | 70   | 710  | 3            | 0.918      | 499  | -          | -    |
| 70507 | MEARSJCT  | 69  | 70   | 710  | 1            | 0.094      | 499  | -          | -    |
| 70508 | VILLA     | 69  | 70   | 710  | 1            | 0.092      | 499  | -          | -    |
| 70509 | KERBERCK  | 69  | 70   | 710  | 1            | 0.091      | 499  | -          | -    |
| 70510 | MIRGEJC0  | 69  | 70   | 710  | 1            | 0.091      | 499  | -          | -    |
| 70549 | APT MEM   | 115 | 70   | 712  | 1            | 0.019      | 277  | -          | -    |
|       |           |     |      |      |              |            |      |            |      |



## Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* MON, OCT 07 2002 17:47 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND OR LINE GEN 0 MW DC  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* Report on violations \*\*\*\*\*

Buses with voltage violations

| Bus # | Bus Name | KV  | Area | Zone | ContVol | BaseVol | LowLim | Upplim | VoltDro | VoltRis | Viol | Ncon | Contin.Description                      |
|-------|----------|-----|------|------|---------|---------|--------|--------|---------|---------|------|------|-----------------------------------------|
| 70024 | ALMSA ST | 69  | 70   | 710  | 0.8995  | 1.0218  | 0.92   | 1.1    | -       | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70024 | ALMSA ST | 69  | 70   | 710  | 0.0638  | 1.0218  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70025 | ALMSA TM | 115 | 70   | 710  | 0.095   | 1.03    | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70026 | ALMSA TM | 69  | 70   | 710  | 0.0488  | 1.0258  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70028 | ANSEL TS | 69  | 70   | 710  | 0.0475  | 1.0282  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70029 | ANTONITO | 69  | 70   | 710  | 0.077   | 0.996   | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70549 | APT MEM  | 115 | 70   | 712  | 0.9014  | 1.0061  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70030 | APT PARK | 115 | 70   | 712  | 0.9053  | 1.0051  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70031 | APT TAP  | 115 | 70   | 712  | 0.9134  | 1.0059  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70022 | APT TAP2 | 115 | 70   | 712  | 0.8984  | 1.0078  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70042 | ASPEN TP | 69  | 70   | 712  | 0.8951  | 1.0266  | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70051 | BLENDE   | 69  | 70   | 712  | 0.896   | 1.0245  | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70055 | BNVST    | 115 | 70   | 709  | 0.8912  | 1.0267  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70056 | BNVSTATP | 115 | 70   | 709  | 0.8924  | 1.0277  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70062 | BOONE    | 69  | 70   | 712  | 0.8832  | 1.0311  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70060 | BOONE    | 115 | 70   | 712  | 0.8814  | 1.0259  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70063 | BOONE TP | 69  | 70   | 712  | 0.879   | 1.0283  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70086 | CANONCTY | 115 | 70   | 712  | 0.9158  | 0.9916  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70090 | CARMEL   | 69  | 70   | 710  | 0.0271  | 0.9903  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70092 | CENTER   | 69  | 70   | 710  | 0.0215  | 1.0071  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70101 | CHEN TAP | 69  | 70   | 712  | 0.6242  | 1.0163  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70102 | CHENEY   | 69  | 70   | 712  | 0.6194  | 1.013   | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70113 | CLIFTON  | 230 | 70   | 708  | 0.9035  | 0.9576  | 0.92   | 1.1    | -       | -       | L    | 495  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70118 | COCENTER | 69  | 70   | 710  | 0.0523  | 1.0263  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70129 | CREEDE   | 69  | 70   | 710  | 0.0519  | 1.0252  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70130 | CRPLE CK | 69  | 70   | 712  | 0.8778  | 0.9661  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70132 | CTY LAJ  | 69  | 70   | 712  | 0.9115  | 1.0147  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70136 | CTY LAM  | 69  | 70   | 712  | 0.483   | 1.0313  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70143 | DELNORTE | 69  | 70   | 710  | 0.377   | 1.0126  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70158 | DOT      | 115 | 70   | 712  | 0.8809  | 1.0189  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70159 | DOT TAP  | 115 | 70   | 712  | 0.8843  | 1.0217  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70160 | E CANON  | 69  | 70   | 712  | 0.8799  | 0.9942  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |

| Bus # | Bus Name  | KV  | Area | Zone | ContVo | BaseVo | LowLim | Upplim | VoltDrd | VoltRis | Viol | Ncon | Contin. Description                       |
|-------|-----------|-----|------|------|--------|--------|--------|--------|---------|---------|------|------|-------------------------------------------|
| 70161 | EADS      | 69  | 70   | 712  | 0.4721 | 1.0267 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70176 | FLORENCE  | 69  | 70   | 712  | 0.8887 | 1.0021 | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70178 | FOWLER    | 69  | 70   | 712  | 0.8204 | 0.984  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70178 | FOWLER    | 69  | 70   | 712  | 0.724  | 0.984  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70178 | FOWLER    | 69  | 70   | 712  | 0.7182 | 0.984  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70184 | FT. HOLLY | 69  | 70   | 712  | 0.5541 | 1.0175 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70185 | FT. LYON  | 69  | 70   | 712  | 0.4745 | 1.0261 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70186 | FTGARL&1  | 69  | 70   | 710  | 0.8236 | 0.9582 | 0.92   | 1.1    | -       | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70186 | FTGARL&1  | 69  | 70   | 710  | 0.0539 | 0.9582 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70187 | FTGARLND  | 69  | 70   | 710  | 0.8215 | 0.9564 | 0.92   | 1.1    | -       | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70187 | FTGARLND  | 69  | 70   | 710  | 0.0527 | 0.9564 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70203 | GRAN TAP  | 69  | 70   | 712  | 0.5416 | 1.0223 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70204 | GRANADA   | 69  | 70   | 712  | 0.5408 | 1.0218 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70205 | GRANDJCT  | 230 | 70   | 708  | 0.9035 | 0.9599 | 0.92   | 1.1    | -       | -       | L    | 495  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70206 | GRANDJPS  | 230 | 70   | 708  | 0.904  | 0.9567 | 0.92   | 1.1    | -       | -       | L    | 495  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70220 | HIGHLND   | 69  | 70   | 712  | 0.8907 | 1.0039 | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70221 | HILANDSL  | 69  | 70   | 710  | 0.0565 | 1.0283 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70222 | HILLTOP   | 69  | 70   | 712  | 0.8226 | 1.0132 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70223 | HLTP TAP  | 69  | 70   | 712  | 0.8228 | 1.0135 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70225 | HOLL TAP  | 69  | 70   | 712  | 0.5577 | 1.0199 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70228 | HOMELAKE  | 69  | 70   | 710  | 0.0361 | 1.0204 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70229 | HOOPER    | 69  | 70   | 710  | 0.0234 | 1.0051 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70230 | HOOPERTP  | 69  | 70   | 710  | 0.0184 | 1.0102 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70233 | HORIZON   | 230 | 70   | 708  | 0.907  | 0.958  | 0.92   | 1.1    | -       | -       | L    | 495  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70235 | HUERFANO  | 69  | 70   | 712  | 0.8768 | 1.0264 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70509 | KERBERCK  | 69  | 70   | 710  | 0.8286 | 1.0436 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70243 | LA SECPA  | 69  | 70   | 712  | 0.9151 | 1.0181 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70245 | LAGARITA  | 69  | 70   | 710  | 0.0345 | 0.9933 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70246 | LAJ IP    | 69  | 70   | 712  | 0.9106 | 1.0138 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70248 | LAJUNTAT  | 69  | 70   | 712  | 0.9177 | 1.0203 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70247 | LAJUNTAT  | 115 | 70   | 712  | 0.9036 | 0.9998 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70250 | LAJUNTAW  | 69  | 70   | 712  | 0.8674 | 1.0276 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70249 | LAJUNTAW  | 115 | 70   | 712  | 0.8251 | 0.9749 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70250 | LAJUNTAW  | 69  | 70   | 712  | 0.705  | 1.0276 | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70250 | LAJUNTAW  | 69  | 70   | 712  | 0.6989 | 1.0276 | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70249 | LAJUNTAW  | 115 | 70   | 712  | 0.6536 | 0.9749 | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70271 | LS ANNAS  | 69  | 70   | 712  | 0.8535 | 1.0166 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70271 | LS ANNAS  | 69  | 70   | 712  | 0.6874 | 1.0166 | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70271 | LS ANNAS  | 69  | 70   | 712  | 0.6812 | 1.0166 | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70275 | MANZANOL  | 69  | 70   | 712  | 0.8289 | 0.991  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70275 | MANZANOL  | 69  | 70   | 712  | 0.7334 | 0.991  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70275 | MANZANOL  | 69  | 70   | 712  | 0.7276 | 0.991  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70507 | MEARSJCT  | 69  | 70   | 710  | 0.8262 | 1.0404 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70510 | MIRGEJCO  | 69  | 70   | 710  | 0.8287 | 1.0437 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70505 | MIRGEJCT  | 69  | 70   | 710  | 0.8982 | 0.969  | 0.92   | 1.1    | -       | -       | L    | 237  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70505 | MIRGEJCT  | 69  | 70   | 710  | 0.0079 | 0.969  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70289 | MOFFAT    | 69  | 70   | 710  | 0.906  | 0.9761 | 0.92   | 1.1    | -       | -       | L    | 237  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70289 | MOFFAT    | 69  | 70   | 710  | 0.0125 | 0.9761 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |

| Bus # | Bus Name | KV  | Area | Zone | ContVol | BaseVol | LowLim | UppLim | VoltDrd | VoltRis | Viol | Ncon | Contin. Description                     |
|-------|----------|-----|------|------|---------|---------|--------|--------|---------|---------|------|------|-----------------------------------------|
| 70292 | MOSCA    | 69  | 70   | 710  | 0.0422  | 1.028   | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.8178  | 0.9818  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.7211  | 0.9818  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.7153  | 0.9818  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70304 | OTERTP   | 115 | 70   | 709  | 0.9152  | 1.0296  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70306 | P P MINE | 69  | 70   | 712  | 0.8812  | 0.9692  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70316 | PDA      | 69  | 70   | 712  | 0.8786  | 1.0122  | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70317 | PDA TAP  | 69  | 70   | 712  | 0.8825  | 1.0156  | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70318 | PENROSE  | 69  | 70   | 712  | 0.895   | 1.0076  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.8616  | 1.0231  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.6977  | 1.0231  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.6915  | 1.0231  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.8623  | 1.0237  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.6985  | 1.0237  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.6924  | 1.0237  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70325 | PLAZA    | 69  | 70   | 710  | 0.6396  | 0.987   | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70326 | PONCHA   | 69  | 70   | 710  | 0.8256  | 1.0395  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70327 | PONCHA   | 115 | 70   | 710  | 0.8155  | 1.0268  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70329 | PORTLAND | 69  | 70   | 712  | 0.9001  | 1.0122  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70330 | PORTLAND | 115 | 70   | 712  | 0.881   | 0.9843  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70333 | PROWERS  | 69  | 70   | 712  | 0.4793  | 1.0292  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70347 | RAMON    | 115 | 70   | 710  | 0.0644  | 1.0141  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70348 | RAMON    | 69  | 70   | 710  | 0.0602  | 1.031   | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70360 | RIOGRAND | 69  | 70   | 710  | 0.0402  | 1.0147  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70361 | RIOGRDTP | 69  | 70   | 710  | 0.0499  | 1.0232  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.8528  | 1.0107  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.7599  | 1.0107  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.7544  | 1.0107  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70367 | ROMEO    | 69  | 70   | 710  | 0.0709  | 1.0027  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.8684  | 1.0215  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.8674  | 1.0215  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.863   | 1.0215  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70373 | S.ACACIO | 69  | 70   | 710  | 0.0295  | 0.9854  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70506 | SAGUACHE | 69  | 70   | 710  | 0.9156  | 0.9564  | 0.92   | 1.1    | -       | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70506 | SAGUACHE | 69  | 70   | 710  | 0.8846  | 0.9564  | 0.92   | 1.1    | -       | -       | L    | 237  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1   |
| 70506 | SAGUACHE | 69  | 70   | 710  | 0.0915  | 0.9564  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70374 | SAN LUIS | 115 | 70   | 710  | 0.0744  | 1.0176  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70375 | SAN LUIS | 230 | 70   | 710  | 0.0726  | 0.9976  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70376 | SAN LUIS | 69  | 70   | 710  | 0.0258  | 1.0392  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70378 | SANTFETP | 69  | 70   | 712  | 0.9997  | 1.0201  | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70379 | SARGENT  | 115 | 70   | 710  | 0.1015  | 1.02    | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70380 | SARGENT  | 69  | 70   | 710  | 0.0548  | 1.0254  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70383 | SFORC SL | 69  | 70   | 710  | 0.0596  | 1.0306  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70390 | SKALA    | 115 | 70   | 712  | 0.8888  | 0.9854  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70394 | SMELTER  | 115 | 70   | 710  | 0.8334  | 1.0269  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70399 | SNEPESTA | 69  | 70   | 712  | 0.9076  | 1.025   | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70399 | SNEPESTA | 69  | 70   | 712  | 0.9037  | 1.025   | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70399 | SNEPESTA | 69  | 70   | 712  | 0.8738  | 1.025   | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |

| Bus # | Bus Name  | KV  | Area | Zone | ContVol | BaseVol | LowLim | Upplim | VoltDrd | Voltris | Viol | Ncon | Contin.Description                        |
|-------|-----------|-----|------|------|---------|---------|--------|--------|---------|---------|------|------|-------------------------------------------|
| 70404 | SPRNGFLD  | 69  | 70   | 712  | 0.8209  | 1.0118  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70405 | ST. CHAS. | 69  | 70   | 712  | 0.888   | 1.0204  | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70411 | STANLEY   | 115 | 70   | 710  | 0.0717  | 1.0162  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70414 | STOCKADE  | 69  | 70   | 710  | 0.0239  | 0.9901  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70425 | T BUTTES  | 69  | 70   | 712  | 0.7119  | 1.017   | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70438 | UINTAH    | 230 | 70   | 708  | 0.9192  | 0.9647  | 0.92   | 1.1    | -       | -       | L    | 495  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70451 | VICTOR    | 69  | 70   | 712  | 0.8843  | 0.972   | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W. STATON 115 1  |
| 70452 | VILAS     | 115 | 70   | 712  | 0.8462  | 1.0098  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70453 | VILAS     | 69  | 70   | 712  | 0.8275  | 1.0175  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70508 | VILLA     | 69  | 70   | 710  | 0.8284  | 1.0434  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70457 | WALSENBG  | 69  | 70   | 704  | 0.7971  | 1.0215  | 0.92   | 1.1    | -       | -       | L    | 205  | 70457 WALSENBG69.0 70458 WALSENBG 115 1   |
| 70460 | WALSH     | 69  | 70   | 712  | 0.7716  | 1.0196  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70467 | WAVERLY   | 115 | 70   | 710  | 0.0564  | 1.0073  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70468 | WAVERLY   | 69  | 70   | 710  | 0.0305  | 0.9931  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70473 | WILLOW CK | 69  | 70   | 712  | 0.4873  | 1.034   | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70477 | ZINZER    | 69  | 70   | 710  | 0.0306  | 0.9815  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |      |      |         |         |        |        |         |         |      |      |                                           |

# Flowgate Violations

\*\*\* MUST 5.0 \*\*\* MON, OCT 07 2002 17:48 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND OR LINE GEN 0 MW DC  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* No violations encountered among selected elements \*\*\*\*\*

| FgID***** | Type | Rating | PreShift | BaseCaseFl |
|-----------|------|--------|----------|------------|
|           |      |        |          |            |
|           |      |        |          |            |

# Exclude Report

```
*** MUST 5.0 *** MON, OCT 07 2002 17:46 ***
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM
GOBBLERS KNOB 34.5 KV NO WIND OR LINE GEN 0 MW DC
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con
Exclud.File Terminal

*** There are no excluded contingencies

===== List of excluded Monitored Branches:

70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 TR Excluded in all contingencies
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**B-7 - Contingency Analysis – 2005 Heavy Summer**

**No wind farm in service and the HVDC Converter at Lamar at 48 MW power output**

**With the Lamar – Golden Prairie 230kV circuit out of service**

# Contingency Violation Summary

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*** MUST 5.0 *** TUE, OCT 08 2002 16:12 ***
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM
GOBBLERS KNOB 34.5 KV NO WIND GEN 48 MW DC
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con
Exclud.File none

*** Statistics on monitored constraints:

Monitored Branches: 584
Monitored Voltages: 430
Monitored Flowgates: 8
Contingencies : 539

*** Summary on Constraint Violations ***
*** Violations with flow changes less 0.00 MVA or voltage change less 0.000 % ignored
I Initial Violations I
I Base Case I Contingency cases I
Constraint I Numb. Worst I Numb. Worst Contin I
Type I Viol Viol I Viol Viol Number I
MVA flow I - --- 37 51.9 191 I
VoltMagn I - --- 165 86.7 499 I

Total contingency violations : 202
Number of contingencies with violations: 25

*** Contingency Results Summary. ***
Total No. tested = 539 Total LF iterations 1265
Converged = 537
Voltage Collapse = 2
Not Converged = 0

***** No violations encountered among selected monitored elements *****
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## Frequency of Branch Violations

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:14 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND GEN 48 MW DC  
Subsys.File T:\Xcel-PSC0\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSC0\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSC0\Lamar091102\Lamar.con  
Exclud.File none

Summary on Monitored Branches contingency violations

| Monitored Branches |               |       |              | PreShift Violations |        |          |      |           |      |
|--------------------|---------------|-------|--------------|---------------------|--------|----------|------|-----------|------|
| **                 | From bus      | ** ** | To bus       | **                  | CNviol | WorstToV | Ncon | WorstFrom | Ncon |
| 70305              | OVERTON 69.0  | 70054 | BMONT TP69.0 | 1                   | 1      | -        | -    | 5.5       | 270  |
| 70455              | W.STATION69.0 | 70054 | BMONT TP69.0 | 1                   | 1      | -        | -    | 1.2       | 270  |
| 70060              | BOONE 115     | 70062 | BOONE 69.0   | 1                   | 2      | -        | -    | 30.7      | 281  |
| 70062              | BOONE 69.0    | 70063 | BOONE TP69.0 | 1                   | 2      | -        | -    | 4.6       | 281  |
| 70382              | SEMPER 115    | 70065 | BROMFLD1 115 | 1                   | 1      | -        | -    | 17.2      | 56   |
| 70066              | BROMFLD2 115  | 70175 | FEDERHT2 115 | 1                   | 2      | -        | -    | 16.9      | 50   |
| 70425              | T BUTTES69.0  | 70101 | CHEN TAP69.0 | 1                   | 1      | -        | -    | 3.4       | 354  |
| 70108              | CHEROKEN 115  | 70109 | CHEROKES 115 | 1                   | 1      | -        | -    | 2.9       | 53   |
| 70108              | CHEROKEN 115  | 70175 | FEDERHT2 115 | 2                   | 2      | -        | -    | 7.3       | 50   |
| 70249              | LAJUNTAW 115  | 70250 | LAJUNTAW69.0 | 1                   | 5      | -        | -    | 26.3      | 283  |
| 70289              | MOFFAT 69.0   | 70292 | MOSCA 69.0   | 1                   | 1      | -        | -    | 38.9      | 499  |
| 70289              | MOFFAT 69.0   | 70505 | MIRGEJCT69.0 | 1                   | 1      | -        | -    | 169.4     | 499  |
| 70292              | MOSCA 69.0    | 70376 | SAN LUIS69.0 | 1                   | 2      | -        | -    | 21.7      | 499  |
| 70327              | PONCHA 115    | 70379 | SARGENT 115  | 1                   | 1      | -        | -    | 39.9      | 499  |
| 70336              | PUEB-TAP 115  | 70412 | STEM BCH 115 | 1                   | 1      | -        | -    | 56.9      | 191  |
| 70336              | PUEB-TAP 115  | 70456 | W.STATON 115 | 1                   | 1      | -        | -    | 67.4      | 191  |
| 70352              | READER 115    | 70353 | READER 69.0  | 1                   | 3      | -        | -    | 48.8      | 342  |
| 70352              | READER 115    | 70353 | READER 69.0  | 2                   | 3      | -        | -    | 48.8      | 341  |
| 70412              | STEM BCH 115  | 70458 | WALSENBG 115 | 1                   | 1      | -        | -    | 21.5      | 191  |
| 70425              | T BUTTES69.0  | 70460 | WALSH 69.0   | 1                   | 1      | -        | -    | 13.6      | 354  |
| 70453              | VILAS 69.0    | 70460 | WALSH 69.0   | 1                   | 1      | -        | -    | 23.9      | 354  |

LF: 2005HS-48dc-nowind34-5\_noGP\_230ckt.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| Monitored Branches |                    |                    |        | PreShift Violations |                   |                  |
|--------------------|--------------------|--------------------|--------|---------------------|-------------------|------------------|
| **                 | From bus           | ** **              | To bus | **                  | PreShift<br>Nviol | WorstToV<br>Ncon |
|                    | 70455 W.STATON69.0 | 70456 W.STATON     | 115 1  |                     | 1 -               | -                |
|                    | 70455 W.STATON69.0 | 70456 W.STATON     | 115 2  |                     | 1 -               | -                |
|                    | 70505 MIRGEJCT69.0 | 70506 SAGUACHE69.0 | 1      |                     | 1 -               | -                |
|                    |                    |                    |        |                     |                   |                  |

## Branch Violations

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:15 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND GEN 48 MW DC  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* Report on violations \*\*\*\*\*

Branches with MVA flow more than 90.0 % of nominal rating

| **    | From bus | **   | To bus | **           | CKT    | T  | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                             |
|-------|----------|------|--------|--------------|--------|----|---------|----------|--------|----------|------|-----------------------------------------|
| 70060 | BOONE    | 115  | 70062  | BOONE        | 69.0   | 1  | TR      | 43.1     | 9.6    | 33       | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70060 | BOONE    | 115  | 70062  | BOONE        | 69.0   | 1  | TR      | 42.9     | 9.6    | 33       | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70062 | BOONE    | 69.0 | 70063  | BOONE        | TP69.0 | 1  | LN      | 42.5     | 9.3    | 40.6     | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70062 | BOONE    | 69.0 | 70063  | BOONE        | TP69.0 | 1  | LN      | 42.1     | 9.3    | 40.6     | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70066 | BROMFLD2 | 115  | 70175  | FEDERHT2     | 115    | 1  | LN      | 157.5    | 83.2   | 134.8    | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70066 | BROMFLD2 | 115  | 70175  | FEDERHT2     | 115    | 1  | LN      | 151.2    | 83.2   | 134.8    | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70066 | BROMFLD2 | 115  | 70175  | FEDERHT2     | 115    | 1  | LN      | 122.5    | 83.2   | 134.8    | 97   | 70174 FEDERHT1 115 70382 SEMPER 115 1   |
| 70108 | CHEROKEN | 115  | 70109  | CHEROKES     | 115    | 1  | LN      | 308.7    | 200.5  | 300      | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70108 | CHEROKEN | 115  | 70175  | FEDERHT2     | 115    | 2  | LN      | 199.6    | 127.8  | 186      | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70108 | CHEROKEN | 115  | 70175  | FEDERHT2     | 115    | 2  | LN      | 196.8    | 127.8  | 186      | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70108 | CHEROKEN | 115  | 70175  | FEDERHT2     | 115    | 2  | LN      | 167.5    | 127.8  | 186      | 97   | 70174 FEDERHT1 115 70382 SEMPER 115 1   |
| 70109 | CHEROKES | 115  | 70174  | FEDERHT1     | 115    | 1  | LN      | 175.8    | 121.6  | 186      | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70121 | COMANCHE | 115  | 70122  | COMANCHE     | 230    | 1  | TR      | 196.4    | 110    | 200      | 189  | 70121 COMANCHE 115 70122 COMANCHE 230 2 |
| 70121 | COMANCHE | 115  | 70122  | COMANCHE     | 230    | 2  | TR      | 196.4    | 110    | 200      | 188  | 70121 COMANCHE 115 70122 COMANCHE 230 1 |
| 70249 | LAJUNTAW | 115  | 70250  | LAJUNTAW69.0 | 1      | TR | 23.4    | 23.4     | 25     | 25       | **   | Base Case **                            |
| 70289 | MOFFAT   | 69.0 | 70292  | MOSCA        | 69.0   | 1  | LN      | 36.3     | 7.1    | 26.1     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70289 | MOFFAT   | 69.0 | 70505  | MIRGEJCT69.0 | 1      | LN | 69.5    | 3.4      | 25.8   | 25.8     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70292 | MOSCA    | 69.0 | 70376  | SAN LUIS69.0 | 1      | LN | 29.1    | 9.3      | 23.9   | 23.9     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70292 | MOSCA    | 69.0 | 70376  | SAN LUIS69.0 | 1      | LN | 24.5    | 9.3      | 23.9   | 23.9     | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70305 | OVERTON  | 69.0 | 70054  | BMONT        | TP69.0 | 1  | LN      | 69.6     | 19.9   | 66       | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70327 | PONCHA   | 115  | 70379  | SARGENT      | 115    | 1  | LN      | 151.1    | 22     | 108      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70336 | PUEB-TAP | 115  | 70412  | STEM BCH     | 115    | 1  | LN      | 120.8    | 19.1   | 77       | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70336 | PUEB-TAP | 115  | 70456  | W.STATON     | 115    | 1  | LN      | 128.9    | 25.2   | 77       | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70341 | QUAKER2  | 115  | 70342  | QUAKERTP     | 115    | 1  | LN      | 77.5     | 76.4   | 85.8     | 77   | 70148 DENVTM 115 70173 FEDCTRTP 115 1   |

LF: 2005HS-48dc-nowind34-5\_noGP\_230ckt.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| **    | From bus     | **    | **           | To bus       | **   | CKT | T  | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                               |
|-------|--------------|-------|--------------|--------------|------|-----|----|---------|----------|--------|----------|------|-------------------------------------------|
| 70341 | QUAKER2      | 115   | 70342        | QUAKERTP     | 115  | 1   | LN | 77.4    | 76.4     | 85.8   | 90.2     | 96   | 70173 FEDCTRP 115 70342 QUAKERTP 115 1    |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 1   | TR | 69.9    | 40.9     | 47     | 148.8    | 342  | 70352 READER 115 70353 READER 69.0 2      |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 1   | TR | 50.8    | 40.9     | 47     | 108.1    | 275  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1   |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 1   | TR | 50.8    | 40.9     | 47     | 108.1    | 276  | 70054 BMONT TP69.0 70455 W.STATON69.0 1   |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 1   | TR | 46      | 40.9     | 47     | 97.8     | 272  | 70049 BELMONT 69.0 70305 OVERTON 69.0 1   |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 1   | TR | 43.7    | 40.9     | 47     | 93       | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 1   | TR | 43.3    | 40.9     | 47     | 92.1     | 352  | 70455 W.STATON69.0 70456 W.STATON 115 1   |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 1   | TR | 43.2    | 40.9     | 47     | 91.9     | 353  | 70455 W.STATON69.0 70456 W.STATON 115 2   |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 2   | TR | 69.9    | 40.9     | 47     | 148.8    | 341  | 70352 READER 115 70353 READER 69.0 1      |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 2   | TR | 50.8    | 40.9     | 47     | 108.1    | 275  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1   |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 2   | TR | 50.8    | 40.9     | 47     | 108.1    | 276  | 70054 BMONT TP69.0 70455 W.STATON69.0 1   |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 2   | TR | 46      | 40.9     | 47     | 97.8     | 272  | 70049 BELMONT 69.0 70305 OVERTON 69.0 1   |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 2   | TR | 43.7    | 40.9     | 47     | 93       | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 2   | TR | 43.3    | 40.9     | 47     | 92.1     | 352  | 70455 W.STATON69.0 70456 W.STATON 115 1   |
| 70352 | READER       | 115   | 70353        | READER       | 69.0 | 2   | TR | 43.2    | 40.9     | 47     | 91.9     | 353  | 70455 W.STATON69.0 70456 W.STATON 115 2   |
| 70353 | READER       | 69.0  | 70042        | ASPEN TP69.0 | 1    | LN  |    | 63.4    | 42.4     | 66     | 96       | 275  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1   |
| 70353 | READER       | 69.0  | 70042        | ASPEN TP69.0 | 1    | LN  |    | 63.4    | 42.4     | 66     | 96       | 276  | 70054 BMONT TP69.0 70455 W.STATON69.0 1   |
| 70366 | ROCKYFRD69.0 | 70372 | S FWL TP69.0 | 1            | LN   |     |    | 40.2    | 7.4      | 40.6   | 99       | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70366 | ROCKYFRD69.0 | 70372 | S FWL TP69.0 | 1            | LN   |     |    | 39.9    | 7.4      | 40.6   | 98.2     | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70374 | SAN LUIS     | 115   | 70376        | SAN LUIS69.0 | 1    | TR  |    | 39.2    | 25.9     | 42     | 93.3     | 252  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 2   |
| 70374 | SAN LUIS     | 115   | 70376        | SAN LUIS69.0 | 2    | TR  |    | 39.2    | 25.9     | 42     | 93.3     | 251  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 1   |
| 70382 | SEMPER       | 115   | 70065        | BROMFLD1     | 115  | 1   | LN | 158     | 36.4     | 134.8  | 117.2    | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1   |
| 70382 | SEMPER       | 115   | 70174        | FEDERHT1     | 115  | 1   | LN | 125.9   | 71.7     | 134.8  | 93.4     | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2   |
| 70400 | SODALAKE     | 115   | 70023        | ALLISON      | 115  | 1   | LN | 173.5   | 90.6     | 192    | 90.4     | 23   | 70045 BANCROFT 115 70242 KENDRICK 115 1   |
| 70412 | STEM BCH     | 115   | 70458        | WALSENBG     | 115  | 1   | LN | 93.5    | 12.2     | 77     | 121.5    | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70425 | T BUTTES69.0 | 70101 | CHEN TAP69.0 | 1            | LN   |     |    | 35.1    | 0.4      | 33.9   | 103.4    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70425 | T BUTTES69.0 | 70460 | WALSH        | 69.0         | 1    | LN  |    | 38.5    | 2.3      | 33.9   | 113.6    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70453 | VILAS        | 69.0  | 70460        | WALSH        | 69.0 | 1   | LN | 42      | 7.8      | 33.9   | 123.9    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70455 | W.STATON69.0 | 70054 | BMONT TP69.0 | 1            | LN   |     |    | 69.8    | 19.9     | 69     | 101.2    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 | W.STATON69.0 | 70456 | W.STATON 115 | 1            | TR   |     |    | 43.1    | 18.7     | 42     | 102.7    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 | W.STATON69.0 | 70456 | W.STATON 115 | 2            | TR   |     |    | 42.2    | 18.3     | 42     | 100.5    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70505 | MIRGEJCT69.0 | 70506 | SAGUACHE69.0 | 1            | LN   |     |    | 30.5    | 3.5      | 25.8   | 118.3    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70550 | W CANON      | 115   | 73551        | W CANON      | 230  | 1   | TR | 93.9    | 34.9     | 100    | 93.9     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70550 | W CANON      | 115   | 73551        | W CANON      | 230  | 1   | TR | 90.9    | 34.9     | 100    | 90.9     | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1   |

# Frequency of Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:14 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND GEN 48 MW DC  
Subsys.File T:\Xcel-PSC0\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSC0\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSC0\Lamar091102\Lamar.con  
Exclud.File none

Summary on Monitored Voltages contingency violations

| Bus # | Bus Name | KV  | Area | Zone | # Violations | Worst Load | Ncon | Worst High | Ncon |
|-------|----------|-----|------|------|--------------|------------|------|------------|------|
| 70022 | APT TAP2 | 115 | 70   | 712  | 1            | 0.013      | 277  | -          | -    |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2            | 0.665      | 499  | -          | -    |
| 70025 | ALMSA TM | 115 | 70   | 710  | 1            | 0.648      | 499  | -          | -    |
| 70026 | ALMSA TM | 69  | 70   | 710  | 1            | 0.656      | 499  | -          | -    |
| 70028 | ANSEL TS | 69  | 70   | 710  | 1            | 0.675      | 499  | -          | -    |
| 70029 | ANTONITO | 69  | 70   | 710  | 1            | 0.704      | 499  | -          | -    |
| 70030 | APT PARK | 115 | 70   | 712  | 1            | 0.007      | 277  | -          | -    |
| 70042 | ASPEN TP | 69  | 70   | 712  | 1            | 0.025      | 270  | -          | -    |
| 70051 | BLENDE   | 69  | 70   | 712  | 1            | 0.024      | 270  | -          | -    |
| 70055 | BNVAVST  | 115 | 70   | 709  | 1            | 0.008      | 499  | -          | -    |
| 70056 | BNVSTATP | 115 | 70   | 709  | 1            | 0.007      | 499  | -          | -    |
| 70060 | BOONE    | 115 | 70   | 712  | 1            | 0.028      | 277  | -          | -    |
| 70062 | BOONE    | 69  | 70   | 712  | 1            | 0.026      | 277  | -          | -    |
| 70063 | BOONE TP | 69  | 70   | 712  | 1            | 0.03       | 277  | -          | -    |
| 70086 | CANONCTY | 115 | 70   | 712  | 1            | 0.004      | 339  | -          | -    |
| 70090 | CARMEL   | 69  | 70   | 710  | 1            | 0.727      | 499  | -          | -    |
| 70092 | CENTER   | 69  | 70   | 710  | 1            | 0.741      | 499  | -          | -    |
| 70101 | CHEN TAP | 69  | 70   | 712  | 2            | 0.28       | 354  | -          | -    |
| 70102 | CHENEY   | 69  | 70   | 712  | 2            | 0.285      | 354  | -          | -    |
| 70113 | CLIFTON  | 230 | 70   | 708  | 1            | 0.016      | 495  | -          | -    |
| 70118 | COCENTER | 69  | 70   | 710  | 1            | 0.672      | 499  | -          | -    |

| Bus # | Bus Name | KV  | Area | Zone | # Violations | Worst Location | Ncon | Worst High | Ncon |
|-------|----------|-----|------|------|--------------|----------------|------|------------|------|
| 70129 | CREEDE   | 69  | 70   | 710  | 1            | 0.697          | 499  | -          | -    |
| 70130 | CRPLE CK | 69  | 70   | 712  | 1            | 0.042          | 339  | -          | -    |
| 70132 | CTY LAJ  | 69  | 70   | 712  | 2            | 0.022          | 323  | -          | -    |
| 70136 | CTY LAM  | 69  | 70   | 712  | 2            | 0.431          | 354  | -          | -    |
| 70143 | DELNORTE | 69  | 70   | 710  | 1            | 0.691          | 499  | -          | -    |
| 70158 | DOT      | 115 | 70   | 712  | 1            | 0.029          | 277  | -          | -    |
| 70159 | DOT TAP  | 115 | 70   | 712  | 1            | 0.026          | 277  | -          | -    |
| 70160 | E CANON  | 69  | 70   | 712  | 1            | 0.04           | 339  | -          | -    |
| 70161 | EADS     | 69  | 70   | 712  | 2            | 0.442          | 354  | -          | -    |
| 70176 | FLORENCE | 69  | 70   | 712  | 1            | 0.031          | 339  | -          | -    |
| 70178 | FOWLER   | 69  | 70   | 712  | 3            | 0.193          | 281  | -          | -    |
| 70184 | FT HOLLY | 69  | 70   | 712  | 2            | 0.355          | 354  | -          | -    |
| 70185 | FT. LYON | 69  | 70   | 712  | 2            | 0.44           | 354  | -          | -    |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 2            | 0.758          | 499  | -          | -    |
| 70187 | FTGARLND | 69  | 70   | 710  | 2            | 0.76           | 499  | -          | -    |
| 70203 | GRAN TAP | 69  | 70   | 712  | 2            | 0.369          | 354  | -          | -    |
| 70204 | GRAMADA  | 69  | 70   | 712  | 2            | 0.369          | 354  | -          | -    |
| 70205 | GRANDJCT | 230 | 70   | 708  | 1            | 0.016          | 495  | -          | -    |
| 70206 | GRANDJPS | 230 | 70   | 708  | 1            | 0.016          | 495  | -          | -    |
| 70220 | HIGHLND  | 69  | 70   | 712  | 1            | 0.029          | 339  | -          | -    |
| 70221 | HILANDSL | 69  | 70   | 710  | 1            | 0.69           | 499  | -          | -    |
| 70222 | HILLTOP  | 69  | 70   | 712  | 2            | 0.124          | 323  | -          | -    |
| 70223 | HLTP TAP | 69  | 70   | 712  | 2            | 0.124          | 323  | -          | -    |
| 70225 | HOLL TAP | 69  | 70   | 712  | 2            | 0.351          | 354  | -          | -    |
| 70228 | HOMELAKE | 69  | 70   | 710  | 1            | 0.675          | 499  | -          | -    |
| 70229 | HOOPER   | 69  | 70   | 710  | 1            | 0.744          | 499  | -          | -    |
| 70230 | HOOPERTP | 69  | 70   | 710  | 1            | 0.736          | 499  | -          | -    |
| 70233 | HORIZON  | 230 | 70   | 708  | 1            | 0.013          | 495  | -          | -    |
| 70235 | HUERFANO | 69  | 70   | 712  | 1            | 0.032          | 277  | -          | -    |
| 70243 | LA SECPA | 69  | 70   | 712  | 1            | 0.018          | 323  | -          | -    |
| 70245 | LAGARITA | 69  | 70   | 710  | 1            | 0.764          | 499  | -          | -    |
| 70246 | LAJ IP   | 69  | 70   | 712  | 2            | 0.023          | 323  | -          | -    |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 2            | 0.023          | 323  | -          | -    |
| 70248 | LAJUNTAT | 69  | 70   | 712  | 1            | 0.015          | 323  | -          | -    |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 2            | 0.258          | 281  | -          | -    |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 3            | 0.212          | 281  | -          | -    |
| 70253 | LAMAR CO | 115 | 70   | 712  | 1            | 0.112          | 323  | -          | -    |
| 70271 | LS ANMAS | 69  | 70   | 712  | 3            | 0.23           | 281  | -          | -    |

LF: 2005HS-48dc-nowind34-5\_noGP\_230ckt.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| Bus # | Bus Name | KV  | Area | Zone | # Violations | Worst Date | Ncon | Worst High | Ncon |
|-------|----------|-----|------|------|--------------|------------|------|------------|------|
| 70275 | MANZANOL | 69  | 70   | 712  | 3            | 0.184      | 281  | -          | -    |
| 70289 | MOFFAT   | 69  | 70   | 710  | 2            | 0.827      | 499  | -          | -    |
| 70292 | MOSCA    | 69  | 70   | 710  | 1            | 0.723      | 499  | -          | -    |
| 70303 | ORDWAY   | 69  | 70   | 712  | 3            | 0.196      | 281  | -          | -    |
| 70306 | P P MINE | 69  | 70   | 712  | 1            | 0.039      | 339  | -          | -    |
| 70316 | PDA      | 69  | 70   | 712  | 1            | 0.041      | 270  | -          | -    |
| 70317 | PDA TAP  | 69  | 70   | 712  | 1            | 0.037      | 270  | -          | -    |
| 70318 | PENROSE  | 69  | 70   | 712  | 1            | 0.025      | 339  | -          | -    |
| 70319 | PHILLIPS | 69  | 70   | 712  | 3            | 0.22       | 281  | -          | -    |
| 70320 | PHLPS TP | 69  | 70   | 712  | 3            | 0.219      | 281  | -          | -    |
| 70325 | PLAZA    | 69  | 70   | 710  | 1            | 0.773      | 499  | -          | -    |
| 70326 | PONCHA   | 69  | 70   | 710  | 1            | 0.062      | 499  | -          | -    |
| 70327 | PONCHA   | 115 | 70   | 710  | 1            | 0.072      | 499  | -          | -    |
| 70329 | PORTLAND | 69  | 70   | 712  | 1            | 0.02       | 339  | -          | -    |
| 70330 | PORTLAND | 115 | 70   | 712  | 1            | 0.039      | 339  | -          | -    |
| 70333 | PROMERS  | 69  | 70   | 712  | 2            | 0.435      | 354  | -          | -    |
| 70347 | RAMON    | 115 | 70   | 710  | 1            | 0.682      | 499  | -          | -    |
| 70348 | RAMON    | 69  | 70   | 710  | 1            | 0.685      | 499  | -          | -    |
| 70360 | RIOGRAND | 69  | 70   | 710  | 1            | 0.688      | 499  | -          | -    |
| 70361 | RIOGRDTP | 69  | 70   | 710  | 1            | 0.674      | 499  | -          | -    |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 3            | 0.157      | 281  | -          | -    |
| 70367 | ROMEO    | 69  | 70   | 710  | 1            | 0.694      | 499  | -          | -    |
| 70372 | S FWL TP | 69  | 70   | 712  | 3            | 0.05       | 281  | -          | -    |
| 70373 | S.ACACIO | 69  | 70   | 710  | 1            | 0.739      | 499  | -          | -    |
| 70374 | SAN LUIS | 115 | 70   | 710  | 1            | 0.669      | 499  | -          | -    |
| 70375 | SAN LUIS | 230 | 70   | 710  | 1            | 0.676      | 499  | -          | -    |
| 70376 | SAN LUIS | 69  | 70   | 710  | 1            | 0.688      | 499  | -          | -    |
| 70378 | SANTFETP | 69  | 70   | 712  | 1            | 0.01       | 270  | -          | -    |
| 70379 | SARGENT  | 115 | 70   | 710  | 1            | 0.646      | 499  | -          | -    |
| 70380 | SARGENT  | 69  | 70   | 710  | 1            | 0.67       | 499  | -          | -    |
| 70383 | SFORK SL | 69  | 70   | 710  | 1            | 0.686      | 499  | -          | -    |
| 70390 | SKALA    | 115 | 70   | 712  | 1            | 0.031      | 339  | -          | -    |
| 70394 | SMEILTER | 115 | 70   | 710  | 1            | 0.057      | 499  | -          | -    |
| 70399 | SNEPESTA | 69  | 70   | 712  | 3            | 0.035      | 277  | -          | -    |
| 70404 | SPRNGFLD | 69  | 70   | 712  | 2            | 0.126      | 323  | -          | -    |
| 70405 | ST.CHAS. | 69  | 70   | 712  | 1            | 0.032      | 270  | -          | -    |
| 70411 | STANLEY  | 115 | 70   | 710  | 1            | 0.673      | 499  | -          | -    |
| 70414 | STOCKADE | 69  | 70   | 710  | 1            | 0.73       | 499  | -          | -    |

LF: 2005HS-48dc-nowind34-5\_noGP\_230ckt.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| Bus # | Bus Name   | KV  | Area | Zone | # Violations | Worst Load | Ncon | Worst High | Ncon |
|-------|------------|-----|------|------|--------------|------------|------|------------|------|
| 70425 | T BUTTES   | 69  | 70   | 712  | 2            | 0.185      | 354  | -          | -    |
| 70438 | UINTAH     | 230 | 70   | 708  | 1            | 0.001      | 495  | -          | -    |
| 70451 | VICTOR     | 69  | 70   | 712  | 1            | 0.036      | 339  | -          | -    |
| 70452 | VILAS      | 115 | 70   | 712  | 2            | 0.113      | 323  | -          | -    |
| 70453 | VILAS      | 69  | 70   | 712  | 2            | 0.119      | 323  | -          | -    |
| 70457 | WALSENBURG | 69  | 70   | 704  | 1            | 0.122      | 205  | -          | -    |
| 70460 | WALSH      | 69  | 70   | 712  | 2            | 0.121      | 354  | -          | -    |
| 70467 | WAVERLY    | 115 | 70   | 710  | 1            | 0.692      | 499  | -          | -    |
| 70468 | WAVERLY    | 69  | 70   | 710  | 1            | 0.723      | 499  | -          | -    |
| 70472 | WILLOW CK  | 115 | 70   | 712  | 1            | 0.106      | 323  | -          | -    |
| 70473 | WILLOW CK  | 69  | 70   | 712  | 2            | 0.426      | 354  | -          | -    |
| 70477 | ZINZER     | 69  | 70   | 710  | 1            | 0.741      | 499  | -          | -    |
| 70505 | MIRGEJCT   | 69  | 70   | 710  | 2            | 0.857      | 499  | -          | -    |
| 70506 | SAGUACHE   | 69  | 70   | 710  | 3            | 0.867      | 499  | -          | -    |
| 70507 | MEARSJCT   | 69  | 70   | 710  | 1            | 0.061      | 499  | -          | -    |
| 70508 | VILLA      | 69  | 70   | 710  | 1            | 0.059      | 499  | -          | -    |
| 70509 | KERBERCK   | 69  | 70   | 710  | 1            | 0.059      | 499  | -          | -    |
| 70510 | MIRGEJCO   | 69  | 70   | 710  | 1            | 0.059      | 499  | -          | -    |
| 70549 | APT MEM    | 115 | 70   | 712  | 1            | 0.01       | 277  | -          | -    |
|       |            |     |      |      |              |            |      |            |      |



## Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:15 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND GEN 48 MW DC  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* Report on violations \*\*\*\*\*

Buses with voltage violations

| Bus # | Bus NameKV | Area | Zone | ContVol | BaseVol       | LowLim | UppLim | VoltDro | VoltRis | Viol | Ncon | Contin.Description                      |
|-------|------------|------|------|---------|---------------|--------|--------|---------|---------|------|------|-----------------------------------------|
| 70024 | ALMSA ST   | 69   | 70   | 710     | <b>0.8998</b> | 1.0219 | 0.92   | 1.1     | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70024 | ALMSA ST   | 69   | 70   | 710     | <b>0.2545</b> | 1.0219 | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70025 | ALMSA TM   | 115  | 70   | 710     | <b>0.2716</b> | 1.0302 | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70026 | ALMSA TM   | 69   | 70   | 710     | <b>0.2645</b> | 1.026  | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70028 | ANSEL TS   | 69   | 70   | 710     | <b>0.2447</b> | 1.0284 | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70029 | ANTONITO   | 69   | 70   | 710     | <b>0.2157</b> | 0.9961 | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70549 | APT MEM    | 115  | 70   | 712     | <b>0.9095</b> | 1.008  | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70030 | APT PARK   | 115  | 70   | 712     | <b>0.9131</b> | 1.0069 | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70022 | APT TAP2   | 115  | 70   | 712     | <b>0.9068</b> | 1.0099 | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70042 | ASPEN TP   | 69   | 70   | 712     | <b>0.8954</b> | 1.0272 | 0.92   | 1.1     | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70051 | BLENDE     | 69   | 70   | 712     | <b>0.8964</b> | 1.025  | 0.92   | 1.1     | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70055 | BNVAVST    | 115  | 70   | 709     | <b>0.9115</b> | 1.0267 | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70056 | BNVSTATP   | 115  | 70   | 709     | <b>0.9126</b> | 1.0277 | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70062 | BOONE      | 69   | 70   | 712     | <b>0.8943</b> | 1.0342 | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70060 | BOONE      | 115  | 70   | 712     | <b>0.8919</b> | 1.029  | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70063 | BOONE TP   | 69   | 70   | 712     | <b>0.8904</b> | 1.0314 | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70086 | CANONCTY   | 115  | 70   | 712     | <b>0.9159</b> | 0.9917 | 0.92   | 1.1     | -       | L    | 399  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70090 | CARMEI     | 69   | 70   | 710     | <b>0.1929</b> | 0.9905 | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70092 | CENTER     | 69   | 70   | 710     | <b>0.1786</b> | 1.0073 | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70101 | CHEN TAP   | 69   | 70   | 712     | <b>0.8962</b> | 1.025  | 0.92   | 1.1     | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70101 | CHEN TAP   | 69   | 70   | 712     | <b>0.6402</b> | 1.025  | 0.92   | 1.1     | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70102 | CHENEY     | 69   | 70   | 712     | <b>0.8921</b> | 1.0217 | 0.92   | 1.1     | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70102 | CHENEY     | 69   | 70   | 712     | <b>0.6352</b> | 1.0217 | 0.92   | 1.1     | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70113 | CLIFTON    | 230  | 70   | 708     | <b>0.9036</b> | 0.9578 | 0.92   | 1.1     | -       | L    | 495  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70118 | COCENTER   | 69   | 70   | 710     | <b>0.2479</b> | 1.0266 | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70129 | CREEDE     | 69   | 70   | 710     | <b>0.2234</b> | 1.0255 | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70130 | CRPLE CK   | 69   | 70   | 712     | <b>0.878</b>  | 0.9662 | 0.92   | 1.1     | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70132 | CTY LAJ    | 69   | 70   | 712     | <b>0.9178</b> | 1.0166 | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70132 | CTY LAJ    | 69   | 70   | 712     | <b>0.8984</b> | 1.0166 | 0.92   | 1.1     | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70136 | CTY LAM    | 69   | 70   | 712     | <b>0.8383</b> | 1.0402 | 0.92   | 1.1     | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70136 | CTY LAM    | 69   | 70   | 712     | <b>0.489</b>  | 1.0402 | 0.92   | 1.1     | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70143 | DELNORTE   | 69   | 70   | 710     | <b>0.2289</b> | 1.0128 | 0.92   | 1.1     | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |

| Bus # | Bus Name | KV  | Area | Zone | ContVo | BaseVo | LowLim | UppLim | VoltDrc | VoltRis | Viol | Ncon | Contin. Description                     |
|-------|----------|-----|------|------|--------|--------|--------|--------|---------|---------|------|------|-----------------------------------------|
| 70158 | D0T      | 115 | 70   | 712  | 0.8911 | 1.0218 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70159 | D0T TAP  | 115 | 70   | 712  | 0.8944 | 1.0246 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70160 | E CANON  | 69  | 70   | 712  | 0.8901 | 0.9943 | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70161 | EADS     | 69  | 70   | 712  | 0.8313 | 1.0368 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70161 | EADS     | 69  | 70   | 712  | 0.4782 | 1.0368 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70176 | FLORENCE | 69  | 70   | 712  | 0.8889 | 1.0022 | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.8343 | 0.9869 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.7321 | 0.9869 | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.7267 | 0.9869 | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70184 | FT HOLLY | 69  | 70   | 712  | 0.8127 | 1.0268 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70184 | FT HOLLY | 69  | 70   | 712  | 0.565  | 1.0268 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70185 | FT. LYON | 69  | 70   | 712  | 0.8323 | 1.0351 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70185 | FT. LYON | 69  | 70   | 712  | 0.4803 | 1.0351 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 0.824  | 0.9584 | 0.92   | 1.1    | -       | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 0.1622 | 0.9584 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70187 | FTGARLND | 69  | 70   | 710  | 0.8218 | 0.9565 | 0.92   | 1.1    | -       | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70187 | FTGARLND | 69  | 70   | 710  | 0.1596 | 0.9565 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70203 | GRAN TAP | 69  | 70   | 712  | 0.8201 | 1.0317 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70203 | GRAN TAP | 69  | 70   | 712  | 0.5515 | 1.0317 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70204 | GRANADA  | 69  | 70   | 712  | 0.8195 | 1.0313 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70204 | GRANADA  | 69  | 70   | 712  | 0.5507 | 1.0313 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70205 | GRANDJCT | 230 | 70   | 708  | 0.9036 | 0.9601 | 0.92   | 1.1    | -       | -       | L    | 495  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70206 | GRANDJPS | 230 | 70   | 708  | 0.9041 | 0.9569 | 0.92   | 1.1    | -       | -       | L    | 495  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70220 | HIGHL ND | 69  | 70   | 712  | 0.8909 | 1.064  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70221 | HILANDSL | 69  | 70   | 710  | 0.2299 | 1.0286 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70222 | HILLTOP  | 69  | 70   | 712  | 0.8534 | 1.0201 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70222 | HILLTOP  | 69  | 70   | 712  | 0.7962 | 1.0201 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70223 | HLTP TAP | 69  | 70   | 712  | 0.8537 | 1.0204 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70223 | HLTP TAP | 69  | 70   | 712  | 0.7965 | 1.0204 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70225 | HOLL TAP | 69  | 70   | 712  | 0.8156 | 1.0292 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70225 | HOLL TAP | 69  | 70   | 712  | 0.5688 | 1.0292 | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70228 | HOMELAKE | 69  | 70   | 710  | 0.2455 | 1.0206 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70229 | HOOPER   | 69  | 70   | 710  | 0.1756 | 1.0053 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70230 | HOOPERTP | 69  | 70   | 710  | 0.1837 | 1.0104 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70233 | HORIZON  | 230 | 70   | 708  | 0.9071 | 0.9581 | 0.92   | 1.1    | -       | -       | L    | 495  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70235 | HUERFANO | 69  | 70   | 712  | 0.8882 | 1.0295 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70509 | KERBERCK | 69  | 70   | 710  | 0.8609 | 1.0438 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70243 | LA SECPA | 69  | 70   | 712  | 0.9019 | 1.0201 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70245 | LAGARTTA | 69  | 70   | 710  | 0.1565 | 0.9935 | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70246 | LAJ IP   | 69  | 70   | 712  | 0.9169 | 1.0158 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70246 | LAJ IP   | 69  | 70   | 712  | 0.8974 | 1.0158 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 0.9154 | 1.0081 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70248 | LAJUNTAT | 69  | 70   | 712  | 0.9045 | 1.0222 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 0.8967 | 1.0081 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.8907 | 1.0306 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 0.8371 | 0.9778 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.7132 | 1.0306 | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.7077 | 1.0306 | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |

| Bus # | Bus Name | KV  | Area | Zone | ContVol | BaseVol | LowLim | Upplim | VoltDrd | VoltRis | Viol | Ncon | Contin. Description                       |
|-------|----------|-----|------|------|---------|---------|--------|--------|---------|---------|------|------|-------------------------------------------|
| 70249 | LAJUNTAW | 115 | 70   | 712  | 0.6619  | 0.9778  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70253 | LAMAR CO | 115 | 70   | 712  | 0.8081  | 1.0212  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70271 | LS ANNAS | 69  | 70   | 712  | 0.8673  | 1.0197  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70271 | LS ANNAS | 69  | 70   | 712  | 0.6959  | 1.0197  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70271 | LS ANNAS | 69  | 70   | 712  | 0.6902  | 1.0197  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70275 | MANZANOL | 69  | 70   | 712  | 0.8426  | 0.9939  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70275 | MANZANOL | 69  | 70   | 712  | 0.7414  | 0.9939  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70275 | MANZANOL | 69  | 70   | 712  | 0.7361  | 0.9939  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70507 | MEARSJCT | 69  | 70   | 710  | 0.8586  | 1.0406  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70510 | MIRGEJCT | 69  | 70   | 710  | 0.861   | 1.0439  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70505 | MIRGEJCT | 69  | 70   | 710  | 0.8984  | 0.9692  | 0.92   | 1.1    | -       | -       | L    | 237  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70505 | MIRGEJCT | 69  | 70   | 710  | 0.8028  | 0.9692  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70289 | MOFFAT   | 69  | 70   | 710  | 0.9062  | 0.9764  | 0.92   | 1.1    | -       | -       | L    | 237  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70289 | MOFFAT   | 69  | 70   | 710  | 0.0935  | 0.9764  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70292 | MOSCA    | 69  | 70   | 710  | 0.1974  | 1.0282  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.8318  | 0.9847  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.7292  | 0.9847  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.7239  | 0.9847  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70306 | P P MINE | 69  | 70   | 712  | 0.8814  | 0.9693  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATION 115 1  |
| 70316 | PDA      | 69  | 70   | 712  | 0.879   | 1.0128  | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70317 | PDA TAP  | 69  | 70   | 712  | 0.8829  | 1.0162  | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70318 | PENROSE  | 69  | 70   | 712  | 0.8952  | 1.0077  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATION 115 1  |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.8751  | 1.0261  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.706   | 1.0261  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.7004  | 1.0261  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.8758  | 1.0267  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.7068  | 1.0267  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.7012  | 1.0267  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70325 | PLAZA    | 69  | 70   | 710  | 0.1466  | 0.9872  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70326 | PONCHA   | 69  | 70   | 710  | 0.858   | 1.0397  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70327 | PONCHA   | 115 | 70   | 710  | 0.8475  | 1.027   | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70329 | PORTLAND | 69  | 70   | 712  | 0.9003  | 1.0123  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATION 115 1  |
| 70330 | PORTLAND | 115 | 70   | 712  | 0.8812  | 0.9844  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATION 115 1  |
| 70333 | PROWERS  | 69  | 70   | 712  | 0.8358  | 1.0381  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70333 | PROWERS  | 69  | 70   | 712  | 0.4852  | 1.0381  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70347 | RAMON    | 115 | 70   | 710  | 0.2376  | 1.0144  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70348 | RAMON    | 69  | 70   | 710  | 0.2351  | 1.0312  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70360 | RIOGRAND | 69  | 70   | 710  | 0.2324  | 1.0149  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70361 | RIOGRDTP | 69  | 70   | 710  | 0.2464  | 1.0234  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.8658  | 1.0135  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.7677  | 1.0135  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.7626  | 1.0135  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70367 | ROME0    | 69  | 70   | 710  | 0.2265  | 1.0029  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.8804  | 1.0245  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.8738  | 1.0245  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.8698  | 1.0245  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70373 | S.ACACIO | 69  | 70   | 710  | 0.1812  | 0.9857  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70506 | SAGUACHE | 69  | 70   | 710  | 0.9159  | 0.9566  | 0.92   | 1.1    | -       | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |

| Bus # | Bus Name  | KV  | Area | Zone | ContVol | BaseVol | LowLim | Upplim | VoltDro | VoltRis | Viol | Ncon | Contin.Description                        |
|-------|-----------|-----|------|------|---------|---------|--------|--------|---------|---------|------|------|-------------------------------------------|
| 70506 | SAGUACHE  | 69  | 70   | 710  | 0.8847  | 0.9566  | 0.92   | 1.1    | -       | -       | L    | 237  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70506 | SAGUACHE  | 69  | 70   | 710  | 0.0935  | 0.9566  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70374 | SAN LUIS  | 115 | 70   | 710  | 0.2506  | 1.0178  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70375 | SAN LUIS  | 230 | 70   | 710  | 0.2445  | 0.9978  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70376 | SAN LUIS  | 69  | 70   | 710  | 0.2323  | 1.0395  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70378 | SANTFETP  | 69  | 70   | 712  | 0.9101  | 1.0206  | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70379 | SARGENT   | 115 | 70   | 710  | 0.2735  | 1.0202  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70380 | SARGENT   | 69  | 70   | 710  | 0.2496  | 1.0257  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70383 | SFORK SL  | 69  | 70   | 710  | 0.2343  | 1.0308  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70390 | SKALA     | 115 | 70   | 712  | 0.8889  | 0.9855  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70394 | SMELTER   | 115 | 70   | 710  | 0.8627  | 1.0271  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70399 | SNEPESTA  | 69  | 70   | 712  | 0.9135  | 1.028   | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70399 | SNEPESTA  | 69  | 70   | 712  | 0.9999  | 1.028   | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70399 | SNEPESTA  | 69  | 70   | 712  | 0.8855  | 1.028   | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70404 | SPRNGFLD  | 69  | 70   | 712  | 0.8518  | 1.0187  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70404 | SPRNGFLD  | 69  | 70   | 712  | 0.7944  | 1.0187  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70405 | ST. CHAS. | 69  | 70   | 712  | 0.8884  | 1.021   | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70411 | STANLEY   | 115 | 70   | 710  | 0.2471  | 1.0165  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70414 | STOCKADE  | 69  | 70   | 710  | 0.1905  | 0.9903  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70425 | T BUTTES  | 69  | 70   | 712  | 0.8021  | 1.0249  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70425 | T BUTTES  | 69  | 70   | 712  | 0.7347  | 1.0249  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70438 | UINTAH    | 230 | 70   | 708  | 0.9193  | 0.9649  | 0.92   | 1.1    | -       | -       | L    | 495  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70451 | VICTOR    | 69  | 70   | 712  | 0.8845  | 0.9721  | 0.92   | 1.1    | -       | -       | L    | 339  | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70452 | VILAS     | 115 | 70   | 712  | 0.8902  | 1.0289  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70453 | VILAS     | 69  | 70   | 712  | 0.8584  | 1.0244  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70452 | VILAS     | 115 | 70   | 712  | 0.8967  | 1.0289  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70453 | VILAS     | 69  | 70   | 712  | 0.8914  | 1.0244  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70508 | VILLA     | 69  | 70   | 710  | 0.8608  | 1.0436  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70457 | WALSENBG  | 69  | 70   | 704  | 0.7976  | 1.0216  | 0.92   | 1.1    | -       | -       | L    | 205  | 70457 WALSENBG69.0 70458 WALSENBG 115 1   |
| 70460 | WALSH     | 69  | 70   | 712  | 0.8025  | 1.027   | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70460 | WALSH     | 69  | 70   | 712  | 0.7988  | 1.027   | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70467 | WAVERLY   | 115 | 70   | 710  | 0.2279  | 1.0075  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70468 | WAVERLY   | 69  | 70   | 710  | 0.1974  | 0.9933  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70473 | WILLOW CK | 69  | 70   | 712  | 0.8407  | 1.0439  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70472 | WILLOW CK | 115 | 70   | 712  | 0.8138  | 1.0112  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70473 | WILLOW CK | 69  | 70   | 712  | 0.4937  | 1.0439  | 0.92   | 1.1    | -       | -       | L    | 354  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70477 | ZINZER    | 69  | 70   | 710  | 0.1785  | 0.9817  | 0.92   | 1.1    | -       | -       | L    | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |

Flowgate Violations

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:16 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND GEN 48 MW DC  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* No violations encountered among selected elements \*\*\*\*\*

| FgID***** | Type | Rating | PreShift | BaseCaseFl |
|-----------|------|--------|----------|------------|
|           |      |        |          |            |
|           |      |        |          |            |

# Exclude Report

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:15 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV NO WIND GEN 48 MW DC  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\* There are no excluded contingencies

===== List of excluded Monitored Branches:

70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 TR Excluded in all contingencies

**B-8 - Contingency Analysis – 2005 Heavy Summer**

**Wind farm in service and the HVDC Converter at Lamar at 48 MW power output**

# Contingency Violation Summary

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:21 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV GEN 48 MW DC  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File none

\*\*\* Statistics on monitored constraints:

Monitored Branches: 584  
Monitored Voltages: 431  
Monitored Flowgates: 8  
Contingencies : 540

\*\*\* Summary on Constraint Violations \*\*\*  
\*\*\* Violations with flow changes less 0.00 MVA or voltage change less 0.000 % ignored  
I Initial Violations I  
I Base Case I Contingency cases I  
Constraint I Numb. Worst I Numb. Worst Contin I  
Type I Viol Viol I Viol Number I  
MVA flow I - --- 41 116.6 282 I  
VoltMagn I - --- 216 92.0 500 I  
Total contingency violations : 257  
Number of contingencies with violations: 28

\*\*\* Contingency Results Summary. \*\*\*  
Total No. tested = 540 Total LF iterations 1250  
Converged = 537  
Voltage Collapse = 3  
Not Converged = 0

\*\*\*\*\* No violations encountered among selected monitored elements \*\*\*\*\*



## Frequency of Branch Violations

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:23 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV GEN 48 MW DC  
Subsys.File T:\Xcel-PSC0\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSC0\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSC0\Lamar091102\Lamar.con  
Exclud.File none

Summary on Monitored Branches contingency violations

| Monitored Branches |               |       |              | PreShift Violations |        |          |      |          |      |
|--------------------|---------------|-------|--------------|---------------------|--------|----------|------|----------|------|
| **                 | From bus      | ** ** | To bus       | **                  | CNviol | WorstToV | Ncon | WorstFro | Ncon |
| 70305              | OVERTON 69.0  | 70054 | BMONT TP69.0 | 1                   | 1      | -        | -    | 5.8      | 270  |
| 70455              | W.STATION69.0 | 70054 | BMONT TP69.0 | 1                   | 1      | -        | -    | 1.5      | 270  |
| 70060              | BOONE 115     | 70061 | BOONE 230    | 1                   | 1      | -        | -    | 36.2     | 282  |
| 70060              | BOONE 115     | 70062 | BOONE 69.0   | 1                   | 2      | -        | -    | 27.4     | 281  |
| 70247              | LAJUNTAT 115  | 70060 | BOONE 115    | 1                   | 1      | -        | -    | 106.9    | 282  |
| 70062              | BOONE 69.0    | 70063 | BOONE TP69.0 | 1                   | 1      | -        | -    | 0.7      | 281  |
| 70382              | SEMPER 115    | 70065 | BROMFLD1 115 | 1                   | 1      | -        | -    | 18       | 56   |
| 70066              | BROMFLD2 115  | 70175 | FEDERHT2 115 | 1                   | 2      | -        | -    | 21.2     | 50   |
| 70230              | H00PERTP69.0  | 70092 | CENTER 69.0  | 1                   | 1      | -        | -    | 180.5    | 500  |
| 70425              | T BUTTES69.0  | 70101 | CHEN TAP69.0 | 1                   | 1      | -        | -    | 3.4      | 355  |
| 70108              | CHEROKEN 115  | 70109 | CHEROKES 115 | 1                   | 1      | -        | -    | 3.6      | 53   |
| 70108              | CHEROKEN 115  | 70175 | FEDERHT2 115 | 2                   | 2      | -        | -    | 12       | 56   |
| 70121              | COMANCHE 115  | 70122 | COMANCHE 230 | 1                   | 1      | -        | -    | 4.5      | 189  |
| 70121              | COMANCHE 115  | 70122 | COMANCHE 230 | 2                   | 1      | -        | -    | 4.5      | 188  |
| 70230              | H00PERTP69.0  | 70376 | SAN LUIS69.0 | 1                   | 1      | -        | -    | 44.2     | 500  |
| 70247              | LAJUNTAT 115  | 70472 | WLOW CK 115  | 1                   | 1      | -        | -    | 39.4     | 282  |
| 70249              | LAJUNTAW 115  | 70250 | LAJUNTAW69.0 | 1                   | 5      | -        | -    | 26.5     | 283  |
| 70253              | LAMAR CO 115  | 70254 | LAMAR CO 230 | 1                   | 1      | -        | -    | 24.6     | 282  |
| 70253              | LAMAR CO 115  | 70472 | WLOW CK 115  | 1                   | 1      | -        | -    | 4.3      | 282  |
| 70292              | MOSCA 69.0    | 70376 | SAN LUIS69.0 | 1                   | 1      | -        | -    | 2.5      | 212  |
| 70327              | PONCHA 115    | 70379 | SARGENT 115  | 1                   | 1      | -        | -    | 50.9     | 500  |

LF: 2005HS-48dc-wind34-5.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| Monitored Branches |              |       |          | PreShift Violations |                   | WorstFrom        |      |
|--------------------|--------------|-------|----------|---------------------|-------------------|------------------|------|
| **                 | From bus     | ** ** | To bus   | **                  | PreShift<br>Nviol | WorstToV<br>Ncon | Ncon |
| 70336              | PUEB-TAP 115 | 70412 | STEM BCH | 115 1               | 1                 | -                | 62.7 |
| 70336              | PUEB-TAP 115 | 70456 | W.STATON | 115 1               | 1                 | -                | 73.3 |
| 70352              | READER 115   | 70353 | READER   | 69.0 1              | 3                 | -                | 50.6 |
| 70352              | READER 115   | 70353 | READER   | 69.0 2              | 3                 | -                | 50.6 |
| 70412              | STEM BCH 115 | 70458 | WALSENBG | 115 1               | 1                 | -                | 26.3 |
| 70425              | T BUTTES69.0 | 70460 | WALSH    | 69.0 1              | 1                 | -                | 13.6 |
| 70453              | VILAS 69.0   | 70460 | WALSH    | 69.0 1              | 1                 | -                | 23.7 |
| 70455              | W.STATON69.0 | 70456 | W.STATON | 115 1               | 1                 | -                | 2.4  |
| 70455              | W.STATON69.0 | 70456 | W.STATON | 115 2               | 1                 | -                | 0.3  |
|                    |              |       |          |                     |                   |                  |      |

## Branch Violations

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:24 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV GEN 48 MW DC  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* Report on violations \*\*\*\*\*

| Branches with MVA flow more than 90.0 % of nominal rating |              |       |              |        |    |     |   |         |          |        |          |      |                                         |
|-----------------------------------------------------------|--------------|-------|--------------|--------|----|-----|---|---------|----------|--------|----------|------|-----------------------------------------|
| **                                                        | From bus     | **    | **           | To bus | ** | CKT | T | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                             |
| 70047                                                     | BARRLAKE 230 | 70048 | GREENVAL     | 230    | 1  | LN  |   | 415.3   | 352.2    | 434.6  | 95.6     | 166  | 70461 WASHINGT 230 70529 JLGREEN 230 1  |
| 70047                                                     | BARRLAKE 230 | 70048 | GREENVAL     | 230    | 1  | LN  |   | 401.2   | 352.2    | 434.6  | 92.3     | 98   | 70200 GLENN PS 230 70461 WASHINGT 230 1 |
| 70060                                                     | BOONE 115    | 70061 | BOONE        | 230    | 1  | TR  |   | 204.3   | 77.7     | 150    | 136.2    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70060                                                     | BOONE 115    | 70061 | BOONE        | 230    | 1  | TR  |   | 140.6   | 77.7     | 150    | 93.7     | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70060                                                     | BOONE 115    | 70062 | BOONE        | 69.0   | 1  | TR  |   | 42      | 9.7      | 33     | 127.4    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70060                                                     | BOONE 115    | 70062 | BOONE        | 69.0   | 1  | TR  |   | 41.8    | 9.7      | 33     | 126.6    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70062                                                     | BOONE 69.0   | 70063 | BOONE TP69.0 | 1      | LN |     |   | 40.9    | 9.3      | 40.6   | 100.7    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70062                                                     | BOONE 69.0   | 70063 | BOONE TP69.0 | 1      | LN |     |   | 40.5    | 9.3      | 40.6   | 99.9     | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70066                                                     | BROMFLD2 115 | 70175 | FEDERHT2     | 115    | 1  | LN  |   | 163.4   | 91       | 134.8  | 121.2    | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70066                                                     | BROMFLD2 115 | 70175 | FEDERHT2     | 115    | 1  | LN  |   | 162.4   | 91       | 134.8  | 120.5    | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70066                                                     | BROMFLD2 115 | 70175 | FEDERHT2     | 115    | 1  | LN  |   | 133.1   | 91       | 134.8  | 98.8     | 97   | 70174 FEDERHT1 115 70382 SEMPER 115 1   |
| 70108                                                     | CHEROKEN 115 | 70109 | CHEROKES     | 115    | 1  | LN  |   | 310.8   | 195      | 300    | 103.6    | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70108                                                     | CHEROKEN 115 | 70175 | FEDERHT2     | 115    | 2  | LN  |   | 208.3   | 135.7    | 186    | 112      | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70108                                                     | CHEROKEN 115 | 70175 | FEDERHT2     | 115    | 2  | LN  |   | 205.8   | 135.7    | 186    | 110.6    | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70108                                                     | CHEROKEN 115 | 70175 | FEDERHT2     | 115    | 2  | LN  |   | 178.3   | 135.7    | 186    | 95.9     | 97   | 70174 FEDERHT1 115 70382 SEMPER 115 1   |
| 70109                                                     | CHEROKES 115 | 70174 | FEDERHT1     | 115    | 1  | LN  |   | 184.8   | 126.5    | 186    | 99.4     | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70121                                                     | COMANCHE 115 | 70122 | COMANCHE     | 230    | 1  | TR  |   | 209     | 117.1    | 200    | 104.5    | 189  | 70121 COMANCHE 115 70122 COMANCHE 230 2 |
| 70121                                                     | COMANCHE 115 | 70122 | COMANCHE     | 230    | 2  | TR  |   | 209     | 117.1    | 200    | 104.5    | 188  | 70121 COMANCHE 115 70122 COMANCHE 230 1 |
| 70230                                                     | HOOPERTP69.0 | 70092 | CENTER       | 69.0   | 1  | LN  |   | 140.2   | 25       | 50     | 280.5    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70230                                                     | HOOPERTP69.0 | 70376 | SAN LUIS69.0 | 1      | LN |     |   | 72.1    | 33       | 50     | 144.2    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70247                                                     | LAJUNTAT 115 | 70060 | BOONE        | 115    | 1  | LN  |   | 225.6   | 14.6     | 109    | 206.9    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70247                                                     | LAJUNTAT 115 | 70472 | WLOW CK      | 115    | 1  | LN  |   | 151.9   | 29.3     | 109    | 139.4    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70249                                                     | LAJUNTAW 115 | 70250 | LAJUNTAW69.0 | 1      | TR |     |   | 23.4    | 23.4     | 25     | 93.7     | **   | Base Case **                            |
| 70253                                                     | LAMAR CO 115 | 70254 | LAMAR CO     | 230    | 1  | TR  |   | 124.6   | 65.9     | 100    | 124.6    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |

LF: 2005HS-48dc-wind34-5.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| **    | From bus                           | ** | ** | To bus | ** | CKT | T | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                               |
|-------|------------------------------------|----|----|--------|----|-----|---|---------|----------|--------|----------|------|-------------------------------------------|
| 70253 | LAMAR CO 115 70472 WILLOW CK 115 1 | LN |    |        |    | LN  |   | 179.3   | 49.7     | 171.9  | 104.3    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70292 | MOSCA 69.0 70376 SAN LUIS69.0 1    | LN |    |        |    | LN  |   | 24.5    | 9.3      | 23.9   | 102.5    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70305 | OVERTON 69.0 70054 BMONT TP69.0 1  | LN |    |        |    | LN  |   | 69.8    | 19.1     | 66     | 105.8    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70327 | PONCHA 115 70379 SARGENT 115 1     | LN |    |        |    | LN  |   | 162.9   | 21.2     | 108    | 150.9    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70336 | PUEB-TAP 115 70412 STEM BCH 115 1  | LN |    |        |    | LN  |   | 125.3   | 18.3     | 77     | 162.7    | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70336 | PUEB-TAP 115 70456 W.STATON 115 1  | LN |    |        |    | LN  |   | 133.4   | 24.4     | 77     | 173.3    | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70341 | QUAKER2 115 70342 QUAKERTP 115 1   | LN |    |        |    | LN  |   | 77.8    | 76.6     | 85.8   | 90.7     | 77   | 70148 DENVTM 115 70173 FEDCT RTP 115 1    |
| 70341 | QUAKER2 115 70342 QUAKERTP 115 1   | LN |    |        |    | LN  |   | 77.7    | 76.6     | 85.8   | 90.5     | 96   | 70173 FEDCT RTP 115 70342 QUAKERTP 115 1  |
| 70352 | READER 115 70121 COMANCHE 115 1    | LN |    |        |    | LN  |   | 276.5   | 194.7    | 300    | 92.2     | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70352 | READER 115 70353 READER 69.0 1     | TR |    |        |    | TR  |   | 70.8    | 41.4     | 47     | 150.6    | 343  | 70352 READER 115 70353 READER 69.0 2      |
| 70352 | READER 115 70353 READER 69.0 1     | TR |    |        |    | TR  |   | 50.8    | 41.4     | 47     | 108.1    | 275  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1   |
| 70352 | READER 115 70353 READER 69.0 1     | TR |    |        |    | TR  |   | 50.8    | 41.4     | 47     | 108.1    | 276  | 70054 BMONT TP69.0 70455 W.STATON69.0 1   |
| 70352 | READER 115 70353 READER 69.0 1     | TR |    |        |    | TR  |   | 46      | 41.4     | 47     | 97.8     | 272  | 70049 BELMONT 69.0 70305 OVERTON 69.0 1   |
| 70352 | READER 115 70353 READER 69.0 1     | TR |    |        |    | TR  |   | 44.3    | 41.4     | 47     | 94.3     | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70352 | READER 115 70353 READER 69.0 1     | TR |    |        |    | TR  |   | 43.7    | 41.4     | 47     | 93       | 353  | 70455 W.STATON69.0 70456 W.STATON 115 1   |
| 70352 | READER 115 70353 READER 69.0 1     | TR |    |        |    | TR  |   | 43.6    | 41.4     | 47     | 92.8     | 354  | 70455 W.STATON69.0 70456 W.STATON 115 2   |
| 70352 | READER 115 70353 READER 69.0 1     | TR |    |        |    | TR  |   | 42.9    | 41.4     | 47     | 91.3     | 344  | 70352 READER 115 70456 W.STATON 115 1     |
| 70352 | READER 115 70353 READER 69.0 2     | TR |    |        |    | TR  |   | 70.8    | 41.4     | 47     | 150.6    | 342  | 70352 READER 115 70353 READER 69.0 1      |
| 70352 | READER 115 70353 READER 69.0 2     | TR |    |        |    | TR  |   | 50.8    | 41.4     | 47     | 108.1    | 275  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1   |
| 70352 | READER 115 70353 READER 69.0 2     | TR |    |        |    | TR  |   | 50.8    | 41.4     | 47     | 108.1    | 276  | 70054 BMONT TP69.0 70455 W.STATON69.0 1   |
| 70352 | READER 115 70353 READER 69.0 2     | TR |    |        |    | TR  |   | 46      | 41.4     | 47     | 97.8     | 272  | 70049 BELMONT 69.0 70305 OVERTON 69.0 1   |
| 70352 | READER 115 70353 READER 69.0 2     | TR |    |        |    | TR  |   | 44.3    | 41.4     | 47     | 94.3     | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70352 | READER 115 70353 READER 69.0 2     | TR |    |        |    | TR  |   | 43.7    | 41.4     | 47     | 93       | 353  | 70455 W.STATON69.0 70456 W.STATON 115 1   |
| 70352 | READER 115 70353 READER 69.0 2     | TR |    |        |    | TR  |   | 43.6    | 41.4     | 47     | 92.8     | 354  | 70455 W.STATON69.0 70456 W.STATON 115 2   |
| 70352 | READER 115 70353 READER 69.0 2     | TR |    |        |    | TR  |   | 42.9    | 41.4     | 47     | 91.3     | 344  | 70352 READER 115 70456 W.STATON 115 1     |
| 70353 | READER 69.0 70042 ASPEN TP69.0 1   | LN |    |        |    | LN  |   | 63.5    | 43.3     | 66     | 96.3     | 275  | 70054 BMONT TP69.0 70305 OVERTON 69.0 1   |
| 70353 | READER 69.0 70042 ASPEN TP69.0 1   | LN |    |        |    | LN  |   | 63.5    | 43.3     | 66     | 96.3     | 276  | 70054 BMONT TP69.0 70455 W.STATON69.0 1   |
| 70354 | RIDGE 115 70355 RIDGE 230 1        | TR |    |        |    | TR  |   | 91.8    | 73.2     | 100    | 91.8     | 144  | 70354 RIDGE 115 70355 RIDGE 230 2         |
| 70366 | ROCKYFRD69.0 70372 S FWL TP69.0 1  | LN |    |        |    | LN  |   | 38.8    | 7.4      | 40.6   | 95.6     | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70366 | ROCKYFRD69.0 70372 S FWL TP69.0 1  | LN |    |        |    | LN  |   | 38.5    | 7.4      | 40.6   | 94.8     | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAM69.0 1   |
| 70374 | SAN LUIS 115 70376 SAN LUIS69.0 1  | TR |    |        |    | TR  |   | 39.2    | 25.9     | 42     | 93.3     | 252  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 2   |
| 70374 | SAN LUIS 115 70376 SAN LUIS69.0 2  | TR |    |        |    | TR  |   | 39.2    | 25.9     | 42     | 93.3     | 251  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 1   |
| 70382 | SEMPER 115 70065 BROMFLD1 115 1    | LN |    |        |    | LN  |   | 159.1   | 33.8     | 134.8  | 118      | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1   |
| 70382 | SEMPER 115 70174 FEDERHT1 115 1    | LN |    |        |    | LN  |   | 134.7   | 76.5     | 134.8  | 99.9     | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2   |
| 70400 | SODALAKE 115 70023 ALLISON 115 1   | LN |    |        |    | LN  |   | 174.2   | 93.3     | 192    | 90.7     | 23   | 70045 BANCROFT 115 70242 KENDRICK 115 1   |
| 70412 | STEM BCH 115 70458 WALSENBG 115 1  | LN |    |        |    | LN  |   | 97.2    | 11.7     | 77     | 126.3    | 191  | 70122 COMANCHE 230 70459 WALSENBG 230 1   |
| 70425 | T BUTTES69.0 70101 CHEN TAP69.0 1  | LN |    |        |    | LN  |   | 35.1    | 1.4      | 33.9   | 103.4    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70425 | T BUTTES69.0 70460 WALSH 69.0 1    | LN |    |        |    | LN  |   | 38.5    | 3.2      | 33.9   | 113.6    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70453 | VILAS 69.0 70460 WALSH 69.0 1      | LN |    |        |    | LN  |   | 41.9    | 8.7      | 33.9   | 123.7    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70455 | W.STATON69.0 70054 BMONT TP69.0 1  | LN |    |        |    | LN  |   | 70      | 19.1     | 69     | 101.5    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |

| ** | From bus           | **                | **  | To bus | ** | CKT | T | ContMVA | BaseFlow | Rating | Loading% | Ncon | Contingency                             |
|----|--------------------|-------------------|-----|--------|----|-----|---|---------|----------|--------|----------|------|-----------------------------------------|
|    | 70455 W.STATON69.0 | 70456 W.STATON    | 115 | 1      | TR |     |   | 43      | 18.2     | 42     | 102.4    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
|    | 70455 W.STATON69.0 | 70456 W.STATON    | 115 | 2      | TR |     |   | 42.1    | 17.8     | 42     | 100.3    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
|    | 70550 W CANON      | 115 73551 W CANON | 230 | 1      | TR |     |   | 94.6    | 34.9     | 100    | 94.6     | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
|    | 70550 W CANON      | 115 73551 W CANON | 230 | 1      | TR |     |   | 94.1    | 34.9     | 100    | 94.1     | 340  | 70330 PORTLAND 115 70456 W.STATON 115 1 |
|    |                    |                   |     |        |    |     |   |         |          |        |          |      |                                         |

# Frequency of Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:23 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV GEN 48 MW DC  
Subsys.File T:\Xcel-PSC0\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSC0\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSC0\Lamar091102\Lamar.con  
Exclud.File none

Summary on Monitored Voltages contingency violations

| Bus # | Bus Name | KV  | Area | Zone | # Violations | Worst Day | Ncon | Worst Hi | Ncon |
|-------|----------|-----|------|------|--------------|-----------|------|----------|------|
| 70022 | APT TAP2 | 115 | 70   | 712  | 2            | 0.029     | 282  | -        | -    |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2            | 0.816     | 500  | -        | -    |
| 70025 | ALMSA TM | 115 | 70   | 710  | 1            | 0.783     | 500  | -        | -    |
| 70026 | ALMSA TM | 69  | 70   | 710  | 1            | 0.803     | 500  | -        | -    |
| 70028 | ANSEL TS | 69  | 70   | 710  | 1            | 0.821     | 500  | -        | -    |
| 70029 | ANTONITO | 69  | 70   | 710  | 1            | 0.849     | 500  | -        | -    |
| 70030 | APT PARK | 115 | 70   | 712  | 2            | 0.022     | 282  | -        | -    |
| 70031 | APT TAP  | 115 | 70   | 712  | 2            | 0.014     | 282  | -        | -    |
| 70042 | ASPEN TP | 69  | 70   | 712  | 1            | 0.028     | 270  | -        | -    |
| 70051 | BLENDE   | 69  | 70   | 712  | 1            | 0.027     | 270  | -        | -    |
| 70055 | BNAVST   | 115 | 70   | 709  | 1            | 0.026     | 500  | -        | -    |
| 70056 | BNVSTATP | 115 | 70   | 709  | 1            | 0.025     | 500  | -        | -    |
| 70060 | BOONE    | 115 | 70   | 712  | 2            | 0.043     | 282  | -        | -    |
| 70062 | BOONE    | 69  | 70   | 712  | 2            | 0.034     | 282  | -        | -    |
| 70063 | BOONE TP | 69  | 70   | 712  | 2            | 0.038     | 282  | -        | -    |
| 70086 | CANONCTY | 115 | 70   | 712  | 1            | 0.004     | 340  | -        | -    |
| 70090 | CARMEL   | 69  | 70   | 710  | 1            | 0.856     | 500  | -        | -    |
| 70092 | CENTER   | 69  | 70   | 710  | 1            | 0.908     | 500  | -        | -    |
| 70101 | CHEN TAP | 69  | 70   | 712  | 3            | 0.499     | 282  | -        | -    |
| 70102 | CHENEY   | 69  | 70   | 712  | 3            | 0.503     | 282  | -        | -    |
| 70113 | CLIFTON  | 230 | 70   | 708  | 1            | 0.016     | 496  | -        | -    |

| Bus # | Bus Name | KV  | Area | Zone | # Violations | Worst Date | Ncon | Worst High | Ncon |
|-------|----------|-----|------|------|--------------|------------|------|------------|------|
| 70118 | COCENTER | 69  | 70   | 710  | 1            | 0.816      | 500  | -          | -    |
| 70129 | CREEDE   | 69  | 70   | 710  | 1            | 0.832      | 500  | -          | -    |
| 70130 | CRPLE CK | 69  | 70   | 712  | 1            | 0.041      | 340  | -          | -    |
| 70132 | CTY LAJ  | 69  | 70   | 712  | 3            | 0.528      | 282  | -          | -    |
| 70136 | CTY LAM  | 69  | 70   | 712  | 3            | 0.508      | 282  | -          | -    |
| 70143 | DELNORTE | 69  | 70   | 710  | 1            | 0.833      | 500  | -          | -    |
| 70158 | DOT      | 115 | 70   | 712  | 2            | 0.044      | 282  | -          | -    |
| 70159 | DOT TAP  | 115 | 70   | 712  | 2            | 0.04       | 282  | -          | -    |
| 70160 | E CANON  | 69  | 70   | 712  | 1            | 0.039      | 340  | -          | -    |
| 70161 | EADS     | 69  | 70   | 712  | 3            | 0.518      | 282  | -          | -    |
| 70176 | FLORENCE | 69  | 70   | 712  | 1            | 0.03       | 340  | -          | -    |
| 70178 | FOWLER   | 69  | 70   | 712  | 4            | 0.169      | 281  | -          | -    |
| 70184 | FT HOLLY | 69  | 70   | 712  | 3            | 0.511      | 282  | -          | -    |
| 70185 | FT. LYON | 69  | 70   | 712  | 3            | 0.515      | 282  | -          | -    |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 2            | 0.901      | 500  | -          | -    |
| 70187 | FTGARLND | 69  | 70   | 710  | 2            | 0.903      | 500  | -          | -    |
| 70203 | GRAN TAP | 69  | 70   | 712  | 3            | 0.508      | 282  | -          | -    |
| 70204 | GRANADA  | 69  | 70   | 712  | 3            | 0.509      | 282  | -          | -    |
| 70205 | GRANDJCT | 230 | 70   | 708  | 1            | 0.016      | 496  | -          | -    |
| 70206 | GRANDJPS | 230 | 70   | 708  | 1            | 0.016      | 496  | -          | -    |
| 70220 | HIGHLND  | 69  | 70   | 712  | 1            | 0.028      | 340  | -          | -    |
| 70221 | HILANDSL | 69  | 70   | 710  | 1            | 0.826      | 500  | -          | -    |
| 70222 | HILLTOP  | 69  | 70   | 712  | 3            | 0.462      | 282  | -          | -    |
| 70223 | HLTP TAP | 69  | 70   | 712  | 3            | 0.462      | 282  | -          | -    |
| 70225 | HOLL TAP | 69  | 70   | 712  | 3            | 0.508      | 282  | -          | -    |
| 70228 | HOMELAKE | 69  | 70   | 710  | 1            | 0.819      | 500  | -          | -    |
| 70229 | HOOPER   | 69  | 70   | 710  | 1            | 0.906      | 500  | -          | -    |
| 70230 | HOOPERTP | 69  | 70   | 710  | 1            | 0.907      | 500  | -          | -    |
| 70233 | HORIZON  | 230 | 70   | 708  | 1            | 0.013      | 496  | -          | -    |
| 70235 | HUERFANO | 69  | 70   | 712  | 2            | 0.04       | 282  | -          | -    |
| 70243 | LA SECPA | 69  | 70   | 712  | 3            | 0.524      | 282  | -          | -    |
| 70245 | LAGARITA | 69  | 70   | 710  | 1            | 0.916      | 500  | -          | -    |
| 70246 | LAJ IP   | 69  | 70   | 712  | 3            | 0.529      | 282  | -          | -    |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 3            | 0.502      | 282  | -          | -    |
| 70248 | LAJUNTAT | 69  | 70   | 712  | 3            | 0.52       | 282  | -          | -    |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 3            | 0.238      | 281  | -          | -    |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 4            | 0.186      | 281  | -          | -    |
| 70253 | LAMAR CO | 115 | 70   | 712  | 2            | 0.434      | 282  | -          | -    |

LF: 2005HS-48dc-wind34-5.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED

| Bus # | Bus Name | KV  | Area | Zone | # Violations | Worst Date | Ncon | Worst High | Ncon |
|-------|----------|-----|------|------|--------------|------------|------|------------|------|
| 70254 | LAMAR CO | 230 | 70   | 712  | 1            | 0.336      | 282  | -          | -    |
| 70271 | LS ANMAS | 69  | 70   | 712  | 4            | 0.203      | 281  | -          | -    |
| 70275 | MANZANOL | 69  | 70   | 712  | 4            | 0.16       | 281  | -          | -    |
| 70289 | MOFFAT   | 69  | 70   | 710  | 2            | 0.92       | 500  | -          | -    |
| 70292 | MOSCA    | 69  | 70   | 710  | 1            | 0.866      | 500  | -          | -    |
| 70303 | ORDWAY   | 69  | 70   | 712  | 4            | 0.171      | 281  | -          | -    |
| 70304 | OTEROTP  | 115 | 70   | 709  | 1            | 0.003      | 500  | -          | -    |
| 70306 | P P MINE | 69  | 70   | 712  | 1            | 0.038      | 340  | -          | -    |
| 70316 | PDA      | 69  | 70   | 712  | 1            | 0.044      | 270  | -          | -    |
| 70317 | PDA TAP  | 69  | 70   | 712  | 1            | 0.04       | 270  | -          | -    |
| 70318 | PENROSE  | 69  | 70   | 712  | 1            | 0.024      | 340  | -          | -    |
| 70319 | PHILLIPS | 69  | 70   | 712  | 4            | 0.193      | 281  | -          | -    |
| 70320 | PHLPS TP | 69  | 70   | 712  | 4            | 0.192      | 281  | -          | -    |
| 70325 | PLAZA    | 69  | 70   | 710  | 1            | 0.918      | 500  | -          | -    |
| 70326 | PONCHA   | 69  | 70   | 710  | 1            | 0.089      | 500  | -          | -    |
| 70327 | PONCHA   | 115 | 70   | 710  | 1            | 0.099      | 500  | -          | -    |
| 70329 | PORTLAND | 69  | 70   | 712  | 1            | 0.019      | 340  | -          | -    |
| 70330 | PORTLAND | 115 | 70   | 712  | 1            | 0.038      | 340  | -          | -    |
| 70333 | PROWERS  | 69  | 70   | 712  | 3            | 0.511      | 282  | -          | -    |
| 70347 | RAMON    | 115 | 70   | 710  | 1            | 0.816      | 500  | -          | -    |
| 70348 | RAMON    | 69  | 70   | 710  | 1            | 0.821      | 500  | -          | -    |
| 70360 | RIOGRAND | 69  | 70   | 710  | 1            | 0.83       | 500  | -          | -    |
| 70361 | RIOGRDTP | 69  | 70   | 710  | 1            | 0.817      | 500  | -          | -    |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 4            | 0.135      | 281  | -          | -    |
| 70367 | ROMEO    | 69  | 70   | 710  | 1            | 0.839      | 500  | -          | -    |
| 70372 | S FWL TP | 69  | 70   | 712  | 4            | 0.047      | 282  | -          | -    |
| 70373 | S.ACACIO | 69  | 70   | 710  | 1            | 0.867      | 500  | -          | -    |
| 70374 | SAN LUIS | 115 | 70   | 710  | 1            | 0.804      | 500  | -          | -    |
| 70375 | SAN LUIS | 230 | 70   | 710  | 1            | 0.806      | 500  | -          | -    |
| 70376 | SAN LUIS | 69  | 70   | 710  | 1            | 0.844      | 500  | -          | -    |
| 70378 | SANTFETP | 69  | 70   | 712  | 1            | 0.013      | 270  | -          | -    |
| 70379 | SARGENT  | 115 | 70   | 710  | 1            | 0.776      | 500  | -          | -    |
| 70380 | SARGENT  | 69  | 70   | 710  | 1            | 0.814      | 500  | -          | -    |
| 70383 | SFORK SL | 69  | 70   | 710  | 1            | 0.822      | 500  | -          | -    |
| 70390 | SKALA    | 115 | 70   | 712  | 1            | 0.031      | 340  | -          | -    |
| 70394 | SMEALTER | 115 | 70   | 710  | 1            | 0.082      | 500  | -          | -    |
| 70399 | SNEPESTA | 69  | 70   | 712  | 2            | 0.042      | 282  | -          | -    |
| 70404 | SPRNGFLD | 69  | 70   | 712  | 3            | 0.464      | 282  | -          | -    |

LF: 2005HS-48dc-wind34-5.sav

Sys: Lamar.sub

Mon: Lamar.mon  
Con: Lamar.con  
Excl: NOT USED



| Bus # | Bus Name | KV  | Area | Zone | # Viol | WorstLd | Ncon | WorstHi | Ncon |
|-------|----------|-----|------|------|--------|---------|------|---------|------|
| 70405 | ST.CHAS. | 69  | 70   | 712  | 1      | 0.035   | 270  | -       | -    |
| 70411 | STANLEY  | 115 | 70   | 710  | 1      | 0.807   | 500  | -       | -    |
| 70414 | STOCKADE | 69  | 70   | 710  | 1      | 0.859   | 500  | -       | -    |
| 70425 | T BUTTES | 69  | 70   | 712  | 3      | 0.48    | 282  | -       | -    |
| 70438 | UINTAH   | 230 | 70   | 708  | 1      | 0.001   | 496  | -       | -    |
| 70451 | VICTOR   | 69  | 70   | 712  | 1      | 0.035   | 340  | -       | -    |
| 70452 | VILAS    | 115 | 70   | 712  | 3      | 0.452   | 282  | -       | -    |
| 70453 | VILAS    | 69  | 70   | 712  | 3      | 0.457   | 282  | -       | -    |
| 70457 | WALSENBG | 69  | 70   | 704  | 1      | 0.126   | 205  | -       | -    |
| 70460 | WALSH    | 69  | 70   | 712  | 3      | 0.465   | 282  | -       | -    |
| 70467 | WAVERLY  | 115 | 70   | 710  | 1      | 0.824   | 500  | -       | -    |
| 70468 | WAVERLY  | 69  | 70   | 710  | 1      | 0.852   | 500  | -       | -    |
| 70472 | WILOW CK | 115 | 70   | 712  | 2      | 0.521   | 282  | -       | -    |
| 70473 | WILOW CK | 69  | 70   | 712  | 3      | 0.507   | 282  | -       | -    |
| 70477 | ZINZER   | 69  | 70   | 710  | 1      | 0.87    | 500  | -       | -    |
| 70505 | MIRGEJCT | 69  | 70   | 710  | 2      | 0.905   | 500  | -       | -    |
| 70506 | SAGUACHE | 69  | 70   | 710  | 3      | 0.911   | 500  | -       | -    |
| 70507 | MEARSJCT | 69  | 70   | 710  | 1      | 0.088   | 500  | -       | -    |
| 70508 | VILLA    | 69  | 70   | 710  | 1      | 0.086   | 500  | -       | -    |
| 70509 | KERBERCK | 69  | 70   | 710  | 1      | 0.086   | 500  | -       | -    |
| 70510 | MIRGEJC0 | 69  | 70   | 710  | 1      | 0.086   | 500  | -       | -    |
| 70549 | APT MEM  | 115 | 70   | 712  | 2      | 0.025   | 282  | -       | -    |
| 70560 | LAMAR DC | 230 | 70   | 712  | 1      | 0.334   | 282  | -       | -    |
| 70700 | G0B_KNOB | 230 | 70   | 712  | 1      | 0.289   | 282  | -       | -    |
|       |          |     |      |      |        |         |      |         |      |

## Bus Voltage Violations

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:25 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV GEN 48 MW DC  
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* Report on violations \*\*\*\*\*

Buses with voltage violations

| Bus # | Bus NameKV | Area | Zone | ContVol | BaseVol       | LowLim | Upplim | VoltDro | VoltRis | Viol | Ncon | Contin.Description                        |
|-------|------------|------|------|---------|---------------|--------|--------|---------|---------|------|------|-------------------------------------------|
| 70024 | ALMSA ST   | 69   | 70   | 710     | <b>0.8989</b> | 1.0215 | 0.92   | 1.1     | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70024 | ALMSA ST   | 69   | 70   | 710     | <b>0.1036</b> | 1.0215 | 0.92   | 1.1     | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70025 | ALMSA TM   | 115  | 70   | 710     | <b>0.137</b>  | 1.0297 | 0.92   | 1.1     | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70026 | ALMSA TM   | 69   | 70   | 710     | <b>0.1167</b> | 1.0255 | 0.92   | 1.1     | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70028 | ANSEL TS   | 69   | 70   | 710     | <b>0.0985</b> | 1.0278 | 0.92   | 1.1     | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70029 | ANTONITO   | 69   | 70   | 710     | <b>0.0711</b> | 0.9957 | 0.92   | 1.1     | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70549 | APT MEM    | 115  | 70   | 712     | <b>0.907</b>  | 1.005  | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70549 | APT MEM    | 115  | 70   | 712     | <b>0.8945</b> | 1.005  | 0.92   | 1.1     | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70030 | APT PARK   | 115  | 70   | 712     | <b>0.9108</b> | 1.0037 | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70030 | APT PARK   | 115  | 70   | 712     | <b>0.8985</b> | 1.0037 | 0.92   | 1.1     | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70031 | APT TAP    | 115  | 70   | 712     | <b>0.9184</b> | 1.0042 | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70031 | APT TAP    | 115  | 70   | 712     | <b>0.9058</b> | 1.0042 | 0.92   | 1.1     | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70022 | APT TAP2   | 115  | 70   | 712     | <b>0.9041</b> | 1.0069 | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70022 | APT TAP2   | 115  | 70   | 712     | <b>0.8914</b> | 1.0069 | 0.92   | 1.1     | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70042 | ASPEN TP   | 69   | 70   | 712     | <b>0.8923</b> | 1.0251 | 0.92   | 1.1     | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70051 | BLENDE     | 69   | 70   | 712     | <b>0.8933</b> | 1.0229 | 0.92   | 1.1     | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70055 | BNVST      | 115  | 70   | 709     | <b>0.894</b>  | 1.0253 | 0.92   | 1.1     | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70056 | BNVSTATP   | 115  | 70   | 709     | <b>0.8952</b> | 1.0264 | 0.92   | 1.1     | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70062 | BOONE      | 69   | 70   | 712     | <b>0.8963</b> | 1.0392 | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70060 | BOONE      | 115  | 70   | 712     | <b>0.8884</b> | 1.0279 | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70062 | BOONE      | 69   | 70   | 712     | <b>0.8859</b> | 1.0392 | 0.92   | 1.1     | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70060 | BOONE      | 115  | 70   | 712     | <b>0.8773</b> | 1.0279 | 0.92   | 1.1     | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70063 | BOONE TP   | 69   | 70   | 712     | <b>0.8923</b> | 1.0363 | 0.92   | 1.1     | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70063 | BOONE TP   | 69   | 70   | 712     | <b>0.8923</b> | 1.0363 | 0.92   | 1.1     | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70086 | CANONCTY   | 115  | 70   | 712     | <b>0.9158</b> | 0.9897 | 0.92   | 1.1     | -       | L    | 340  | 70330 PORTLAND 115 70456 W.STATION 115 1  |
| 70090 | CARMEL     | 69   | 70   | 710     | <b>0.0636</b> | 0.9899 | 0.92   | 1.1     | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70092 | CENTER     | 69   | 70   | 710     | <b>0.0118</b> | 1.0066 | 0.92   | 1.1     | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70101 | CHEN TAP   | 69   | 70   | 712     | <b>0.8016</b> | 1.0257 | 0.92   | 1.1     | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70101 | CHEN TAP   | 69   | 70   | 712     | <b>0.6419</b> | 1.0257 | 0.92   | 1.1     | -       | L    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70101 | CHEN TAP   | 69   | 70   | 712     | <b>0.4213</b> | 1.0257 | 0.92   | 1.1     | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70102 | CHENEY     | 69   | 70   | 712     | <b>0.7976</b> | 1.0224 | 0.92   | 1.1     | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70102 | CHENEY     | 69   | 70   | 712     | <b>0.637</b>  | 1.0224 | 0.92   | 1.1     | -       | L    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |

| Bus # | Bus Name | KV  | Area | Zone | ContVol | BaseVol | LowLim | Upplim | VoltDro | VoltRis | Viol | Ncon | Contin. Description                       |
|-------|----------|-----|------|------|---------|---------|--------|--------|---------|---------|------|------|-------------------------------------------|
| 70102 | CHENEY   | 69  | 70   | 712  | 0.417   | 1.0224  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70113 | CLIFTON  | 230 | 70   | 708  | 0.9037  | 0.9581  | 0.92   | 1.1    | -       | -       | L    | 496  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70118 | COCHETER | 69  | 70   | 710  | 0.1036  | 1.0259  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70129 | CREEDE   | 69  | 70   | 710  | 0.0983  | 1.0248  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70130 | CRPLE CK | 69  | 70   | 712  | 0.8788  | 0.9639  | 0.92   | 1.1    | -       | -       | L    | 340  | 70330 PORTLAND 115 70456 W.STATION 115 1  |
| 70132 | CTY LAJ  | 69  | 70   | 712  | 0.9076  | 1.0137  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70132 | CTY LAJ  | 69  | 70   | 712  | 0.8948  | 1.0137  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70132 | CTY LAJ  | 69  | 70   | 712  | 0.3923  | 1.0137  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70136 | CTY LAM  | 69  | 70   | 712  | 0.8339  | 1.0401  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70136 | CTY LAM  | 69  | 70   | 712  | 0.4908  | 1.0401  | 0.92   | 1.1    | -       | -       | L    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70136 | CTY LAM  | 69  | 70   | 712  | 0.4119  | 1.0401  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70143 | DELNORTE | 69  | 70   | 710  | 0.0866  | 1.0122  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70158 | DOT      | 115 | 70   | 712  | 0.8879  | 1.0202  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70158 | DOT      | 115 | 70   | 712  | 0.8764  | 1.0202  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70159 | DOT TAP  | 115 | 70   | 712  | 0.8911  | 1.023   | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70159 | DOT TAP  | 115 | 70   | 712  | 0.8795  | 1.023   | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70160 | E CANON  | 69  | 70   | 712  | 0.8812  | 0.9914  | 0.92   | 1.1    | -       | -       | L    | 340  | 70330 PORTLAND 115 70456 W.STATION 115 1  |
| 70161 | EADS     | 69  | 70   | 712  | 0.8268  | 1.0367  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70161 | EADS     | 69  | 70   | 712  | 0.48    | 1.0367  | 0.92   | 1.1    | -       | -       | L    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70161 | EADS     | 69  | 70   | 712  | 0.402   | 1.0367  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70176 | FLORENCE | 69  | 70   | 712  | 0.8899  | 0.9993  | 0.92   | 1.1    | -       | -       | L    | 340  | 70330 PORTLAND 115 70456 W.STATION 115 1  |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.8361  | 0.9911  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.8297  | 0.9911  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.7569  | 0.9911  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70178 | FOWLER   | 69  | 70   | 712  | 0.7515  | 0.9911  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70184 | FT HOLLY | 69  | 70   | 712  | 0.8082  | 1.0272  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70184 | FT HOLLY | 69  | 70   | 712  | 0.5667  | 1.0272  | 0.92   | 1.1    | -       | -       | L    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70184 | FT HOLLY | 69  | 70   | 712  | 0.4092  | 1.0272  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70185 | FT. LYON | 69  | 70   | 712  | 0.8278  | 1.035   | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70185 | FT. LYON | 69  | 70   | 712  | 0.4821  | 1.035   | 0.92   | 1.1    | -       | -       | L    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70185 | FT. LYON | 69  | 70   | 712  | 0.4954  | 1.035   | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 0.823   | 0.9579  | 0.92   | 1.1    | -       | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70186 | FTGARL&1 | 69  | 70   | 710  | 0.019   | 0.9579  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70187 | FTGARLND | 69  | 70   | 710  | 0.8209  | 0.9561  | 0.92   | 1.1    | -       | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70187 | FTGARLND | 69  | 70   | 710  | 0.0169  | 0.9561  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70700 | GOB_KNOB | 230 | 70   | 712  | 0.6306  | 1.03    | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70203 | GRAN TAP | 69  | 70   | 712  | 0.8156  | 1.032   | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70203 | GRAN TAP | 69  | 70   | 712  | 0.5533  | 1.032   | 0.92   | 1.1    | -       | -       | L    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70203 | GRAN TAP | 69  | 70   | 712  | 0.4116  | 1.032   | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70204 | GRANADA  | 69  | 70   | 712  | 0.815   | 1.0316  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70204 | GRANADA  | 69  | 70   | 712  | 0.5525  | 1.0316  | 0.92   | 1.1    | -       | -       | L    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70204 | GRANADA  | 69  | 70   | 712  | 0.411   | 1.0316  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70205 | GRANDJCT | 230 | 70   | 708  | 0.9038  | 0.9605  | 0.92   | 1.1    | -       | -       | L    | 496  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70206 | GRANDJPS | 230 | 70   | 708  | 0.9042  | 0.9572  | 0.92   | 1.1    | -       | -       | L    | 496  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70220 | HIGHLND  | 69  | 70   | 712  | 0.8919  | 1.0011  | 0.92   | 1.1    | -       | -       | L    | 340  | 70330 PORTLAND 115 70456 W.STATION 115 1  |
| 70221 | HILANDSL | 69  | 70   | 710  | 0.0943  | 1.0279  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70222 | HILLTOP  | 69  | 70   | 712  | 0.855   | 1.0215  | 0.92   | 1.1    | -       | -       | L    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70222 | HILLTOP  | 69  | 70   | 712  | 0.7917  | 1.0215  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |

| Bus # | Bus Name | KV  | Area | Zone | ContVol | BaseVol | LowLim | UppLim | VoltDro | VoltRis | Ncon | Contin. Description                     |
|-------|----------|-----|------|------|---------|---------|--------|--------|---------|---------|------|-----------------------------------------|
| 70222 | HILLTOP  | 69  | 70   | 712  | 0.4577  | 1.0215  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70223 | HLTP TAP | 69  | 70   | 712  | 0.8553  | 1.0217  | 0.92   | 1.1    | -       | -       | 355  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70223 | HLTP TAP | 69  | 70   | 712  | 0.792   | 1.0217  | 0.92   | 1.1    | -       | -       | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70223 | HLTP TAP | 69  | 70   | 712  | 0.458   | 1.0217  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70225 | HOLL TAP | 69  | 70   | 712  | 0.811   | 1.0296  | 0.92   | 1.1    | -       | -       | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70225 | HOLL TAP | 69  | 70   | 712  | 0.5705  | 1.0296  | 0.92   | 1.1    | -       | -       | 355  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70225 | HOLL TAP | 69  | 70   | 712  | 0.4122  | 1.0296  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70228 | HOMELAKE | 69  | 70   | 710  | 0.1011  | 1.02    | 0.92   | 1.1    | -       | -       | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70229 | HOOPER   | 69  | 70   | 710  | 0.0142  | 1.0047  | 0.92   | 1.1    | -       | -       | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70230 | HOOPERTP | 69  | 70   | 710  | 0.0129  | 1.0097  | 0.92   | 1.1    | -       | -       | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70233 | HORIZON  | 230 | 70   | 708  | 0.9072  | 0.9584  | 0.92   | 1.1    | -       | -       | 496  | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70235 | HUERFANO | 69  | 70   | 712  | 0.8901  | 1.0344  | 0.92   | 1.1    | -       | -       | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70235 | HUERFANO | 69  | 70   | 712  | 0.8802  | 1.0344  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70509 | KERBERCK | 69  | 70   | 710  | 0.8339  | 1.043   | 0.92   | 1.1    | -       | -       | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70243 | LA SECPA | 69  | 70   | 712  | 0.9112  | 1.0172  | 0.92   | 1.1    | -       | -       | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70243 | LA SECPA | 69  | 70   | 712  | 0.8983  | 1.0172  | 0.92   | 1.1    | -       | -       | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70243 | LA SECPA | 69  | 70   | 712  | 0.3956  | 1.0172  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70245 | LAGARITA | 69  | 70   | 710  | 0.0936  | 0.9929  | 0.92   | 1.1    | -       | -       | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70246 | LAJ IP   | 69  | 70   | 712  | 0.9067  | 1.0129  | 0.92   | 1.1    | -       | -       | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70246 | LAJ IP   | 69  | 70   | 712  | 0.8939  | 1.0129  | 0.92   | 1.1    | -       | -       | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70246 | LAJ IP   | 69  | 70   | 712  | 0.3911  | 1.0129  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70248 | LAJUNTAT | 69  | 70   | 712  | 0.9139  | 1.0193  | 0.92   | 1.1    | -       | -       | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 0.9059  | 1.0053  | 0.92   | 1.1    | -       | -       | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70248 | LAJUNTAT | 69  | 70   | 712  | 0.901   | 1.0193  | 0.92   | 1.1    | -       | -       | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 0.8934  | 1.0053  | 0.92   | 1.1    | -       | -       | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70247 | LAJUNTAT | 115 | 70   | 712  | 0.4176  | 1.0053  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70248 | LAJUNTAT | 69  | 70   | 712  | 0.4005  | 1.0193  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.8821  | 1.0349  | 0.92   | 1.1    | -       | -       | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.874   | 1.0349  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 0.8337  | 0.9763  | 0.92   | 1.1    | -       | -       | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 0.8254  | 0.9763  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.7392  | 1.0349  | 0.92   | 1.1    | -       | -       | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70250 | LAJUNTAW | 69  | 70   | 712  | 0.7336  | 1.0349  | 0.92   | 1.1    | -       | -       | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70249 | LAJUNTAW | 115 | 70   | 712  | 0.682   | 0.9763  | 0.92   | 1.1    | -       | -       | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70253 | LAMAR CO | 115 | 70   | 712  | 0.8039  | 1.022   | 0.92   | 1.1    | -       | -       | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70254 | LAMAR CO | 230 | 70   | 712  | 0.5836  | 1.0296  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70253 | LAMAR CO | 115 | 70   | 712  | 0.4864  | 1.022   | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70560 | LAMAR DC | 230 | 70   | 712  | 0.5858  | 1.03    | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70271 | LS ANNAS | 69  | 70   | 712  | 0.8687  | 1.024   | 0.92   | 1.1    | -       | -       | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70271 | LS ANNAS | 69  | 70   | 712  | 0.8613  | 1.024   | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70271 | LS ANNAS | 69  | 70   | 712  | 0.7231  | 1.024   | 0.92   | 1.1    | -       | -       | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70271 | LS ANNAS | 69  | 70   | 712  | 0.7173  | 1.024   | 0.92   | 1.1    | -       | -       | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70275 | MANZANOL | 69  | 70   | 712  | 0.8443  | 0.9981  | 0.92   | 1.1    | -       | -       | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70275 | MANZANOL | 69  | 70   | 712  | 0.8377  | 0.9981  | 0.92   | 1.1    | -       | -       | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70275 | MANZANOL | 69  | 70   | 712  | 0.7657  | 0.9981  | 0.92   | 1.1    | -       | -       | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70275 | MANZANOL | 69  | 70   | 712  | 0.7604  | 0.9981  | 0.92   | 1.1    | -       | -       | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70507 | MEARSJCT | 69  | 70   | 710  | 0.8317  | 1.0398  | 0.92   | 1.1    | -       | -       | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70510 | MIRGEJCO | 69  | 70   | 710  | 0.834   | 1.0431  | 0.92   | 1.1    | -       | -       | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |

| Bus # | Bus Name | KV  | Area | Zone | ContVol | BaseVol | LowLim | Upplim | VoltDrd | VoltRis | Viol | Ncon | Contin. Description                       |
|-------|----------|-----|------|------|---------|---------|--------|--------|---------|---------|------|------|-------------------------------------------|
| 70505 | MIRGEJCT | 69  | 70   | 710  | 0.898   | 0.9686  | 0.92   | 1.1    | -       | -       | L    | 237  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70505 | MIRGEJCT | 69  | 70   | 710  | 0.0145  | 0.9686  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70289 | MOFFAT   | 69  | 70   | 710  | 0.9058  | 0.9757  | 0.92   | 1.1    | -       | -       | L    | 237  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70289 | MOFFAT   | 69  | 70   | 710  | 0       | 0.9757  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70292 | MOSCA    | 69  | 70   | 710  | 0.0541  | 1.0276  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.8336  | 0.989   | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.8273  | 0.989   | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.7543  | 0.989   | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70303 | ORDWAY   | 69  | 70   | 712  | 0.7489  | 0.989   | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70304 | OTERO1P  | 115 | 70   | 709  | 0.9173  | 1.028   | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70306 | P P MINE | 69  | 70   | 712  | 0.8822  | 0.967   | 0.92   | 1.1    | -       | -       | L    | 340  | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70316 | PDA      | 69  | 70   | 712  | 0.8758  | 1.0107  | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70317 | PDA TAP  | 69  | 70   | 712  | 0.8797  | 1.0141  | 0.92   | 1.1    | -       | -       | L    | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70318 | PENROSE  | 69  | 70   | 712  | 0.8962  | 1.0049  | 0.92   | 1.1    | -       | -       | L    | 340  | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.8766  | 1.0304  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.8687  | 1.0304  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.7325  | 1.0304  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70319 | PHILLIPS | 69  | 70   | 712  | 0.7268  | 1.0304  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.8772  | 1.031   | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.8694  | 1.031   | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.7333  | 1.031   | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70320 | PHLPS TP | 69  | 70   | 712  | 0.7276  | 1.031   | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70325 | PLAZA    | 69  | 70   | 710  | 0.0024  | 0.9865  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70326 | PONCHA   | 69  | 70   | 710  | 0.8312  | 1.0389  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70327 | PONCHA   | 115 | 70   | 710  | 0.8211  | 1.0262  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70329 | PORTLAND | 69  | 70   | 712  | 0.9012  | 1.0095  | 0.92   | 1.1    | -       | -       | L    | 340  | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70330 | PORTLAND | 115 | 70   | 712  | 0.8917  | 0.9817  | 0.92   | 1.1    | -       | -       | L    | 340  | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70333 | PROWERS  | 69  | 70   | 712  | 0.8313  | 1.038   | 0.92   | 1.1    | -       | -       | L    | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70333 | PROWERS  | 69  | 70   | 712  | 0.487   | 1.038   | 0.92   | 1.1    | -       | -       | L    | 355  | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70333 | PROWERS  | 69  | 70   | 712  | 0.4091  | 1.038   | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70347 | RAMON    | 115 | 70   | 710  | 0.104   | 1.0137  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70348 | RAMON    | 69  | 70   | 710  | 0.0992  | 1.0305  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70360 | RIOGRAND | 69  | 70   | 710  | 0.0899  | 1.0143  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70361 | RIOGRDTP | 69  | 70   | 710  | 0.1031  | 1.0228  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.8675  | 1.0177  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.86    | 1.0177  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.7906  | 1.0177  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70366 | ROCKYFRD | 69  | 70   | 712  | 0.7855  | 1.0177  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70367 | ROMEO    | 69  | 70   | 710  | 0.0911  | 1.0024  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.89    | 1.0291  | 0.92   | 1.1    | -       | -       | L    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1   |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.886   | 1.0291  | 0.92   | 1.1    | -       | -       | L    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1      |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.8822  | 1.0291  | 0.92   | 1.1    | -       | -       | L    | 277  | 70060 BOONE 115 70061 BOONE 230 1         |
| 70372 | S FWL TP | 69  | 70   | 712  | 0.8733  | 1.0291  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70373 | S.ACACIO | 69  | 70   | 710  | 0.0528  | 0.985   | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70506 | SAGUACHE | 69  | 70   | 710  | 0.9151  | 0.956   | 0.92   | 1.1    | -       | -       | L    | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70506 | SAGUACHE | 69  | 70   | 710  | 0.8943  | 0.956   | 0.92   | 1.1    | -       | -       | L    | 237  | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70506 | SAGUACHE | 69  | 70   | 710  | 0.0985  | 0.956   | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70374 | SAN LUIS | 115 | 70   | 710  | 0.1164  | 1.0172  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |

| Bus # | Bus      | Name | KV  | Area | Zone | ContVo | BaseVo | LowLim | Upplim | VoltDro | VoltRis | Viol | Ncon | Contin. | Description                       |
|-------|----------|------|-----|------|------|--------|--------|--------|--------|---------|---------|------|------|---------|-----------------------------------|
| 70375 | SAN      | LUIS | 230 | 70   | 710  | 0.1136 | 0.997  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |
| 70376 | SAN      | LUIS | 69  | 70   | 710  | 0.0762 | 1.0388 | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |
| 70378 | SANFETP  |      | 69  | 70   | 712  | 0.907  | 1.0183 | 0.92   | 1.1    | -       | -       | L    | 270  | 70042   | ASPEN TP69.0 70353 READER 69.0 1  |
| 70379 | SARGENT  |      | 115 | 70   | 710  | 0.1436 | 1.0196 | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |
| 70380 | SARGENT  |      | 69  | 70   | 710  | 0.1062 | 1.025  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |
| 70383 | SFORK    | SL   | 69  | 70   | 710  | 0.0984 | 1.0302 | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |
| 70390 | SKALA    |      | 115 | 70   | 712  | 0.8893 | 0.9831 | 0.92   | 1.1    | -       | -       | L    | 340  | 70330   | PORTLAND 115 70456 W.STATON 115 1 |
| 70394 | SMELTER  |      | 115 | 70   | 710  | 0.8381 | 1.0262 | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |
| 70399 | SNEPESTA |      | 69  | 70   | 712  | 0.8874 | 1.0328 | 0.92   | 1.1    | -       | -       | L    | 277  | 70060   | BOONE 115 70061 BOONE 230 1       |
| 70399 | SNEPESTA |      | 69  | 70   | 712  | 0.8779 | 1.0328 | 0.92   | 1.1    | -       | -       | L    | 282  | 70061   | BOONE 230 70254 LAMAR CO 230 1    |
| 70404 | SPRNGFLD |      | 69  | 70   | 712  | 0.8533 | 1.102  | 0.92   | 1.1    | -       | -       | L    | 355  | 70472   | WILOW CK 115 70473 WILOW CK69.0 1 |
| 70404 | SPRNGFLD |      | 69  | 70   | 712  | 0.7899 | 1.102  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253   | LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70404 | SPRNGFLD |      | 69  | 70   | 712  | 0.4559 | 1.102  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061   | BOONE 230 70254 LAMAR CO 230 1    |
| 70405 | ST.CHAS. |      | 69  | 70   | 712  | 0.8852 | 1.0189 | 0.92   | 1.1    | -       | -       | L    | 270  | 70042   | ASPEN TP69.0 70353 READER 69.0 1  |
| 70411 | STANLEY  |      | 115 | 70   | 710  | 0.1131 | 1.0158 | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |
| 70414 | STOCKADE |      | 69  | 70   | 710  | 0.0612 | 0.9896 | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |
| 70425 | T BUTTES |      | 69  | 70   | 712  | 0.7976 | 1.0259 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253   | LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70425 | T BUTTES |      | 69  | 70   | 712  | 0.7363 | 1.0259 | 0.92   | 1.1    | -       | -       | L    | 355  | 70472   | WILOW CK 115 70473 WILOW CK69.0 1 |
| 70425 | T BUTTES |      | 69  | 70   | 712  | 0.4397 | 1.0259 | 0.92   | 1.1    | -       | -       | L    | 282  | 70061   | BOONE 230 70254 LAMAR CO 230 1    |
| 70438 | UINTAH   |      | 230 | 70   | 708  | 0.9195 | 0.9652 | 0.92   | 1.1    | -       | -       | L    | 496  | 70205   | GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70451 | VICTOR   |      | 69  | 70   | 712  | 0.8853 | 0.9699 | 0.92   | 1.1    | -       | -       | L    | 340  | 70330   | PORTLAND 115 70456 W.STATON 115 1 |
| 70452 | VILAS    |      | 115 | 70   | 712  | 0.8918 | 1.103  | 0.92   | 1.1    | -       | -       | L    | 355  | 70472   | WILOW CK 115 70473 WILOW CK69.0 1 |
| 70453 | VILAS    |      | 69  | 70   | 712  | 0.8599 | 1.0257 | 0.92   | 1.1    | -       | -       | L    | 355  | 70472   | WILOW CK 115 70473 WILOW CK69.0 1 |
| 70452 | VILAS    |      | 115 | 70   | 712  | 0.8022 | 1.103  | 0.92   | 1.1    | -       | -       | L    | 323  | 70253   | LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70453 | VILAS    |      | 69  | 70   | 712  | 0.7969 | 1.0257 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253   | LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70452 | VILAS    |      | 115 | 70   | 712  | 0.4678 | 1.103  | 0.92   | 1.1    | -       | -       | L    | 282  | 70061   | BOONE 230 70254 LAMAR CO 230 1    |
| 70453 | VILAS    |      | 69  | 70   | 712  | 0.4629 | 1.0257 | 0.92   | 1.1    | -       | -       | L    | 282  | 70061   | BOONE 230 70254 LAMAR CO 230 1    |
| 70508 | VILLA    |      | 69  | 70   | 710  | 0.8338 | 1.0428 | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |
| 70457 | WALSENBG |      | 69  | 70   | 704  | 0.7939 | 1.0186 | 0.92   | 1.1    | -       | -       | L    | 205  | 70457   | WALSENBG69.0 70458 WALSENBG 115 1 |
| 70460 | WALSH    |      | 69  | 70   | 712  | 0.8004 | 1.0282 | 0.92   | 1.1    | -       | -       | L    | 355  | 70472   | WILOW CK 115 70473 WILOW CK69.0 1 |
| 70460 | WALSH    |      | 69  | 70   | 712  | 0.798  | 1.0282 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253   | LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70460 | WALSH    |      | 69  | 70   | 712  | 0.4548 | 1.0282 | 0.92   | 1.1    | -       | -       | L    | 282  | 70061   | BOONE 230 70254 LAMAR CO 230 1    |
| 70467 | WAVERLY  |      | 115 | 70   | 710  | 0.0956 | 1.0068 | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |
| 70468 | WAVERLY  |      | 69  | 70   | 710  | 0.0676 | 0.9926 | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |
| 70473 | WILOW CK |      | 69  | 70   | 712  | 0.8363 | 1.0439 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253   | LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70472 | WILOW CK |      | 115 | 70   | 712  | 0.8097 | 1.0113 | 0.92   | 1.1    | -       | -       | L    | 323  | 70253   | LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70473 | WILOW CK |      | 69  | 70   | 712  | 0.4955 | 1.0439 | 0.92   | 1.1    | -       | -       | L    | 355  | 70472   | WILOW CK 115 70473 WILOW CK69.0 1 |
| 70473 | WILOW CK |      | 69  | 70   | 712  | 0.4135 | 1.0439 | 0.92   | 1.1    | -       | -       | L    | 282  | 70061   | BOONE 230 70254 LAMAR CO 230 1    |
| 70472 | WILOW CK |      | 115 | 70   | 712  | 0.3986 | 1.0113 | 0.92   | 1.1    | -       | -       | L    | 282  | 70061   | BOONE 230 70254 LAMAR CO 230 1    |
| 70477 | ZINZER   |      | 69  | 70   | 710  | 0.0504 | 0.981  | 0.92   | 1.1    | -       | -       | L    | 500  | 70375   | SAN LUIS 230 79054 PONCHABR 230 1 |

# Flowgate Violations

\*\*\* MUST 5.0 \*\*\* TUE, OCT 08 2002 16:25 \*\*\*  
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM  
GOBBLERS KNOB 34.5 KV GEN 48 MW DC  
Subsys.File T:\Xcel-PSC0\Lamar091102\Lamar.sub  
Monit.File T:\Xcel-PSC0\Lamar091102\Lamar.mon  
Contin.File T:\Xcel-PSC0\Lamar091102\Lamar.con  
Exclud.File Terminal

\*\*\*\*\* No violations encountered among selected elements \*\*\*\*\*

| FgID***** | Type | Rating | PreShift | BaseCaseFl |
|-----------|------|--------|----------|------------|
|           |      |        |          |            |
|           |      |        |          |            |

# Exclude Report

```
*** MUST 5.0 *** TUE, OCT 08 2002 16:24 ***
2005 LAMAR DC TIE AND GOBBLER'S KNOB WIND FARM
GOBBLERS KNOB 34.5 KV GEN 48 MW DC
Subsys.File T:\Xcel-PSCO\Lamar091102\Lamar.sub
Monit.File T:\Xcel-PSCO\Lamar091102\Lamar.mon
Contin.File T:\Xcel-PSCO\Lamar091102\Lamar.con
Exclud.File Terminal

*** There are no excluded contingencies

===== List of excluded Monitored Branches:

70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 TR Excluded in all contingencies
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**B-9 - Power Flow Analysis –2005 Heavy Summer**

**No wind farm in service and no scheduled HVDC flow**

**A - Boone – Lamar 230-kV circuit outage  
without the Golden Prairie - Lamar 230-kV circuit in service**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:06  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 NO 230GPCKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS SET A

|                   |          |      |      |     |       |       |      |    |          |       |       |
|-------------------|----------|------|------|-----|-------|-------|------|----|----------|-------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0297PU | 15.92 | 70254 |
|                   |          |      | 70   |     |       |       |      |    | 236.84KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  | 1.0000LK |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 2   | 0.0   | 0.0   | 0.0  | 0  | 1.0000LK |       |       |
| TO 70560          | LAMAR DC | 230  | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0297PU | 15.92 | 70253 |
|                   |          |      | 70   |     |       |       |      |    | 118.42KV |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  | 1.0000UN |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 2   | 0.0   | 0.0   | 0.0  | 0  | 1.0000UN |       |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 11.2  | -17.0 | 20.3 | 12 |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -11.2 | 17.0  | 20.3 | 11 |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0718PU | 13.49 | 70452 |
|                   |          |      | 70   |     |       |       |      |    | 123.26KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -11.0 | 12.7  | 16.8 | 9  |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 11.0  | -12.7 | 16.8 | 19 | 1.0625RG |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70472         | WILOW CK | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0165PU | 16.62 | 70472 |
|                   |          |      | 70   |     |       |       |      |    | 116.90KV |       |       |
| TO 70247          | LAJUNTAT | 115  | 70   | 1   | -36.2 | 14.5  | 39.0 | 35 |          |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 11.3  | -18.0 | 21.2 | 12 |          |       |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | 25.0  | 3.5   | 25.2 | 59 | 0.9565LK |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70473         | WILOW CK | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0572PU | 14.94 | 70473 |
|                   |          |      | 70   |     |       |       |      |    | 72.947KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 2.7   | 0.9   | 2.9  |    |          |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -6.0  | 6.0  |    |          |       |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 1   | 10.2  | 8.3   | 13.2 | 66 |          |       |       |
| TO 70161          | EADS     | 69.0 | 70   | 1   | 2.1   | -0.2  | 2.1  | 6  |          |       |       |
| TO 70203          | GRAN TAP | 69.0 | 70   | 1   | 9.9   | -0.2  | 9.9  | 28 |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -24.9 | -2.8  | 25.1 | 57 | 0.9565UN |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70132         | CTY LAJ  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0126PU | 21.58 | 70132 |
|                   |          |      | 70   |     |       |       |      |    | 69.869KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 16.8  | 5.5   | 17.7 |    |          |       |       |
| TO 70131          | CTY LAJ  | 13.8 | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  | 1.0000LK |       |       |
| TO 70246          | LAJ IP   | 69.0 | 70   | 1   | 2.4   | 0.7   | 2.5  | 6  |          |       |       |
| TO 70248          | LAJUNTAT | 69.0 | 70   | 1   | -19.2 | -6.2  | 20.2 | 51 |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70133         | CTY LAM  | 14.4 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0400PU | 16.91 | 70133 |
| GENERATION        |          |      | 70   |     | 24.0  | -6.4R | 24.8 | 83 | 14.976KV |       |       |
| TO 70134          | CTY LAM  | 25.0 | 70   | 1   | 24.0  | -6.4  | 24.8 | 96 | 1.0000UN |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70247         | LAJUNTAT | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0043PU | 24.51 | 70247 |
|                   |          |      | 70   |     |       |       |      |    | 115.49KV |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -10.9 | 10.9 |    |          |       |       |
| TO 70060          | BOONE    | 115  | 70   | 1   | -57.9 | 17.6  | 60.5 | 55 |          |       |       |

File: C:\GoldenPrairie wind\boone-lamar-230\_outage\_2005\_no-wind\_noGP230ckt.dat 10/8/2002  
, 11:06:20AM

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|     |       |          |      |      |     |       |       |      |    |          |             |
|-----|-------|----------|------|------|-----|-------|-------|------|----|----------|-------------|
| TO  | 70248 | LAJUNTAT | 69.0 | 70   | 1   | 20.2  | 6.9   | 21.3 | 85 | 0.9688RG |             |
| TO  | 70472 | WILOW CK | 115  | 70   | 1   | 37.7  | -13.7 | 40.1 | 37 |          |             |
| BUS | 70249 | LAJUNTAW | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9597PU | 31.35 70249 |
|     |       |          |      | 70   |     |       |       |      |    | 110.36KV |             |
| TO  | 70060 | BOONE    | 115  | 70   | 1   | -20.0 | -11.4 | 23.0 | 22 |          |             |
| TO  | 70250 | LAJUNTAW | 69.0 | 70   | 1   | 20.0  | 11.4  | 23.0 | 96 | 1.0756UN |             |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:06  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 NO 230GPCKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS SET A

|           |              |      |      |     |        |       |       |    |          |       |       |
|-----------|--------------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70060 | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0103PU | 33.88 | 70060 |
|           |              |      | 70   |     |        |       |       |    | 116.19KV |       |       |
| TO 70061  | BOONE        | 230  | 70   | 1   | -116.9 | -11.6 | 117.4 | 77 | 0.9938RG |       |       |
| TO 70062  | BOONE        | 69.0 | 70   | 1   | 9.8    | 0.0   | 9.8   | 29 | 1.0125UN |       |       |
| TO 70159  | DOT TAP      | 115  | 70   | 1   | 26.0   | 13.2  | 29.1  | 25 |          |       |       |
| TO 70247  | LAJUNTAT     | 115  | 70   | 1   | 60.6   | -11.4 | 61.7  | 56 |          |       |       |
| TO 70249  | LAJUNTAW     | 115  | 70   | 1   | 20.5   | 9.7   | 22.7  | 21 |          |       |       |
| BUS 70061 | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0269PU | 37.16 | 70061 |
|           |              |      | 70   |     |        |       |       |    | 236.19KV |       |       |
| TO 70060  | BOONE        | 115  | 70   | 1   | 117.2  | 18.5  | 118.6 | 77 | 0.9938UN |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1   | -102.4 | -31.5 | 107.1 | 24 |          |       |       |
| TO 70286  | MIDWAYPS     | 230  | 70   | 1   | -14.8  | 13.0  | 19.7  | 4  |          |       |       |
| BUS 70286 | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0161PU | 37.76 | 70286 |
|           |              |      | 70   |     |        |       |       |    | 233.69KV |       |       |
| TO 70061  | BOONE        | 230  | 70   | 1   | 14.8   | -25.9 | 29.9  | 6  |          |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1   | -40.6  | -38.3 | 55.8  | 11 |          |       |       |
| TO 70139  | DANIELPK     | 230  | 70   | 1   | 138.0  | 11.7  | 138.5 | 27 |          |       |       |
| TO 70285  | MIDWAYPS     | 115  | 70   | 1   | 44.5   | 23.2  | 50.2  | 49 | 1.0125UN |       |       |
| TO 70577  | FTNVL1-213.8 | 70   | 70   | 1   | -80.0  | 2.5   | 80.0  | 32 | 1.0000UN |       |       |
| TO 70578  | FTNVL3-413.8 | 70   | 70   | 1   | -80.0  | 2.5   | 80.0  | 79 | 1.0000UN |       |       |
| TO 70579  | FTNVL5-613.8 | 70   | 70   | 1   | -80.0  | 2.5   | 80.0  | 79 | 1.0000UN |       |       |
| TO 70584  | MIDWAYPS     | 345  | 70   | 1   | 204.5  | 12.8  | 204.9 | 40 | 1.0000LK |       |       |
| TO 73413  | MIDWAYBR     | 230  | 73   | 1   | -121.2 | 9.1   | 121.5 | 24 |          |       |       |
| BUS 70459 | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0400PU | 33.92 | 70459 |
|           |              |      | 70   |     |        |       |       |    | 239.21KV |       |       |
| TO 12101  | GLADSTON     | 230  | 10   | 1   | 100.2  | -28.5 | 104.1 | 18 |          |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1   | -136.7 | 9.4   | 137.0 | 30 |          |       |       |
| TO 70458  | WALSENBG     | 115  | 70   | 1   | 36.5   | 19.1  | 41.2  | 40 | 1.0000LK |       |       |
| BUS 70122 | COMANCHE     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0430PU | 39.24 | 70122 |
|           |              |      | 70   |     |        |       |       |    | 239.89KV |       |       |
| TO 70061  | BOONE        | 230  | 70   | 1   | 102.9  | 27.5  | 106.5 | 23 |          |       |       |
| TO 70094  | CF&IFURN     | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1      | 24.0 | 70   | 1   | -325.8 | -53.1 | 330.1 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2      | 24.0 | 70   | 1   | -331.9 | -47.6 | 335.3 | 77 | 1.0564LK |       |       |
| TO 70121  | COMANCHE     | 115  | 70   | 1   | 108.1  | 13.8  | 109.0 | 37 | 0.9875UN |       |       |
| TO 70121  | COMANCHE     | 115  | 70   | 2   | 108.1  | 13.8  | 109.0 | 37 | 0.9875UN |       |       |
| TO 70286  | MIDWAYPS     | 230  | 70   | 1   | 40.9   | 25.7  | 48.3  | 9  |          |       |       |
| TO 70459  | WALSENBG     | 230  | 70   | 1   | 138.1  | -12.2 | 138.6 | 30 |          |       |       |
| TO 73477  | FULLER       | 230  | 73   | 1   | 59.6   | 6.8   | 59.9  | 11 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:06  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 NO 230GPCKT  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:06  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 NO 230GPCKT  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.1    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 23.9    | 25.0   | 95.5    |
| 70148                | DENVTM   | 115  | 70   | 70150*             | DENVTM1  | 13.8 | 70   | 1            | 40.7    | 42.0   | 97.0    |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 49.0    | 42.0   | 116.7   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 24.0    | 25.0   | 95.9    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:06  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 NO 230GPCKT  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.1    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.1    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286*               | KIRK 1  | 12.0 | 73   | 73287              | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013*               | CRAIG   | 230  | 73   | 79015              | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013*               | CRAIG   | 230  | 73   | 79016              | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014*               | CRAIG   | 345  | 73   | 79017              | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**B - Boone – Lamar 230-kV circuit outage  
with the Golden Prairie - Lamar 230-kV circuit in service**



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:05  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS SET A

|                   |          |      |      |     |       |       |      |    |          |       |       |
|-------------------|----------|------|------|-----|-------|-------|------|----|----------|-------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.1286PU | 15.37 | 70254 |
|                   |          |      | 70   |     |       |       |      |    | 259.58KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 0.0   | 7.6   | 7.6  | 7  | 1.0000LK |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 2   | 0.0   | 7.6   | 7.6  | 7  | 1.0000LK |       |       |
| TO 70560          | LAMAR DC | 230  | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  |          |       |       |
| TO 70700          | GOB_KNOB | 230  | 70   | 1   | 0.0   | -15.2 | 15.2 | 3  |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.1226PU | 15.37 | 70253 |
|                   |          |      | 70   |     |       |       |      |    | 129.10KV |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | 0.0   | -7.6  | 7.6  | 7  | 1.0000UN |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 2   | 0.0   | -7.6  | 7.6  | 7  | 1.0000UN |       |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 10.5  | -21.6 | 24.0 | 13 |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -10.5 | 36.8  | 38.2 | 20 |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.1740PU | 13.32 | 70452 |
|                   |          |      | 70   |     |       |       |      |    | 135.01KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -10.3 | 16.5  | 19.4 | 10 |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 10.3  | -16.5 | 19.4 | 20 | 1.1000HI |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70472         | WILOW CK | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0949PU | 16.08 | 70472 |
|                   |          |      | 70   |     |       |       |      |    | 125.91KV |       |       |
| TO 70247          | LAJUNTAT | 115  | 70   | 1   | -36.4 | 33.7  | 49.6 | 42 |          |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 10.7  | -37.3 | 38.8 | 21 |          |       |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | 25.8  | 3.6   | 26.0 | 57 | 0.9565LK |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70473         | WILOW CK | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.1393PU | 14.59 | 70473 |
|                   |          |      | 70   |     |       |       |      |    | 78.611KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 2.7   | 0.9   | 2.9  |    |          |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -7.0  | 7.0  |    |          |       |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 1   | 10.2  | 8.4   | 13.3 | 61 |          |       |       |
| TO 70161          | EADS     | 69.0 | 70   | 1   | 2.1   | -0.3  | 2.1  | 5  |          |       |       |
| TO 70203          | GRAN TAP | 69.0 | 70   | 1   | 10.7  | 0.9   | 10.8 | 28 |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -25.7 | -2.9  | 25.9 | 54 | 0.9565UN |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70132         | CTY LAJ  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0198PU | 21.39 | 70132 |
|                   |          |      | 70   |     |       |       |      |    | 70.368KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 16.8  | 5.5   | 17.7 |    |          |       |       |
| TO 70131          | CTY LAJ  | 13.8 | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  | 1.0000LK |       |       |
| TO 70246          | LAJ IP   | 69.0 | 70   | 1   | 2.4   | 0.7   | 2.5  | 6  |          |       |       |
| TO 70248          | LAJUNTAT | 69.0 | 70   | 1   | -19.2 | -6.2  | 20.2 | 51 |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70133         | CTY LAM  | 14.4 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.1204PU | 16.29 | 70133 |
| GENERATION        |          |      | 70   |     | 24.0  | -8.3L | 25.4 | 85 | 16.134KV |       |       |
| TO 70134          | CTY LAM  | 25.0 | 70   | 1   | 24.0  | -8.3  | 25.4 | 91 | 1.0000UN |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70247         | LAJUNTAT | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0241PU | 24.27 | 70247 |
|                   |          |      | 70   |     |       |       |      |    | 117.78KV |       |       |
| TO 70060          | BOONE    | 115  | 70   | 1   | -58.7 | 24.1  | 63.5 | 57 |          |       |       |

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|     |       |          |      |      |     |       |       |      |    |          |       |       |
|-----|-------|----------|------|------|-----|-------|-------|------|----|----------|-------|-------|
| TO  | 70248 | LAJUNTAT | 69.0 | 70   | 1   | 20.2  | 6.9   | 21.3 | 83 | 0.9813RG |       |       |
| TO  | 70472 | WILOW CK | 115  | 70   | 1   | 38.6  | -31.0 | 49.5 | 44 |          |       |       |
| BUS | 70249 | LAJUNTAW | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9645PU | 31.34 | 70249 |
|     |       |          |      | 70   |     |       |       |      |    | 110.92KV |       |       |
| TO  | 70060 | BOONE    | 115  | 70   | 1   | -19.8 | -11.5 | 22.9 | 22 |          |       |       |
| TO  | 70250 | LAJUNTAW | 69.0 | 70   | 1   | 19.8  | 11.5  | 22.9 | 95 | 1.0819UN |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:05  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS SET A

|           |              |      |      |     |        |       |       |    |          |       |       |
|-----------|--------------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70060 | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0147PU | 33.82 | 70060 |
|           |              |      | 70   |     |        |       |       |    | 116.69KV |       |       |
| TO 70061  | BOONE        | 230  | 70   | 1   | -117.7 | -5.8  | 117.9 | 77 | 0.9938RG |       |       |
| TO 70062  | BOONE        | 69.0 | 70   | 1   | 9.9    | 0.7   | 10.0  | 30 | 1.0250UN |       |       |
| TO 70159  | DOT TAP      | 115  | 70   | 1   | 25.8   | 12.7  | 28.8  | 25 |          |       |       |
| TO 70247  | LAJUNTAT     | 115  | 70   | 1   | 61.6   | -17.3 | 64.0  | 58 |          |       |       |
| TO 70249  | LAJUNTAW     | 115  | 70   | 1   | 20.3   | 9.7   | 22.5  | 20 |          |       |       |
| BUS 70061 | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0284PU | 37.10 | 70061 |
|           |              |      | 70   |     |        |       |       |    | 236.53KV |       |       |
| TO 70060  | BOONE        | 115  | 70   | 1   | 118.0  | 12.6  | 118.7 | 77 | 0.9938UN |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1   | -103.4 | -28.9 | 107.4 | 24 |          |       |       |
| TO 70286  | MIDWAYPS     | 230  | 70   | 1   | -14.6  | 16.3  | 21.9  | 4  |          |       |       |
| BUS 70700 | GOB_KNOB     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.1325PU | 15.34 | 70700 |
|           |              |      | 70   |     |        |       |       |    | 260.47KV |       |       |
| TO 70254  | LAMAR CO     | 230  | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  |          |       |       |
| TO 70701  | GOB_KNOB     | 34.5 | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000LK |       |       |
| TO 70702  | GOB_KNOB     | 34.5 | 70   | 2   | 0.0    | 0.0   | 0.0   | 0  | 1.0000LK |       |       |
| BUS 70701 | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.1325PU | 15.34 | 70701 |
|           |              |      | 70   |     |        |       |       |    | 39.071KV |       |       |
| TO 70700  | GOB_KNOB     | 230  | 70   | 1   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| BUS 70702 | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.1325PU | 15.34 | 70702 |
|           |              |      | 70   |     |        |       |       |    | 39.071KV |       |       |
| TO 70700  | GOB_KNOB     | 230  | 70   | 2   | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| BUS 70286 | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0156PU | 37.71 | 70286 |
|           |              |      | 70   |     |        |       |       |    | 233.58KV |       |       |
| TO 70061  | BOONE        | 230  | 70   | 1   | 14.7   | -29.1 | 32.6  | 6  |          |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1   | -41.2  | -39.6 | 57.1  | 11 |          |       |       |
| TO 70139  | DANIELPK     | 230  | 70   | 1   | 137.8  | 11.4  | 138.3 | 27 |          |       |       |
| TO 70285  | MIDWAYPS     | 115  | 70   | 1   | 45.9   | 31.6  | 55.7  | 55 | 1.0250UN |       |       |
| TO 70577  | FTNVL1-213.8 | 70   | 70   | 1   | -80.0  | 2.2   | 80.0  | 32 | 1.0000UN |       |       |
| TO 70578  | FTNVL3-413.8 | 70   | 70   | 1   | -80.0  | 2.2   | 80.0  | 79 | 1.0000UN |       |       |
| TO 70579  | FTNVL5-613.8 | 70   | 70   | 1   | -80.0  | 2.2   | 80.0  | 79 | 1.0000UN |       |       |
| TO 70584  | MIDWAYPS     | 345  | 70   | 1   | 204.2  | 12.2  | 204.6 | 40 | 1.0000LK |       |       |
| TO 73413  | MIDWAYBR     | 230  | 73   | 1   | -121.4 | 7.1   | 121.6 | 24 |          |       |       |
| BUS 70459 | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0399PU | 33.89 | 70459 |
|           |              |      | 70   |     |        |       |       |    | 239.18KV |       |       |
| TO 12101  | GLADSTON     | 230  | 10   | 1   | 100.1  | -28.6 | 104.1 | 18 |          |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1   | -136.9 | 8.5   | 137.2 | 30 |          |       |       |
| TO 70458  | WALSENBG     | 115  | 70   | 1   | 36.8   | 20.1  | 42.0  | 40 | 1.0000LK |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:05  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0435PU | 39.21 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 240.01KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 103.9  | 24.9  | 106.9 | 24 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -51.4 | 329.8 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -45.9 | 335.0 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 107.0  | 12.0  | 107.7 | 37 | 0.9812UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 107.0  | 12.0  | 107.7 | 37 | 0.9812UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 41.4   | 27.1  | 49.5  | 9  |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 138.3  | -11.3 | 138.8 | 30 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 59.9   | 7.3   | 60.3  | 11 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:05  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- BUS -----X  | AREA | V(PU)  | V(KV)  | X----- BUS -----X  | AREA | V(PU)  | V(KV)  |
|--------------------|------|--------|--------|--------------------|------|--------|--------|
| 70101 CHEN TAP69.0 | 70   | 1.1135 | 76.834 | 70102 CHENEY 69.0  | 70   | 1.1105 | 76.626 |
| 70133 CTY LAM 14.4 | 70   | 1.1204 | 16.134 | 70134 CTY LAM 25.0 | 70   | 1.1294 | 28.235 |
| 70135 CTY LAM 4.20 | 70   | 1.1294 | 4.743  | 70136 CTY LAM 69.0 | 70   | 1.1355 | 78.350 |
| 70161 EADS 69.0    | 70   | 1.1332 | 78.190 | 70184 FT HOLLY69.0 | 70   | 1.1188 | 77.199 |
| 70185 FT. LYON69.0 | 70   | 1.1309 | 78.029 | 70203 GRAN TAP69.0 | 70   | 1.1243 | 77.579 |
| 70204 GRANADA 69.0 | 70   | 1.1239 | 77.549 | 70225 HOLL TAP69.0 | 70   | 1.1210 | 77.347 |
| 70253 LAMAR CO 115 | 70   | 1.1226 | 129.10 | 70254 LAMAR CO 230 | 70   | 1.1286 | 259.58 |
| 70333 PROWERS 69.0 | 70   | 1.1336 | 78.220 | 70425 T BUTTES69.0 | 70   | 1.1092 | 76.535 |
| 70452 VILAS 115    | 70   | 1.1740 | 135.01 | 70460 WALSH 69.0   | 70   | 1.1084 | 76.482 |
| 70473 WILOW CK69.0 | 70   | 1.1393 | 78.611 | 70560 LAMAR DC 230 | 70   | 1.1286 | 259.58 |
| 70700 GOB_KNOB 230 | 70   | 1.1325 | 260.47 | 70701 GOB_KNOB34.5 | 70   | 1.1325 | 39.071 |
| 70702 GOB_KNOB34.5 | 70   | 1.1325 | 39.071 |                    |      |        |        |

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- BUS -----X | AREA | V(PU) | V(KV) | X----- BUS -----X | AREA | V(PU) | V(KV) |
|-------------------|------|-------|-------|-------------------|------|-------|-------|
|-------------------|------|-------|-------|-------------------|------|-------|-------|

\* NONE \*

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:05  
 2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS  
 OUTPUT FOR AREA 70 [PSCOLORA]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.3    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 22.7    | 25.0   | 90.8    |
| 70148                | DENVTM   | 115  | 70   | 70150*             | DENVTM1  | 13.8 | 70   | 1            | 40.8    | 42.0   | 97.0    |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 49.0    | 42.0   | 116.7   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.7    | 25.0   | 94.8    |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:05  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.1    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.1    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013                | CRAIG   | 230  | 73   | 79015*             | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013                | CRAIG   | 230  | 73   | 79016*             | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014                | CRAIG   | 345  | 73   | 79017*             | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**C - Willow Creek 115/69-kV transformer outage  
without the Golden Prairie - Lamar 230-kV circuit in service**



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:07  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC - 230CKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                        |      |      |       |       |      |     |          |          |       |       |
|------------------------|------|------|-------|-------|------|-----|----------|----------|-------|-------|
| BUS 70254 LAMAR CO 230 | AREA | CKT  | MW    | MVAR  | MVA  | %I  | 1.0533PU | 33.79    | 70254 |       |
|                        | 70   |      |       |       |      |     | 242.25KV |          |       |       |
| TO 70061 BOONE         | 230  | 70 1 | -41.4 | 1.5   | 41.4 | 8   |          |          |       |       |
| TO 70253 LAMAR CO 115  | 70   | 1    | 41.4  | -1.5  | 41.4 | 39  | 1.0000LK |          |       |       |
| TO 70560 LAMAR DC 230  | 70   | 1    | 0.0   | 0.0   | 0.0  | 0   |          |          |       |       |
| BUS 70253 LAMAR CO 115 | AREA | CKT  | MW    | MVAR  | MVA  | %I  | 1.0551PU | 31.89    | 70253 |       |
|                        | 70   |      |       |       |      |     | 121.34KV |          |       |       |
| TO 70254 LAMAR CO 230  | 70   | 1    | -41.4 | 2.9   | 41.5 | 39  | 1.0000UN |          |       |       |
| TO 70452 VILAS         | 115  | 70 1 | 39.9  | -6.9  | 40.5 | 22  |          |          |       |       |
| TO 70472 WILLOW CK 115 | 70   | 1    | 1.5   | 4.0   | 4.3  | 2   |          |          |       |       |
| BUS 70452 VILAS        | 115  | AREA | CKT   | MW    | MVAR | MVA | %I       | 1.0537PU | 24.74 | 70452 |
|                        | 70   |      |       |       |      |     | 121.18KV |          |       |       |
| TO 70253 LAMAR CO 115  | 70   | 1    | -39.0 | 6.4   | 39.5 | 22  |          |          |       |       |
| TO 70453 VILAS         | 69.0 | 70 1 | 39.0  | -6.4  | 39.6 | 45  | 1.0375RG |          |       |       |
| BUS 70453 VILAS        | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 1.0206PU | 22.51 | 70453 |
|                        | 70   |      |       |       |      |     | 70.423KV |          |       |       |
| TO 70223 HLTP TAP69.0  | 70   | 1    | 7.0   | 2.1   | 7.3  | 18  |          |          |       |       |
| TO 70452 VILAS         | 115  | 70 1 | -38.9 | 8.0   | 39.7 | 46  | 1.0375UN |          |       |       |
| TO 70460 WALSH         | 69.0 | 70 1 | 31.9  | -10.0 | 33.5 | 97  |          |          |       |       |
| BUS 70223 HLTP TAP69.0 | AREA | CKT  | MW    | MVAR  | MVA  | %I  | 1.0166PU | 22.22    | 70223 |       |
|                        | 70   |      |       |       |      |     | 70.146KV |          |       |       |
| TO 70222 HILLTOP       | 69.0 | 70 1 | 4.0   | 1.3   | 4.2  | 12  |          |          |       |       |
| TO 70404 SPRNGFLD      | 69.0 | 70 1 | 2.9   | 0.8   | 3.1  | 8   |          |          |       |       |
| TO 70453 VILAS         | 69.0 | 70 1 | -7.0  | -2.1  | 7.3  | 18  |          |          |       |       |
| BUS 70460 WALSH        | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 1.0148PU | 19.23 | 70460 |
|                        | 70   |      |       |       |      |     | 70.021KV |          |       |       |
| TO LOAD-PQ             |      |      | 4.0   | 1.3   | 4.2  |     |          |          |       |       |
| TO SWITCHED SHUNT      |      |      | 0.0   | -16.7 | 16.7 |     |          |          |       |       |
| TO 70425 T BUTTES      | 69.0 | 70 1 | 27.1  | 4.0   | 27.4 | 80  |          |          |       |       |
| TO 70453 VILAS         | 69.0 | 70 1 | -31.1 | 11.3  | 33.1 | 96  |          |          |       |       |
| BUS 70425 T BUTTES     | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 0.9866PU | 16.64 | 70425 |
|                        | 70   |      |       |       |      |     | 68.078KV |          |       |       |
| TO LOAD-PQ             |      |      | 2.1   | 0.7   | 2.2  |     |          |          |       |       |
| TO 70101 CHEN TAP      | 69.0 | 70 1 | 24.5  | 2.3   | 24.6 | 74  |          |          |       |       |
| TO 70460 WALSH         | 69.0 | 70 1 | -26.5 | -3.0  | 26.7 | 80  |          |          |       |       |
| BUS 70101 CHEN TAP     | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 0.9485PU | 12.45 | 70101 |
|                        | 70   |      |       |       |      |     | 65.446KV |          |       |       |
| TO 70102 CHENEY        | 69.0 | 70 1 | 3.0   | 0.8   | 3.1  | 10  |          |          |       |       |
| TO 70225 HOLL TAP      | 69.0 | 70 1 | 20.7  | 0.2   | 20.7 | 64  |          |          |       |       |
| TO 70425 T BUTTES      | 69.0 | 70 1 | -23.7 | -0.9  | 23.7 | 74  |          |          |       |       |

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|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 0.9449PU | 12.20 | 70102 |
|                   |      |      | 70  |      |      |     |    | 65.197KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -3.0 | -1.0 | 3.1 | 10 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:07  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC - 230CKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                        |      |     |       |      |      |     |          |      |       |
|------------------------|------|-----|-------|------|------|-----|----------|------|-------|
| BUS 70225 HOLL TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9234PU | 8.94 | 70225 |
|                        | 70   |     |       |      |      |     | 63.714KV |      |       |
| TO 70101 CHEN TAP69.0  | 70   | 1   | -20.1 | 0.7  | 20.2 | 64  |          |      |       |
| TO 70184 FT HOLLY69.0  | 70   | 1   | 3.0   | 0.8  | 3.1  | 10  |          |      |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | 17.2  | -1.6 | 17.3 | 55  |          |      |       |
| BUS 70184 FT HOLLY69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9207PU | 8.75 | 70184 |
|                        | 70   |     |       |      |      |     | 63.530KV |      |       |
| TO LOAD-PQ             |      |     | 2.9   | 1.0  | 3.1  |     |          |      |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -3.0  | -1.0 | 3.1  | 10  |          |      |       |
| BUS 70203 GRAN TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9184PU | 8.03 | 70203 |
|                        | 70   |     |       |      |      |     | 63.369KV |      |       |
| TO 70204 GRANADA 69.0  | 70   | 1   | 1.6   | 0.5  | 1.7  | 5   |          |      |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -17.1 | 1.7  | 17.2 | 55  |          |      |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | 15.5  | -2.2 | 15.6 | 50  |          |      |       |
| BUS 70204 GRANADA 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9178PU | 8.00 | 70204 |
|                        | 70   |     |       |      |      |     | 63.331KV |      |       |
| TO LOAD-PQ             |      |     | 1.6   | 0.5  | 1.7  |     |          |      |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | -1.6  | -0.5 | 1.7  | 5   |          |      |       |
| BUS 70161 EADS 69.0    | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.8952PU | 4.04 | 70161 |
|                        | 70   |     |       |      |      |     | 61.771KV |      |       |
| TO LOAD-PQ             |      |     | 2.1   | 0.7  | 2.2  |     |          |      |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -2.1  | -0.7 | 2.2  | 7   |          |      |       |
| BUS 70136 CTY LAM 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9040PU | 4.57 | 70136 |
|                        | 70   |     |       |      |      |     | 62.373KV |      |       |
| TO 70134 CTY LAM 25.0  | 70   | 1   | 0.4   | -4.9 | 4.9  | 22  | 1.0000LK |      |       |
| TO 70134 CTY LAM 25.0  | 70   | 2   | 0.1   | -1.6 | 1.6  | 16  | 1.0000LK |      |       |
| TO 70185 FT. LYON69.0  | 70   | 1   | 7.7   | 2.5  | 8.1  | 23  |          |      |       |
| TO 70333 PROWERS 69.0  | 70   | 1   | 2.0   | 0.5  | 2.1  | 6   |          |      |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -10.3 | 3.6  | 10.9 | 63  |          |      |       |
| BUS 70185 FT. LYON69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.8981PU | 4.10 | 70185 |
|                        | 70   |     |       |      |      |     | 61.966KV |      |       |
| TO LOAD-PQ             |      |     | 7.7   | 2.5  | 8.1  |     |          |      |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -7.7  | -2.5 | 8.1  | 23  |          |      |       |
| BUS 70134 CTY LAM 25.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9125PU | 4.47 | 70134 |
|                        | 70   |     |       |      |      |     | 22.812KV |      |       |
| TO LOAD-PQ             |      |     | 24.4  | 8.0  | 25.7 |     |          |      |       |
| TO SWITCHED SHUNT      |      |     | 0.0   | -7.5 | 7.5  |     |          |      |       |
| TO 70133 CTY LAM 14.4  | 70   | 1   | -24.0 | -7.1 | 25.0 | 110 | 1.0000LK |      |       |
| TO 70135 CTY LAM 4.20  | 70   | 1   | 0.0   | 0.0  | 0.0  | 0   | 1.0000LK |      |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -0.4  | 4.9  | 4.9  | 22  | 1.0000UN |      |       |
| TO 70136 CTY LAM 69.0  | 70   | 2   | -0.1  | 1.6  | 1.7  | 16  | 1.0000UN |      |       |

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|     |       |          |      |      |     |      |      |     |    |          |             |
|-----|-------|----------|------|------|-----|------|------|-----|----|----------|-------------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0  | 0.0  | 0.0 | 0  | 0.9000LO |             |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW   | MVAR | MVA | %I | 1.0509PU | 31.85 70472 |
|     |       |          |      | 70   |     |      |      |     |    | 120.86KV |             |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 1.5  | 5.4  | 5.6 | 5  |          |             |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -1.5 | -5.4 | 5.6 | 3  |          |             |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:07  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC - 230CKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |                |      |      |     |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-----|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK       | 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9043PU | 4.85  | 70473 |
|           |                |      | 70   |     |       |      |      |    | 62.397KV |       |       |
| TO        | LOAD-PQ        |      |      |     | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70   | 1   | 10.3  | -3.5 | 10.9 | 63 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70   | 1   | 2.1   | 0.1  | 2.1  | 7  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70   | 1   | -15.1 | 2.6  | 15.3 | 50 |          |       |       |
| BUS 70132 | CTY LAJ        | 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0129PU | 29.05 | 70132 |
|           |                |      | 70   |     |       |      |      |    | 69.887KV |       |       |
| TO        | LOAD-PQ        |      |      |     | 16.8  | 5.5  | 17.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70   | 1   | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70   | 1   | -19.2 | -6.2 | 20.2 | 51 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:07  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC - 230CKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|            |              |      |      |     |        |       |       |     |          |       |       |
|------------|--------------|------|------|-----|--------|-------|-------|-----|----------|-------|-------|
| BUS 70133  | CTY LAM      | 14.4 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9300PU | 6.99  | 70133 |
| GENERATION |              |      | 70   |     | 24.0   | 8.3H  | 25.4  | 85  | 13.393KV |       |       |
| TO 70134   | CTY LAM      | 25.0 | 70   | 1   | 24.1   | 8.3   | 25.5  | 110 | 1.0000UN |       |       |
| BUS 70247  | LAJUNTAT     | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0240PU | 31.98 | 70247 |
|            |              |      | 70   |     |        |       |       |     | 117.76KV |       |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | -18.7  | 3.0   | 18.9  | 17  |          |       |       |
| TO 70248   | LAJUNTAT     | 69.0 | 70   | 1   | 20.2   | 6.9   | 21.3  | 83  | 0.9875RG |       |       |
| TO 70472   | WILOW CK     | 115  | 70   | 1   | -1.5   | -9.9  | 10.1  | 9   |          |       |       |
| BUS 70249  | LAJUNTAW     | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9760PU | 32.36 | 70249 |
|            |              |      | 70   |     |        |       |       |     | 112.24KV |       |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | -20.1  | -11.7 | 23.3  | 22  |          |       |       |
| TO 70250   | LAJUNTAW     | 69.0 | 70   | 1   | 20.1   | 11.7  | 23.3  | 95  | 1.0630UN |       |       |
| BUS 70060  | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0266PU | 34.83 | 70060 |
|            |              |      | 70   |     |        |       |       |     | 118.06KV |       |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -80.0  | -15.6 | 81.5  | 53  | 1.0000RG |       |       |
| TO 70062   | BOONE        | 69.0 | 70   | 1   | 9.6    | 0.0   | 9.6   | 28  | 1.0000UN |       |       |
| TO 70159   | DOT TAP      | 115  | 70   | 1   | 30.8   | 11.3  | 32.8  | 28  |          |       |       |
| TO 70247   | LAJUNTAT     | 115  | 70   | 1   | 18.9   | -5.6  | 19.7  | 18  |          |       |       |
| TO 70249   | LAJUNTAW     | 115  | 70   | 1   | 20.7   | 9.9   | 22.9  | 21  |          |       |       |
| BUS 70061  | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0370PU | 37.01 | 70061 |
|            |              |      | 70   |     |        |       |       |     | 238.51KV |       |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | 80.1   | 18.8  | 82.3  | 53  | 1.0000UN |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -105.3 | -13.4 | 106.1 | 24  |          |       |       |
| TO 70254   | LAMAR CO     | 230  | 70   | 1   | 41.7   | -31.0 | 52.0  | 10  |          |       |       |
| TO 70286   | MIDWAYPS     | 230  | 70   | 1   | -16.5  | 25.6  | 30.5  | 6   |          |       |       |
| BUS 70286  | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0187PU | 37.73 | 70286 |
|            |              |      | 70   |     |        |       |       |     | 234.30KV |       |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | 16.6   | -38.3 | 41.7  | 8   |          |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -40.2  | -39.3 | 56.2  | 11  |          |       |       |
| TO 70139   | DANIELPK     | 230  | 70   | 1   | 138.2  | 13.5  | 138.8 | 27  |          |       |       |
| TO 70285   | MIDWAYPS     | 115  | 70   | 1   | 43.0   | 12.7  | 44.8  | 44  | 1.0188UN |       |       |
| TO 70577   | FTNVL1-213.8 | 70   | 70   | 1   | -80.0  | 4.1   | 80.1  | 31  | 1.0000UN |       |       |
| TO 70578   | FTNVL3-413.8 | 70   | 70   | 1   | -80.0  | 4.1   | 80.1  | 79  | 1.0000UN |       |       |
| TO 70579   | FTNVL5-613.8 | 70   | 70   | 1   | -80.0  | 4.1   | 80.1  | 79  | 1.0000UN |       |       |
| TO 70584   | MIDWAYPS     | 345  | 70   | 1   | 204.5  | 15.9  | 205.1 | 40  | 1.0000LK |       |       |
| TO 73413   | MIDWAYBR     | 230  | 73   | 1   | -122.1 | 23.1  | 124.3 | 24  |          |       |       |
| BUS 70459  | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0433PU | 33.90 | 70459 |
|            |              |      | 70   |     |        |       |       |     | 239.96KV |       |       |
| TO 12101   | GLADSTON     | 230  | 10   | 1   | 100.3  | -27.5 | 104.0 | 18  |          |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -136.4 | 9.2   | 136.7 | 30  |          |       |       |
| TO 70458   | WALSENBG     | 115  | 70   | 1   | 36.1   | 18.3  | 40.5  | 39  | 1.0000LK |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:07  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC - 230CKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0463PU | 39.17 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 240.64KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 105.8  | 9.2   | 106.2 | 23 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -42.7 | 328.6 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -37.5 | 334.0 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 107.1  | 11.5  | 107.7 | 37 | 0.9875UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 107.1  | 11.5  | 107.7 | 37 | 0.9875UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 40.4   | 26.7  | 48.4  | 9  |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 137.8  | -12.3 | 138.3 | 30 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 59.4   | 8.2   | 59.9  | 11 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:07  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC - 230CKT  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS      | -----X | AREA | V(PU)  | V(KV)  | X----- | BUS      | -----X | AREA | V(PU)  | V(KV)  |
|--------|----------|--------|------|--------|--------|--------|----------|--------|------|--------|--------|
| 70134  | CTY LAM  | 25.0   | 70   | 0.9125 | 22.812 | 70135  | CTY LAM  | 4.20   | 70   | 0.9125 | 3.832  |
| 70136  | CTY LAM  | 69.0   | 70   | 0.9040 | 62.373 | 70161  | EADS     | 69.0   | 70   | 0.8952 | 61.771 |
| 70185  | FT. LYON | 69.0   | 70   | 0.8981 | 61.966 | 70203  | GRAN TAP | 69.0   | 70   | 0.9184 | 63.369 |
| 70204  | GRANADA  | 69.0   | 70   | 0.9178 | 63.331 | 70333  | PROWERS  | 69.0   | 70   | 0.9015 | 62.202 |
| 70473  | WILOW CK | 69.0   | 70   | 0.9043 | 62.397 |        |          |        |      |        |        |



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:07  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC - 230CKT  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.1    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.5    | 50.0   | 99.1    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 27.4    | 25.0   | 109.6   |
| 70148                | DENVTM   | 115  | 70   | 70150*             | DENVTM1  | 13.8 | 70   | 1            | 40.7    | 42.0   | 97.0    |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 49.0    | 42.0   | 116.6   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.5    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 32.8    | 33.9   | 96.7    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:07  
 2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC - 230CKT  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
 OUTPUT FOR AREA 73 [WAPA R.M.]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.1    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.1    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013*               | CRAIG   | 230  | 73   | 79015              | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013*               | CRAIG   | 230  | 73   | 79016              | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014*               | CRAIG   | 345  | 73   | 79017              | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**D - Willow Creek 115/69-kV transformer outage  
with the Golden Prairie - Lamar 230-kV circuit in service**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 15:09  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                   |           |      |      |     |       |       |      |    |          |       |       |
|-------------------|-----------|------|------|-----|-------|-------|------|----|----------|-------|-------|
| BUS 70254         | LAMAR CO  | 230  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0722PU | 33.70 | 70254 |
|                   |           |      | 70   |     |       |       |      |    | 246.60KV |       |       |
| TO 70061          | BOONE     | 230  | 70   | 1   | -42.0 | 12.5  | 43.8 | 8  |          |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | 42.0  | 1.2   | 42.0 | 39 | 1.0000LK |       |       |
| TO 70560          | LAMAR DC  | 230  | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  |          |       |       |
| TO 70700          | GOB_KNOB  | 230  | 70   | 1   | 0.0   | -13.7 | 13.7 | 3  |          |       |       |
| BUS 70253         | LAMAR CO  | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0717PU | 31.83 | 70253 |
|                   |           |      | 70   |     |       |       |      |    | 123.25KV |       |       |
| TO 70254          | LAMAR CO  | 230  | 70   | 1   | -42.0 | 0.1   | 42.0 | 39 | 1.0000UN |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | 39.9  | -6.8  | 40.5 | 22 |          |       |       |
| TO 70472          | WILLOW CK | 115  | 70   | 1   | 2.1   | 6.7   | 7.0  | 4  |          |       |       |
| BUS 70452         | VILAS     | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0696PU | 24.90 | 70452 |
|                   |           |      | 70   |     |       |       |      |    | 123.01KV |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | -39.0 | 6.0   | 39.5 | 22 |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | 39.1  | -6.0  | 39.5 | 44 | 1.0563RG |       |       |
| BUS 70453         | VILAS     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0172PU | 22.67 | 70453 |
|                   |           |      | 70   |     |       |       |      |    | 70.190KV |       |       |
| TO 70223          | HLTP TAP  | 69.0 | 70   | 1   | 7.0   | 2.1   | 7.3  | 18 |          |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | -39.0 | 7.6   | 39.7 | 46 | 1.0563UN |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | 32.0  | -9.7  | 33.4 | 97 |          |       |       |
| BUS 70223         | HLTP TAP  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0132PU | 22.37 | 70223 |
|                   |           |      | 70   |     |       |       |      |    | 69.911KV |       |       |
| TO 70222          | HILLTOP   | 69.0 | 70   | 1   | 4.0   | 1.3   | 4.2  | 12 |          |       |       |
| TO 70404          | SPRNGFLD  | 69.0 | 70   | 1   | 2.9   | 0.8   | 3.1  | 8  |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -7.0  | -2.1  | 7.3  | 18 |          |       |       |
| BUS 70460         | WALSH     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0107PU | 19.37 | 70460 |
|                   |           |      | 70   |     |       |       |      |    | 69.741KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 4.0   | 1.3   | 4.2  |    |          |       |       |
| TO SWITCHED SHUNT |           |      |      |     | 0.0   | -16.6 | 16.6 |    |          |       |       |
| TO 70425          | T BUTTES  | 69.0 | 70   | 1   | 27.2  | 4.3   | 27.5 | 80 |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -31.2 | 10.9  | 33.0 | 96 |          |       |       |
| BUS 70425         | T BUTTES  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9820PU | 16.77 | 70425 |
|                   |           |      | 70   |     |       |       |      |    | 67.759KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 2.1   | 0.7   | 2.2  |    |          |       |       |
| TO 70101          | CHEN TAP  | 69.0 | 70   | 1   | 24.5  | 2.6   | 24.6 | 74 |          |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | -26.6 | -3.2  | 26.8 | 80 |          |       |       |
| BUS 70101         | CHEN TAP  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9430PU | 12.54 | 70101 |
|                   |           |      | 70   |     |       |       |      |    | 65.066KV |       |       |
| TO 70102          | CHENEY    | 69.0 | 70   | 1   | 3.0   | 0.8   | 3.1  | 10 |          |       |       |
| TO 70225          | HOLL TAP  | 69.0 | 70   | 1   | 20.7  | 0.4   | 20.7 | 65 |          |       |       |
| TO 70425          | T BUTTES  | 69.0 | 70   | 1   | -23.7 | -1.1  | 23.7 | 74 |          |       |       |

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|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 0.9393PU | 12.29 | 70102 |
|                   |      | 70   |     |      |      |     |    | 64.815KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -3.0 | -1.0 | 3.1 | 10 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 15:09  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                        |      |     |       |      |      |     |          |      |       |
|------------------------|------|-----|-------|------|------|-----|----------|------|-------|
| BUS 70225 HOLL TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9172PU | 9.00 | 70225 |
|                        | 70   |     |       |      |      |     | 63.286KV |      |       |
| TO 70101 CHEN TAP69.0  | 70   | 1   | -20.2 | 0.5  | 20.2 | 65  |          |      |       |
| TO 70184 FT HOLLY69.0  | 70   | 1   | 3.0   | 0.8  | 3.1  | 10  |          |      |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | 17.2  | -1.4 | 17.3 | 56  |          |      |       |
| BUS 70184 FT HOLLY69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9145PU | 8.81 | 70184 |
|                        | 70   |     |       |      |      |     | 63.101KV |      |       |
| TO LOAD-PQ             |      |     | 2.9   | 1.0  | 3.1  |     |          |      |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -3.0  | -1.0 | 3.1  | 10  |          |      |       |
| BUS 70203 GRAN TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9120PU | 8.09 | 70203 |
|                        | 70   |     |       |      |      |     | 62.929KV |      |       |
| TO 70204 GRANADA 69.0  | 70   | 1   | 1.6   | 0.5  | 1.7  | 5   |          |      |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -17.1 | 1.5  | 17.2 | 55  |          |      |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | 15.5  | -2.0 | 15.6 | 50  |          |      |       |
| BUS 70204 GRANADA 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9115PU | 8.05 | 70204 |
|                        | 70   |     |       |      |      |     | 62.891KV |      |       |
| TO LOAD-PQ             |      |     | 1.6   | 0.5  | 1.7  |     |          |      |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | -1.6  | -0.5 | 1.7  | 5   |          |      |       |
| BUS 70161 EADS 69.0    | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.8881PU | 4.05 | 70161 |
|                        | 70   |     |       |      |      |     | 61.281KV |      |       |
| TO LOAD-PQ             |      |     | 2.1   | 0.7  | 2.2  |     |          |      |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -2.1  | -0.7 | 2.2  | 7   |          |      |       |
| BUS 70136 CTY LAM 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.8969PU | 4.59 | 70136 |
|                        | 70   |     |       |      |      |     | 61.887KV |      |       |
| TO 70134 CTY LAM 25.0  | 70   | 1   | 0.4   | -4.8 | 4.8  | 21  | 1.0000LK |      |       |
| TO 70134 CTY LAM 25.0  | 70   | 2   | 0.1   | -1.6 | 1.6  | 16  | 1.0000LK |      |       |
| TO 70185 FT. LYON69.0  | 70   | 1   | 7.7   | 2.5  | 8.1  | 23  |          |      |       |
| TO 70333 PROWERS 69.0  | 70   | 1   | 2.0   | 0.5  | 2.1  | 6   |          |      |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -10.3 | 3.4  | 10.8 | 64  |          |      |       |
| BUS 70185 FT. LYON69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.8910PU | 4.11 | 70185 |
|                        | 70   |     |       |      |      |     | 61.476KV |      |       |
| TO LOAD-PQ             |      |     | 7.7   | 2.5  | 8.1  |     |          |      |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -7.7  | -2.5 | 8.1  | 23  |          |      |       |
| BUS 70134 CTY LAM 25.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9053PU | 4.49 | 70134 |
|                        | 70   |     |       |      |      |     | 22.633KV |      |       |
| TO LOAD-PQ             |      |     | 24.4  | 8.0  | 25.7 |     |          |      |       |
| TO SWITCHED SHUNT      |      |     | 0.0   | -7.4 | 7.4  |     |          |      |       |
| TO 70133 CTY LAM 14.4  | 70   | 1   | -24.0 | -7.1 | 25.0 | 110 | 1.0000LK |      |       |
| TO 70135 CTY LAM 4.20  | 70   | 1   | 0.0   | 0.0  | 0.0  | 0   | 1.0000LK |      |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -0.4  | 4.8  | 4.8  | 21  | 1.0000UN |      |       |
| TO 70136 CTY LAM 69.0  | 70   | 2   | -0.1  | 1.6  | 1.6  | 16  | 1.0000UN |      |       |

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|     |       |          |      |      |     |      |      |     |    |          |             |
|-----|-------|----------|------|------|-----|------|------|-----|----|----------|-------------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0  | 0.0  | 0.0 | 0  | 0.9000LO |             |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW   | MVAR | MVA | %I | 1.0653PU | 31.80 70472 |
|     |       |          | 70   |      |     |      |      |     |    | 122.52KV |             |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 2.1  | 8.1  | 8.4 | 7  |          |             |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -2.1 | -8.1 | 8.4 | 5  |          |             |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 15:09  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |                |      |      |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 0.8973PU | 4.87  | 70473 |
|           |                | 70   |      |       |      |      |    | 61.914KV |       |       |
| TO        | LOAD-PQ        |      |      | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70 1 | 10.3  | -3.4 | 10.8 | 64 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70 1 | 2.1   | 0.1  | 2.1  | 7  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70 1 | -15.1 | 2.4  | 15.3 | 50 |          |       |       |
|           |                |      |      |       |      |      |    |          |       |       |
| BUS 70132 | CTY LAJ 69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0118PU | 29.02 | 70132 |
|           |                | 70   |      |       |      |      |    | 69.816KV |       |       |
| TO        | LOAD-PQ        |      |      | 16.8  | 5.5  | 17.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70 1 | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70 1 | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70 1 | -19.2 | -6.2 | 20.2 | 51 |          |       |       |



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 15:09  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                         |      |     |        |       |       |     |          |       |       |
|-------------------------|------|-----|--------|-------|-------|-----|----------|-------|-------|
| BUS 70133 CTY LAM 14.4  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9230PU | 7.04  | 70133 |
| GENERATION              | 70   |     | 24.0   | 8.3H  | 25.4  | 85  | 13.291KV |       |       |
| TO 70134 CTY LAM 25.0   | 70   | 1   | 24.1   | 8.3   | 25.5  | 110 | 1.0000UN |       |       |
| BUS 70247 LAJUNTAT 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0295PU | 31.96 | 70247 |
|                         | 70   |     |        |       |       |     | 118.39KV |       |       |
| TO 70060 BOONE 115      | 70   | 1   | -18.2  | 5.6   | 19.0  | 17  |          |       |       |
| TO 70248 LAJUNTAT 69.0  | 70   | 1   | 20.2   | 7.0   | 21.3  | 83  | 0.9938RG |       |       |
| TO 70472 WILOW CK 115   | 70   | 1   | -2.0   | -12.6 | 12.7  | 11  |          |       |       |
| BUS 70249 LAJUNTAW 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9746PU | 32.35 | 70249 |
|                         | 70   |     |        |       |       |     | 112.08KV |       |       |
| TO 70060 BOONE 115      | 70   | 1   | -20.1  | -11.7 | 23.3  | 22  |          |       |       |
| TO 70250 LAJUNTAW 69.0  | 70   | 1   | 20.1   | 11.7  | 23.3  | 95  | 1.0630UN |       |       |
| BUS 70060 BOONE 115     | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0251PU | 34.82 | 70060 |
|                         | 70   |     |        |       |       |     | 117.89KV |       |       |
| TO 70061 BOONE 230      | 70   | 1   | -79.8  | -13.9 | 81.0  | 53  | 0.9937RG |       |       |
| TO 70062 BOONE 69.0     | 70   | 1   | 9.6    | 0.0   | 9.6   | 28  | 1.0000UN |       |       |
| TO 70159 DOT TAP 115    | 70   | 1   | 31.1   | 12.2  | 33.4  | 28  |          |       |       |
| TO 70247 LAJUNTAT 115   | 70   | 1   | 18.4   | -8.2  | 20.1  | 18  |          |       |       |
| TO 70249 LAJUNTAW 115   | 70   | 1   | 20.7   | 9.8   | 22.9  | 21  |          |       |       |
| BUS 70061 BOONE 230     | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0410PU | 36.99 | 70061 |
|                         | 70   |     |        |       |       |     | 239.44KV |       |       |
| TO 70060 BOONE 115      | 70   | 1   | 79.9   | 17.0  | 81.7  | 52  | 0.9937UN |       |       |
| TO 70122 COMANCHE 230   | 70   | 1   | -105.8 | -6.2  | 106.0 | 23  |          |       |       |
| TO 70254 LAMAR CO 230   | 70   | 1   | 42.3   | -42.1 | 59.7  | 12  |          |       |       |
| TO 70286 MIDWAYPS 230   | 70   | 1   | -16.5  | 31.2  | 35.3  | 7   |          |       |       |
| BUS 70700 GOB_KNOB 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0759PU | 33.67 | 70700 |
|                         | 70   |     |        |       |       |     | 247.45KV |       |       |
| TO 70254 LAMAR CO 230   | 70   | 1   | 0.0    | 0.0   | 0.0   | 0   |          |       |       |
| TO 70701 GOB_KNOB 34.5  | 70   | 1   | 0.0    | 0.0   | 0.0   | 0   | 1.0000LK |       |       |
| TO 70702 GOB_KNOB 34.5  | 70   | 2   | 0.0    | 0.0   | 0.0   | 0   | 1.0000LK |       |       |
| BUS 70701 GOB_KNOB 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0759PU | 33.67 | 70701 |
|                         | 70   |     |        |       |       |     | 37.118KV |       |       |
| TO 70700 GOB_KNOB 230   | 70   | 1   | 0.0    | 0.0   | 0.0   | 0   | 1.0000UN |       |       |
| BUS 70702 GOB_KNOB 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0759PU | 33.67 | 70702 |
|                         | 70   |     |        |       |       |     | 37.118KV |       |       |
| TO 70700 GOB_KNOB 230   | 70   | 2   | 0.0    | 0.0   | 0.0   | 0   | 1.0000UN |       |       |
| BUS 70286 MIDWAYPS 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0193PU | 37.72 | 70286 |
|                         | 70   |     |        |       |       |     | 234.45KV |       |       |
| TO 70061 BOONE 230      | 70   | 1   | 16.6   | -43.7 | 46.8  | 9   |          |       |       |
| TO 70122 COMANCHE 230   | 70   | 1   | -40.4  | -40.2 | 57.0  | 11  |          |       |       |

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|                       |     |    |   |        |      |       |    |          |
|-----------------------|-----|----|---|--------|------|-------|----|----------|
| TO 70139 DANIELPK     | 230 | 70 | 1 | 138.2  | 14.0 | 138.9 | 27 |          |
| TO 70285 MIDWAYPS     | 115 | 70 | 1 | 42.6   | 10.9 | 44.0  | 43 | 1.0125UN |
| TO 70577 FTNVL1-213.8 |     | 70 | 1 | -80.0  | 4.5  | 80.1  | 31 | 1.0000UN |
| TO 70578 FTNVL3-413.8 |     | 70 | 1 | -80.0  | 4.5  | 80.1  | 79 | 1.0000UN |
| TO 70579 FTNVL5-613.8 |     | 70 | 1 | -80.0  | 4.5  | 80.1  | 79 | 1.0000UN |
| TO 70584 MIDWAYPS     | 345 | 70 | 1 | 204.4  | 16.7 | 205.1 | 40 | 1.0000LK |
| TO 73413 MIDWAYBR     | 230 | 73 | 1 | -121.4 | 28.8 | 124.8 | 24 |          |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 15:09  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70459 | WALSENBG | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0436PU | 33.89 | 70459 |
|           |          |      | 70   |     |        |       |       |    | 240.02KV |       |       |
| TO 12101  | GLADSTON | 230  | 10   | 1   | 100.3  | -27.4 | 104.0 | 18 |          |       |       |
| TO 70122  | COMANCHE | 230  | 70   | 1   | -136.8 | 7.9   | 137.0 | 30 |          |       |       |
| TO 70458  | WALSENBG | 115  | 70   | 1   | 36.5   | 19.6  | 41.4  | 40 | 1.0000LK |       |       |
|           |          |      |      |     |        |       |       |    |          |       |       |
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0475PU | 39.17 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 240.93KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 106.3  | 1.9   | 106.3 | 23 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -38.6 | 328.1 | 76 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -33.5 | 333.6 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 106.5  | 9.6   | 106.9 | 36 | 0.9812UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 106.5  | 9.6   | 106.9 | 36 | 0.9812UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 40.6   | 27.6  | 49.1  | 9  |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 138.2  | -10.9 | 138.6 | 30 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 59.5   | 8.9   | 60.2  | 11 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 15:09  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS      | -----X | AREA | V(PU)  | V(KV)  | X----- | BUS      | -----X | AREA | V(PU)  | V(KV)  |
|--------|----------|--------|------|--------|--------|--------|----------|--------|------|--------|--------|
| 70134  | CTY LAM  | 25.0   | 70   | 0.9053 | 22.633 | 70135  | CTY LAM  | 4.20   | 70   | 0.9053 | 3.802  |
| 70136  | CTY LAM  | 69.0   | 70   | 0.8969 | 61.887 | 70161  | EADS     | 69.0   | 70   | 0.8881 | 61.281 |
| 70184  | FT HOLLY | 69.0   | 70   | 0.9145 | 63.101 | 70185  | FT. LYON | 69.0   | 70   | 0.8910 | 61.476 |
| 70203  | GRAN TAP | 69.0   | 70   | 0.9120 | 62.929 | 70204  | GRANADA  | 69.0   | 70   | 0.9115 | 62.891 |
| 70225  | HOLL TAP | 69.0   | 70   | 0.9172 | 63.286 | 70333  | PROWERS  | 69.0   | 70   | 0.8944 | 61.714 |
| 70473  | WILOW CK | 69.0   | 70   | 0.8973 | 61.914 |        |          |        |      |        |        |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 15:09  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.1    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133*               | CTY LAM  | 14.4 | 70   | 70134              | CTY LAM  | 25.0 | 70   | 1            | 27.6    | 25.0   | 110.4   |
| 70148                | DENVTM   | 115  | 70   | 70150*             | DENVTM1  | 13.8 | 70   | 1            | 40.7    | 42.0   | 97.0    |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 49.0    | 42.0   | 116.7   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.5    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 32.8    | 33.9   | 96.8    |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 15:09  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.1    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.1    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013                | CRAIG   | 230  | 73   | 79015*             | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013                | CRAIG   | 230  | 73   | 79016*             | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014*               | CRAIG   | 345  | 73   | 79017              | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**E - Willow Creek 115/69-kV transformer outage with 5.4 MVAR capacitors added at Willow Creek 69 kV without the Golden Prairie - Lamar 230-kV circuit in service**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:06  
2005 HVY SUMMER WLLW CRK XFMR OUTAGE W/CAP-NO HVDC - 230CKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                   |           |      |      |     |       |       |      |     |          |       |       |
|-------------------|-----------|------|------|-----|-------|-------|------|-----|----------|-------|-------|
| BUS 70254         | LAMAR CO  | 230  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0631PU | 33.70 | 70254 |
|                   |           |      | 70   |     |       |       |      |     | 244.51KV |       |       |
| TO 70061          | BOONE     | 230  | 70   | 1   | -42.0 | 7.1   | 42.6 | 8   |          |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | 42.0  | -7.1  | 42.6 | 40  | 1.0000LK |       |       |
| TO 70560          | LAMAR DC  | 230  | 70   | 1   | 0.0   | 0.0   | 0.0  | 0   |          |       |       |
| BUS 70253         | LAMAR CO  | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0696PU | 31.82 | 70253 |
|                   |           |      | 70   |     |       |       |      |     | 123.01KV |       |       |
| TO 70254          | LAMAR CO  | 230  | 70   | 1   | -42.0 | 8.6   | 42.8 | 40  | 1.0000UN |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | 40.1  | -14.3 | 42.6 | 23  |          |       |       |
| TO 70472          | WILLOW CK | 115  | 70   | 1   | 1.9   | 5.8   | 6.1  | 3   |          |       |       |
| BUS 70452         | VILAS     | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0919PU | 24.76 | 70452 |
|                   |           |      | 70   |     |       |       |      |     | 125.57KV |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | -39.2 | 13.9  | 41.6 | 22  |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | 39.1  | -13.9 | 41.5 | 45  | 1.0875RG |       |       |
| BUS 70453         | VILAS     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0167PU | 22.47 | 70453 |
|                   |           |      | 70   |     |       |       |      |     | 70.150KV |       |       |
| TO 70223          | HLTP TAP  | 69.0 | 70   | 1   | 7.0   | 2.1   | 7.3  | 18  |          |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | -39.0 | 15.6  | 42.0 | 49  | 1.0875UN |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | 32.1  | -17.7 | 36.6 | 106 |          |       |       |
| BUS 70223         | HLTP TAP  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0126PU | 22.18 | 70223 |
|                   |           |      | 70   |     |       |       |      |     | 69.872KV |       |       |
| TO 70222          | HILLTOP   | 69.0 | 70   | 1   | 4.0   | 1.3   | 4.2  | 12  |          |       |       |
| TO 70404          | SPRNGFLD  | 69.0 | 70   | 1   | 2.9   | 0.8   | 3.0  | 8   |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -6.9  | -2.1  | 7.3  | 18  |          |       |       |
| BUS 70460         | WALSH     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0233PU | 18.87 | 70460 |
|                   |           |      | 70   |     |       |       |      |     | 70.607KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 4.0   | 1.3   | 4.2  |     |          |       |       |
| TO SWITCHED SHUNT |           |      |      |     | 0.0   | -17.0 | 17.0 |     |          |       |       |
| TO 70425 T        | BUTTES    | 69.0 | 70   | 1   | 27.1  | -3.7  | 27.4 | 79  |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -31.1 | 19.3  | 36.6 | 106 |          |       |       |
| BUS 70425 T       | BUTTES    | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0091PU | 16.02 | 70425 |
|                   |           |      | 70   |     |       |       |      |     | 69.630KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 2.1   | 0.7   | 2.2  |     |          |       |       |
| TO 70101          | CHEN TAP  | 69.0 | 70   | 1   | 24.5  | -5.3  | 25.0 | 73  |          |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | -26.5 | 4.7   | 26.9 | 79  |          |       |       |
| BUS 70101         | CHEN TAP  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 0.9947PU | 11.53 | 70101 |
|                   |           |      | 70   |     |       |       |      |     | 68.633KV |       |       |
| TO 70102          | CHENEY    | 69.0 | 70   | 1   | 2.9   | 0.7   | 3.0  | 9   |          |       |       |
| TO 70225          | HOLL TAP  | 69.0 | 70   | 1   | 20.7  | -7.4  | 22.0 | 65  |          |       |       |
| TO 70425 T        | BUTTES    | 69.0 | 70   | 1   | -23.6 | 6.7   | 24.6 | 73  |          |       |       |



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|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 0.9913PU | 11.30 | 70102 |
|                   |      | 70   |     |      |      |     |    | 68.397KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -2.9 | -1.0 | 3.1 | 9  |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:06  
2005 HVY SUMMER WLLW CRK XFMR OUTAGE W/CAP-NO HVDC - 230CKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                        |      |     |       |      |      |    |          |      |       |
|------------------------|------|-----|-------|------|------|----|----------|------|-------|
| BUS 70225 HOLL TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9909PU | 7.90 | 70225 |
|                        | 70   |     |       |      |      |    | 68.374KV |      |       |
| TO 70101 CHEN TAP69.0  | 70   | 1   | -20.1 | 8.3  | 21.7 | 65 |          |      |       |
| TO 70184 FT HOLLY69.0  | 70   | 1   | 2.9   | 0.8  | 3.1  | 9  |          |      |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | 17.2  | -9.1 | 19.4 | 58 |          |      |       |
| BUS 70184 FT HOLLY69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9885PU | 7.73 | 70184 |
|                        | 70   |     |       |      |      |    | 68.204KV |      |       |
| TO LOAD-PQ             |      |     | 2.9   | 1.0  | 3.1  |    |          |      |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -2.9  | -1.0 | 3.1  | 9  |          |      |       |
| BUS 70203 GRAN TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9920PU | 6.97 | 70203 |
|                        | 70   |     |       |      |      |    | 68.447KV |      |       |
| TO 70204 GRANADA 69.0  | 70   | 1   | 1.6   | 0.5  | 1.7  | 5  |          |      |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -17.0 | 9.2  | 19.4 | 58 |          |      |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | 15.4  | -9.7 | 18.2 | 54 |          |      |       |
| BUS 70204 GRANADA 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9915PU | 6.93 | 70204 |
|                        | 70   |     |       |      |      |    | 68.412KV |      |       |
| TO LOAD-PQ             |      |     | 1.6   | 0.5  | 1.7  |    |          |      |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | -1.6  | -0.5 | 1.7  | 5  |          |      |       |
| BUS 70161 EADS 69.0    | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9929PU | 3.09 | 70161 |
|                        | 70   |     |       |      |      |    | 68.508KV |      |       |
| TO LOAD-PQ             |      |     | 2.1   | 0.7  | 2.2  |    |          |      |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -2.0  | -0.7 | 2.2  | 6  |          |      |       |
| BUS 70136 CTY LAM 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0009PU | 3.51 | 70136 |
|                        | 70   |     |       |      |      |    | 69.064KV |      |       |
| TO 70134 CTY LAM 25.0  | 70   | 1   | 0.4   | -6.3 | 6.3  | 25 | 1.0000LK |      |       |
| TO 70134 CTY LAM 25.0  | 70   | 2   | 0.1   | -2.1 | 2.1  | 19 | 1.0000LK |      |       |
| TO 70185 FT. LYON69.0  | 70   | 1   | 7.7   | 2.4  | 8.0  | 21 |          |      |       |
| TO 70333 PROWERS 69.0  | 70   | 1   | 2.0   | 0.4  | 2.1  | 5  |          |      |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -10.2 | 5.5  | 11.6 | 61 |          |      |       |
| BUS 70185 FT. LYON69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9956PU | 3.13 | 70185 |
|                        | 70   |     |       |      |      |    | 68.699KV |      |       |
| TO LOAD-PQ             |      |     | 7.7   | 2.5  | 8.1  |    |          |      |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -7.6  | -2.5 | 8.0  | 21 |          |      |       |
| BUS 70134 CTY LAM 25.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0109PU | 3.42 | 70134 |
|                        | 70   |     |       |      |      |    | 25.272KV |      |       |
| TO LOAD-PQ             |      |     | 24.4  | 8.0  | 25.7 |    |          |      |       |
| TO SWITCHED SHUNT      |      |     | 0.0   | -9.2 | 9.2  |    |          |      |       |
| TO 70133 CTY LAM 14.4  | 70   | 1   | -23.8 | -7.3 | 24.9 | 99 | 1.0000LK |      |       |
| TO 70135 CTY LAM 4.20  | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |      |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -0.4  | 6.3  | 6.4  | 25 | 1.0000UN |      |       |
| TO 70136 CTY LAM 69.0  | 70   | 2   | -0.1  | 2.1  | 2.1  | 19 | 1.0000UN |      |       |

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|     |       |          |      |      |     |      |      |     |    |          |             |
|-----|-------|----------|------|------|-----|------|------|-----|----|----------|-------------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0  | 0.0  | 0.0 | 0  | 0.9937RG |             |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW   | MVAR | MVA | %I | 1.0640PU | 31.79 70472 |
|     |       |          |      | 70   |     |      |      |     |    | 122.36KV |             |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 1.8  | 7.2  | 7.4 | 6  |          |             |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -1.9 | -7.2 | 7.4 | 4  |          |             |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:06  
2005 HVY SUMMER WLLW CRK XFMR OUTAGE W/CAP-NO HVDC - 230CKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |                |      |      |     |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-----|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILLOW CK      | 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0006PU | 3.75  | 70473 |
|           |                |      |      | 70  |       |      |      |    | 69.038KV |       |       |
| TO        | LOAD-PQ        |      |      |     | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | SWITCHED SHUNT |      |      |     | 0.0   | -5.4 | 5.4  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70   | 1   | 10.2  | -5.5 | 11.6 | 61 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70   | 1   | 2.1   | -0.1 | 2.1  | 6  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70   | 1   | -15.0 | 10.1 | 18.1 | 53 |          |       |       |
| BUS 70132 | CTY LAJ        | 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0137PU | 29.03 | 70132 |
|           |                |      |      | 70  |       |      |      |    | 69.943KV |       |       |
| TO        | LOAD-PQ        |      |      |     | 16.8  | 5.5  | 17.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70   | 1   | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70   | 1   | -19.2 | -6.2 | 20.2 | 51 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:06  
2005 HVY SUMMER WLLW CRK XFMR OUTAGE W/CAP-NO HVDC - 230CKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|            |              |      |      |     |        |       |       |    |          |       |       |
|------------|--------------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70133  | CTY LAM      | 14.4 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0269PU | 5.46  | 70133 |
| GENERATION |              |      | 70   |     | 24.0   | 8.3H  | 25.4  | 85 | 14.787KV |       |       |
| TO 70134   | CTY LAM      | 25.0 | 70   | 1   | 23.9   | 8.3   | 25.3  | 99 | 1.0000UN |       |       |
|            |              |      |      |     |        |       |       |    |          |       |       |
| BUS 70247  | LAJUNTAT     | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0312PU | 31.95 | 70247 |
|            |              |      | 70   |     |        |       |       |    | 118.59KV |       |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | -18.4  | 4.8   | 19.0  | 17 |          |       |       |
| TO 70248   | LAJUNTAT     | 69.0 | 70   | 1   | 20.2   | 6.9   | 21.3  | 83 | 0.9938RG |       |       |
| TO 70472   | WILOW CK     | 115  | 70   | 1   | -1.8   | -11.7 | 11.8  | 11 |          |       |       |
|            |              |      |      |     |        |       |       |    |          |       |       |
| BUS 70249  | LAJUNTAW     | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 0.9784PU | 32.36 | 70249 |
|            |              |      | 70   |     |        |       |       |    | 112.52KV |       |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | -20.1  | -11.8 | 23.4  | 22 |          |       |       |
| TO 70250   | LAJUNTAW     | 69.0 | 70   | 1   | 20.1   | 11.8  | 23.4  | 95 | 1.0630UN |       |       |
|            |              |      |      |     |        |       |       |    |          |       |       |
| BUS 70060  | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0292PU | 34.80 | 70060 |
|            |              |      | 70   |     |        |       |       |    | 118.35KV |       |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -80.0  | -14.9 | 81.4  | 53 | 1.0000RG |       |       |
| TO 70062   | BOONE        | 69.0 | 70   | 1   | 9.6    | 0.0   | 9.6   | 28 | 1.0000UN |       |       |
| TO 70159   | DOT TAP      | 115  | 70   | 1   | 31.1   | 12.3  | 33.4  | 28 |          |       |       |
| TO 70247   | LAJUNTAT     | 115  | 70   | 1   | 18.7   | -7.4  | 20.1  | 18 |          |       |       |
| TO 70249   | LAJUNTAW     | 115  | 70   | 1   | 20.7   | 10.0  | 23.0  | 21 |          |       |       |
|            |              |      |      |     |        |       |       |    |          |       |       |
| BUS 70061  | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0392PU | 36.98 | 70061 |
|            |              |      | 70   |     |        |       |       |    | 239.01KV |       |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | 80.2   | 18.1  | 82.2  | 53 | 1.0000UN |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -106.0 | -10.2 | 106.5 | 24 |          |       |       |
| TO 70254   | LAMAR CO     | 230  | 70   | 1   | 42.3   | -36.7 | 56.0  | 11 |          |       |       |
| TO 70286   | MIDWAYPS     | 230  | 70   | 1   | -16.5  | 28.9  | 33.2  | 6  |          |       |       |
|            |              |      |      |     |        |       |       |    |          |       |       |
| BUS 70286  | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0189PU | 37.71 | 70286 |
|            |              |      | 70   |     |        |       |       |    | 234.34KV |       |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | 16.6   | -41.4 | 44.6  | 9  |          |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -40.5  | -40.4 | 57.2  | 11 |          |       |       |
| TO 70139   | DANIELPK     | 230  | 70   | 1   | 138.1  | 13.7  | 138.8 | 27 |          |       |       |
| TO 70285   | MIDWAYPS     | 115  | 70   | 1   | 43.1   | 13.6  | 45.2  | 44 | 1.0188UN |       |       |
| TO 70577   | FTNVL1-213.8 | 70   | 70   | 1   | -80.0  | 4.3   | 80.1  | 31 | 1.0000UN |       |       |
| TO 70578   | FTNVL3-413.8 | 70   | 70   | 1   | -80.0  | 4.3   | 80.1  | 79 | 1.0000UN |       |       |
| TO 70579   | FTNVL5-613.8 | 70   | 70   | 1   | -80.0  | 4.3   | 80.1  | 79 | 1.0000UN |       |       |
| TO 70584   | MIDWAYPS     | 345  | 70   | 1   | 204.4  | 16.2  | 205.0 | 40 | 1.0000LK |       |       |
| TO 73413   | MIDWAYBR     | 230  | 73   | 1   | -121.8 | 25.6  | 124.4 | 24 |          |       |       |
|            |              |      |      |     |        |       |       |    |          |       |       |
| BUS 70459  | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0435PU | 33.89 | 70459 |
|            |              |      | 70   |     |        |       |       |    | 240.00KV |       |       |
| TO 12101   | GLADSTON     | 230  | 10   | 1   | 100.3  | -27.5 | 104.0 | 18 |          |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -136.7 | 8.1   | 137.0 | 30 |          |       |       |
| TO 70458   | WALSENBG     | 115  | 70   | 1   | 36.5   | 19.3  | 41.3  | 40 | 1.0000LK |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:06  
2005 HVY SUMMER WLLW CRK XFMR OUTAGE W/CAP-NO HVDC - 230CKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0472PU | 39.16 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 240.86KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 106.5  | 6.0   | 106.7 | 23 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -39.6 | 328.2 | 76 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -34.5 | 333.7 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 106.4  | 8.7   | 106.7 | 36 | 0.9812UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 106.4  | 8.7   | 106.7 | 36 | 0.9812UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 40.7   | 27.7  | 49.3  | 9  |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 138.1  | -11.2 | 138.6 | 30 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 59.6   | 8.8   | 60.2  | 11 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:06  
2005 HVY SUMMER WLLW CRK XFMR OUTAGE W/CAP-NO HVDC - 230CKT  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:06  
2005 HVY SUMMER WLLW CRK XFMR OUTAGE W/CAP-NO HVDC - 230CKT  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.1    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133*               | CTY LAM  | 14.4 | 70   | 70134              | CTY LAM  | 25.0 | 70   | 1            | 24.6    | 25.0   | 98.6    |
| 70148                | DENVTM   | 115  | 70   | 70150*             | DENVTM1  | 13.8 | 70   | 1            | 40.7    | 42.0   | 97.0    |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 49.0    | 42.0   | 116.7   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.5    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 36.0    | 33.9   | 106.3   |



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, OCT 07 2002 16:06  
2005 HVY SUMMER WLLW CRK XFMR OUTAGE W/CAP-NO HVDC - 230CKT  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.1    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.1    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286*               | KIRK 1  | 12.0 | 73   | 73287              | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013                | CRAIG   | 230  | 73   | 79015*             | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013                | CRAIG   | 230  | 73   | 79016*             | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014                | CRAIG   | 345  | 73   | 79017*             | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052*               | NUCLA   | 115  | 73   | 79161              | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**F - Willow Creek 115/69-kV transformer outage with 5.4 MVAR capacitors added at Willow Creek 69 kV with the Golden Prairie - Lamar 230-kV circuit in service**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 10:49  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC W/ CAP RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                   |          |      |      |     |       |       |      |     |          |       |       |
|-------------------|----------|------|------|-----|-------|-------|------|-----|----------|-------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0834PU | 33.61 | 70254 |
|                   |          |      | 70   |     |       |       |      |     | 249.19KV |       |       |
| TO 70061          | BOONE    | 230  | 70   | 1   | -42.5 | 19.3  | 46.7 | 9   |          |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 42.5  | -5.3  | 42.9 | 40  | 1.0000LK |       |       |
| TO 70560          | LAMAR DC | 230  | 70   | 1   | 0.0   | 0.0   | 0.0  | 0   |          |       |       |
| TO 70700          | GOB_KNOB | 230  | 70   | 1   | 0.0   | -14.0 | 14.0 | 3   |          |       |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0883PU | 31.76 | 70253 |
|                   |          |      | 70   |     |       |       |      |     | 125.16KV |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | -42.5 | 6.7   | 43.1 | 40  | 1.0000UN |       |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 40.0  | -15.4 | 42.9 | 23  |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | 2.5   | 8.7   | 9.1  | 5   |          |       |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.1130PU | 24.94 | 70452 |
|                   |          |      | 70   |     |       |       |      |     | 128.00KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -39.1 | 14.6  | 41.8 | 22  |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 39.1  | -14.6 | 41.8 | 45  | 1.1000HI |       |       |
| BUS 70453         | VILAS    | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0251PU | 22.68 | 70453 |
|                   |          |      | 70   |     |       |       |      |     | 70.732KV |       |       |
| TO 70223          | HLTP TAP | 69.0 | 70   | 1   | 7.0   | 2.0   | 7.3  | 18  |          |       |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | -39.0 | 16.4  | 42.3 | 49  | 1.1000UN |       |       |
| TO 70460          | WALSH    | 69.0 | 70   | 1   | 32.1  | -18.4 | 37.0 | 106 |          |       |       |
| BUS 70223         | HLTP TAP | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0211PU | 22.40 | 70223 |
|                   |          |      | 70   |     |       |       |      |     | 70.456KV |       |       |
| TO 70222          | HILLTOP  | 69.0 | 70   | 1   | 4.0   | 1.3   | 4.2  | 12  |          |       |       |
| TO 70404          | SPRNGFLD | 69.0 | 70   | 1   | 2.9   | 0.8   | 3.1  | 8   |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | -7.0  | -2.1  | 7.3  | 18  |          |       |       |
| BUS 70460         | WALSH    | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0328PU | 19.12 | 70460 |
|                   |          |      | 70   |     |       |       |      |     | 71.266KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 4.0   | 1.3   | 4.2  |     |          |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -17.3 | 17.3 |     |          |       |       |
| TO 70425          | T BUTTES | 69.0 | 70   | 1   | 27.1  | -4.1  | 27.4 | 78  |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | -31.1 | 20.0  | 37.0 | 106 |          |       |       |
| BUS 70425         | T BUTTES | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0195PU | 16.30 | 70425 |
|                   |          |      | 70   |     |       |       |      |     | 70.347KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 2.1   | 0.7   | 2.2  |     |          |       |       |
| TO 70101          | CHEN TAP | 69.0 | 70   | 1   | 24.5  | -5.7  | 25.1 | 73  |          |       |       |
| TO 70460          | WALSH    | 69.0 | 70   | 1   | -26.5 | 5.0   | 27.0 | 78  |          |       |       |
| BUS 70101         | CHEN TAP | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0063PU | 11.88 | 70101 |
|                   |          |      | 70   |     |       |       |      |     | 69.435KV |       |       |
| TO 70102          | CHENEY   | 69.0 | 70   | 1   | 3.0   | 0.7   | 3.0  | 9   |          |       |       |
| TO 70225          | HOLL TAP | 69.0 | 70   | 1   | 20.7  | -7.7  | 22.1 | 65  |          |       |       |
| TO 70425          | T BUTTES | 69.0 | 70   | 1   | -23.7 | 7.0   | 24.7 | 72  |          |       |       |

|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 1.0029PU | 11.66 | 70102 |
|                   |      | 70   |     |      |      |     |    | 69.202KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -2.9 | -1.0 | 3.1 | 9  |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 10:49  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC W/ CAP RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                   |          |      |      |     |       |       |      |    |          |      |       |
|-------------------|----------|------|------|-----|-------|-------|------|----|----------|------|-------|
| BUS 70225         | HOLL TAP | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0034PU | 8.31 | 70225 |
|                   |          |      | 70   |     |       |       |      |    | 69.238KV |      |       |
| TO 70101          | CHEN TAP | 69.0 | 70   | 1   | -20.1 | 8.6   | 21.9 | 64 |          |      |       |
| TO 70184          | FT HOLLY | 69.0 | 70   | 1   | 3.0   | 0.8   | 3.1  | 9  |          |      |       |
| TO 70203          | GRAN TAP | 69.0 | 70   | 1   | 17.2  | -9.4  | 19.6 | 58 |          |      |       |
| BUS 70184         | FT HOLLY | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0010PU | 8.15 | 70184 |
|                   |          |      | 70   |     |       |       |      |    | 69.070KV |      |       |
| TO LOAD-PQ        |          |      |      |     | 2.9   | 1.0   | 3.1  |    |          |      |       |
| TO 70225          | HOLL TAP | 69.0 | 70   | 1   | -2.9  | -1.0  | 3.1  | 9  |          |      |       |
| BUS 70203         | GRAN TAP | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0047PU | 7.40 | 70203 |
|                   |          |      | 70   |     |       |       |      |    | 69.326KV |      |       |
| TO 70204          | GRANADA  | 69.0 | 70   | 1   | 1.6   | 0.5   | 1.7  | 5  |          |      |       |
| TO 70225          | HOLL TAP | 69.0 | 70   | 1   | -17.1 | 9.6   | 19.6 | 57 |          |      |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | 15.4  | -10.0 | 18.4 | 54 |          |      |       |
| BUS 70204         | GRANADA  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0042PU | 7.37 | 70204 |
|                   |          |      | 70   |     |       |       |      |    | 69.292KV |      |       |
| TO LOAD-PQ        |          |      |      |     | 1.6   | 0.5   | 1.7  |    |          |      |       |
| TO 70203          | GRAN TAP | 69.0 | 70   | 1   | -1.6  | -0.5  | 1.7  | 5  |          |      |       |
| BUS 70161         | EADS     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0065PU | 3.59 | 70161 |
|                   |          |      | 70   |     |       |       |      |    | 69.447KV |      |       |
| TO LOAD-PQ        |          |      |      |     | 2.1   | 0.7   | 2.2  |    |          |      |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | -2.1  | -0.7  | 2.2  | 6  |          |      |       |
| BUS 70136         | CTY LAM  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0144PU | 4.01 | 70136 |
|                   |          |      | 70   |     |       |       |      |    | 69.995KV |      |       |
| TO 70134          | CTY LAM  | 25.0 | 70   | 1   | 0.4   | -6.4  | 6.4  | 25 | 1.0000LK |      |       |
| TO 70134          | CTY LAM  | 25.0 | 70   | 2   | 0.1   | -2.1  | 2.1  | 19 | 1.0000LK |      |       |
| TO 70185          | FT. LYON | 69.0 | 70   | 1   | 7.7   | 2.4   | 8.1  | 20 |          |      |       |
| TO 70333          | PROWERS  | 69.0 | 70   | 1   | 2.0   | 0.4   | 2.1  | 5  |          |      |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | -10.2 | 5.7   | 11.7 | 61 |          |      |       |
| BUS 70185         | FT. LYON | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0092PU | 3.63 | 70185 |
|                   |          |      | 70   |     |       |       |      |    | 69.634KV |      |       |
| TO LOAD-PQ        |          |      |      |     | 7.7   | 2.5   | 8.1  |    |          |      |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 1   | -7.7  | -2.5  | 8.1  | 21 |          |      |       |
| BUS 70134         | CTY LAM  | 25.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0244PU | 3.92 | 70134 |
|                   |          |      | 70   |     |       |       |      |    | 25.610KV |      |       |
| TO LOAD-PQ        |          |      |      |     | 24.4  | 8.0   | 25.7 |    |          |      |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -9.4  | 9.4  |    |          |      |       |
| TO 70133          | CTY LAM  | 14.4 | 70   | 1   | -23.9 | -7.2  | 25.0 | 97 | 1.0000LK |      |       |
| TO 70135          | CTY LAM  | 4.20 | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  | 1.0000LK |      |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 1   | -0.4  | 6.4   | 6.4  | 25 | 1.0000UN |      |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 2   | -0.1  | 2.2   | 2.2  | 19 | 1.0000UN |      |       |

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|     |       |          |      |      |     |      |       |      |    |          |             |
|-----|-------|----------|------|------|-----|------|-------|------|----|----------|-------------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0  | 0.0   | 0.0  | 0  | 1.0062RG |             |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW   | MVAR  | MVA  | %I | 1.0803PU | 31.73 70472 |
|     |       |          |      | 70   |     |      |       |      |    | 124.24KV |             |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 2.5  | 10.2  | 10.5 | 9  |          |             |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -2.5 | -10.2 | 10.5 | 6  |          |             |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 10:49  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC W/ CAP RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |                |      |      |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0140PU | 4.24  | 70473 |
|           |                | 70   |      |       |      |      |    | 69.967KV |       |       |
| TO        | LOAD-PQ        |      |      | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | SWITCHED SHUNT |      |      | 0.0   | -5.6 | 5.6  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70 1 | 10.2  | -5.7 | 11.7 | 61 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70 1 | 2.1   | -0.1 | 2.1  | 6  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70 1 | -15.0 | 10.4 | 18.3 | 53 |          |       |       |
| BUS 70132 | CTY LAJ 69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0138PU | 29.01 | 70132 |
|           |                | 70   |      |       |      |      |    | 69.950KV |       |       |
| TO        | LOAD-PQ        |      |      | 16.8  | 5.5  | 17.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70 1 | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70 1 | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70 1 | -19.2 | -6.2 | 20.2 | 51 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 10:49  
 2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC W/ CAP RATING  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                                  |        |       |       |    |          |       |       |
|----------------------------------|--------|-------|-------|----|----------|-------|-------|
| BUS 70133 CTY LAM 14.4 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0400PU | 5.91  | 70133 |
| GENERATION 70                    | 24.0   | 8.1R  | 25.3  | 84 | 14.976KV |       |       |
| TO 70134 CTY LAM 25.0 70 1       | 24.0   | 8.1   | 25.3  | 97 | 1.0000UN |       |       |
| BUS 70247 LAJUNTAT 115 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0378PU | 31.93 | 70247 |
| 70                               |        |       |       |    | 119.35KV |       |       |
| TO 70060 BOONE 115 70 1          | -17.8  | 7.6   | 19.4  | 17 |          |       |       |
| TO 70248 LAJUNTAT 69.0 70 1      | 20.2   | 6.9   | 21.3  | 82 | 1.0000RG |       |       |
| TO 70472 WILOW CK 115 70 1       | -2.3   | -14.6 | 14.8  | 13 |          |       |       |
| BUS 70249 LAJUNTAW 115 AREA CKT  | MW     | MVAR  | MVA   | %I | 0.9774PU | 32.35 | 70249 |
| 70                               |        |       |       |    | 112.40KV |       |       |
| TO 70060 BOONE 115 70 1          | -20.1  | -11.8 | 23.3  | 22 |          |       |       |
| TO 70250 LAJUNTAW 69.0 70 1      | 20.1   | 11.8  | 23.3  | 95 | 1.0630UN |       |       |
| BUS 70060 BOONE 115 AREA CKT     | MW     | MVAR  | MVA   | %I | 1.0281PU | 34.80 | 70060 |
| 70                               |        |       |       |    | 118.23KV |       |       |
| TO 70061 BOONE 230 70 1          | -79.7  | -12.7 | 80.7  | 52 | 0.9937RG |       |       |
| TO 70062 BOONE 69.0 70 1         | 9.6    | 0.0   | 9.6   | 28 | 1.0000UN |       |       |
| TO 70159 DOT TAP 115 70 1        | 31.3   | 12.9  | 33.9  | 29 |          |       |       |
| TO 70247 LAJUNTAT 115 70 1       | 18.1   | -10.2 | 20.8  | 19 |          |       |       |
| TO 70249 LAJUNTAW 115 70 1       | 20.7   | 9.9   | 23.0  | 21 |          |       |       |
| BUS 70061 BOONE 230 AREA CKT     | MW     | MVAR  | MVA   | %I | 1.0434PU | 36.95 | 70061 |
| 70                               |        |       |       |    | 239.98KV |       |       |
| TO 70060 BOONE 115 70 1          | 79.8   | 15.8  | 81.3  | 52 | 0.9937UN |       |       |
| TO 70122 COMANCHE 230 70 1       | -106.1 | -1.6  | 106.1 | 23 |          |       |       |
| TO 70254 LAMAR CO 230 70 1       | 43.0   | -48.8 | 65.0  | 13 |          |       |       |
| TO 70286 MIDWAYPS 230 70 1       | -16.7  | 34.5  | 38.3  | 7  |          |       |       |
| BUS 70700 GOB_KNOB 230 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0872PU | 33.58 | 70700 |
| 70                               |        |       |       |    | 250.05KV |       |       |
| TO 70254 LAMAR CO 230 70 1       | 0.0    | 0.0   | 0.0   | 0  |          |       |       |
| TO 70701 GOB_KNOB 34.5 70 1      | 0.0    | 0.0   | 0.0   | 0  | 1.0000LK |       |       |
| TO 70702 GOB_KNOB 34.5 70 2      | 0.0    | 0.0   | 0.0   | 0  | 1.0000LK |       |       |
| BUS 70701 GOB_KNOB 34.5 AREA CKT | MW     | MVAR  | MVA   | %I | 1.0872PU | 33.58 | 70701 |
| 70                               |        |       |       |    | 37.507KV |       |       |
| TO 70700 GOB_KNOB 230 70 1       | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| BUS 70702 GOB_KNOB 34.5 AREA CKT | MW     | MVAR  | MVA   | %I | 1.0872PU | 33.58 | 70702 |
| 70                               |        |       |       |    | 37.507KV |       |       |
| TO 70700 GOB_KNOB 230 70 2       | 0.0    | 0.0   | 0.0   | 0  | 1.0000UN |       |       |
| BUS 70286 MIDWAYPS 230 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0198PU | 37.70 | 70286 |
| 70                               |        |       |       |    | 234.54KV |       |       |
| TO 70061 BOONE 230 70 1          | 16.8   | -46.9 | 49.8  | 10 |          |       |       |
| TO 70122 COMANCHE 230 70 1       | -40.2  | -40.5 | 57.1  | 11 |          |       |       |

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|    |       |              |     |    |       |        |      |       |          |          |
|----|-------|--------------|-----|----|-------|--------|------|-------|----------|----------|
| TO | 70139 | DANIELPK     | 230 | 70 | 1     | 138.2  | 14.3 | 138.9 | 27       |          |
| TO | 70285 | MIDWAYPS     | 115 | 70 | 1     | 42.5   | 10.3 | 43.8  | 43       | 1.0125UN |
| TO | 70577 | FTNVL1-213.8 | 70  | 1  | -80.0 | 4.8    | 80.1 | 31    | 1.0000UN |          |
| TO | 70578 | FTNVL3-413.8 | 70  | 1  | -80.0 | 4.8    | 80.1 | 79    | 1.0000UN |          |
| TO | 70579 | FTNVL5-613.8 | 70  | 1  | -80.0 | 4.8    | 80.1 | 79    | 1.0000UN |          |
| TO | 70584 | MIDWAYPS     | 345 | 70 | 1     | 204.3  | 17.2 | 205.1 | 40       | 1.0000LK |
| TO | 73413 | MIDWAYBR     | 230 | 73 | 1     | -121.6 | 31.2 | 125.5 | 25       |          |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 10:49  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC W/ CAP RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70459 | WALSENBG | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0441PU | 33.88 | 70459 |
|           |          |      | 70   |     |        |       |       |    | 240.15KV |       |       |
| TO 12101  | GLADSTON | 230  | 10   | 1   | 100.3  | -27.3 | 103.9 | 18 |          |       |       |
| TO 70122  | COMANCHE | 230  | 70   | 1   | -136.8 | 7.7   | 137.0 | 30 |          |       |       |
| TO 70458  | WALSENBG | 115  | 70   | 1   | 36.5   | 19.6  | 41.4  | 40 | 1.0000LK |       |       |
|           |          |      |      |     |        |       |       |    |          |       |       |
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0481PU | 39.14 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 241.07KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 106.6  | -2.8  | 106.6 | 23 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -36.6 | 327.9 | 76 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -31.6 | 333.4 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 106.5  | 9.6   | 106.9 | 36 | 0.9812UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 106.5  | 9.6   | 106.9 | 36 | 0.9812UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 40.5   | 27.9  | 49.1  | 9  |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 138.2  | -10.8 | 138.6 | 30 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 59.5   | 9.2   | 60.2  | 11 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 10:49  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC W/ CAP  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS   | -----X | AREA | V(PU)  | V(KV)  | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-------|--------|------|--------|--------|--------|-----|--------|------|-------|-------|
| 70452  | VILAS | 115    | 70   | 1.1130 | 128.00 |        |     |        |      |       |       |

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 10:49  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC W/ CAP  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.1    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 24.4    | 25.0   | 97.5    |
| 70148                | DENVTM   | 115  | 70   | 70150*             | DENVTM1  | 13.8 | 70   | 1            | 40.7    | 42.0   | 97.0    |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 49.0    | 42.0   | 116.7   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.5    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 36.1    | 33.9   | 106.4   |

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8/2002, 10:49:17AM

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 10:49  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - NO HVDC W/ CAP  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.1    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.1    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013                | CRAIG   | 230  | 73   | 79015*             | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013                | CRAIG   | 230  | 73   | 79016*             | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014                | CRAIG   | 345  | 73   | 79017*             | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |



**B-10 - Power Flow Analysis –2005 Heavy Summer**

**No wind farm in service with 48 MW scheduled transfer on HVDC Converter at Lamar**

**A - Boone – Lamar 230-kV circuit outage  
without the Golden Prairie - Lamar 230-kV circuit in service**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:30  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC NO 230GPCKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS SET A

|                   |          |      |      |     |       |       |      |    |          |       |       |
|-------------------|----------|------|------|-----|-------|-------|------|----|----------|-------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0305PU | 40.01 | 70254 |
|                   |          |      | 70   |     |       |       |      |    | 237.01KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 24.0  | -8.4  | 25.4 | 25 | 1.0000LK |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 2   | 24.0  | -8.4  | 25.4 | 25 | 1.0000LK |       |       |
| TO 70560          | LAMAR DC | 230  | 70   | 1   | -48.0 | 16.8  | 50.9 | 18 |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0379PU | 38.86 | 70253 |
|                   |          |      | 70   |     |       |       |      |    | 119.36KV |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | -24.0 | 8.9   | 25.6 | 25 | 1.0000UN |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 2   | -24.0 | 8.9   | 25.6 | 25 | 1.0000UN |       |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 13.0  | -18.5 | 22.6 | 13 |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | 35.0  | 0.6   | 35.0 | 20 |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0838PU | 36.11 | 70452 |
|                   |          |      | 70   |     |       |       |      |    | 124.63KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -12.8 | 14.4  | 19.3 | 10 |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 12.8  | -14.4 | 19.3 | 21 | 1.0750RG |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70472         | WILOW CK | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0318PU | 37.24 | 70472 |
|                   |          |      | 70   |     |       |       |      |    | 118.66KV |       |       |
| TO 70247          | LAJUNTAT | 115  | 70   | 1   | 11.6  | -5.7  | 12.9 | 11 |          |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -34.8 | -1.0  | 34.8 | 20 |          |       |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | 23.2  | 6.7   | 24.1 | 56 | 0.9565LK |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70473         | WILOW CK | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0695PU | 35.73 | 70473 |
|                   |          |      | 70   |     |       |       |      |    | 73.793KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 2.7   | 0.9   | 2.9  |    |          |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -6.2  | 6.2  |    |          |       |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 1   | 10.2  | 10.1  | 14.4 | 71 |          |       |       |
| TO 70161          | EADS     | 69.0 | 70   | 1   | 2.1   | -0.2  | 2.1  | 6  |          |       |       |
| TO 70203          | GRAN TAP | 69.0 | 70   | 1   | 8.1   | 1.4   | 8.2  | 23 |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -23.1 | -6.0  | 23.9 | 53 | 0.9565UN |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70132         | CTY LAJ  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0086PU | 31.98 | 70132 |
|                   |          |      | 70   |     |       |       |      |    | 69.590KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 16.8  | 5.5   | 17.7 |    |          |       |       |
| TO 70131          | CTY LAJ  | 13.8 | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  | 1.0000LK |       |       |
| TO 70246          | LAJ IP   | 69.0 | 70   | 1   | 2.4   | 0.7   | 2.5  | 6  |          |       |       |
| TO 70248          | LAJUNTAT | 69.0 | 70   | 1   | -19.2 | -6.2  | 20.2 | 51 |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70133         | CTY LAM  | 14.4 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0469PU | 37.71 | 70133 |
| GENERATION        |          |      | 70   |     | 24.0  | -8.3L | 25.4 | 85 | 15.076KV |       |       |
| TO 70134          | CTY LAM  | 25.0 | 70   | 1   | 24.0  | -8.3  | 25.4 | 97 | 1.0000UN |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70247         | LAJUNTAT | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0328PU | 34.93 | 70247 |
|                   |          |      | 70   |     |       |       |      |    | 118.77KV |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -11.5 | 11.5 |    |          |       |       |
| TO 70060          | BOONE    | 115  | 70   | 1   | -8.7  | 3.1   | 9.2  | 8  |          |       |       |



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|     |       |          |      |      |     |       |       |      |    |        |                |
|-----|-------|----------|------|------|-----|-------|-------|------|----|--------|----------------|
| TO  | 70248 | LAJUNTAT | 69.0 | 70   | 1   | 20.2  | 7.0   | 21.3 | 83 | 1.0000 | RG             |
| TO  | 70472 | WILOW CK | 115  | 70   | 1   | -11.5 | 1.4   | 11.6 | 10 |        |                |
| BUS | 70249 | LAJUNTAW | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9763 | PU 33.89 70249 |
|     |       |          |      | 70   |     |       |       |      |    | 112.28 | KV             |
| TO  | 70060 | BOONE    | 115  | 70   | 1   | -20.1 | -11.8 | 23.3 | 22 |        |                |
| TO  | 70250 | LAJUNTAW | 69.0 | 70   | 1   | 20.1  | 11.8  | 23.3 | 95 | 1.0630 | UN             |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:30  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC NO 230GPCKT RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS SET A

|           |              |      |      |     |        |       |       |    |          |       |       |
|-----------|--------------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70060 | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0270PU | 36.34 | 70060 |
|           |              |      | 70   |     |        |       |       |    | 118.10KV |       |       |
| TO 70061  | BOONE        | 230  | 70   | 1   | -74.6  | -13.9 | 75.9  | 49 | 1.0063RG |       |       |
| TO 70062  | BOONE        | 69.0 | 70   | 1   | 9.6    | 0.0   | 9.6   | 28 | 1.0000UN |       |       |
| TO 70159  | DOT TAP      | 115  | 70   | 1   | 35.6   | 10.4  | 37.1  | 31 |          |       |       |
| TO 70247  | LAJUNTAT     | 115  | 70   | 1   | 8.8    | -6.4  | 10.8  | 10 |          |       |       |
| TO 70249  | LAJUNTAW     | 115  | 70   | 1   | 20.7   | 9.9   | 22.9  | 21 |          |       |       |
| BUS 70061 | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0300PU | 38.41 | 70061 |
|           |              |      | 70   |     |        |       |       |    | 236.89KV |       |       |
| TO 70060  | BOONE        | 115  | 70   | 1   | 74.8   | 16.8  | 76.6  | 50 | 1.0063UN |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1   | -82.5  | -30.2 | 87.9  | 20 |          |       |       |
| TO 70286  | MIDWAYPS     | 230  | 70   | 1   | 7.7    | 13.4  | 15.5  | 3  |          |       |       |
| BUS 70286 | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0170PU | 38.24 | 70286 |
|           |              |      | 70   |     |        |       |       |    | 233.91KV |       |       |
| TO 70061  | BOONE        | 230  | 70   | 1   | -7.7   | -26.5 | 27.6  | 5  |          |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1   | -49.4  | -37.5 | 62.0  | 12 |          |       |       |
| TO 70139  | DANIELPK     | 230  | 70   | 1   | 147.7  | 13.1  | 148.3 | 29 |          |       |       |
| TO 70285  | MIDWAYPS     | 115  | 70   | 1   | 37.6   | 13.0  | 39.8  | 39 | 1.0188UN |       |       |
| TO 70577  | FTNVL1-213.8 | 70   | 70   | 1   | -80.0  | 3.1   | 80.1  | 31 | 1.0000UN |       |       |
| TO 70578  | FTNVL3-413.8 | 70   | 70   | 1   | -80.0  | 3.1   | 80.1  | 79 | 1.0000UN |       |       |
| TO 70579  | FTNVL5-613.8 | 70   | 70   | 1   | -80.0  | 3.1   | 80.1  | 79 | 1.0000UN |       |       |
| TO 70584  | MIDWAYPS     | 345  | 70   | 1   | 221.5  | 15.8  | 222.1 | 44 | 1.0000LK |       |       |
| TO 73413  | MIDWAYBR     | 230  | 73   | 1   | -109.7 | 12.8  | 110.4 | 22 |          |       |       |
| BUS 70459 | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0413PU | 34.70 | 70459 |
|           |              |      | 70   |     |        |       |       |    | 239.51KV |       |       |
| TO 12101  | GLADSTON     | 230  | 10   | 1   | 102.2  | -27.9 | 105.9 | 18 |          |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1   | -138.5 | 9.7   | 138.9 | 30 |          |       |       |
| TO 70458  | WALSENBG     | 115  | 70   | 1   | 36.4   | 18.1  | 40.6  | 39 | 1.0000LK |       |       |
| BUS 70122 | COMANCHE     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0443PU | 40.07 | 70122 |
|           |              |      | 70   |     |        |       |       |    | 240.19KV |       |       |
| TO 70061  | BOONE        | 230  | 70   | 1   | 82.9   | 24.7  | 86.5  | 19 |          |       |       |
| TO 70094  | CF&IFURN     | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1      | 24.0 | 70   | 1   | -325.8 | -48.9 | 329.4 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2      | 24.0 | 70   | 1   | -331.9 | -43.5 | 334.7 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE     | 115  | 70   | 1   | 109.4  | 10.9  | 110.0 | 38 | 0.9875UN |       |       |
| TO 70121  | COMANCHE     | 115  | 70   | 2   | 109.4  | 10.9  | 110.0 | 38 | 0.9875UN |       |       |
| TO 70286  | MIDWAYPS     | 230  | 70   | 1   | 49.7   | 25.4  | 55.8  | 11 |          |       |       |
| TO 70459  | WALSENBG     | 230  | 70   | 1   | 140.0  | -12.3 | 140.5 | 30 |          |       |       |
| TO 73477  | FULLER       | 230  | 73   | 1   | 66.2   | 7.3   | 66.6  | 13 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:30  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC NO 230GPCKT  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:30  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC NO 230GPCKT  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 24.3    | 25.0   | 97.0    |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 45.0    | 42.0   | 107.3   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.5    |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:30  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC NO 230GPCKT  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.2    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.2    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013*               | CRAIG   | 230  | 73   | 79015              | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013*               | CRAIG   | 230  | 73   | 79016              | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014*               | CRAIG   | 345  | 73   | 79017              | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**B - Boone – Lamar 230-kV circuit outage  
with the Golden Prairie - Lamar 230-kV circuit in service**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:38  
 2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 W/ DC RATING  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS SET A

|                   |          |      |      |     |       |       |      |    |          |       |       |
|-------------------|----------|------|------|-----|-------|-------|------|----|----------|-------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0309PU | 40.00 | 70254 |
|                   |          |      | 70   |     |       |       |      |    | 237.10KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 24.0  | -8.4  | 25.4 | 25 | 1.0000LK |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 2   | 24.0  | -8.4  | 25.4 | 25 | 1.0000LK |       |       |
| TO 70560          | LAMAR DC | 230  | 70   | 1   | -48.0 | 29.5  | 56.3 | 20 |          |       |       |
| TO 70700          | GOB_KNOB | 230  | 70   | 1   | 0.0   | -12.7 | 12.7 | 2  |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0383PU | 38.86 | 70253 |
|                   |          |      | 70   |     |       |       |      |    | 119.41KV |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | -24.0 | 8.9   | 25.6 | 25 | 1.0000UN |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 2   | -24.0 | 8.9   | 25.6 | 25 | 1.0000UN |       |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 13.0  | -18.5 | 22.7 | 13 |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | 35.0  | 0.7   | 35.0 | 20 |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0842PU | 36.10 | 70452 |
|                   |          |      | 70   |     |       |       |      |    | 124.68KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -12.8 | 14.4  | 19.3 | 10 |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 12.8  | -14.4 | 19.3 | 21 | 1.0750RG |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70472         | WILOW CK | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0322PU | 37.23 | 70472 |
|                   |          |      | 70   |     |       |       |      |    | 118.70KV |       |       |
| TO 70247          | LAJUNTAT | 115  | 70   | 1   | 11.6  | -5.6  | 12.9 | 11 |          |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -34.8 | -1.0  | 34.8 | 20 |          |       |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | 23.2  | 6.6   | 24.1 | 56 | 0.9565LK |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70473         | WILOW CK | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0698PU | 35.73 | 70473 |
|                   |          |      | 70   |     |       |       |      |    | 73.819KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 2.7   | 0.9   | 2.9  |    |          |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -6.2  | 6.2  |    |          |       |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 1   | 10.2  | 10.1  | 14.4 | 71 |          |       |       |
| TO 70161          | EADS     | 69.0 | 70   | 1   | 2.1   | -0.2  | 2.1  | 6  |          |       |       |
| TO 70203          | GRAN TAP | 69.0 | 70   | 1   | 8.1   | 1.4   | 8.2  | 23 |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -23.1 | -6.0  | 23.9 | 53 | 0.9565UN |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70132         | CTY LAJ  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0087PU | 31.97 | 70132 |
|                   |          |      | 70   |     |       |       |      |    | 69.603KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 16.8  | 5.5   | 17.7 |    |          |       |       |
| TO 70131          | CTY LAJ  | 13.8 | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  | 1.0000LK |       |       |
| TO 70246          | LAJ IP   | 69.0 | 70   | 1   | 2.4   | 0.7   | 2.5  | 6  |          |       |       |
| TO 70248          | LAJUNTAT | 69.0 | 70   | 1   | -19.2 | -6.2  | 20.2 | 51 |          |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70133         | CTY LAM  | 14.4 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0473PU | 37.70 | 70133 |
| GENERATION        |          |      | 70   |     | 24.0  | -8.3L | 25.4 | 85 | 15.082KV |       |       |
| TO 70134          | CTY LAM  | 25.0 | 70   | 1   | 24.0  | -8.3  | 25.4 | 97 | 1.0000UN |       |       |
|                   |          |      |      |     |       |       |      |    |          |       |       |
| BUS 70247         | LAJUNTAT | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0329PU | 34.92 | 70247 |
|                   |          |      | 70   |     |       |       |      |    | 118.79KV |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -11.5 | 11.5 |    |          |       |       |

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|     |       |          |      |      |     |       |       |      |    |        |                |
|-----|-------|----------|------|------|-----|-------|-------|------|----|--------|----------------|
| TO  | 70060 | BOONE    | 115  | 70   | 1   | -8.7  | 3.2   | 9.2  | 8  |        |                |
| TO  | 70248 | LAJUNTAT | 69.0 | 70   | 1   | 20.2  | 7.0   | 21.3 | 83 | 1.0000 | RG             |
| TO  | 70472 | WILOW CK | 115  | 70   | 1   | -11.5 | 1.4   | 11.6 | 10 |        |                |
| BUS | 70249 | LAJUNTAW | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9764 | PU 33.89 70249 |
|     |       |          |      | 70   |     |       |       |      |    | 112.28 | KV             |
| TO  | 70060 | BOONE    | 115  | 70   | 1   | -20.1 | -11.8 | 23.3 | 22 |        |                |
| TO  | 70250 | LAJUNTAW | 69.0 | 70   | 1   | 20.1  | 11.8  | 23.3 | 95 | 1.0630 | UN             |



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:38  
 2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 W/ DC RATING  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS SET A

|           |              |      |      |       |        |       |       |          |          |       |       |
|-----------|--------------|------|------|-------|--------|-------|-------|----------|----------|-------|-------|
| BUS 70060 | BOONE        | 115  | AREA | CKT   | MW     | MVAR  | MVA   | %I       | 1.0270PU | 36.34 | 70060 |
|           |              | 70   |      |       |        |       |       |          | 118.10KV |       |       |
| TO 70061  | BOONE        | 230  | 70   | 1     | -74.6  | -13.9 | 75.9  | 49       | 1.0063RG |       |       |
| TO 70062  | BOONE        | 69.0 | 70   | 1     | 9.6    | 0.0   | 9.6   | 28       | 1.0000UN |       |       |
| TO 70159  | DOT TAP      | 115  | 70   | 1     | 35.6   | 10.4  | 37.1  | 31       |          |       |       |
| TO 70247  | LAJUNTAT     | 115  | 70   | 1     | 8.8    | -6.5  | 10.9  | 10       |          |       |       |
| TO 70249  | LAJUNTAW     | 115  | 70   | 1     | 20.7   | 9.9   | 22.9  | 21       |          |       |       |
| BUS 70061 | BOONE        | 230  | AREA | CKT   | MW     | MVAR  | MVA   | %I       | 1.0300PU | 38.41 | 70061 |
|           |              | 70   |      |       |        |       |       |          | 236.89KV |       |       |
| TO 70060  | BOONE        | 115  | 70   | 1     | 74.8   | 16.7  | 76.6  | 50       | 1.0063UN |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1     | -82.5  | -30.2 | 87.9  | 20       |          |       |       |
| TO 70286  | MIDWAYPS     | 230  | 70   | 1     | 7.7    | 13.4  | 15.5  | 3        |          |       |       |
| BUS 70700 | GOB_KNOB     | 230  | AREA | CKT   | MW     | MVAR  | MVA   | %I       | 1.0344PU | 39.98 | 70700 |
|           |              | 70   |      |       |        |       |       |          | 237.91KV |       |       |
| TO 70254  | LAMAR CO     | 230  | 70   | 1     | 0.0    | 0.0   | 0.0   | 0        |          |       |       |
| TO 70701  | GOB_KNOB     | 34.5 | 70   | 1     | 0.0    | 0.0   | 0.0   | 0        | 1.0000LK |       |       |
| TO 70702  | GOB_KNOB     | 34.5 | 70   | 2     | 0.0    | 0.0   | 0.0   | 0        | 1.0000LK |       |       |
| BUS 70701 | GOB_KNOB     | 34.5 | AREA | CKT   | MW     | MVAR  | MVA   | %I       | 1.0344PU | 39.98 | 70701 |
|           |              | 70   |      |       |        |       |       |          | 35.687KV |       |       |
| TO 70700  | GOB_KNOB     | 230  | 70   | 1     | 0.0    | 0.0   | 0.0   | 0        | 1.0000UN |       |       |
| BUS 70702 | GOB_KNOB     | 34.5 | AREA | CKT   | MW     | MVAR  | MVA   | %I       | 1.0344PU | 39.98 | 70702 |
|           |              | 70   |      |       |        |       |       |          | 35.687KV |       |       |
| TO 70700  | GOB_KNOB     | 230  | 70   | 2     | 0.0    | 0.0   | 0.0   | 0        | 1.0000UN |       |       |
| BUS 70286 | MIDWAYPS     | 230  | AREA | CKT   | MW     | MVAR  | MVA   | %I       | 1.0170PU | 38.24 | 70286 |
|           |              | 70   |      |       |        |       |       |          | 233.91KV |       |       |
| TO 70061  | BOONE        | 230  | 70   | 1     | -7.7   | -26.5 | 27.6  | 5        |          |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1     | -49.4  | -37.5 | 62.0  | 12       |          |       |       |
| TO 70139  | DANIELPK     | 230  | 70   | 1     | 147.7  | 13.1  | 148.3 | 29       |          |       |       |
| TO 70285  | MIDWAYPS     | 115  | 70   | 1     | 37.6   | 13.0  | 39.8  | 39       | 1.0188UN |       |       |
| TO 70577  | FTNVL1-213.8 | 70   | 1    | -80.0 | 3.1    | 80.1  | 31    | 1.0000UN |          |       |       |
| TO 70578  | FTNVL3-413.8 | 70   | 1    | -80.0 | 3.1    | 80.1  | 79    | 1.0000UN |          |       |       |
| TO 70579  | FTNVL5-613.8 | 70   | 1    | -80.0 | 3.1    | 80.1  | 79    | 1.0000UN |          |       |       |
| TO 70584  | MIDWAYPS     | 345  | 70   | 1     | 221.5  | 15.8  | 222.1 | 44       | 1.0000LK |       |       |
| TO 73413  | MIDWAYBR     | 230  | 73   | 1     | -109.7 | 12.9  | 110.4 | 22       |          |       |       |
| BUS 70459 | WALSENBG     | 230  | AREA | CKT   | MW     | MVAR  | MVA   | %I       | 1.0413PU | 34.70 | 70459 |
|           |              | 70   |      |       |        |       |       |          | 239.51KV |       |       |
| TO 12101  | GLADSTON     | 230  | 10   | 1     | 102.2  | -27.9 | 105.9 | 18       |          |       |       |
| TO 70122  | COMANCHE     | 230  | 70   | 1     | -138.5 | 9.7   | 138.9 | 30       |          |       |       |
| TO 70458  | WALSENBG     | 115  | 70   | 1     | 36.4   | 18.1  | 40.6  | 39       | 1.0000LK |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:38  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 W/ DC RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0443PU | 40.07 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 240.19KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 82.9   | 24.7  | 86.5  | 19 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -48.9 | 329.4 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -43.5 | 334.7 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 109.4  | 10.9  | 110.0 | 38 | 0.9875UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 109.4  | 10.9  | 110.0 | 38 | 0.9875UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 49.7   | 25.4  | 55.8  | 11 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 140.0  | -12.3 | 140.5 | 30 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 66.2   | 7.3   | 66.6  | 13 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:38  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 W/ DC  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:38  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 W/ DC  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133*               | CTY LAM  | 14.4 | 70   | 70134              | CTY LAM  | 25.0 | 70   | 1            | 24.2    | 25.0   | 97.0    |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 45.0    | 42.0   | 107.3   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.5    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:38  
2005-2/11/02 BOONE-LAMAR 230 CKT OUTAGE 2005 W/ DC  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.2    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.2    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013                | CRAIG   | 230  | 73   | 79015*             | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013                | CRAIG   | 230  | 73   | 79016*             | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014*               | CRAIG   | 345  | 73   | 79017              | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052*               | NUCLA   | 115  | 73   | 79161              | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**C - Willow Creek 115/69-kV transformer outage  
without the Golden Prairie - Lamar 230-kV circuit in service**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:04  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-WITH HVDC NOGP230 RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                        |      |      |       |       |      |     |          |          |       |       |
|------------------------|------|------|-------|-------|------|-----|----------|----------|-------|-------|
| BUS 70254 LAMAR CO 230 | AREA | CKT  | MW    | MVAR  | MVA  | %I  | 1.0306PU | 38.36    | 70254 |       |
|                        | 70   |      |       |       |      |     | 237.05KV |          |       |       |
| TO 70061 BOONE         | 230  | 70 1 | 0.3   | -17.0 | 17.0 | 3   |          |          |       |       |
| TO 70253 LAMAR CO 115  | 70   | 1    | 47.7  | -5.2  | 48.0 | 47  | 1.0000LK |          |       |       |
| TO 70560 LAMAR DC 230  | 70   | 1    | -48.0 | 22.1  | 52.9 | 18  |          |          |       |       |
| BUS 70253 LAMAR CO 115 | AREA | CKT  | MW    | MVAR  | MVA  | %I  | 1.0359PU | 36.08    | 70253 |       |
|                        | 70   |      |       |       |      |     | 119.13KV |          |       |       |
| TO 70254 LAMAR CO 230  | 70   | 1    | -47.7 | 7.1   | 48.3 | 47  | 1.0000UN |          |       |       |
| TO 70452 VILAS         | 115  | 70 1 | 39.9  | -6.6  | 40.4 | 23  |          |          |       |       |
| TO 70472 WILLOW CK 115 | 70   | 1    | 7.9   | -0.5  | 7.9  | 4   |          |          |       |       |
| BUS 70452 VILAS        | 115  | AREA | CKT   | MW    | MVAR | MVA | %I       | 1.0341PU | 28.67 | 70452 |
|                        | 70   |      |       |       |      |     | 118.92KV |          |       |       |
| TO 70253 LAMAR CO 115  | 70   | 1    | -39.0 | 6.5   | 39.5 | 22  |          |          |       |       |
| TO 70453 VILAS         | 69.0 | 70 1 | 39.0  | -6.5  | 39.5 | 45  | 1.0188RG |          |       |       |
| BUS 70453 VILAS        | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 1.0201PU | 26.45 | 70453 |
|                        | 70   |      |       |       |      |     | 70.389KV |          |       |       |
| TO 70223 HLTP TAP69.0  | 70   | 1    | 7.0   | 2.1   | 7.3  | 18  |          |          |       |       |
| TO 70452 VILAS         | 115  | 70 1 | -38.9 | 8.0   | 39.7 | 46  | 1.0188UN |          |       |       |
| TO 70460 WALSH         | 69.0 | 70 1 | 31.9  | -10.1 | 33.5 | 97  |          |          |       |       |
| BUS 70223 HLTP TAP69.0 | AREA | CKT  | MW    | MVAR  | MVA  | %I  | 1.0161PU | 26.16    | 70223 |       |
|                        | 70   |      |       |       |      |     | 70.111KV |          |       |       |
| TO 70222 HILLTOP       | 69.0 | 70 1 | 4.0   | 1.3   | 4.2  | 12  |          |          |       |       |
| TO 70404 SPRNGFLD      | 69.0 | 70 1 | 2.9   | 0.8   | 3.1  | 8   |          |          |       |       |
| TO 70453 VILAS         | 69.0 | 70 1 | -7.0  | -2.1  | 7.3  | 18  |          |          |       |       |
| BUS 70460 WALSH        | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 1.0144PU | 23.16 | 70460 |
|                        | 70   |      |       |       |      |     | 69.993KV |          |       |       |
| TO LOAD-PQ             |      |      | 4.0   | 1.3   | 4.2  |     |          |          |       |       |
| TO SWITCHED SHUNT      |      |      | 0.0   | -16.7 | 16.7 |     |          |          |       |       |
| TO 70425 T BUTTES      | 69.0 | 70 1 | 27.1  | 4.0   | 27.4 | 80  |          |          |       |       |
| TO 70453 VILAS         | 69.0 | 70 1 | -31.1 | 11.4  | 33.1 | 96  |          |          |       |       |
| BUS 70425 T BUTTES     | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 0.9863PU | 20.57 | 70425 |
|                        | 70   |      |       |       |      |     | 68.058KV |          |       |       |
| TO LOAD-PQ             |      |      | 2.1   | 0.7   | 2.2  |     |          |          |       |       |
| TO 70101 CHEN TAP      | 69.0 | 70 1 | 24.4  | 2.3   | 24.5 | 73  |          |          |       |       |
| TO 70460 WALSH         | 69.0 | 70 1 | -26.5 | -3.0  | 26.7 | 80  |          |          |       |       |
| BUS 70101 CHEN TAP     | 69.0 | AREA | CKT   | MW    | MVAR | MVA | %I       | 0.9484PU | 16.38 | 70101 |
|                        | 70   |      |       |       |      |     | 65.440KV |          |       |       |
| TO 70102 CHENEY        | 69.0 | 70 1 | 3.0   | 0.8   | 3.0  | 9   |          |          |       |       |
| TO 70225 HOLL TAP      | 69.0 | 70 1 | 20.6  | 0.1   | 20.6 | 64  |          |          |       |       |
| TO 70425 T BUTTES      | 69.0 | 70 1 | -23.6 | -0.9  | 23.6 | 73  |          |          |       |       |

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|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 0.9448PU | 16.13 | 70102 |
|                   |      | 70   |     |      |      |     |    | 65.191KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -2.9 | -1.0 | 3.1 | 10 |          |       |       |



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:04  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-WITH HVDC NOGP230 RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                        |      |     |       |      |      |     |          |       |       |
|------------------------|------|-----|-------|------|------|-----|----------|-------|-------|
| BUS 70225 HOLL TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9235PU | 12.88 | 70225 |
| 70                     |      |     |       |      |      |     | 63.720KV |       |       |
| TO 70101 CHEN TAP69.0  | 70   | 1   | -20.1 | 0.7  | 20.1 | 64  |          |       |       |
| TO 70184 FT HOLLY69.0  | 70   | 1   | 2.9   | 0.8  | 3.1  | 10  |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | 17.1  | -1.6 | 17.2 | 55  |          |       |       |
| BUS 70184 FT HOLLY69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9208PU | 12.70 | 70184 |
| 70                     |      |     |       |      |      |     | 63.537KV |       |       |
| TO LOAD-PQ             |      |     | 2.9   | 1.0  | 3.1  |     |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -2.9  | -1.0 | 3.1  | 10  |          |       |       |
| BUS 70203 GRAN TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9185PU | 11.98 | 70203 |
| 70                     |      |     |       |      |      |     | 63.378KV |       |       |
| TO 70204 GRANADA 69.0  | 70   | 1   | 1.6   | 0.5  | 1.7  | 5   |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -17.0 | 1.7  | 17.1 | 55  |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | 15.4  | -2.2 | 15.6 | 50  |          |       |       |
| BUS 70204 GRANADA 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9180PU | 11.94 | 70204 |
| 70                     |      |     |       |      |      |     | 63.340KV |       |       |
| TO LOAD-PQ             |      |     | 1.6   | 0.5  | 1.7  |     |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | -1.6  | -0.5 | 1.7  | 5   |          |       |       |
| BUS 70161 EADS 69.0    | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.8956PU | 8.00  | 70161 |
| 70                     |      |     |       |      |      |     | 61.794KV |       |       |
| TO LOAD-PQ             |      |     | 2.1   | 0.7  | 2.2  |     |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -2.1  | -0.7 | 2.2  | 7   |          |       |       |
| BUS 70136 CTY LAM 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9043PU | 8.53  | 70136 |
| 70                     |      |     |       |      |      |     | 62.394KV |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 1   | 0.4   | -4.9 | 4.9  | 22  | 1.0000LK |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 2   | 0.1   | -1.6 | 1.6  | 16  | 1.0000LK |       |       |
| TO 70185 FT. LYON69.0  | 70   | 1   | 7.7   | 2.5  | 8.1  | 23  |          |       |       |
| TO 70333 PROWERS 69.0  | 70   | 1   | 2.0   | 0.5  | 2.1  | 6   |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -10.2 | 3.6  | 10.8 | 63  |          |       |       |
| BUS 70185 FT. LYON69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.8984PU | 8.06  | 70185 |
| 70                     |      |     |       |      |      |     | 61.988KV |       |       |
| TO LOAD-PQ             |      |     | 7.7   | 2.5  | 8.1  |     |          |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -7.7  | -2.5 | 8.1  | 23  |          |       |       |
| BUS 70134 CTY LAM 25.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9128PU | 8.43  | 70134 |
| 70                     |      |     |       |      |      |     | 22.820KV |       |       |
| TO LOAD-PQ             |      |     | 24.4  | 8.0  | 25.7 |     |          |       |       |
| TO SWITCHED SHUNT      |      |     | 0.0   | -7.5 | 7.5  |     |          |       |       |
| TO 70133 CTY LAM 14.4  | 70   | 1   | -23.8 | -7.1 | 24.9 | 109 | 1.0000LK |       |       |
| TO 70135 CTY LAM 4.20  | 70   | 1   | 0.0   | 0.0  | 0.0  | 0   | 1.0000LK |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -0.4  | 4.9  | 4.9  | 22  | 1.0000UN |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 2   | -0.1  | 1.7  | 1.7  | 16  | 1.0000UN |       |       |

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|     |       |          |      |      |     |      |      |     |    |          |             |
|-----|-------|----------|------|------|-----|------|------|-----|----|----------|-------------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0  | 0.0  | 0.0 | 0  | 0.9000LO |             |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW   | MVAR | MVA | %I | 1.0346PU | 35.71 70472 |
|     |       |          |      | 70   |     |      |      |     |    | 118.98KV |             |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 7.8  | 0.8  | 7.9 | 7  |          |             |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -7.8 | -0.8 | 7.9 | 4  |          |             |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:04  
 2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-WITH HVDC NOGP230 RATING  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |                |      |      |     |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-----|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK       | 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9046PU | 8.81  | 70473 |
|           |                |      | 70   |     |       |      |      |    | 62.417KV |       |       |
| TO        | LOAD-PQ        |      |      |     | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70   | 1   | 10.3  | -3.5 | 10.9 | 63 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70   | 1   | 2.1   | 0.1  | 2.1  | 7  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70   | 1   | -15.0 | 2.6  | 15.3 | 50 |          |       |       |
|           |                |      |      |     |       |      |      |    |          |       |       |
| BUS 70132 | CTY LAJ        | 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0124PU | 31.49 | 70132 |
|           |                |      | 70   |     |       |      |      |    | 69.856KV |       |       |
| TO        | LOAD-PQ        |      |      |     | 16.8  | 5.5  | 17.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70   | 1   | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70   | 1   | -19.2 | -6.2 | 20.2 | 51 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:04  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-WITH HVDC NOGP230 RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|            |              |      |      |     |        |       |       |     |          |       |       |
|------------|--------------|------|------|-----|--------|-------|-------|-----|----------|-------|-------|
| BUS 70133  | CTY LAM      | 14.4 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9303PU | 10.93 | 70133 |
| GENERATION |              |      | 70   |     | 24.0   | 8.3H  | 25.4  | 85  | 13.397KV |       |       |
| TO 70134   | CTY LAM      | 25.0 | 70   | 1   | 24.0   | 8.3   | 25.3  | 109 | 1.0000UN |       |       |
| BUS 70247  | LAJUNTAT     | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0171PU | 34.42 | 70247 |
|            |              |      | 70   |     |        |       |       |     | 116.96KV |       |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | -12.4  | -1.8  | 12.5  | 11  |          |       |       |
| TO 70248   | LAJUNTAT     | 69.0 | 70   | 1   | 20.2   | 6.9   | 21.3  | 84  | 0.9813RG |       |       |
| TO 70472   | WILOW CK     | 115  | 70   | 1   | -7.8   | -5.2  | 9.4   | 8   |          |       |       |
| BUS 70249  | LAJUNTAW     | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9756PU | 33.74 | 70249 |
|            |              |      | 70   |     |        |       |       |     | 112.19KV |       |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | -20.1  | -11.9 | 23.3  | 22  |          |       |       |
| TO 70250   | LAJUNTAW     | 69.0 | 70   | 1   | 20.1   | 11.9  | 23.3  | 96  | 1.0693UN |       |       |
| BUS 70060  | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0266PU | 36.19 | 70060 |
|            |              |      | 70   |     |        |       |       |     | 118.06KV |       |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -77.6  | -19.3 | 80.0  | 52  | 1.0063RG |       |       |
| TO 70062   | BOONE        | 69.0 | 70   | 1   | 9.6    | 0.1   | 9.6   | 28  | 1.0063UN |       |       |
| TO 70159   | DOT TAP      | 115  | 70   | 1   | 34.9   | 10.4  | 36.4  | 31  |          |       |       |
| TO 70247   | LAJUNTAT     | 115  | 70   | 1   | 12.5   | -1.3  | 12.6  | 11  |          |       |       |
| TO 70249   | LAJUNTAW     | 115  | 70   | 1   | 20.6   | 10.1  | 23.0  | 21  |          |       |       |
| BUS 70061  | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0325PU | 38.33 | 70061 |
|            |              |      | 70   |     |        |       |       |     | 237.47KV |       |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | 77.8   | 22.5  | 81.0  | 52  | 1.0063UN |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -83.9  | -25.2 | 87.6  | 20  |          |       |       |
| TO 70254   | LAMAR CO     | 230  | 70   | 1   | -0.3   | -14.3 | 14.3  | 3   |          |       |       |
| TO 70286   | MIDWAYPS     | 230  | 70   | 1   | 6.3    | 17.0  | 18.2  | 4   |          |       |       |
| BUS 70286  | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0174PU | 38.22 | 70286 |
|            |              |      | 70   |     |        |       |       |     | 234.01KV |       |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -6.3   | -30.0 | 30.7  | 6   |          |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -48.8  | -37.9 | 61.8  | 12  |          |       |       |
| TO 70139   | DANIELPK     | 230  | 70   | 1   | 147.0  | 13.3  | 147.6 | 29  |          |       |       |
| TO 70285   | MIDWAYPS     | 115  | 70   | 1   | 38.3   | 13.0  | 40.4  | 40  | 1.0188UN |       |       |
| TO 70577   | FTNVL1-213.8 | 70   | 70   | 1   | -80.0  | 3.3   | 80.1  | 31  | 1.0000UN |       |       |
| TO 70578   | FTNVL3-413.8 | 70   | 70   | 1   | -80.0  | 3.3   | 80.1  | 79  | 1.0000UN |       |       |
| TO 70579   | FTNVL5-613.8 | 70   | 70   | 1   | -80.0  | 3.3   | 80.1  | 79  | 1.0000UN |       |       |
| TO 70584   | MIDWAYPS     | 345  | 70   | 1   | 220.3  | 16.2  | 220.9 | 43  | 1.0000LK |       |       |
| TO 73413   | MIDWAYBR     | 230  | 73   | 1   | -110.5 | 15.3  | 111.6 | 22  |          |       |       |
| BUS 70459  | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0419PU | 34.66 | 70459 |
|            |              |      | 70   |     |        |       |       |     | 239.63KV |       |       |
| TO 12101   | GLADSTON     | 230  | 10   | 1   | 102.1  | -27.7 | 105.8 | 18  |          |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -138.5 | 9.5   | 138.8 | 30  |          |       |       |
| TO 70458   | WALSENBG     | 115  | 70   | 1   | 36.3   | 18.2  | 40.6  | 39  | 1.0000LK |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:04  
 2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-WITH HVDC NOGP230 RATING  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0449PU | 40.03 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 240.34KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 84.2   | 19.6  | 86.5  | 19 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -46.9 | 329.1 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -41.5 | 334.5 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 109.3  | 11.1  | 109.9 | 38 | 0.9875UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 109.3  | 11.1  | 109.9 | 38 | 0.9875UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 49.1   | 25.7  | 55.4  | 10 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 139.9  | -12.2 | 140.4 | 30 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 65.7   | 7.6   | 66.2  | 13 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:04  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-WITH HVDC NOGP230  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS      | -----X | AREA | V(PU)  | V(KV)  | X----- | BUS      | -----X | AREA | V(PU)  | V(KV)  |
|--------|----------|--------|------|--------|--------|--------|----------|--------|------|--------|--------|
| 70134  | CTY LAM  | 25.0   | 70   | 0.9128 | 22.820 | 70135  | CTY LAM  | 4.20   | 70   | 0.9128 | 3.834  |
| 70136  | CTY LAM  | 69.0   | 70   | 0.9043 | 62.394 | 70161  | EADS     | 69.0   | 70   | 0.8956 | 61.794 |
| 70185  | FT. LYON | 69.0   | 70   | 0.8984 | 61.988 | 70203  | GRAN TAP | 69.0   | 70   | 0.9185 | 63.378 |
| 70204  | GRANADA  | 69.0   | 70   | 0.9180 | 63.340 | 70333  | PROWERS  | 69.0   | 70   | 0.9018 | 62.224 |
| 70473  | WILOW CK | 69.0   | 70   | 0.9046 | 62.417 |        |          |        |      |        |        |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:04  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-WITH HVDC NOGP230  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.1    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 27.2    | 25.0   | 109.0   |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 45.0    | 42.0   | 107.2   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.7    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 32.8    | 33.9   | 96.8    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:04  
 2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-WITH HVDC NOGP230  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
 OUTPUT FOR AREA 73 [WAPA R.M.]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.1    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.2    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013*               | CRAIG   | 230  | 73   | 79015              | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013*               | CRAIG   | 230  | 73   | 79016              | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014                | CRAIG   | 345  | 73   | 79017*             | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |



**D - Willow Creek 115/69-kV transformer outage  
with the Golden Prairie - Lamar 230-kV circuit in service**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:15  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                   |           |      |      |     |       |       |      |    |          |       |       |
|-------------------|-----------|------|------|-----|-------|-------|------|----|----------|-------|-------|
| BUS 70254         | LAMAR CO  | 230  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0310PU | 38.36 | 70254 |
|                   |           |      | 70   |     |       |       |      |    | 237.13KV |       |       |
| TO 70061          | BOONE     | 230  | 70   | 1   | 0.2   | -16.8 | 16.8 | 3  |          |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | 47.8  | -5.0  | 48.0 | 47 | 1.0000LK |       |       |
| TO 70560          | LAMAR DC  | 230  | 70   | 1   | -48.0 | 34.5  | 59.1 | 20 |          |       |       |
| TO 70700          | GOB_KNOB  | 230  | 70   | 1   | 0.0   | -12.7 | 12.7 | 2  |          |       |       |
| BUS 70253         | LAMAR CO  | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0361PU | 36.08 | 70253 |
|                   |           |      | 70   |     |       |       |      |    | 119.16KV |       |       |
| TO 70254          | LAMAR CO  | 230  | 70   | 1   | -47.8 | 6.9   | 48.3 | 47 | 1.0000UN |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | 39.9  | -6.4  | 40.4 | 23 |          |       |       |
| TO 70472          | WILLOW CK | 115  | 70   | 1   | 7.9   | -0.5  | 7.9  | 4  |          |       |       |
| BUS 70452         | VILAS     | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0339PU | 28.67 | 70452 |
|                   |           |      | 70   |     |       |       |      |    | 118.90KV |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | -39.0 | 6.4   | 39.5 | 22 |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | 39.0  | -6.4  | 39.5 | 46 | 1.0187RG |       |       |
| BUS 70453         | VILAS     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0198PU | 26.44 | 70453 |
|                   |           |      | 70   |     |       |       |      |    | 70.368KV |       |       |
| TO 70223          | HLTP TAP  | 69.0 | 70   | 1   | 7.0   | 2.1   | 7.3  | 18 |          |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | -38.9 | 7.9   | 39.7 | 46 | 1.0187UN |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | 31.9  | -10.0 | 33.5 | 97 |          |       |       |
| BUS 70223         | HLTP TAP  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0158PU | 26.16 | 70223 |
|                   |           |      | 70   |     |       |       |      |    | 70.090KV |       |       |
| TO 70222          | HILLTOP   | 69.0 | 70   | 1   | 4.0   | 1.3   | 4.2  | 12 |          |       |       |
| TO 70404          | SPRNGFLD  | 69.0 | 70   | 1   | 2.9   | 0.8   | 3.1  | 8  |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -7.0  | -2.1  | 7.3  | 18 |          |       |       |
| BUS 70460         | WALSH     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0139PU | 23.16 | 70460 |
|                   |           |      | 70   |     |       |       |      |    | 69.959KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 4.0   | 1.3   | 4.2  |    |          |       |       |
| TO SWITCHED SHUNT |           |      |      |     | 0.0   | -16.7 | 16.7 |    |          |       |       |
| TO 70425          | T BUTTES  | 69.0 | 70   | 1   | 27.1  | 4.1   | 27.4 | 80 |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -31.1 | 11.2  | 33.1 | 96 |          |       |       |
| BUS 70425         | T BUTTES  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9857PU | 20.57 | 70425 |
|                   |           |      | 70   |     |       |       |      |    | 68.010KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 2.1   | 0.7   | 2.2  |    |          |       |       |
| TO 70101          | CHEN TAP  | 69.0 | 70   | 1   | 24.5  | 2.4   | 24.6 | 74 |          |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | -26.5 | -3.0  | 26.7 | 80 |          |       |       |
| BUS 70101         | CHEN TAP  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9474PU | 16.37 | 70101 |
|                   |           |      | 70   |     |       |       |      |    | 65.370KV |       |       |
| TO 70102          | CHENEY    | 69.0 | 70   | 1   | 3.0   | 0.8   | 3.1  | 10 |          |       |       |
| TO 70225          | HOLL TAP  | 69.0 | 70   | 1   | 20.7  | 0.2   | 20.7 | 64 |          |       |       |
| TO 70425          | T BUTTES  | 69.0 | 70   | 1   | -23.6 | -1.0  | 23.7 | 74 |          |       |       |

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|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 0.9438PU | 16.12 | 70102 |
|                   |      | 70   |     |      |      |     |    | 65.121KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -3.0 | -1.0 | 3.1 | 10 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:15  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                        |      |     |       |      |      |     |          |       |       |
|------------------------|------|-----|-------|------|------|-----|----------|-------|-------|
| BUS 70225 HOLL TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9222PU | 12.86 | 70225 |
|                        | 70   |     |       |      |      |     | 63.632KV |       |       |
| TO 70101 CHEN TAP69.0  | 70   | 1   | -20.1 | 0.7  | 20.1 | 64  |          |       |       |
| TO 70184 FT HOLLY69.0  | 70   | 1   | 3.0   | 0.8  | 3.1  | 10  |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | 17.2  | -1.5 | 17.2 | 55  |          |       |       |
| BUS 70184 FT HOLLY69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9195PU | 12.67 | 70184 |
|                        | 70   |     |       |      |      |     | 63.448KV |       |       |
| TO LOAD-PQ             |      |     | 2.9   | 1.0  | 3.1  |     |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -3.0  | -1.0 | 3.1  | 10  |          |       |       |
| BUS 70203 GRAN TAP69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9172PU | 11.95 | 70203 |
|                        | 70   |     |       |      |      |     | 63.286KV |       |       |
| TO 70204 GRANADA 69.0  | 70   | 1   | 1.6   | 0.5  | 1.7  | 5   |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -17.1 | 1.7  | 17.1 | 55  |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | 15.5  | -2.2 | 15.6 | 50  |          |       |       |
| BUS 70204 GRANADA 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9166PU | 11.91 | 70204 |
|                        | 70   |     |       |      |      |     | 63.248KV |       |       |
| TO LOAD-PQ             |      |     | 1.6   | 0.5  | 1.7  |     |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | -1.6  | -0.5 | 1.7  | 5   |          |       |       |
| BUS 70161 EADS 69.0    | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.8939PU | 7.95  | 70161 |
|                        | 70   |     |       |      |      |     | 61.681KV |       |       |
| TO LOAD-PQ             |      |     | 2.1   | 0.7  | 2.2  |     |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -2.1  | -0.7 | 2.2  | 7   |          |       |       |
| BUS 70136 CTY LAM 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9027PU | 8.48  | 70136 |
|                        | 70   |     |       |      |      |     | 62.284KV |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 1   | 0.4   | -4.8 | 4.9  | 22  | 1.0000LK |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 2   | 0.1   | -1.6 | 1.6  | 16  | 1.0000LK |       |       |
| TO 70185 FT. LYON69.0  | 70   | 1   | 7.7   | 2.5  | 8.1  | 23  |          |       |       |
| TO 70333 PROWERS 69.0  | 70   | 1   | 2.0   | 0.5  | 2.1  | 6   |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -10.3 | 3.5  | 10.9 | 63  |          |       |       |
| BUS 70185 FT. LYON69.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.8968PU | 8.01  | 70185 |
|                        | 70   |     |       |      |      |     | 61.876KV |       |       |
| TO LOAD-PQ             |      |     | 7.7   | 2.5  | 8.1  |     |          |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -7.7  | -2.5 | 8.1  | 23  |          |       |       |
| BUS 70134 CTY LAM 25.0 | AREA | CKT | MW    | MVAR | MVA  | %I  | 0.9112PU | 8.39  | 70134 |
|                        | 70   |     |       |      |      |     | 22.779KV |       |       |
| TO LOAD-PQ             |      |     | 24.4  | 8.0  | 25.7 |     |          |       |       |
| TO SWITCHED SHUNT      |      |     | 0.0   | -7.5 | 7.5  |     |          |       |       |
| TO 70133 CTY LAM 14.4  | 70   | 1   | -23.9 | -7.1 | 25.0 | 110 | 1.0000LK |       |       |
| TO 70135 CTY LAM 4.20  | 70   | 1   | 0.0   | 0.0  | 0.0  | 0   | 1.0000LK |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -0.4  | 4.9  | 4.9  | 22  | 1.0000UN |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 2   | -0.1  | 1.6  | 1.6  | 16  | 1.0000UN |       |       |

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|                    |      |      |     |      |      |     |    |          |             |
|--------------------|------|------|-----|------|------|-----|----|----------|-------------|
| TO 70226 HOLLY     | 25.0 | 70   | 1   | 0.0  | 0.0  | 0.0 | 0  | 0.9000LO |             |
| BUS 70472 WILOW CK | 115  | AREA | CKT | MW   | MVAR | MVA | %I | 1.0348PU | 35.72 70472 |
|                    |      | 70   |     |      |      |     |    | 119.00KV |             |
| TO 70247 LAJUNTAT  | 115  | 70   | 1   | 7.8  | 0.8  | 7.9 | 7  |          |             |
| TO 70253 LAMAR CO  | 115  | 70   | 1   | -7.8 | -0.8 | 7.9 | 4  |          |             |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:15  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |                |      |      |     |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-----|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK       | 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 0.9030PU | 8.76  | 70473 |
|           |                |      | 70   |     |       |      |      |    | 62.308KV |       |       |
| TO        | LOAD-PQ        |      |      |     | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70   | 1   | 10.3  | -3.5 | 10.9 | 63 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70   | 1   | 2.1   | 0.1  | 2.1  | 7  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70   | 1   | -15.1 | 2.5  | 15.3 | 50 |          |       |       |
| BUS 70132 | CTY LAJ        | 69.0 | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0125PU | 31.50 | 70132 |
|           |                |      | 70   |     |       |      |      |    | 69.866KV |       |       |
| TO        | LOAD-PQ        |      |      |     | 16.8  | 5.5  | 17.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70   | 1   | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70   | 1   | -19.2 | -6.2 | 20.2 | 51 |          |       |       |

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2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                         |      |     |       |       |      |     |          |       |       |
|-------------------------|------|-----|-------|-------|------|-----|----------|-------|-------|
| BUS 70133 CTY LAM 14.4  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 0.9287PU | 10.90 | 70133 |
| GENERATION              | 70   |     | 24.0  | 8.3H  | 25.4 | 85  | 13.374KV |       |       |
| TO 70134 CTY LAM 25.0   | 70   | 1   | 24.1  | 8.3   | 25.4 | 110 | 1.0000UN |       |       |
| BUS 70247 LAJUNTAT 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0172PU | 34.42 | 70247 |
|                         | 70   |     |       |       |      |     | 116.98KV |       |       |
| TO 70060 BOONE 115      | 70   | 1   | -12.4 | -1.7  | 12.5 | 11  |          |       |       |
| TO 70248 LAJUNTAT 69.0  | 70   | 1   | 20.2  | 6.9   | 21.3 | 84  | 0.9813RG |       |       |
| TO 70472 WILOW CK 115   | 70   | 1   | -7.8  | -5.2  | 9.4  | 8   |          |       |       |
| BUS 70249 LAJUNTAW 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 0.9756PU | 33.75 | 70249 |
|                         | 70   |     |       |       |      |     | 112.20KV |       |       |
| TO 70060 BOONE 115      | 70   | 1   | -20.1 | -11.9 | 23.3 | 22  |          |       |       |
| TO 70250 LAJUNTAW 69.0  | 70   | 1   | 20.1  | 11.9  | 23.3 | 96  | 1.0693UN |       |       |
| BUS 70060 BOONE 115     | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0267PU | 36.19 | 70060 |
|                         | 70   |     |       |       |      |     | 118.07KV |       |       |
| TO 70061 BOONE 230      | 70   | 1   | -77.6 | -19.3 | 80.0 | 52  | 1.0063RG |       |       |
| TO 70062 BOONE 69.0     | 70   | 1   | 9.6   | 0.1   | 9.6  | 28  | 1.0063UN |       |       |
| TO 70159 DOT TAP 115    | 70   | 1   | 34.9  | 10.4  | 36.4 | 31  |          |       |       |
| TO 70247 LAJUNTAT 115   | 70   | 1   | 12.5  | -1.4  | 12.6 | 11  |          |       |       |
| TO 70249 LAJUNTAW 115   | 70   | 1   | 20.6  | 10.1  | 23.0 | 21  |          |       |       |
| BUS 70061 BOONE 230     | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0325PU | 38.34 | 70061 |
|                         | 70   |     |       |       |      |     | 237.49KV |       |       |
| TO 70060 BOONE 115      | 70   | 1   | 77.8  | 22.5  | 81.0 | 52  | 1.0063UN |       |       |
| TO 70122 COMANCHE 230   | 70   | 1   | -83.9 | -25.0 | 87.5 | 20  |          |       |       |
| TO 70254 LAMAR CO 230   | 70   | 1   | -0.2  | -14.5 | 14.5 | 3   |          |       |       |
| TO 70286 MIDWAYPS 230   | 70   | 1   | 6.3   | 17.1  | 18.2 | 4   |          |       |       |
| BUS 70700 GOB_KNOB 230  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0346PU | 38.34 | 70700 |
|                         | 70   |     |       |       |      |     | 237.95KV |       |       |
| TO 70254 LAMAR CO 230   | 70   | 1   | 0.0   | 0.0   | 0.0  | 0   |          |       |       |
| TO 70701 GOB_KNOB 34.5  | 70   | 1   | 0.0   | 0.0   | 0.0  | 0   | 1.0000LK |       |       |
| TO 70702 GOB_KNOB 34.5  | 70   | 2   | 0.0   | 0.0   | 0.0  | 0   | 1.0000LK |       |       |
| BUS 70701 GOB_KNOB 34.5 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0346PU | 38.34 | 70701 |
|                         | 70   |     |       |       |      |     | 35.692KV |       |       |
| TO 70700 GOB_KNOB 230   | 70   | 1   | 0.0   | 0.0   | 0.0  | 0   | 1.0000UN |       |       |
| BUS 70702 GOB_KNOB 34.5 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0346PU | 38.34 | 70702 |
|                         | 70   |     |       |       |      |     | 35.692KV |       |       |
| TO 70700 GOB_KNOB 230   | 70   | 2   | 0.0   | 0.0   | 0.0  | 0   | 1.0000UN |       |       |
| BUS 70286 MIDWAYPS 230  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0174PU | 38.23 | 70286 |
|                         | 70   |     |       |       |      |     | 234.01KV |       |       |
| TO 70061 BOONE 230      | 70   | 1   | -6.3  | -30.1 | 30.8 | 6   |          |       |       |
| TO 70122 COMANCHE 230   | 70   | 1   | -48.8 | -37.9 | 61.8 | 12  |          |       |       |

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|    |       |              |     |    |       |        |      |       |          |          |
|----|-------|--------------|-----|----|-------|--------|------|-------|----------|----------|
| TO | 70139 | DANIELPK     | 230 | 70 | 1     | 147.0  | 13.3 | 147.6 | 29       |          |
| TO | 70285 | MIDWAYPS     | 115 | 70 | 1     | 38.3   | 13.0 | 40.4  | 40       | 1.0188UN |
| TO | 70577 | FTNVL1-213.8 | 70  | 1  | -80.0 | 3.3    | 80.1 | 31    | 1.0000UN |          |
| TO | 70578 | FTNVL3-413.8 | 70  | 1  | -80.0 | 3.3    | 80.1 | 79    | 1.0000UN |          |
| TO | 70579 | FTNVL5-613.8 | 70  | 1  | -80.0 | 3.3    | 80.1 | 79    | 1.0000UN |          |
| TO | 70584 | MIDWAYPS     | 345 | 70 | 1     | 220.3  | 16.2 | 220.9 | 43       | 1.0000LK |
| TO | 73413 | MIDWAYBR     | 230 | 73 | 1     | -110.5 | 15.4 | 111.6 | 22       |          |



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2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70459 | WALSENBG | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0419PU | 34.66 | 70459 |
|           |          |      | 70   |     |        |       |       |    | 239.63KV |       |       |
| TO 12101  | GLADSTON | 230  | 10   | 1   | 102.1  | -27.7 | 105.8 | 18 |          |       |       |
| TO 70122  | COMANCHE | 230  | 70   | 1   | -138.5 | 9.5   | 138.8 | 30 |          |       |       |
| TO 70458  | WALSENBG | 115  | 70   | 1   | 36.3   | 18.2  | 40.6  | 39 | 1.0000LK |       |       |
|           |          |      |      |     |        |       |       |    |          |       |       |
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0450PU | 40.03 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 240.34KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 84.2   | 19.5  | 86.4  | 19 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -46.8 | 329.1 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -41.5 | 334.5 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 109.3  | 11.1  | 109.9 | 38 | 0.9875UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 109.3  | 11.1  | 109.9 | 38 | 0.9875UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 49.1   | 25.7  | 55.4  | 10 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 139.9  | -12.2 | 140.4 | 30 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 65.7   | 7.6   | 66.2  | 13 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:15  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS      | -----X | AREA | V(PU)  | V(KV)  | X----- | BUS      | -----X | AREA | V(PU)  | V(KV)  |
|--------|----------|--------|------|--------|--------|--------|----------|--------|------|--------|--------|
| 70134  | CTY LAM  | 25.0   | 70   | 0.9112 | 22.779 | 70135  | CTY LAM  | 4.20   | 70   | 0.9112 | 3.827  |
| 70136  | CTY LAM  | 69.0   | 70   | 0.9027 | 62.284 | 70161  | EADS     | 69.0   | 70   | 0.8939 | 61.681 |
| 70184  | FT HOLLY | 69.0   | 70   | 0.9195 | 63.448 | 70185  | FT. LYON | 69.0   | 70   | 0.8968 | 61.876 |
| 70203  | GRAN TAP | 69.0   | 70   | 0.9172 | 63.286 | 70204  | GRANADA  | 69.0   | 70   | 0.9166 | 63.248 |
| 70333  | PROWERS  | 69.0   | 70   | 0.9002 | 62.113 | 70473  | WILOW CK | 69.0   | 70   | 0.9030 | 62.308 |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:15  
 2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
 OUTPUT FOR AREA 70 [PSCOLORA]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.1    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 27.4    | 25.0   | 109.6   |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 45.0    | 42.0   | 107.2   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.7    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 32.8    | 33.9   | 96.8    |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:15  
 2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
 OUTPUT FOR AREA 73 [WAPA R.M]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.1    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.2    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013*               | CRAIG   | 230  | 73   | 79015              | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013*               | CRAIG   | 230  | 73   | 79016              | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014*               | CRAIG   | 345  | 73   | 79017              | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**E - Willow Creek 115/69-kV transformer outage with 5.4 MVAR capacitors added at Willow Creek 69 kV without the Golden Prairie - Lamar 230-kV circuit in service**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:29  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-W HVDC&CAP NOGP230 RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                   |           |      |      |     |       |       |      |     |          |       |       |
|-------------------|-----------|------|------|-----|-------|-------|------|-----|----------|-------|-------|
| BUS 70254         | LAMAR CO  | 230  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0308PU | 38.29 | 70254 |
|                   |           |      | 70   |     |       |       |      |     | 237.09KV |       |       |
| TO 70061          | BOONE     | 230  | 70   | 1   | -0.1  | -17.0 | 17.0 | 3   |          |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | 48.1  | -12.2 | 49.6 | 48  | 1.0000LK |       |       |
| TO 70560          | LAMAR DC  | 230  | 70   | 1   | -48.0 | 29.1  | 56.2 | 19  |          |       |       |
| BUS 70253         | LAMAR CO  | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0422PU | 36.00 | 70253 |
|                   |           |      | 70   |     |       |       |      |     | 119.85KV |       |       |
| TO 70254          | LAMAR CO  | 230  | 70   | 1   | -48.1 | 14.3  | 50.2 | 48  | 1.0000UN |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | 40.1  | -14.5 | 42.7 | 24  |          |       |       |
| TO 70472          | WILLOW CK | 115  | 70   | 1   | 8.0   | 0.3   | 8.0  | 4   |          |       |       |
| BUS 70452         | VILAS     | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0666PU | 28.56 | 70452 |
|                   |           |      | 70   |     |       |       |      |     | 122.66KV |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | -39.1 | 14.7  | 41.8 | 23  |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | 39.1  | -14.7 | 41.8 | 47  | 1.0563RG |       |       |
| BUS 70453         | VILAS     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0231PU | 26.30 | 70453 |
|                   |           |      | 70   |     |       |       |      |     | 70.594KV |       |       |
| TO 70223          | HLTP TAP  | 69.0 | 70   | 1   | 7.0   | 2.0   | 7.3  | 18  |          |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | -39.0 | 16.4  | 42.3 | 49  | 1.0563UN |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | 32.1  | -18.4 | 37.0 | 107 |          |       |       |
| BUS 70223         | HLTP TAP  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0191PU | 26.02 | 70223 |
|                   |           |      | 70   |     |       |       |      |     | 70.317KV |       |       |
| TO 70222          | HILLTOP   | 69.0 | 70   | 1   | 4.0   | 1.3   | 4.2  | 12  |          |       |       |
| TO 70404          | SPRNGFLD  | 69.0 | 70   | 1   | 2.9   | 0.8   | 3.1  | 8   |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -7.0  | -2.1  | 7.3  | 18  |          |       |       |
| BUS 70460         | WALSH     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0309PU | 22.73 | 70460 |
|                   |           |      | 70   |     |       |       |      |     | 71.134KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 4.0   | 1.3   | 4.2  |     |          |       |       |
| TO SWITCHED SHUNT |           |      |      |     | 0.0   | -17.2 | 17.2 |     |          |       |       |
| TO 70425 T        | BUTTES    | 69.0 | 70   | 1   | 27.1  | -4.2  | 27.4 | 78  |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -31.1 | 20.1  | 37.0 | 106 |          |       |       |
| BUS 70425 T       | BUTTES    | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0178PU | 19.90 | 70425 |
|                   |           |      | 70   |     |       |       |      |     | 70.229KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 2.1   | 0.7   | 2.2  |     |          |       |       |
| TO 70101          | CHEN TAP  | 69.0 | 70   | 1   | 24.4  | -5.8  | 25.1 | 73  |          |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | -26.5 | 5.1   | 27.0 | 78  |          |       |       |
| BUS 70101         | CHEN TAP  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0049PU | 15.46 | 70101 |
|                   |           |      | 70   |     |       |       |      |     | 69.341KV |       |       |
| TO 70102          | CHENEY    | 69.0 | 70   | 1   | 3.0   | 0.7   | 3.0  | 9   |          |       |       |
| TO 70225          | HOLL TAP  | 69.0 | 70   | 1   | 20.7  | -7.9  | 22.1 | 65  |          |       |       |
| TO 70425 T        | BUTTES    | 69.0 | 70   | 1   | -23.6 | 7.1   | 24.7 | 72  |          |       |       |

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|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 1.0016PU | 15.24 | 70102 |
|                   |      | 70   |     |      |      |     |    | 69.108KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -2.9 | -1.0 | 3.1 | 9  |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:29  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-W HVDC&CAP NOGP230 RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                    |      |      |     |       |       |      |    |          |       |       |
|--------------------|------|------|-----|-------|-------|------|----|----------|-------|-------|
| BUS 70225 HOLL TAP | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0024PU | 11.88 | 70225 |
|                    |      | 70   |     |       |       |      |    | 69.169KV |       |       |
| TO 70101 CHEN TAP  | 69.0 | 70   | 1   | -20.1 | 8.7   | 21.9 | 64 |          |       |       |
| TO 70184 FT HOLLY  | 69.0 | 70   | 1   | 3.0   | 0.8   | 3.1  | 9  |          |       |       |
| TO 70203 GRAN TAP  | 69.0 | 70   | 1   | 17.1  | -9.5  | 19.6 | 58 |          |       |       |
| BUS 70184 FT HOLLY | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0000PU | 11.72 | 70184 |
|                    |      | 70   |     |       |       |      |    | 69.001KV |       |       |
| TO LOAD-PQ         |      |      |     | 2.9   | 1.0   | 3.1  |    |          |       |       |
| TO 70225 HOLL TAP  | 69.0 | 70   | 1   | -2.9  | -1.0  | 3.1  | 9  |          |       |       |
| BUS 70203 GRAN TAP | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0038PU | 10.96 | 70203 |
|                    |      | 70   |     |       |       |      |    | 69.265KV |       |       |
| TO 70204 GRANADA   | 69.0 | 70   | 1   | 1.6   | 0.5   | 1.7  | 5  |          |       |       |
| TO 70225 HOLL TAP  | 69.0 | 70   | 1   | -17.0 | 9.7   | 19.6 | 58 |          |       |       |
| TO 70473 WILOW CK  | 69.0 | 70   | 1   | 15.4  | -10.2 | 18.5 | 54 |          |       |       |
| BUS 70204 GRANADA  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0033PU | 10.93 | 70204 |
|                    |      | 70   |     |       |       |      |    | 69.231KV |       |       |
| TO LOAD-PQ         |      |      |     | 1.6   | 0.5   | 1.7  |    |          |       |       |
| TO 70203 GRAN TAP  | 69.0 | 70   | 1   | -1.6  | -0.5  | 1.7  | 5  |          |       |       |
| BUS 70161 EADS     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0060PU | 7.15  | 70161 |
|                    |      | 70   |     |       |       |      |    | 69.415KV |       |       |
| TO LOAD-PQ         |      |      |     | 2.1   | 0.7   | 2.2  |    |          |       |       |
| TO 70473 WILOW CK  | 69.0 | 70   | 1   | -2.1  | -0.7  | 2.2  | 6  |          |       |       |
| BUS 70136 CTY LAM  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0140PU | 7.56  | 70136 |
|                    |      | 70   |     |       |       |      |    | 69.967KV |       |       |
| TO 70134 CTY LAM   | 25.0 | 70   | 1   | 0.4   | -6.5  | 6.5  | 26 | 1.0000LK |       |       |
| TO 70134 CTY LAM   | 25.0 | 70   | 2   | 0.1   | -2.2  | 2.2  | 20 | 1.0000LK |       |       |
| TO 70185 FT. LYON  | 69.0 | 70   | 1   | 7.7   | 2.4   | 8.1  | 20 |          |       |       |
| TO 70333 PROWERS   | 69.0 | 70   | 1   | 2.0   | 0.4   | 2.1  | 5  |          |       |       |
| TO 70473 WILOW CK  | 69.0 | 70   | 1   | -10.2 | 5.8   | 11.7 | 61 |          |       |       |
| BUS 70185 FT. LYON | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0088PU | 7.19  | 70185 |
|                    |      | 70   |     |       |       |      |    | 69.606KV |       |       |
| TO LOAD-PQ         |      |      |     | 7.7   | 2.5   | 8.1  |    |          |       |       |
| TO 70136 CTY LAM   | 69.0 | 70   | 1   | -7.7  | -2.5  | 8.1  | 21 |          |       |       |
| BUS 70134 CTY LAM  | 25.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0242PU | 7.47  | 70134 |
|                    |      | 70   |     |       |       |      |    | 25.604KV |       |       |
| TO LOAD-PQ         |      |      |     | 24.4  | 8.0   | 25.7 |    |          |       |       |
| TO SWITCHED SHUNT  |      |      |     | 0.0   | -9.4  | 9.4  |    |          |       |       |
| TO 70133 CTY LAM   | 14.4 | 70   | 1   | -23.9 | -7.3  | 25.0 | 98 | 1.0000LK |       |       |
| TO 70135 CTY LAM   | 4.20 | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  | 1.0000LK |       |       |
| TO 70136 CTY LAM   | 69.0 | 70   | 1   | -0.4  | 6.5   | 6.5  | 26 | 1.0000UN |       |       |
| TO 70136 CTY LAM   | 69.0 | 70   | 2   | -0.1  | 2.2   | 2.2  | 20 | 1.0000UN |       |       |



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|     |       |          |      |      |     |      |      |     |    |          |             |
|-----|-------|----------|------|------|-----|------|------|-----|----|----------|-------------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0  | 0.0  | 0.0 | 0  | 1.0062RG |             |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW   | MVAR | MVA | %I | 1.0402PU | 35.64 70472 |
|     |       |          |      | 70   |     |      |      |     |    | 119.62KV |             |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 8.0  | 1.6  | 8.2 | 7  |          |             |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -8.0 | -1.6 | 8.2 | 5  |          |             |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:29  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-W HVDC&CAP NOGP230 RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |                |      |      |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0135PU | 7.80  | 70473 |
|           |                | 70   |      |       |      |      |    | 69.935KV |       |       |
| TO        | LOAD-PQ        |      |      | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | SWITCHED SHUNT |      |      | 0.0   | -5.5 | 5.5  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70 1 | 10.2  | -5.8 | 11.7 | 61 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70 1 | 2.1   | -0.1 | 2.1  | 6  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70 1 | -15.0 | 10.6 | 18.3 | 53 |          |       |       |
| BUS 70132 | CTY LAJ 69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0154PU | 31.46 | 70132 |
|           |                | 70   |      |       |      |      |    | 70.061KV |       |       |
| TO        | LOAD-PQ        |      |      | 16.8  | 5.5  | 17.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70 1 | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70 1 | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70 1 | -19.2 | -6.2 | 20.2 | 51 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:29  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-W HVDC&CAP NOGP230 RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|            |              |      |      |     |        |       |       |      |          |          |       |
|------------|--------------|------|------|-----|--------|-------|-------|------|----------|----------|-------|
| BUS 70133  | CTY LAM      | 14.4 | AREA | CKT | MW     | MVAR  | MVA   | %I   | 1.0400PU | 9.47     | 70133 |
| GENERATION |              |      |      |     | 70     | 24.0  | 8.3R  | 25.4 | 85       | 14.976KV |       |
| TO 70134   | CTY LAM      | 25.0 | 70   | 1   | 24.0   | 8.3   | 25.4  | 98   | 1.0000UN |          |       |
| BUS 70247  | LAJUNTAT     | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I   | 1.0199PU | 34.37    | 70247 |
|            |              |      |      |     | 70     |       |       |      | 117.29KV |          |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | -12.2  | -0.9  | 12.3  | 11   |          |          |       |
| TO 70248   | LAJUNTAT     | 69.0 | 70   | 1   | 20.2   | 6.9   | 21.3  | 84   | 0.9813RG |          |       |
| TO 70472   | WILOW CK     | 115  | 70   | 1   | -7.9   | -6.0  | 9.9   | 9    |          |          |       |
| BUS 70249  | LAJUNTAW     | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I   | 0.9761PU | 33.71    | 70249 |
|            |              |      |      |     | 70     |       |       |      | 112.25KV |          |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | -20.1  | -11.9 | 23.4  | 22   |          |          |       |
| TO 70250   | LAJUNTAW     | 69.0 | 70   | 1   | 20.1   | 11.9  | 23.4  | 96   | 1.0693UN |          |       |
| BUS 70060  | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I   | 1.0272PU | 36.15    | 70060 |
|            |              |      |      |     | 70     |       |       |      | 118.13KV |          |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -77.5  | -18.6 | 79.7  | 52   | 1.0063RG |          |       |
| TO 70062   | BOONE        | 69.0 | 70   | 1   | 9.6    | 0.2   | 9.6   | 28   | 1.0063UN |          |       |
| TO 70159   | DOT TAP      | 115  | 70   | 1   | 34.9   | 10.6  | 36.5  | 31   |          |          |       |
| TO 70247   | LAJUNTAT     | 115  | 70   | 1   | 12.3   | -2.2  | 12.5  | 11   |          |          |       |
| TO 70249   | LAJUNTAW     | 115  | 70   | 1   | 20.6   | 10.1  | 23.0  | 21   |          |          |       |
| BUS 70061  | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I   | 1.0327PU | 38.29    | 70061 |
|            |              |      |      |     | 70     |       |       |      | 237.52KV |          |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | 77.7   | 21.8  | 80.7  | 52   | 1.0063UN |          |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -84.0  | -24.7 | 87.6  | 20   |          |          |       |
| TO 70254   | LAMAR CO     | 230  | 70   | 1   | 0.1    | -14.3 | 14.4  | 3    |          |          |       |
| TO 70286   | MIDWAYPS     | 230  | 70   | 1   | 6.2    | 17.3  | 18.4  | 4    |          |          |       |
| BUS 70286  | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I   | 1.0175PU | 38.18    | 70286 |
|            |              |      |      |     | 70     |       |       |      | 234.02KV |          |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -6.2   | -30.3 | 30.9  | 6    |          |          |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -48.8  | -37.9 | 61.8  | 12   |          |          |       |
| TO 70139   | DANIELPK     | 230  | 70   | 1   | 147.0  | 13.3  | 147.6 | 29   |          |          |       |
| TO 70285   | MIDWAYPS     | 115  | 70   | 1   | 38.2   | 12.9  | 40.4  | 40   | 1.0188UN |          |       |
| TO 70577   | FTNVL1-213.8 | 70   | 70   | 1   | -80.0  | 3.4   | 80.1  | 31   | 1.0000UN |          |       |
| TO 70578   | FTNVL3-413.8 | 70   | 70   | 1   | -80.0  | 3.4   | 80.1  | 79   | 1.0000UN |          |       |
| TO 70579   | FTNVL5-613.8 | 70   | 70   | 1   | -80.0  | 3.4   | 80.1  | 79   | 1.0000UN |          |       |
| TO 70584   | MIDWAYPS     | 345  | 70   | 1   | 220.3  | 16.3  | 220.9 | 43   | 1.0000LK |          |       |
| TO 73413   | MIDWAYBR     | 230  | 73   | 1   | -110.6 | 15.6  | 111.7 | 22   |          |          |       |
| BUS 70459  | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I   | 1.0419PU | 34.62    | 70459 |
|            |              |      |      |     | 70     |       |       |      | 239.65KV |          |       |
| TO 12101   | GLADSTON     | 230  | 10   | 1   | 102.1  | -27.7 | 105.7 | 18   |          |          |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -138.4 | 9.5   | 138.7 | 30   |          |          |       |
| TO 70458   | WALSENBG     | 115  | 70   | 1   | 36.4   | 18.2  | 40.6  | 39   | 1.0000LK |          |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:29  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-W HVDC&CAP NOGP230 RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0450PU | 39.98 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 240.35KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 84.4   | 19.2  | 86.5  | 19 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -46.7 | 329.1 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -41.3 | 334.5 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 109.3  | 11.1  | 109.9 | 38 | 0.9875UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 109.3  | 11.1  | 109.9 | 38 | 0.9875UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 49.1   | 25.8  | 55.4  | 10 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 139.8  | -12.2 | 140.4 | 30 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 65.7   | 7.6   | 66.2  | 13 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:29  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-W HVDC&CAP NOGP230  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:29  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-W HVDC&CAP NOGP230  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.1    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133*               | CTY LAM  | 14.4 | 70   | 70134              | CTY LAM  | 25.0 | 70   | 1            | 24.4    | 25.0   | 97.7    |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 45.0    | 42.0   | 107.2   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.7    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 36.1    | 33.9   | 106.6   |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 15 2002 16:29  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE-W HVDC&CAP NOGP230  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.1    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.2    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013                | CRAIG   | 230  | 73   | 79015*             | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013                | CRAIG   | 230  | 73   | 79016*             | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014*               | CRAIG   | 345  | 73   | 79017              | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**F - Willow Creek 115/69-kV transformer outage with 5.4 MVAR capacitors added at Willow Creek 69 kV with the Golden Prairie - Lamar 230-kV circuit in service**



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:28  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC W/ CAP RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                   |          |      |      |     |       |       |      |     |          |       |       |
|-------------------|----------|------|------|-----|-------|-------|------|-----|----------|-------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0312PU | 38.28 | 70254 |
|                   |          |      | 70   |     |       |       |      |     | 237.18KV |       |       |
| TO 70061          | BOONE    | 230  | 70   | 1   | -0.1  | -16.8 | 16.8 | 3   |          |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 48.1  | -12.2 | 49.6 | 48  | 1.0000LK |       |       |
| TO 70560          | LAMAR DC | 230  | 70   | 1   | -48.0 | 41.6  | 63.5 | 22  |          |       |       |
| TO 70700          | GOB_KNOB | 230  | 70   | 1   | 0.0   | -12.7 | 12.7 | 2   |          |       |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0425PU | 36.00 | 70253 |
|                   |          |      | 70   |     |       |       |      |     | 119.89KV |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | -48.1 | 14.2  | 50.2 | 48  | 1.0000UN |       |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 40.1  | -14.5 | 42.7 | 24  |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | 8.0   | 0.3   | 8.0  | 4   |          |       |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0669PU | 28.57 | 70452 |
|                   |          |      | 70   |     |       |       |      |     | 122.69KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -39.1 | 14.7  | 41.8 | 23  |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 39.1  | -14.7 | 41.8 | 47  | 1.0563RG |       |       |
| BUS 70453         | VILAS    | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0234PU | 26.31 | 70453 |
|                   |          |      | 70   |     |       |       |      |     | 70.615KV |       |       |
| TO 70223          | HLTP TAP | 69.0 | 70   | 1   | 7.0   | 2.0   | 7.3  | 18  |          |       |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | -39.0 | 16.4  | 42.3 | 49  | 1.0563UN |       |       |
| TO 70460          | WALSH    | 69.0 | 70   | 1   | 32.0  | -18.4 | 37.0 | 107 |          |       |       |
| BUS 70223         | HLTP TAP | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0194PU | 26.02 | 70223 |
|                   |          |      | 70   |     |       |       |      |     | 70.338KV |       |       |
| TO 70222          | HILLTOP  | 69.0 | 70   | 1   | 4.0   | 1.3   | 4.2  | 12  |          |       |       |
| TO 70404          | SPRNGFLD | 69.0 | 70   | 1   | 2.9   | 0.8   | 3.1  | 8   |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | -7.0  | -2.1  | 7.3  | 18  |          |       |       |
| BUS 70460         | WALSH    | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0312PU | 22.74 | 70460 |
|                   |          |      | 70   |     |       |       |      |     | 71.154KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 4.0   | 1.3   | 4.2  |     |          |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0   | -17.2 | 17.2 |     |          |       |       |
| TO 70425 T        | BUTTES   | 69.0 | 70   | 1   | 27.1  | -4.2  | 27.4 | 78  |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | -31.1 | 20.1  | 37.0 | 106 |          |       |       |
| BUS 70425 T       | BUTTES   | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0181PU | 19.91 | 70425 |
|                   |          |      | 70   |     |       |       |      |     | 70.248KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 2.1   | 0.7   | 2.2  |     |          |       |       |
| TO 70101          | CHEN TAP | 69.0 | 70   | 1   | 24.4  | -5.8  | 25.1 | 73  |          |       |       |
| TO 70460          | WALSH    | 69.0 | 70   | 1   | -26.5 | 5.1   | 27.0 | 78  |          |       |       |
| BUS 70101         | CHEN TAP | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I  | 1.0052PU | 15.48 | 70101 |
|                   |          |      | 70   |     |       |       |      |     | 69.357KV |       |       |
| TO 70102          | CHENEY   | 69.0 | 70   | 1   | 3.0   | 0.7   | 3.0  | 9   |          |       |       |
| TO 70225          | HOLL TAP | 69.0 | 70   | 1   | 20.7  | -7.8  | 22.1 | 65  |          |       |       |
| TO 70425 T        | BUTTES   | 69.0 | 70   | 1   | -23.6 | 7.1   | 24.7 | 72  |          |       |       |

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|     |         |          |      |      |     |      |      |     |    |          |       |       |
|-----|---------|----------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS | 70102   | CHENEY   | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 1.0018PU | 15.25 | 70102 |
|     |         |          |      | 70   |     |      |      |     |    | 69.123KV |       |       |
| TO  | LOAD-PQ |          |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO  | 70101   | CHEN TAP | 69.0 | 70   | 1   | -2.9 | -1.0 | 3.1 | 9  |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:28  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC W/ CAP RATING  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|                    |      |      |     |       |       |      |    |          |       |       |
|--------------------|------|------|-----|-------|-------|------|----|----------|-------|-------|
| BUS 70225 HOLL TAP | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0026PU | 11.90 | 70225 |
|                    |      | 70   |     |       |       |      |    | 69.180KV |       |       |
| TO 70101 CHEN TAP  | 69.0 | 70   | 1   | -20.1 | 8.7   | 21.9 | 64 |          |       |       |
| TO 70184 FT HOLLY  | 69.0 | 70   | 1   | 3.0   | 0.8   | 3.1  | 9  |          |       |       |
| TO 70203 GRAN TAP  | 69.0 | 70   | 1   | 17.1  | -9.5  | 19.6 | 58 |          |       |       |
| BUS 70184 FT HOLLY | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0002PU | 11.74 | 70184 |
|                    |      | 70   |     |       |       |      |    | 69.013KV |       |       |
| TO LOAD-PQ         |      |      |     | 2.9   | 1.0   | 3.1  |    |          |       |       |
| TO 70225 HOLL TAP  | 69.0 | 70   | 1   | -2.9  | -1.0  | 3.1  | 9  |          |       |       |
| BUS 70203 GRAN TAP | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0040PU | 10.98 | 70203 |
|                    |      | 70   |     |       |       |      |    | 69.275KV |       |       |
| TO 70204 GRANADA   | 69.0 | 70   | 1   | 1.6   | 0.5   | 1.7  | 5  |          |       |       |
| TO 70225 HOLL TAP  | 69.0 | 70   | 1   | -17.0 | 9.7   | 19.6 | 58 |          |       |       |
| TO 70473 WILOW CK  | 69.0 | 70   | 1   | 15.4  | -10.1 | 18.5 | 54 |          |       |       |
| BUS 70204 GRANADA  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0035PU | 10.95 | 70204 |
|                    |      | 70   |     |       |       |      |    | 69.241KV |       |       |
| TO LOAD-PQ         |      |      |     | 1.6   | 0.5   | 1.7  |    |          |       |       |
| TO 70203 GRAN TAP  | 69.0 | 70   | 1   | -1.6  | -0.5  | 1.7  | 5  |          |       |       |
| BUS 70161 EADS     | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0061PU | 7.17  | 70161 |
|                    |      | 70   |     |       |       |      |    | 69.421KV |       |       |
| TO LOAD-PQ         |      |      |     | 2.1   | 0.7   | 2.2  |    |          |       |       |
| TO 70473 WILOW CK  | 69.0 | 70   | 1   | -2.1  | -0.7  | 2.2  | 6  |          |       |       |
| BUS 70136 CTY LAM  | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0141PU | 7.59  | 70136 |
|                    |      | 70   |     |       |       |      |    | 69.972KV |       |       |
| TO 70134 CTY LAM   | 25.0 | 70   | 1   | 0.4   | -6.5  | 6.5  | 25 | 1.0000LK |       |       |
| TO 70134 CTY LAM   | 25.0 | 70   | 2   | 0.1   | -2.2  | 2.2  | 19 | 1.0000LK |       |       |
| TO 70185 FT. LYON  | 69.0 | 70   | 1   | 7.7   | 2.4   | 8.1  | 20 |          |       |       |
| TO 70333 PROWERS   | 69.0 | 70   | 1   | 2.0   | 0.4   | 2.1  | 5  |          |       |       |
| TO 70473 WILOW CK  | 69.0 | 70   | 1   | -10.2 | 5.8   | 11.7 | 61 |          |       |       |
| BUS 70185 FT. LYON | 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0089PU | 7.21  | 70185 |
|                    |      | 70   |     |       |       |      |    | 69.611KV |       |       |
| TO LOAD-PQ         |      |      |     | 7.7   | 2.5   | 8.1  |    |          |       |       |
| TO 70136 CTY LAM   | 69.0 | 70   | 1   | -7.7  | -2.5  | 8.1  | 21 |          |       |       |
| BUS 70134 CTY LAM  | 25.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0242PU | 7.50  | 70134 |
|                    |      | 70   |     |       |       |      |    | 25.605KV |       |       |
| TO LOAD-PQ         |      |      |     | 24.4  | 8.0   | 25.7 |    |          |       |       |
| TO SWITCHED SHUNT  |      |      |     | 0.0   | -9.4  | 9.4  |    |          |       |       |
| TO 70133 CTY LAM   | 14.4 | 70   | 1   | -23.9 | -7.3  | 25.0 | 98 | 1.0000LK |       |       |
| TO 70135 CTY LAM   | 4.20 | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  | 1.0000LK |       |       |
| TO 70136 CTY LAM   | 69.0 | 70   | 1   | -0.4  | 6.5   | 6.5  | 25 | 1.0000UN |       |       |
| TO 70136 CTY LAM   | 69.0 | 70   | 2   | -0.1  | 2.2   | 2.2  | 19 | 1.0000UN |       |       |

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|     |       |          |      |      |     |      |      |     |    |          |             |
|-----|-------|----------|------|------|-----|------|------|-----|----|----------|-------------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0  | 0.0  | 0.0 | 0  | 1.0062RG |             |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW   | MVAR | MVA | %I | 1.0405PU | 35.64 70472 |
|     |       |          |      | 70   |     |      |      |     |    | 119.66KV |             |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 8.0  | 1.6  | 8.2 | 7  |          |             |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -8.0 | -1.6 | 8.2 | 5  |          |             |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:28  
 2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC W/ CAP RATING  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |                |      |      |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0136PU | 7.82  | 70473 |
|           |                |      | 70   |       |      |      |    | 69.941KV |       |       |
| TO        | LOAD-PQ        |      |      | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | SWITCHED SHUNT |      |      | 0.0   | -5.5 | 5.5  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70 1 | 10.2  | -5.8 | 11.7 | 61 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70 1 | 2.1   | -0.1 | 2.1  | 6  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70 1 | -15.0 | 10.5 | 18.3 | 53 |          |       |       |
| BUS 70132 | CTY LAJ 69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0156PU | 31.46 | 70132 |
|           |                |      | 70   |       |      |      |    | 70.075KV |       |       |
| TO        | LOAD-PQ        |      |      | 16.8  | 5.5  | 17.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70 1 | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70 1 | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70 1 | -19.2 | -6.2 | 20.2 | 51 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      TUE, OCT 08 2002 11:28
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC W/ CAP      RATING
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS      SET A

BUS 70133 CTY LAM 14.4 AREA CKT    MW    MVAR    MVA %I 1.0400PU  9.49 70133
GENERATION          70          24.0    8.3R  25.4 85 14.976KV
TO 70134 CTY LAM 25.0 70 1    24.0    8.3   25.4 98 1.0000UN

BUS 70247 LAJUNTAT 115 AREA CKT    MW    MVAR    MVA %I 1.0201PU 34.37 70247
          70          117.31KV
TO 70060 BOONE    115 70 1   -12.2   -0.9   12.3 11
TO 70248 LAJUNTAT 69.0 70 1    20.2    6.9   21.3 84 0.9813RG
TO 70472 WILOW CK 115 70 1    -7.9   -6.0   10.0 9

BUS 70249 LAJUNTAW 115 AREA CKT    MW    MVAR    MVA %I 0.9762PU 33.71 70249
          70          112.26KV
TO 70060 BOONE    115 70 1   -20.1  -11.9   23.4 22
TO 70250 LAJUNTAW 69.0 70 1    20.1   11.9   23.4 96 1.0693UN

BUS 70060 BOONE    115 AREA CKT    MW    MVAR    MVA %I 1.0273PU 36.15 70060
          70          118.14KV
TO 70061 BOONE    230 70 1   -77.5  -18.6   79.7 52 1.0063RG
TO 70062 BOONE    69.0 70 1    9.6    0.2    9.6 28 1.0063UN
TO 70159 DOT TAP  115 70 1   34.9   10.6   36.5 31
TO 70247 LAJUNTAT 115 70 1   12.3   -2.2   12.5 11
TO 70249 LAJUNTAW 115 70 1   20.6   10.1   23.0 21

BUS 70061 BOONE    230 AREA CKT    MW    MVAR    MVA %I 1.0328PU 38.28 70061
          70          237.54KV
TO 70060 BOONE    115 70 1   77.7   21.8   80.7 52 1.0063UN
TO 70122 COMANCHE 230 70 1  -84.0  -24.6   87.5 20
TO 70254 LAMAR CO 230 70 1    0.1   -14.6   14.6 3
TO 70286 MIDWAYPS 230 70 1    6.2   17.4   18.5 4

BUS 70700 GOB_KNOB 230 AREA CKT    MW    MVAR    MVA %I 1.0348PU 38.26 70700
          70          238.00KV
TO 70254 LAMAR CO 230 70 1    0.0    0.0    0.0 0
TO 70701 GOB_KNOB 34.5 70 1    0.0    0.0    0.0 0 1.0000LK
TO 70702 GOB_KNOB 34.5 70 2    0.0    0.0    0.0 0 1.0000LK

BUS 70701 GOB_KNOB 34.5 AREA CKT    MW    MVAR    MVA %I 1.0348PU 38.26 70701
          70          35.699KV
TO 70700 GOB_KNOB 230 70 1    0.0    0.0    0.0 0 1.0000UN

BUS 70702 GOB_KNOB 34.5 AREA CKT    MW    MVAR    MVA %I 1.0348PU 38.26 70702
          70          35.699KV
TO 70700 GOB_KNOB 230 70 2    0.0    0.0    0.0 0 1.0000UN

BUS 70286 MIDWAYPS 230 AREA CKT    MW    MVAR    MVA %I 1.0175PU 38.18 70286
          70          234.02KV
TO 70061 BOONE    230 70 1   -6.2  -30.4   31.0 6
TO 70122 COMANCHE 230 70 1  -48.8  -37.9   61.8 12

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|    |       |              |     |    |       |        |      |       |          |          |
|----|-------|--------------|-----|----|-------|--------|------|-------|----------|----------|
| TO | 70139 | DANIELPK     | 230 | 70 | 1     | 147.0  | 13.4 | 147.6 | 29       |          |
| TO | 70285 | MIDWAYPS     | 115 | 70 | 1     | 38.2   | 12.9 | 40.4  | 40       | 1.0188UN |
| TO | 70577 | FTNVL1-213.8 | 70  | 1  | -80.0 | 3.4    | 80.1 | 31    | 1.0000UN |          |
| TO | 70578 | FTNVL3-413.8 | 70  | 1  | -80.0 | 3.4    | 80.1 | 79    | 1.0000UN |          |
| TO | 70579 | FTNVL5-613.8 | 70  | 1  | -80.0 | 3.4    | 80.1 | 79    | 1.0000UN |          |
| TO | 70584 | MIDWAYPS     | 345 | 70 | 1     | 220.3  | 16.3 | 220.9 | 43       | 1.0000LK |
| TO | 73413 | MIDWAYBR     | 230 | 73 | 1     | -110.6 | 15.7 | 111.7 | 22       |          |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:28  
 2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC W/ CAP RATING  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70459 | WALSENBG | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0420PU | 34.62 | 70459 |
|           |          |      | 70   |     |        |       |       |    | 239.65KV |       |       |
| TO 12101  | GLADSTON | 230  | 10   | 1   | 102.1  | -27.7 | 105.7 | 18 |          |       |       |
| TO 70122  | COMANCHE | 230  | 70   | 1   | -138.4 | 9.5   | 138.7 | 30 |          |       |       |
| TO 70458  | WALSENBG | 115  | 70   | 1   | 36.4   | 18.2  | 40.6  | 39 | 1.0000LK |       |       |
|           |          |      |      |     |        |       |       |    |          |       |       |
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0450PU | 39.98 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 240.35KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 84.4   | 19.1  | 86.5  | 19 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -46.6 | 329.1 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -41.3 | 334.4 | 76 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 109.3  | 11.1  | 109.9 | 38 | 0.9875UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 109.3  | 11.1  | 109.9 | 38 | 0.9875UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 49.1   | 25.8  | 55.4  | 10 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 139.8  | -12.2 | 140.4 | 30 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 65.7   | 7.7   | 66.2  | 13 |          |       |       |



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:28  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC W/ CAP  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:28  
2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC W/ CAP  
NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.2    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.6    | 50.0   | 99.1    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 24.4    | 25.0   | 97.7    |
| 70148                | DENVTM   | 115  | 70   | 70152*             | DENVTM3  | 13.8 | 70   | 1            | 45.0    | 42.0   | 107.2   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.7    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 36.1    | 33.9   | 106.6   |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 11:28  
 2005 HVY SUMMER WILLOW CREEK XFMR OUTAGE - WITH HVDC W/ CAP  
 NO GOBBLERS KNOB 34.5 KV GEN BASE CASE - LOCKED AREA SHUNTS  
 OUTPUT FOR AREA 73 [WAPA R.M]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.1    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.2    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286*               | KIRK 1  | 12.0 | 73   | 73287              | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013                | CRAIG   | 230  | 73   | 79015*             | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013                | CRAIG   | 230  | 73   | 79016*             | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014*               | CRAIG   | 345  | 73   | 79017              | CRAIG 3  | 22.0 | 73   | 1            | 395.7   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.0   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |



**B-11 - Power Flow Analysis –2005 Heavy Summer**

**Wind farm in service and the HVDC Converter at Lamar at 48 MW power output**

**A - Boone – Lamar 230-kV circuit outage**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:38  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS SET A

|                   |          |      |      |     |        |       |       |     |          |        |       |
|-------------------|----------|------|------|-----|--------|-------|-------|-----|----------|--------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0289PU | 108.71 | 70254 |
|                   |          |      | 70   |     |        |       |       |     | 236.65KV |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 103.6  | 10.9  | 104.2 | 101 | 1.0000LK |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 2   | 103.6  | 10.9  | 104.2 | 101 | 1.0000LK |        |       |
| TO 70560          | LAMAR DC | 230  | 70   | 1   | -48.0  | -38.0 | 61.2  | 21  |          |        |       |
| TO 70700          | GOB_KNOB | 230  | 70   | 1   | -159.2 | 16.2  | 160.1 | 31  |          |        |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0234PU | 103.69 | 70253 |
|                   |          |      | 70   |     |        |       |       |     | 117.69KV |        |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | -103.6 | -1.7  | 103.6 | 101 | 1.0000UN |        |       |
| TO 70254          | LAMAR CO | 230  | 70   | 2   | -103.6 | -1.7  | 103.6 | 101 | 1.0000UN |        |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 21.0   | -17.1 | 27.1  | 15  |          |        |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | 186.3  | 20.6  | 187.4 | 107 |          |        |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0625PU | 99.45  | 70452 |
|                   |          |      | 70   |     |        |       |       |     | 122.18KV |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -20.6  | 14.0  | 24.9  | 14  |          |        |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 20.6   | -14.0 | 24.9  | 28  | 1.0500RG |        |       |
| BUS 70472         | WILOW CK | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9884PU | 94.60  | 70472 |
|                   |          |      | 70   |     |        |       |       |     | 113.67KV |        |       |
| TO 70247          | LAJUNTAT | 115  | 70   | 1   | 165.4  | -5.5  | 165.5 | 154 |          |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -180.9 | 7.5   | 181.0 | 107 |          |        |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | 15.5   | -2.0  | 15.6  | 38  | 0.9565LK |        |       |
| BUS 70473         | WILOW CK | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0351PU | 93.49  | 70473 |
|                   |          |      | 70   |     |        |       |       |     | 71.420KV |        |       |
| TO LOAD-PQ        |          |      |      |     | 2.7    | 0.9   | 2.9   |     |          |        |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0    | -5.8  | 5.8   |     |          |        |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 1   | 10.2   | 1.0   | 10.3  | 52  |          |        |       |
| TO 70161          | EADS     | 69.0 | 70   | 1   | 2.1    | -0.1  | 2.1   | 6   |          |        |       |
| TO 70203          | GRAN TAP | 69.0 | 70   | 1   | 0.5    | 1.7   | 1.8   | 5   |          |        |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -15.5  | 2.3   | 15.6  | 36  | 0.9565UN |        |       |
| BUS 70132         | CTY LAJ  | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0189PU | 57.21  | 70132 |
|                   |          |      | 70   |     |        |       |       |     | 70.304KV |        |       |
| TO LOAD-PQ        |          |      |      |     | 16.8   | 5.5   | 17.7  |     |          |        |       |
| TO 70131          | CTY LAJ  | 13.8 | 70   | 1   | 0.0    | 0.0   | 0.0   | 0   | 1.0000LK |        |       |
| TO 70246          | LAJ IP   | 69.0 | 70   | 1   | 2.4    | 0.7   | 2.5   | 6   |          |        |       |
| TO 70248          | LAJUNTAT | 69.0 | 70   | 1   | -19.2  | -6.2  | 20.2  | 51  |          |        |       |
| BUS 70133         | CTY LAM  | 14.4 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0400PU | 95.31  | 70133 |
| GENERATION        |          |      | 70   |     | 24.0   | 1.1R  | 24.0  | 80  | 14.976KV |        |       |
| TO 70134          | CTY LAM  | 25.0 | 70   | 1   | 24.0   | 1.1   | 24.0  | 92  | 1.0000UN |        |       |
| BUS 70247         | LAJUNTAT | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0167PU | 60.10  | 70247 |
|                   |          |      | 70   |     |        |       |       |     | 116.92KV |        |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0    | -89.3 | 89.3  |     |          |        |       |

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|     |       |              |     |      |     |        |       |       |     |                      |
|-----|-------|--------------|-----|------|-----|--------|-------|-------|-----|----------------------|
| TO  | 70060 | BOONE        | 115 | 70   | 1   | 118.1  | -14.5 | 119.0 | 107 |                      |
| TO  | 70248 | LAJUNTAT69.0 | 70  | 1    |     | 20.2   | 6.9   | 21.3  | 84  | 0.9750RG             |
| TO  | 70472 | WILOW CK     | 115 | 70   | 1   | -138.2 | 96.9  | 168.8 | 152 |                      |
| BUS | 70249 | LAJUNTAW     | 115 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9634PU 39.65 70249 |
|     |       |              | 70  |      |     |        |       |       |     | 110.79KV             |
| TO  | 70060 | BOONE        | 115 | 70   | 1   | -19.8  | -11.2 | 22.8  | 22  |                      |
| TO  | 70250 | LAJUNTAW69.0 | 70  | 1    |     | 19.8   | 11.2  | 22.8  | 95  | 1.0756UN             |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:38  
 2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS SET A

|            |              |      |      |     |        |       |       |     |          |        |       |
|------------|--------------|------|------|-----|--------|-------|-------|-----|----------|--------|-------|
| BUS 70060  | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0131PU | 42.15  | 70060 |
|            |              |      | 70   |     |        |       |       |     | 116.50KV |        |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | 21.0   | -58.8 | 62.4  | 41  | 1.0250RG |        |       |
| TO 70062   | BOONE        | 69.0 | 70   | 1   | 9.9    | 0.5   | 9.9   | 30  | 1.0188UN |        |       |
| TO 70159   | DOT TAP      | 115  | 70   | 1   | 56.7   | 2.1   | 56.8  | 49  |          |        |       |
| TO 70247   | LAJUNTAT     | 115  | 70   | 1   | -108.0 | 46.7  | 117.7 | 107 |          |        |       |
| TO 70249   | LAJUNTAW     | 115  | 70   | 1   | 20.4   | 9.5   | 22.4  | 20  |          |        |       |
| BUS 70061  | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0184PU | 41.46  | 70061 |
|            |              |      | 70   |     |        |       |       |     | 234.23KV |        |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | -20.9  | 60.8  | 64.3  | 42  | 1.0250UN |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -36.5  | -56.5 | 67.3  | 15  |          |        |       |
| TO 70286   | MIDWAYPS     | 230  | 70   | 1   | 57.4   | -4.3  | 57.6  | 11  |          |        |       |
| BUS 70700  | GOB_KNOB     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0300PU | 113.75 | 70700 |
|            |              |      | 70   |     |        |       |       |     | 236.90KV |        |       |
| TO 70254   | LAMAR CO     | 230  | 70   | 1   | 160.8  | -14.8 | 161.5 | 32  |          |        |       |
| TO 70701   | GOB_KNOB     | 34.5 | 70   | 1   | -80.4  | 7.4   | 80.7  | 94  | 1.0000LK |        |       |
| TO 70702   | GOB_KNOB     | 34.5 | 70   | 2   | -80.4  | 7.4   | 80.7  | 94  | 1.0000LK |        |       |
| BUS 70701  | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0336PU | 118.12 | 70701 |
| GENERATION |              |      | 70   |     | 81.0   | -1.3R | 81.0  | 81  | 35.660KV |        |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 1   | 81.0   | -1.3  | 81.0  | 94  | 1.0000UN |        |       |
| BUS 70702  | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0336PU | 118.12 | 70702 |
| GENERATION |              |      | 70   |     | 81.0   | -1.3R | 81.0  | 81  | 35.660KV |        |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 2   | 81.0   | -1.3  | 81.0  | 94  | 1.0000UN |        |       |
| BUS 70286  | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0129PU | 39.46  | 70286 |
|            |              |      | 70   |     |        |       |       |     | 232.96KV |        |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -57.1  | -6.9  | 57.6  | 11  |          |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -68.5  | -34.6 | 76.8  | 15  |          |        |       |
| TO 70139   | DANIELPK     | 230  | 70   | 1   | 168.6  | 13.7  | 169.2 | 33  |          |        |       |
| TO 70285   | MIDWAYPS     | 115  | 70   | 1   | 18.9   | 18.4  | 26.4  | 26  | 1.0188UN |        |       |
| TO 70577   | FTNVL1-213.8 | 70   | 70   | 1   | -80.0  | 0.5   | 80.0  | 32  | 1.0000UN |        |       |
| TO 70578   | FTNVL3-413.8 | 70   | 70   | 1   | -80.0  | 0.5   | 80.0  | 79  | 1.0000UN |        |       |
| TO 70579   | FTNVL5-613.8 | 70   | 70   | 1   | -80.0  | 0.5   | 80.0  | 79  | 1.0000UN |        |       |
| TO 70584   | MIDWAYPS     | 345  | 70   | 1   | 259.8  | 18.8  | 260.5 | 51  | 1.0000LK |        |       |
| TO 73413   | MIDWAYBR     | 230  | 73   | 1   | -81.7  | -11.0 | 82.4  | 16  |          |        |       |
| BUS 70459  | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0372PU | 36.50  | 70459 |
|            |              |      | 70   |     |        |       |       |     | 238.55KV |        |       |
| TO 12101   | GLADSTON     | 230  | 10   | 1   | 106.5  | -28.4 | 110.2 | 19  |          |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -143.1 | 10.3  | 143.4 | 31  |          |        |       |
| TO 70458   | WALSENBG     | 115  | 70   | 1   | 36.6   | 18.2  | 40.8  | 39  | 1.0000LK |        |       |



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:38  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0405PU | 42.10 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 239.32KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 36.7   | 50.0  | 62.0  | 14 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -60.9 | 331.4 | 78 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -55.2 | 336.4 | 77 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 113.3  | 10.9  | 113.8 | 39 | 0.9875UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 113.3  | 10.9  | 113.8 | 39 | 0.9875UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 69.0   | 24.1  | 73.1  | 14 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 144.6  | -11.7 | 145.1 | 31 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 80.7   | 6.5   | 80.9  | 15 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:38  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:38  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 50.0    | 50.0   | 99.9    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.9    | 50.0   | 99.8    |
| 70060                | BOONE    | 115  | 70   | 70247*             | LAJUNTAT | 115  | 70   | 1            | 117.0   | 109.0  | 107.4   |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.3    | 55.0   | 91.5    |
| 70133*               | CTY LAM  | 14.4 | 70   | 70134              | CTY LAM  | 25.0 | 70   | 1            | 23.1    | 25.0   | 92.4    |
| 70247                | LAJUNTAT | 115  | 70   | 70472*             | WILOW CK | 115  | 70   | 1            | 167.4   | 109.0  | 153.6   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.6    | 25.0   | 94.5    |
| 70253                | LAMAR C0 | 115  | 70   | 70254*             | LAMAR C0 | 230  | 70   | 1            | 101.3   | 100.0  | 101.3   |
| 70253                | LAMAR C0 | 115  | 70   | 70254*             | LAMAR C0 | 230  | 70   | 2            | 101.3   | 100.0  | 101.3   |
| 70253                | LAMAR C0 | 115  | 70   | 70472*             | WILOW CK | 115  | 70   | 1            | 183.1   | 171.9  | 106.5   |
| 70700*               | GOB_KNOB | 230  | 70   | 70701              | GOB_KNOB | 34.5 | 70   | 1            | 78.4    | 83.0   | 94.4    |
| 70700*               | GOB_KNOB | 230  | 70   | 70702              | GOB_KNOB | 34.5 | 70   | 2            | 78.4    | 83.0   | 94.4    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:38  
 2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS  
 OUTPUT FOR AREA 73 [WAPA R.M.]  
 BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.3    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.3    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013                | CRAIG   | 230  | 73   | 79015*             | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013                | CRAIG   | 230  | 73   | 79016*             | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014*               | CRAIG   | 345  | 73   | 79017              | CRAIG 3  | 22.0 | 73   | 1            | 395.8   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.1   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**B - Boone – Lamar 230-kV circuit outage  
with the wind farm output reduced to 52 MW**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 15:40  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT W/DC LWR WIND RATING  
GOBBLERS KNOB 34.5 KV WITH REDUCED GEN - LOCK AREA SHUNTS SET A

|                   |            |      |      |     |       |       |       |    |          |       |       |
|-------------------|------------|------|------|-----|-------|-------|-------|----|----------|-------|-------|
| BUS 70254         | LAMAR CO   | 230  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0302PU | 65.56 | 70254 |
|                   |            |      | 70   |     |       |       |       |    | 236.95KV |       |       |
| TO 70253          | LAMAR CO   | 115  | 70   | 1   | 99.7  | -8.0  | 100.0 | 97 | 1.0000LK |       |       |
| TO 70560          | LAMAR DC   | 230  | 70   | 1   | -48.0 | 7.5   | 48.6  | 17 |          |       |       |
| TO 70700          | GOB_KNOB   | 230  | 70   | 1   | -51.7 | 0.5   | 51.7  | 10 |          |       |       |
| BUS 70253         | LAMAR CO   | 115  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0407PU | 60.81 | 70253 |
|                   |            |      | 70   |     |       |       |       |    | 119.68KV |       |       |
| TO 70254          | LAMAR CO   | 230  | 70   | 1   | -99.7 | 16.4  | 101.0 | 97 | 1.0000UN |       |       |
| TO 70452          | VILAS      | 115  | 70   | 1   | 15.4  | -18.7 | 24.2  | 14 |          |       |       |
| TO 70472          | WILOW CK   | 115  | 70   | 1   | 84.3  | 2.3   | 84.3  | 47 |          |       |       |
| BUS 70452         | VILAS      | 115  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0859PU | 57.65 | 70452 |
|                   |            |      | 70   |     |       |       |       |    | 124.88KV |       |       |
| TO 70253          | LAMAR CO   | 115  | 70   | 1   | -15.1 | 14.8  | 21.1  | 11 |          |       |       |
| TO 70453          | VILAS      | 69.0 | 70   | 1   | 15.1  | -14.8 | 21.1  | 23 | 1.0750RG |       |       |
| BUS 70472         | WILOW CK   | 115  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0277PU | 56.87 | 70472 |
|                   |            |      | 70   |     |       |       |       |    | 118.18KV |       |       |
| TO 70247          | LAJUNTAT   | 115  | 70   | 1   | 62.4  | -9.2  | 63.1  | 56 |          |       |       |
| TO 70253          | LAMAR CO   | 115  | 70   | 1   | -83.2 | 2.1   | 83.3  | 47 |          |       |       |
| TO 70473          | WILOW CK   | 69.0 | 70   | 1   | 20.8  | 7.1   | 22.0  | 51 | 0.9565LK |       |       |
| BUS 70473         | WILOW CK   | 69.0 | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0646PU | 55.52 | 70473 |
|                   |            |      | 70   |     |       |       |       |    | 73.456KV |       |       |
| TO LOAD-PQ        |            |      |      |     | 2.7   | 0.9   | 2.9   |    |          |       |       |
| TO SWITCHED SHUNT |            |      |      |     | 0.0   | -6.1  | 6.1   |    |          |       |       |
| TO 70136          | CTY LAM    | 69.0 | 70   | 1   | 10.2  | 10.2  | 14.5  | 72 |          |       |       |
| TO 70161          | EADS       | 69.0 | 70   | 1   | 2.1   | -0.2  | 2.1   | 6  |          |       |       |
| TO 70203          | GRAN TAP   | 69.0 | 70   | 1   | 5.8   | 1.8   | 6.0   | 17 |          |       |       |
| TO 70472          | WILOW CK   | 115  | 70   | 1   | -20.8 | -6.6  | 21.8  | 49 | 0.9565UN |       |       |
| BUS 70132         | CTY LAJ    | 69.0 | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0099PU | 41.74 | 70132 |
|                   |            |      | 70   |     |       |       |       |    | 69.687KV |       |       |
| TO LOAD-PQ        |            |      |      |     | 16.8  | 5.5   | 17.7  |    |          |       |       |
| TO 70131          | CTY LAJ    | 13.8 | 70   | 1   | 0.0   | 0.0   | 0.0   | 0  | 1.0000LK |       |       |
| TO 70246          | LAJ IP     | 69.0 | 70   | 1   | 2.4   | 0.7   | 2.5   | 6  |          |       |       |
| TO 70248          | LAJUNTAT   | 69.0 | 70   | 1   | -19.2 | -6.2  | 20.2  | 51 |          |       |       |
| BUS 70133         | CTY LAM    | 14.4 | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0418PU | 57.51 | 70133 |
|                   | GENERATION |      | 70   |     | 24.0  | -8.3L | 25.4  | 85 | 15.002KV |       |       |
| TO 70134          | CTY LAM    | 25.0 | 70   | 1   | 24.0  | -8.3  | 25.4  | 98 | 1.0000UN |       |       |
| BUS 70247         | LAJUNTAT   | 115  | AREA | CKT | MW    | MVAR  | MVA   | %I | 1.0147PU | 44.68 | 70247 |
|                   |            |      | 70   |     |       |       |       |    | 116.69KV |       |       |
| TO SWITCHED SHUNT |            |      |      |     | 0.0   | -11.1 | 11.1  |    |          |       |       |
| TO 70060          | BOONE      | 115  | 70   | 1   | 38.6  | -13.3 | 40.8  | 37 |          |       |       |
| TO 70248          | LAJUNTAT   | 69.0 | 70   | 1   | 20.2  | 7.0   | 21.3  | 84 | 0.9812RG |       |       |

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|     |       |          |      |      |     |       |       |      |    |          |             |
|-----|-------|----------|------|------|-----|-------|-------|------|----|----------|-------------|
| TO  | 70472 | WILOW CK | 115  | 70   | 1   | -58.8 | 17.4  | 61.3 | 55 |          |             |
| BUS | 70249 | LAJUNTAW | 115  | AREA | CKT | MW    | MVAR  | MVA  | %I | 0.9712PU | 36.15 70249 |
|     |       |          | 70   |      |     |       |       |      |    | 111.68KV |             |
| TO  | 70060 | BOONE    | 115  | 70   | 1   | -20.1 | -11.7 | 23.2 | 22 |          |             |
| TO  | 70250 | LAJUNTAW | 69.0 | 70   | 1   | 20.1  | 11.7  | 23.2 | 96 | 1.0693UN |             |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 15:40  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT W/DC LWR WIND RATING  
GOBBLERS KNOB 34.5 KV WITH REDUCED GEN - LOCK AREA SHUNTS SET A

|            |              |      |      |     |        |       |       |    |          |       |       |
|------------|--------------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70060  | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0220PU | 38.63 | 70060 |
|            |              |      | 70   |     |        |       |       |    | 117.53KV |       |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -36.7  | -31.0 | 48.0  | 31 | 1.0125RG |       |       |
| TO 70062   | BOONE        | 69.0 | 70   | 1   | 9.7    | 0.1   | 9.7   | 29 | 1.0063UN |       |       |
| TO 70159   | DOT TAP      | 115  | 70   | 1   | 43.9   | 7.0   | 44.4  | 38 |          |       |       |
| TO 70247   | LAJUNTAT     | 115  | 70   | 1   | -37.5  | 13.9  | 40.0  | 36 |          |       |       |
| TO 70249   | LAJUNTAW     | 115  | 70   | 1   | 20.6   | 9.9   | 22.9  | 21 |          |       |       |
| BUS 70061  | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0261PU | 39.63 | 70061 |
|            |              |      | 70   |     |        |       |       |    | 236.00KV |       |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | 36.8   | 32.1  | 48.8  | 32 | 1.0125UN |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -64.3  | -39.4 | 75.4  | 17 |          |       |       |
| TO 70286   | MIDWAYPS     | 230  | 70   | 1   | 27.5   | 7.3   | 28.5  | 6  |          |       |       |
| BUS 70700  | GOB_KNOB     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0300PU | 67.19 | 70700 |
|            |              |      | 70   |     |        |       |       |    | 236.90KV |       |       |
| TO 70254   | LAMAR CO     | 230  | 70   | 1   | 51.9   | -11.7 | 53.2  | 10 |          |       |       |
| TO 70701   | GOB_KNOB     | 34.5 | 70   | 1   | -25.9  | 5.8   | 26.6  | 31 | 1.0000LK |       |       |
| TO 70702   | GOB_KNOB     | 34.5 | 70   | 2   | -25.9  | 5.8   | 26.6  | 31 | 1.0000LK |       |       |
| BUS 70701  | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0272PU | 68.62 | 70701 |
| GENERATION |              |      | 70   |     | 26.0   | -5.2R | 26.5  | 27 | 35.438KV |       |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 1   | 26.0   | -5.2  | 26.5  | 31 | 1.0000UN |       |       |
| BUS 70702  | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0272PU | 68.62 | 70702 |
| GENERATION |              |      | 70   |     | 26.0   | -5.2R | 26.5  | 27 | 35.438KV |       |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 2   | 26.0   | -5.2  | 26.5  | 31 | 1.0000UN |       |       |
| BUS 70286  | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0154PU | 38.74 | 70286 |
|            |              |      | 70   |     |        |       |       |    | 233.54KV |       |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -27.5  | -20.0 | 34.0  | 7  |          |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -57.0  | -36.6 | 67.8  | 13 |          |       |       |
| TO 70139   | DANIELPK     | 230  | 70   | 1   | 155.8  | 13.8  | 156.4 | 30 |          |       |       |
| TO 70285   | MIDWAYPS     | 115  | 70   | 1   | 30.2   | 14.8  | 33.6  | 33 | 1.0188UN |       |       |
| TO 70577   | FTNVL1-213.8 | 70   | 70   | 1   | -80.0  | 2.1   | 80.0  | 32 | 1.0000UN |       |       |
| TO 70578   | FTNVL3-413.8 | 70   | 70   | 1   | -80.0  | 2.1   | 80.0  | 79 | 1.0000UN |       |       |
| TO 70579   | FTNVL5-613.8 | 70   | 70   | 1   | -80.0  | 2.1   | 80.0  | 79 | 1.0000UN |       |       |
| TO 70584   | MIDWAYPS     | 345  | 70   | 1   | 237.3  | 18.1  | 238.0 | 47 | 1.0000LK |       |       |
| TO 73413   | MIDWAYBR     | 230  | 73   | 1   | -98.8  | 3.6   | 98.9  | 19 |          |       |       |
| BUS 70459  | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0399PU | 35.43 | 70459 |
|            |              |      | 70   |     |        |       |       |    | 239.17KV |       |       |
| TO 12101   | GLADSTON     | 230  | 10   | 1   | 103.9  | -28.0 | 107.6 | 19 |          |       |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -140.3 | 9.9   | 140.7 | 30 |          |       |       |
| TO 70458   | WALSENBG     | 115  | 70   | 1   | 36.4   | 18.2  | 40.7  | 39 | 1.0000LK |       |       |



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 15:40  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT W/DC LWR WIND RATING  
GOBBLERS KNOB 34.5 KV WITH REDUCED GEN - LOCK AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0430PU | 40.89 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 239.89KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 64.5   | 33.2  | 72.6  | 16 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -53.1 | 330.1 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -47.6 | 335.3 | 77 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 111.0  | 10.9  | 111.5 | 38 | 0.9875UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 111.0  | 10.9  | 111.5 | 38 | 0.9875UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 57.4   | 25.1  | 62.6  | 12 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 141.8  | -12.0 | 142.3 | 31 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 71.9   | 7.1   | 72.3  | 14 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 15:40  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT W/DC LWR WIND  
GOBBLERS KNOB 34.5 KV WITH REDUCED GEN - LOCK AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 15:40  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT W/DC LWR WIND  
GOBBLERS KNOB 34.5 KV WITH REDUCED GEN - LOCK AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |              |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|--------------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME         | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A     | 115  | 70   | 1            | 49.9    | 50.0   | 99.7    |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A     | 115  | 70   | 1            | 49.8    | 50.0   | 99.6    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02       | 13.8 | 70   | 1            | 50.4    | 55.0   | 91.6    |
| 70105*               | CHEROK3  | 20.0 | 70   | 70109              | CHEROKES     | 115  | 70   | 1            | 196.0   | 180.0  | 108.9   |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM      | 25.0 | 70   | 1            | 24.4    | 25.0   | 97.5    |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW69.0 | 70   | 70   | 1            | 23.9    | 25.0   | 95.7    |
| 70253                | LAMAR CO | 115  | 70   | 70254*             | LAMAR CO     | 230  | 70   | 1            | 97.1    | 100.0  | 97.1    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 15:40  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT W/DC LWR WIND  
GOBBLERS KNOB 34.5 KV WITH REDUCED GEN - LOCK AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.2    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.2    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013*               | CRAIG   | 230  | 73   | 79015              | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013*               | CRAIG   | 230  | 73   | 79016              | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014*               | CRAIG   | 345  | 73   | 79017              | CRAIG 3  | 22.0 | 73   | 1            | 395.8   | 420.0  | 94.2    |
| 79039*               | HAYDEN  | 230  | 73   | 79040              | HAYDEN1  | 18.0 | 73   | 1            | 200.1   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**C - Boone – Lamar 230-kV circuit outage  
with additional Lamar 100-MVA 230/115-kV Transformer,  
5.4 MVAR capacitor at Willow Creek, and  
115-kV reconductoring between Lamar and La Junta stations**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:41  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC REC RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS SET A

|                   |          |      |      |     |        |       |       |     |          |        |       |
|-------------------|----------|------|------|-----|--------|-------|-------|-----|----------|--------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0284PU | 109.50 | 70254 |
|                   |          |      | 70   |     |        |       |       |     | 236.54KV |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 103.6  | 19.3  | 105.4 | 102 | 1.0000LK |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 2   | 103.6  | 19.3  | 105.4 | 102 | 1.0000LK |        |       |
| TO 70560          | LAMAR DC | 230  | 70   | 1   | -48.0  | -54.0 | 72.2  | 25  |          |        |       |
| TO 70700          | GOB_KNOB | 230  | 70   | 1   | -159.2 | 15.4  | 160.0 | 31  |          |        |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0157PU | 104.43 | 70253 |
|                   |          |      | 70   |     |        |       |       |     | 116.81KV |        |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | -103.6 | -9.9  | 104.1 | 102 | 1.0000UN |        |       |
| TO 70254          | LAMAR CO | 230  | 70   | 2   | -103.6 | -9.9  | 104.1 | 102 | 1.0000UN |        |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 21.1   | -16.5 | 26.8  | 15  |          |        |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | 186.1  | 36.4  | 189.6 | 93  |          |        |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0530PU | 100.12 | 70452 |
|                   |          |      | 70   |     |        |       |       |     | 121.10KV |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -20.7  | 13.5  | 24.7  | 14  |          |        |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 20.7   | -13.5 | 24.7  | 28  | 1.0438RG |        |       |
| BUS 70472         | WILOW CK | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 0.9755PU | 95.27  | 70472 |
|                   |          |      | 70   |     |        |       |       |     | 112.19KV |        |       |
| TO 70247          | LAJUNTAT | 115  | 70   | 1   | 166.8  | 13.2  | 167.4 | 86  |          |        |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -182.2 | -8.0  | 182.4 | 93  |          |        |       |
| TO 70473          | WILOW CK | 69.0 | 70   | 1   | 15.4   | -5.2  | 16.2  | 40  | 0.9565LK |        |       |
| BUS 70473         | WILOW CK | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0258PU | 94.14  | 70473 |
|                   |          |      | 70   |     |        |       |       |     | 70.779KV |        |       |
| TO LOAD-PQ        |          |      |      |     | 2.7    | 0.9   | 2.9   |     |          |        |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0    | -5.7  | 5.7   |     |          |        |       |
| TO 70136          | CTY LAM  | 69.0 | 70   | 1   | 10.2   | -2.0  | 10.4  | 53  |          |        |       |
| TO 70161          | EADS     | 69.0 | 70   | 1   | 2.1    | -0.1  | 2.1   | 6   |          |        |       |
| TO 70203          | GRAN TAP | 69.0 | 70   | 1   | 0.3    | 1.4   | 1.4   | 4   |          |        |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | -15.3  | 5.5   | 16.3  | 38  | 0.9565UN |        |       |
| BUS 70132         | CTY LAJ  | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0125PU | 57.30  | 70132 |
|                   |          |      | 70   |     |        |       |       |     | 69.865KV |        |       |
| TO LOAD-PQ        |          |      |      |     | 16.8   | 5.5   | 17.7  |     |          |        |       |
| TO 70131          | CTY LAJ  | 13.8 | 70   | 1   | 0.0    | 0.0   | 0.0   | 0   | 1.0000LK |        |       |
| TO 70246          | LAJ IP   | 69.0 | 70   | 1   | 2.4    | 0.7   | 2.5   | 6   |          |        |       |
| TO 70248          | LAJUNTAT | 69.0 | 70   | 1   | -19.2  | -6.2  | 20.2  | 51  |          |        |       |
| BUS 70133         | CTY LAM  | 14.4 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0400PU | 95.89  | 70133 |
| GENERATION        |          |      | 70   |     | 24.0   | 4.2R  | 24.4  | 81  | 14.976KV |        |       |
| TO 70134          | CTY LAM  | 25.0 | 70   | 1   | 24.0   | 4.2   | 24.4  | 94  | 1.0000UN |        |       |
| BUS 70247         | LAJUNTAT | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0237PU | 60.23  | 70247 |
|                   |          |      | 70   |     |        |       |       |     | 117.72KV |        |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0    | -90.5 | 90.5  |     |          |        |       |

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|     |       |              |     |      |     |        |       |       |    |                      |
|-----|-------|--------------|-----|------|-----|--------|-------|-------|----|----------------------|
| TO  | 70060 | BOONE        | 115 | 70   | 1   | 133.4  | 1.9   | 133.4 | 65 |                      |
| TO  | 70248 | LAJUNTAT69.0 | 70  | 1    |     | 20.2   | 6.9   | 21.3  | 83 | 0.9875RG             |
| TO  | 70472 | WILOW CK     | 115 | 70   | 1   | -153.6 | 81.7  | 174.0 | 85 |                      |
| BUS | 70249 | LAJUNTAW     | 115 | AREA | CKT | MW     | MVAR  | MVA   | %I | 0.9683PU 40.57 70249 |
|     |       |              |     | 70   |     |        |       |       |    | 111.36KV             |
| TO  | 70060 | BOONE        | 115 | 70   | 1   | -20.0  | -11.8 | 23.2  | 22 |                      |
| TO  | 70250 | LAJUNTAW69.0 | 70  | 1    |     | 20.0   | 11.8  | 23.2  | 96 | 1.0756UN             |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:41  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC REC RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS SET A

|            |              |      |      |     |        |       |       |    |          |        |       |
|------------|--------------|------|------|-----|--------|-------|-------|----|----------|--------|-------|
| BUS 70060  | BOONE        | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0194PU | 43.04  | 70060 |
|            |              |      | 70   |     |        |       |       |    | 117.24KV |        |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | 37.2   | -45.0 | 58.4  | 38 | 1.0188RG |        |       |
| TO 70062   | BOONE        | 69.0 | 70   | 1   | 9.7    | 0.2   | 9.7   | 29 | 1.0125UN |        |       |
| TO 70159   | DOT TAP      | 115  | 70   | 1   | 60.9   | 2.9   | 60.9  | 52 |          |        |       |
| TO 70247   | LAJUNTAT     | 115  | 70   | 1   | -128.3 | 31.9  | 132.3 | 65 |          |        |       |
| TO 70249   | LAJUNTAW     | 115  | 70   | 1   | 20.6   | 10.0  | 22.9  | 21 |          |        |       |
| BUS 70061  | BOONE        | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0231PU | 41.92  | 70061 |
|            |              |      | 70   |     |        |       |       |    | 235.31KV |        |       |
| TO 70060   | BOONE        | 115  | 70   | 1   | -37.1  | 46.8  | 59.7  | 39 | 1.0188UN |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -28.9  | -48.5 | 56.4  | 13 |          |        |       |
| TO 70286   | MIDWAYPS     | 230  | 70   | 1   | 66.1   | 1.7   | 66.1  | 13 |          |        |       |
| BUS 70700  | GOB_KNOB     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0300PU | 114.54 | 70700 |
|            |              |      | 70   |     |        |       |       |    | 236.90KV |        |       |
| TO 70254   | LAMAR CO     | 230  | 70   | 1   | 160.8  | -14.0 | 161.4 | 32 |          |        |       |
| TO 70701   | GOB_KNOB     | 34.5 | 70   | 1   | -80.4  | 7.0   | 80.7  | 94 | 1.0000LK |        |       |
| TO 70702   | GOB_KNOB     | 34.5 | 70   | 2   | -80.4  | 7.0   | 80.7  | 94 | 1.0000LK |        |       |
| BUS 70701  | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0340PU | 118.90 | 70701 |
| GENERATION |              |      | 70   |     | 81.0   | -0.9R | 81.0  | 81 | 35.673KV |        |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 1   | 81.0   | -0.9  | 81.0  | 94 | 1.0000UN |        |       |
| BUS 70702  | GOB_KNOB     | 34.5 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0340PU | 118.90 | 70702 |
| GENERATION |              |      | 70   |     | 81.0   | -0.9R | 81.0  | 81 | 35.673KV |        |       |
| TO 70700   | GOB_KNOB     | 230  | 70   | 2   | 81.0   | -0.9  | 81.0  | 94 | 1.0000UN |        |       |
| BUS 70286  | MIDWAYPS     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0134PU | 39.65  | 70286 |
|            |              |      | 70   |     |        |       |       |    | 233.08KV |        |       |
| TO 70061   | BOONE        | 230  | 70   | 1   | -65.7  | -12.2 | 66.8  | 13 |          |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -71.7  | -34.9 | 79.7  | 16 |          |        |       |
| TO 70139   | DANIELPK     | 230  | 70   | 1   | 172.4  | 14.6  | 173.0 | 34 |          |        |       |
| TO 70285   | MIDWAYPS     | 115  | 70   | 1   | 15.6   | 17.8  | 23.7  | 23 | 1.0188UN |        |       |
| TO 70577   | FTNVL1-213.8 | 70   | 70   | 1   | -80.0  | 0.8   | 80.0  | 32 | 1.0000UN |        |       |
| TO 70578   | FTNVL3-413.8 | 70   | 70   | 1   | -80.0  | 0.8   | 80.0  | 79 | 1.0000UN |        |       |
| TO 70579   | FTNVL5-613.8 | 70   | 70   | 1   | -80.0  | 0.8   | 80.0  | 79 | 1.0000UN |        |       |
| TO 70584   | MIDWAYPS     | 345  | 70   | 1   | 266.3  | 20.6  | 267.1 | 53 | 1.0000LK |        |       |
| TO 73413   | MIDWAYBR     | 230  | 73   | 1   | -76.9  | -8.3  | 77.4  | 15 |          |        |       |
| BUS 70459  | WALSENBG     | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0380PU | 36.80  | 70459 |
|            |              |      | 70   |     |        |       |       |    | 238.73KV |        |       |
| TO 12101   | GLADSTON     | 230  | 10   | 1   | 107.3  | -28.1 | 110.9 | 19 |          |        |       |
| TO 70122   | COMANCHE     | 230  | 70   | 1   | -143.8 | 10.0  | 144.2 | 31 |          |        |       |
| TO 70458   | WALSENBG     | 115  | 70   | 1   | 36.6   | 18.1  | 40.8  | 39 | 1.0000LK |        |       |



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:41  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC REC RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS SET A

|           |          |      |      |     |        |       |       |    |          |       |       |
|-----------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0416PU | 42.41 | 70122 |
|           |          |      | 70   |     |        |       |       |    | 239.56KV |       |       |
| TO 70061  | BOONE    | 230  | 70   | 1   | 29.0   | 41.3  | 50.5  | 11 |          |       |       |
| TO 70094  | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO 70119  | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -57.5 | 330.8 | 77 | 1.0564LK |       |       |
| TO 70120  | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -51.9 | 335.9 | 77 | 1.0564LK |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 1   | 113.9  | 11.0  | 114.5 | 39 | 0.9875UN |       |       |
| TO 70121  | COMANCHE | 115  | 70   | 2   | 113.9  | 11.0  | 114.5 | 39 | 0.9875UN |       |       |
| TO 70286  | MIDWAYPS | 230  | 70   | 1   | 72.2   | 24.7  | 76.3  | 14 |          |       |       |
| TO 70459  | WALSENBG | 230  | 70   | 1   | 145.4  | -11.3 | 145.8 | 32 |          |       |       |
| TO 73477  | FULLER   | 230  | 73   | 1   | 83.1   | 7.2   | 83.4  | 16 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:41  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC REC  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:41  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC REC  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 50.0    | 50.0   | 100.0   |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.9    | 50.0   | 99.9    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.3    | 55.0   | 91.5    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 23.4    | 25.0   | 93.7    |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 24.0    | 25.0   | 95.9    |
| 70253                | LAMAR CO | 115  | 70   | 70254*             | LAMAR CO | 230  | 70   | 1            | 102.5   | 100.0  | 102.5   |
| 70253                | LAMAR CO | 115  | 70   | 70254*             | LAMAR CO | 230  | 70   | 2            | 102.5   | 100.0  | 102.5   |
| 70253                | LAMAR CO | 115  | 70   | 70472*             | WILOW CK | 115  | 70   | 1            | 187.0   | 200.0  | 93.5    |
| 70700                | GOB_KNOB | 230  | 70   | 70701*             | GOB_KNOB | 34.5 | 70   | 1            | 78.3    | 83.0   | 94.4    |
| 70700                | GOB_KNOB | 230  | 70   | 70702*             | GOB_KNOB | 34.5 | 70   | 2            | 78.3    | 83.0   | 94.4    |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:41  
2005HSV2 MASTER-2/11/02 BOONE-LAMAR 230 CKT OUTAGE W/DC REC  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCK AREA SHUNTS  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.3    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.4    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013*               | CRAIG   | 230  | 73   | 79015              | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013*               | CRAIG   | 230  | 73   | 79016              | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014*               | CRAIG   | 345  | 73   | 79017              | CRAIG 3  | 22.0 | 73   | 1            | 395.8   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.1   | 202.0  | 99.0    |
| 79052*               | NUCLA   | 115  | 73   | 79161              | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |

**D - Willow Creek 115/69-kV transformer outage**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:51  
 2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|                   |           |      |      |     |        |       |       |    |          |       |       |
|-------------------|-----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
| BUS 70254         | LAMAR CO  | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0301PU | 53.04 | 70254 |
|                   |           |      | 70   |     |        |       |       |    | 236.93KV |       |       |
| TO 70061          | BOONE     | 230  | 70   | 1   | 136.2  | -15.9 | 137.1 | 27 |          |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | 71.0   | -6.4  | 71.3  | 69 | 1.0000LK |       |       |
| TO 70560          | LAMAR DC  | 230  | 70   | 1   | -48.0  | 3.8   | 48.2  | 17 |          |       |       |
| TO 70700          | GOB_KNOB  | 230  | 70   | 1   | -159.2 | 18.4  | 160.3 | 31 |          |       |       |
| BUS 70253         | LAMAR CO  | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0374PU | 49.65 | 70253 |
|                   |           |      | 70   |     |        |       |       |    | 119.30KV |       |       |
| TO 70254          | LAMAR CO  | 230  | 70   | 1   | -71.0  | 10.6  | 71.8  | 69 | 1.0000UN |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | 39.9   | -6.8  | 40.4  | 23 |          |       |       |
| TO 70472          | WILLOW CK | 115  | 70   | 1   | 31.2   | -3.9  | 31.4  | 18 |          |       |       |
| BUS 70452         | VILAS     | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0363PU | 42.25 | 70452 |
|                   |           |      | 70   |     |        |       |       |    | 119.17KV |       |       |
| TO 70253          | LAMAR CO  | 115  | 70   | 1   | -39.0  | 6.7   | 39.5  | 22 |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | 39.0   | -6.7  | 39.5  | 45 | 1.0187RG |       |       |
| BUS 70453         | VILAS     | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0224PU | 40.04 | 70453 |
|                   |           |      | 70   |     |        |       |       |    | 70.548KV |       |       |
| TO 70223          | HLTP TAP  | 69.0 | 70   | 1   | 7.0    | 2.0   | 7.3   | 18 |          |       |       |
| TO 70452          | VILAS     | 115  | 70   | 1   | -38.9  | 8.2   | 39.8  | 46 | 1.0187UN |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | 31.9   | -10.3 | 33.5  | 97 |          |       |       |
| BUS 70223         | HLTP TAP  | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0184PU | 39.75 | 70223 |
|                   |           |      | 70   |     |        |       |       |    | 70.270KV |       |       |
| TO 70222          | HILLTOP   | 69.0 | 70   | 1   | 4.0    | 1.3   | 4.2   | 12 |          |       |       |
| TO 70404          | SPRNGFLD  | 69.0 | 70   | 1   | 2.9    | 0.8   | 3.1   | 8  |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -7.0   | -2.1  | 7.3   | 18 |          |       |       |
| BUS 70460         | WALSH     | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0170PU | 36.76 | 70460 |
|                   |           |      | 70   |     |        |       |       |    | 70.173KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 4.0    | 1.3   | 4.2   |    |          |       |       |
| TO SWITCHED SHUNT |           |      |      |     | 0.0    | -16.8 | 16.8  |    |          |       |       |
| TO 70425          | T BUTTES  | 69.0 | 70   | 1   | 27.1   | 3.9   | 27.4  | 79 |          |       |       |
| TO 70453          | VILAS     | 69.0 | 70   | 1   | -31.1  | 11.5  | 33.2  | 96 |          |       |       |
| BUS 70425         | T BUTTES  | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I | 0.9892PU | 34.18 | 70425 |
|                   |           |      | 70   |     |        |       |       |    | 68.254KV |       |       |
| TO LOAD-PQ        |           |      |      |     | 2.1    | 0.7   | 2.2   |    |          |       |       |
| TO 70101          | CHEN TAP  | 69.0 | 70   | 1   | 24.5   | 2.2   | 24.6  | 73 |          |       |       |
| TO 70460          | WALSH     | 69.0 | 70   | 1   | -26.5  | -2.9  | 26.7  | 79 |          |       |       |
| BUS 70101         | CHEN TAP  | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I | 0.9516PU | 30.01 | 70101 |
|                   |           |      | 70   |     |        |       |       |    | 65.660KV |       |       |
| TO 70102          | CHENEY    | 69.0 | 70   | 1   | 3.0    | 0.8   | 3.1   | 9  |          |       |       |
| TO 70225          | HOLL TAP  | 69.0 | 70   | 1   | 20.7   | 0.1   | 20.7  | 64 |          |       |       |
| TO 70425          | T BUTTES  | 69.0 | 70   | 1   | -23.6  | -0.8  | 23.6  | 73 |          |       |       |

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|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 0.9480PU | 29.76 | 70102 |
|                   | 70   |      |     |      |      |     |    | 65.412KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -3.0 | -1.0 | 3.1 | 10 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      TUE, OCT 08 2002 13:51
2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC      RATING
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT  SET A

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|                   |              |         |     |       |      |      |     |          |       |       |
|-------------------|--------------|---------|-----|-------|------|------|-----|----------|-------|-------|
| BUS 70225         | HOLL TAP69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9269PU | 26.52 | 70225 |
|                   |              |         |     |       |      |      |     | 63.958KV |       |       |
| TO 70101          | CHEN TAP69.0 | 70      | 1   | -20.1 | 0.8  | 20.1 | 64  |          |       |       |
| TO 70184          | FT HOLLY69.0 | 70      | 1   | 3.0   | 0.8  | 3.1  | 10  |          |       |       |
| TO 70203          | GRAN TAP69.0 | 70      | 1   | 17.2  | -1.7 | 17.3 | 55  |          |       |       |
| BUS 70184         | FT HOLLY69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9243PU | 26.34 | 70184 |
|                   |              |         |     |       |      |      |     | 63.775KV |       |       |
| TO LOAD-PQ        |              |         |     | 2.9   | 1.0  | 3.1  |     |          |       |       |
| TO 70225          | HOLL TAP69.0 | 70      | 1   | -3.0  | -1.0 | 3.1  | 10  |          |       |       |
| BUS 70203         | GRAN TAP69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9220PU | 25.62 | 70203 |
|                   |              |         |     |       |      |      |     | 63.621KV |       |       |
| TO 70204          | GRANADA 69.0 | 70      | 1   | 1.6   | 0.5  | 1.7  | 5   |          |       |       |
| TO 70225          | HOLL TAP69.0 | 70      | 1   | -17.1 | 1.8  | 17.2 | 55  |          |       |       |
| TO 70473          | WILOW CK69.0 | 70      | 1   | 15.5  | -2.3 | 15.6 | 50  |          |       |       |
| BUS 70204         | GRANADA 69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9215PU | 25.58 | 70204 |
|                   |              |         |     |       |      |      |     | 63.583KV |       |       |
| TO LOAD-PQ        |              |         |     | 1.6   | 0.5  | 1.7  |     |          |       |       |
| TO 70203          | GRAN TAP69.0 | 70      | 1   | -1.6  | -0.5 | 1.7  | 5   |          |       |       |
| BUS 70161         | EADS 69.0    | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.8993PU | 21.66 | 70161 |
|                   |              |         |     |       |      |      |     | 62.053KV |       |       |
| TO LOAD-PQ        |              |         |     | 2.1   | 0.7  | 2.2  |     |          |       |       |
| TO 70473          | WILOW CK69.0 | 70      | 1   | -2.1  | -0.7 | 2.2  | 7   |          |       |       |
| BUS 70136         | CTY LAM 69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9080PU | 22.18 | 70136 |
|                   |              |         |     |       |      |      |     | 62.653KV |       |       |
| TO 70134          | CTY LAM 25.0 | 70      | 1   | 0.4   | -4.9 | 4.9  | 22  | 1.0000LK |       |       |
| TO 70134          | CTY LAM 25.0 | 70      | 2   | 0.1   | -1.7 | 1.7  | 17  | 1.0000LK |       |       |
| TO 70185          | FT. LYON69.0 | 70      | 1   | 7.7   | 2.5  | 8.1  | 23  |          |       |       |
| TO 70333          | PROWERS 69.0 | 70      | 1   | 2.0   | 0.5  | 2.1  | 6   |          |       |       |
| TO 70473          | WILOW CK69.0 | 70      | 1   | -10.3 | 3.6  | 10.9 | 63  |          |       |       |
| BUS 70185         | FT. LYON69.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9021PU | 21.71 | 70185 |
|                   |              |         |     |       |      |      |     | 62.248KV |       |       |
| TO LOAD-PQ        |              |         |     | 7.7   | 2.5  | 8.1  |     |          |       |       |
| TO 70136          | CTY LAM 69.0 | 70      | 1   | -7.7  | -2.5 | 8.1  | 23  |          |       |       |
| BUS 70134         | CTY LAM 25.0 | AREA 70 | CKT | MW    | MVAR | MVA  | %I  | 0.9166PU | 22.08 | 70134 |
|                   |              |         |     |       |      |      |     | 22.915KV |       |       |
| TO LOAD-PQ        |              |         |     | 24.4  | 8.0  | 25.7 |     |          |       |       |
| TO SWITCHED SHUNT |              |         |     | 0.0   | -7.6 | 7.6  |     |          |       |       |
| TO 70133          | CTY LAM 14.4 | 70      | 1   | -23.9 | -7.1 | 25.0 | 109 | 1.0000LK |       |       |
| TO 70135          | CTY LAM 4.20 | 70      | 1   | 0.0   | 0.0  | 0.0  | 0   | 1.0000LK |       |       |
| TO 70136          | CTY LAM 69.0 | 70      | 1   | -0.4  | 5.0  | 5.0  | 22  | 1.0000UN |       |       |
| TO 70136          | CTY LAM 69.0 | 70      | 2   | -0.1  | 1.7  | 1.7  | 17  | 1.0000UN |       |       |



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|     |       |          |      |      |     |       |      |      |    |        |       |
|-----|-------|----------|------|------|-----|-------|------|------|----|--------|-------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 0.9000 | LO    |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0356 | PU    |
|     |       |          |      | 70   |     |       |      |      |    | 48.17  | 70472 |
|     |       |          |      |      |     |       |      |      |    | 119.10 | KV    |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 31.0  | -3.3 | 31.2 | 28 |        |       |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -31.0 | 3.3  | 31.2 | 18 |        |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:51  
 2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|           |                |      |      |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 0.9083PU | 22.46 | 70473 |
|           |                | 70   |      |       |      |      |    | 62.674KV |       |       |
| TO        | LOAD-PQ        |      |      | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70 1 | 10.3  | -3.6 | 10.9 | 63 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70 1 | 2.1   | 0.1  | 2.1  | 7  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70 1 | -15.1 | 2.7  | 15.3 | 50 |          |       |       |
|           |                |      |      |       |      |      |    |          |       |       |
| BUS 70132 | CTY LAJ 69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0171PU | 39.42 | 70132 |
|           |                | 70   |      |       |      |      |    | 70.177KV |       |       |
| TO        | LOAD-PQ        |      |      | 16.8  | 5.5  | 17.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70 1 | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70 1 | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70 1 | -19.2 | -6.2 | 20.2 | 51 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:51  
2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|                                  |        |       |       |     |          |       |       |
|----------------------------------|--------|-------|-------|-----|----------|-------|-------|
| BUS 70133 CTY LAM 14.4 AREA CKT  | MW     | MVAR  | MVA   | %I  | 0.9341PU | 24.57 | 70133 |
| GENERATION 70                    | 24.0   | 8.3H  | 25.4  | 85  | 13.451KV |       |       |
| TO 70134 CTY LAM 25.0 70 1       | 24.1   | 8.3   | 25.5  | 109 | 1.0000UN |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70247 LAJUNTAT 115 AREA CKT  | MW     | MVAR  | MVA   | %I  | 1.0150PU | 42.32 | 70247 |
| 70                               |        |       |       |     | 116.72KV |       |       |
| TO 70060 BOONE 115 70 1          | 10.0   | -8.7  | 13.2  | 12  |          |       |       |
| TO 70248 LAJUNTAT 69.0 70 1      | 20.2   | 6.9   | 21.3  | 84  | 0.9750RG |       |       |
| TO 70472 WILLOW CK 115 70 1      | -30.1  | 1.7   | 30.2  | 27  |          |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70249 LAJUNTAW 115 AREA CKT  | MW     | MVAR  | MVA   | %I  | 0.9750PU | 38.16 | 70249 |
| 70                               |        |       |       |     | 112.13KV |       |       |
| TO 70060 BOONE 115 70 1          | -20.1  | -11.9 | 23.3  | 22  |          |       |       |
| TO 70250 LAJUNTAW 69.0 70 1      | 20.1   | 11.9  | 23.3  | 96  | 1.0693UN |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70060 BOONE 115 AREA CKT     | MW     | MVAR  | MVA   | %I  | 1.0261PU | 40.61 | 70060 |
| 70                               |        |       |       |     | 118.00KV |       |       |
| TO 70061 BOONE 230 70 1          | -68.6  | -23.4 | 72.5  | 47  | 1.0125RG |       |       |
| TO 70062 BOONE 69.0 70 1         | 9.6    | 0.1   | 9.6   | 28  | 1.0063UN |       |       |
| TO 70159 DOT TAP 115 70 1        | 48.2   | 7.6   | 48.8  | 41  |          |       |       |
| TO 70247 LAJUNTAT 115 70 1       | -9.9   | 5.6   | 11.3  | 10  |          |       |       |
| TO 70249 LAJUNTAW 115 70 1       | 20.6   | 10.1  | 23.0  | 21  |          |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70061 BOONE 230 AREA CKT     | MW     | MVAR  | MVA   | %I  | 1.0274PU | 42.51 | 70061 |
| 70                               |        |       |       |     | 236.30KV |       |       |
| TO 70060 BOONE 115 70 1          | 68.8   | 26.0  | 73.5  | 48  | 1.0125UN |       |       |
| TO 70122 COMANCHE 230 70 1       | -15.2  | -42.1 | 44.7  | 10  |          |       |       |
| TO 70254 LAMAR CO 230 70 1       | -133.5 | 9.6   | 133.9 | 26  |          |       |       |
| TO 70286 MIDWAYPS 230 70 1       | 79.9   | 6.4   | 80.2  | 16  |          |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70700 GOB_KNOB 230 AREA CKT  | MW     | MVAR  | MVA   | %I  | 1.0300PU | 58.08 | 70700 |
| 70                               |        |       |       |     | 236.90KV |       |       |
| TO 70254 LAMAR CO 230 70 1       | 160.8  | -17.0 | 161.7 | 32  |          |       |       |
| TO 70701 GOB_KNOB 34.5 70 1      | -80.4  | 8.5   | 80.8  | 95  | 1.0000LK |       |       |
| TO 70702 GOB_KNOB 34.5 70 2      | -80.4  | 8.5   | 80.8  | 95  | 1.0000LK |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70701 GOB_KNOB 34.5 AREA CKT | MW     | MVAR  | MVA   | %I  | 1.0326PU | 62.46 | 70701 |
| GENERATION 70                    | 81.0   | -2.3R | 81.0  | 81  | 35.624KV |       |       |
| TO 70700 GOB_KNOB 230 70 1       | 81.0   | -2.3  | 81.0  | 95  | 1.0000UN |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70702 GOB_KNOB 34.5 AREA CKT | MW     | MVAR  | MVA   | %I  | 1.0326PU | 62.46 | 70702 |
| GENERATION 70                    | 81.0   | -2.3R | 81.0  | 81  | 35.624KV |       |       |
| TO 70700 GOB_KNOB 230 70 2       | 81.0   | -2.3  | 81.0  | 95  | 1.0000UN |       |       |
|                                  |        |       |       |     |          |       |       |
| BUS 70286 MIDWAYPS 230 AREA CKT  | MW     | MVAR  | MVA   | %I  | 1.0140PU | 39.80 | 70286 |
| 70                               |        |       |       |     | 233.22KV |       |       |
| TO 70061 BOONE 230 70 1          | -79.4  | -15.8 | 81.0  | 16  |          |       |       |
| TO 70122 COMANCHE 230 70 1       | -76.1  | -34.8 | 83.6  | 16  |          |       |       |

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|    |       |              |     |    |       |       |      |       |          |          |
|----|-------|--------------|-----|----|-------|-------|------|-------|----------|----------|
| TO | 70139 | DANIELPK     | 230 | 70 | 1     | 175.2 | 15.4 | 175.8 | 34       |          |
| TO | 70285 | MIDWAYPS     | 115 | 70 | 1     | 23.1  | 14.5 | 27.3  | 27       | 1.0188UN |
| TO | 70577 | FTNVL1-213.8 | 70  | 1  | -80.0 | 1.2   | 80.0 | 32    | 1.0000UN |          |
| TO | 70578 | FTNVL3-413.8 | 70  | 1  | -80.0 | 1.2   | 80.0 | 79    | 1.0000UN |          |
| TO | 70579 | FTNVL5-613.8 | 70  | 1  | -80.0 | 1.2   | 80.0 | 79    | 1.0000UN |          |
| TO | 70584 | MIDWAYPS     | 345 | 70 | 1     | 271.0 | 22.2 | 271.9 | 54       | 1.0000LK |
| TO | 73413 | MIDWAYBR     | 230 | 73 | 1     | -73.8 | -5.1 | 74.0  | 15       |          |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:51  
 2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

| BUS | 70459 | WALSENBG | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0388PU | 37.08 | 70459 |
|-----|-------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
|     |       |          |      | 70   |     |        |       |       |    | 238.94KV |       |       |
| TO  | 12101 | GLADSTON | 230  | 10   | 1   | 108.0  | -27.7 | 111.5 | 19 |          |       |       |
| TO  | 70122 | COMANCHE | 230  | 70   | 1   | -145.1 | 9.9   | 145.5 | 32 |          |       |       |
| TO  | 70458 | WALSENBG | 115  | 70   | 1   | 37.1   | 17.8  | 41.1  | 40 | 1.0000LK |       |       |
| BUS | 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0427PU | 42.73 | 70122 |
|     |       |          |      | 70   |     |        |       |       |    | 239.81KV |       |       |
| TO  | 70061 | BOONE    | 230  | 70   | 1   | 15.3   | 34.5  | 37.7  | 8  |          |       |       |
| TO  | 70094 | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO  | 70119 | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -54.0 | 330.2 | 77 | 1.0564LK |       |       |
| TO  | 70120 | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -48.6 | 335.4 | 77 | 1.0564LK |       |       |
| TO  | 70121 | COMANCHE | 115  | 70   | 1   | 116.5  | 10.5  | 117.0 | 40 | 0.9875UN |       |       |
| TO  | 70121 | COMANCHE | 115  | 70   | 2   | 116.5  | 10.5  | 117.0 | 40 | 0.9875UN |       |       |
| TO  | 70286 | MIDWAYPS | 230  | 70   | 1   | 76.7   | 25.1  | 80.7  | 15 |          |       |       |
| TO  | 70459 | WALSENBG | 230  | 70   | 1   | 146.7  | -11.1 | 147.1 | 32 |          |       |       |
| TO  | 73477 | FULLER   | 230  | 73   | 1   | 86.0   | 7.8   | 86.4  | 16 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:51  
2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS       | -----X | AREA | V(PU)  | V(KV)  | X----- | BUS     | -----X | AREA | V(PU)  | V(KV)  |
|--------|-----------|--------|------|--------|--------|--------|---------|--------|------|--------|--------|
| 70134  | CTY LAM   | 25.0   | 70   | 0.9166 | 22.915 | 70135  | CTY LAM | 4.20   | 70   | 0.9166 | 3.850  |
| 70136  | CTY LAM   | 69.0   | 70   | 0.9080 | 62.653 | 70161  | EADS    | 69.0   | 70   | 0.8993 | 62.053 |
| 70185  | FT. LYON  | 69.0   | 70   | 0.9021 | 62.248 | 70333  | PROWERS | 69.0   | 70   | 0.9056 | 62.483 |
| 70473  | WILLOW CK | 69.0   | 70   | 0.9083 | 62.674 |        |         |        |      |        |        |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:51  
2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 50.0    | 50.0   | 100.0   |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.9    | 50.0   | 99.9    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.3    | 55.0   | 91.5    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 27.2    | 25.0   | 109.0   |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.7    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 32.8    | 33.9   | 96.7    |
| 70700*               | GOB_KNOB | 230  | 70   | 70701              | GOB_KNOB | 34.5 | 70   | 1            | 78.5    | 83.0   | 94.6    |
| 70700*               | GOB_KNOB | 230  | 70   | 70702              | GOB_KNOB | 34.5 | 70   | 2            | 78.5    | 83.0   | 94.6    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 13:51  
2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.4    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.4    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013                | CRAIG   | 230  | 73   | 79015*             | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013                | CRAIG   | 230  | 73   | 79016*             | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014                | CRAIG   | 345  | 73   | 79017*             | CRAIG 3  | 22.0 | 73   | 1            | 395.8   | 420.0  | 94.2    |
| 79039*               | HAYDEN  | 230  | 73   | 79040              | HAYDEN1  | 18.0 | 73   | 1            | 200.1   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |



**E - Willow Creek 115/69-kV transformer outage  
with 5.4 MVAR capacitors added at Willow Creek 69 kV**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:06  
2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC AND CAP BANK RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|                   |          |      |      |     |        |       |       |     |          |       |       |
|-------------------|----------|------|------|-----|--------|-------|-------|-----|----------|-------|-------|
| BUS 70254         | LAMAR CO | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0303PU | 52.95 | 70254 |
|                   |          |      | 70   |     |        |       |       |     | 236.97KV |       |       |
| TO 70061          | BOONE    | 230  | 70   | 1   | 135.7  | -16.0 | 136.7 | 27  |          |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | 71.5   | -13.2 | 72.7  | 71  | 1.0000LK |       |       |
| TO 70560          | LAMAR DC | 230  | 70   | 1   | -48.0  | 10.5  | 49.1  | 17  |          |       |       |
| TO 70700          | GOB_KNOB | 230  | 70   | 1   | -159.2 | 18.8  | 160.3 | 31  |          |       |       |
| BUS 70253         | LAMAR CO | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0436PU | 49.56 | 70253 |
|                   |          |      | 70   |     |        |       |       |     | 120.01KV |       |       |
| TO 70254          | LAMAR CO | 230  | 70   | 1   | -71.5  | 17.7  | 73.7  | 71  | 1.0000UN |       |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | 40.1   | -14.5 | 42.7  | 24  |          |       |       |
| TO 70472          | WILOW CK | 115  | 70   | 1   | 31.4   | -3.1  | 31.6  | 18  |          |       |       |
| BUS 70452         | VILAS    | 115  | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0679PU | 42.14 | 70452 |
|                   |          |      | 70   |     |        |       |       |     | 122.81KV |       |       |
| TO 70253          | LAMAR CO | 115  | 70   | 1   | -39.1  | 14.6  | 41.8  | 23  |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | 39.1   | -14.6 | 41.8  | 47  | 1.0563RG |       |       |
| BUS 70453         | VILAS    | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0244PU | 39.89 | 70453 |
|                   |          |      | 70   |     |        |       |       |     | 70.681KV |       |       |
| TO 70223          | HLTP TAP | 69.0 | 70   | 1   | 7.0    | 2.0   | 7.3   | 18  |          |       |       |
| TO 70452          | VILAS    | 115  | 70   | 1   | -39.0  | 16.4  | 42.3  | 49  | 1.0563UN |       |       |
| TO 70460          | WALSH    | 69.0 | 70   | 1   | 32.0   | -18.4 | 37.0  | 106 |          |       |       |
| BUS 70223         | HLTP TAP | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0204PU | 39.60 | 70223 |
|                   |          |      | 70   |     |        |       |       |     | 70.404KV |       |       |
| TO 70222          | HILLTOP  | 69.0 | 70   | 1   | 4.0    | 1.3   | 4.2   | 12  |          |       |       |
| TO 70404          | SPRNGFLD | 69.0 | 70   | 1   | 2.9    | 0.8   | 3.1   | 8   |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | -7.0   | -2.1  | 7.3   | 18  |          |       |       |
| BUS 70460         | WALSH    | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0321PU | 36.33 | 70460 |
|                   |          |      | 70   |     |        |       |       |     | 71.218KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 4.0    | 1.3   | 4.2   |     |          |       |       |
| TO SWITCHED SHUNT |          |      |      |     | 0.0    | -17.3 | 17.3  |     |          |       |       |
| TO 70425          | T BUTTES | 69.0 | 70   | 1   | 27.1   | -4.1  | 27.4  | 78  |          |       |       |
| TO 70453          | VILAS    | 69.0 | 70   | 1   | -31.1  | 20.0  | 37.0  | 106 |          |       |       |
| BUS 70425         | T BUTTES | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0189PU | 33.51 | 70425 |
|                   |          |      | 70   |     |        |       |       |     | 70.306KV |       |       |
| TO LOAD-PQ        |          |      |      |     | 2.1    | 0.7   | 2.2   |     |          |       |       |
| TO 70101          | CHEN TAP | 69.0 | 70   | 1   | 24.4   | -5.7  | 25.1  | 73  |          |       |       |
| TO 70460          | WALSH    | 69.0 | 70   | 1   | -26.5  | 5.1   | 27.0  | 78  |          |       |       |
| BUS 70101         | CHEN TAP | 69.0 | AREA | CKT | MW     | MVAR  | MVA   | %I  | 1.0059PU | 29.09 | 70101 |
|                   |          |      | 70   |     |        |       |       |     | 69.404KV |       |       |
| TO 70102          | CHENEY   | 69.0 | 70   | 1   | 3.0    | 0.7   | 3.0   | 9   |          |       |       |
| TO 70225          | HOLL TAP | 69.0 | 70   | 1   | 20.7   | -7.8  | 22.1  | 65  |          |       |       |
| TO 70425          | T BUTTES | 69.0 | 70   | 1   | -23.6  | 7.0   | 24.6  | 72  |          |       |       |

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|                   |      |      |     |      |      |     |    |          |       |       |
|-------------------|------|------|-----|------|------|-----|----|----------|-------|-------|
| BUS 70102 CHENEY  | 69.0 | AREA | CKT | MW   | MVAR | MVA | %I | 1.0025PU | 28.86 | 70102 |
|                   | 70   |      |     |      |      |     |    | 69.171KV |       |       |
| TO LOAD-PQ        |      |      |     | 2.9  | 1.0  | 3.1 |    |          |       |       |
| TO 70101 CHEN TAP | 69.0 | 70   | 1   | -2.9 | -1.0 | 3.1 | 9  |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:06  
2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC AND CAP BANK RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|                        |      |     |       |       |      |    |          |       |       |
|------------------------|------|-----|-------|-------|------|----|----------|-------|-------|
| BUS 70225 HOLL TAP69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0031PU | 25.51 | 70225 |
|                        | 70   |     |       |       |      |    | 69.216KV |       |       |
| TO 70101 CHEN TAP69.0  | 70   | 1   | -20.1 | 8.6   | 21.9 | 64 |          |       |       |
| TO 70184 FT HOLLY69.0  | 70   | 1   | 3.0   | 0.8   | 3.1  | 9  |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | 17.1  | -9.4  | 19.6 | 58 |          |       |       |
| BUS 70184 FT HOLLY69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0007PU | 25.36 | 70184 |
|                        | 70   |     |       |       |      |    | 69.049KV |       |       |
| TO LOAD-PQ             |      |     | 2.9   | 1.0   | 3.1  |    |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -2.9  | -1.0  | 3.1  | 9  |          |       |       |
| BUS 70203 GRAN TAP69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0045PU | 24.60 | 70203 |
|                        | 70   |     |       |       |      |    | 69.308KV |       |       |
| TO 70204 GRANADA 69.0  | 70   | 1   | 1.6   | 0.5   | 1.7  | 5  |          |       |       |
| TO 70225 HOLL TAP69.0  | 70   | 1   | -17.0 | 9.6   | 19.5 | 57 |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | 15.4  | -10.1 | 18.4 | 54 |          |       |       |
| BUS 70204 GRANADA 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0040PU | 24.57 | 70204 |
|                        | 70   |     |       |       |      |    | 69.273KV |       |       |
| TO LOAD-PQ             |      |     | 1.6   | 0.5   | 1.7  |    |          |       |       |
| TO 70203 GRAN TAP69.0  | 70   | 1   | -1.6  | -0.5  | 1.7  | 5  |          |       |       |
| BUS 70161 EADS 69.0    | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0064PU | 20.80 | 70161 |
|                        | 70   |     |       |       |      |    | 69.439KV |       |       |
| TO LOAD-PQ             |      |     | 2.1   | 0.7   | 2.2  |    |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -2.1  | -0.7  | 2.2  | 6  |          |       |       |
| BUS 70136 CTY LAM 69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0143PU | 21.21 | 70136 |
|                        | 70   |     |       |       |      |    | 69.988KV |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 1   | 0.4   | -6.4  | 6.4  | 25 | 1.0000LK |       |       |
| TO 70134 CTY LAM 25.0  | 70   | 2   | 0.1   | -2.1  | 2.2  | 19 | 1.0000LK |       |       |
| TO 70185 FT. LYON69.0  | 70   | 1   | 7.7   | 2.4   | 8.1  | 20 |          |       |       |
| TO 70333 PROWERS 69.0  | 70   | 1   | 2.0   | 0.4   | 2.1  | 5  |          |       |       |
| TO 70473 WILOW CK69.0  | 70   | 1   | -10.2 | 5.7   | 11.7 | 61 |          |       |       |
| BUS 70185 FT. LYON69.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0091PU | 20.84 | 70185 |
|                        | 70   |     |       |       |      |    | 69.627KV |       |       |
| TO LOAD-PQ             |      |     | 7.7   | 2.5   | 8.1  |    |          |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -7.7  | -2.5  | 8.1  | 21 |          |       |       |
| BUS 70134 CTY LAM 25.0 | AREA | CKT | MW    | MVAR  | MVA  | %I | 1.0243PU | 21.12 | 70134 |
|                        | 70   |     |       |       |      |    | 25.608KV |       |       |
| TO LOAD-PQ             |      |     | 24.4  | 8.0   | 25.7 |    |          |       |       |
| TO SWITCHED SHUNT      |      |     | 0.0   | -9.4  | 9.4  |    |          |       |       |
| TO 70133 CTY LAM 14.4  | 70   | 1   | -23.9 | -7.2  | 25.0 | 98 | 1.0000LK |       |       |
| TO 70135 CTY LAM 4.20  | 70   | 1   | 0.0   | 0.0   | 0.0  | 0  | 1.0000LK |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 1   | -0.4  | 6.5   | 6.5  | 25 | 1.0000UN |       |       |
| TO 70136 CTY LAM 69.0  | 70   | 2   | -0.1  | 2.2   | 2.2  | 19 | 1.0000UN |       |       |

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|     |       |          |      |      |     |       |      |      |    |          |             |
|-----|-------|----------|------|------|-----|-------|------|------|----|----------|-------------|
| TO  | 70226 | HOLLY    | 25.0 | 70   | 1   | 0.0   | 0.0  | 0.0  | 0  | 1.0062RG |             |
| BUS | 70472 | WILOW CK | 115  | AREA | CKT | MW    | MVAR | MVA  | %I | 1.0411PU | 48.09 70472 |
|     |       |          | 70   |      |     |       |      |      |    | 119.73KV |             |
| TO  | 70247 | LAJUNTAT | 115  | 70   | 1   | 31.3  | -2.5 | 31.4 | 28 |          |             |
| TO  | 70253 | LAMAR CO | 115  | 70   | 1   | -31.3 | 2.5  | 31.4 | 18 |          |             |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:06  
 2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC AND CAP BANK RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|           |                |      |      |       |      |      |    |          |       |       |
|-----------|----------------|------|------|-------|------|------|----|----------|-------|-------|
| BUS 70473 | WILOW CK69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0139PU | 21.45 | 70473 |
|           |                |      | 70   |       |      |      |    | 69.958KV |       |       |
| TO        | LOAD-PQ        |      |      | 2.7   | 0.9  | 2.9  |    |          |       |       |
| TO        | SWITCHED SHUNT |      |      | 0.0   | -5.6 | 5.6  |    |          |       |       |
| TO        | 70136 CTY LAM  | 69.0 | 70 1 | 10.2  | -5.7 | 11.7 | 61 |          |       |       |
| TO        | 70161 EADS     | 69.0 | 70 1 | 2.1   | -0.1 | 2.1  | 6  |          |       |       |
| TO        | 70203 GRAN TAP | 69.0 | 70 1 | -15.0 | 10.5 | 18.3 | 53 |          |       |       |
| BUS 70132 | CTY LAJ 69.0   | AREA | CKT  | MW    | MVAR | MVA  | %I | 1.0200PU | 39.40 | 70132 |
|           |                |      | 70   |       |      |      |    | 70.382KV |       |       |
| TO        | LOAD-PQ        |      |      | 16.8  | 5.5  | 17.7 |    |          |       |       |
| TO        | 70131 CTY LAJ  | 13.8 | 70 1 | 0.0   | 0.0  | 0.0  | 0  | 1.0000LK |       |       |
| TO        | 70246 LAJ IP   | 69.0 | 70 1 | 2.4   | 0.7  | 2.5  | 6  |          |       |       |
| TO        | 70248 LAJUNTAT | 69.0 | 70 1 | -19.2 | -6.2 | 20.2 | 51 |          |       |       |

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:06  
2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC AND CAP BANK RATING  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

|                                  |        |       |       |    |          |       |       |
|----------------------------------|--------|-------|-------|----|----------|-------|-------|
| BUS 70133 CTY LAM 14.4 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0400PU | 23.12 | 70133 |
| GENERATION 70                    | 24.0   | 8.2R  | 25.4  | 85 | 14.976KV |       |       |
| TO 70134 CTY LAM 25.0 70 1       | 24.0   | 8.2   | 25.4  | 98 | 1.0000UN |       |       |
| BUS 70247 LAJUNTAT 115 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0178PU | 42.28 | 70247 |
| 70                               |        |       |       |    | 117.05KV |       |       |
| TO 70060 BOONE 115 70 1          | 10.2   | -7.9  | 12.9  | 12 |          |       |       |
| TO 70248 LAJUNTAT 69.0 70 1      | 20.2   | 6.9   | 21.3  | 84 | 0.9750RG |       |       |
| TO 70472 WILLOW CK 115 70 1      | -30.4  | 1.0   | 30.4  | 27 |          |       |       |
| BUS 70249 LAJUNTAW 115 AREA CKT  | MW     | MVAR  | MVA   | %I | 0.9756PU | 38.12 | 70249 |
| 70                               |        |       |       |    | 112.19KV |       |       |
| TO 70060 BOONE 115 70 1          | -20.1  | -11.9 | 23.3  | 22 |          |       |       |
| TO 70250 LAJUNTAW 69.0 70 1      | 20.1   | 11.9  | 23.3  | 96 | 1.0693UN |       |       |
| BUS 70060 BOONE 115 AREA CKT     | MW     | MVAR  | MVA   | %I | 1.0267PU | 40.57 | 70060 |
| 70                               |        |       |       |    | 118.06KV |       |       |
| TO 70061 BOONE 230 70 1          | -68.4  | -22.8 | 72.1  | 47 | 1.0125RG |       |       |
| TO 70062 BOONE 69.0 70 1         | 9.6    | 0.1   | 9.6   | 28 | 1.0063UN |       |       |
| TO 70159 DOT TAP 115 70 1        | 48.3   | 7.8   | 48.9  | 41 |          |       |       |
| TO 70247 LAJUNTAT 115 70 1       | -10.1  | 4.8   | 11.2  | 10 |          |       |       |
| TO 70249 LAJUNTAW 115 70 1       | 20.6   | 10.1  | 23.0  | 21 |          |       |       |
| BUS 70061 BOONE 230 AREA CKT     | MW     | MVAR  | MVA   | %I | 1.0276PU | 42.47 | 70061 |
| 70                               |        |       |       |    | 236.36KV |       |       |
| TO 70060 BOONE 115 70 1          | 68.6   | 25.4  | 73.1  | 47 | 1.0125UN |       |       |
| TO 70122 COMANCHE 230 70 1       | -15.3  | -41.6 | 44.3  | 10 |          |       |       |
| TO 70254 LAMAR CO 230 70 1       | -133.0 | 9.5   | 133.4 | 26 |          |       |       |
| TO 70286 MIDWAYPS 230 70 1       | 79.8   | 6.8   | 80.1  | 16 |          |       |       |
| BUS 70700 GOB_KNOB 230 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0300PU | 57.99 | 70700 |
| 70                               |        |       |       |    | 236.90KV |       |       |
| TO 70254 LAMAR CO 230 70 1       | 160.8  | -17.3 | 161.7 | 32 |          |       |       |
| TO 70701 GOB_KNOB 34.5 70 1      | -80.4  | 8.7   | 80.8  | 95 | 1.0000LK |       |       |
| TO 70702 GOB_KNOB 34.5 70 2      | -80.4  | 8.7   | 80.8  | 95 | 1.0000LK |       |       |
| BUS 70701 GOB_KNOB 34.5 AREA CKT | MW     | MVAR  | MVA   | %I | 1.0324PU | 62.37 | 70701 |
| GENERATION 70                    | 81.0   | -2.5R | 81.0  | 81 | 35.618KV |       |       |
| TO 70700 GOB_KNOB 230 70 1       | 81.0   | -2.5  | 81.0  | 95 | 1.0000UN |       |       |
| BUS 70702 GOB_KNOB 34.5 AREA CKT | MW     | MVAR  | MVA   | %I | 1.0324PU | 62.37 | 70702 |
| GENERATION 70                    | 81.0   | -2.5R | 81.0  | 81 | 35.618KV |       |       |
| TO 70700 GOB_KNOB 230 70 2       | 81.0   | -2.5  | 81.0  | 95 | 1.0000UN |       |       |
| BUS 70286 MIDWAYPS 230 AREA CKT  | MW     | MVAR  | MVA   | %I | 1.0140PU | 39.76 | 70286 |
| 70                               |        |       |       |    | 233.23KV |       |       |
| TO 70061 BOONE 230 70 1          | -79.3  | -16.1 | 80.9  | 16 |          |       |       |
| TO 70122 COMANCHE 230 70 1       | -76.0  | -34.8 | 83.6  | 16 |          |       |       |

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|                       |     |    |   |       |      |       |    |          |
|-----------------------|-----|----|---|-------|------|-------|----|----------|
| TO 70139 DANIELPK     | 230 | 70 | 1 | 175.2 | 15.4 | 175.9 | 34 |          |
| TO 70285 MIDWAYPS     | 115 | 70 | 1 | 23.1  | 14.4 | 27.2  | 27 | 1.0188UN |
| TO 70577 FTNVL1-213.8 |     | 70 | 1 | -80.0 | 1.2  | 80.0  | 32 | 1.0000UN |
| TO 70578 FTNVL3-413.8 |     | 70 | 1 | -80.0 | 1.2  | 80.0  | 79 | 1.0000UN |
| TO 70579 FTNVL5-613.8 |     | 70 | 1 | -80.0 | 1.2  | 80.0  | 79 | 1.0000UN |
| TO 70584 MIDWAYPS     | 345 | 70 | 1 | 271.0 | 22.2 | 271.9 | 54 | 1.0000LK |
| TO 73413 MIDWAYBR     | 230 | 73 | 1 | -73.9 | -4.8 | 74.1  | 15 |          |



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:06  
 2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC AND CAP BANK RATING  
 GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT SET A

| BUS | 70459 | WALSENBG | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0389PU | 37.04 | 70459 |
|-----|-------|----------|------|------|-----|--------|-------|-------|----|----------|-------|-------|
|     |       |          |      | 70   |     |        |       |       |    | 238.95KV |       |       |
| TO  | 12101 | GLADSTON | 230  | 10   | 1   | 108.0  | -27.7 | 111.5 | 19 |          |       |       |
| TO  | 70122 | COMANCHE | 230  | 70   | 1   | -145.1 | 9.9   | 145.4 | 32 |          |       |       |
| TO  | 70458 | WALSENBG | 115  | 70   | 1   | 37.1   | 17.8  | 41.1  | 40 | 1.0000LK |       |       |
| BUS | 70122 | COMANCHE | 230  | AREA | CKT | MW     | MVAR  | MVA   | %I | 1.0427PU | 42.69 | 70122 |
|     |       |          |      | 70   |     |        |       |       |    | 239.83KV |       |       |
| TO  | 70061 | BOONE    | 230  | 70   | 1   | 15.4   | 34.0  | 37.3  | 8  |          |       |       |
| TO  | 70094 | CF&IFURN | 230  | 70   | 1   | 100.1  | 25.4  | 103.2 | 23 |          |       |       |
| TO  | 70119 | COMAN 1  | 24.0 | 70   | 1   | -325.8 | -53.8 | 330.2 | 77 | 1.0564LK |       |       |
| TO  | 70120 | COMAN 2  | 24.0 | 70   | 1   | -331.9 | -48.3 | 335.4 | 77 | 1.0564LK |       |       |
| TO  | 70121 | COMANCHE | 115  | 70   | 1   | 116.5  | 10.5  | 116.9 | 40 | 0.9875UN |       |       |
| TO  | 70121 | COMANCHE | 115  | 70   | 2   | 116.5  | 10.5  | 116.9 | 40 | 0.9875UN |       |       |
| TO  | 70286 | MIDWAYPS | 230  | 70   | 1   | 76.6   | 25.1  | 80.6  | 15 |          |       |       |
| TO  | 70459 | WALSENBG | 230  | 70   | 1   | 146.7  | -11.1 | 147.1 | 32 |          |       |       |
| TO  | 73477 | FULLER   | 230  | 73   | 1   | 86.0   | 7.8   | 86.3  | 16 |          |       |       |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:06  
2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC AND CAP BANK  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT

BUSES WITH VOLTAGE GREATER THAN 1.1000:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

BUSES WITH VOLTAGE LESS THAN 0.9200:

| X----- | BUS | -----X | AREA | V(PU) | V(KV) | X----- | BUS | -----X | AREA | V(PU) | V(KV) |
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|
|--------|-----|--------|------|-------|-------|--------|-----|--------|------|-------|-------|

\* NONE \*

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:06  
2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC AND CAP BANK  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT  
OUTPUT FOR AREA 70 [PSCOLORA]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |          |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|----------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME     | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 70032*               | ARAP1    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 50.0    | 50.0   | 100.0   |
| 70033*               | ARAP2    | 13.8 | 70   | 70036              | ARAPAH0A | 115  | 70   | 1            | 49.9    | 50.0   | 99.9    |
| 70076                | CAMEO    | 69.0 | 70   | 70081*             | CAME02   | 13.8 | 70   | 1            | 50.3    | 55.0   | 91.5    |
| 70133                | CTY LAM  | 14.4 | 70   | 70134*             | CTY LAM  | 25.0 | 70   | 1            | 24.4    | 25.0   | 97.5    |
| 70249*               | LAJUNTAW | 115  | 70   | 70250              | LAJUNTAW | 69.0 | 70   | 1            | 23.9    | 25.0   | 95.7    |
| 70453*               | VILAS    | 69.0 | 70   | 70460              | WALSH    | 69.0 | 70   | 1            | 36.1    | 33.9   | 106.4   |
| 70700                | GOB_KNOB | 230  | 70   | 70701*             | GOB_KNOB | 34.5 | 70   | 1            | 78.5    | 83.0   | 94.6    |
| 70700                | GOB_KNOB | 230  | 70   | 70702*             | GOB_KNOB | 34.5 | 70   | 2            | 78.5    | 83.0   | 94.6    |

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, OCT 08 2002 14:06  
2005HSV2 MASTER-2/11/02 WILLOW CREEK XFMR W/ DC AND CAP BANK  
GOBBLERS KNOB 34.5 KV WITH GEN BASE CASE - LOCKED AREA SHUNT  
OUTPUT FOR AREA 73 [WAPA R.M]  
BRANCH LOADINGS ABOVE 90.0 % OF RATING SET A:

| X-----FROM BUS-----X |         |      |      | X-----TO BUS-----X |          |      |      | CURRENT(MVA) |         |        |         |
|----------------------|---------|------|------|--------------------|----------|------|------|--------------|---------|--------|---------|
| BUS                  | NAME    | BSKV | AREA | BUS                | NAME     | BSKV | AREA | CKT          | LOADING | RATING | PERCENT |
| 73056                | ESTES   | 115  | 73   | 73307*             | ESTES2   | 6.90 | 73   | 2            | 16.4    | 18.0   | 91.4    |
| 73056                | ESTES   | 115  | 73   | 73308*             | ESTES3   | 6.90 | 73   | 3            | 16.4    | 18.0   | 91.4    |
| 73062                | FREMONT | 115  | 73   | 73349*             | FREMONT1 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73062                | FREMONT | 115  | 73   | 73350*             | FREMONT2 | 12.0 | 73   | 1            | 26.2    | 29.0   | 90.3    |
| 73286                | KIRK 1  | 12.0 | 73   | 73287*             | KIRKMID  | 69.0 | 73   | 2            | 11.1    | 12.0   | 92.3    |
| 79013                | CRAIG   | 230  | 73   | 79015*             | CRAIG 1  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79013                | CRAIG   | 230  | 73   | 79016*             | CRAIG 2  | 22.0 | 73   | 1            | 395.5   | 420.0  | 94.2    |
| 79014                | CRAIG   | 345  | 73   | 79017*             | CRAIG 3  | 22.0 | 73   | 1            | 395.8   | 420.0  | 94.2    |
| 79039                | HAYDEN  | 230  | 73   | 79040*             | HAYDEN1  | 18.0 | 73   | 1            | 200.1   | 202.0  | 99.0    |
| 79052                | NUCLA   | 115  | 73   | 79161*             | NUCLA 4  | 13.8 | 73   | 1            | 69.0    | 70.0   | 98.6    |



**Appendix**

**C**

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## **Comparison Tables**



### **C-1 - Branch Violation Comparison**

2003 Heavy summer - Data order for the groups of 2 rows of loading information:

Both Scenarios are without the HVDC converter at Lamar Station

With the wind farm off line

With the wind farm on line

2005 Heavy summer - Data order for the groups of 3 rows of loading information:

Wind farm off line and Lamar HVDC converter at zero MW output

Wind farm off line and Lamar HVDC converter at 48 MW output

Wind farm on line and Lamar HVDC converter at 48 MW output

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| **    | From bus     | ** ** | To bus             | ** CKT | TV | Rating |       | Case              | BaseFlow | ContMVA | Loading% |  | Ncon | Contingency                             |
|-------|--------------|-------|--------------------|--------|----|--------|-------|-------------------|----------|---------|----------|--|------|-----------------------------------------|
| 70860 | BOONE        | 115   | 70862 BOONE        | 69.0   | 1  | TR     | 33    | 2003 0MW - wind   | 9.1      | 43.2    | 130.8    |  | 266  | 70860 BOONE 115 70249 LAJUNTAW 115 1    |
| 70860 | BOONE        | 115   | 70862 BOONE        | 69.0   | 1  | TR     | 33    | 2003 0MW - wind   | 9.1      | 42.9    | 130.1    |  | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70862 | BOONE        | 69.0  | 70863 BOONE TP69.0 | 1      | LN |        | 40.6  | 2003 0MW - wind   | 9        | 43.3    | 106.6    |  | 266  | 70860 BOONE 115 70249 LAJUNTAW 115 1    |
| 70862 | BOONE        | 69.0  | 70863 BOONE TP69.0 | 1      | LN |        | 40.6  | 2003 0MW - wind   | 9        | 42.9    | 105.6    |  | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70888 | CAPHILL2     | 115   | 70148 DENVTM       | 115    | 1  | LN     | 150   | 2003 0MW - wind   | 86       | 137.7   | 91.8     |  | 53   | 70109 CHEROKES 115 70276 MAPLETO1 115 1 |
| 70888 | CAPHILL2     | 115   | 70148 DENVTM       | 115    | 1  | LN     | 150   | 2003 0MW - wind   | 86       | 137.2   | 91.4     |  | 73   | 70148 DENVTM 115 70208 GRAY ST 115 1    |
| 70888 | CAPHILL2     | 115   | 70148 DENVTM       | 115    | 1  | LN     | 150   | 2003 0MW - wind   | 86       | 135.3   | 90.2     |  | 109  | 70259 LEETSDAL 115 70260 LEETSDAL 230 1 |
| 70108 | CHEROKEN     | 115   | 70175 FEDERHT2     | 115    | 2  | LN     | 186   | 2003 0MW - wind   | 132.7    | 174.5   | 93.8     |  | 52   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70108 | CHEROKEN     | 115   | 70175 FEDERHT2     | 115    | 2  | LN     | 186   | 2003 0MW - wind   | 132.7    | 174.6   | 93.9     |  | 92   | 70174 FEDERHT1 115 70382 SEMPER 115 1   |
| 70230 | H00PERTP69.0 | 70376 | SAN LUIS69.0       | 1      | LN |        | 50    | 2003 0MW - wind   | 33.1     | 45.3    | 90.5     |  | 482  | 70375 SAN LUIS 230 70954 PONCHABR 230 1 |
| 70231 | HOPKINS      | 115   | 79003 BASALT       | 115    | 1  | LN     | 66.9  | 2003 0MW - wind   | 27.5     | 75.6    | 113      |  | 490  | 79091 WOLCOTTP 230 79039 HAYDEN 230 1   |
| 70249 | LAJUNTAW     | 115   | 70250 LAJUNTAW69.0 | 1      | TR |        | 25    | 2003 0MW - wind   | 24.1     | 24.1    | 96.4     |  | **   | Base Case **                            |
| 70292 | MOSCA        | 69.0  | 70376 SAN LUIS69.0 | 1      | LN |        | 23.9  | 2003 0MW - wind   | 9.7      | 24.6    | 103      |  | 197  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70305 | OVERTON      | 69.0  | 70954 BMONT TP69.0 | 1      | LN |        | 66    | 2003 0MW - wind   | 19.1     | 67.2    | 101.9    |  | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70327 | PONCHA       | 115   | 70379 SARGENT      | 115    | 1  | LN     | 108   | 2003 0MW - wind   | 25.3     | 158.1   | 146.3    |  | 482  | 70375 SAN LUIS 230 70954 PONCHABR 230 1 |
| 70327 | PONCHA       | 115   | 70379 SARGENT      | 115    | 1  | LN     | 108   | 2003 162MW - wind | 24.1     | 144.4   | 133.7    |  | 483  | 70375 SAN LUIS 230 70954 PONCHABR 230 1 |
| 70352 | READER       | 115   | 70121 COMANCHE     | 115    | 1  | LN     | 217   | 2003 162MW - wind | 175      | 203.6   | 93.8     |  | 176  | 70122 COMANCHE 230 70286 MIDWAYS 230 1  |
| 70352 | READER       | 115   | 70121 COMANCHE     | 115    | 1  | LN     | 217   | 2003 162MW - wind | 175      | 215.9   | 99.5     |  | 177  | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70352 | READER       | 115   | 70121 COMANCHE     | 115    | 1  | LN     | 217   | 2003 162MW - wind | 175      | 215.7   | 99.4     |  | 191  | 70458 WALSENBG 115 70459 WALSENBG 230 1 |
| 70352 | READER       | 115   | 70353 READER 69.0  | 1      | TR |        | 47    | 2003 0MW - wind   | 42.8     | 42.8    | 91       |  | **   | Base Case **                            |
| 70352 | READER       | 115   | 70353 READER 69.0  | 1      | TR |        | 47    | 2003 162MW - wind | 43.2     | 43.2    | 91.9     |  | **   | Base Case **                            |
| 70352 | READER       | 115   | 70353 READER 69.0  | 2      | TR |        | 47    | 2003 0MW - wind   | 42.8     | 42.8    | 91       |  | **   | Base Case **                            |
| 70352 | READER       | 115   | 70353 READER 69.0  | 2      | TR |        | 47    | 2003 162MW - wind | 43.2     | 43.2    | 91.9     |  | **   | Base Case **                            |
| 70353 | READER       | 69.0  | 70042 ASPEN TP69.0 | 1      | LN |        | 66    | 2003 0MW - wind   | 41.9     | 59.9    | 90.8     |  | 260  | 70954 BMONT TP69.0 70305 OVERTON 69.0 1 |
| 70353 | READER       | 69.0  | 70042 ASPEN TP69.0 | 1      | LN |        | 66    | 2003 162MW - wind | 42.7     | 60      | 91       |  | 260  | 70954 BMONT TP69.0 70305 OVERTON 69.0 1 |
| 70353 | READER       | 69.0  | 70042 ASPEN TP69.0 | 1      | LN |        | 66    | 2003 0MW - wind   | 41.9     | 59.9    | 90.8     |  | 261  | 70954 BMONT TP69.0 70455 W.STATON69.0 1 |
| 70353 | READER       | 69.0  | 70042 ASPEN TP69.0 | 1      | LN |        | 66    | 2003 162MW - wind | 42.7     | 60      | 91       |  | 261  | 70954 BMONT TP69.0 70455 W.STATON69.0 1 |
| 70354 | RIDGE        | 115   | 70355 RIDGE        | 230    | 1  | TR     | 100   | 2003 162MW - wind | 78.1     | 93.1    | 93.1     |  | 20   | 70041 ARVADA 115 70109 CHEROKES 115 1   |
| 70354 | RIDGE        | 115   | 70355 RIDGE        | 230    | 1  | TR     | 100   | 2003 0MW - wind   | 74.1     | 93.1    | 93.1     |  | 136  | 70354 RIDGE 115 70355 RIDGE 230 2       |
| 70354 | RIDGE        | 115   | 70355 RIDGE        | 230    | 1  | TR     | 100   | 2003 162MW - wind | 78.1     | 98.1    | 98.1     |  | 136  | 70354 RIDGE 115 70355 RIDGE 230 2       |
| 70366 | ROCKYFRD69.0 | 70372 | S FWL TP69.0       | 1      | LN |        | 40.6  | 2003 0MW - wind   | 7.1      | 41.3    | 101.7    |  | 266  | 70860 BOONE 115 70249 LAJUNTAW 115 1    |
| 70366 | ROCKYFRD69.0 | 70372 | S FWL TP69.0       | 1      | LN |        | 40.6  | 2003 162MW - wind | 7.2      | 40.8    | 100.5    |  | 266  | 70860 BOONE 115 70249 LAJUNTAW 115 1    |
| 70366 | ROCKYFRD69.0 | 70372 | S FWL TP69.0       | 1      | LN |        | 40.6  | 2003 0MW - wind   | 7.1      | 40.9    | 100.9    |  | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70366 | ROCKYFRD69.0 | 70372 | S FWL TP69.0       | 1      | LN |        | 40.6  | 2003 162MW - wind | 7.2      | 40.5    | 99.7     |  | 305  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70374 | SAN LUIS     | 115   | 70376 SAN LUIS69.0 | 1      | TR |        | 42    | 2003 0MW - wind   | 27.2     | 41.2    | 98       |  | 237  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 2 |
| 70374 | SAN LUIS     | 115   | 70376 SAN LUIS69.0 | 1      | TR |        | 42    | 2003 162MW - wind | 27.2     | 41.2    | 98       |  | 237  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 2 |
| 70374 | SAN LUIS     | 115   | 70376 SAN LUIS69.0 | 2      | TR |        | 42    | 2003 0MW - wind   | 27.2     | 41.2    | 98       |  | 236  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 1 |
| 70374 | SAN LUIS     | 115   | 70376 SAN LUIS69.0 | 2      | TR |        | 42    | 2003 162MW - wind | 27.2     | 41.2    | 98       |  | 236  | 70374 SAN LUIS 115 70376 SAN LUIS69.0 1 |
| 70382 | SEMPER       | 115   | 70174 FEDERHT1     | 115    | 1  | LN     | 134.8 | 2003 0MW - wind   | 74.6     | 132.6   | 98.4     |  | 49   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70382 | SEMPER       | 115   | 70174 FEDERHT1     | 115    | 1  | LN     | 134.8 | 2003 162MW - wind | 74       | 131.8   | 97.7     |  | 49   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70425 | T BUTTES69.0 | 70101 | CHEN TAP69.0       | 1      | LN |        | 33.9  | 2003 0MW - wind   | 1.5      | 33.6    | 99.1     |  | 338  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70425 | T BUTTES69.0 | 70101 | CHEN TAP69.0       | 1      | LN |        | 33.9  | 2003 162MW - wind | 1.3      | 32.4    | 95.7     |  | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70425 | T BUTTES69.0 | 70460 | WALSH 69.0         | 1      | LN |        | 33.9  | 2003 0MW - wind   | 2.6      | 37.2    | 109.6    |  | 338  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70425 | T BUTTES69.0 | 70460 | WALSH 69.0         | 1      | LN |        | 33.9  | 2003 162MW - wind | 3.1      | 35      | 103.2    |  | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70453 | VILAS        | 69.0  | 70460 WALSH 69.0   | 1      | LN |        | 33.9  | 2003 0MW - wind   | 10.7     | 39.2    | 115.7    |  | 338  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70453 | VILAS        | 69.0  | 70460 WALSH 69.0   | 1      | LN |        | 33.9  | 2003 162MW - wind | 11.6     | 36.1    | 106.4    |  | 339  | 70472 WILOW CK 115 70473 WILOW CK69.0 1 |
| 70455 | W.STATON69.0 | 70954 | BMONT TP69.0       | 1      | LN |        | 69    | 2003 0MW - wind   | 19.1     | 67.4    | 97.7     |  | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70455 | W.STATON69.0 | 70954 | BMONT TP69.0       | 1      | LN |        | 69    | 2003 162MW - wind | 18.2     | 67.6    | 98       |  | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70455 | W.STATON69.0 | 70456 | W.STATON 115       | 1      | TR |        | 42    | 2003 0MW - wind   | 15.9     | 39.2    | 93.4     |  | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70455 | W.STATON69.0 | 70456 | W.STATON 115       | 1      | TR |        | 42    | 2003 162MW - wind | 15.4     | 39.1    | 93.1     |  | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70455 | W.STATON69.0 | 70456 | W.STATON 115       | 2      | TR |        | 42    | 2003 0MW - wind   | 15.5     | 38.4    | 91.4     |  | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70455 | W.STATON69.0 | 70456 | W.STATON 115       | 2      | TR |        | 42    | 2003 162MW - wind | 15       | 38.3    | 91.1     |  | 255  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |

| **    | From bus     | ** ** | To bus            | *Rating |  | Case                    | BaseFlow | ContMVA | Loading% | Ncon | Contingency                             |
|-------|--------------|-------|-------------------|---------|--|-------------------------|----------|---------|----------|------|-----------------------------------------|
| 70024 | ALMSA ST69.0 | 70026 | ALMSA TM69.0 1 LN | 43.7    |  | 2005 0MW wind 0MW DC    | 12.8     | 41.8    | 95.6     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70047 | BARRLAKE 230 | 70048 | GREENVAL 230 1 LN | 434.6   |  | 2005 162MW wind 48MW DC | 352.2    | 401.2   | 92.3     | 98   | 70200 GLENN PS 230 70461 WASHINGT 230 1 |
| 70047 | BARRLAKE 230 | 70048 | GREENVAL 230 1 LN | 434.6   |  | 2005 162MW wind 48MW DC | 352.2    | 415.3   | 95.6     | 166  | 70461 WASHINGT 230 70529 JLGREEN 230 1  |
| 70060 | BOONE 115    | 70061 | BOONE 230 1 TR    | 150     |  | 2005 162MW wind 48MW DC | 77.7     | 204.3   | 136.2    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70060 | BOONE 115    | 70061 | BOONE 230 1 TR    | 150     |  | 2005 162MW wind 48MW DC | 77.7     | 140.6   | 93.7     | 323  | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70060 | BOONE 115    | 70062 | BOONE 69.0 1 TR   | 33      |  | 2005 0MW wind 0MW DC    | 9.6      | 43.8    | 132.7    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70060 | BOONE 115    | 70062 | BOONE 69.0 1 TR   | 33      |  | 2005 0MW wind 48MW DC   | 9.6      | 43.1    | 130.7    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70060 | BOONE 115    | 70062 | BOONE 69.0 1 TR   | 33      |  | 2005 162MW wind 48MW DC | 9.7      | 42      | 127.4    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70060 | BOONE 115    | 70062 | BOONE 69.0 1 TR   | 33      |  | 2005 0MW wind 0MW DC    | 9.6      | 43.5    | 131.9    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70060 | BOONE 115    | 70062 | BOONE 69.0 1 TR   | 33      |  | 2005 0MW wind 48MW DC   | 9.6      | 42.9    | 130      | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70060 | BOONE 115    | 70062 | BOONE 69.0 1 TR   | 33      |  | 2005 162MW wind 48MW DC | 9.7      | 41.8    | 126.6    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70062 | BOONE 69.0   | 70063 | BOONE TP69.0 1 LN | 40.6    |  | 2005 0MW wind 0MW DC    | 9.3      | 43      | 105.8    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70062 | BOONE 69.0   | 70063 | BOONE TP69.0 1 LN | 40.6    |  | 2005 0MW wind 48MW DC   | 9.3      | 42.5    | 104.6    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70062 | BOONE 69.0   | 70063 | BOONE TP69.0 1 LN | 40.6    |  | 2005 162MW wind 48MW DC | 9.3      | 40.9    | 100.7    | 281  | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70062 | BOONE 69.0   | 70063 | BOONE TP69.0 1 LN | 40.6    |  | 2005 0MW wind 0MW DC    | 9.3      | 42.6    | 104.9    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70062 | BOONE 69.0   | 70063 | BOONE TP69.0 1 LN | 40.6    |  | 2005 0MW wind 48MW DC   | 9.3      | 42.1    | 103.8    | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70062 | BOONE 69.0   | 70063 | BOONE TP69.0 1 LN | 40.6    |  | 2005 162MW wind 48MW DC | 9.3      | 40.5    | 99.9     | 320  | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70066 | BROMFLD2 115 | 70175 | FEDERHT2 115 1 LN | 134.8   |  | 2005 0MW wind 0MW DC    | 79.7     | 154.4   | 114.5    | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70066 | BROMFLD2 115 | 70175 | FEDERHT2 115 1 LN | 134.8   |  | 2005 0MW wind 48MW DC   | 83.2     | 157.5   | 116.9    | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70066 | BROMFLD2 115 | 70175 | FEDERHT2 115 1 LN | 134.8   |  | 2005 162MW wind 48MW DC | 91       | 163.4   | 121.2    | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70066 | BROMFLD2 115 | 70175 | FEDERHT2 115 1 LN | 134.8   |  | 2005 0MW wind 0MW DC    | 79.7     | 146.5   | 108.7    | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70066 | BROMFLD2 115 | 70175 | FEDERHT2 115 1 LN | 134.8   |  | 2005 0MW wind 48MW DC   | 83.2     | 151.2   | 112.1    | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70066 | BROMFLD2 115 | 70175 | FEDERHT2 115 1 LN | 134.8   |  | 2005 162MW wind 48MW DC | 91       | 162.4   | 120.5    | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70066 | BROMFLD2 115 | 70175 | FEDERHT2 115 1 LN | 134.8   |  | 2005 0MW wind 48MW DC   | 83.2     | 122.5   | 90.9     | 97   | 70174 FEDERHT1 115 70382 SEMPER 115 1   |
| 70066 | BROMFLD2 115 | 70175 | FEDERHT2 115 1 LN | 134.8   |  | 2005 162MW wind 48MW DC | 91       | 133.1   | 98.8     | 97   | 70174 FEDERHT1 115 70382 SEMPER 115 1   |
| 70108 | CHEROKEN 115 | 70109 | CHEROKES 115 1 LN | 300     |  | 2005 0MW wind 0MW DC    | 201.5    | 306.6   | 102.2    | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70108 | CHEROKEN 115 | 70109 | CHEROKES 115 1 LN | 300     |  | 2005 0MW wind 48MW DC   | 200.5    | 308.7   | 102.9    | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70108 | CHEROKEN 115 | 70109 | CHEROKES 115 1 LN | 300     |  | 2005 162MW wind 48MW DC | 195      | 310.8   | 103.6    | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70108 | CHEROKEN 115 | 70175 | FEDERHT2 115 2 LN | 186     |  | 2005 0MW wind 0MW DC    | 124.4    | 196.4   | 105.6    | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70108 | CHEROKEN 115 | 70175 | FEDERHT2 115 2 LN | 186     |  | 2005 0MW wind 48MW DC   | 127.8    | 199.6   | 107.3    | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70108 | CHEROKEN 115 | 70175 | FEDERHT2 115 2 LN | 186     |  | 2005 162MW wind 48MW DC | 135.7    | 205.8   | 110.6    | 50   | 70108 CHEROKEN 115 70109 CHEROKES 115 1 |
| 70108 | CHEROKEN 115 | 70175 | FEDERHT2 115 2 LN | 186     |  | 2005 0MW wind 0MW DC    | 124.4    | 192.2   | 103.3    | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70108 | CHEROKEN 115 | 70175 | FEDERHT2 115 2 LN | 186     |  | 2005 0MW wind 48MW DC   | 127.8    | 196.8   | 105.8    | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70108 | CHEROKEN 115 | 70175 | FEDERHT2 115 2 LN | 186     |  | 2005 162MW wind 48MW DC | 135.7    | 208.3   | 112      | 56   | 70109 CHEROKES 115 70174 FEDERHT1 115 1 |
| 70108 | CHEROKEN 115 | 70175 | FEDERHT2 115 2 LN | 186     |  | 2005 0MW wind 48MW DC   | 127.8    | 167.5   | 90       | 97   | 70174 FEDERHT1 115 70382 SEMPER 115 1   |
| 70108 | CHEROKEN 115 | 70175 | FEDERHT2 115 2 LN | 186     |  | 2005 162MW wind 48MW DC | 135.7    | 178.3   | 95.9     | 97   | 70174 FEDERHT1 115 70382 SEMPER 115 1   |
| 70109 | CHEROKES 115 | 70174 | FEDERHT1 115 1 LN | 186     |  | 2005 0MW wind 0MW DC    | 119.5    | 172.3   | 92.6     | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70109 | CHEROKES 115 | 70174 | FEDERHT1 115 1 LN | 186     |  | 2005 0MW wind 48MW DC   | 121.6    | 175.8   | 94.5     | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70109 | CHEROKES 115 | 70174 | FEDERHT1 115 1 LN | 186     |  | 2005 162MW wind 48MW DC | 126.5    | 184.8   | 99.4     | 53   | 70108 CHEROKEN 115 70175 FEDERHT2 115 2 |
| 70121 | COMANCHE 115 | 70122 | COMANCHE 230 1 TR | 200     |  | 2005 0MW wind 0MW DC    | 107.9    | 192.6   | 96.3     | 189  | 70121 COMANCHE 115 70122 COMANCHE 230 2 |
| 70121 | COMANCHE 115 | 70122 | COMANCHE 230 1 TR | 200     |  | 2005 0MW wind 48MW DC   | 110      | 196.4   | 98.2     | 189  | 70121 COMANCHE 115 70122 COMANCHE 230 2 |
| 70121 | COMANCHE 115 | 70122 | COMANCHE 230 1 TR | 200     |  | 2005 162MW wind 48MW DC | 117.1    | 209     | 104.5    | 189  | 70121 COMANCHE 115 70122 COMANCHE 230 2 |
| 70121 | COMANCHE 115 | 70122 | COMANCHE 230 2 TR | 200     |  | 2005 0MW wind 0MW DC    | 107.9    | 192.6   | 96.3     | 188  | 70121 COMANCHE 115 70122 COMANCHE 230 1 |
| 70121 | COMANCHE 115 | 70122 | COMANCHE 230 2 TR | 200     |  | 2005 0MW wind 48MW DC   | 110      | 196.4   | 98.2     | 188  | 70121 COMANCHE 115 70122 COMANCHE 230 1 |
| 70121 | COMANCHE 115 | 70122 | COMANCHE 230 2 TR | 200     |  | 2005 162MW wind 48MW DC | 117.1    | 209     | 104.5    | 188  | 70121 COMANCHE 115 70122 COMANCHE 230 1 |
| 70230 | HOOPERTP69.0 | 70092 | CENTER 69.0 1 LN  | 50      |  | 2005 162MW wind 48MW DC | 25       | 140.2   | 280.5    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70230 | HOOPERTP69.0 | 70376 | SAN LUIS69.0 1 LN | 50      |  | 2005 162MW wind 48MW DC | 33       | 72.1    | 144.2    | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70247 | LAJUNTAT 115 | 70060 | BOONE 115 1 LN    | 109     |  | 2005 162MW wind 48MW DC | 14.6     | 225.6   | 206.9    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70247 | LAJUNTAT 115 | 70472 | WILOW CK 115 1 LN | 109     |  | 2005 162MW wind 48MW DC | 29.3     | 151.9   | 139.4    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70249 | LAJUNTAW 115 | 70250 | LAJUNTAW69.0 1 TR | 25      |  | 2005 0MW wind 0MW DC    | 23.3     | 23.3    | 93.3     |      | ** Base Case **                         |
| 70249 | LAJUNTAW 115 | 70250 | LAJUNTAW69.0 1 TR | 25      |  | 2005 0MW wind 48MW DC   | 23.4     | 23.4    | 93.6     |      | ** Base Case **                         |
| 70249 | LAJUNTAW 115 | 70250 | LAJUNTAW69.0 1 TR | 25      |  | 2005 162MW wind 48MW DC | 23.4     | 23.4    | 93.7     |      | ** Base Case **                         |
| 70253 | LAMAR CO 115 | 70254 | LAMAR CO 230 1 TR | 100     |  | 2005 162MW wind 48MW DC | 65.9     | 124.6   | 124.6    | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |

|                                             |       |  |                         |       |       |       |  |     |                                         |
|---------------------------------------------|-------|--|-------------------------|-------|-------|-------|--|-----|-----------------------------------------|
| 70253 LAMAR CO 115 70472 WILOW CK 115 1 LN  | 171.9 |  | 2005 162MW wind 48MW DC | 49.7  | 179.3 | 104.3 |  | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70285 MIDWAYPS 115 70286 MIDWAYPS 230 1 TR  | 100   |  | 2005 0MW wind 0MW DC    | 44.6  | 91.5  | 91.5  |  | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70285 MIDWAYPS 115 70301 NTHRRIDGE 115 1 LN | 114.9 |  | 2005 0MW wind 0MW DC    | 33.1  | 103.5 | 90.1  |  | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70289 MOFFAT 69.0 70292 MOSCA 69.0 1 LN     | 26.1  |  | 2005 0MW wind 48MW DC   | 7.1   | 36.3  | 138.9 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70289 MOFFAT 69.0 70505 MIRGEJCT69.0 1 LN   | 25.8  |  | 2005 0MW wind 48MW DC   | 3.4   | 69.5  | 269.4 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70292 MOSCA 69.0 70376 SAN LUIS69.0 1 LN    | 23.9  |  | 2005 0MW wind 0MW DC    | 9.3   | 24.5  | 102.4 |  | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70292 MOSCA 69.0 70376 SAN LUIS69.0 1 LN    | 23.9  |  | 2005 0MW wind 48MW DC   | 9.3   | 24.5  | 102.4 |  | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70292 MOSCA 69.0 70376 SAN LUIS69.0 1 LN    | 23.9  |  | 2005 162MW wind 48MW DC | 9.3   | 24.5  | 102.5 |  | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70292 MOSCA 69.0 70376 SAN LUIS69.0 1 LN    | 23.9  |  | 2005 0MW wind 0MW DC    | 9.3   | 45.4  | 190   |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70292 MOSCA 69.0 70376 SAN LUIS69.0 1 LN    | 23.9  |  | 2005 0MW wind 48MW DC   | 9.3   | 29.1  | 121.7 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70305 OVERTON 69.0 70054 BMONT TP69.0 1 LN  | 66    |  | 2005 0MW wind 0MW DC    | 20.2  | 69.7  | 105.5 |  | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70305 OVERTON 69.0 70054 BMONT TP69.0 1 LN  | 66    |  | 2005 0MW wind 48MW DC   | 19.9  | 69.6  | 105.5 |  | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70305 OVERTON 69.0 70054 BMONT TP69.0 1 LN  | 66    |  | 2005 162MW wind 48MW DC | 19.1  | 69.8  | 105.8 |  | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70327 PONCHA 115 70379 SARGENT 115 1 LN     | 108   |  | 2005 0MW wind 0MW DC    | 22.2  | 172.3 | 159.5 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70327 PONCHA 115 70379 SARGENT 115 1 LN     | 108   |  | 2005 0MW wind 48MW DC   | 22    | 151.1 | 139.9 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70327 PONCHA 115 70379 SARGENT 115 1 LN     | 108   |  | 2005 162MW wind 48MW DC | 21.2  | 162.9 | 150.9 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70336 PUEB-TAP 115 70412 STEM BCH 115 1 LN  | 77    |  | 2005 0MW wind 0MW DC    | 19.3  | 119.5 | 155.2 |  | 191 | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70336 PUEB-TAP 115 70412 STEM BCH 115 1 LN  | 77    |  | 2005 0MW wind 48MW DC   | 19.1  | 120.8 | 156.9 |  | 191 | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70336 PUEB-TAP 115 70412 STEM BCH 115 1 LN  | 77    |  | 2005 162MW wind 48MW DC | 18.3  | 125.3 | 162.7 |  | 191 | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70336 PUEB-TAP 115 70456 W.STATON 115 1 LN  | 77    |  | 2005 0MW wind 0MW DC    | 25.5  | 127.6 | 165.7 |  | 191 | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70336 PUEB-TAP 115 70456 W.STATON 115 1 LN  | 77    |  | 2005 0MW wind 48MW DC   | 25.2  | 128.9 | 167.4 |  | 191 | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70336 PUEB-TAP 115 70456 W.STATON 115 1 LN  | 77    |  | 2005 162MW wind 48MW DC | 24.4  | 133.4 | 173.3 |  | 191 | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70341 QUAKER2 115 70342 QUAKERTP 115 1 LN   | 85.8  |  | 2005 0MW wind 0MW DC    | 76.3  | 77.5  | 90.3  |  | 77  | 70148 DENVTM 115 70173 FEDCTRTP 115 1   |
| 70341 QUAKER2 115 70342 QUAKERTP 115 1 LN   | 85.8  |  | 2005 0MW wind 48MW DC   | 76.4  | 77.5  | 90.4  |  | 77  | 70148 DENVTM 115 70173 FEDCTRTP 115 1   |
| 70341 QUAKER2 115 70342 QUAKERTP 115 1 LN   | 85.8  |  | 2005 162MW wind 48MW DC | 76.6  | 77.8  | 90.7  |  | 77  | 70148 DENVTM 115 70173 FEDCTRTP 115 1   |
| 70341 QUAKER2 115 70342 QUAKERTP 115 1 LN   | 85.8  |  | 2005 0MW wind 0MW DC    | 76.3  | 77.4  | 90.2  |  | 96  | 70173 FEDCTRTP 115 70342 QUAKERTP 115 1 |
| 70341 QUAKER2 115 70342 QUAKERTP 115 1 LN   | 85.8  |  | 2005 0MW wind 48MW DC   | 76.4  | 77.4  | 90.2  |  | 96  | 70173 FEDCTRTP 115 70342 QUAKERTP 115 1 |
| 70341 QUAKER2 115 70342 QUAKERTP 115 1 LN   | 85.8  |  | 2005 162MW wind 48MW DC | 76.6  | 77.7  | 90.5  |  | 96  | 70173 FEDCTRTP 115 70342 QUAKERTP 115 1 |
| 70352 READER 115 70121 COMANCHE 115 1 LN    | 300   |  | 2005 162MW wind 48MW DC | 194.7 | 276.5 | 92.2  |  | 191 | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 0MW DC    | 40.7  | 46    | 97.8  |  | 272 | 70049 BELMONT 69.0 70305 OVERTON 69.0 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 48MW DC   | 40.9  | 46    | 97.8  |  | 272 | 70049 BELMONT 69.0 70305 OVERTON 69.0 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 162MW wind 48MW DC | 41.4  | 46    | 97.8  |  | 272 | 70049 BELMONT 69.0 70305 OVERTON 69.0 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 0MW DC    | 40.7  | 50.8  | 108.1 |  | 275 | 70054 BMONT TP69.0 70305 OVERTON 69.0 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 48MW DC   | 40.9  | 50.8  | 108.1 |  | 275 | 70054 BMONT TP69.0 70305 OVERTON 69.0 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 162MW wind 48MW DC | 41.4  | 50.8  | 108.1 |  | 275 | 70054 BMONT TP69.0 70305 OVERTON 69.0 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 0MW DC    | 40.7  | 50.8  | 108.1 |  | 276 | 70054 BMONT TP69.0 70455 W.STATON69.0 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 48MW DC   | 40.9  | 50.8  | 108.1 |  | 276 | 70054 BMONT TP69.0 70455 W.STATON69.0 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 162MW wind 48MW DC | 41.4  | 50.8  | 108.1 |  | 276 | 70054 BMONT TP69.0 70455 W.STATON69.0 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 0MW DC    | 40.7  | 43.5  | 92.6  |  | 191 | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 48MW DC   | 40.9  | 43.7  | 93    |  | 191 | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 162MW wind 48MW DC | 41.4  | 44.3  | 94.3  |  | 191 | 70122 COMANCHE 230 70459 WALSENBG 230 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 0MW DC    | 40.7  | 69.7  | 148.2 |  | 342 | 70352 READER 115 70353 READER 69.0 2    |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 48MW DC   | 40.9  | 69.9  | 148.8 |  | 342 | 70352 READER 115 70353 READER 69.0 2    |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 162MW wind 48MW DC | 41.4  | 70.8  | 150.6 |  | 343 | 70352 READER 115 70353 READER 69.0 2    |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 162MW wind 48MW DC | 41.4  | 42.9  | 91.3  |  | 344 | 70352 READER 115 70456 W.STATON 115 1   |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 0MW DC    | 40.7  | 43.1  | 91.8  |  | 352 | 70455 W.STATON69.0 70456 W.STATON 115 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 48MW DC   | 40.9  | 43.3  | 92.1  |  | 352 | 70455 W.STATON69.0 70456 W.STATON 115 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 162MW wind 48MW DC | 41.4  | 43.7  | 93    |  | 353 | 70455 W.STATON69.0 70456 W.STATON 115 1 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 0MW DC    | 40.7  | 43    | 91.6  |  | 353 | 70455 W.STATON69.0 70456 W.STATON 115 2 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 0MW wind 48MW DC   | 40.9  | 43.2  | 91.9  |  | 353 | 70455 W.STATON69.0 70456 W.STATON 115 2 |
| 70352 READER 115 70353 READER 69.0 1 TR     | 47    |  | 2005 162MW wind 48MW DC | 41.4  | 43.6  | 92.8  |  | 354 | 70455 W.STATON69.0 70456 W.STATON 115 2 |
| 70352 READER 115 70353 READER 69.0 2 TR     | 47    |  | 2005 0MW wind 0MW DC    | 40.7  | 46    | 97.8  |  | 272 | 70049 BELMONT 69.0 70305 OVERTON 69.0 1 |
| 70352 READER 115 70353 READER 69.0 2 TR     | 47    |  | 2005 0MW wind 48MW DC   | 40.9  | 46    | 97.8  |  | 272 | 70049 BELMONT 69.0 70305 OVERTON 69.0 1 |
| 70352 READER 115 70353 READER 69.0 2 TR     | 47    |  | 2005 162MW wind 48MW DC | 41.4  | 46    | 97.8  |  | 272 | 70049 BELMONT 69.0 70305 OVERTON 69.0 1 |

|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
|-------|--------------|-------|-------|--------------|--------|----|------|-------|--|--|-------------------------|------|-------|-------|------|-----|-------|---------------|--------|-----------|---------------|-------|--------|---|
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 0MW DC    | 40.7 | 50.8  | 108.1 |      | 275 | 70054 | BMONT         | TP69.0 | 70305     | OVERTON       | 69.0  | 1      |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 48MW DC   | 40.9 | 50.8  | 108.1 |      | 275 | 70054 | BMONT         | TP69.0 | 70305     | OVERTON       | 69.0  | 1      |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 162MW wind 48MW DC | 41.4 | 50.8  | 108.1 |      | 275 | 70054 | BMONT         | TP69.0 | 70305     | OVERTON       | 69.0  | 1      |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 0MW DC    | 40.7 | 50.8  | 108.1 |      | 276 | 70054 | BMONT         | TP69.0 | 70455     | W.STATION69.0 | 1     |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 48MW DC   | 40.9 | 50.8  | 108.1 |      | 276 | 70054 | BMONT         | TP69.0 | 70455     | W.STATION69.0 | 1     |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 162MW wind 48MW DC | 41.4 | 50.8  | 108.1 |      | 276 | 70054 | BMONT         | TP69.0 | 70455     | W.STATION69.0 | 1     |        |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 0MW DC    | 40.7 | 43.5  |       | 92.6 | 191 | 70122 | COMANCHE      | 230    | 70459     | WALSENBG      | 230   | 1      |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 48MW DC   | 40.9 | 43.7  |       | 93   | 191 | 70122 | COMANCHE      | 230    | 70459     | WALSENBG      | 230   | 1      |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 162MW wind 48MW DC | 41.4 | 44.3  |       | 94.3 | 191 | 70122 | COMANCHE      | 230    | 70459     | WALSENBG      | 230   | 1      |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 0MW DC    | 40.7 | 69.7  | 148.2 |      | 341 | 70352 | READER        | 115    | 70353     | READER        | 69.0  | 1      |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 48MW DC   | 40.9 | 69.9  | 148.8 |      | 341 | 70352 | READER        | 115    | 70353     | READER        | 69.0  | 1      |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 162MW wind 48MW DC | 41.4 | 70.8  | 150.6 |      | 342 | 70352 | READER        | 115    | 70353     | READER        | 69.0  | 1      |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 162MW wind 48MW DC | 41.4 | 42.9  |       | 91.3 | 344 | 70352 | READER        | 115    | 70456     | W.STATION     | 115   | 1      |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 0MW DC    | 40.7 | 43.1  |       | 91.8 | 352 | 70455 | W.STATION69.0 | 70456  | W.STATION | 115           | 1     |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 48MW DC   | 40.9 | 43.3  |       | 92.1 | 352 | 70455 | W.STATION69.0 | 70456  | W.STATION | 115           | 1     |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 162MW wind 48MW DC | 41.4 | 43.7  |       | 93   | 353 | 70455 | W.STATION69.0 | 70456  | W.STATION | 115           | 1     |        |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 0MW DC    | 40.7 |       | 43    | 91.6 | 353 | 70455 | W.STATION69.0 | 70456  | W.STATION | 115           | 2     |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 OMW wind 48MW DC   | 40.9 |       | 43.2  | 91.9 | 353 | 70455 | W.STATION69.0 | 70456  | W.STATION | 115           | 2     |        |   |
| 70352 | READER       | 115   | 70353 | READER       | 69.0   | 2  | TR   | 47    |  |  | 2005 162MW wind 48MW DC | 41.4 |       | 43.6  | 92.8 | 354 | 70455 | W.STATION69.0 | 70456  | W.STATION | 115           | 2     |        |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70353 | READER       | 69.0  | 70042 | ASPEN        | TP69.0 | 1  | LN   | 66    |  |  | 2005 OMW wind 0MW DC    | 42.2 | 63.4  |       | 96.1 | 275 | 70054 | BMONT         | TP69.0 | 70305     | OVERTON       | 69.0  | 1      |   |
| 70353 | READER       | 69.0  | 70042 | ASPEN        | TP69.0 | 1  | LN   | 66    |  |  | 2005 OMW wind 48MW DC   | 42.4 | 63.4  |       | 96   | 275 | 70054 | BMONT         | TP69.0 | 70305     | OVERTON       | 69.0  | 1      |   |
| 70353 | READER       | 69.0  | 70042 | ASPEN        | TP69.0 | 1  | LN   | 66    |  |  | 2005 162MW wind 48MW DC | 43.3 | 63.5  |       | 96.3 | 275 | 70054 | BMONT         | TP69.0 | 70305     | OVERTON       | 69.0  | 1      |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70353 | READER       | 69.0  | 70042 | ASPEN        | TP69.0 | 1  | LN   | 66    |  |  | 2005 OMW wind 0MW DC    | 42.2 | 63.4  |       | 96.1 | 276 | 70054 | BMONT         | TP69.0 | 70455     | W.STATION69.0 | 1     |        |   |
| 70353 | READER       | 69.0  | 70042 | ASPEN        | TP69.0 | 1  | LN   | 66    |  |  | 2005 OMW wind 48MW DC   | 42.4 | 63.4  |       | 96   | 276 | 70054 | BMONT         | TP69.0 | 70455     | W.STATION69.0 | 1     |        |   |
| 70353 | READER       | 69.0  | 70042 | ASPEN        | TP69.0 | 1  | LN   | 66    |  |  | 2005 162MW wind 48MW DC | 43.3 | 63.5  |       | 96.3 | 276 | 70054 | BMONT         | TP69.0 | 70455     | W.STATION69.0 | 1     |        |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70354 | RIDGE        | 115   | 70355 | RIDGE        | 230    | 1  | TR   | 100   |  |  | 2005 162MW wind 48MW DC | 73.2 | 91.8  |       | 91.8 | 144 | 70354 | RIDGE         | 115    | 70355     | RIDGE         | 230   | 2      |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70366 | ROCKYFRD69.0 | 70372 | S     | FWL          | TP69.0 | 1  | LN   | 40.6  |  |  | 2005 OMW wind 0MW DC    | 7.4  | 41    | 101   |      | 281 | 70060 | BOONE         | 115    | 70249     | LAJUNTAW      | 115   | 1      |   |
| 70366 | ROCKYFRD69.0 | 70372 | S     | FWL          | TP69.0 | 1  | LN   | 40.6  |  |  | 2005 OMW wind 48MW DC   | 7.4  | 40.2  |       | 99   | 281 | 70060 | BOONE         | 115    | 70249     | LAJUNTAW      | 115   | 1      |   |
| 70366 | ROCKYFRD69.0 | 70372 | S     | FWL          | TP69.0 | 1  | LN   | 40.6  |  |  | 2005 162MW wind 48MW DC | 7.4  | 38.8  |       | 95.6 | 281 | 70060 | BOONE         | 115    | 70249     | LAJUNTAW      | 115   | 1      |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70366 | ROCKYFRD69.0 | 70372 | S     | FWL          | TP69.0 | 1  | LN   | 40.6  |  |  | 2005 OMW wind 0MW DC    | 7.4  | 40.7  | 100.1 |      | 320 | 70249 | LAJUNTAW      | 115    | 70250     | LAJUNTAW69.0  | 1     |        |   |
| 70366 | ROCKYFRD69.0 | 70372 | S     | FWL          | TP69.0 | 1  | LN   | 40.6  |  |  | 2005 OMW wind 48MW DC   | 7.4  | 39.9  |       | 98.2 | 320 | 70249 | LAJUNTAW      | 115    | 70250     | LAJUNTAW69.0  | 1     |        |   |
| 70366 | ROCKYFRD69.0 | 70372 | S     | FWL          | TP69.0 | 1  | LN   | 40.6  |  |  | 2005 162MW wind 48MW DC | 7.4  | 38.5  |       | 94.8 | 320 | 70249 | LAJUNTAW      | 115    | 70250     | LAJUNTAW69.0  | 1     |        |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70374 | SAN LUIS     | 115   | 70376 | SAN LUIS69.0 | 1      | TR | 42   |       |  |  | 2005 OMW wind 0MW DC    | 25.9 | 39.2  |       | 93.3 | 252 | 70374 | SAN LUIS      | 115    | 70376     | SAN LUIS69.0  | 2     |        |   |
| 70374 | SAN LUIS     | 115   | 70376 | SAN LUIS69.0 | 1      | TR | 42   |       |  |  | 2005 OMW wind 48MW DC   | 25.9 | 39.2  |       | 93.3 | 252 | 70374 | SAN LUIS      | 115    | 70376     | SAN LUIS69.0  | 2     |        |   |
| 70374 | SAN LUIS     | 115   | 70376 | SAN LUIS69.0 | 1      | TR | 42   |       |  |  | 2005 162MW wind 48MW DC | 25.9 | 39.2  |       | 93.3 | 252 | 70374 | SAN LUIS      | 115    | 70376     | SAN LUIS69.0  | 2     |        |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70374 | SAN LUIS     | 115   | 70376 | SAN LUIS69.0 | 2      | TR | 42   |       |  |  | 2005 OMW wind 0MW DC    | 25.9 | 39.2  |       | 93.3 | 251 | 70374 | SAN LUIS      | 115    | 70376     | SAN LUIS69.0  | 1     |        |   |
| 70374 | SAN LUIS     | 115   | 70376 | SAN LUIS69.0 | 2      | TR | 42   |       |  |  | 2005 OMW wind 48MW DC   | 25.9 | 39.2  |       | 93.3 | 251 | 70374 | SAN LUIS      | 115    | 70376     | SAN LUIS69.0  | 1     |        |   |
| 70374 | SAN LUIS     | 115   | 70376 | SAN LUIS69.0 | 2      | TR | 42   |       |  |  | 2005 162MW wind 48MW DC | 25.9 | 39.2  |       | 93.3 | 251 | 70374 | SAN LUIS      | 115    | 70376     | SAN LUIS69.0  | 1     |        |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70382 | SEMPER       | 115   | 70065 | BROMFLD1     | 115    | 1  | LN   | 134.8 |  |  | 2005 OMW wind 0MW DC    | 37.5 | 157.9 | 117.1 |      | 56  | 70109 | CHEROKES      | 115    | 70174     | FEDERHT1      | 115   | 1      |   |
| 70382 | SEMPER       | 115   | 70065 | BROMFLD1     | 115    | 1  | LN   | 134.8 |  |  | 2005 OMW wind 48MW DC   | 36.4 | 158   | 117.2 |      | 56  | 70109 | CHEROKES      | 115    | 70174     | FEDERHT1      | 115   | 1      |   |
| 70382 | SEMPER       | 115   | 70065 | BROMFLD1     | 115    | 1  | LN   | 134.8 |  |  | 2005 162MW wind 48MW DC | 33.8 | 159.1 | 118   |      | 56  | 70109 | CHEROKES      | 115    | 70174     | FEDERHT1      | 115   | 1      |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70382 | SEMPER       | 115   | 70174 | FEDERHT1     | 115    | 1  | LN   | 134.8 |  |  | 2005 OMW wind 0MW DC    | 69.6 | 122.4 |       | 90.8 | 53  | 70108 | CHEROKEN      | 115    | 70175     | FEDERHT2      | 115   | 2      |   |
| 70382 | SEMPER       | 115   | 70174 | FEDERHT1     | 115    | 1  | LN   | 134.8 |  |  | 2005 OMW wind 48MW DC   | 71.7 | 125.9 |       | 93.4 | 53  | 70108 | CHEROKEN      | 115    | 70175     | FEDERHT2      | 115   | 2      |   |
| 70382 | SEMPER       | 115   | 70174 | FEDERHT1     | 115    | 1  | LN   | 134.8 |  |  | 2005 162MW wind 48MW DC | 76.5 | 134.7 |       | 99.9 | 53  | 70108 | CHEROKEN      | 115    | 70175     | FEDERHT2      | 115   | 2      |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70400 | SODALAKE     | 115   | 70023 | ALLISON      | 115    | 1  | LN   | 192   |  |  | 2005 OMW wind 0MW DC    | 89.6 | 173.4 |       | 90.3 | 23  | 70045 | BANCROFT      | 115    | 70242     | KENDRICK      | 115   | 1      |   |
| 70400 | SODALAKE     | 115   | 70023 | ALLISON      | 115    | 1  | LN   | 192   |  |  | 2005 OMW wind 48MW DC   | 90.6 | 173.5 |       | 90.4 | 23  | 70045 | BANCROFT      | 115    | 70242     | KENDRICK      | 115   | 1      |   |
| 70400 | SODALAKE     | 115   | 70023 | ALLISON      | 115    | 1  | LN   | 192   |  |  | 2005 162MW wind 48MW DC | 93.3 | 174.2 |       | 90.7 | 23  | 70045 | BANCROFT      | 115    | 70242     | KENDRICK      | 115   | 1      |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70412 | STEM BCH     | 115   | 70458 | WALSENBG     | 115    | 1  | LN   | 77    |  |  | 2005 OMW wind 0MW DC    | 12.3 | 92.5  | 120.1 |      | 191 | 70122 | COMANCHE      | 230    | 70459     | WALSENBG      | 230   | 1      |   |
| 70412 | STEM BCH     | 115   | 70458 | WALSENBG     | 115    | 1  | LN   | 77    |  |  | 2005 OMW wind 48MW DC   | 12.2 | 93.5  | 121.5 |      | 191 | 70122 | COMANCHE      | 230    | 70459     | WALSENBG      | 230   | 1      |   |
| 70412 | STEM BCH     | 115   | 70458 | WALSENBG     | 115    | 1  | LN   | 77    |  |  | 2005 162MW wind 48MW DC | 11.7 | 97.2  | 126.3 |      | 191 | 70122 | COMANCHE      | 230    | 70459     | WALSENBG      | 230   | 1      |   |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70425 | T BUTTES69.0 | 70101 | CHEN  | TAP69.0      | 1      | LN | 33.9 |       |  |  | 2005 OMW wind 0MW DC    | 0.5  | 32.4  |       | 95.6 | 354 | 70472 | WILOW         | CK     | 115       | 70473         | WILOW | CK69.0 | 1 |
| 70425 | T BUTTES69.0 | 70101 | CHEN  | TAP69.0      | 1      | LN | 33.9 |       |  |  | 2005 OMW wind 48MW DC   | 0.4  | 35.1  | 103.4 |      | 354 | 70472 | WILOW         | CK     | 115       | 70473         | WILOW | CK69.0 | 1 |
| 70425 | T BUTTES69.0 | 70101 | CHEN  | TAP69.0      | 1      | LN | 33.9 |       |  |  | 2005 162MW wind 48MW DC | 1.4  | 35.1  | 103.4 |      | 355 | 70472 | WILOW         | CK     | 115       | 70473         | WILOW | CK69.0 | 1 |
|       |              |       |       |              |        |    |      |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |
| 70425 | T BUTTES69.0 | 70460 | WALSH | 69.0         | 1      | LN | 33.9 |       |  |  |                         |      |       |       |      |     |       |               |        |           |               |       |        |   |

|                                            |      |  |                         |      |      |       |     |                                           |
|--------------------------------------------|------|--|-------------------------|------|------|-------|-----|-------------------------------------------|
| 70453 VILAS 69.0 70460 WALSH 69.0 1 LN     | 33.9 |  | 2005 0MW wind 48MW DC   | 7.8  | 42   | 123.9 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70453 VILAS 69.0 70460 WALSH 69.0 1 LN     | 33.9 |  | 2005 162MW wind 48MW DC | 8.7  | 41.9 | 123.7 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
|                                            |      |  |                         |      |      |       |     |                                           |
| 70455 W.STATON69.0 70054 BMONT TP69.0 1 LN | 69   |  | 2005 0MW wind 0MW DC    | 20.2 | 69.8 | 101.2 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 W.STATON69.0 70054 BMONT TP69.0 1 LN | 69   |  | 2005 0MW wind 48MW DC   | 19.9 | 69.8 | 101.2 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 W.STATON69.0 70054 BMONT TP69.0 1 LN | 69   |  | 2005 162MW wind 48MW DC | 19.1 | 70   | 101.5 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
|                                            |      |  |                         |      |      |       |     |                                           |
| 70455 W.STATON69.0 70456 W.STATON 115 1 TR | 42   |  | 2005 0MW wind 0MW DC    | 18.9 | 43.2 | 102.8 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 W.STATON69.0 70456 W.STATON 115 1 TR | 42   |  | 2005 0MW wind 48MW DC   | 18.7 | 43.1 | 102.7 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 W.STATON69.0 70456 W.STATON 115 1 TR | 42   |  | 2005 162MW wind 48MW DC | 18.2 | 43   | 102.4 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
|                                            |      |  |                         |      |      |       |     |                                           |
| 70455 W.STATON69.0 70456 W.STATON 115 2 TR | 42   |  | 2005 0MW wind 0MW DC    | 18.5 | 42.2 | 100.6 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 W.STATON69.0 70456 W.STATON 115 2 TR | 42   |  | 2005 0MW wind 48MW DC   | 18.3 | 42.2 | 100.5 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70455 W.STATON69.0 70456 W.STATON 115 2 TR | 42   |  | 2005 162MW wind 48MW DC | 17.8 | 42.1 | 100.3 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
|                                            |      |  |                         |      |      |       |     |                                           |
| 70550 W CANON 115 73551 W CANON 230 1 TR   | 100  |  | 2005 0MW wind 48MW DC   | 34.9 | 90.9 | 90.9  | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70550 W CANON 115 73551 W CANON 230 1 TR   | 100  |  | 2005 162MW wind 48MW DC | 34.9 | 94.1 | 94.1  | 340 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
|                                            |      |  |                         |      |      |       |     |                                           |
| 70550 W CANON 115 73551 W CANON 230 1 TR   | 100  |  | 2005 0MW wind 0MW DC    | 34.8 | 98.4 | 98.4  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70550 W CANON 115 73551 W CANON 230 1 TR   | 100  |  | 2005 0MW wind 48MW DC   | 34.9 | 93.9 | 93.9  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70550 W CANON 115 73551 W CANON 230 1 TR   | 100  |  | 2005 162MW wind 48MW DC | 34.9 | 94.6 | 94.6  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |



## **C-2 - Voltage Violation Comparison**

2003 Heavy summer - Data order for the groups of 2 rows of loading information:

Both Scenarios are without the HVDC converter at Lamar Station

With the wind farm off line

With the wind farm on line

2005 Heavy summer - Data order for the groups of 3 rows of loading information:

Wind farm off line and Lamar HVDC converter at zero MW output

Wind farm off line and Lamar HVDC converter at 48 MW output

Wind farm on line and Lamar HVDC converter at 48 MW output

---

| Bus # | Bus Name | KV  | Area | Zone | Case                    | BaseVolt | ContVolt      | LowLimit | UpLimit | Ncon | Contin.Description                      |
|-------|----------|-----|------|------|-------------------------|----------|---------------|----------|---------|------|-----------------------------------------|
| 70022 | APT TAP2 | 115 | 70   | 712  | 2005 0MW wind 0MW DC    | 1.0078   | <b>0.8984</b> | 0.92     | 1.1     | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70022 | APT TAP2 | 115 | 70   | 712  | 2005 0MW wind 48MW DC   | 1.0099   | <b>0.9068</b> | 0.92     | 1.1     | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70022 | APT TAP2 | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0069   | <b>0.9041</b> | 0.92     | 1.1     | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70022 | APT TAP2 | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0069   | <b>0.8914</b> | 0.92     | 1.1     | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 0MW wind 0MW DC    | 1.0218   | <b>0.8995</b> | 0.92     | 1.1     | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 0MW wind 48MW DC   | 1.0219   | <b>0.8998</b> | 0.92     | 1.1     | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 162MW wind 48MW DC | 1.0215   | <b>0.8989</b> | 0.92     | 1.1     | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 0MW wind 0MW DC    | 1.0218   | <b>0.0638</b> | 0.92     | 1.1     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 0MW wind 48MW DC   | 1.0219   | <b>0.2545</b> | 0.92     | 1.1     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 162MW wind 48MW DC | 1.0215   | <b>0.1036</b> | 0.92     | 1.1     | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70025 | ALMSA TM | 115 | 70   | 710  | 2005 0MW wind 0MW DC    | 1.03     | <b>0.095</b>  | 0.92     | 1.1     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70025 | ALMSA TM | 115 | 70   | 710  | 2005 0MW wind 48MW DC   | 1.0302   | <b>0.2716</b> | 0.92     | 1.1     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70025 | ALMSA TM | 115 | 70   | 710  | 2005 162MW wind 48MW DC | 1.0297   | <b>0.137</b>  | 0.92     | 1.1     | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70026 | ALMSA TM | 69  | 70   | 710  | 2005 0MW wind 0MW DC    | 1.0258   | <b>0.0488</b> | 0.92     | 1.1     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70026 | ALMSA TM | 69  | 70   | 710  | 2005 0MW wind 48MW DC   | 1.026    | <b>0.2645</b> | 0.92     | 1.1     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70026 | ALMSA TM | 69  | 70   | 710  | 2005 162MW wind 48MW DC | 1.0255   | <b>0.1167</b> | 0.92     | 1.1     | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70028 | ANSEL TS | 69  | 70   | 710  | 2005 0MW wind 0MW DC    | 1.0282   | <b>0.0475</b> | 0.92     | 1.1     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70028 | ANSEL TS | 69  | 70   | 710  | 2005 0MW wind 48MW DC   | 1.0284   | <b>0.2447</b> | 0.92     | 1.1     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70028 | ANSEL TS | 69  | 70   | 710  | 2005 162MW wind 48MW DC | 1.0278   | <b>0.0985</b> | 0.92     | 1.1     | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70029 | ANTONITO | 69  | 70   | 710  | 2005 0MW wind 0MW DC    | 0.996    | <b>0.077</b>  | 0.92     | 1.1     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70029 | ANTONITO | 69  | 70   | 710  | 2005 0MW wind 48MW DC   | 0.9961   | <b>0.2157</b> | 0.92     | 1.1     | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70029 | ANTONITO | 69  | 70   | 710  | 2005 162MW wind 48MW DC | 0.9957   | <b>0.0711</b> | 0.92     | 1.1     | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70030 | APT PARK | 115 | 70   | 712  | 2005 0MW wind 0MW DC    | 1.0051   | <b>0.9053</b> | 0.92     | 1.1     | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70030 | APT PARK | 115 | 70   | 712  | 2005 0MW wind 48MW DC   | 1.0069   | <b>0.9131</b> | 0.92     | 1.1     | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70030 | APT PARK | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0037   | <b>0.9108</b> | 0.92     | 1.1     | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70030 | APT PARK | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0037   | <b>0.8985</b> | 0.92     | 1.1     | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70031 | APT TAP  | 115 | 70   | 712  | 2005 0MW wind 0MW DC    | 1.0059   | <b>0.9134</b> | 0.92     | 1.1     | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70031 | APT TAP  | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0042   | <b>0.9184</b> | 0.92     | 1.1     | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70031 | APT TAP  | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0042   | <b>0.9058</b> | 0.92     | 1.1     | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70042 | ASPEN TP | 69  | 70   | 712  | 2005 0MW wind 0MW DC    | 1.0266   | <b>0.8951</b> | 0.92     | 1.1     | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70042 | ASPEN TP | 69  | 70   | 712  | 2005 0MW wind 48MW DC   | 1.0272   | <b>0.8954</b> | 0.92     | 1.1     | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70042 | ASPEN TP | 69  | 70   | 712  | 2005 162MW wind 48MW DC | 1.0251   | <b>0.8923</b> | 0.92     | 1.1     | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70051 | BLENDE   | 69  | 70   | 712  | 2005 0MW wind 0MW DC    | 1.0245   | <b>0.896</b>  | 0.92     | 1.1     | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |

|       |          |     |    |     |                         |        |        |      |     |     |                                           |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-------------------------------------------|
| 70051 | LENDE    | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.025  | 0.8964 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70051 | LENDE    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0229 | 0.8933 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70055 | BNVST    | 115 | 70 | 709 | 2005 0MW wind 0MW DC    | 1.0267 | 0.8912 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70055 | BNVST    | 115 | 70 | 709 | 2005 0MW wind 48MW DC   | 1.0267 | 0.9115 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70055 | BNVST    | 115 | 70 | 709 | 2005 162MW wind 48MW DC | 1.0253 | 0.894  | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70056 | BNVST    | 115 | 70 | 709 | 2005 0MW wind 0MW DC    | 1.0277 | 0.8924 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70056 | BNVST    | 115 | 70 | 709 | 2005 0MW wind 48MW DC   | 1.0277 | 0.9126 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70056 | BNVST    | 115 | 70 | 709 | 2005 162MW wind 48MW DC | 1.0264 | 0.8952 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70060 | BOONE    | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0259 | 0.8814 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70060 | BOONE    | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 1.029  | 0.8919 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70060 | BOONE    | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0279 | 0.8884 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70060 | BOONE    | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0279 | 0.8773 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70062 | BOONE    | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0311 | 0.8832 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70062 | BOONE    | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0342 | 0.8943 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70062 | BOONE    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0392 | 0.8963 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70062 | BOONE    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0392 | 0.8859 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70063 | BOONE TP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0283 | 0.879  | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70063 | BOONE TP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0314 | 0.8904 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70063 | BOONE TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0363 | 0.8923 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70063 | BOONE TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0363 | 0.8823 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70066 | CANONCTY | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9916 | 0.9158 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70066 | CANONCTY | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9917 | 0.9159 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70066 | CANONCTY | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 0.9897 | 0.9158 | 0.92 | 1.1 | 340 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70090 | CARMEL   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9903 | 0.0271 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70090 | CARMEL   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9905 | 0.1929 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70090 | CARMEL   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9899 | 0.0636 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70092 | CENTER   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0071 | 0.0215 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70092 | CENTER   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0073 | 0.1786 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70092 | CENTER   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0066 | 0.0118 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.4213 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.025  | 0.8062 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.8016 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0163 | 0.6242 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.025  | 0.6402 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |

|       |          |     |    |     |                         |        |        |      |     |     |                                           |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-------------------------------------------|
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.6419 | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0224 | 0.417  | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0217 | 0.8021 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0224 | 0.7976 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.013  | 0.6194 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0217 | 0.6352 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0224 | 0.637  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70113 | CLIFTON  | 230 | 70 | 708 | 2005 0MW wind 0MW DC    | 0.9576 | 0.9035 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70113 | CLIFTON  | 230 | 70 | 708 | 2005 0MW wind 48MW DC   | 0.9578 | 0.9036 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70113 | CLIFTON  | 230 | 70 | 708 | 2005 162MW wind 48MW DC | 0.9581 | 0.9037 | 0.92 | 1.1 | 496 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70118 | COCENTER | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0263 | 0.0523 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70118 | COCENTER | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0266 | 0.2479 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70118 | COCENTER | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0259 | 0.1036 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70129 | CREEDE   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0252 | 0.0519 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70129 | CREEDE   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0255 | 0.2234 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70129 | CREEDE   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0248 | 0.0803 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70130 | CRPLE CK | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9661 | 0.8778 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70130 | CRPLE CK | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9662 | 0.878  | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70130 | CRPLE CK | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9639 | 0.8788 | 0.92 | 1.1 | 340 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0147 | 0.9115 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0166 | 0.9178 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0137 | 0.9076 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0137 | 0.3923 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0166 | 0.8984 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0137 | 0.8948 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0401 | 0.4119 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0402 | 0.8383 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0401 | 0.8339 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0313 | 0.483  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0402 | 0.489  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0401 | 0.4908 | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70143 | DELNORTE | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0126 | 0.0377 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70143 | DELNORTE | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0128 | 0.2289 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70143 | DELNORTE | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0122 | 0.0866 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |

|       |          |     |     |    |     |  |  |                         |        |  |  |      |     |  |     |                 |                     |        |
|-------|----------|-----|-----|----|-----|--|--|-------------------------|--------|--|--|------|-----|--|-----|-----------------|---------------------|--------|
| 70158 | DOT      |     | 115 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0189 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70158 | DOT      |     | 115 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0218 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70158 | DOT      |     | 115 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0202 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70158 | DOT      |     | 115 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0202 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE     | 230 70254 LAMAR CO  | 230 1  |
| 70159 | DOT      | TAP | 115 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0217 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70159 | DOT      | TAP | 115 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0246 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70159 | DOT      | TAP | 115 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.023  |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70159 | DOT      | TAP | 115 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.023  |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE     | 230 70254 LAMAR CO  | 230 1  |
| 70160 | E CANON  |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 0.9942 |  |  | 0.92 | 1.1 |  | 339 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70160 | E CANON  |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 0.9943 |  |  | 0.92 | 1.1 |  | 339 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70160 | E CANON  |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9914 |  |  | 0.92 | 1.1 |  | 340 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0367 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE     | 230 70254 LAMAR CO  | 230 1  |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0368 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO  | 115 70254 LAMAR CO  | 230 1  |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0367 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO  | 115 70254 LAMAR CO  | 230 1  |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0267 |  |  | 0.92 | 1.1 |  | 354 | 70472 WILLOW CK | 115 70473 WILLOW CK | 69.0 1 |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0368 |  |  | 0.92 | 1.1 |  | 354 | 70472 WILLOW CK | 115 70473 WILLOW CK | 69.0 1 |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0367 |  |  | 0.92 | 1.1 |  | 355 | 70472 WILLOW CK | 115 70473 WILLOW CK | 69.0 1 |
| 70176 | FLORENCE |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0021 |  |  | 0.92 | 1.1 |  | 339 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70176 | FLORENCE |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0022 |  |  | 0.92 | 1.1 |  | 339 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70176 | FLORENCE |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9993 |  |  | 0.92 | 1.1 |  | 340 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 0.984  |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 0.9869 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9911 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 0.984  |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE     | 115 70249 LAJUNTAW  | 115 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 0.9869 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE     | 115 70249 LAJUNTAW  | 115 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9911 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE     | 115 70249 LAJUNTAW  | 115 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9911 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE     | 230 70254 LAMAR CO  | 230 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 0.984  |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW  | 115 70250 LAJUNTAW  | 69.0 1 |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 0.9869 |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW  | 115 70250 LAJUNTAW  | 69.0 1 |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9911 |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW  | 115 70250 LAJUNTAW  | 69.0 1 |
| 70184 | FT HOLLY |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0272 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE     | 230 70254 LAMAR CO  | 230 1  |
| 70184 | FT HOLLY |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0268 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO  | 115 70254 LAMAR CO  | 230 1  |
| 70184 | FT HOLLY |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0272 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO  | 115 70254 LAMAR CO  | 230 1  |

|       |          |    |    |     |  |  |                         |        |  |      |     |     |                                           |
|-------|----------|----|----|-----|--|--|-------------------------|--------|--|------|-----|-----|-------------------------------------------|
| 70184 | FT HOLLY | 69 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0175 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70184 | FT HOLLY | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0268 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70184 | FT HOLLY | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0272 |  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.035  |  | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0351 |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.035  |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0261 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0351 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.035  |  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9582 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9584 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9579 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9582 |  | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9584 |  | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9579 |  | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9564 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9565 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9561 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9564 |  | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9565 |  | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9561 |  | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.032  |  | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0317 |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.032  |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0223 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0317 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.032  |  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0316 |  | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0313 |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0316 |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0218 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0313 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0316 |  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |

|       |          |     |    |     |                         |        |        |      |     |     |                                           |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-------------------------------------------|
| 70205 | GRANDJCT | 230 | 70 | 708 | 2005 0MW wind 0MW DC    | 0.9599 | 0.9035 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70205 | GRANDJCT | 230 | 70 | 708 | 2005 0MW wind 48MW DC   | 0.9601 | 0.9036 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70205 | GRANDJCT | 230 | 70 | 708 | 2005 162MW wind 48MW DC | 0.9605 | 0.9038 | 0.92 | 1.1 | 496 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70206 | GRANDJPS | 230 | 70 | 708 | 2005 0MW wind 0MW DC    | 0.9567 | 0.904  | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70206 | GRANDJPS | 230 | 70 | 708 | 2005 0MW wind 48MW DC   | 0.9569 | 0.9041 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70206 | GRANDJPS | 230 | 70 | 708 | 2005 162MW wind 48MW DC | 0.9572 | 0.9042 | 0.92 | 1.1 | 496 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70220 | HIGHLND  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0039 | 0.8907 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70220 | HIGHLND  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.004  | 0.8909 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70220 | HIGHLND  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0011 | 0.8919 | 0.92 | 1.1 | 340 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70221 | HILANDSL | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0283 | 0.0565 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70221 | HILANDSL | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0286 | 0.2299 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70221 | HILANDSL | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0279 | 0.0943 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0215 | 0.4577 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0201 | 0.7962 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0215 | 0.7917 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0132 | 0.8226 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0201 | 0.8534 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0215 | 0.855  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0217 | 0.458  | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0204 | 0.7965 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0217 | 0.792  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0135 | 0.8228 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0204 | 0.8537 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0217 | 0.8553 | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0296 | 0.4122 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0292 | 0.8156 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0296 | 0.811  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0199 | 0.5577 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0292 | 0.5688 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0296 | 0.5705 | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70228 | HOMELAKE | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0204 | 0.0361 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70228 | HOMELAKE | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0206 | 0.2455 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70228 | HOMELAKE | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.02   | 0.1011 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70229 | HOOPER   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0051 | 0.0234 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |

|       |          |     |    |     |                         |        |        |      |     |     |                                         |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-----------------------------------------|
| 70229 | HOOPER   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0053 | 0.1756 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70229 | HOOPER   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0047 | 0.0142 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70230 | HOOPERTP | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0102 | 0.0184 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70230 | HOOPERTP | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0104 | 0.1837 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70230 | HOOPERTP | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0097 | 0.0129 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70233 | HORIZON  | 230 | 70 | 708 | 2005 0MW wind 0MW DC    | 0.958  | 0.907  | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70233 | HORIZON  | 230 | 70 | 708 | 2005 0MW wind 48MW DC   | 0.9581 | 0.9071 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70233 | HORIZON  | 230 | 70 | 708 | 2005 162MW wind 48MW DC | 0.9584 | 0.9072 | 0.92 | 1.1 | 496 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70235 | HUERFANO | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0264 | 0.8768 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70235 | HUERFANO | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0295 | 0.8882 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70235 | HUERFANO | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0344 | 0.8901 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70235 | HUERFANO | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0344 | 0.8802 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70243 | LA SECPA | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0181 | 0.9151 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70243 | LA SECPA | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0172 | 0.9112 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70243 | LA SECPA | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0172 | 0.3956 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70243 | LA SECPA | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0201 | 0.9019 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70243 | LA SECPA | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0172 | 0.8983 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70245 | LAGARITA | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9933 | 0.0345 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70245 | LAGARITA | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9935 | 0.1565 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70245 | LAGARITA | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9929 | 0.0036 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0138 | 0.9106 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0158 | 0.9169 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0129 | 0.9067 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0129 | 0.3911 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0158 | 0.8974 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0129 | 0.8939 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9998 | 0.9036 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0081 | 0.9154 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0053 | 0.9059 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0053 | 0.4176 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0081 | 0.8967 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0053 | 0.8934 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70248 | LAJUNTAT | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0203 | 0.9177 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |



|       |          |     |    |     |  |                         |        |  |  |      |     |  |     |                |                        |       |
|-------|----------|-----|----|-----|--|-------------------------|--------|--|--|------|-----|--|-----|----------------|------------------------|-------|
| 70248 | LAJUNTAT | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0193 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70248 | LAJUNTAT | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0193 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |
| 70248 | LAJUNTAT | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0222 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO | 115 70254 LAMAR CO     | 230 1 |
| 70248 | LAJUNTAT | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0193 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO | 115 70254 LAMAR CO     | 230 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 0MW wind 0MW DC    | 0.9749 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 0MW wind 48MW DC   | 0.9778 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 0.9763 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 0MW wind 0MW DC    | 0.9749 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 0MW wind 48MW DC   | 0.9778 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 0.9763 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 0.9763 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0276 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0306 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0349 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0276 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0306 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0349 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0349 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0276 |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW | 115 70250 LAJUNTAM69.0 | 1     |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0306 |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW | 115 70250 LAJUNTAM69.0 | 1     |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0349 |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW | 115 70250 LAJUNTAM69.0 | 1     |
| 70253 | LAMAR CO | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.022  |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |
| 70253 | LAMAR CO | 115 | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0212 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO | 115 70254 LAMAR CO     | 230 1 |
| 70253 | LAMAR CO | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.022  |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO | 115 70254 LAMAR CO     | 230 1 |
| 70254 | LAMAR CO | 230 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0296 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0166 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0197 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.024  |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0166 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0197 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.024  |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.024  |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |

|       |          |     |    |     |                         |        |        |      |     |     |                                         |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-----------------------------------------|
| 70271 | LS ANNAS | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0166 | 0.6874 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0197 | 0.6959 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.024  | 0.7231 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.991  | 0.8289 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9939 | 0.8426 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9981 | 0.8443 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.991  | 0.7276 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9939 | 0.7361 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9981 | 0.7604 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9981 | 0.8377 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.991  | 0.7334 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9939 | 0.7414 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9981 | 0.7657 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70289 | MOFFAT   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9761 | 0.906  | 0.92 | 1.1 | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1   |
| 70289 | MOFFAT   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9764 | 0.9062 | 0.92 | 1.1 | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1   |
| 70289 | MOFFAT   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9757 | 0.9058 | 0.92 | 1.1 | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1   |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9818 | 0.8178 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9847 | 0.8318 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.989  | 0.8336 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9818 | 0.7153 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9847 | 0.7239 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.989  | 0.7489 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.989  | 0.8273 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9818 | 0.7211 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9847 | 0.7292 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.989  | 0.7543 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70304 | OTEROTP  | 115 | 70 | 709 | 2005 0MW wind 0MW DC    | 1.0296 | 0.9152 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70304 | OTEROTP  | 115 | 70 | 709 | 2005 162MW wind 48MW DC | 1.028  | 0.9173 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70306 | P P MINE | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9692 | 0.8812 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70306 | P P MINE | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9693 | 0.8814 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70306 | P P MINE | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.967  | 0.8822 | 0.92 | 1.1 | 340 | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70316 | PDA      | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0122 | 0.8786 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70316 | PDA      | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0128 | 0.8779 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70316 | PDA      | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0107 | 0.8758 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70317 | PDA TAP  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0156 | 0.8825 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1  |

|       |          |     |    |     |                         |        |        |      |     |     |                                   |        |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-----------------------------------|--------|
| 70317 | PDA TAP  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0162 | 0.8829 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER   | 69.0 1 |
| 70317 | PDA TAP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0141 | 0.8797 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER   | 69.0 1 |
| 70318 | PENROSE  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0076 | 0.895  | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON | 115 1  |
| 70318 | PENROSE  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0077 | 0.8952 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON | 115 1  |
| 70318 | PENROSE  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0049 | 0.8962 | 0.92 | 1.1 | 340 | 70330 PORTLAND 115 70456 W.STATON | 115 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0231 | 0.8616 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0261 | 0.8751 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0304 | 0.8766 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0231 | 0.6915 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0261 | 0.7004 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0304 | 0.7268 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0304 | 0.8687 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO    | 230 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0231 | 0.6977 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0261 | 0.706  | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0304 | 0.7325 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0237 | 0.8623 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0267 | 0.8758 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.031  | 0.8772 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0237 | 0.6924 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0267 | 0.7012 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.031  | 0.7276 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.031  | 0.8694 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO    | 230 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0237 | 0.6985 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0267 | 0.7068 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.031  | 0.7333 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70325 | PLAZA    | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.987  | 0.0396 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70325 | PLAZA    | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9872 | 0.1466 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70325 | PLAZA    | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9865 | 0.0024 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70326 | PONCHA   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0395 | 0.8256 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70326 | PONCHA   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0397 | 0.858  | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70326 | PONCHA   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0389 | 0.8312 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70327 | PONCHA   | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0268 | 0.8155 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70327 | PONCHA   | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.027  | 0.8475 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70327 | PONCHA   | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0262 | 0.8211 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70329 | PORTLAND | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0122 | 0.9001 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON | 115 1  |

|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-------|-----------|-----|-------|-----------|-----|---|
| 70329 | PORTLAND | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0123 | 0.9003 | 0.92 | 1.1 | 339 | 70330 | PORTLAND  | 115 | 70456 | W.STATON  | 115 | 1 |
| 70329 | PORTLAND | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0095 | 0.9012 | 0.92 | 1.1 | 340 | 70330 | PORTLAND  | 115 | 70456 | W.STATON  | 115 | 1 |
| 70330 | PORTLAND | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9843 | 0.881  | 0.92 | 1.1 | 339 | 70330 | PORTLAND  | 115 | 70456 | W.STATON  | 115 | 1 |
| 70330 | PORTLAND | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9844 | 0.8812 | 0.92 | 1.1 | 339 | 70330 | PORTLAND  | 115 | 70456 | W.STATON  | 115 | 1 |
| 70330 | PORTLAND | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 0.9817 | 0.8817 | 0.92 | 1.1 | 340 | 70330 | PORTLAND  | 115 | 70456 | W.STATON  | 115 | 1 |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.038  | 0.4091 | 0.92 | 1.1 | 282 | 70061 | BOONE     | 230 | 70254 | LAMAR CO  | 230 | 1 |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0381 | 0.8358 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115 | 70254 | LAMAR CO  | 230 | 1 |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.038  | 0.8313 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115 | 70254 | LAMAR CO  | 230 | 1 |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0292 | 0.4793 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115 | 70473 | WILLOW CK | 69  | 0 |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0381 | 0.4852 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115 | 70473 | WILLOW CK | 69  | 0 |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.038  | 0.487  | 0.92 | 1.1 | 355 | 70472 | WILLOW CK | 115 | 70473 | WILLOW CK | 69  | 0 |
| 70347 | RAMON    | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0141 | 0.0644 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70347 | RAMON    | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0144 | 0.2376 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70347 | RAMON    | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0137 | 0.104  | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70348 | RAMON    | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.031  | 0.0602 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70348 | RAMON    | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0312 | 0.2351 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70348 | RAMON    | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0305 | 0.0992 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70360 | RIOGRAND | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0147 | 0.0402 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70360 | RIOGRAND | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0149 | 0.2324 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70360 | RIOGRAND | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0143 | 0.0899 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70361 | RIOGRDTP | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0232 | 0.0499 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70361 | RIOGRDTP | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0234 | 0.2464 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70361 | RIOGRDTP | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0228 | 0.1031 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0107 | 0.8528 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115 | 70061 | BOONE     | 230 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0135 | 0.8658 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115 | 70061 | BOONE     | 230 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0177 | 0.8675 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115 | 70061 | BOONE     | 230 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0107 | 0.7544 | 0.92 | 1.1 | 281 | 70060 | BOONE     | 115 | 70249 | LAJUNTAW  | 115 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0135 | 0.7626 | 0.92 | 1.1 | 281 | 70060 | BOONE     | 115 | 70249 | LAJUNTAW  | 115 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0177 | 0.7855 | 0.92 | 1.1 | 281 | 70060 | BOONE     | 115 | 70249 | LAJUNTAW  | 115 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0177 | 0.86   | 0.92 | 1.1 | 282 | 70061 | BOONE     | 230 | 70254 | LAMAR CO  | 230 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0107 | 0.7599 | 0.92 | 1.1 | 320 | 70249 | LAJUNTAW  | 115 | 70250 | LAJUNTAW  | 69  | 0 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0135 | 0.7677 | 0.92 | 1.1 | 320 | 70249 | LAJUNTAW  | 115 | 70250 | LAJUNTAW  | 69  | 0 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0177 | 0.7906 | 0.92 | 1.1 | 320 | 70249 | LAJUNTAW  | 115 | 70250 | LAJUNTAW  | 69  | 0 |
| 70367 | ROME0    | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0027 | 0.0709 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70367 | ROME0    | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0029 | 0.2265 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |

|       |          |     |    |     |                         |        |        |      |     |     |                          |                          |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|--------------------------|--------------------------|
| 70367 | ROME0    | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0024 | 0.6811 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70372 | S FWL TP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0215 | 0.8684 | 0.92 | 1.1 | 277 | 70060 BOONE              | 115 70061 BOONE 230 1    |
| 70372 | S FWL TP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0245 | 0.8804 | 0.92 | 1.1 | 277 | 70060 BOONE              | 115 70061 BOONE 230 1    |
| 70372 | S FWL TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0291 | 0.8822 | 0.92 | 1.1 | 277 | 70060 BOONE              | 115 70061 BOONE 230 1    |
| 70372 | S FWL TP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0215 | 0.863  | 0.92 | 1.1 | 281 | 70060 BOONE              | 115 70249 LAJUNTAW 115 1 |
| 70372 | S FWL TP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0245 | 0.8698 | 0.92 | 1.1 | 281 | 70060 BOONE              | 115 70249 LAJUNTAW 115 1 |
| 70372 | S FWL TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0291 | 0.886  | 0.92 | 1.1 | 281 | 70060 BOONE              | 115 70249 LAJUNTAW 115 1 |
| 70372 | S FWL TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0291 | 0.8733 | 0.92 | 1.1 | 282 | 70061 BOONE              | 230 70254 LAMAR CO 230 1 |
| 70372 | S FWL TP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0215 | 0.8674 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW           | 115 70250 LAJUNTAW69.0 1 |
| 70372 | S FWL TP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0245 | 0.8738 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW           | 115 70250 LAJUNTAW69.0 1 |
| 70372 | S FWL TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0291 | 0.89   | 0.92 | 1.1 | 320 | 70249 LAJUNTAW           | 115 70250 LAJUNTAW69.0 1 |
| 70373 | S.ACACIO | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9854 | 0.0295 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70373 | S.ACACIO | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9857 | 0.1812 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70373 | S.ACACIO | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.985  | 0.0528 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70374 | SAN LUIS | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0176 | 0.0744 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70374 | SAN LUIS | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0178 | 0.2506 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70374 | SAN LUIS | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0172 | 0.1164 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70375 | SAN LUIS | 230 | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9976 | 0.0726 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70375 | SAN LUIS | 230 | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9978 | 0.2445 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70375 | SAN LUIS | 230 | 70 | 710 | 2005 162MW wind 48MW DC | 0.997  | 0.1136 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70376 | SAN LUIS | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0392 | 0.0258 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70376 | SAN LUIS | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0395 | 0.2323 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70376 | SAN LUIS | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0388 | 0.0762 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70378 | SANTFETP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0201 | 0.9097 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 | READER 69.0 1            |
| 70378 | SANTFETP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0206 | 0.9101 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 | READER 69.0 1            |
| 70378 | SANTFETP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0183 | 0.907  | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 | READER 69.0 1            |
| 70379 | SARGENT  | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.02   | 0.1015 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70379 | SARGENT  | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0202 | 0.2735 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70379 | SARGENT  | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0196 | 0.1436 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70380 | SARGENT  | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0254 | 0.0548 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70380 | SARGENT  | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0257 | 0.2496 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70380 | SARGENT  | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.025  | 0.1062 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70383 | SFORK SL | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0306 | 0.0596 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70383 | SFORK SL | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0308 | 0.2343 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |
| 70383 | SFORK SL | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0302 | 0.0984 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 | PONCHABR 230 1           |

|       |           |     |    |     |                         |        |        |      |     |     |       |           |        |       |               |      |   |
|-------|-----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-------|-----------|--------|-------|---------------|------|---|
| 70390 | SKALA     | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9854 | 0.8888 | 0.92 | 1.1 | 339 | 70330 | PORTLAND  | 115    | 70456 | W.STATON      | 115  | 1 |
| 70390 | SKALA     | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9855 | 0.8889 | 0.92 | 1.1 | 339 | 70330 | PORTLAND  | 115    | 70456 | W.STATON      | 115  | 1 |
| 70390 | SKALA     | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 0.9831 | 0.8893 | 0.92 | 1.1 | 340 | 70330 | PORTLAND  | 115    | 70456 | W.STATON      | 115  | 1 |
| 70394 | SMELTER   | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0269 | 0.8334 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70394 | SMELTER   | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0271 | 0.8627 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70394 | SMELTER   | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0262 | 0.8381 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.025  | 0.8738 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115    | 70061 | BOONE         | 230  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.028  | 0.8855 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115    | 70061 | BOONE         | 230  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0328 | 0.8874 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115    | 70061 | BOONE         | 230  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.025  | 0.9037 | 0.92 | 1.1 | 281 | 70060 | BOONE     | 115    | 70249 | LAJUNTAW      | 115  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.028  | 0.9099 | 0.92 | 1.1 | 281 | 70060 | BOONE     | 115    | 70249 | LAJUNTAW      | 115  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0328 | 0.8779 | 0.92 | 1.1 | 282 | 70061 | BOONE     | 230    | 70254 | LAMAR CO      | 230  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.025  | 0.9076 | 0.92 | 1.1 | 320 | 70249 | LAJUNTAW  | 115    | 70250 | LAJUNTAW69.0  | 1    |   |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.028  | 0.9135 | 0.92 | 1.1 | 320 | 70249 | LAJUNTAW  | 115    | 70250 | LAJUNTAW69.0  | 1    |   |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.02   | 0.4559 | 0.92 | 1.1 | 282 | 70061 | BOONE     | 230    | 70254 | LAMAR CO      | 230  | 1 |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0187 | 0.7944 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115    | 70254 | LAMAR CO      | 230  | 1 |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.02   | 0.7899 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115    | 70254 | LAMAR CO      | 230  | 1 |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0118 | 0.8209 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0187 | 0.8518 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.02   | 0.8533 | 0.92 | 1.1 | 355 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |
| 70405 | ST. CHAS. | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0204 | 0.888  | 0.92 | 1.1 | 270 | 70042 | ASPEN     | TP69.0 | 70353 | READER        | 69.0 | 1 |
| 70405 | ST. CHAS. | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.021  | 0.8884 | 0.92 | 1.1 | 270 | 70042 | ASPEN     | TP69.0 | 70353 | READER        | 69.0 | 1 |
| 70405 | ST. CHAS. | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0189 | 0.8852 | 0.92 | 1.1 | 270 | 70042 | ASPEN     | TP69.0 | 70353 | READER        | 69.0 | 1 |
| 70411 | STANLEY   | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0162 | 0.0717 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70411 | STANLEY   | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0165 | 0.2471 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70411 | STANLEY   | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0158 | 0.1131 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70414 | STOCKADE  | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9901 | 0.0239 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70414 | STOCKADE  | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9903 | 0.1905 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70414 | STOCKADE  | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9896 | 0.0612 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0259 | 0.4397 | 0.92 | 1.1 | 282 | 70061 | BOONE     | 230    | 70254 | LAMAR CO      | 230  | 1 |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0249 | 0.8021 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115    | 70254 | LAMAR CO      | 230  | 1 |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0259 | 0.7976 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115    | 70254 | LAMAR CO      | 230  | 1 |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.017  | 0.7119 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0249 | 0.7347 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0259 | 0.7363 | 0.92 | 1.1 | 355 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |

|       |           |     |    |     |                         |        |        |      |     |     |                |      |                |              |     |
|-------|-----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|----------------|------|----------------|--------------|-----|
| 70438 | UINTAH    | 230 | 70 | 708 | 2005 0MW wind 0MW DC    | 0.9647 | 0.9192 | 0.92 | 1.1 | 495 | 70205 GRANDJCT | 230  | 79036 GRANDJCT | 345          | 1   |
| 70438 | UINTAH    | 230 | 70 | 708 | 2005 0MW wind 48MW DC   | 0.9649 | 0.9193 | 0.92 | 1.1 | 495 | 70205 GRANDJCT | 230  | 79036 GRANDJCT | 345          | 1   |
| 70438 | UINTAH    | 230 | 70 | 708 | 2005 162MW wind 48MW DC | 0.9652 | 0.9195 | 0.92 | 1.1 | 496 | 70205 GRANDJCT | 230  | 79036 GRANDJCT | 345          | 1   |
| 70451 | VICTOR    | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.972  | 0.8843 | 0.92 | 1.1 | 339 | 70330 PORTLAND | 115  | 70456 W.STATON | 115          | 1   |
| 70451 | VICTOR    | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9721 | 0.8845 | 0.92 | 1.1 | 339 | 70330 PORTLAND | 115  | 70456 W.STATON | 115          | 1   |
| 70451 | VICTOR    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9699 | 0.8853 | 0.92 | 1.1 | 340 | 70330 PORTLAND | 115  | 70456 W.STATON | 115          | 1   |
| 70452 | VILAS     | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.03   | 0.4678 | 0.92 | 1.1 | 282 | 70061 BOONE    | 230  | 70254 LAMAR    | CO           | 230 |
| 70452 | VILAS     | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0289 | 0.8067 | 0.92 | 1.1 | 323 | 70253 LAMAR    | CO   | 115            | 70254 LAMAR  | CO  |
| 70452 | VILAS     | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.03   | 0.8022 | 0.92 | 1.1 | 323 | 70253 LAMAR    | CO   | 115            | 70254 LAMAR  | CO  |
| 70452 | VILAS     | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0098 | 0.8462 | 0.92 | 1.1 | 354 | 70472 WILLOW   | CK   | 115            | 70473 WILLOW | CK  |
| 70452 | VILAS     | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0289 | 0.8902 | 0.92 | 1.1 | 354 | 70472 WILLOW   | CK   | 115            | 70473 WILLOW | CK  |
| 70452 | VILAS     | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.03   | 0.8918 | 0.92 | 1.1 | 355 | 70472 WILLOW   | CK   | 115            | 70473 WILLOW | CK  |
| 70453 | VILAS     | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.4629 | 0.92 | 1.1 | 282 | 70061 BOONE    | 230  | 70254 LAMAR    | CO           | 230 |
| 70453 | VILAS     | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0244 | 0.8014 | 0.92 | 1.1 | 323 | 70253 LAMAR    | CO   | 115            | 70254 LAMAR  | CO  |
| 70453 | VILAS     | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.7969 | 0.92 | 1.1 | 323 | 70253 LAMAR    | CO   | 115            | 70254 LAMAR  | CO  |
| 70453 | VILAS     | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0175 | 0.8275 | 0.92 | 1.1 | 354 | 70472 WILLOW   | CK   | 115            | 70473 WILLOW | CK  |
| 70453 | VILAS     | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0244 | 0.8584 | 0.92 | 1.1 | 354 | 70472 WILLOW   | CK   | 115            | 70473 WILLOW | CK  |
| 70453 | VILAS     | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.8599 | 0.92 | 1.1 | 355 | 70472 WILLOW   | CK   | 115            | 70473 WILLOW | CK  |
| 70457 | WALSENBG  | 69  | 70 | 704 | 2005 0MW wind 0MW DC    | 1.0215 | 0.7971 | 0.92 | 1.1 | 205 | 70457 WALSENBG | 69.0 | 70458 WALSENBG | 115          | 1   |
| 70457 | WALSENBG  | 69  | 70 | 704 | 2005 0MW wind 48MW DC   | 1.0216 | 0.7976 | 0.92 | 1.1 | 205 | 70457 WALSENBG | 69.0 | 70458 WALSENBG | 115          | 1   |
| 70457 | WALSENBG  | 69  | 70 | 704 | 2005 162MW wind 48MW DC | 1.0186 | 0.7939 | 0.92 | 1.1 | 205 | 70457 WALSENBG | 69.0 | 70458 WALSENBG | 115          | 1   |
| 70460 | WALSH     | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0282 | 0.4548 | 0.92 | 1.1 | 282 | 70061 BOONE    | 230  | 70254 LAMAR    | CO           | 230 |
| 70460 | WALSH     | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.027  | 0.8025 | 0.92 | 1.1 | 323 | 70253 LAMAR    | CO   | 115            | 70254 LAMAR  | CO  |
| 70460 | WALSH     | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0282 | 0.798  | 0.92 | 1.1 | 323 | 70253 LAMAR    | CO   | 115            | 70254 LAMAR  | CO  |
| 70460 | WALSH     | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0196 | 0.7716 | 0.92 | 1.1 | 354 | 70472 WILLOW   | CK   | 115            | 70473 WILLOW | CK  |
| 70460 | WALSH     | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.027  | 0.7988 | 0.92 | 1.1 | 354 | 70472 WILLOW   | CK   | 115            | 70473 WILLOW | CK  |
| 70460 | WALSH     | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0282 | 0.8004 | 0.92 | 1.1 | 355 | 70472 WILLOW   | CK   | 115            | 70473 WILLOW | CK  |
| 70467 | WAVERLY   | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0073 | 0.0564 | 0.92 | 1.1 | 499 | 70375 SAN LUIS | 230  | 79054 PONCHABR | 230          | 1   |
| 70467 | WAVERLY   | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0075 | 0.2279 | 0.92 | 1.1 | 499 | 70375 SAN LUIS | 230  | 79054 PONCHABR | 230          | 1   |
| 70467 | WAVERLY   | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0068 | 0.0956 | 0.92 | 1.1 | 500 | 70375 SAN LUIS | 230  | 79054 PONCHABR | 230          | 1   |
| 70468 | WAVERLY   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9931 | 0.0305 | 0.92 | 1.1 | 499 | 70375 SAN LUIS | 230  | 79054 PONCHABR | 230          | 1   |
| 70468 | WAVERLY   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9933 | 0.1974 | 0.92 | 1.1 | 499 | 70375 SAN LUIS | 230  | 79054 PONCHABR | 230          | 1   |
| 70468 | WAVERLY   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9926 | 0.0676 | 0.92 | 1.1 | 500 | 70375 SAN LUIS | 230  | 79054 PONCHABR | 230          | 1   |
| 70472 | WILLOW CK | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0113 | 0.3986 | 0.92 | 1.1 | 282 | 70061 BOONE    | 230  | 70254 LAMAR    | CO           | 230 |

|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
|-------|-----------|-----|----|-----|--|--|-------------------------|--------|--|--|------|-----|--|-----|-------------------------------------------|
| 70472 | WILLOW CK | 115 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0112 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70472 | WILLOW CK | 115 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0113 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0439 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0439 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0439 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.034  |  |  | 0.92 | 1.1 |  | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0439 |  |  | 0.92 | 1.1 |  | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0439 |  |  | 0.92 | 1.1 |  | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70477 | ZINZER    | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9815 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70477 | ZINZER    | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9817 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70477 | ZINZER    | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.981  |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.969  |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9692 |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9686 |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.969  |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9692 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9686 |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9564 |  |  | 0.92 | 1.1 |  | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9566 |  |  | 0.92 | 1.1 |  | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.956  |  |  | 0.92 | 1.1 |  | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9564 |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9566 |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.956  |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9564 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9566 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.956  |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70507 | MEARSJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 1.0404 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70507 | MEARSJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 1.0406 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70507 | MEARSJCT  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 1.0388 |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70508 | VILLA     | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 1.0434 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70508 | VILLA     | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 1.0436 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70508 | VILLA     | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 1.0428 |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70509 | KERBERCK  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 1.0436 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70509 | KERBERCK  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 1.0438 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70509 | KERBERCK  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 1.043  |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |



|       |          |     |    |     |  |                         |        |        |      |     |     |             |       |     |             |          |     |     |   |
|-------|----------|-----|----|-----|--|-------------------------|--------|--------|------|-----|-----|-------------|-------|-----|-------------|----------|-----|-----|---|
| 70510 | MIRGEJC0 | 69  | 70 | 710 |  | 2005 0MW wind 0MW DC    | 1.0437 | 0.8287 | 0.92 | 1.1 | 499 | 70375 SAN   | LUIS  | 230 | 79054       | PONCHABR | 230 | 1   |   |
| 70510 | MIRGEJC0 | 69  | 70 | 710 |  | 2005 0MW wind 48MW DC   | 1.0439 | 0.861  | 0.92 | 1.1 | 499 | 70375 SAN   | LUIS  | 230 | 79054       | PONCHABR | 230 | 1   |   |
| 70510 | MIRGEJC0 | 69  | 70 | 710 |  | 2005 162MW wind 48MW DC | 1.0431 | 0.834  | 0.92 | 1.1 | 500 | 70375 SAN   | LUIS  | 230 | 79054       | PONCHABR | 230 | 1   |   |
| 70549 | APT MEM  | 115 | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0061 | 0.9014 | 0.92 | 1.1 | 277 | 70060 BOONE | BOONE | 115 | 70061 BOONE | BOONE    | 230 | 1   |   |
| 70549 | APT MEM  | 115 | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.008  | 0.9095 | 0.92 | 1.1 | 277 | 70060 BOONE | BOONE | 115 | 70061 BOONE | BOONE    | 230 | 1   |   |
| 70549 | APT MEM  | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.005  | 0.907  | 0.92 | 1.1 | 277 | 70060 BOONE | BOONE | 115 | 70061 BOONE | BOONE    | 230 | 1   |   |
| 70549 | APT MEM  | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.005  | 0.8945 | 0.92 | 1.1 | 282 | 70061 BOONE | BOONE | 230 | 70254       | LAMAR    | CO  | 230 | 1 |
| 70560 | LAMAR DC | 230 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.03   | 0.5858 | 0.92 | 1.1 | 282 | 70061 BOONE | BOONE | 230 | 70254       | LAMAR    | CO  | 230 | 1 |
| 70700 | GOB_KNOB | 230 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.03   | 0.6306 | 0.92 | 1.1 | 282 | 70061 BOONE | BOONE | 230 | 70254       | LAMAR    | CO  | 230 | 1 |

| Bus # | Bus Name | KV  | Area | Zone | Case                    | BaseVolt | ContVolt      | LowLimit | Upplimit | Ncon | Contin.Description                      |
|-------|----------|-----|------|------|-------------------------|----------|---------------|----------|----------|------|-----------------------------------------|
| 70022 | APT TAP2 | 115 | 70   | 712  | 2005 0MW wind 0MW DC    | 1.0078   | <b>0.8984</b> | 0.92     | 1.1      | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70022 | APT TAP2 | 115 | 70   | 712  | 2005 0MW wind 48MW DC   | 1.0099   | <b>0.9068</b> | 0.92     | 1.1      | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70022 | APT TAP2 | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0069   | <b>0.9041</b> | 0.92     | 1.1      | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70022 | APT TAP2 | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0069   | <b>0.8914</b> | 0.92     | 1.1      | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 0MW wind 0MW DC    | 1.0218   | <b>0.8995</b> | 0.92     | 1.1      | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 0MW wind 48MW DC   | 1.0219   | <b>0.8998</b> | 0.92     | 1.1      | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 162MW wind 48MW DC | 1.0215   | <b>0.8989</b> | 0.92     | 1.1      | 212  | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1 |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 0MW wind 0MW DC    | 1.0218   | <b>0.0638</b> | 0.92     | 1.1      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 0MW wind 48MW DC   | 1.0219   | <b>0.2545</b> | 0.92     | 1.1      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70024 | ALMSA ST | 69  | 70   | 710  | 2005 162MW wind 48MW DC | 1.0215   | <b>0.1036</b> | 0.92     | 1.1      | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70025 | ALMSA TM | 115 | 70   | 710  | 2005 0MW wind 0MW DC    | 1.03     | <b>0.095</b>  | 0.92     | 1.1      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70025 | ALMSA TM | 115 | 70   | 710  | 2005 0MW wind 48MW DC   | 1.0302   | <b>0.2716</b> | 0.92     | 1.1      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70025 | ALMSA TM | 115 | 70   | 710  | 2005 162MW wind 48MW DC | 1.0297   | <b>0.137</b>  | 0.92     | 1.1      | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70026 | ALMSA TM | 69  | 70   | 710  | 2005 0MW wind 0MW DC    | 1.0258   | <b>0.0488</b> | 0.92     | 1.1      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70026 | ALMSA TM | 69  | 70   | 710  | 2005 0MW wind 48MW DC   | 1.026    | <b>0.2645</b> | 0.92     | 1.1      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70026 | ALMSA TM | 69  | 70   | 710  | 2005 162MW wind 48MW DC | 1.0255   | <b>0.1167</b> | 0.92     | 1.1      | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70028 | ANSEL TS | 69  | 70   | 710  | 2005 0MW wind 0MW DC    | 1.0282   | <b>0.0475</b> | 0.92     | 1.1      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70028 | ANSEL TS | 69  | 70   | 710  | 2005 0MW wind 48MW DC   | 1.0284   | <b>0.2447</b> | 0.92     | 1.1      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70028 | ANSEL TS | 69  | 70   | 710  | 2005 162MW wind 48MW DC | 1.0278   | <b>0.0985</b> | 0.92     | 1.1      | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70029 | ANTONITO | 69  | 70   | 710  | 2005 0MW wind 0MW DC    | 0.996    | <b>0.077</b>  | 0.92     | 1.1      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70029 | ANTONITO | 69  | 70   | 710  | 2005 0MW wind 48MW DC   | 0.9961   | <b>0.2157</b> | 0.92     | 1.1      | 499  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70029 | ANTONITO | 69  | 70   | 710  | 2005 162MW wind 48MW DC | 0.9957   | <b>0.0711</b> | 0.92     | 1.1      | 500  | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70030 | APT PARK | 115 | 70   | 712  | 2005 0MW wind 0MW DC    | 1.0051   | <b>0.9053</b> | 0.92     | 1.1      | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70030 | APT PARK | 115 | 70   | 712  | 2005 0MW wind 48MW DC   | 1.0069   | <b>0.9131</b> | 0.92     | 1.1      | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70030 | APT PARK | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0037   | <b>0.9108</b> | 0.92     | 1.1      | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70030 | APT PARK | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0037   | <b>0.8985</b> | 0.92     | 1.1      | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70031 | APT TAP  | 115 | 70   | 712  | 2005 0MW wind 0MW DC    | 1.0059   | <b>0.9134</b> | 0.92     | 1.1      | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70031 | APT TAP  | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0042   | <b>0.9184</b> | 0.92     | 1.1      | 277  | 70060 BOONE 115 70061 BOONE 230 1       |
| 70031 | APT TAP  | 115 | 70   | 712  | 2005 162MW wind 48MW DC | 1.0042   | <b>0.9058</b> | 0.92     | 1.1      | 282  | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70042 | ASPEN TP | 69  | 70   | 712  | 2005 0MW wind 0MW DC    | 1.0266   | <b>0.8951</b> | 0.92     | 1.1      | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70042 | ASPEN TP | 69  | 70   | 712  | 2005 0MW wind 48MW DC   | 1.0272   | <b>0.8954</b> | 0.92     | 1.1      | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70042 | ASPEN TP | 69  | 70   | 712  | 2005 162MW wind 48MW DC | 1.0251   | <b>0.8923</b> | 0.92     | 1.1      | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70051 | BLENDE   | 69  | 70   | 712  | 2005 0MW wind 0MW DC    | 1.0245   | <b>0.896</b>  | 0.92     | 1.1      | 270  | 70042 ASPEN TP69.0 70353 READER 69.0 1  |

|       |          |     |    |     |                         |        |        |      |     |     |                                           |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-------------------------------------------|
| 70051 | LENDE    | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.025  | 0.8964 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70051 | LENDE    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0229 | 0.8933 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1    |
| 70055 | BNVST    | 115 | 70 | 709 | 2005 0MW wind 0MW DC    | 1.0267 | 0.8912 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70055 | BNVST    | 115 | 70 | 709 | 2005 0MW wind 48MW DC   | 1.0267 | 0.9115 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70055 | BNVST    | 115 | 70 | 709 | 2005 162MW wind 48MW DC | 1.0253 | 0.894  | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70056 | BNVST    | 115 | 70 | 709 | 2005 0MW wind 0MW DC    | 1.0277 | 0.8924 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70056 | BNVST    | 115 | 70 | 709 | 2005 0MW wind 48MW DC   | 1.0277 | 0.9126 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70056 | BNVST    | 115 | 70 | 709 | 2005 162MW wind 48MW DC | 1.0264 | 0.8952 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70060 | BOONE    | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0259 | 0.8814 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70060 | BOONE    | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 1.029  | 0.8919 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70060 | BOONE    | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0279 | 0.8884 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70060 | BOONE    | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0279 | 0.8773 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70062 | BOONE    | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0311 | 0.8832 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70062 | BOONE    | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0342 | 0.8943 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70062 | BOONE    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0392 | 0.8963 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70062 | BOONE    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0392 | 0.8859 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70063 | BOONE TP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0283 | 0.879  | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70063 | BOONE TP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0314 | 0.8904 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70063 | BOONE TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0363 | 0.8923 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70063 | BOONE TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0363 | 0.8823 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70066 | CANONCTY | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9916 | 0.9158 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70066 | CANONCTY | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9917 | 0.9159 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70066 | CANONCTY | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 0.9897 | 0.9158 | 0.92 | 1.1 | 340 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70090 | CARMEL   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9903 | 0.0271 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70090 | CARMEL   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9905 | 0.1929 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70090 | CARMEL   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9899 | 0.0636 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70092 | CENTER   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0071 | 0.0215 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70092 | CENTER   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0073 | 0.1786 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70092 | CENTER   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0066 | 0.0118 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.4213 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.025  | 0.8062 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.8016 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0163 | 0.6242 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.025  | 0.6402 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |

|       |          |     |    |     |                         |        |        |      |     |     |                                           |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-------------------------------------------|
| 70101 | CHEN TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.6419 | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0224 | 0.417  | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0217 | 0.8021 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0224 | 0.7976 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.013  | 0.6194 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0217 | 0.6352 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70102 | CHENEY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0224 | 0.637  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70113 | CLIFTON  | 230 | 70 | 708 | 2005 0MW wind 0MW DC    | 0.9576 | 0.9035 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70113 | CLIFTON  | 230 | 70 | 708 | 2005 0MW wind 48MW DC   | 0.9578 | 0.9036 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70113 | CLIFTON  | 230 | 70 | 708 | 2005 162MW wind 48MW DC | 0.9581 | 0.9037 | 0.92 | 1.1 | 496 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70118 | COCENTER | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0263 | 0.0523 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70118 | COCENTER | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0266 | 0.2479 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70118 | COCENTER | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0259 | 0.1036 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70129 | CREEDE   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0252 | 0.0519 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70129 | CREEDE   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0255 | 0.2234 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70129 | CREEDE   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0248 | 0.0803 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70130 | CRPLE CK | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9661 | 0.8778 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70130 | CRPLE CK | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9662 | 0.878  | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70130 | CRPLE CK | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9639 | 0.8788 | 0.92 | 1.1 | 340 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0147 | 0.9115 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0166 | 0.9178 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0137 | 0.9076 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1         |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0137 | 0.3923 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0166 | 0.8984 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70132 | CTY LAJ  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0137 | 0.8948 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0401 | 0.4119 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0402 | 0.8383 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0401 | 0.8339 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0313 | 0.483  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0402 | 0.489  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70136 | CTY LAM  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0401 | 0.4908 | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70143 | DELNORTE | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0126 | 0.0377 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70143 | DELNORTE | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0128 | 0.2289 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70143 | DELNORTE | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0122 | 0.0866 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |

|       |          |     |     |    |     |  |  |                         |        |  |  |      |     |  |     |                 |                     |        |
|-------|----------|-----|-----|----|-----|--|--|-------------------------|--------|--|--|------|-----|--|-----|-----------------|---------------------|--------|
| 70158 | DOT      |     | 115 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0189 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70158 | DOT      |     | 115 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0218 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70158 | DOT      |     | 115 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0202 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70158 | DOT      |     | 115 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0202 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE     | 230 70254 LAMAR CO  | 230 1  |
| 70159 | DOT      | TAP | 115 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0217 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70159 | DOT      | TAP | 115 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0246 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70159 | DOT      | TAP | 115 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.023  |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70159 | DOT      | TAP | 115 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.023  |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE     | 230 70254 LAMAR CO  | 230 1  |
| 70160 | E CANON  |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 0.9942 |  |  | 0.92 | 1.1 |  | 339 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70160 | E CANON  |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 0.9943 |  |  | 0.92 | 1.1 |  | 339 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70160 | E CANON  |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9914 |  |  | 0.92 | 1.1 |  | 340 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0367 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE     | 230 70254 LAMAR CO  | 230 1  |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0368 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO  | 115 70254 LAMAR CO  | 230 1  |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0367 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO  | 115 70254 LAMAR CO  | 230 1  |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0267 |  |  | 0.92 | 1.1 |  | 354 | 70472 WILLOW CK | 115 70473 WILLOW CK | 69.0 1 |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0368 |  |  | 0.92 | 1.1 |  | 354 | 70472 WILLOW CK | 115 70473 WILLOW CK | 69.0 1 |
| 70161 | EADS     |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0367 |  |  | 0.92 | 1.1 |  | 355 | 70472 WILLOW CK | 115 70473 WILLOW CK | 69.0 1 |
| 70176 | FLORENCE |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0021 |  |  | 0.92 | 1.1 |  | 339 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70176 | FLORENCE |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0022 |  |  | 0.92 | 1.1 |  | 339 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70176 | FLORENCE |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9993 |  |  | 0.92 | 1.1 |  | 340 | 70330 PORTLAND  | 115 70456 W.STATON  | 115 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 0.984  |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 0.9869 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9911 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE     | 115 70061 BOONE     | 230 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 0.984  |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE     | 115 70249 LAJUNTAW  | 115 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 0.9869 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE     | 115 70249 LAJUNTAW  | 115 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9911 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE     | 115 70249 LAJUNTAW  | 115 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9911 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE     | 230 70254 LAMAR CO  | 230 1  |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 0.984  |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW  | 115 70250 LAJUNTAW  | 69.0 1 |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 0.9869 |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW  | 115 70250 LAJUNTAW  | 69.0 1 |
| 70178 | FOWLER   |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 0.9911 |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW  | 115 70250 LAJUNTAW  | 69.0 1 |
| 70184 | FT HOLLY |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0272 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE     | 230 70254 LAMAR CO  | 230 1  |
| 70184 | FT HOLLY |     | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0268 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO  | 115 70254 LAMAR CO  | 230 1  |
| 70184 | FT HOLLY |     | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0272 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO  | 115 70254 LAMAR CO  | 230 1  |

|       |          |    |    |     |  |  |                         |        |  |      |     |     |                                           |
|-------|----------|----|----|-----|--|--|-------------------------|--------|--|------|-----|-----|-------------------------------------------|
| 70184 | FT HOLLY | 69 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0175 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70184 | FT HOLLY | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0268 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70184 | FT HOLLY | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0272 |  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.035  |  | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0351 |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.035  |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0261 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0351 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70185 | FT. LYON | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.035  |  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9582 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9584 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9579 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9582 |  | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9584 |  | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70186 | FTGARL&1 | 69 | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9579 |  | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9564 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9565 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9561 |  | 0.92 | 1.1 | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9564 |  | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9565 |  | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70187 | FTGARLND | 69 | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9561 |  | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.032  |  | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0317 |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.032  |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0223 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0317 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70203 | GRAN TAP | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.032  |  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0316 |  | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0313 |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0316 |  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.0218 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0313 |  | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70204 | GRANADA  | 69 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0316 |  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |

|       |          |     |    |     |                         |        |        |      |     |     |                                           |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-------------------------------------------|
| 70205 | GRANDJCT | 230 | 70 | 708 | 2005 0MW wind 0MW DC    | 0.9599 | 0.9035 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70205 | GRANDJCT | 230 | 70 | 708 | 2005 0MW wind 48MW DC   | 0.9601 | 0.9036 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70205 | GRANDJCT | 230 | 70 | 708 | 2005 162MW wind 48MW DC | 0.9605 | 0.9038 | 0.92 | 1.1 | 496 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70206 | GRANDJPS | 230 | 70 | 708 | 2005 0MW wind 0MW DC    | 0.9567 | 0.904  | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70206 | GRANDJPS | 230 | 70 | 708 | 2005 0MW wind 48MW DC   | 0.9569 | 0.9041 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70206 | GRANDJPS | 230 | 70 | 708 | 2005 162MW wind 48MW DC | 0.9572 | 0.9042 | 0.92 | 1.1 | 496 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1   |
| 70220 | HIGHLND  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0039 | 0.8907 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70220 | HIGHLND  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.004  | 0.8909 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70220 | HIGHLND  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0011 | 0.8919 | 0.92 | 1.1 | 340 | 70330 PORTLAND 115 70456 W.STATON 115 1   |
| 70221 | HILANDSL | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0283 | 0.0565 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70221 | HILANDSL | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0286 | 0.2299 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70221 | HILANDSL | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0279 | 0.0943 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0215 | 0.4577 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0201 | 0.7962 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0215 | 0.7917 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0132 | 0.8226 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0201 | 0.8534 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70222 | HILLTOP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0215 | 0.855  | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0217 | 0.458  | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0204 | 0.7965 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0217 | 0.792  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0135 | 0.8228 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0204 | 0.8537 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70223 | HLTP TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0217 | 0.8553 | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0296 | 0.4122 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0292 | 0.8156 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0296 | 0.811  | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0199 | 0.5577 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0292 | 0.5688 | 0.92 | 1.1 | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70225 | HOLL TAP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0296 | 0.5705 | 0.92 | 1.1 | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70228 | HOMELAKE | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0204 | 0.0361 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70228 | HOMELAKE | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0206 | 0.2455 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70228 | HOMELAKE | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.02   | 0.1011 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70229 | HOOPER   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0051 | 0.0234 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |

|       |          |     |    |     |                         |        |        |      |     |     |                                         |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-----------------------------------------|
| 70229 | HOOPER   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0053 | 0.1756 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70229 | HOOPER   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0047 | 0.0142 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70230 | HOOPERTP | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0102 | 0.0184 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70230 | HOOPERTP | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0104 | 0.1837 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70230 | HOOPERTP | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0097 | 0.0129 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70233 | HORIZON  | 230 | 70 | 708 | 2005 0MW wind 0MW DC    | 0.958  | 0.907  | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70233 | HORIZON  | 230 | 70 | 708 | 2005 0MW wind 48MW DC   | 0.9581 | 0.9071 | 0.92 | 1.1 | 495 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70233 | HORIZON  | 230 | 70 | 708 | 2005 162MW wind 48MW DC | 0.9584 | 0.9072 | 0.92 | 1.1 | 496 | 70205 GRANDJCT 230 79036 GRANDJCT 345 1 |
| 70235 | HUERFANO | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0264 | 0.8768 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70235 | HUERFANO | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0295 | 0.8882 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70235 | HUERFANO | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0344 | 0.8901 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70235 | HUERFANO | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0344 | 0.8802 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70243 | LA SECPA | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0181 | 0.9151 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70243 | LA SECPA | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0172 | 0.9112 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70243 | LA SECPA | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0172 | 0.3956 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70243 | LA SECPA | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0201 | 0.9019 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70243 | LA SECPA | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0172 | 0.8983 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70245 | LAGARITA | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9933 | 0.0345 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70245 | LAGARITA | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9935 | 0.1565 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70245 | LAGARITA | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9929 | 0.0036 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0138 | 0.9106 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0158 | 0.9169 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0129 | 0.9067 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0129 | 0.3911 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0158 | 0.8974 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70246 | LAJ IP   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0129 | 0.8939 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9998 | 0.9036 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0081 | 0.9154 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0053 | 0.9059 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0053 | 0.4176 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0081 | 0.8967 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70247 | LAJUNTAT | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0053 | 0.8934 | 0.92 | 1.1 | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1 |
| 70248 | LAJUNTAT | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0203 | 0.9177 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |



|       |          |     |    |     |  |                         |        |  |  |      |     |  |     |                |                        |       |
|-------|----------|-----|----|-----|--|-------------------------|--------|--|--|------|-----|--|-----|----------------|------------------------|-------|
| 70248 | LAJUNTAT | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0193 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70248 | LAJUNTAT | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0193 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |
| 70248 | LAJUNTAT | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0222 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO | 115 70254 LAMAR CO     | 230 1 |
| 70248 | LAJUNTAT | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0193 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO | 115 70254 LAMAR CO     | 230 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 0MW wind 0MW DC    | 0.9749 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 0MW wind 48MW DC   | 0.9778 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 0.9763 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 0MW wind 0MW DC    | 0.9749 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 0MW wind 48MW DC   | 0.9778 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 0.9763 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70249 | LAJUNTAW | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 0.9763 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0276 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0306 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0349 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0276 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0306 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0349 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0349 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0276 |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW | 115 70250 LAJUNTAW69.0 | 1     |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0306 |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW | 115 70250 LAJUNTAW69.0 | 1     |
| 70250 | LAJUNTAW | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0349 |  |  | 0.92 | 1.1 |  | 320 | 70249 LAJUNTAW | 115 70250 LAJUNTAW69.0 | 1     |
| 70253 | LAMAR CO | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.022  |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |
| 70253 | LAMAR CO | 115 | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0212 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO | 115 70254 LAMAR CO     | 230 1 |
| 70253 | LAMAR CO | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.022  |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO | 115 70254 LAMAR CO     | 230 1 |
| 70254 | LAMAR CO | 230 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.0296 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0166 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0197 |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.024  |  |  | 0.92 | 1.1 |  | 277 | 70060 BOONE    | 115 70061 BOONE        | 230 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0166 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.0197 |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.024  |  |  | 0.92 | 1.1 |  | 281 | 70060 BOONE    | 115 70249 LAJUNTAW     | 115 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.024  |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE    | 230 70254 LAMAR CO     | 230 1 |

|       |          |     |    |     |                         |        |        |      |     |     |                                         |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-----------------------------------------|
| 70271 | LS ANNAS | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0166 | 0.6874 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0197 | 0.6959 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70271 | LS ANNAS | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.024  | 0.7231 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.991  | 0.8289 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9939 | 0.8426 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9981 | 0.8443 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.991  | 0.7276 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9939 | 0.7361 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9981 | 0.7604 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9981 | 0.8377 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.991  | 0.7334 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9939 | 0.7414 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70275 | MANZANOL | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9981 | 0.7657 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70289 | MOFFAT   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9761 | 0.906  | 0.92 | 1.1 | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1   |
| 70289 | MOFFAT   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9764 | 0.9062 | 0.92 | 1.1 | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1   |
| 70289 | MOFFAT   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9757 | 0.9058 | 0.92 | 1.1 | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1   |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9818 | 0.8178 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9847 | 0.8318 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.989  | 0.8336 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE 230 1       |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9818 | 0.7153 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9847 | 0.7239 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.989  | 0.7489 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW 115 1    |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.989  | 0.8273 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1    |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9818 | 0.7211 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9847 | 0.7292 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70303 | ORDWAY   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.989  | 0.7543 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW69.0 1 |
| 70304 | OTEROTP  | 115 | 70 | 709 | 2005 0MW wind 0MW DC    | 1.0296 | 0.9152 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70304 | OTEROTP  | 115 | 70 | 709 | 2005 162MW wind 48MW DC | 1.028  | 0.9173 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1 |
| 70306 | P P MINE | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9692 | 0.8812 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70306 | P P MINE | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9693 | 0.8814 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70306 | P P MINE | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.967  | 0.8822 | 0.92 | 1.1 | 340 | 70330 PORTLAND 115 70456 W.STATON 115 1 |
| 70316 | PDA      | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0122 | 0.8786 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70316 | PDA      | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0128 | 0.8779 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70316 | PDA      | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0107 | 0.8758 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1  |
| 70317 | PDA TAP  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0156 | 0.8825 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER 69.0 1  |

|       |          |     |    |     |                         |        |        |      |     |     |                                   |        |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-----------------------------------|--------|
| 70317 | PDA TAP  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0162 | 0.8829 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER   | 69.0 1 |
| 70317 | PDA TAP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0141 | 0.8797 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER   | 69.0 1 |
| 70318 | PENROSE  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0076 | 0.895  | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON | 115 1  |
| 70318 | PENROSE  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0077 | 0.8952 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON | 115 1  |
| 70318 | PENROSE  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0049 | 0.8962 | 0.92 | 1.1 | 340 | 70330 PORTLAND 115 70456 W.STATON | 115 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0231 | 0.8616 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0261 | 0.8751 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0304 | 0.8766 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0231 | 0.6915 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0261 | 0.7004 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0304 | 0.7268 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0304 | 0.8687 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO    | 230 1  |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0231 | 0.6977 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0261 | 0.706  | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70319 | PHILLIPS | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0304 | 0.7325 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0237 | 0.8623 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0267 | 0.8758 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.031  | 0.8772 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0237 | 0.6924 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0267 | 0.7012 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.031  | 0.7276 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.031  | 0.8694 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO    | 230 1  |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0237 | 0.6985 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0267 | 0.7068 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70320 | PHLPS TP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.031  | 0.7333 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69.0 1 |
| 70325 | PLAZA    | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.987  | 0.0396 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70325 | PLAZA    | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9872 | 0.1466 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70325 | PLAZA    | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9865 | 0.0024 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70326 | PONCHA   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0395 | 0.8256 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70326 | PONCHA   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0397 | 0.858  | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70326 | PONCHA   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0389 | 0.8312 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70327 | PONCHA   | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0268 | 0.8155 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70327 | PONCHA   | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.027  | 0.8475 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70327 | PONCHA   | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0262 | 0.8211 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054 PONCHABR | 230 1  |
| 70329 | PORTLAND | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0122 | 0.9001 | 0.92 | 1.1 | 339 | 70330 PORTLAND 115 70456 W.STATON | 115 1  |

|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-------|-----------|-----|-------|-----------|-----|---|
| 70329 | PORTLAND | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0123 | 0.9003 | 0.92 | 1.1 | 339 | 70330 | PORTLAND  | 115 | 70456 | W.STATON  | 115 | 1 |
| 70329 | PORTLAND | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0095 | 0.9012 | 0.92 | 1.1 | 340 | 70330 | PORTLAND  | 115 | 70456 | W.STATON  | 115 | 1 |
| 70330 | PORTLAND | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9843 | 0.881  | 0.92 | 1.1 | 339 | 70330 | PORTLAND  | 115 | 70456 | W.STATON  | 115 | 1 |
| 70330 | PORTLAND | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9844 | 0.8812 | 0.92 | 1.1 | 339 | 70330 | PORTLAND  | 115 | 70456 | W.STATON  | 115 | 1 |
| 70330 | PORTLAND | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 0.9817 | 0.8817 | 0.92 | 1.1 | 340 | 70330 | PORTLAND  | 115 | 70456 | W.STATON  | 115 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.038  | 0.4091 | 0.92 | 1.1 | 282 | 70061 | BOONE     | 230 | 70254 | LAMAR CO  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0381 | 0.8358 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115 | 70254 | LAMAR CO  | 230 | 1 |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.038  | 0.8313 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115 | 70254 | LAMAR CO  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0292 | 0.4793 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115 | 70473 | WILLOW CK | 69  | 0 |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0381 | 0.4852 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115 | 70473 | WILLOW CK | 69  | 0 |
| 70333 | PROMERS  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.038  | 0.487  | 0.92 | 1.1 | 355 | 70472 | WILLOW CK | 115 | 70473 | WILLOW CK | 69  | 0 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70347 | RAMON    | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0141 | 0.0644 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70347 | RAMON    | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0144 | 0.2376 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70347 | RAMON    | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0137 | 0.104  | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70348 | RAMON    | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.031  | 0.0602 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70348 | RAMON    | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0312 | 0.2351 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70348 | RAMON    | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0305 | 0.0992 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70360 | RIOGRAND | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0147 | 0.0402 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70360 | RIOGRAND | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0149 | 0.2324 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70360 | RIOGRAND | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0143 | 0.0899 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70361 | RIOGRDTP | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0232 | 0.0499 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70361 | RIOGRDTP | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0234 | 0.2464 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70361 | RIOGRDTP | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0228 | 0.1031 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0107 | 0.8528 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115 | 70061 | BOONE     | 230 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0135 | 0.8658 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115 | 70061 | BOONE     | 230 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0177 | 0.8675 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115 | 70061 | BOONE     | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0107 | 0.7544 | 0.92 | 1.1 | 281 | 70060 | BOONE     | 115 | 70249 | LAJUNTAW  | 115 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0135 | 0.7626 | 0.92 | 1.1 | 281 | 70060 | BOONE     | 115 | 70249 | LAJUNTAW  | 115 | 1 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0177 | 0.7855 | 0.92 | 1.1 | 281 | 70060 | BOONE     | 115 | 70249 | LAJUNTAW  | 115 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0177 | 0.86   | 0.92 | 1.1 | 282 | 70061 | BOONE     | 230 | 70254 | LAMAR CO  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0107 | 0.7599 | 0.92 | 1.1 | 320 | 70249 | LAJUNTAW  | 115 | 70250 | LAJUNTAW  | 69  | 0 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0135 | 0.7677 | 0.92 | 1.1 | 320 | 70249 | LAJUNTAW  | 115 | 70250 | LAJUNTAW  | 69  | 0 |
| 70366 | ROCKYFRD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0177 | 0.7906 | 0.92 | 1.1 | 320 | 70249 | LAJUNTAW  | 115 | 70250 | LAJUNTAW  | 69  | 0 |
|       |          |     |    |     |                         |        |        |      |     |     |       |           |     |       |           |     |   |
| 70367 | ROME0    | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0027 | 0.0709 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |
| 70367 | ROME0    | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0029 | 0.2265 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230 | 79054 | PONCHABR  | 230 | 1 |

|       |           |     |    |     |                         |        |        |      |     |     |                                   |                |
|-------|-----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-----------------------------------|----------------|
| 70367 | ROME0     | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0024 | 0.6811 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70372 | S FWL TP  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0215 | 0.8684 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1          |
| 70372 | S FWL TP  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0245 | 0.8804 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1          |
| 70372 | S FWL TP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0291 | 0.8822 | 0.92 | 1.1 | 277 | 70060 BOONE 115 70061 BOONE       | 230 1          |
| 70372 | S FWL TP  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0215 | 0.863  | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1          |
| 70372 | S FWL TP  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0245 | 0.8698 | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1          |
| 70372 | S FWL TP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0291 | 0.886  | 0.92 | 1.1 | 281 | 70060 BOONE 115 70249 LAJUNTAW    | 115 1          |
| 70372 | S FWL TP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0291 | 0.8733 | 0.92 | 1.1 | 282 | 70061 BOONE 230 70254 LAMAR CO    | 230 1          |
| 70372 | S FWL TP  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0215 | 0.8674 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69 0 1         |
| 70372 | S FWL TP  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0245 | 0.8738 | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69 0 1         |
| 70372 | S FWL TP  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0291 | 0.89   | 0.92 | 1.1 | 320 | 70249 LAJUNTAW 115 70250 LAJUNTAW | 69 0 1         |
| 70373 | S.ACACIO  | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9854 | 0.0295 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70373 | S.ACACIO  | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9857 | 0.1812 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70373 | S.ACACIO  | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.985  | 0.0528 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70374 | SAN LUIS  | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0176 | 0.0744 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70374 | SAN LUIS  | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0178 | 0.2506 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70374 | SAN LUIS  | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0172 | 0.1164 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70375 | SAN LUIS  | 230 | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9976 | 0.0726 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70375 | SAN LUIS  | 230 | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9978 | 0.2445 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70375 | SAN LUIS  | 230 | 70 | 710 | 2005 162MW wind 48MW DC | 0.997  | 0.1136 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70376 | SAN LUIS  | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0392 | 0.0258 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70376 | SAN LUIS  | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0395 | 0.2323 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70376 | SAN LUIS  | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0388 | 0.0762 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70378 | SANITFETP | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0201 | 0.9097 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER   | 69 0 1         |
| 70378 | SANITFETP | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0206 | 0.9101 | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER   | 69 0 1         |
| 70378 | SANITFETP | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0183 | 0.907  | 0.92 | 1.1 | 270 | 70042 ASPEN TP69.0 70353 READER   | 69 0 1         |
| 70379 | SARGENT   | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.02   | 0.1015 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70379 | SARGENT   | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0202 | 0.2735 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70379 | SARGENT   | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0196 | 0.1436 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70380 | SARGENT   | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0254 | 0.0548 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70380 | SARGENT   | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0257 | 0.2496 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70380 | SARGENT   | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.025  | 0.1062 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70383 | SFORK SL  | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0306 | 0.0596 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70383 | SFORK SL  | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0308 | 0.2343 | 0.92 | 1.1 | 499 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |
| 70383 | SFORK SL  | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 1.0302 | 0.0984 | 0.92 | 1.1 | 500 | 70375 SAN LUIS 230 79054          | PONCHABR 230 1 |

|       |           |     |    |     |                         |        |        |      |     |     |       |           |        |       |               |      |   |
|-------|-----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-------|-----------|--------|-------|---------------|------|---|
| 70390 | SKALA     | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 0.9854 | 0.8888 | 0.92 | 1.1 | 339 | 70330 | PORTLAND  | 115    | 70456 | W.STATON      | 115  | 1 |
| 70390 | SKALA     | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9855 | 0.8889 | 0.92 | 1.1 | 339 | 70330 | PORTLAND  | 115    | 70456 | W.STATON      | 115  | 1 |
| 70390 | SKALA     | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 0.9831 | 0.8893 | 0.92 | 1.1 | 340 | 70330 | PORTLAND  | 115    | 70456 | W.STATON      | 115  | 1 |
| 70394 | SMELTER   | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0269 | 0.8334 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70394 | SMELTER   | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0271 | 0.8627 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70394 | SMELTER   | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0262 | 0.8381 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.025  | 0.8738 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115    | 70061 | BOONE         | 230  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.028  | 0.8855 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115    | 70061 | BOONE         | 230  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0328 | 0.8874 | 0.92 | 1.1 | 277 | 70060 | BOONE     | 115    | 70061 | BOONE         | 230  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.025  | 0.9037 | 0.92 | 1.1 | 281 | 70060 | BOONE     | 115    | 70249 | LAJUNTAW      | 115  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.028  | 0.9099 | 0.92 | 1.1 | 281 | 70060 | BOONE     | 115    | 70249 | LAJUNTAW      | 115  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0328 | 0.8779 | 0.92 | 1.1 | 282 | 70061 | BOONE     | 230    | 70254 | LAMAR CO      | 230  | 1 |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.025  | 0.9076 | 0.92 | 1.1 | 320 | 70249 | LAJUNTAW  | 115    | 70250 | LAJUNTAW69.0  | 1    |   |
| 70399 | SNEPESTA  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.028  | 0.9135 | 0.92 | 1.1 | 320 | 70249 | LAJUNTAW  | 115    | 70250 | LAJUNTAW69.0  | 1    |   |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.02   | 0.4559 | 0.92 | 1.1 | 282 | 70061 | BOONE     | 230    | 70254 | LAMAR CO      | 230  | 1 |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0187 | 0.7944 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115    | 70254 | LAMAR CO      | 230  | 1 |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.02   | 0.7899 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115    | 70254 | LAMAR CO      | 230  | 1 |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0118 | 0.8209 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0187 | 0.8518 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |
| 70404 | SPRINGFLD | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.02   | 0.8533 | 0.92 | 1.1 | 355 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |
| 70405 | ST. CHAS. | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0204 | 0.888  | 0.92 | 1.1 | 270 | 70042 | ASPEN     | TP69.0 | 70353 | READER        | 69.0 | 1 |
| 70405 | ST. CHAS. | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.021  | 0.8884 | 0.92 | 1.1 | 270 | 70042 | ASPEN     | TP69.0 | 70353 | READER        | 69.0 | 1 |
| 70405 | ST. CHAS. | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0189 | 0.8852 | 0.92 | 1.1 | 270 | 70042 | ASPEN     | TP69.0 | 70353 | READER        | 69.0 | 1 |
| 70411 | STANLEY   | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0162 | 0.0717 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70411 | STANLEY   | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0165 | 0.2471 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70411 | STANLEY   | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0158 | 0.1131 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70414 | STOCKADE  | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9901 | 0.0239 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70414 | STOCKADE  | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9903 | 0.1905 | 0.92 | 1.1 | 499 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70414 | STOCKADE  | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9896 | 0.0612 | 0.92 | 1.1 | 500 | 70375 | SAN LUIS  | 230    | 79054 | PONCHABR      | 230  | 1 |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0259 | 0.4397 | 0.92 | 1.1 | 282 | 70061 | BOONE     | 230    | 70254 | LAMAR CO      | 230  | 1 |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0249 | 0.8021 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115    | 70254 | LAMAR CO      | 230  | 1 |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0259 | 0.7976 | 0.92 | 1.1 | 323 | 70253 | LAMAR CO  | 115    | 70254 | LAMAR CO      | 230  | 1 |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.017  | 0.7119 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0249 | 0.7347 | 0.92 | 1.1 | 354 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |
| 70425 | T BUTTES  | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0259 | 0.7363 | 0.92 | 1.1 | 355 | 70472 | WILLOW CK | 115    | 70473 | WILLOW CK69.0 | 1    |   |

|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
|-------|----------|-----|----|-----|-------------------------|--------|--------|------|-----|-----|-----------------|-----|-----------------|-----|---|
| 70438 | UINTAH   | 230 | 70 | 708 | 2005 0MW wind 0MW DC    | 0.9647 | 0.9192 | 0.92 | 1.1 | 495 | 70205 GRANDJCT  | 230 | 79036 GRANDJCT  | 345 | 1 |
| 70438 | UINTAH   | 230 | 70 | 708 | 2005 0MW wind 48MW DC   | 0.9649 | 0.9193 | 0.92 | 1.1 | 495 | 70205 GRANDJCT  | 230 | 79036 GRANDJCT  | 345 | 1 |
| 70438 | UINTAH   | 230 | 70 | 708 | 2005 162MW wind 48MW DC | 0.9652 | 0.9195 | 0.92 | 1.1 | 496 | 70205 GRANDJCT  | 230 | 79036 GRANDJCT  | 345 | 1 |
| 70451 | VICTOR   | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 0.972  | 0.8843 | 0.92 | 1.1 | 339 | 70330 PORTLAND  | 115 | 70456 W.STATON  | 115 | 1 |
| 70451 | VICTOR   | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 0.9721 | 0.8845 | 0.92 | 1.1 | 339 | 70330 PORTLAND  | 115 | 70456 W.STATON  | 115 | 1 |
| 70451 | VICTOR   | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 0.9699 | 0.8853 | 0.92 | 1.1 | 340 | 70330 PORTLAND  | 115 | 70456 W.STATON  | 115 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70452 | VILAS    | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.03   | 0.4678 | 0.92 | 1.1 | 282 | 70061 BOONE     | 230 | 70254 LAMAR CO  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70452 | VILAS    | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0289 | 0.8067 | 0.92 | 1.1 | 323 | 70253 LAMAR CO  | 115 | 70254 LAMAR CO  | 230 | 1 |
| 70452 | VILAS    | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.03   | 0.8022 | 0.92 | 1.1 | 323 | 70253 LAMAR CO  | 115 | 70254 LAMAR CO  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70452 | VILAS    | 115 | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0098 | 0.8462 | 0.92 | 1.1 | 354 | 70472 WILLOW CK | 115 | 70473 WILLOW CK | 69  | 0 |
| 70452 | VILAS    | 115 | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0289 | 0.8902 | 0.92 | 1.1 | 354 | 70472 WILLOW CK | 115 | 70473 WILLOW CK | 69  | 0 |
| 70452 | VILAS    | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.03   | 0.8918 | 0.92 | 1.1 | 355 | 70472 WILLOW CK | 115 | 70473 WILLOW CK | 69  | 0 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70453 | VILAS    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.4629 | 0.92 | 1.1 | 282 | 70061 BOONE     | 230 | 70254 LAMAR CO  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70453 | VILAS    | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0244 | 0.8014 | 0.92 | 1.1 | 323 | 70253 LAMAR CO  | 115 | 70254 LAMAR CO  | 230 | 1 |
| 70453 | VILAS    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.7969 | 0.92 | 1.1 | 323 | 70253 LAMAR CO  | 115 | 70254 LAMAR CO  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70453 | VILAS    | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0175 | 0.8275 | 0.92 | 1.1 | 354 | 70472 WILLOW CK | 115 | 70473 WILLOW CK | 69  | 0 |
| 70453 | VILAS    | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.0244 | 0.8584 | 0.92 | 1.1 | 354 | 70472 WILLOW CK | 115 | 70473 WILLOW CK | 69  | 0 |
| 70453 | VILAS    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0257 | 0.8599 | 0.92 | 1.1 | 355 | 70472 WILLOW CK | 115 | 70473 WILLOW CK | 69  | 0 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70457 | WALSENBG | 69  | 70 | 704 | 2005 0MW wind 0MW DC    | 1.0215 | 0.7971 | 0.92 | 1.1 | 205 | 70457 WALSENBG  | 69  | 70458 WALSENBG  | 115 | 1 |
| 70457 | WALSENBG | 69  | 70 | 704 | 2005 0MW wind 48MW DC   | 1.0216 | 0.7976 | 0.92 | 1.1 | 205 | 70457 WALSENBG  | 69  | 70458 WALSENBG  | 115 | 1 |
| 70457 | WALSENBG | 69  | 70 | 704 | 2005 162MW wind 48MW DC | 1.0186 | 0.7939 | 0.92 | 1.1 | 205 | 70457 WALSENBG  | 69  | 70458 WALSENBG  | 115 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70460 | WALSH    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0282 | 0.4548 | 0.92 | 1.1 | 282 | 70061 BOONE     | 230 | 70254 LAMAR CO  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70460 | WALSH    | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.027  | 0.8025 | 0.92 | 1.1 | 323 | 70253 LAMAR CO  | 115 | 70254 LAMAR CO  | 230 | 1 |
| 70460 | WALSH    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0282 | 0.798  | 0.92 | 1.1 | 323 | 70253 LAMAR CO  | 115 | 70254 LAMAR CO  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70460 | WALSH    | 69  | 70 | 712 | 2005 0MW wind 0MW DC    | 1.0196 | 0.7716 | 0.92 | 1.1 | 354 | 70472 WILLOW CK | 115 | 70473 WILLOW CK | 69  | 0 |
| 70460 | WALSH    | 69  | 70 | 712 | 2005 0MW wind 48MW DC   | 1.027  | 0.7988 | 0.92 | 1.1 | 354 | 70472 WILLOW CK | 115 | 70473 WILLOW CK | 69  | 0 |
| 70460 | WALSH    | 69  | 70 | 712 | 2005 162MW wind 48MW DC | 1.0282 | 0.8004 | 0.92 | 1.1 | 355 | 70472 WILLOW CK | 115 | 70473 WILLOW CK | 69  | 0 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70467 | WAVERLY  | 115 | 70 | 710 | 2005 0MW wind 0MW DC    | 1.0073 | 0.0564 | 0.92 | 1.1 | 499 | 70375 SAN LUIS  | 230 | 79054 PONCHABR  | 230 | 1 |
| 70467 | WAVERLY  | 115 | 70 | 710 | 2005 0MW wind 48MW DC   | 1.0075 | 0.2279 | 0.92 | 1.1 | 499 | 70375 SAN LUIS  | 230 | 79054 PONCHABR  | 230 | 1 |
| 70467 | WAVERLY  | 115 | 70 | 710 | 2005 162MW wind 48MW DC | 1.0068 | 0.0956 | 0.92 | 1.1 | 500 | 70375 SAN LUIS  | 230 | 79054 PONCHABR  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70468 | WAVERLY  | 69  | 70 | 710 | 2005 0MW wind 0MW DC    | 0.9931 | 0.0305 | 0.92 | 1.1 | 499 | 70375 SAN LUIS  | 230 | 79054 PONCHABR  | 230 | 1 |
| 70468 | WAVERLY  | 69  | 70 | 710 | 2005 0MW wind 48MW DC   | 0.9933 | 0.1974 | 0.92 | 1.1 | 499 | 70375 SAN LUIS  | 230 | 79054 PONCHABR  | 230 | 1 |
| 70468 | WAVERLY  | 69  | 70 | 710 | 2005 162MW wind 48MW DC | 0.9926 | 0.0676 | 0.92 | 1.1 | 500 | 70375 SAN LUIS  | 230 | 79054 PONCHABR  | 230 | 1 |
|       |          |     |    |     |                         |        |        |      |     |     |                 |     |                 |     |   |
| 70472 | WLOW CK  | 115 | 70 | 712 | 2005 162MW wind 48MW DC | 1.0113 | 0.3986 | 0.92 | 1.1 | 282 | 70061 BOONE     | 230 | 70254 LAMAR CO  | 230 | 1 |

|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
|-------|-----------|-----|----|-----|--|--|-------------------------|--------|--|--|------|-----|--|-----|-------------------------------------------|
| 70472 | WILLOW CK | 115 | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0112 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70472 | WILLOW CK | 115 | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0113 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0439 |  |  | 0.92 | 1.1 |  | 282 | 70061 BOONE 230 70254 LAMAR CO 230 1      |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0439 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0439 |  |  | 0.92 | 1.1 |  | 323 | 70253 LAMAR CO 115 70254 LAMAR CO 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 0MW wind 0MW DC    | 1.034  |  |  | 0.92 | 1.1 |  | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 0MW wind 48MW DC   | 1.0439 |  |  | 0.92 | 1.1 |  | 354 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
| 70473 | WILLOW CK | 69  | 70 | 712 |  |  | 2005 162MW wind 48MW DC | 1.0439 |  |  | 0.92 | 1.1 |  | 355 | 70472 WILLOW CK 115 70473 WILLOW CK69.0 1 |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70477 | ZINZER    | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9815 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70477 | ZINZER    | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9817 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70477 | ZINZER    | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.981  |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.969  |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9682 |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9686 |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.969  |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9692 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70505 | MIRGEJCT  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.9686 |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9564 |  |  | 0.92 | 1.1 |  | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9566 |  |  | 0.92 | 1.1 |  | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.956  |  |  | 0.92 | 1.1 |  | 212 | 70024 ALMSA ST69.0 70026 ALMSA TM69.0 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9564 |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9566 |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.956  |  |  | 0.92 | 1.1 |  | 237 | 70292 MOSCA 69.0 70376 SAN LUIS69.0 1     |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 0.9564 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 0.9566 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70506 | SAGUACHE  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 0.956  |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70507 | MEARSJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 1.0404 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70507 | MEARSJCT  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 1.0406 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70507 | MEARSJCT  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 1.0388 |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70508 | VILLA     | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 1.0434 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70508 | VILLA     | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 1.0436 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70508 | VILLA     | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 1.0428 |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
|       |           |     |    |     |  |  |                         |        |  |  |      |     |  |     |                                           |
| 70509 | KERBERCK  | 69  | 70 | 710 |  |  | 2005 0MW wind 0MW DC    | 1.0436 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70509 | KERBERCK  | 69  | 70 | 710 |  |  | 2005 0MW wind 48MW DC   | 1.0438 |  |  | 0.92 | 1.1 |  | 499 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |
| 70509 | KERBERCK  | 69  | 70 | 710 |  |  | 2005 162MW wind 48MW DC | 1.043  |  |  | 0.92 | 1.1 |  | 500 | 70375 SAN LUIS 230 79054 PONCHABR 230 1   |



|       |          |     |    |     |  |                         |        |        |      |     |     |             |       |     |             |          |     |     |   |
|-------|----------|-----|----|-----|--|-------------------------|--------|--------|------|-----|-----|-------------|-------|-----|-------------|----------|-----|-----|---|
| 70510 | MIRGEJC0 | 69  | 70 | 710 |  | 2005 0MW wind 0MW DC    | 1.0437 | 0.8287 | 0.92 | 1.1 | 499 | 70375 SAN   | LUIS  | 230 | 79054       | PONCHABR | 230 | 1   |   |
| 70510 | MIRGEJC0 | 69  | 70 | 710 |  | 2005 0MW wind 48MW DC   | 1.0439 | 0.861  | 0.92 | 1.1 | 499 | 70375 SAN   | LUIS  | 230 | 79054       | PONCHABR | 230 | 1   |   |
| 70510 | MIRGEJC0 | 69  | 70 | 710 |  | 2005 162MW wind 48MW DC | 1.0431 | 0.834  | 0.92 | 1.1 | 500 | 70375 SAN   | LUIS  | 230 | 79054       | PONCHABR | 230 | 1   |   |
| 70549 | APT MEM  | 115 | 70 | 712 |  | 2005 0MW wind 0MW DC    | 1.0061 | 0.9014 | 0.92 | 1.1 | 277 | 70060 BOONE | BOONE | 115 | 70061 BOONE | BOONE    | 230 | 1   |   |
| 70549 | APT MEM  | 115 | 70 | 712 |  | 2005 0MW wind 48MW DC   | 1.008  | 0.9095 | 0.92 | 1.1 | 277 | 70060 BOONE | BOONE | 115 | 70061 BOONE | BOONE    | 230 | 1   |   |
| 70549 | APT MEM  | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.005  | 0.907  | 0.92 | 1.1 | 277 | 70060 BOONE | BOONE | 115 | 70061 BOONE | BOONE    | 230 | 1   |   |
| 70549 | APT MEM  | 115 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.005  | 0.8945 | 0.92 | 1.1 | 282 | 70061 BOONE | BOONE | 230 | 70254       | LAMAR    | CO  | 230 | 1 |
| 70560 | LAMAR DC | 230 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.03   | 0.5858 | 0.92 | 1.1 | 282 | 70061 BOONE | BOONE | 230 | 70254       | LAMAR    | CO  | 230 | 1 |
| 70700 | GOB_KNOB | 230 | 70 | 712 |  | 2005 162MW wind 48MW DC | 1.03   | 0.6306 | 0.92 | 1.1 | 282 | 70061 BOONE | BOONE | 230 | 70254       | LAMAR    | CO  | 230 | 1 |





**Appendix**

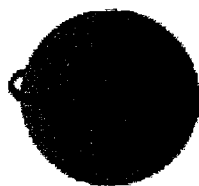
**D**

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## **Dynamic Stability Analyses**



## **D-1 - Data for GE Wind Turbine Model**



# ELECTROTEK

## CONCEPTS

October 15, 2002  
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J. Taylor

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FAX: 865-470-9223  
www.electrotek.com

### **Update: Prototype PSS/E User Model for GE Wind Energy Systems 1.5 MW Turbine**

This update incorporates the converter control loop for the reactive component of the rotor circuit current.

The procedure for compiling the mode has not changed.

The DYRE file declaration for using this model is as follows:

```
106      'USRMDL'          1      'GE15WT'      1      1      0      1      1      23      500/  
/bus#    usrmdl          mach # name          Gen      I-inj      ICON#      CON#      STATE# VAR#      Qset-dist
```

where

Qset-dist is the value of reactive power boost to be achieved for a fault of extended duration, given in kVARs for a single machine. Note that if the model is to represent multiple machine, this value is still specified on an individual turbine basis.

A single state has been added for the PI loop in the reactive rotor current control.

A variable has been added to hold the initialized value of Q from the power flow solution. Following a disturbance, the control loop will attempt to return reactive output to this value.

1  
2 70701 'USRMDL' 1 'GE15WT' 1 1 0 1 1 23 500 / Gobblers Knob 34.500  
3 70702 'USRMDL' 1 'GE15WT' 1 1 0 1 1 23 500 / Gobblers Knob 34.500  
4  
5  
6  
7 For the two 81 MW units at Golden Prairie





**D-2 - Expanded Representation of Collector System**

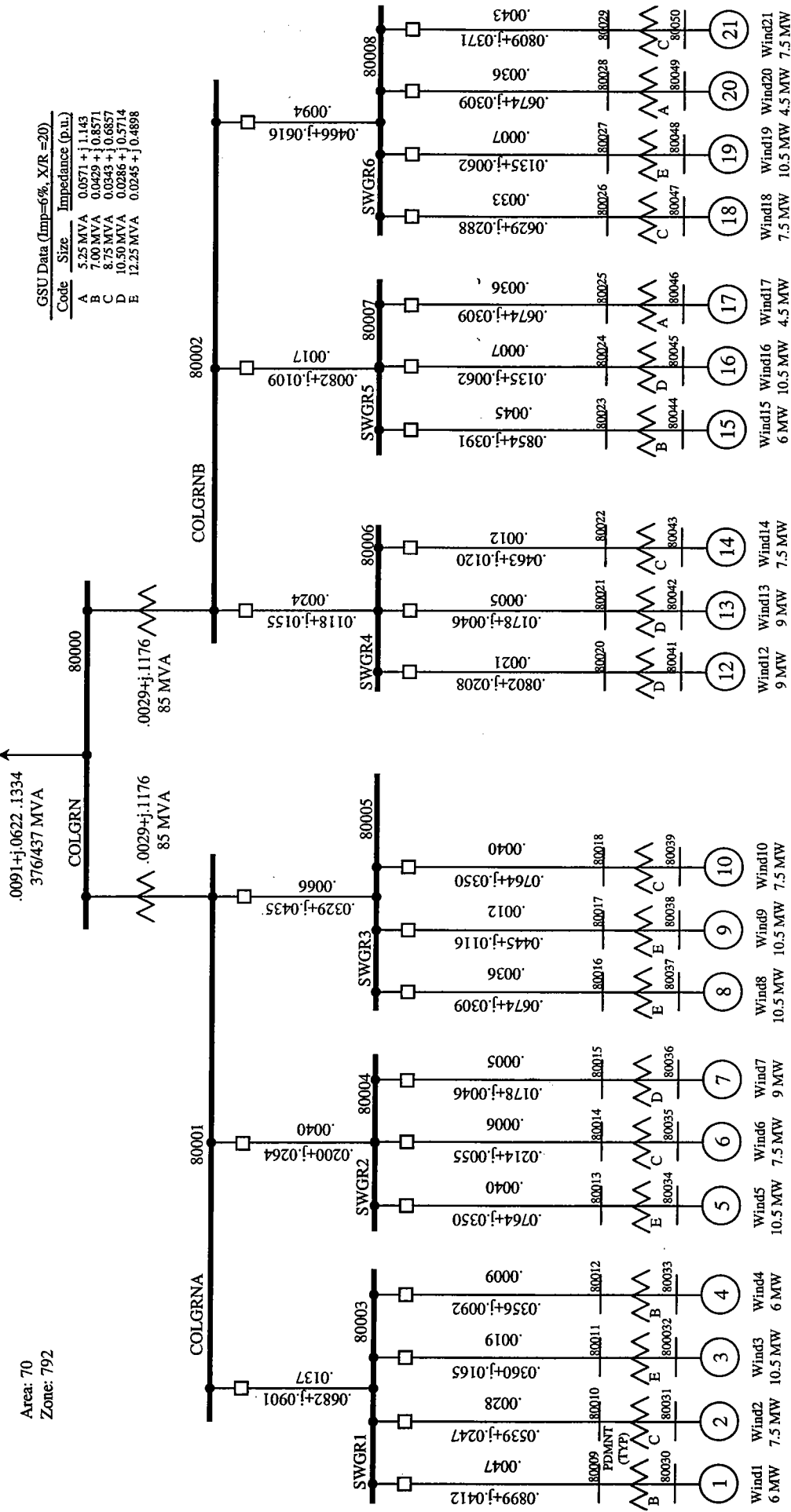
**One-line Diagram With Impedance Information**

**2003 Power Flow Diagram With Expanded Representation**

# Golden Prairie Project 162 MW Windfarm Expanded Load Flow Model

Area: 70  
Zone: 792

Lamar (PSCo)







**D-3 - 3-Phase Stability Analysis**

**2003 Base Case**

**With Golden Prairie – Lamar 230-kV Circuit, Without Wind Farm Generation**

WIND FARM OFF-LINE: SIMULATION RUN 1 (CON1-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON1-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON BOONE 230 KV BUS 70061  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM BOONE BUS 70061 TO LAMAR BUS 70254  
CLEAR FAULT AT BOONE BUS 70061  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON1-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.5000 C1 JJ

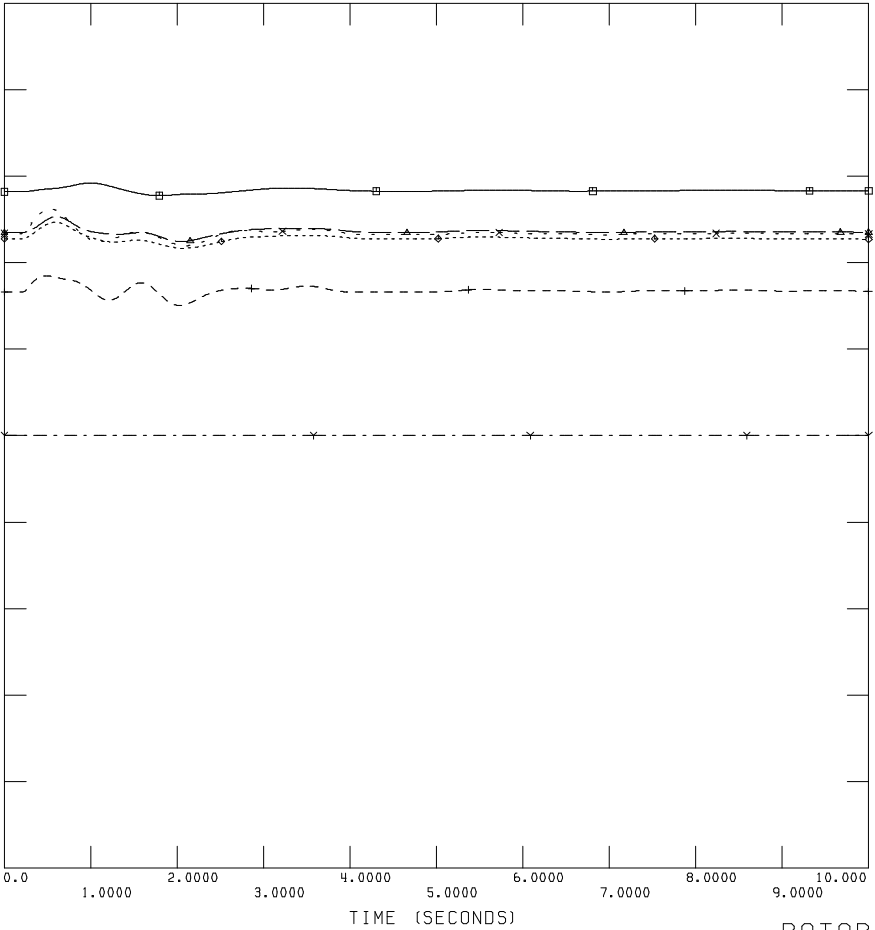
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



WED, OCT 09 2002 0:44  
ROTORANGLES 1 CON1 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON1-OFF.OUT

CHNL# 18: CANGL 70133 CCRB\_LRM 14.4000 C1 JJ

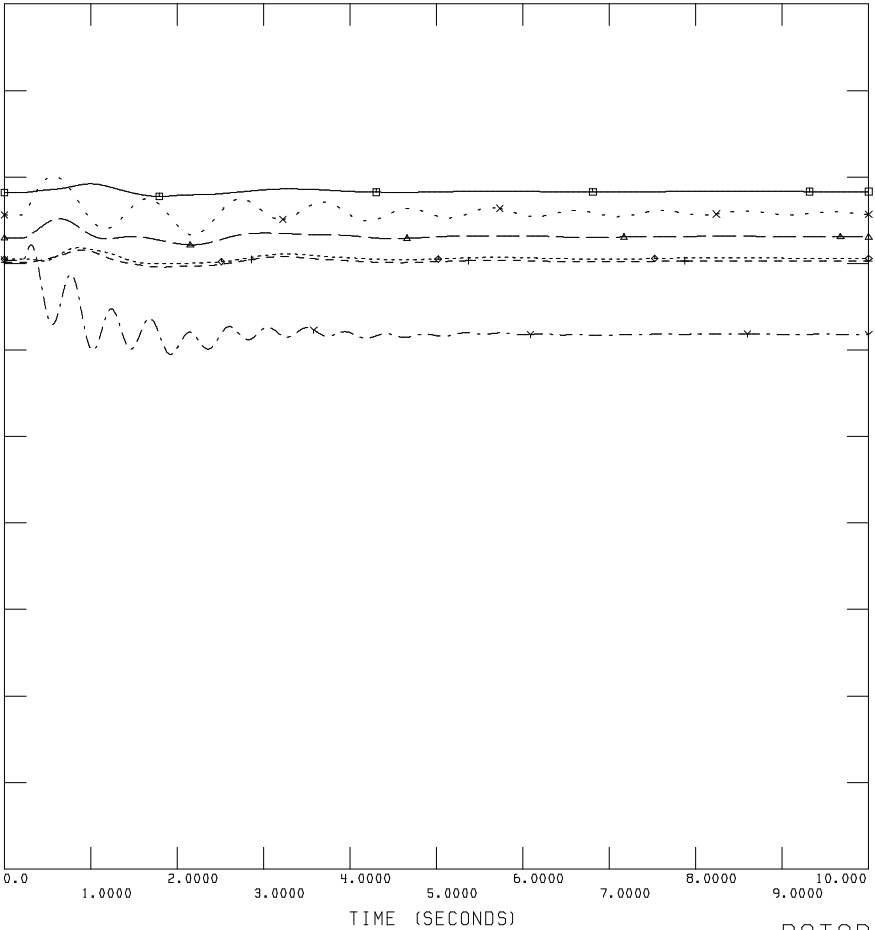
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



WED, OCT 09 2002 0:44  
ROTORANGLES 2 CON1 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON1-OFF.OUT

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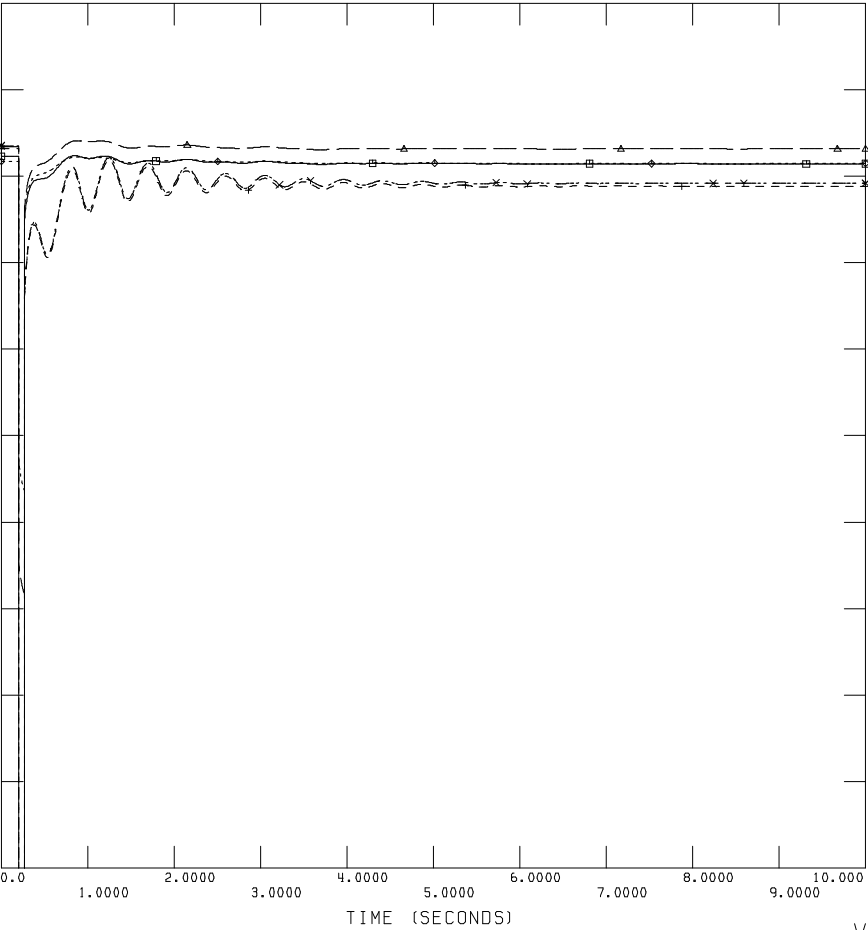
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230,00J3 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230,00J3 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230,00J3 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230,00J3 0.20000

1.2000 CHNL # 207: EVOLT 70061 EBOONE\_230,00J3 0.20000



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VOLTAGE 1 CON1 0MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON1-OFF.OUT

CHNL # 219: EVOLT 70136 CDTY\_LM 69,000J3

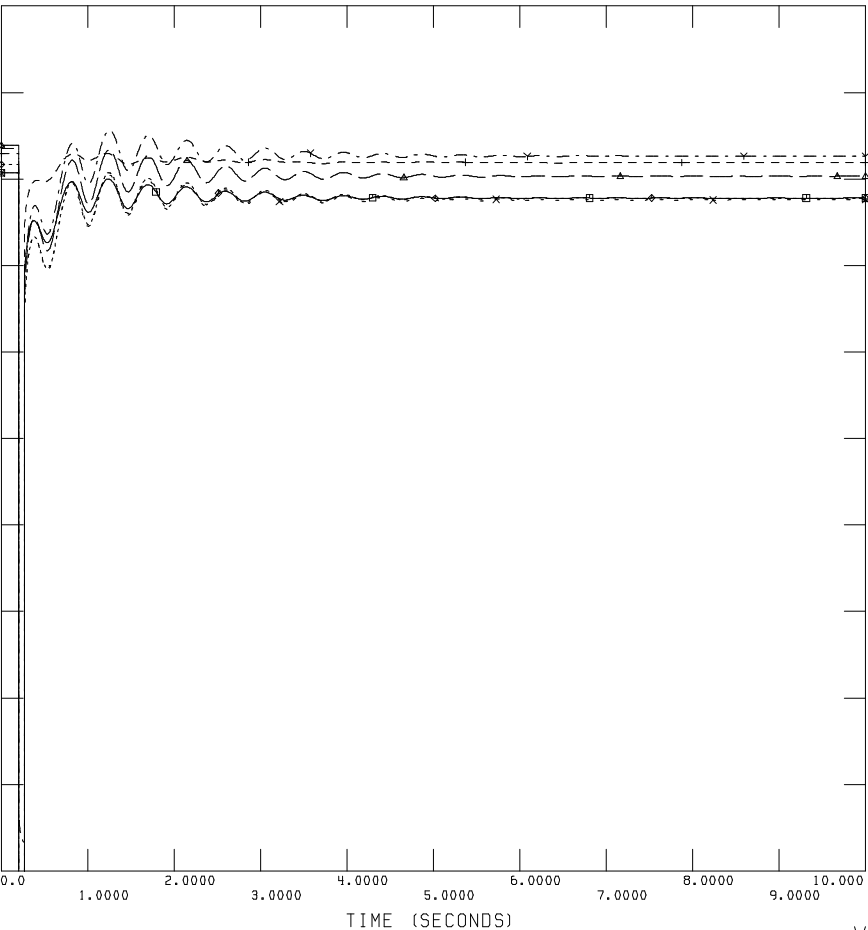
1.2000 CHNL # 209: EVOLT 70472 CMILDM\_CK115,00J3 0.20000

1.2000 CHNL # 208: EVOLT 70060 EBOONE\_115,00J3 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115,00J3 0.20000

1.2000 CHNL # 212: EVOLT 70452 EVILBS\_115,00J3 0.20000

1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115,00J3 0.20000



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VOLTAGE 2 CON1 0MW

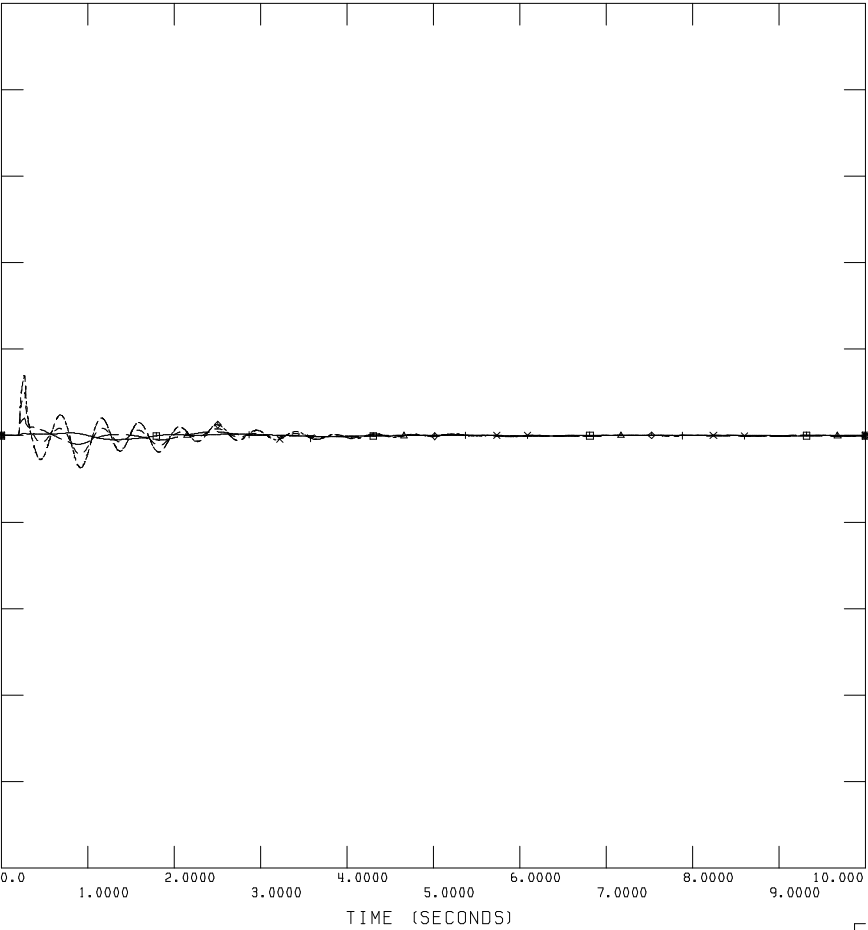




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON1-OFF.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL # 318: CFREQ 70472 CWLOW CK115.00JJ  | -0.0500 |
| 0.05000 | CHNL # 319: CFREQ 70247 CLAJUNTAT115.00JJ | -0.0500 |
| 0.05000 | CHNL # 314: CFREQ 70254 CLAMAR C0230.00JJ | -0.0500 |
| 0.05000 | CHNL # 316: CFREQ 70061 CB00NE 230.00JJ   | -0.0500 |
| 0.05000 | CHNL # 327: CFREQ 79015 CCRBIG 1 22.000JJ | -0.0500 |



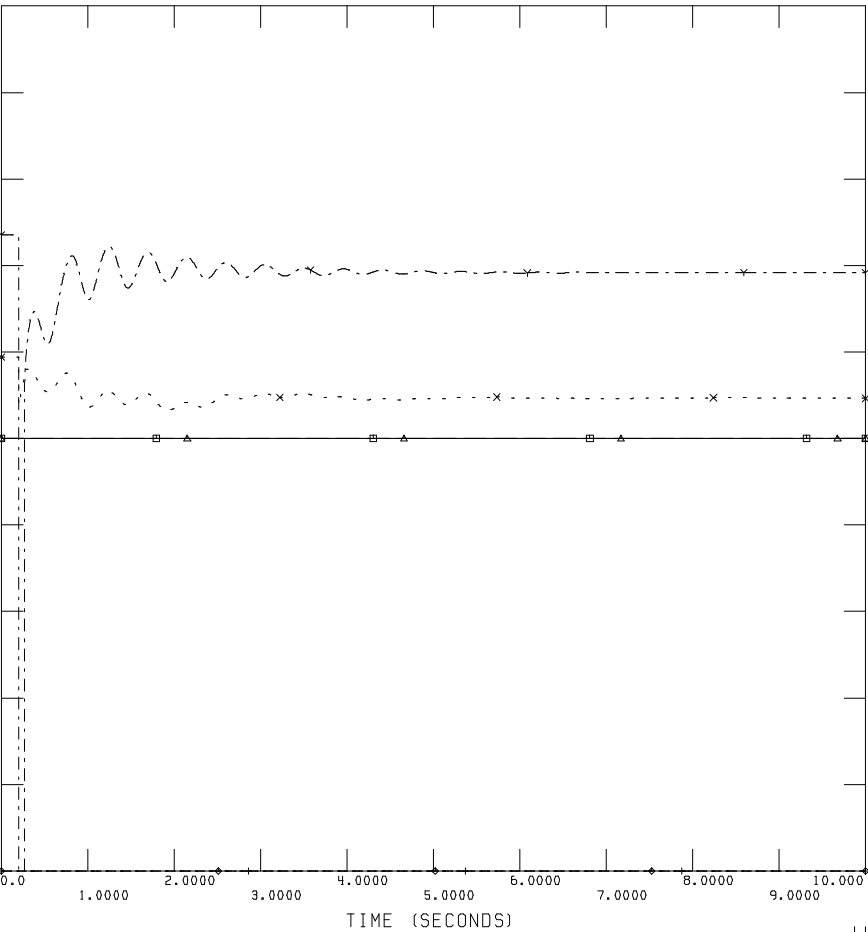
WED, OCT 09 2002 0:44  
FREQUENCY CON1 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON1-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.3000 | CHNL # 361: CANGL 70701 CGOB_KNOB34.500JJ | 0.30000 |
| 180.00 | CHNL # 356: CPQMR 70700 TO 70701 CKT 1J   | -180.0  |
| 100.00 | CHNL # 358: CPQMR 70700 TO 70702 CKT 2J   | 0.0     |
| 50.000 | CHNL # 357: CVARS 70700 TO 70701 CKT 1J   | -50.00  |
| 50.000 | CHNL # 359: CVARS 70700 TO 70702 CKT 2J   | -50.00  |



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WIND DATA CON1 QMW

WIND FARM OFF-LINE: SIMULATION RUN 2 (CON2-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON2-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON BOONE 230 KV BUS 70061  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM BOONE BUS 70061 TO MIDWAY BUS 70286  
CLEAR FAULT AT BOONE 230 KV BUS 70061  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON2-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.5000 C1 JJ

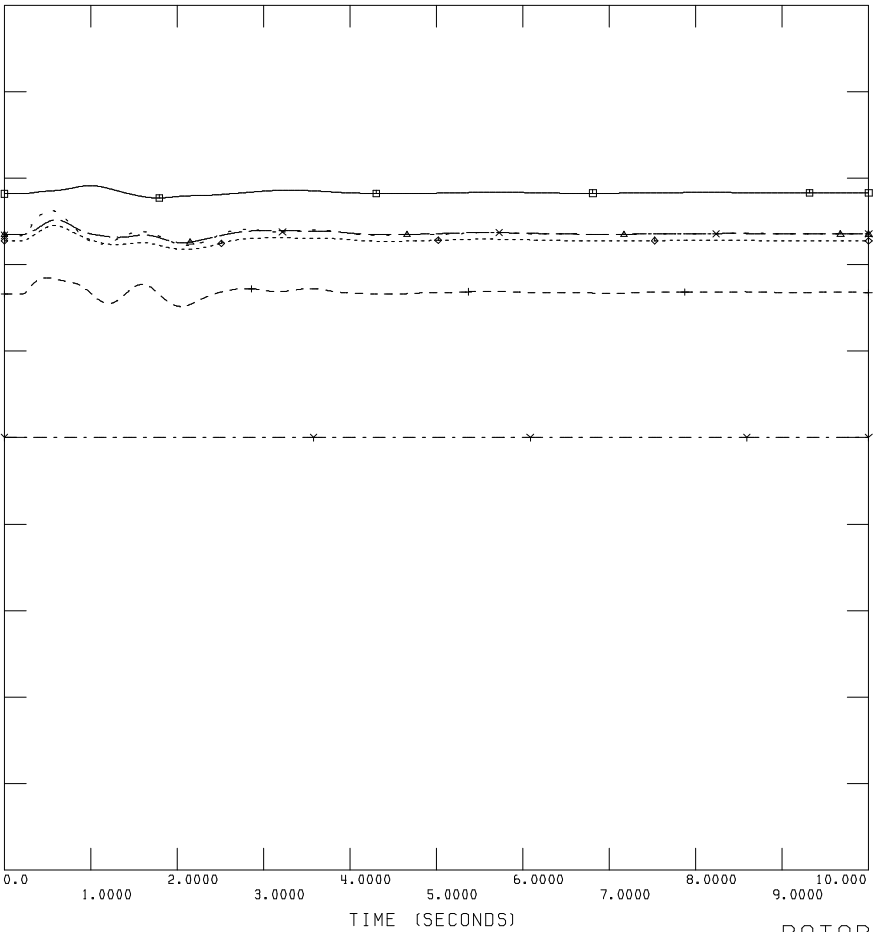
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON2 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON2-OFF.OUT

CHNL# 18: CANGL 70133 CTTY LRM 14.4000 C1 JJ

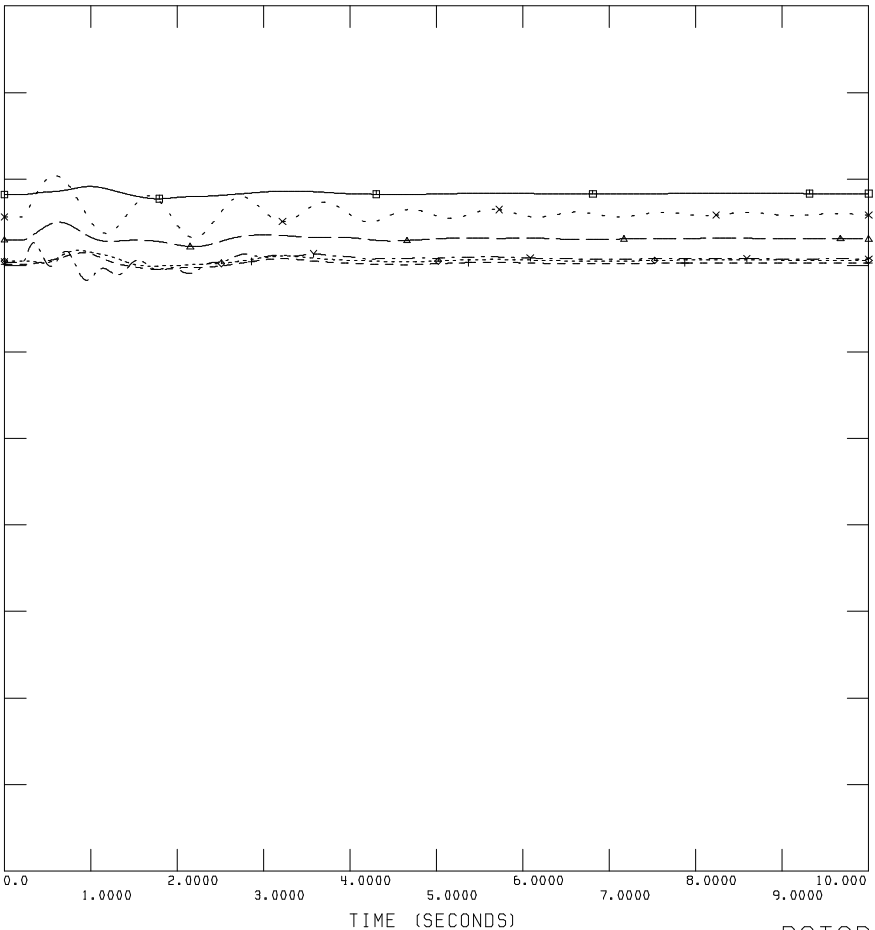
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRRP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



WED, OCT 09 2002 0:44  
ROTORANGLES 2 CON2 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

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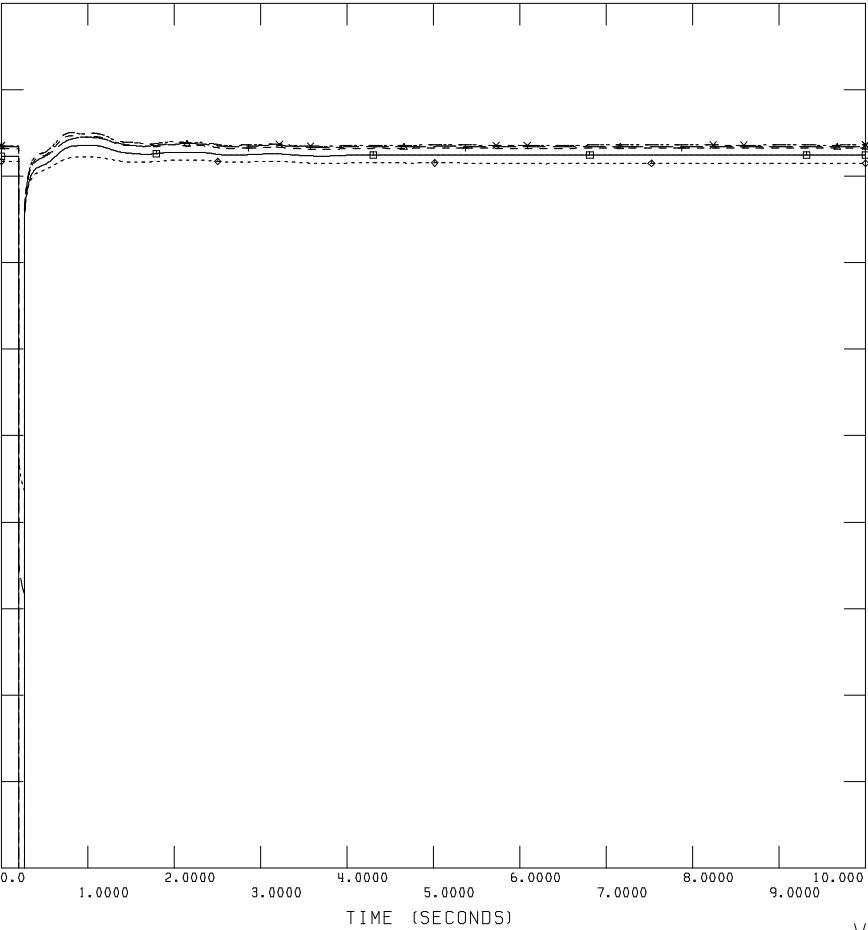
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230,00J3 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230,00J3 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230,00J3 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230,00J3 0.20000

1.2000 CHNL # 207: EVOLT 70061 EBOONE\_230,00J3 0.20000



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON2-OFF.OUT

CHNL # 219: EVOLT 70136 CDTY\_LAM\_69,000J3

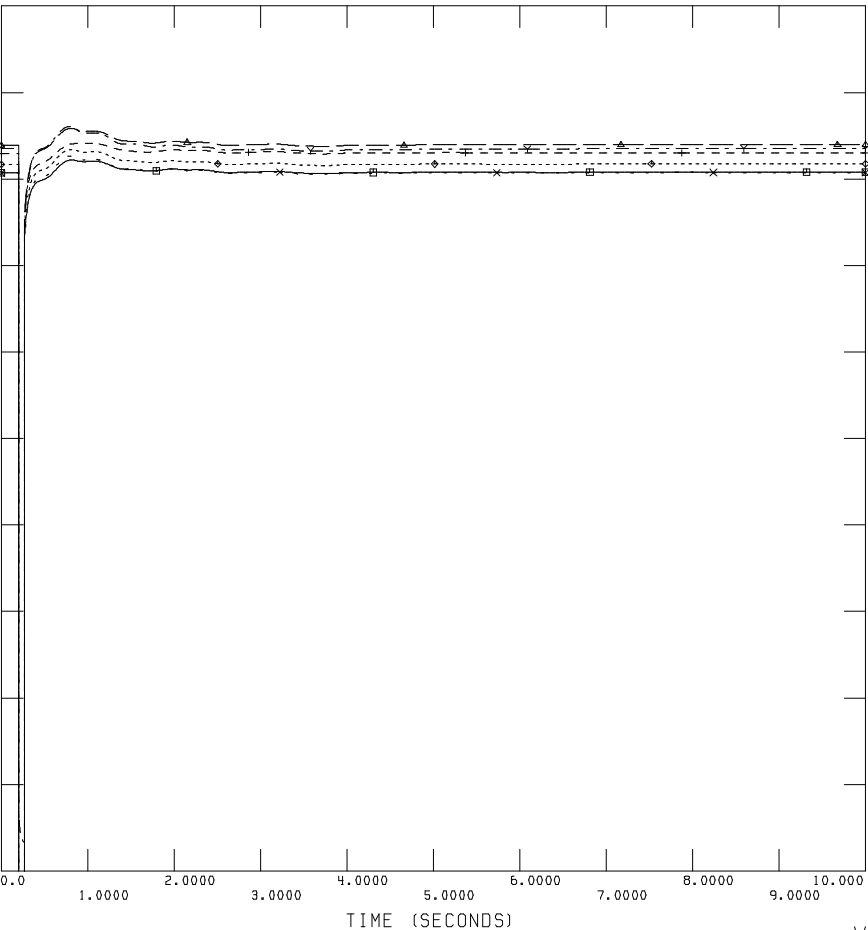
1.2000 CHNL # 209: EVOLT 70472 CMILLOM\_CK115,00J3 0.20000

1.2000 CHNL # 208: EVOLT 70060 EBOONE\_115,00J3 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115,00J3 0.20000

1.2000 CHNL # 212: EVOLT 70452 CVILBS\_115,00J3 0.20000

1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115,00J3 0.20000

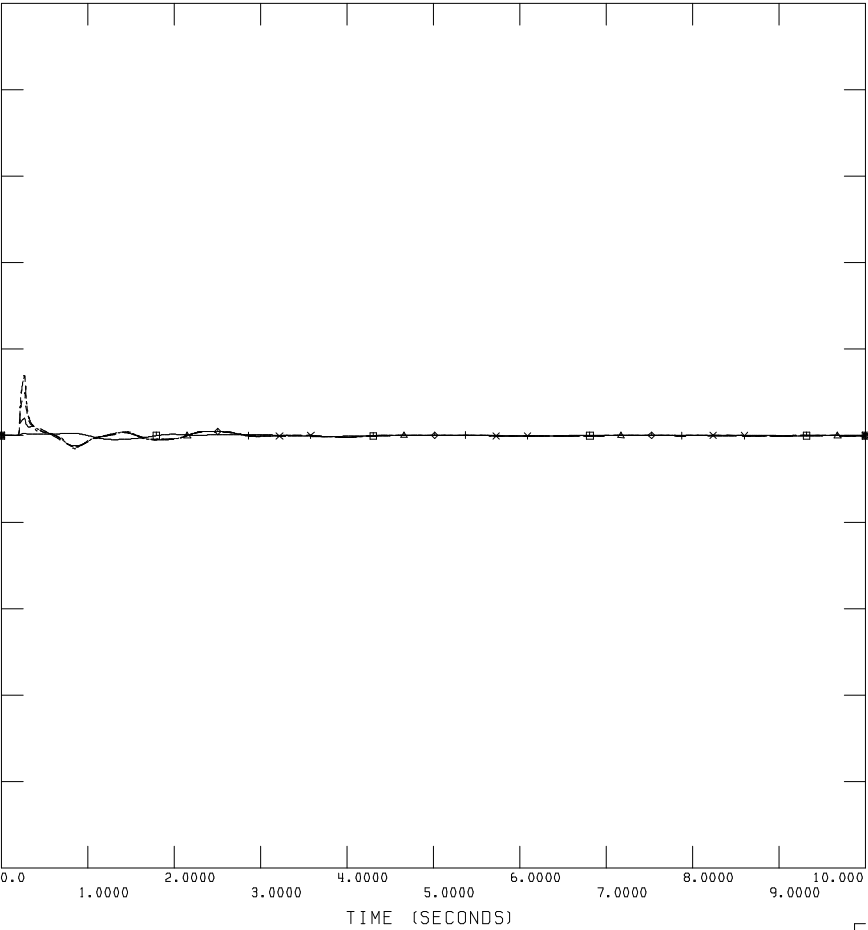




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON2-OFF.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL # 318: CFREQ 70472 CWLOW CK115.00JJ  | -0.0500 |
| 0.05000 | CHNL # 319: CFREQ 70247 CLAJUNTAT115.00JJ | -0.0500 |
| 0.05000 | CHNL # 314: CFREQ 70254 CLAMAR C0230.00JJ | -0.0500 |
| 0.05000 | CHNL # 316: CFREQ 70061 CB00NE 230.00JJ   | -0.0500 |
| 0.05000 | CHNL # 327: CFREQ 79015 CCRBIG 1 22.000JJ | -0.0500 |



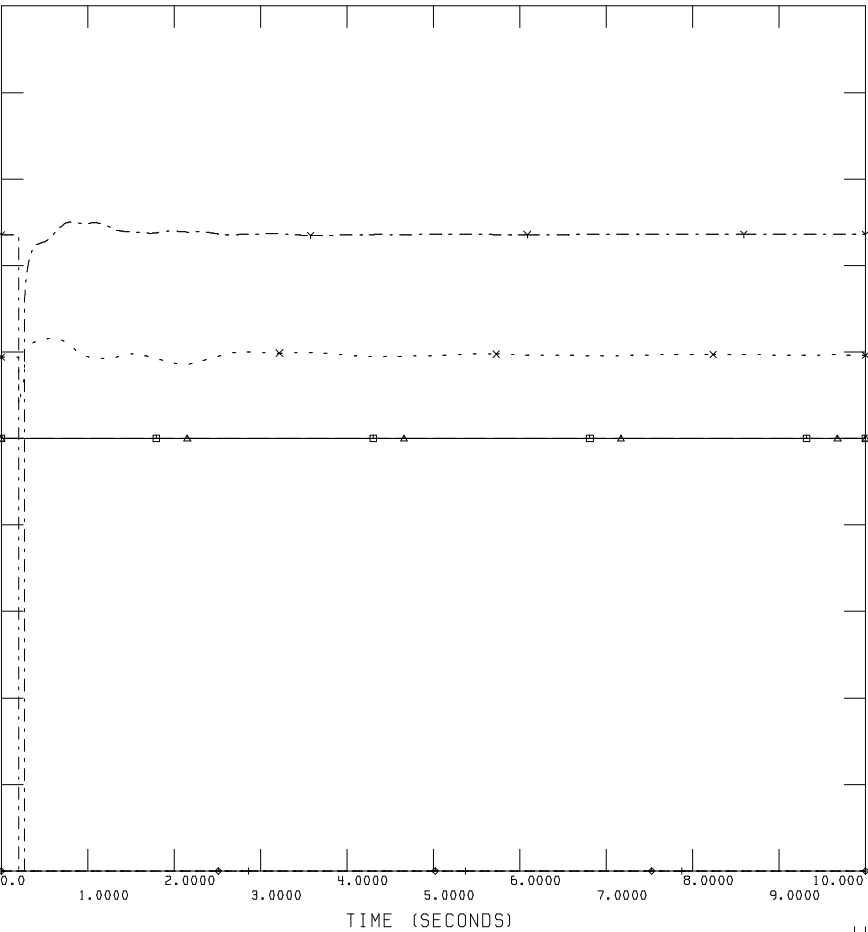
WED, OCT 09 2002 0:45  
FREQUENCY CON2 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON2-OFF.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL # 361: CANL 70701 CGOB_KNOB34.500JJ | 0.30000 |
| 180.00 | CHNL # 356: CPQMR 70700 TO 70701 CKT 1J  | -180.0  |
| 100.00 | CHNL # 358: CPQMR 70700 TO 70702 CKT 2J  | 0.0     |
| 100.00 | CHNL # 357: CVARS 70700 TO 70701 CKT 1J  | 0.0     |
| 50.000 | CHNL # 359: CVARS 70700 TO 70702 CKT 2J  | -50.00  |



WED, OCT 09 2002 0:45  
WIND DATA CON2 QMW

WIND FARM OFF-LINE: SIMULATION RUN 3 (CON3-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON3-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON DANIELS PARK 230 KV BUS 70139  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM DANIELS PARK 230 KV BUS 70139 TO MIDWAY BUS 70286  
CLEAR FAULT AT DANIELS PARK 230 KV BUS 70139  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON3-OFF.OUT

CHNL# 111: CANGL 70701 CCOB\_KNOB34.500J C1 JJ

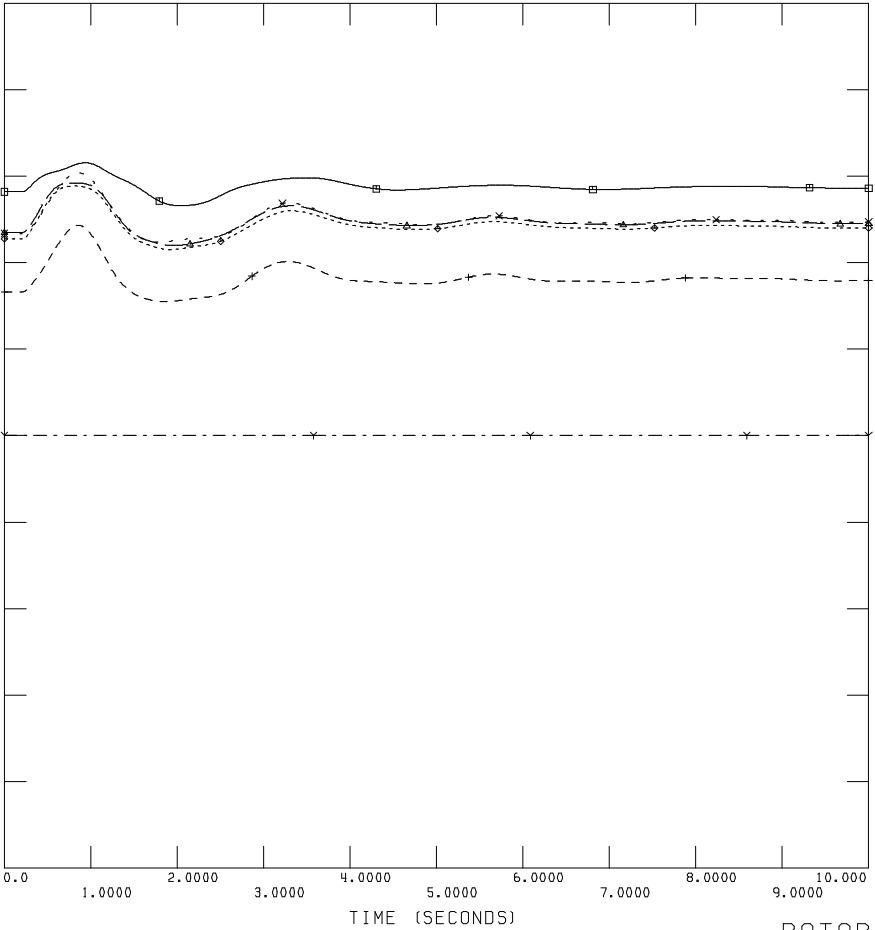
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD\_NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



WED, OCT 09 2002 0:45  
ROTOR ANGLES 1 CON3 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON3-OFF.OUT

CHNL# 18: CANGL 70133 CDTY LRM 14.400J C1 JJ

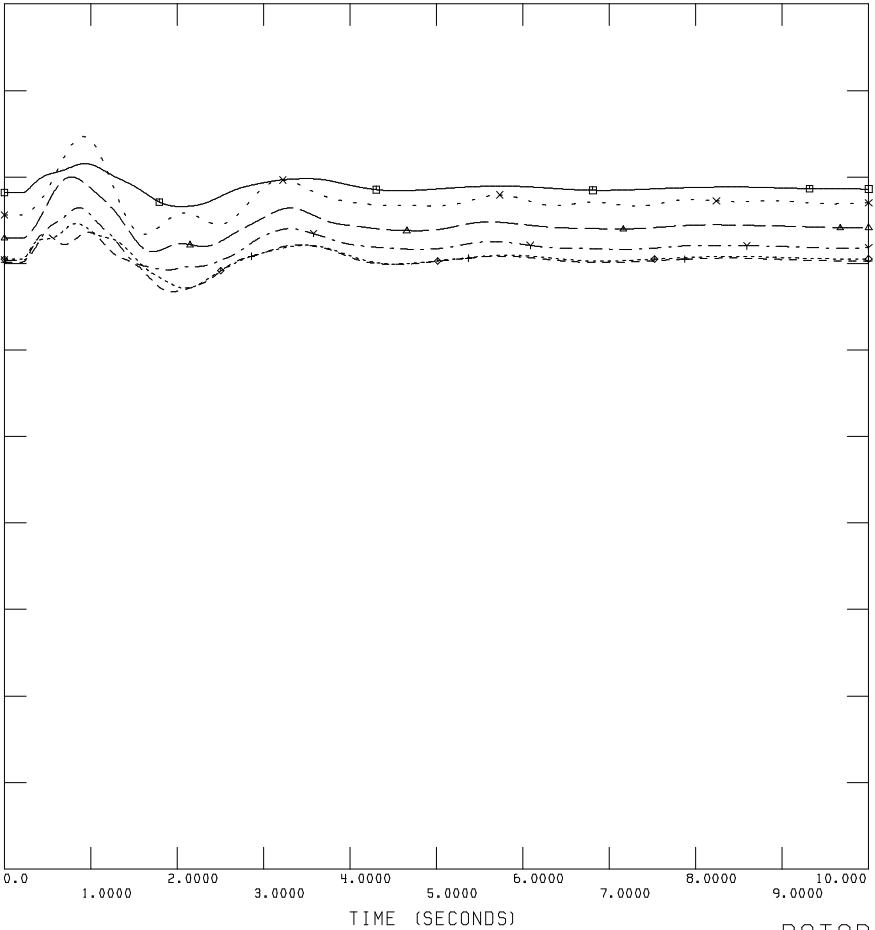
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRRP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



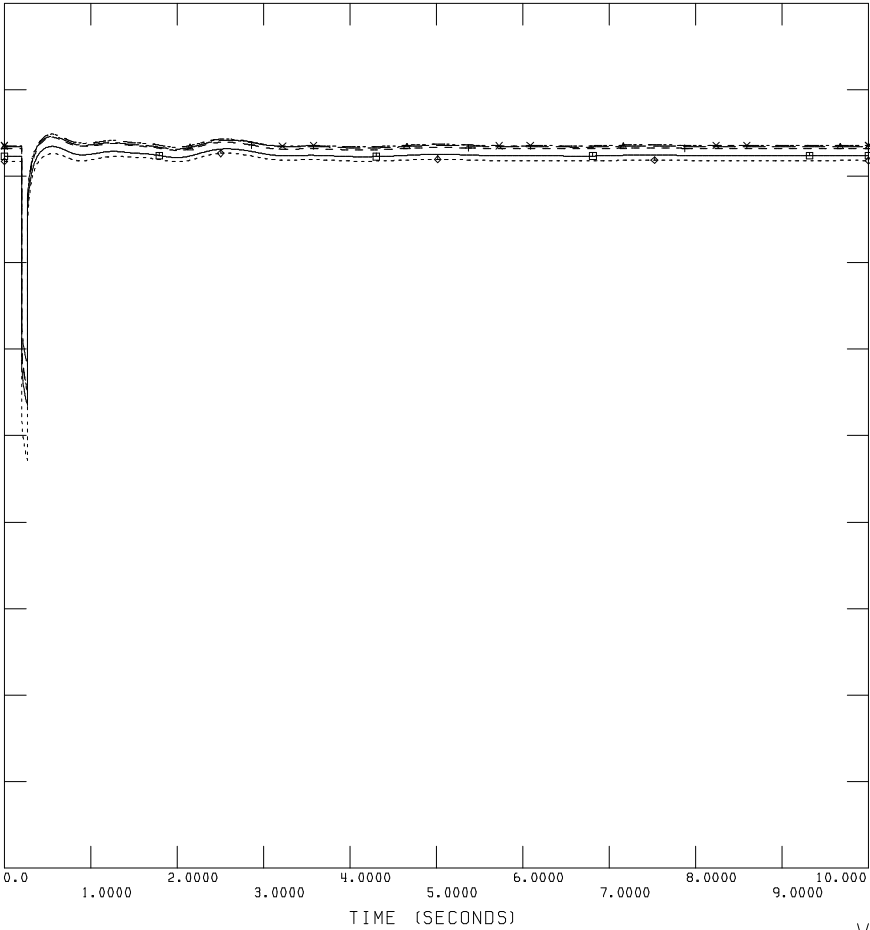
WED, OCT 09 2002 0:45  
ROTOR ANGLES 2 CON3 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON3-OFF.OUT

|        |                                            |         |
|--------|--------------------------------------------|---------|
| 1.2000 | CHNL # 218: EVOLTI 70700 CGOB_KNOB230.00JJ | 0.20000 |
| 1.2000 | CHNL # 205: EVOLTI 70254 CLAMAR_C0230.00JJ | 0.20000 |
| 1.2000 | CHNL # 214: EVOLTI 70286 EMIDMHTPS230.00JJ | 0.20000 |
| 1.2000 | CHNL # 213: EVOLTI 70122 ECOMANCHE230.00JJ | 0.20000 |
| 1.2000 | CHNL # 207: EVOLTI 70061 EBOONE_230.00JJ   | 0.20000 |



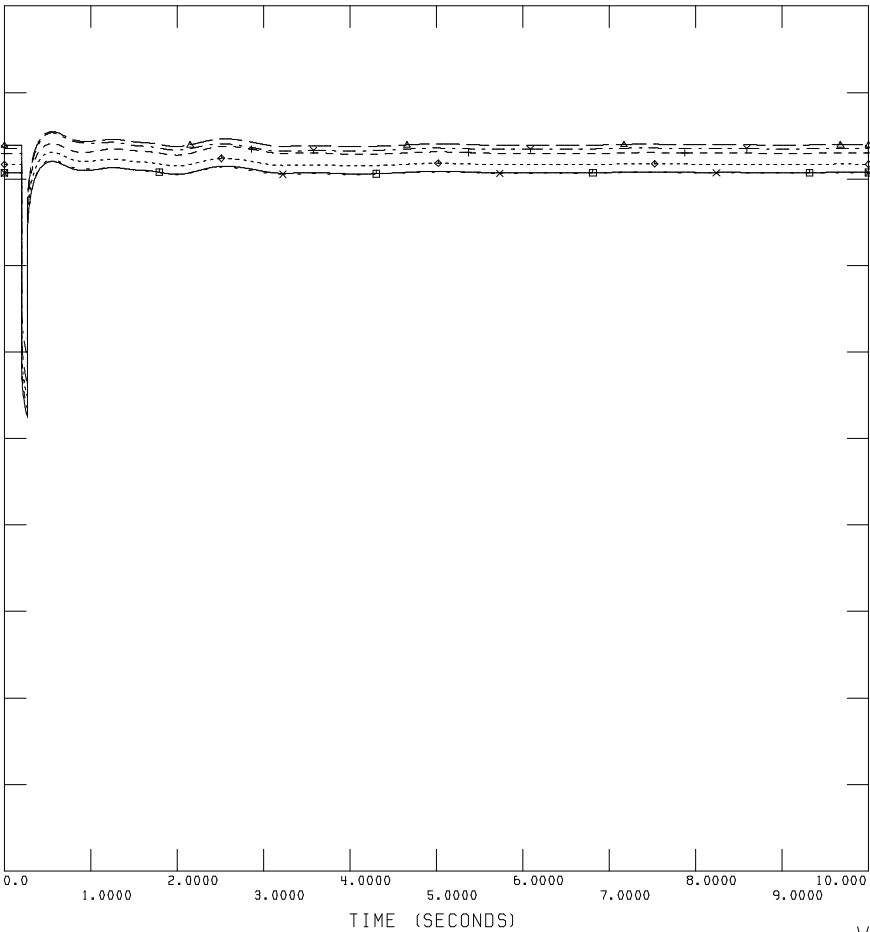
WED, OCT 09 2002 0:45  
VOLTAGE 1 CON3 0MM



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON3-OFF.OUT

|        |                                            |         |
|--------|--------------------------------------------|---------|
| 1.2000 | CHNL # 209: EVOLTI 70472 CMILDM_CK115.00JJ | 0.20000 |
| 1.2000 | CHNL # 208: EVOLTI 70060 EBOONE_115.00JJ   | 0.20000 |
| 1.2000 | CHNL # 206: EVOLTI 70253 CLAMAR_C0115.00JJ | 0.20000 |
| 1.2000 | CHNL # 212: EVOLTI 70452 EYLILBS_115.00JJ  | 0.20000 |
| 1.2000 | CHNL # 210: EVOLTI 70247 CLAJUNTAT115.00JJ | 0.20000 |



WED, OCT 09 2002 0:45  
VOLTAGE 2 CON3 0MM

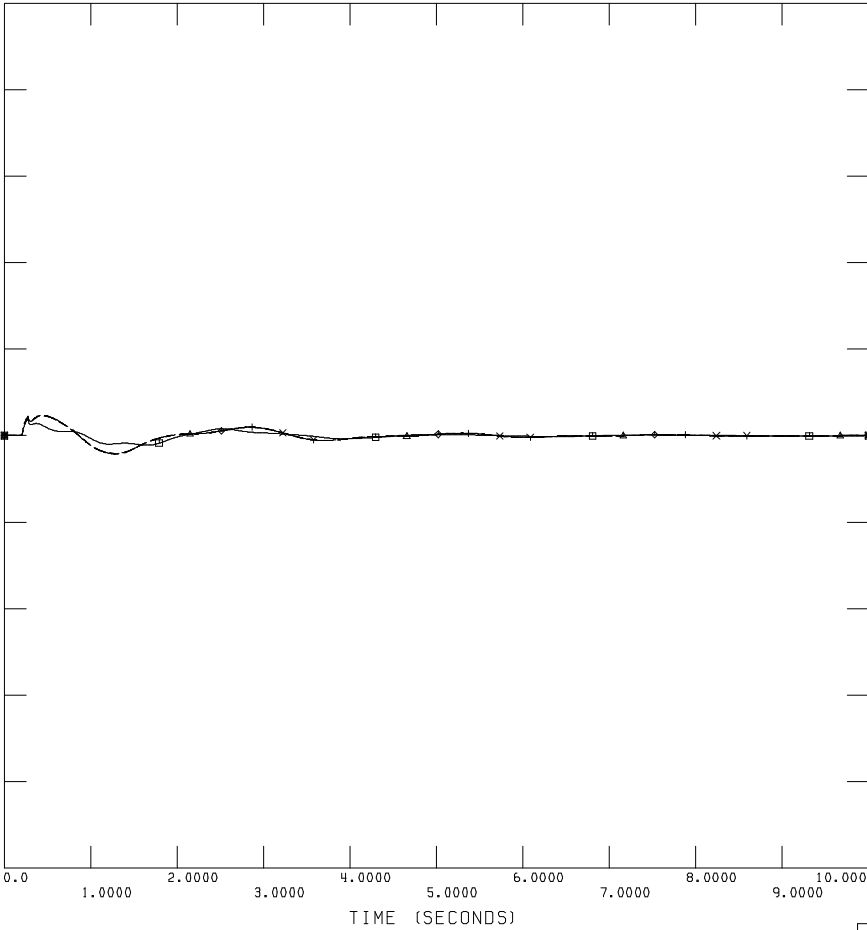




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON3-OFF.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL # 318: CFREQ 70472 CWLOW CK115.00JJ  | -0.0500 |
| 0.05000 | CHNL # 319: CFREQ 70247 CLAJUNTAT115.00JJ | -0.0500 |
| 0.05000 | CHNL # 314: CFREQ 70254 CLAMAR C0230.00JJ | -0.0500 |
| 0.05000 | CHNL # 316: CFREQ 70061 CB00NE 230.00JJ   | -0.0500 |
| 0.05000 | CHNL # 327: CFREQ 79015 CCRBIG 1 22.000JJ | -0.0500 |



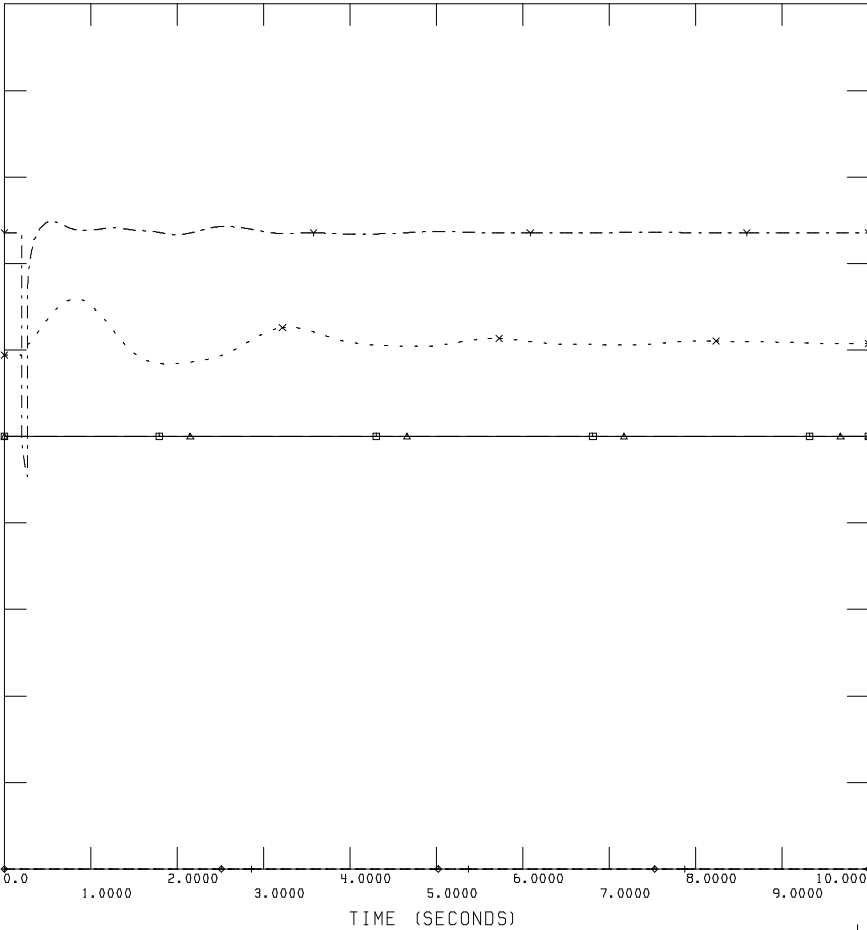
WED, OCT 09 2002 0:45  
FREQUENCY CON3 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON3-OFF.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.3000 | CHNL # 361: CANGL 70701 CGOB_KNOB34.500JJ | 0.30000 |
| 180.00 | CHNL # 356: CPQMR 70700 TO 70701 CKT 1J   | -180.0  |
| 100.00 | CHNL # 358: CPQMR 70700 TO 70702 CKT 2J   | 0.0     |
| 100.00 | CHNL # 357: CVARS 70700 TO 70701 CKT 1J   | 0.0     |
| 50.000 | CHNL # 359: CVARS 70700 TO 70702 CKT 2J   | -50.00  |



WED, OCT 09 2002 0:45  
WIND DATA CON3 QMW

WIND FARM OFF-LINE: SIMULATION RUN 4 (CON4-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON4-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON MIDWAY 230 KV BUS 70286  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM MIDWAY BUS 70286 TO MIDWAY TIE BUS 73413  
CLEAR FAULT AT MIDWAY BUS 70286  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-of-fs\CON4-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.500J C1 JJ

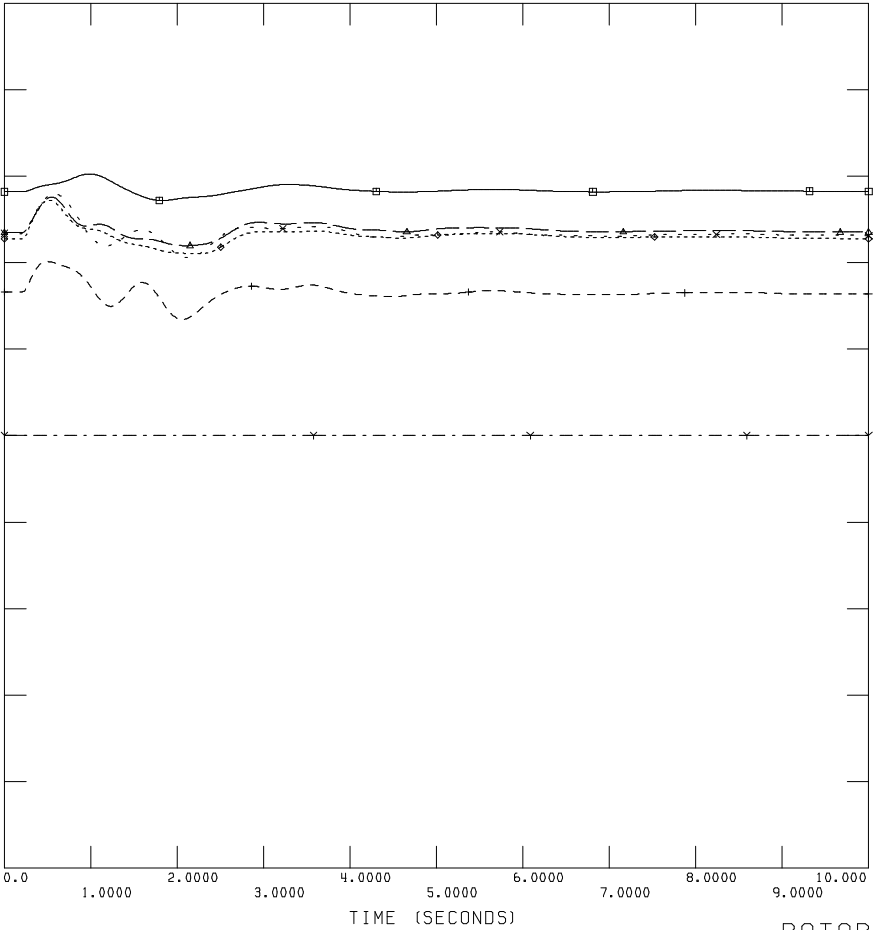
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



WED, OCT 09 2002 0:45  
ROTORANGLES 1 CON4 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-of-fs\CON4-OFF.OUT

CHNL# 18: CANGL 70133 CDTY LRM 14.400J C1 JJ

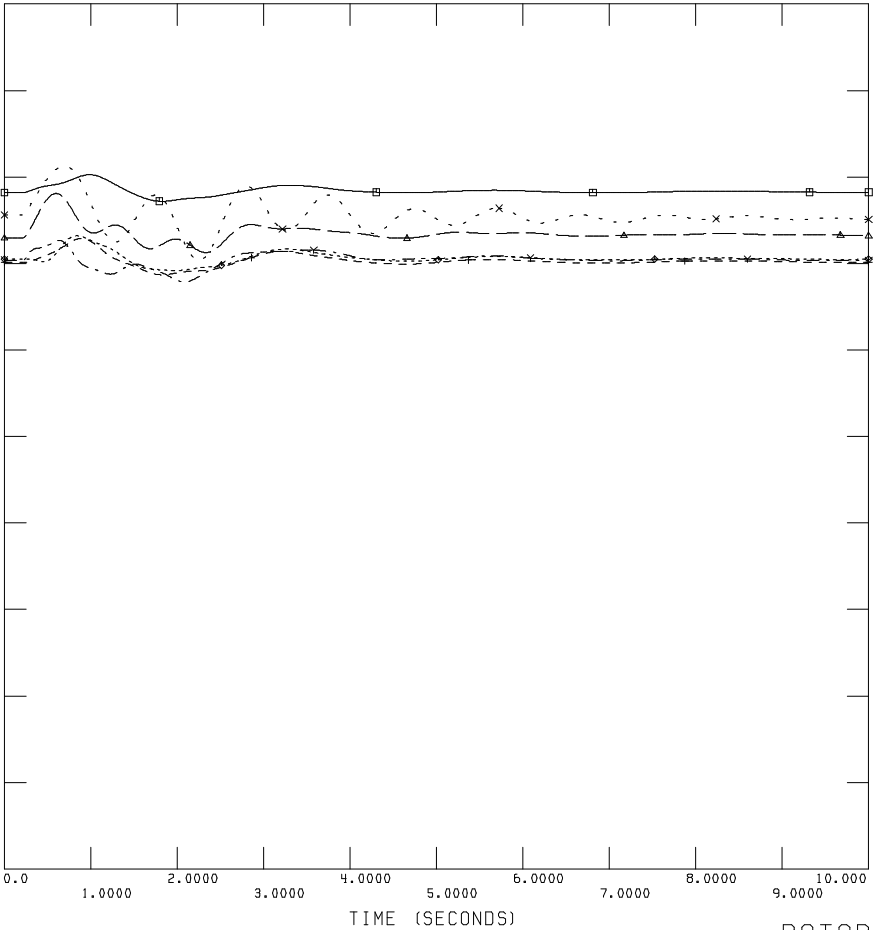
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRRP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



WED, OCT 09 2002 0:45  
ROTORANGLES 2 CON4 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON4-OFF.OUT

CHNL # 220: EVOLT 70701 CGOB\_KNOB34,500J3

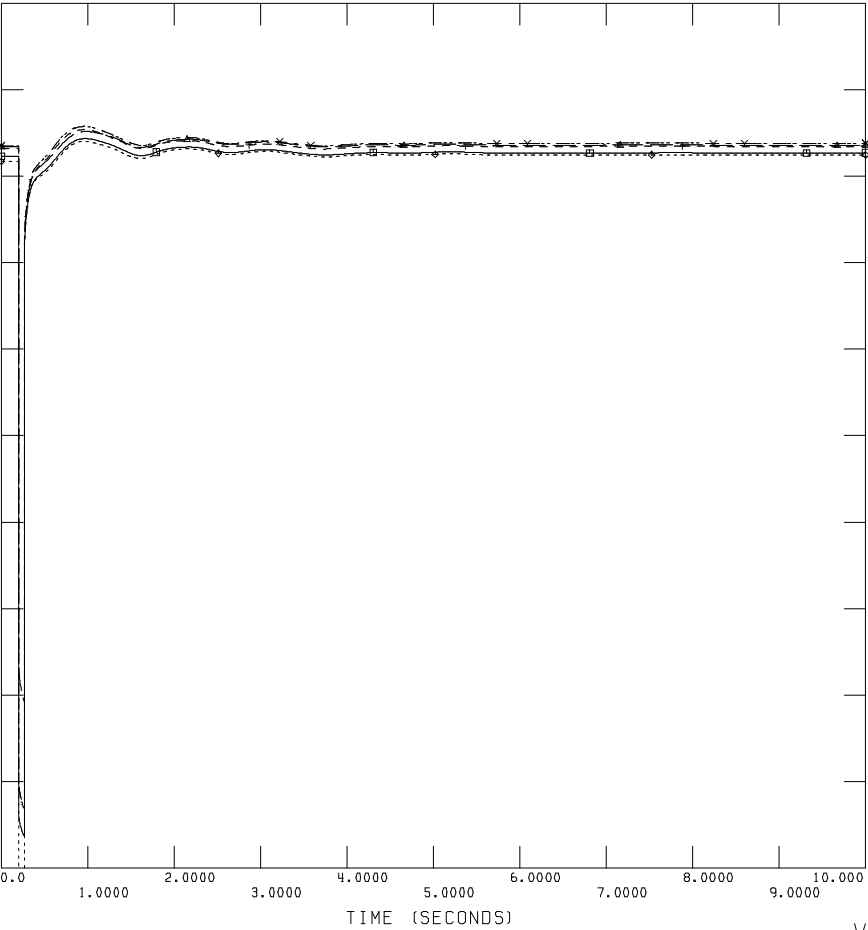
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230,00J3 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230,00J3 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230,00J3 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230,00J3 0.20000

1.2000 CHNL # 207: EVOLT 70061 EB00NE\_230,00J3 0.20000



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON4-OFF.OUT

CHNL # 219: EVOLT 70136 C0TY\_LM 69,000J3

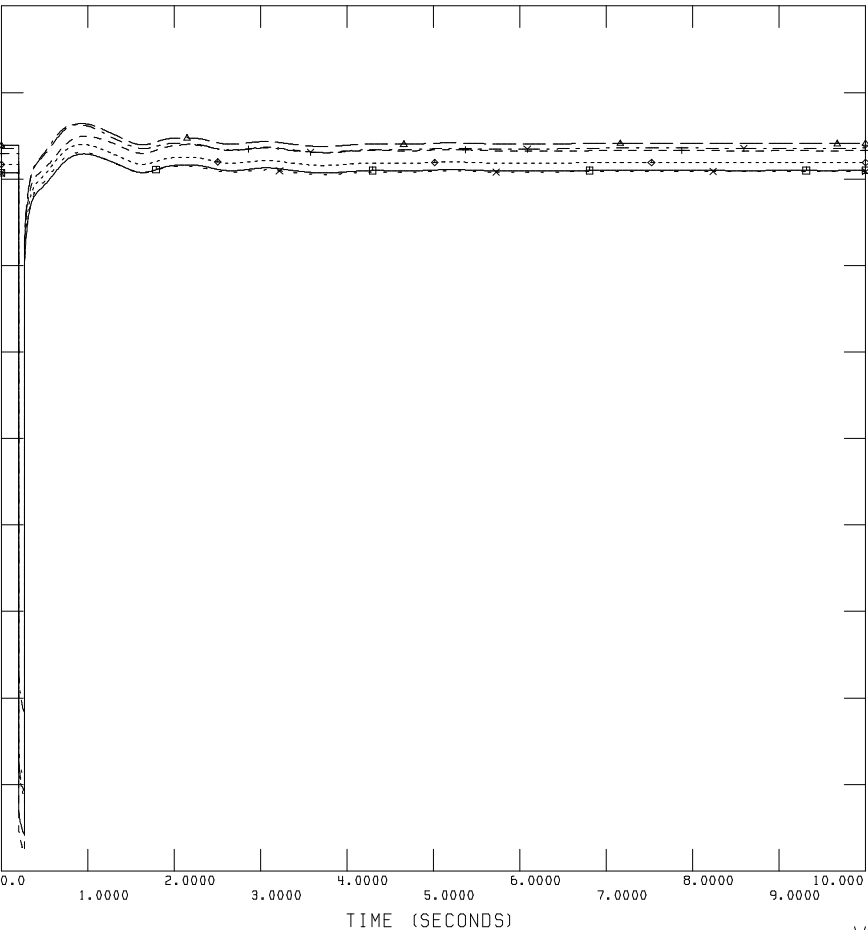
1.2000 CHNL # 209: EVOLT 70472 CM1L0M\_CK115,00J3 0.20000

1.2000 CHNL # 208: EVOLT 70060 EB00NE\_115,00J3 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115,00J3 0.20000

1.2000 CHNL # 212: EVOLT 70452 CVILRS\_115,00J3 0.20000

1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115,00J3 0.20000

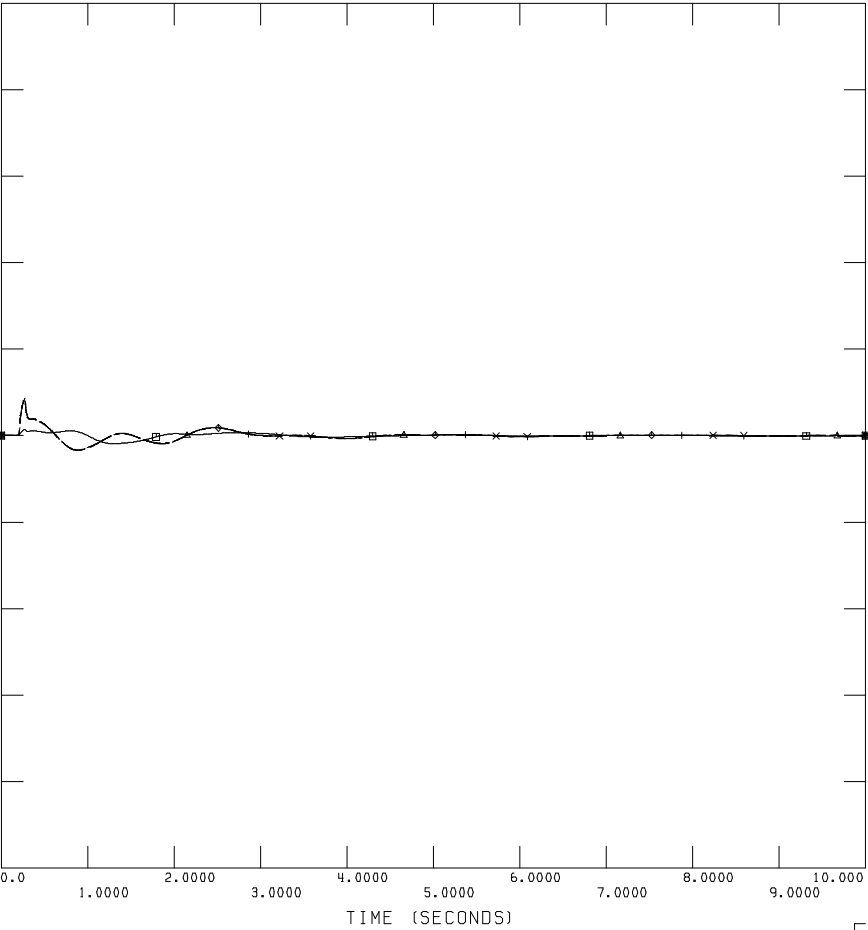




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON4-OFF.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL # 318: CFREQ 70472 CWLOW CK115.0000  | -0.0500 |
| 0.05000 | CHNL # 319: CFREQ 70247 CLAJUNTAT115.0000 | -0.0500 |
| 0.05000 | CHNL # 314: CFREQ 70254 CLAMAR C0230.0000 | -0.0500 |
| 0.05000 | CHNL # 316: CFREQ 70061 CB00NE 230.0000   | -0.0500 |
| 0.05000 | CHNL # 327: CFREQ 79015 CCRBIG 1 22.0000  | -0.0500 |



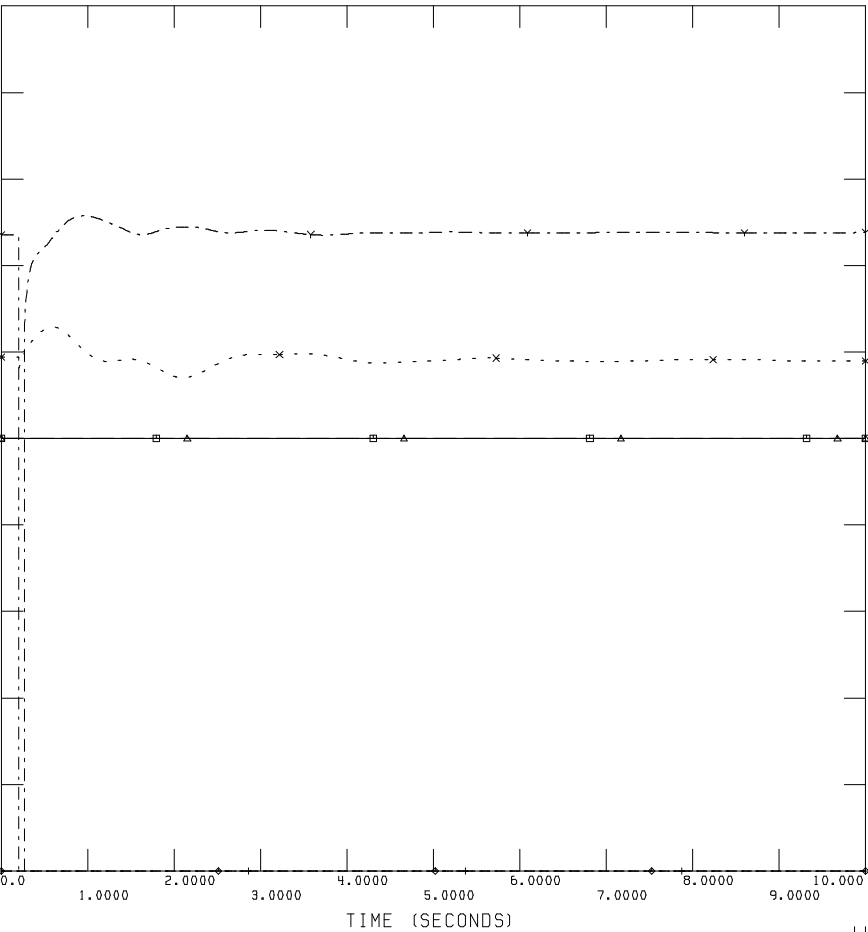
WED, OCT 09 2002 0:46  
FREQUENCY CON4 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON4-OFF.0UT

|        |                                         |        |
|--------|-----------------------------------------|--------|
| 1.3000 | CHNL # 361: CANL 70701 CGOB_KNOB34.5000 | 0.3000 |
| 180.00 | CHNL # 356: CPQMR 70700 TO 70701 CKT 10 | -180.0 |
| 100.00 | CHNL # 358: CPQMR 70700 TO 70702 CKT 20 | 0.0    |
| 100.00 | CHNL # 357: CVARS 70700 TO 70701 CKT 10 | -50.00 |
| 50.000 | CHNL # 359: CVARS 70700 TO 70702 CKT 20 | -50.00 |



WED, OCT 09 2002 0:46  
WIND DATA CON4 QMW

WIND FARM OFF-LINE: SIMULATION RUN 5 (CON5-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON5-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON COMANCHE 230 KV BUS 70122  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM COMANCHE 230 KV BUS 70122 TO MIDWAY 230 KV BUS 70286  
CLEAR FAULT AT COMANCHE 230 KV BUS 70122  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CONS-OFF.0UT

CHNL# 111: CANGL 70701 CCGR\_KNOB34.500J C1 JJ

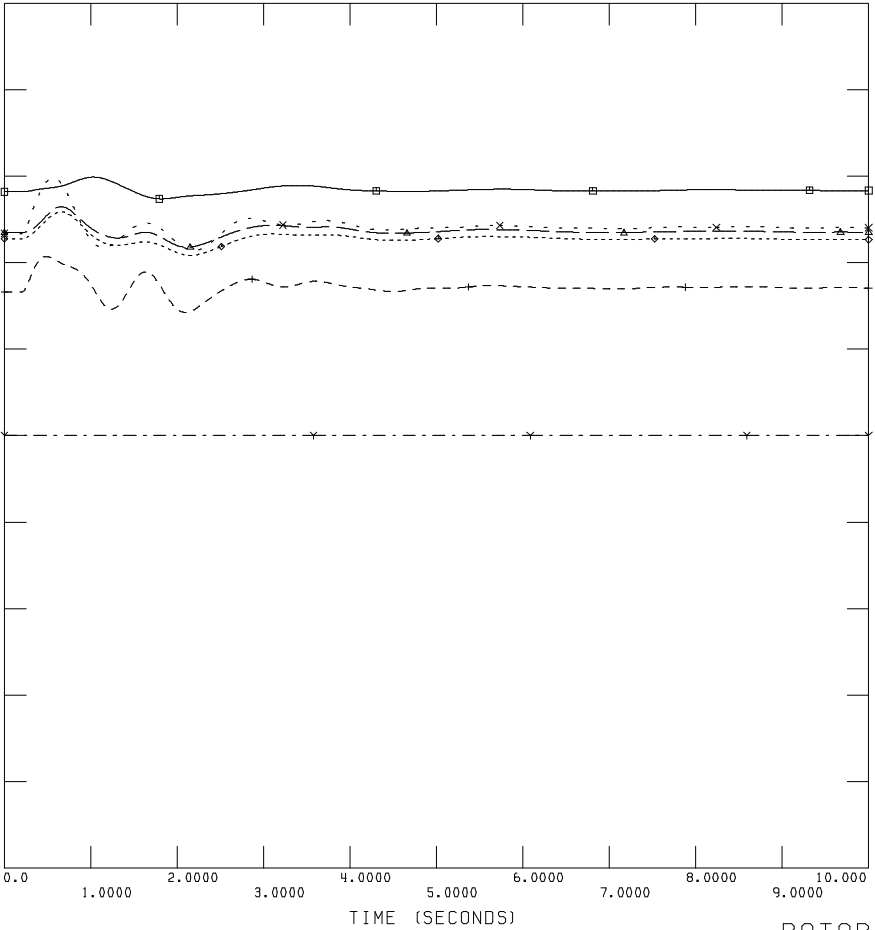
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD\_NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CONS-OFF.0UT

CHNL# 18: CANGL 70133 CDTY LRM 14.400J C1 JJ

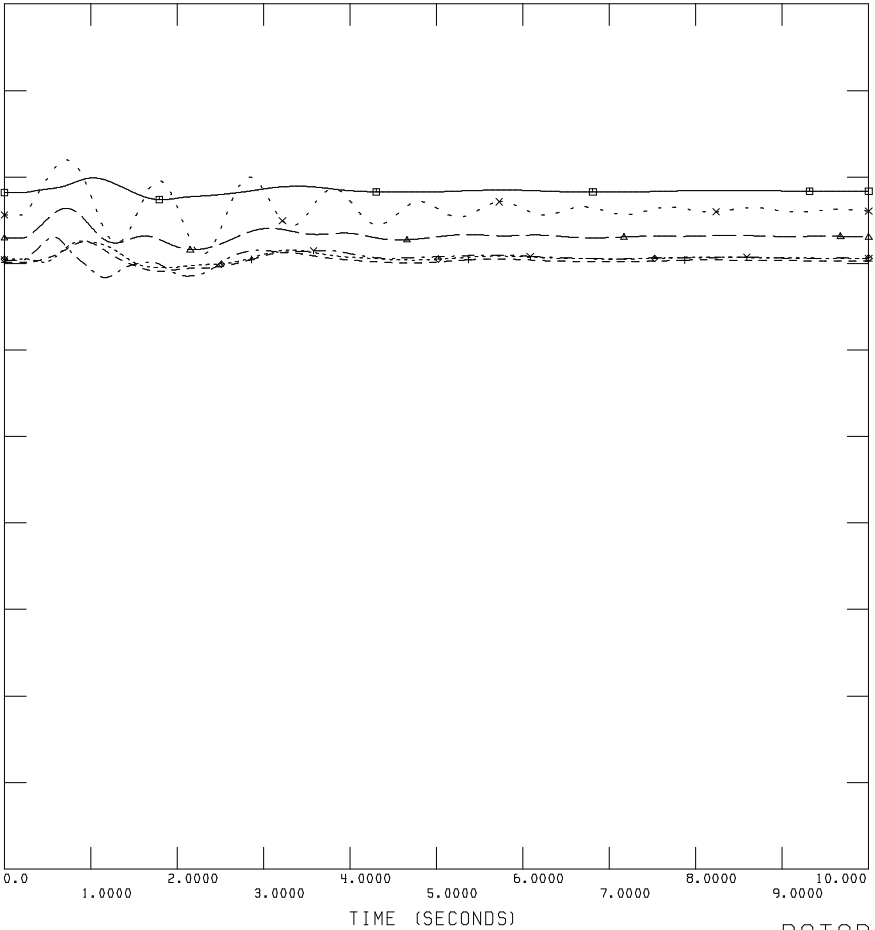
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRRP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0

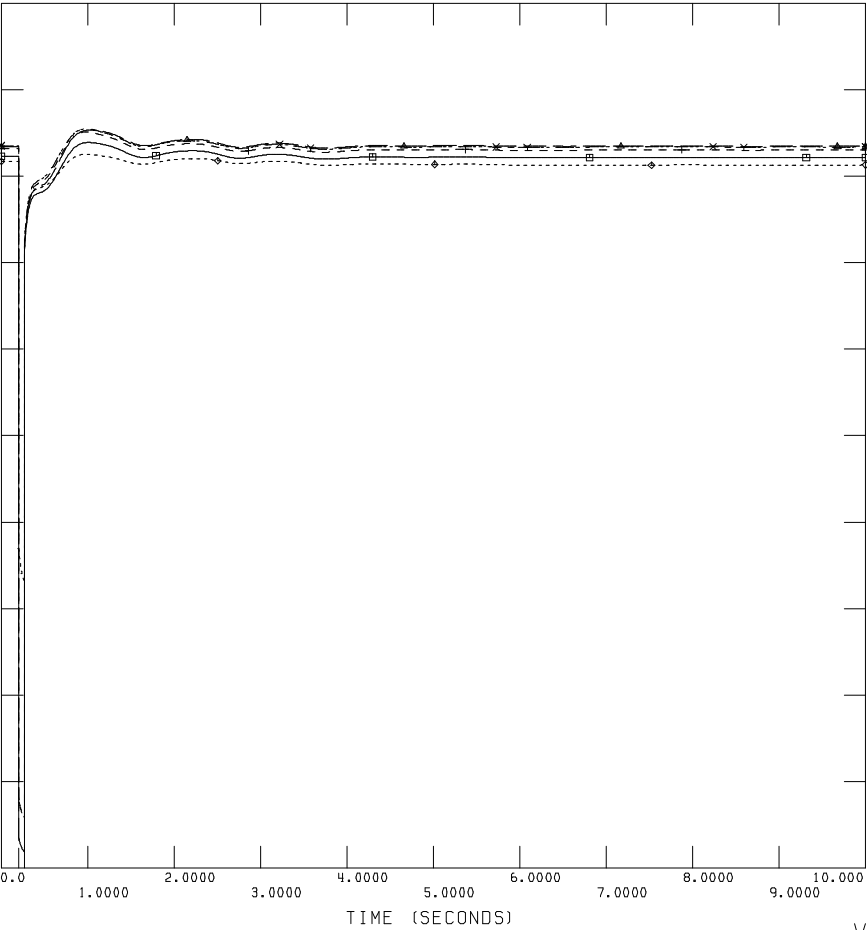




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CONS-OFF.OUT

|        |                                            |         |
|--------|--------------------------------------------|---------|
| 1.2000 | CHNL # 220: EVOLT 70701 CGOB_KNOB34.50000  | 0.20000 |
| 1.2000 | CHNL # 218: EVOLT 70700 CGOB_KNOB230.00000 | 0.20000 |
| 1.2000 | CHNL # 205: EVOLT 70254 CLAMAR_C0230.00000 | 0.20000 |
| 1.2000 | CHNL # 214: EVOLT 70286 EMIDMHTPS230.00000 | 0.20000 |
| 1.2000 | CHNL # 213: EVOLT 70122 ECOMANCHE230.00000 | 0.20000 |
| 1.2000 | CHNL # 207: EVOLT 70061 EB00NE_230.00000   | 0.20000 |



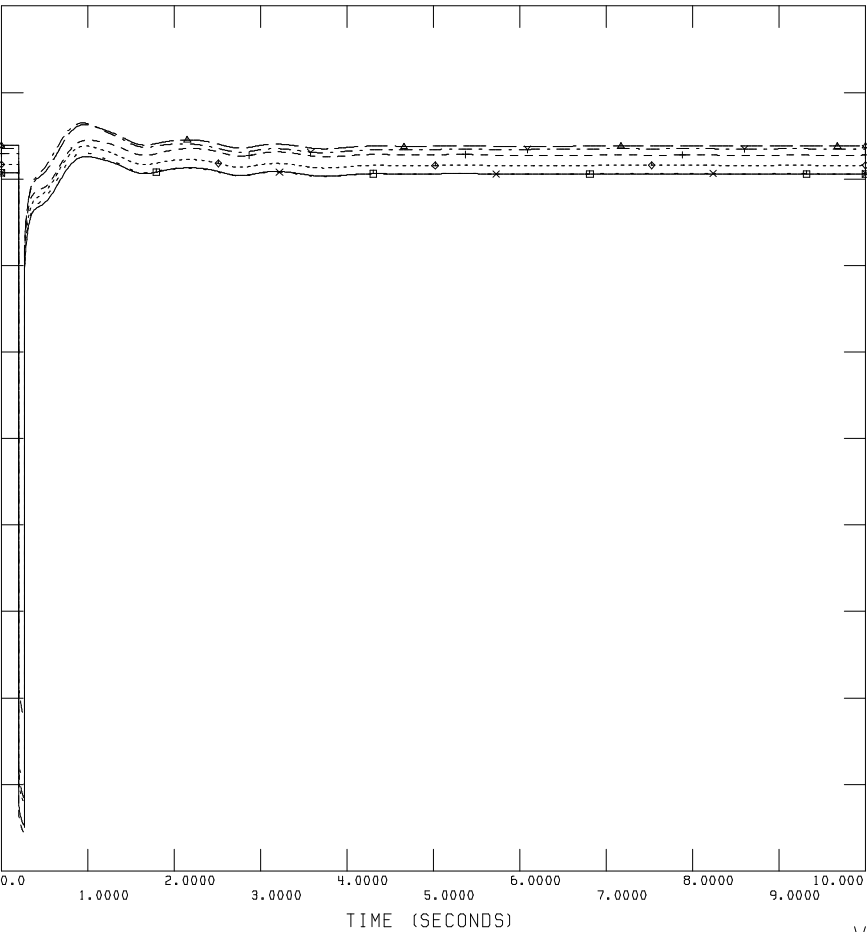
WED, OCT 09 2002 0:46  
VOLTAGE 1 CONS QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CONS-OFF.OUT

|        |                                            |         |
|--------|--------------------------------------------|---------|
| 1.2000 | CHNL # 209: EVOLT 70472 CMILDM_CK115.00000 | 0.20000 |
| 1.2000 | CHNL # 208: EVOLT 70060 EB00NE_115.00000   | 0.20000 |
| 1.2000 | CHNL # 206: EVOLT 70253 CLAMAR_C0115.00000 | 0.20000 |
| 1.2000 | CHNL # 212: EVOLT 70452 CVILBS_115.00000   | 0.20000 |
| 1.2000 | CHNL # 210: EVOLT 70247 CLAJUNTAT115.00000 | 0.20000 |



WED, OCT 09 2002 0:46  
VOLTAGE 2 CONS QMW

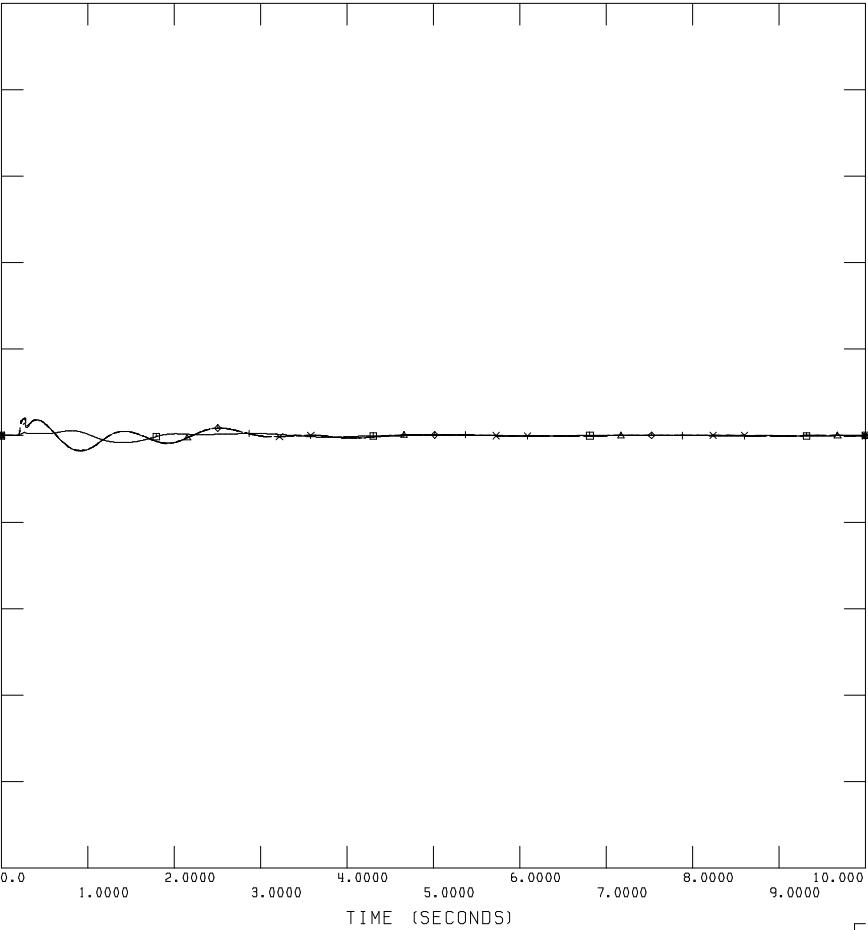




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CONS-OFF.0UT

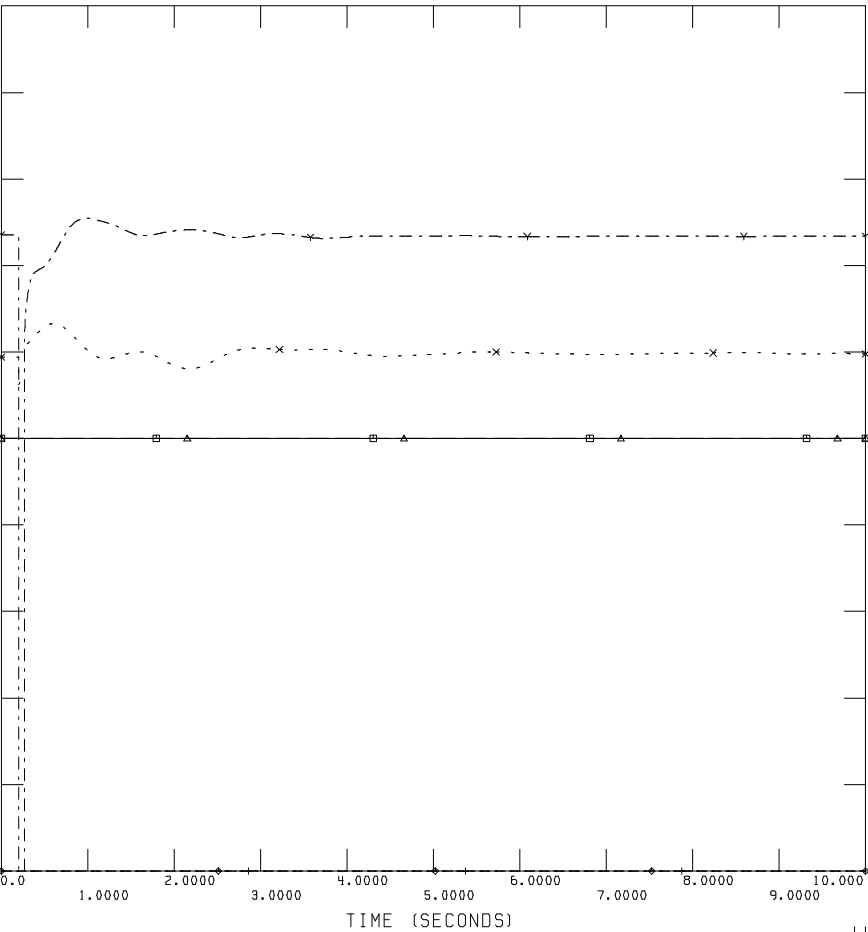
|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL # 318: CFREQ 70472 CWLOW CK115.00JJ  | -0.0500 |
| 0.05000 | CHNL # 319: CFREQ 70254 CLAMAR C0230.00JJ | -0.0500 |
| 0.05000 | CHNL # 314: CFREQ 70254 CLAMAR C0230.00JJ | -0.0500 |
| 0.05000 | CHNL # 316: CFREQ 70061 CB00NE 230.00JJ   | -0.0500 |
| 0.05000 | CHNL # 327: CFREQ 79015 CCRBIG 1 22.000JJ | -0.0500 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CONS-OFF.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL # 361: CANL 70701 CGOB_KNOB34.500JJ | 0.30000 |
| 180.00 | CHNL # 356: CPQMR 70700 TO 70701 CKT 1J  | -180.0  |
| 100.00 | CHNL # 358: CPQMR 70700 TO 70702 CKT 2J  | 0.0     |
| 100.00 | CHNL # 357: CVARS 70700 TO 70701 CKT 1J  | -50.00  |
| 50.000 | CHNL # 359: CVARS 70700 TO 70702 CKT 2J  | -50.00  |



WIND FARM OFF-LINE: SIMULATION RUN 6 (CON6-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON6-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON COMANCHE 230 KV BUS 70122  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM COMANCHE 230 KV BUS 70122 TO WALSENBURG 230 KV BUS 70459  
CLEAR FAULT AT COMANCHE 230 KV BUS 70122  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON6-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.5000 C1 JJ

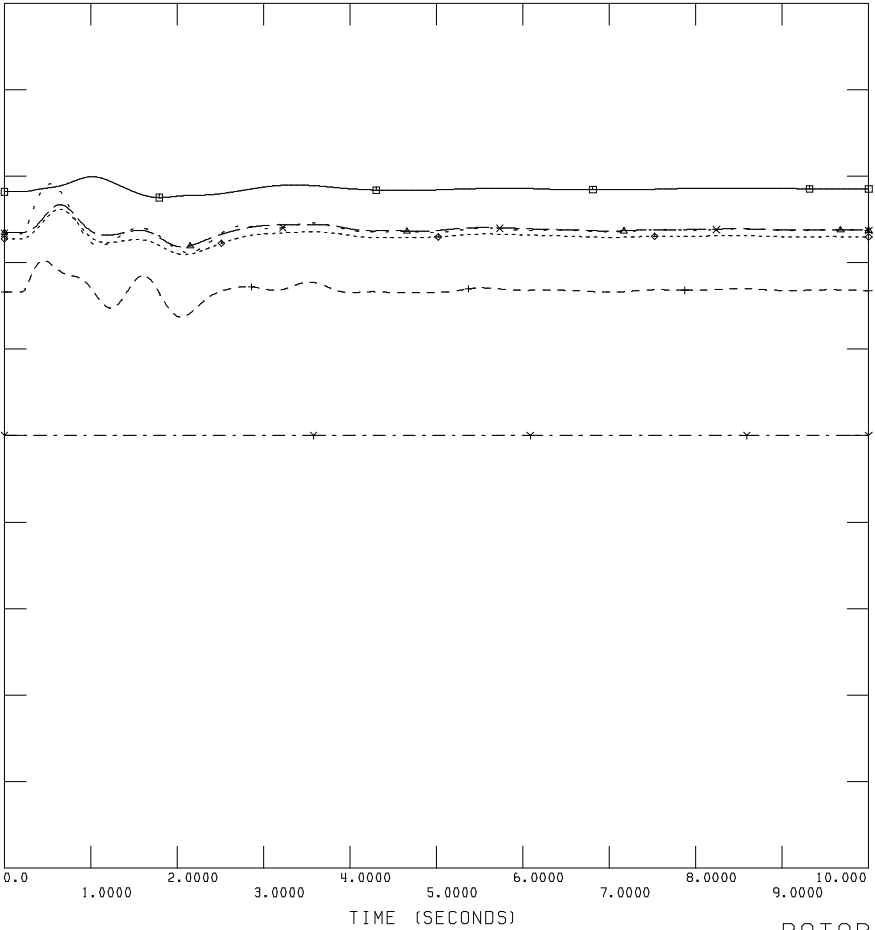
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



WED, OCT 09 2002 0:46  
ROTORANGLES 1 CON6 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON6-OFF.OUT

CHNL# 18: CANGL 70133 CTTY LRM 14.4000 C1 JJ

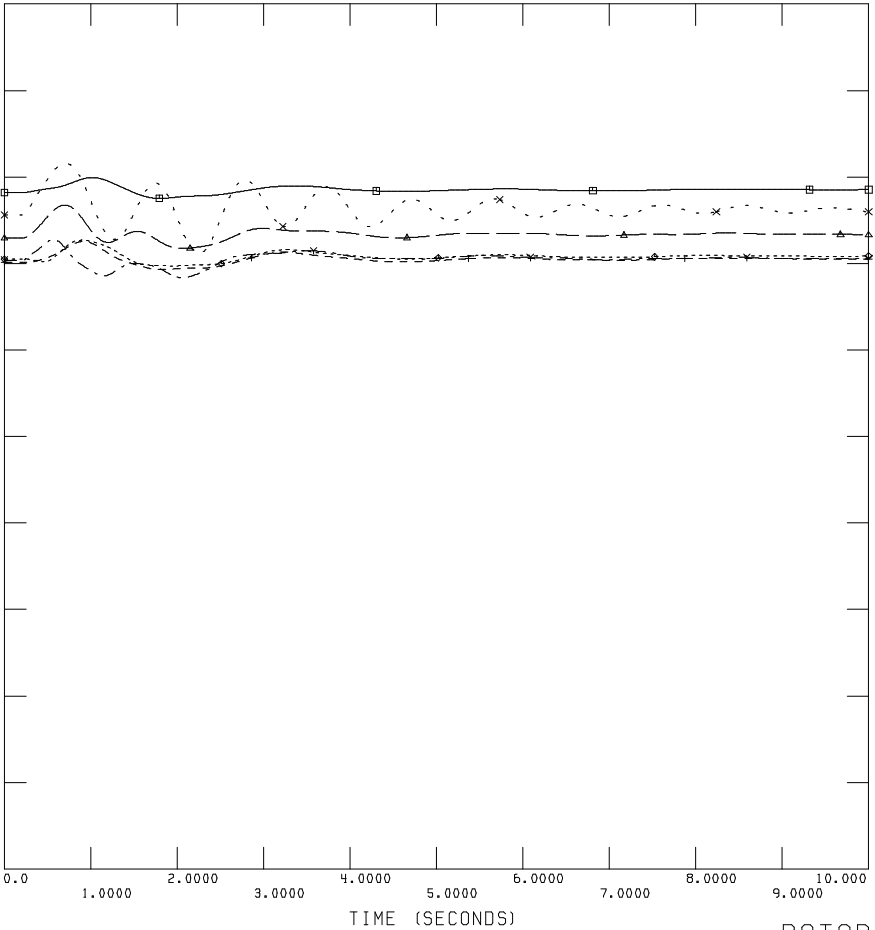
180.00 CHNL# 28: CANGL 70344 CR.F.DSLSY.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRRP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



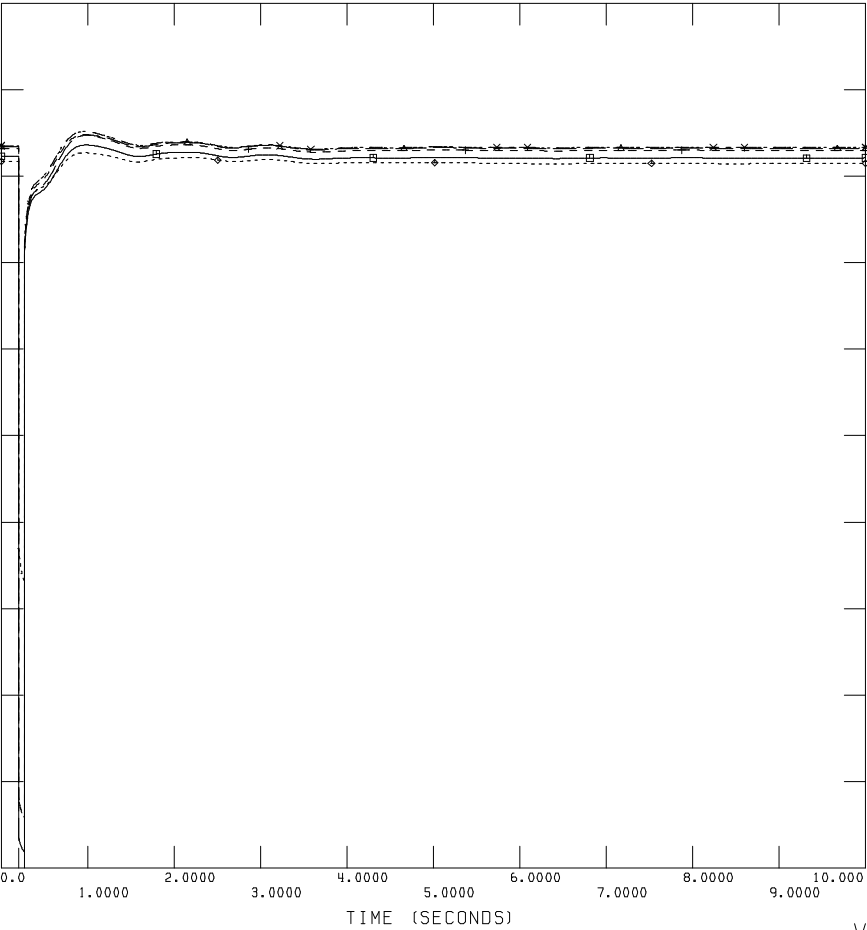
WED, OCT 09 2002 0:46  
ROTORANGLES 2 CON6 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON6-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 218: EVOLT 70700 CGOB_KNOB230.00JJ | 0.20000 |
| 1.2000 | CHNL # 205: EVOLT 70254 CLAMAR_C0230.00JJ | 0.20000 |
| 1.2000 | CHNL # 214: EVOLT 70286 EMIDMHTPS230.00JJ | 0.20000 |
| 1.2000 | CHNL # 213: EVOLT 70122 ECOMANCHE230.00JJ | 0.20000 |
| 1.2000 | CHNL # 207: EVOLT 70061 EBOONE_230.00JJ   | 0.20000 |



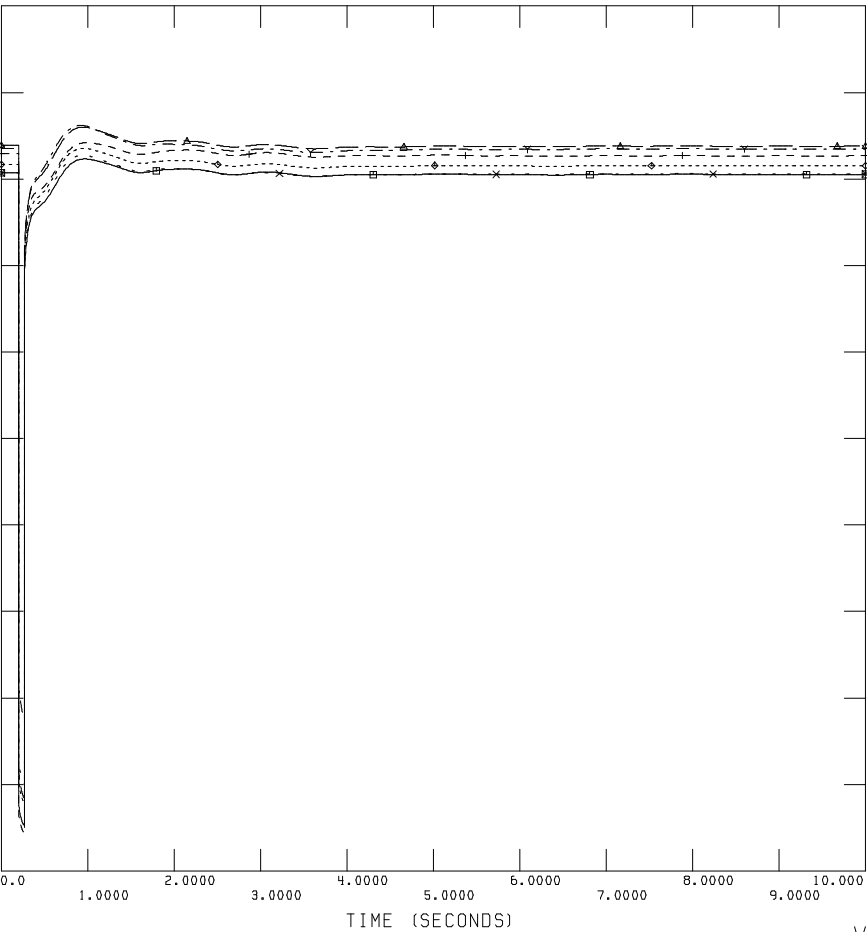
WED, OCT 09 2002 0:46  
VOLTAGE 1 CON6 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON6-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 209: EVOLT 70472 CMILDM_CK115.00JJ | 0.20000 |
| 1.2000 | CHNL # 208: EVOLT 70060 EBOONE_115.00JJ   | 0.20000 |
| 1.2000 | CHNL # 206: EVOLT 70253 CLAMAR_C0115.00JJ | 0.20000 |
| 1.2000 | CHNL # 212: EVOLT 70452 EVILBS_115.00JJ   | 0.20000 |
| 1.2000 | CHNL # 210: EVOLT 70247 CLAJUNTAT115.00JJ | 0.20000 |



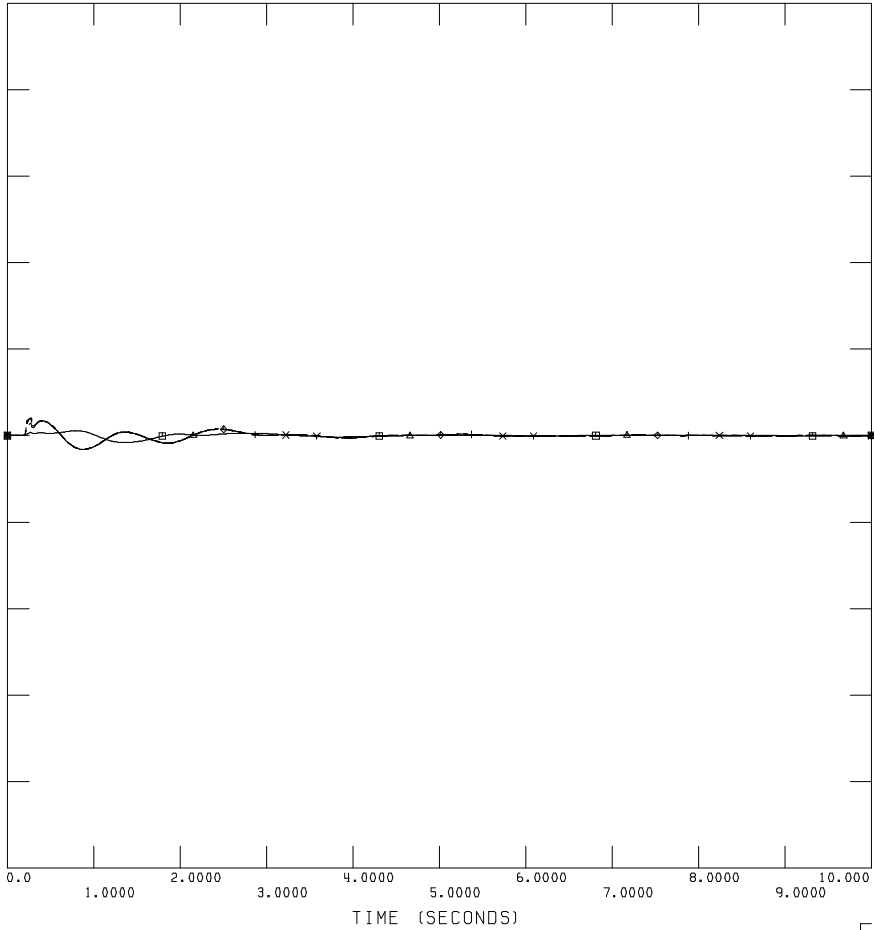
WED, OCT 09 2002 0:46  
VOLTAGE 2 CON6 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON6-OFF.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL # 318: CFREQ 70472 CWLOW CK115.00JJ  | -0.0500 |
| 0.05000 | CHNL # 319: CFREQ 70247 CLAJUNTAT115.00JJ | -0.0500 |
| 0.05000 | CHNL # 314: CFREQ 70254 CLAMAR C0230.00JJ | -0.0500 |
| 0.05000 | CHNL # 316: CFREQ 70061 CB00NE 230.00JJ   | -0.0500 |
| 0.05000 | CHNL # 327: CFREQ 79015 CCRBIG 1 22.000JJ | -0.0500 |



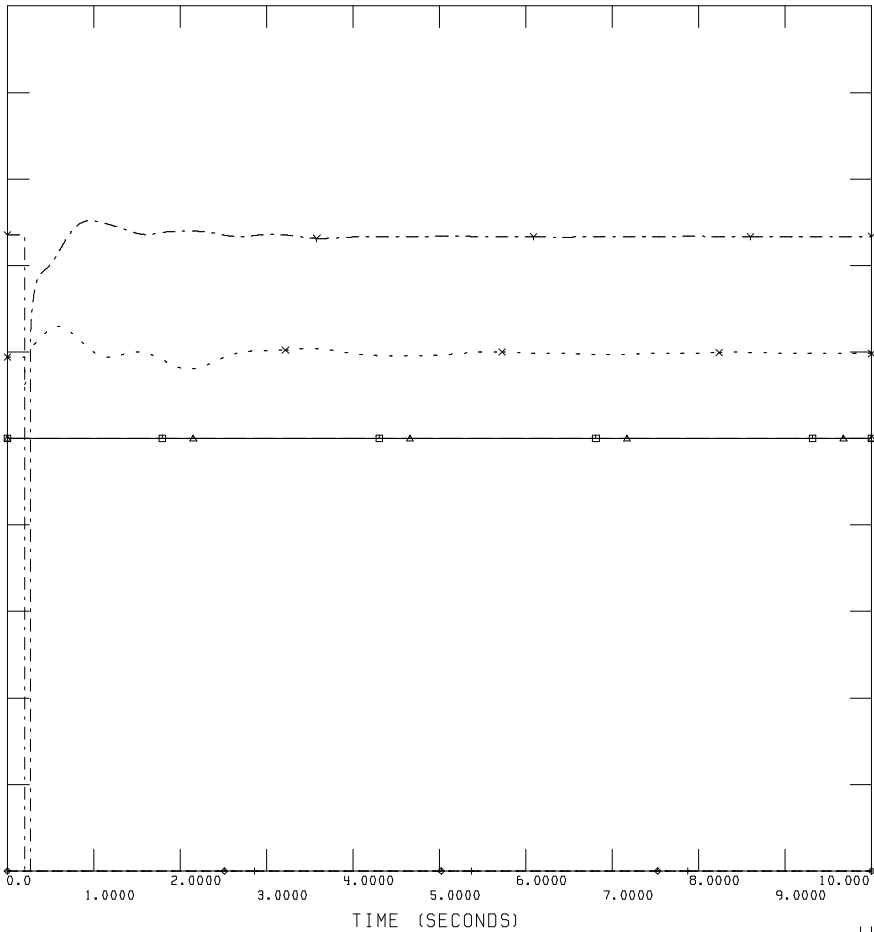
WED, OCT 09 2002 0:46  
FREQUENCY CON6 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON6-OFF.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL # 361: CANL 70701 CGB, KNOB34.500JJ | 0.30000 |
| 180.00 | CHNL # 356: CPQMR 70700 TO 70701 CKT 1J  | -180.0  |
| 100.00 | CHNL # 358: CPQMR 70700 TO 70702 CKT 2J  | 0.0     |
| 100.00 | CHNL # 357: CVARS 70700 TO 70701 CKT 1J  | 0.0     |
| 50.000 | CHNL # 359: CVARS 70700 TO 70702 CKT 2J  | -50.00  |



WED, OCT 09 2002 0:47  
WIND DATA CON6 QMW

WIND FARM OFF-LINE: SIMULATION RUN 7 (CON7-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON7-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON COMANCHE 230 KV BUS 70122  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM COMANCHE 230 KV BUS 70122 TO FULLER 230 KV BUS 73477  
CLEAR FAULT AT COMANCHE 230 KV BUS 70122  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON7-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.500J C1 JJ

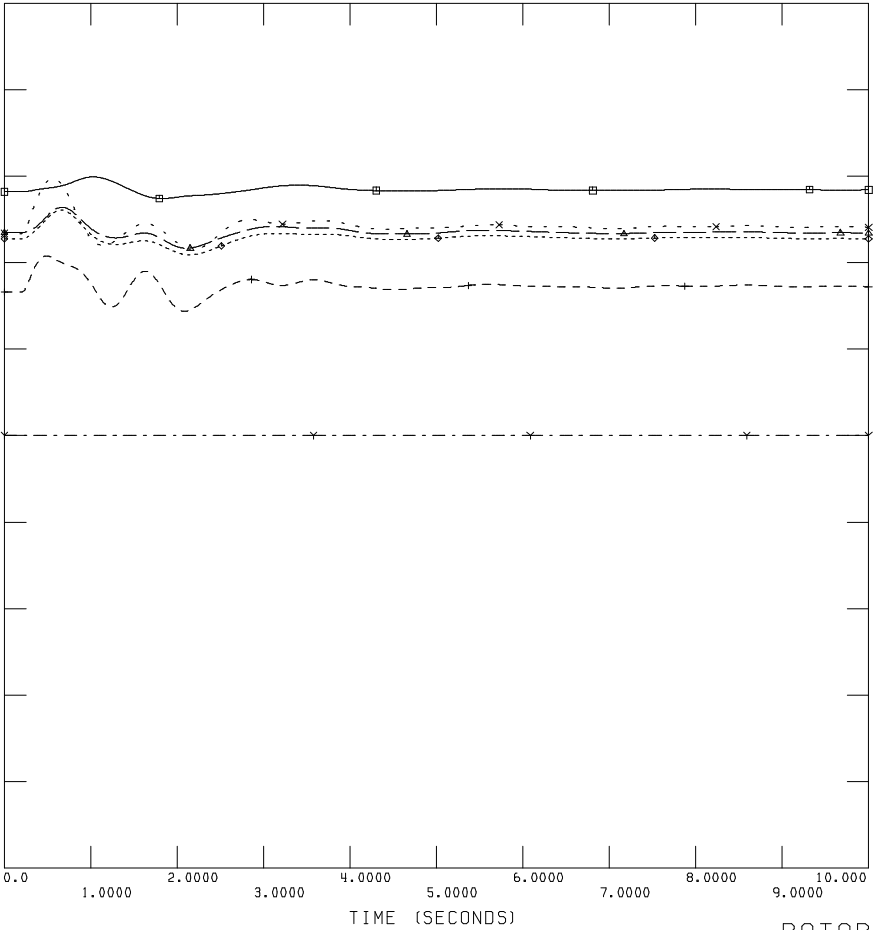
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRBKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1 22.000J C1 JJ -180.0



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ROTORANGLES 1 CON7 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON7-OFF.OUT

CHNL# 18: CANGL 70133 CCRB\_LRM 14.400J C1 JJ

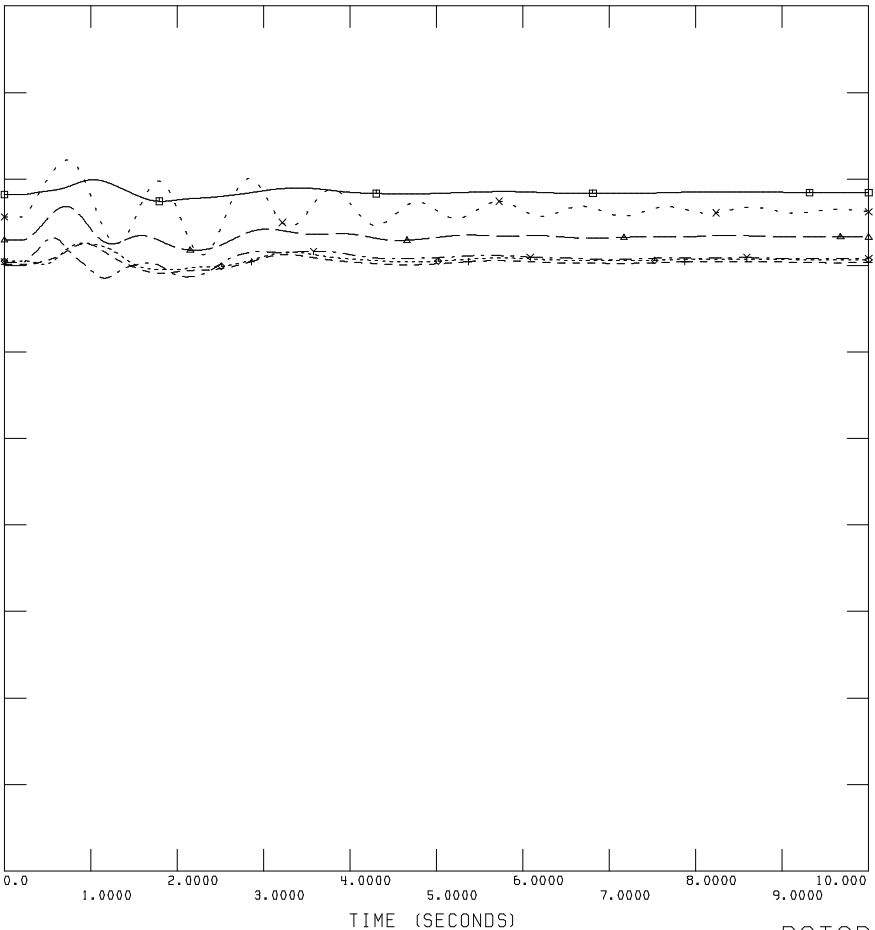
180.00 CHNL# 28: CANGL 70344 CR.F.DSL44.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRBP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1 22.000J C1 JJ -180.0



WED, OCT 09 2002 0:47  
ROTORANGLES 2 CON7 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON7-OFF.OUT

CHNL # 220: EVOLT 70701 CGOB\_KNOB34,50000

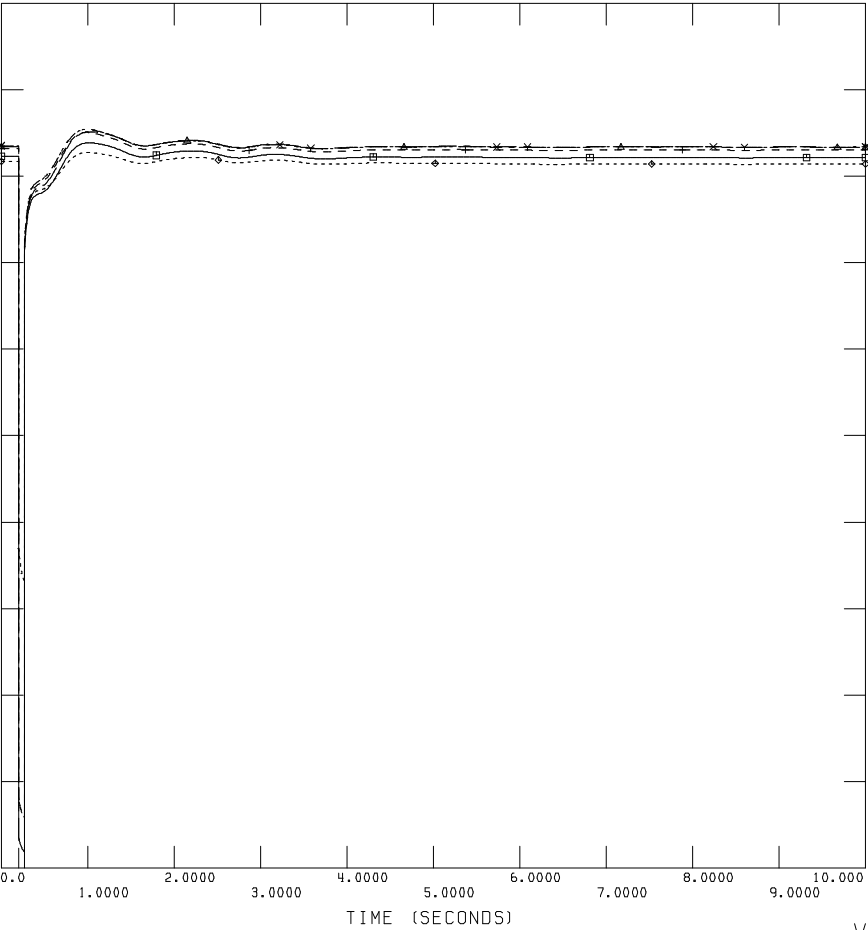
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230,0000 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230,0000 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230,0000 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230,0000 0.20000

1.2000 CHNL # 207: EVOLT 70061 EBOONE\_230,0000 0.20000



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VOLTAGE 1 CON7 0MM



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON7-OFF.OUT

CHNL # 219: EVOLT 70136 C01Y\_LM 69,00000

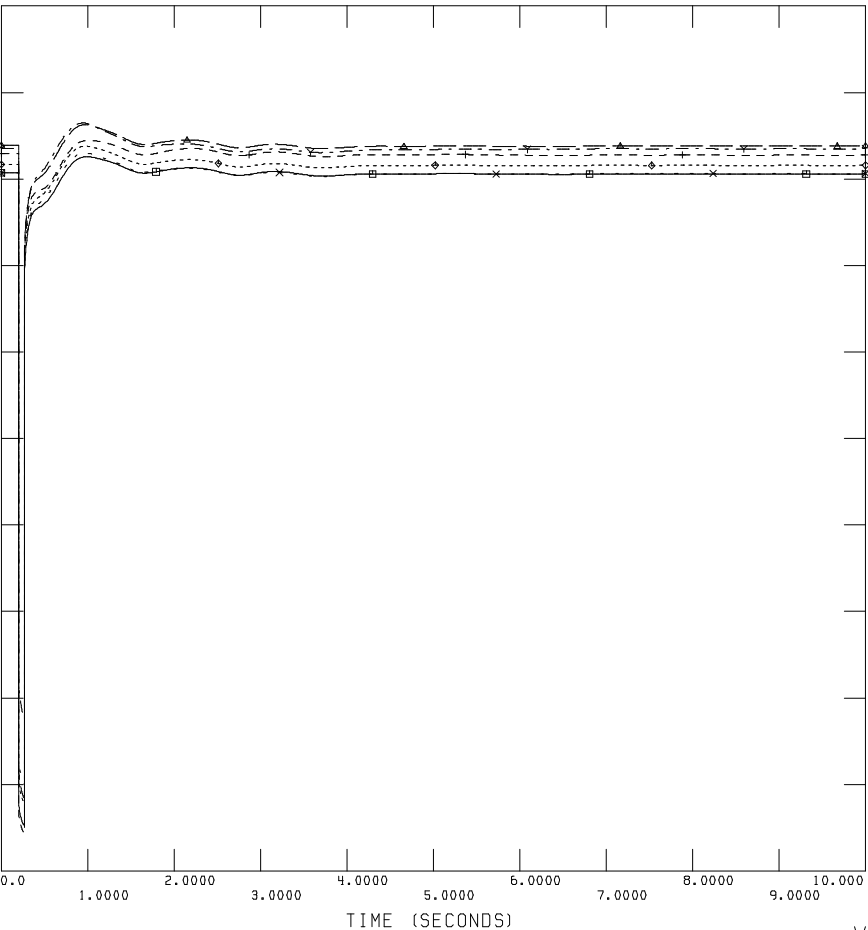
1.2000 CHNL # 209: EVOLT 70472 CMILDM\_CK115,0000 0.20000

1.2000 CHNL # 208: EVOLT 70060 EBOONE\_115,0000 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115,0000 0.20000

1.2000 CHNL # 212: EVOLT 70452 EVILBS\_115,0000 0.20000

1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115,0000 0.20000



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VOLTAGE 2 CON7 0MM

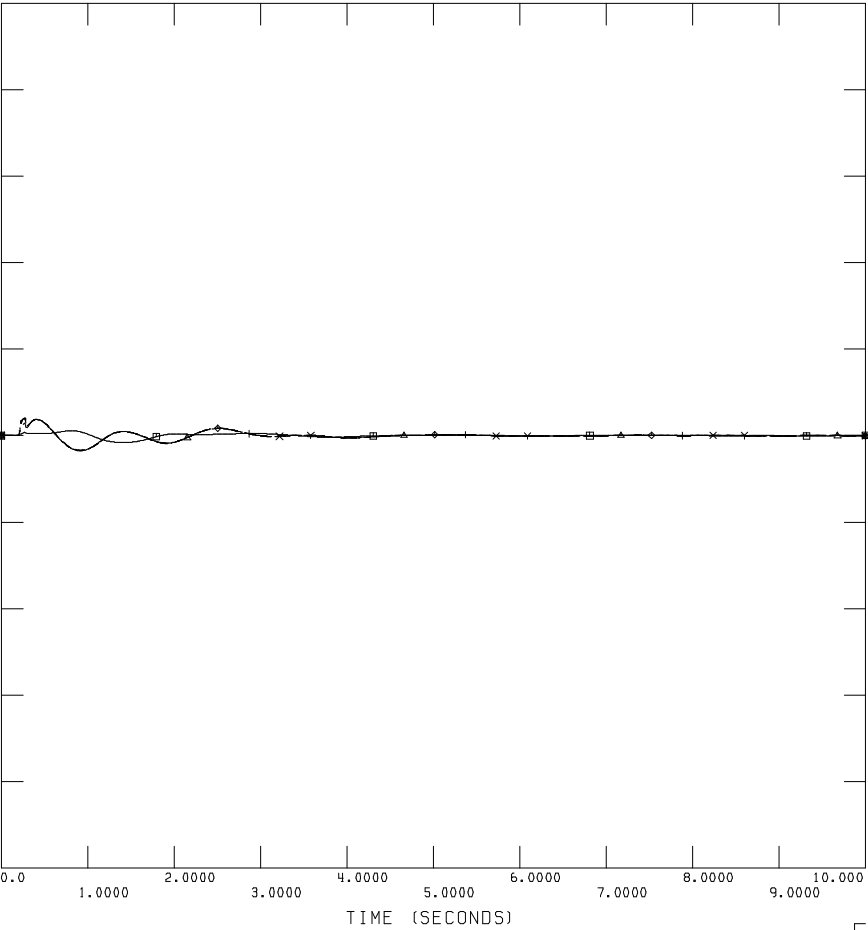




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON7-OFF.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL # 318: CFREQ 70472 CWLOW CK115.00JJ  | -0.0500 |
| 0.05000 | CHNL # 319: CFREQ 70254 CLAMAR C0230.00JJ | -0.0500 |
| 0.05000 | CHNL # 314: CFREQ 70254 CLAMAR C0230.00JJ | -0.0500 |
| 0.05000 | CHNL # 316: CFREQ 70061 CB00NE 230.00JJ   | -0.0500 |
| 0.05000 | CHNL # 327: CFREQ 79015 CCRBIG 1 22.00JJ  | -0.0500 |



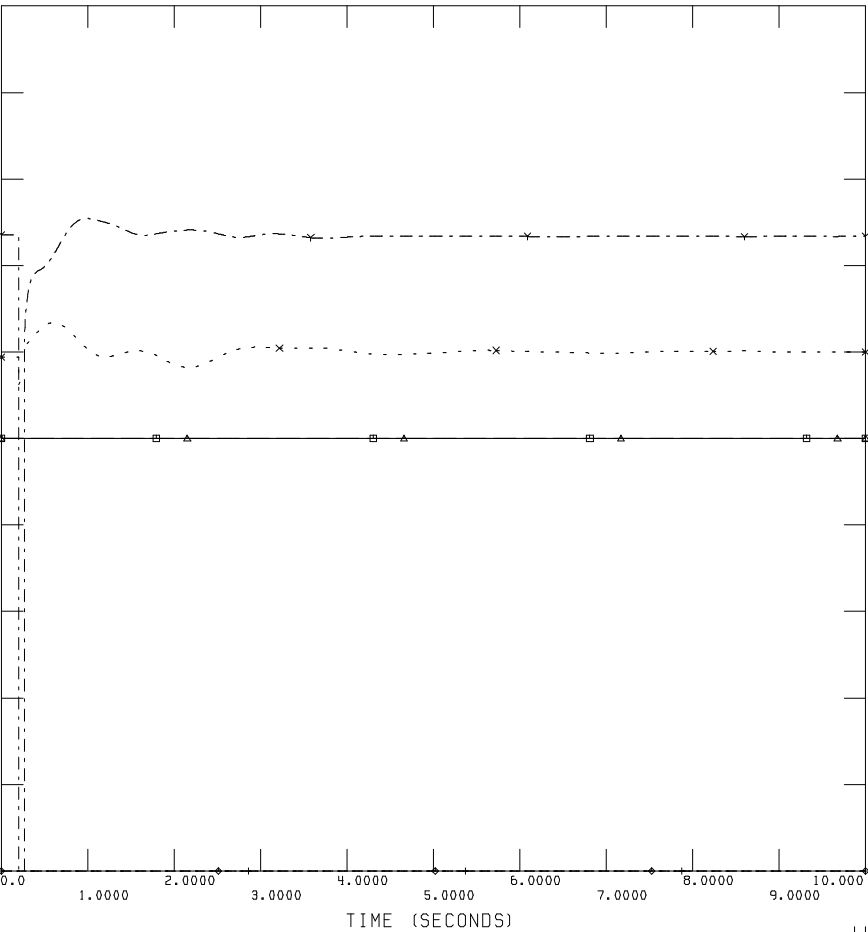
WED, OCT 09 2002 0:47  
FREQUENCY CON7 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON7-OFF.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL # 361: CANL 70701 CGB, KNOB34.500JJ | 0.30000 |
| 180.00 | CHNL # 356: CPQMR 70700 TO 70701 CKT 1J  | -180.0  |
| 100.00 | CHNL # 358: CPQMR 70700 TO 70702 CKT 2J  | 0.0     |
| 100.00 | CHNL # 357: CVARS 70700 TO 70701 CKT 1J  | 0.0     |
| 50.000 | CHNL # 359: CVARS 70700 TO 70702 CKT 2J  | -50.00  |



WED, OCT 09 2002 0:47  
WIND DATA CON7 QMW

WIND FARM OFF-LINE: SIMULATION RUN 8 (CON8-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON8-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON COMANCHE 230 KV BUS 70122  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM COMANCHE 230 KV BUS 70122 TO CF & I FURNITURE 230 KV BUS 70094  
CLEAR FAULT AT COMANCHE 230 KV BUS 70122  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON8-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.5000 C1 JJ

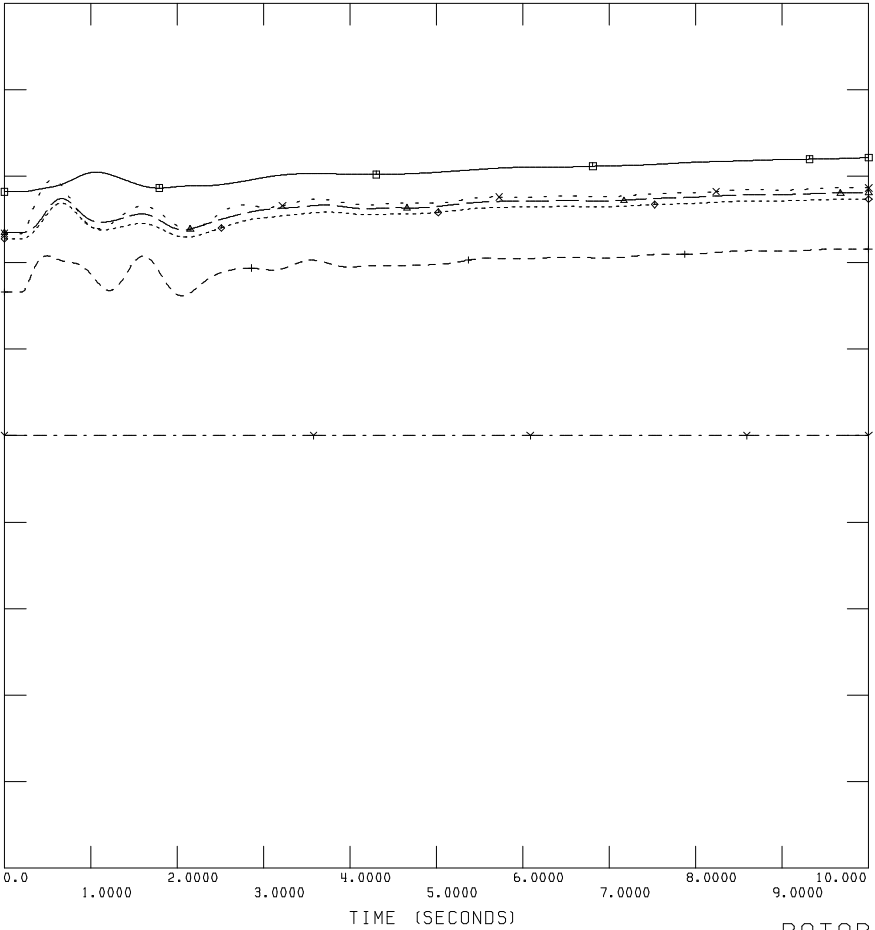
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON8 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON8-OFF.OUT

CHNL# 18: CANGL 70133 CTTY LRM 14.4000 C1 JJ

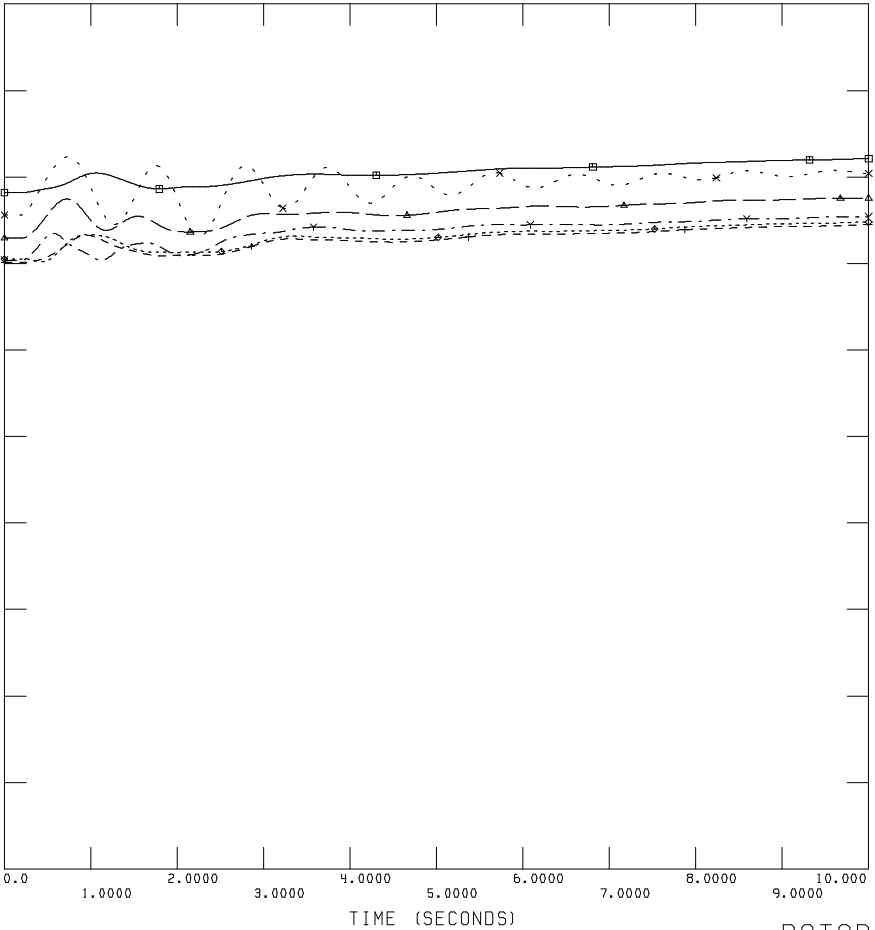
180.00 CHNL# 28: CANGL 70344 CR.F.DSLSH.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



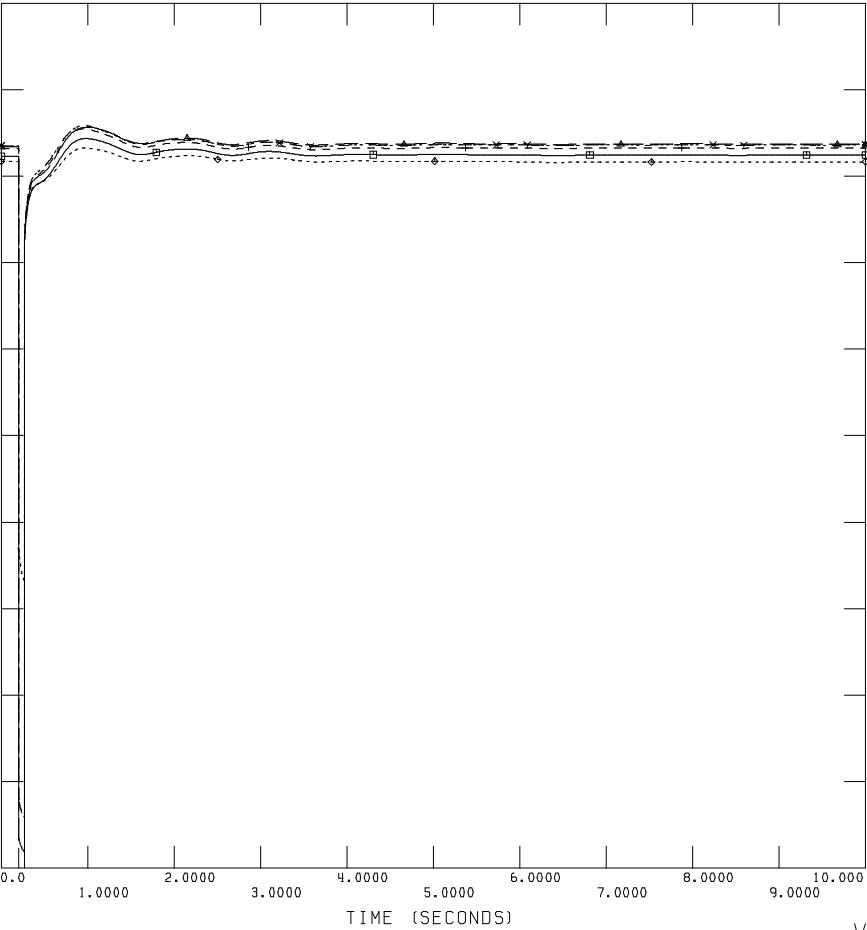
WED, OCT 09 2002 0:47  
ROTORANGLES 2 CON8 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON8-OFF.OUT

|        |                                            |         |
|--------|--------------------------------------------|---------|
| 1.2000 | CHNL # 220: EVOLT 70701 CGOB_KNOB34.50000  | 0.20000 |
| 1.2000 | CHNL # 218: EVOLT 70700 CGOB_KNOB230.00000 | 0.20000 |
| 1.2000 | CHNL # 205: EVOLT 70254 CLAMAR_C0230.00000 | 0.20000 |
| 1.2000 | CHNL # 214: EVOLT 70286 EMIDMHTPS230.00000 | 0.20000 |
| 1.2000 | CHNL # 213: EVOLT 70122 ECOMANCHE230.00000 | 0.20000 |
| 1.2000 | CHNL # 207: EVOLT 70061 EBOONE_230.00000   | 0.20000 |



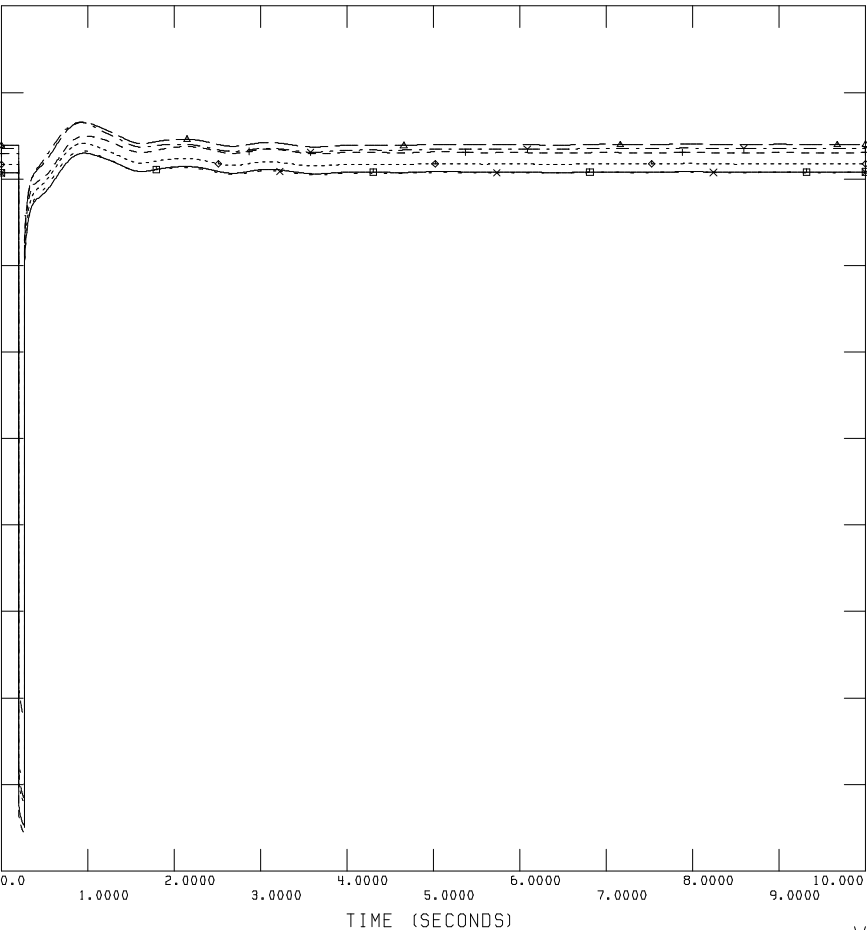
WED, OCT 09 2002 0:47  
VOLTAGE 1 CON8 0MM



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON8-OFF.OUT

|        |                                            |         |
|--------|--------------------------------------------|---------|
| 1.2000 | CHNL # 209: EVOLT 70472 CMILDM_CK115.00000 | 0.20000 |
| 1.2000 | CHNL # 208: EVOLT 70060 EBOONE_115.00000   | 0.20000 |
| 1.2000 | CHNL # 206: EVOLT 70253 CLAMAR_C0115.00000 | 0.20000 |
| 1.2000 | CHNL # 212: EVOLT 70452 EVILBS_115.00000   | 0.20000 |
| 1.2000 | CHNL # 210: EVOLT 70247 CLAJUNTAT115.00000 | 0.20000 |



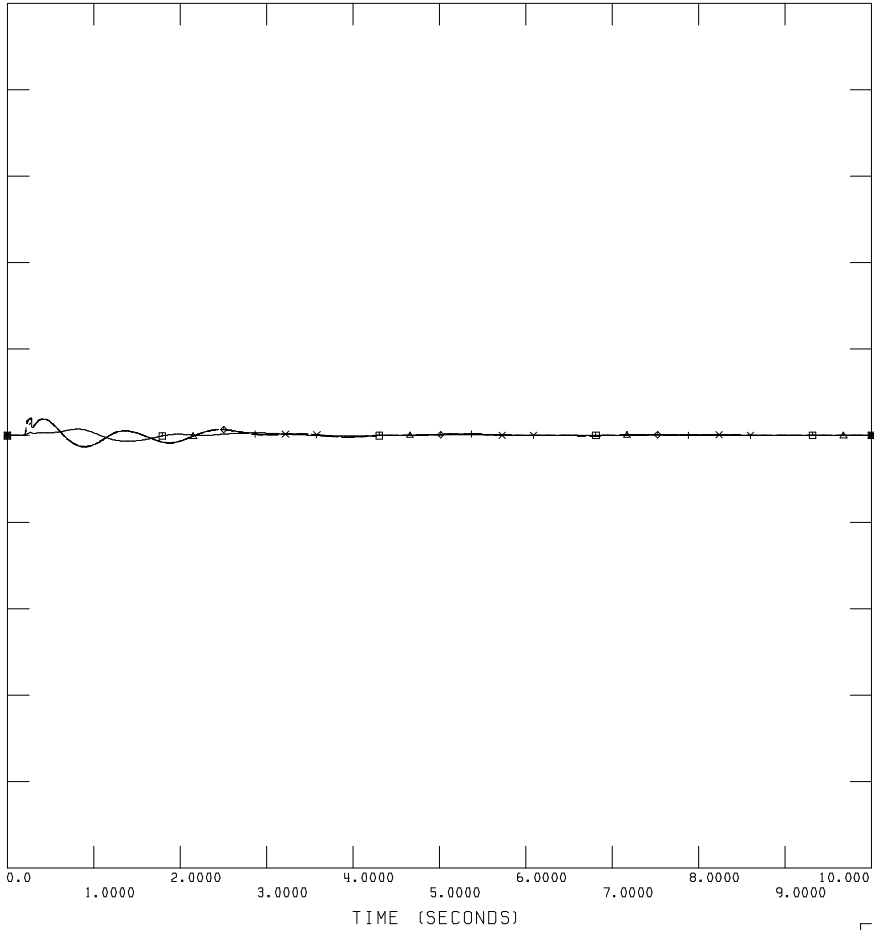
WED, OCT 09 2002 0:47  
VOLTAGE 2 CON8 0MM



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON8-OFF.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL # 318: CFREQ 70472 CWLOW CK115.00JJ  | -0.0500 |
| 0.05000 | CHNL # 319: CFREQ 70247 CLAJUNTAT115.00JJ | -0.0500 |
| 0.05000 | CHNL # 314: CFREQ 70254 CLAMAR C0230.00JJ | -0.0500 |
| 0.05000 | CHNL # 316: CFREQ 70061 CB00NE 230.00JJ   | -0.0500 |
| 0.05000 | CHNL # 327: CFREQ 79015 CCRBIG 1 22.000JJ | -0.0500 |



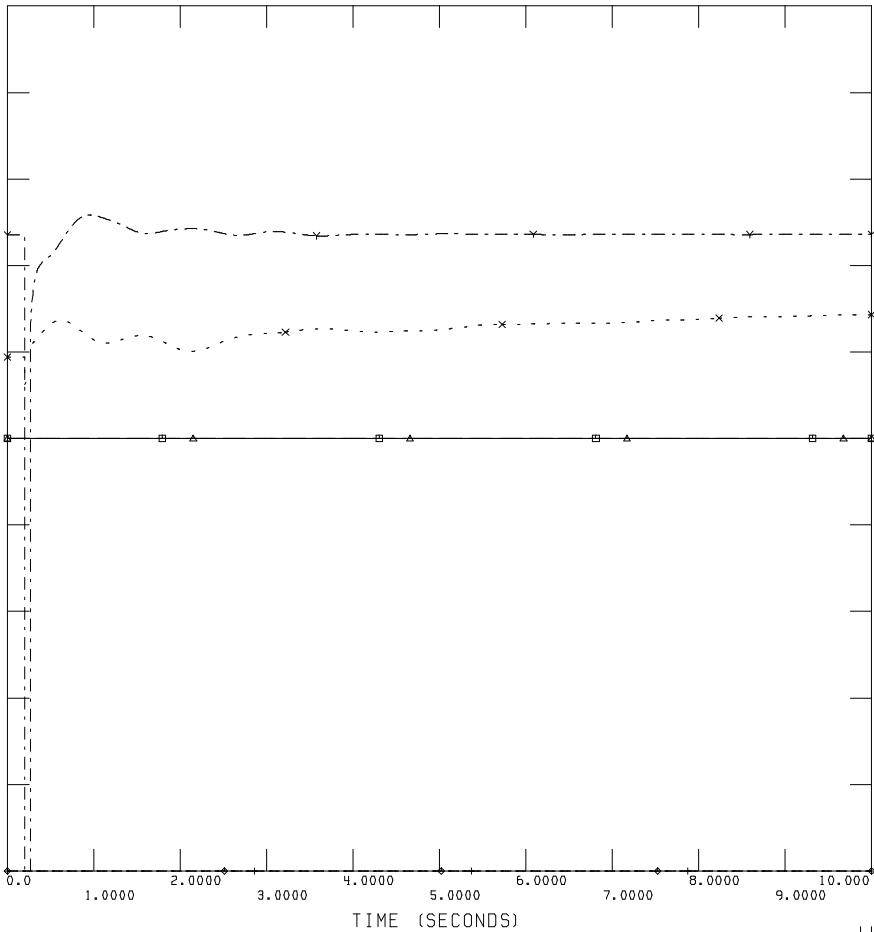
WED, OCT 09 2002 0:47  
FREQUENCY CON8 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON8-OFF.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL # 361: CANG 70701 CGOB_KNOB34.500JJ | 0.30000 |
| 180.00 | CHNL # 356: CPQMR 70700 TO 70701 CKT 1J  | -180.0  |
| 100.00 | CHNL # 358: CPQMR 70700 TO 70702 CKT 2J  | 0.0     |
| 100.00 | CHNL # 357: CVARS 70700 TO 70701 CKT 1J  | -50.00  |
| 50.000 | CHNL # 359: CVARS 70700 TO 70702 CKT 2J  | -50.00  |



WED, OCT 09 2002 0:47  
WIND DATA CON8 QMW

WIND FARM OFF-LINE: SIMULATION RUN 9 (CON9-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON9-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON COMANCHE 230 KV BUS 70122  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM COMANCHE 230 KV BUS 70122 TO BOONE 230 KV BUS 70061  
CLEAR FAULT AT COMANCHE 230 KV BUS 70122  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\xcel\_windfarm\2003\new-offs\CON9-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.5000 C1 JJ

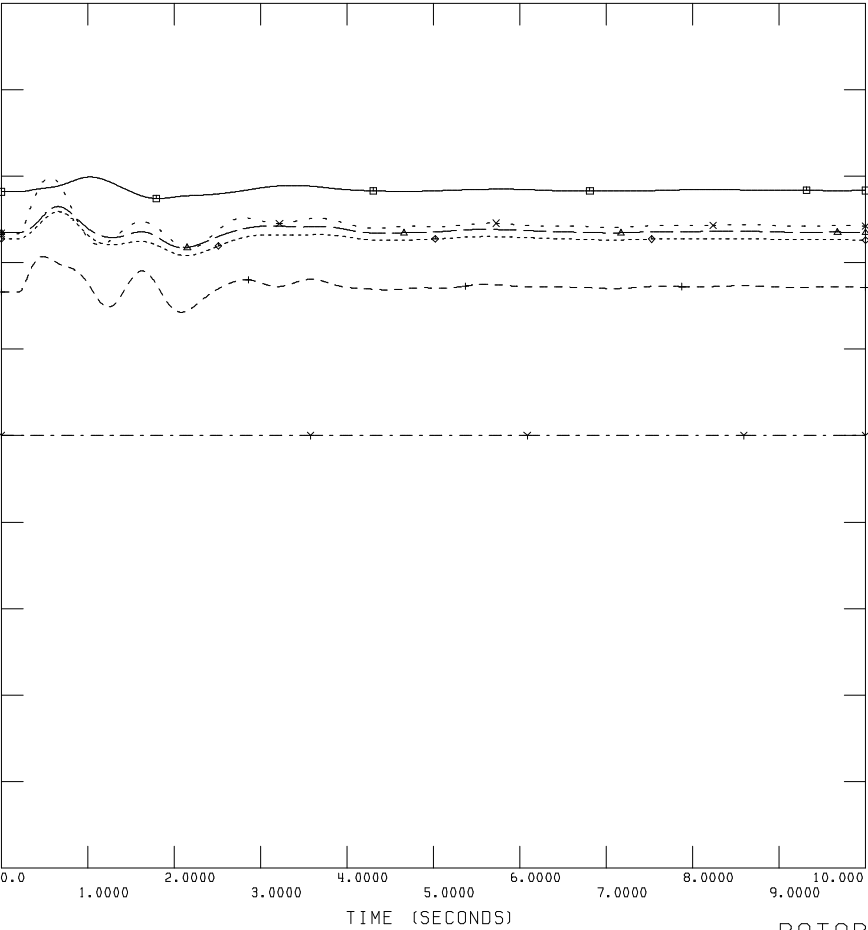
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



WED, OCT 09 2002 0:47  
ROTORANGLES 1 CON9 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\xcel\_windfarm\2003\new-offs\CON9-OFF.OUT

CHNL# 18: CANGL 70133 CTTY LRM 14.4000 C1 JJ

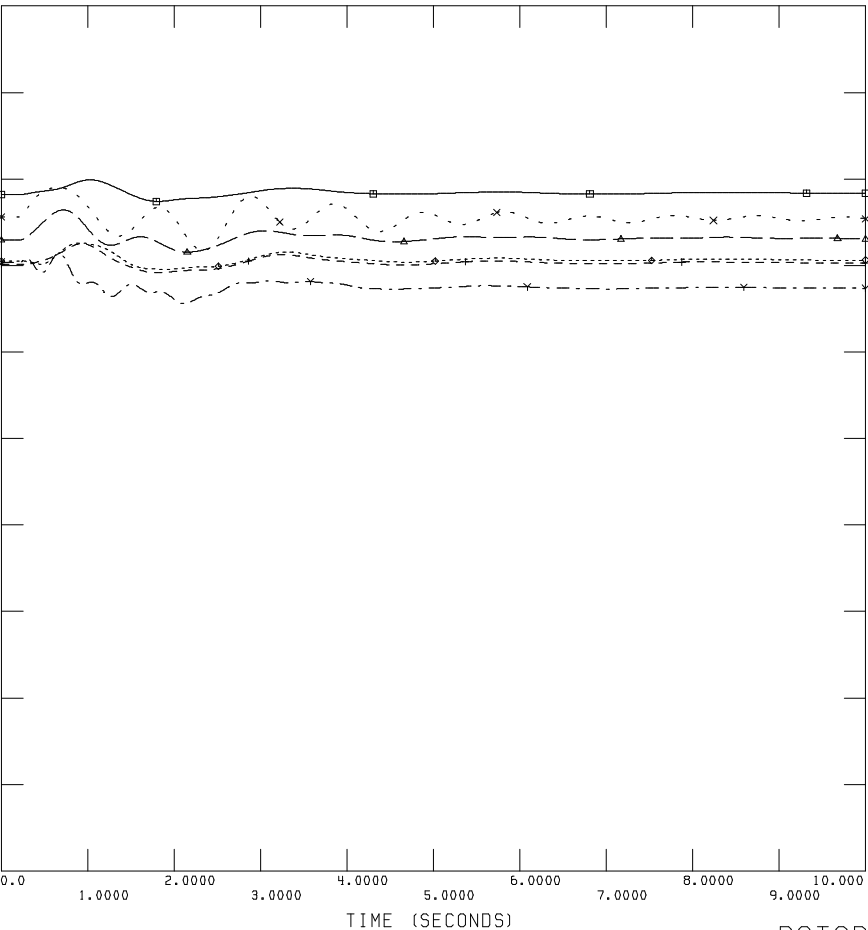
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRRP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



WED, OCT 09 2002 0:48  
ROTORANGLES 2 CON9 QMW



POWER  
TECHNICAL  
SERIES

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON9-OFF.OUT

CHNL # 220: EVOLT 70701 CGOB\_KNOB34.50000

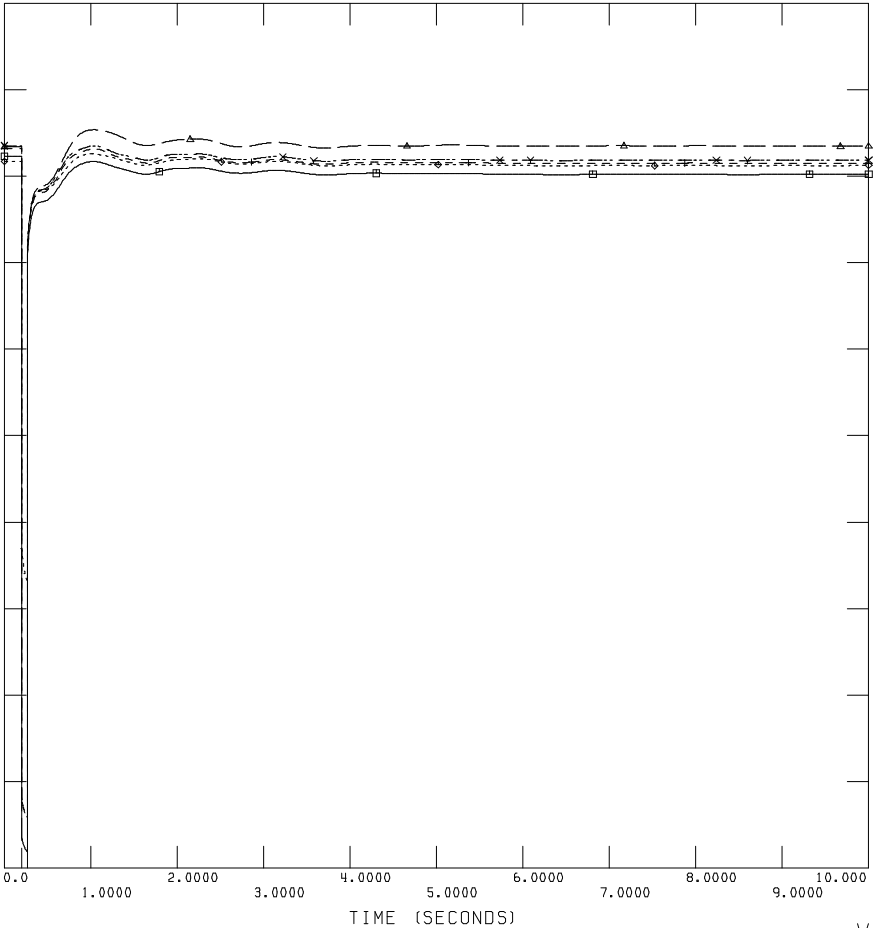
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230.0000 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230.0000 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230.0000 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230.0000 0.20000

1.2000 CHNL # 207: EVOLT 70061 EBOONE\_230.0000 0.20000



WED, OCT 09 2002 0:48  
VOLTAGE 1 CON9 0MM



POWER  
TECHNICAL  
SERIES

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON9-OFF.OUT

CHNL # 219: EVOLT 70136 C01Y\_LM 69.00000

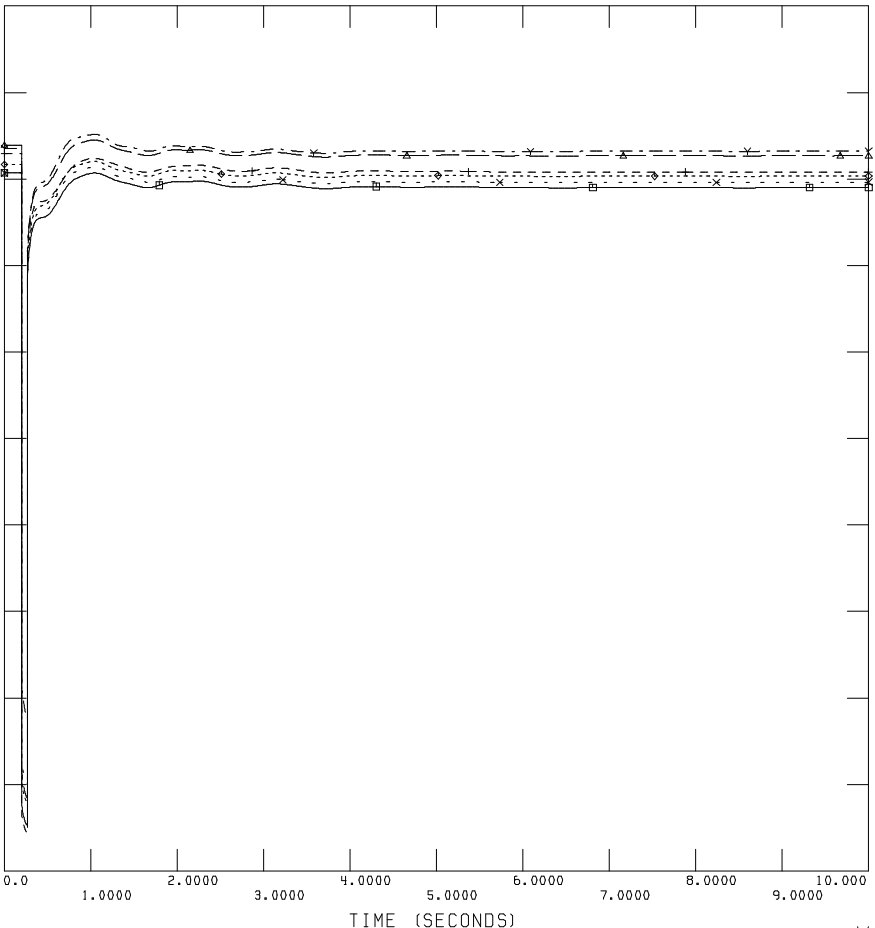
1.2000 CHNL # 209: EVOLT 70472 CMILLOW\_CK115.0000 0.20000

1.2000 CHNL # 208: EVOLT 70060 EBOONE\_115.0000 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115.0000 0.20000

1.2000 CHNL # 212: EVOLT 70452 EVILBS\_115.0000 0.20000

1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115.0000 0.20000



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VOLTAGE 2 CON9 0MM

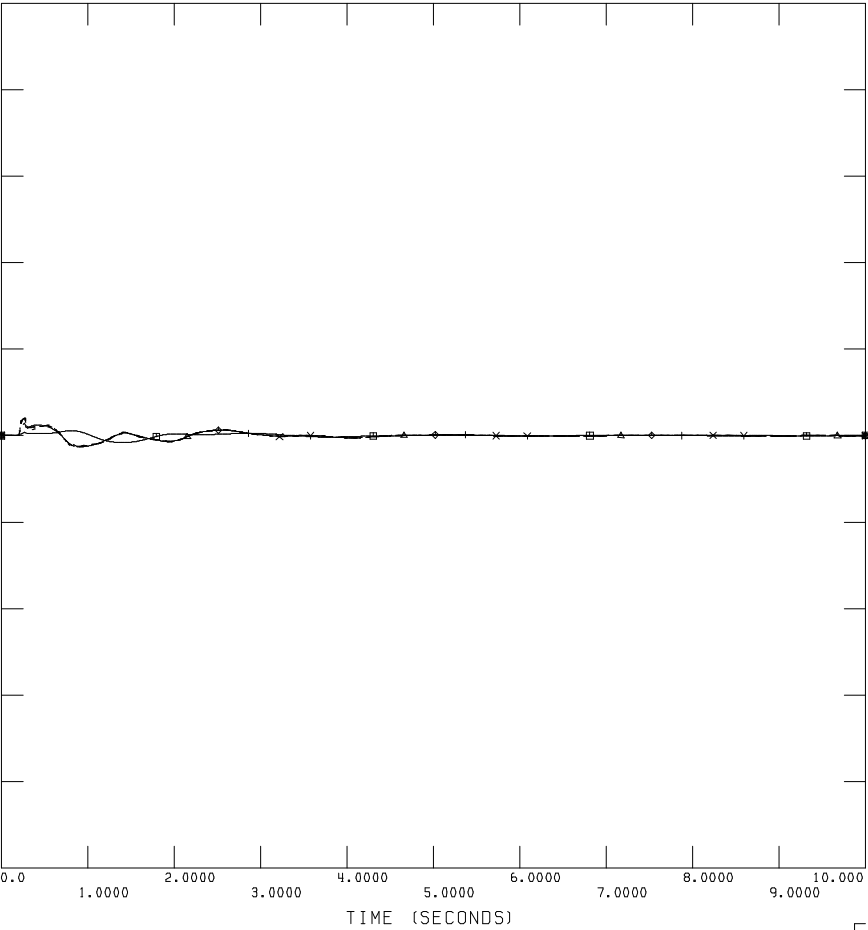




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON9-OFF.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL # 318: CFREQ 70472 CML0M CK115.00JJ  | -0.0500 |
| 0.05000 | CHNL # 319: CFREQ 70254 CLAMAR C0230.00JJ | -0.0500 |
| 0.05000 | CHNL # 314: CFREQ 70254 CLAMAR C0230.00JJ | -0.0500 |
| 0.05000 | CHNL # 316: CFREQ 70061 EB00NE 230.00JJ   | -0.0500 |
| 0.05000 | CHNL # 327: CFREQ 79015 CCRBIG 1 22.00JJ  | -0.0500 |



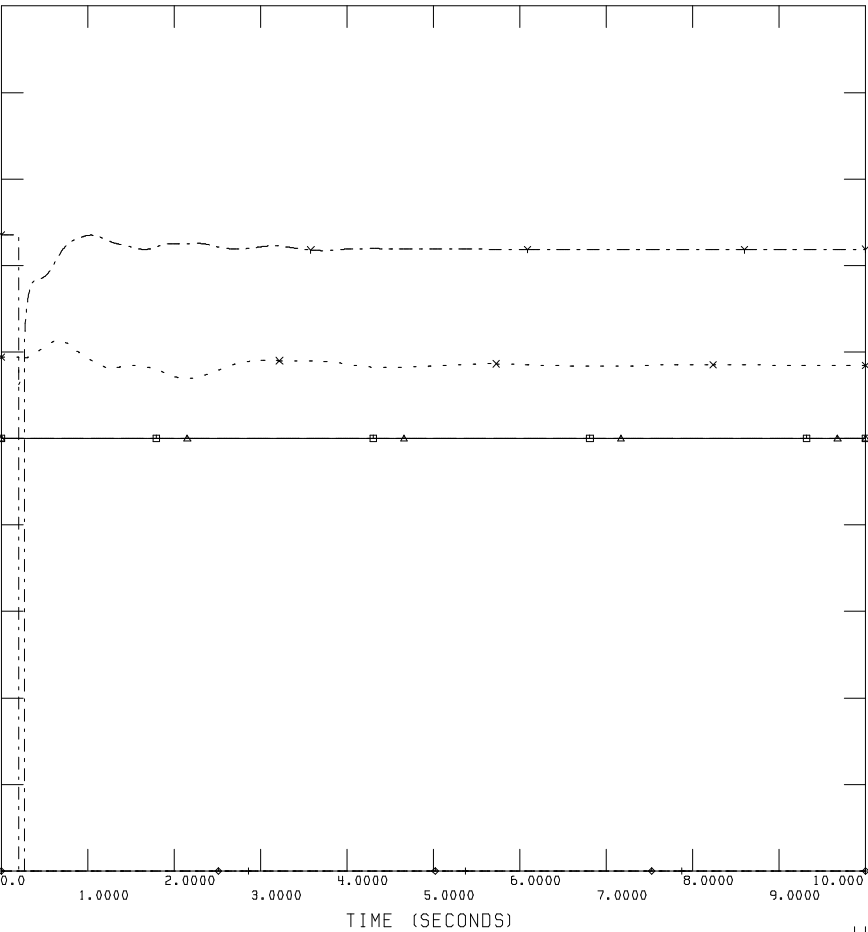
WED, OCT 09 2002 0:48  
FREQUENCY CON9 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-ofs\CON9-OFF.0UT

|        |                                           |        |
|--------|-------------------------------------------|--------|
| 1.3000 | CHNL # 361: CANG 70701 C0B, KNOB34, 500JJ | 0.3000 |
| 180.00 | CHNL # 356: CPQMR 70700 TO 70701 CKT 1J   | -180.0 |
| 100.00 | CHNL # 358: CPQMR 70700 TO 70702 CKT 2J   | 0.0    |
| 100.00 | CHNL # 357: CVARS 70700 TO 70701 CKT 1J   | -50.00 |
| 50.000 | CHNL # 359: CVARS 70700 TO 70702 CKT 2J   | -50.00 |



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WIND DATA CON9 QMW

WIND FARM OFF-LINE: SIMULATION RUN 10 (CON10-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON10-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON LAMARE 230 KV BUS 70254  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM LAMAR BUS 70254 TO GP WIND FARM BUS 70700  
DROP GENERATOR 1 AT GOB\_KNOB 34.5 BUS 70701  
DROP GENERATOR 1 AT GOB\_KNOB 34.5 BUS 70702  
CLEAR FAULT AT LAMAR BUS 70254  
RUN TO 10 SECONDS PRINT 10 PLOT 1  
  
END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON10-OFF.OUT

CHNL# 11: CANGL 70701 CCRB 14.5000 C1 JJ

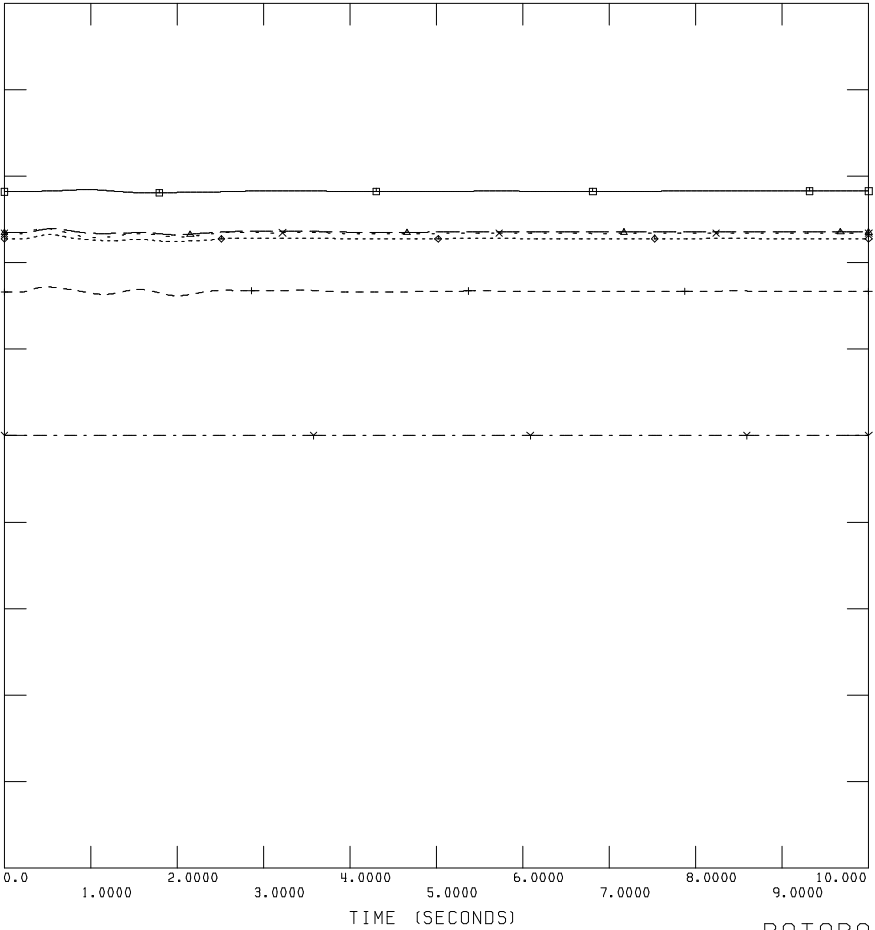
180.00 CHNL# 17: CANGL 70120 ECOMAN 2.24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7.13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1.22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON10 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON10-OFF.OUT

CHNL# 18: CANGL 70133 CCRB 14.5000 C1 JJ

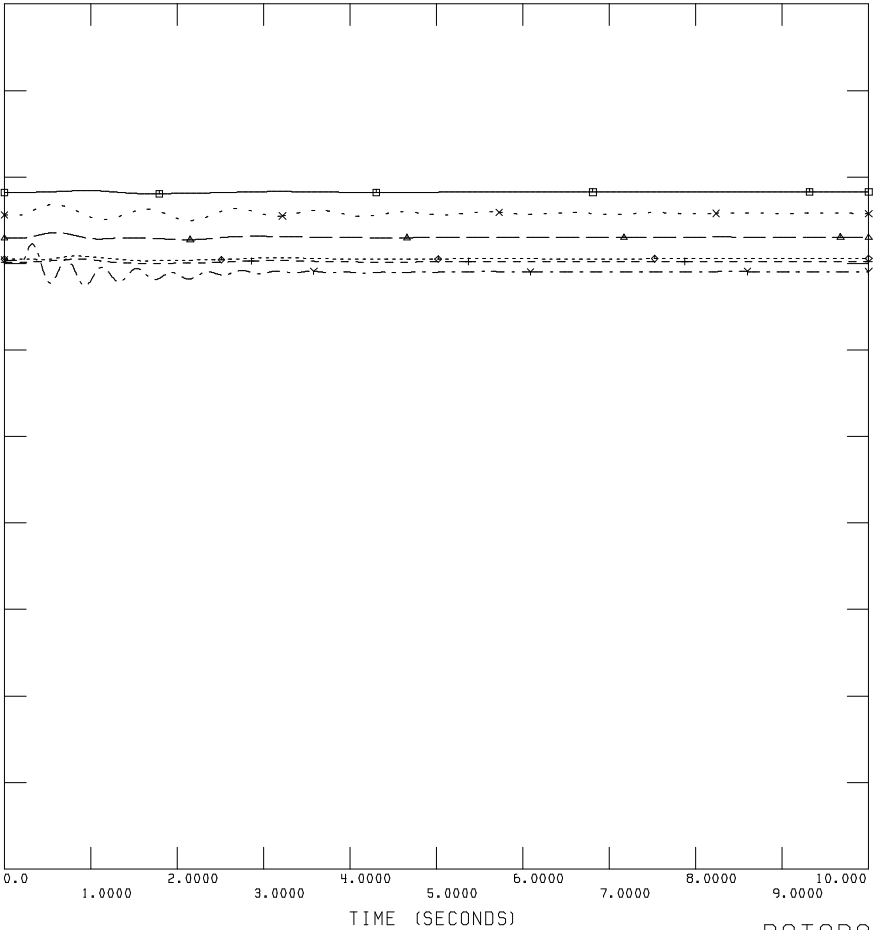
180.00 CHNL# 28: CANGL 70344 CR.F.DSLSH.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1.22.0000 C1 JJ -180.0

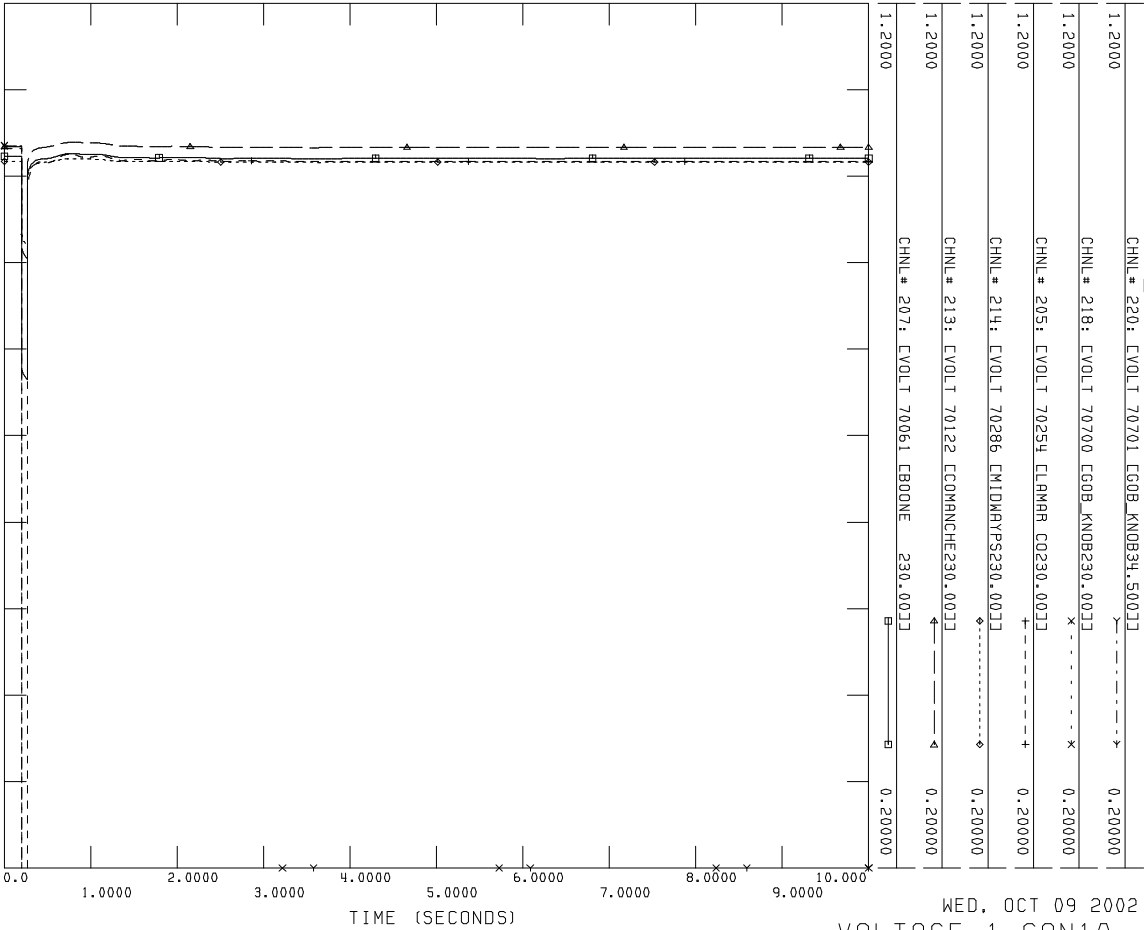


WED, OCT 09 2002 0:48  
ROTORANGLES 2 CON10 QMW



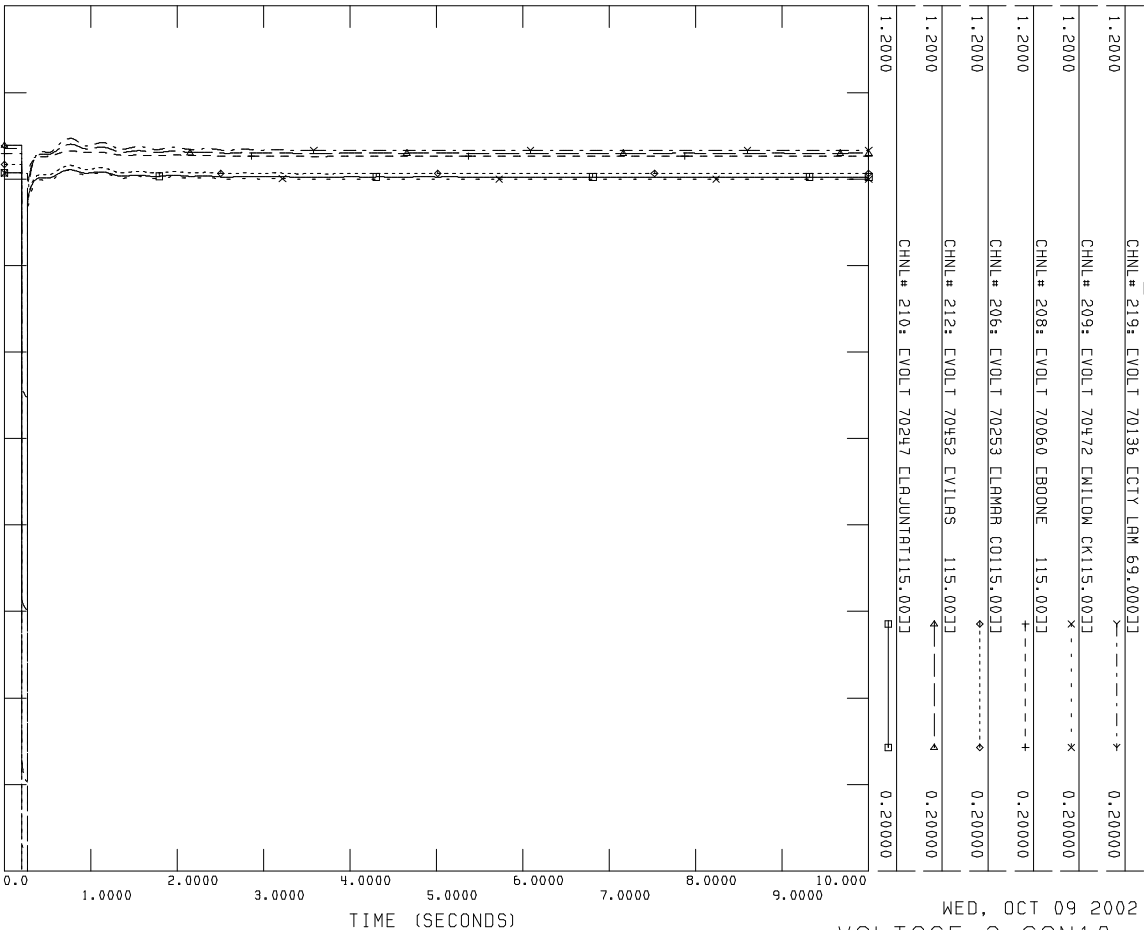
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON10-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

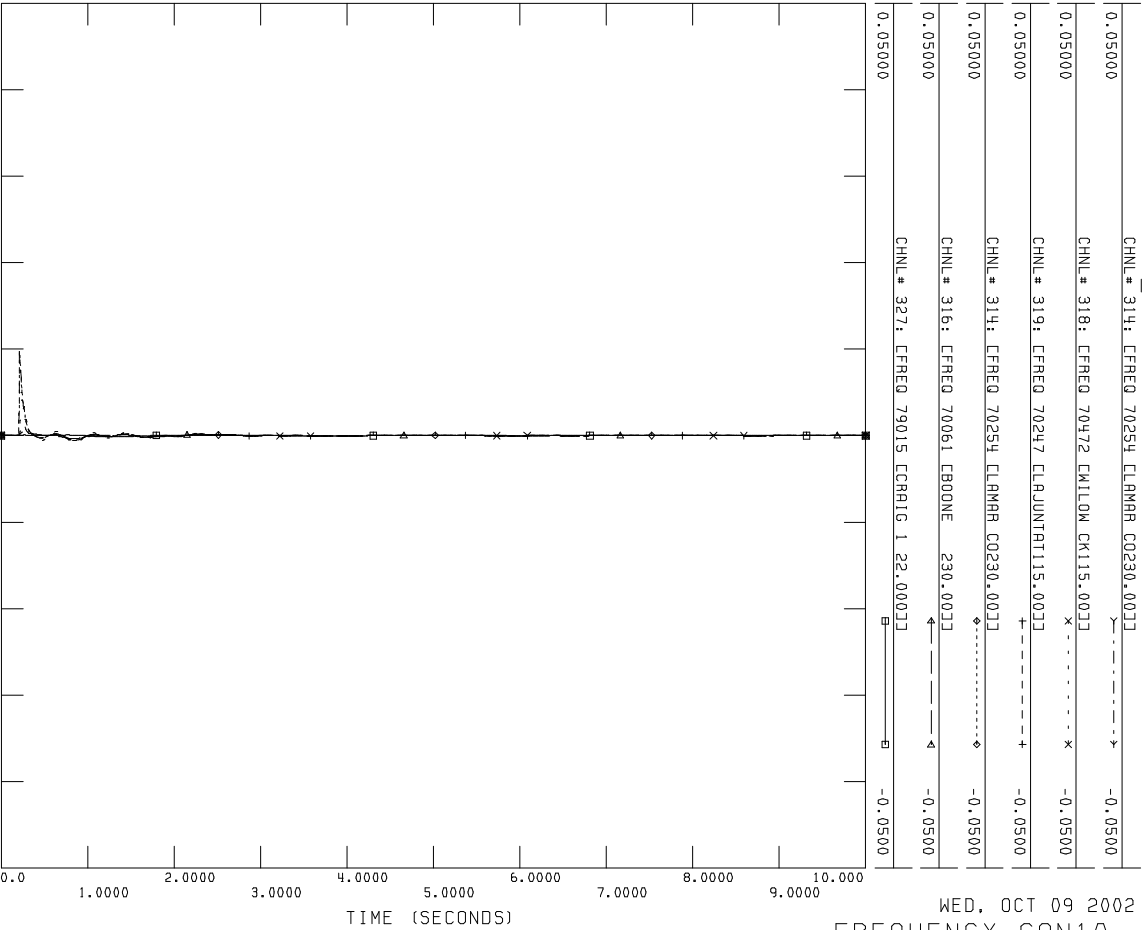
FILE: C:\Xcel\_windfarm\2003\new-offs\CON10-OFF.OUT





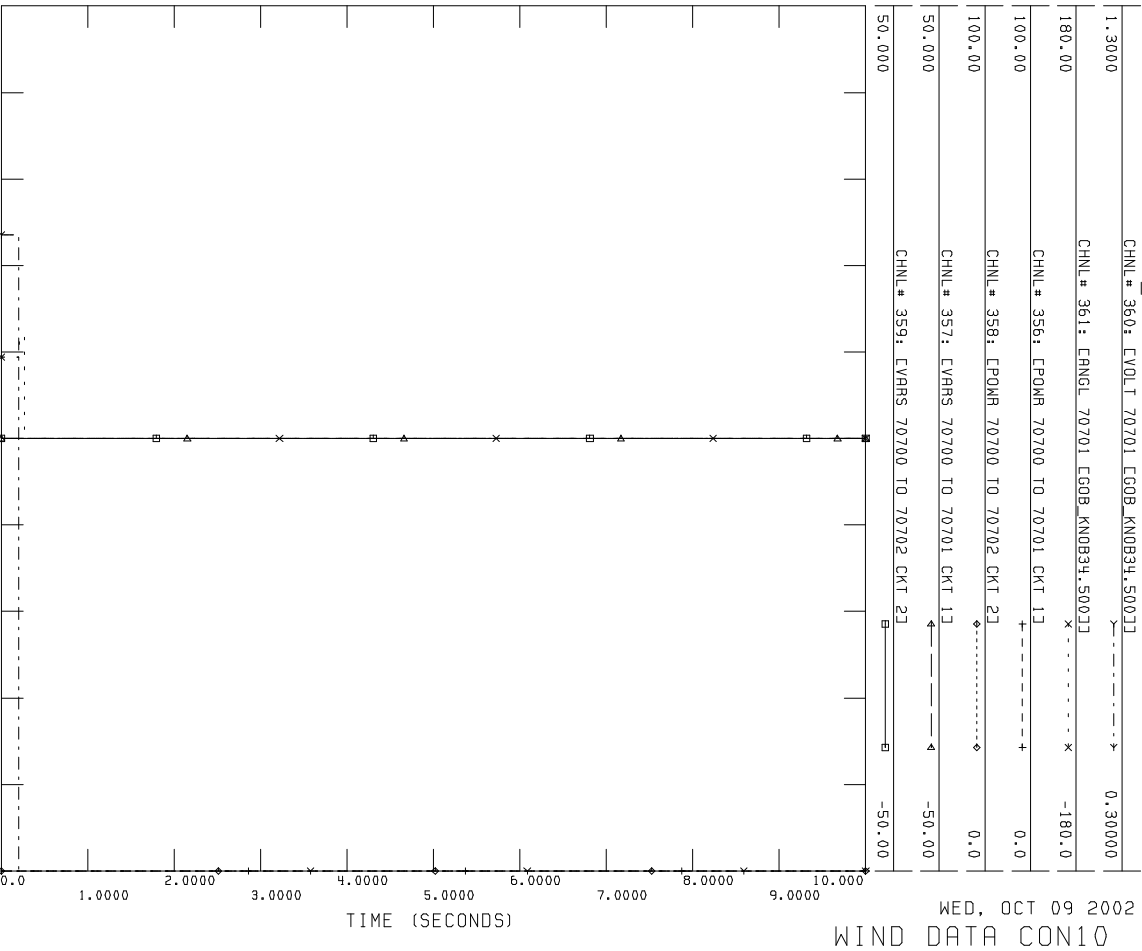
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON10-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON10-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 11 (CON11-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON11-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON LAMARE 230 KV BUS 70254  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP BRANCH FROM LAMAR 230 KV BUS 70254 TO LAMAR 115 KV BUS 70253  
CLEAR FAULT AT LAMAR BUS 70254  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON11-OFF.OUT

CHNL# 11: [RANGL 70701 [CGR\_KNOB34,500] C1 JJ

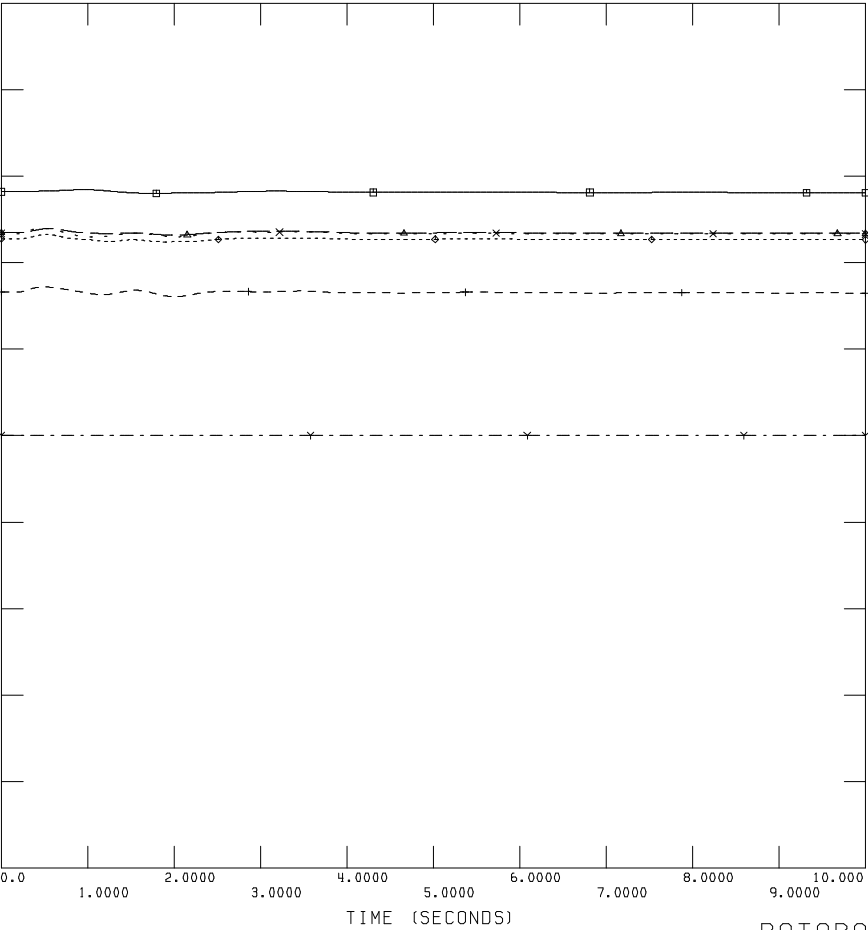
180.00 CHNL# 17: [RANGL 70120 [CCOMAN 2 24,000] C1 JJ -180.0

180.00 CHNL# 26: [RANGL 70337 [PUERBLD 14,000] C1 JJ -180.0

180.00 CHNL# 88: [RANGL 73418 [RD\_NIXON20,000] C1 JJ -180.0

180.00 CHNL# 89: [RANGL 73423 [DRAKE 7 13,800] C1 JJ -180.0

180.00 CHNL# 98: [RANGL 79015 [CRAIG 1 22,000] C1 JJ -180.0



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ROTORANGLES 1 CON11 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON11-OFF.OUT

CHNL# 18: [RANGL 70133 [CTY LRM 14,400] C1 JJ

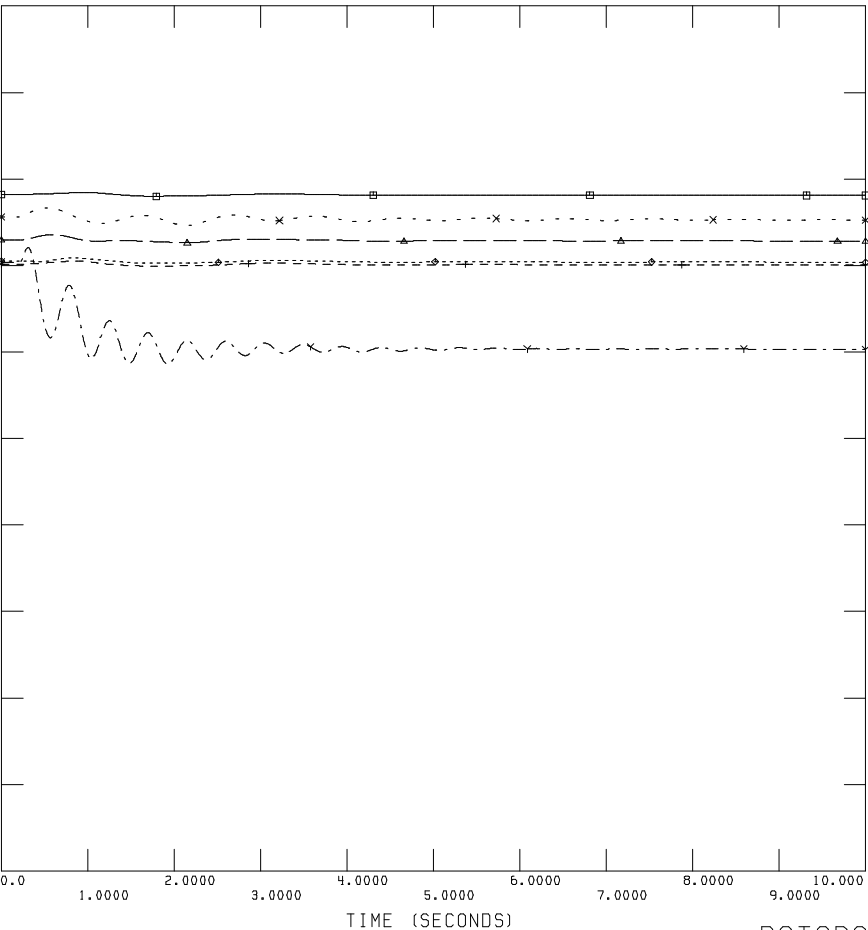
180.00 CHNL# 28: [RANGL 70344 [R.F.DSL54,1600] C1 JJ -180.0

180.00 CHNL# 5: [RANGL 70035 [RRRP4 13,800] C1 JJ -180.0

180.00 CHNL# 15: [RANGL 70106 [CCHEROX4 22,000] C1 JJ -180.0

180.00 CHNL# 96: [RANGL 73532 [LINCOLN113,800] C1 JJ -180.0

180.00 CHNL# 98: [RANGL 79015 [CRAIG 1 22,000] C1 JJ -180.0



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ROTORANGLES 2 CON11 QMW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

POWER  
TECHNICAL  
DRAWING

FILE: C:\Xcel\_windfarm\2003\new-offs\CON11-OFF.OUT

CHNL # 220: EVOLTI 70701 CGOB\_KNOB34,500J3

1.2000 CHNL # 218: EVOLTI 70700 CGOB\_KNOB230,00J3 0.20000

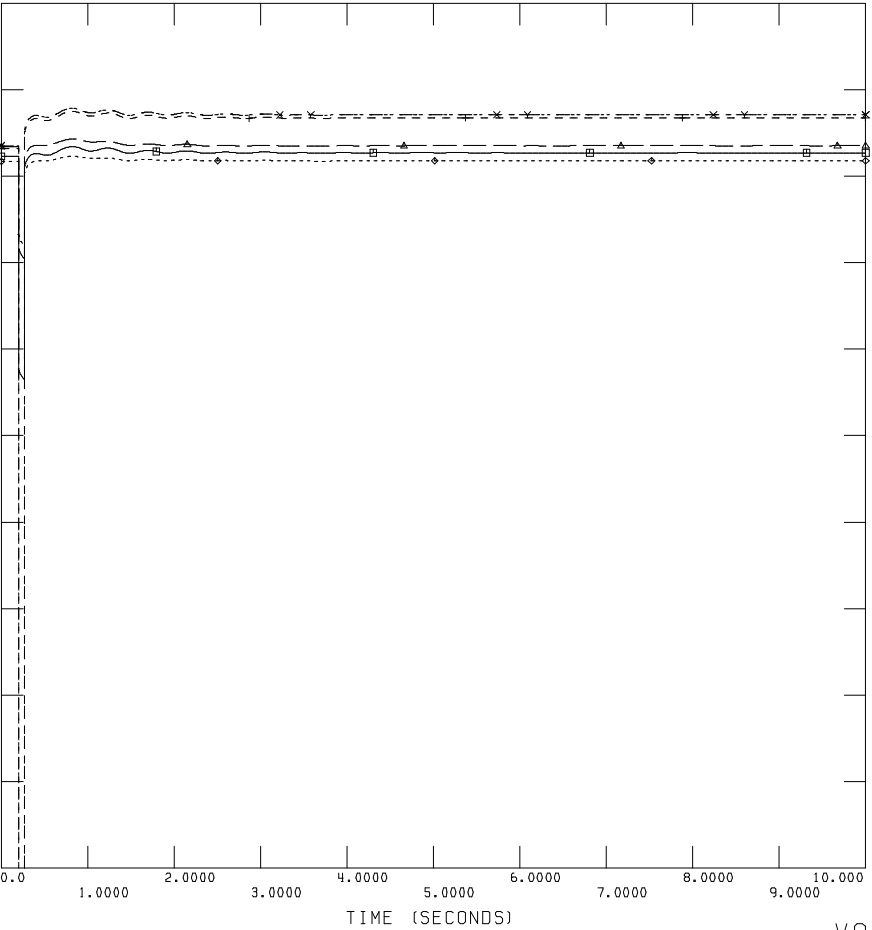
1.2000 CHNL # 205: EVOLTI 70254 CLAMAR C0230,00J3 0.20000

1.2000 CHNL # 214: EVOLTI 70286 EMIDMHTPS230,00J3 0.20000

1.2000 CHNL # 213: EVOLTI 70122 ECOMANCHE230,00J3 0.20000

1.2000 CHNL # 207: EVOLTI 70061 EBOONE 230,00J3 0.20000

1.2000



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

POWER  
TECHNICAL  
DRAWING

FILE: C:\Xcel\_windfarm\2003\new-offs\CON11-OFF.OUT

CHNL # 219: EVOLTI 70136 CDTY LAM 69,000J3

1.2000 CHNL # 209: EVOLTI 70472 CMILDM CK115,00J3 0.20000

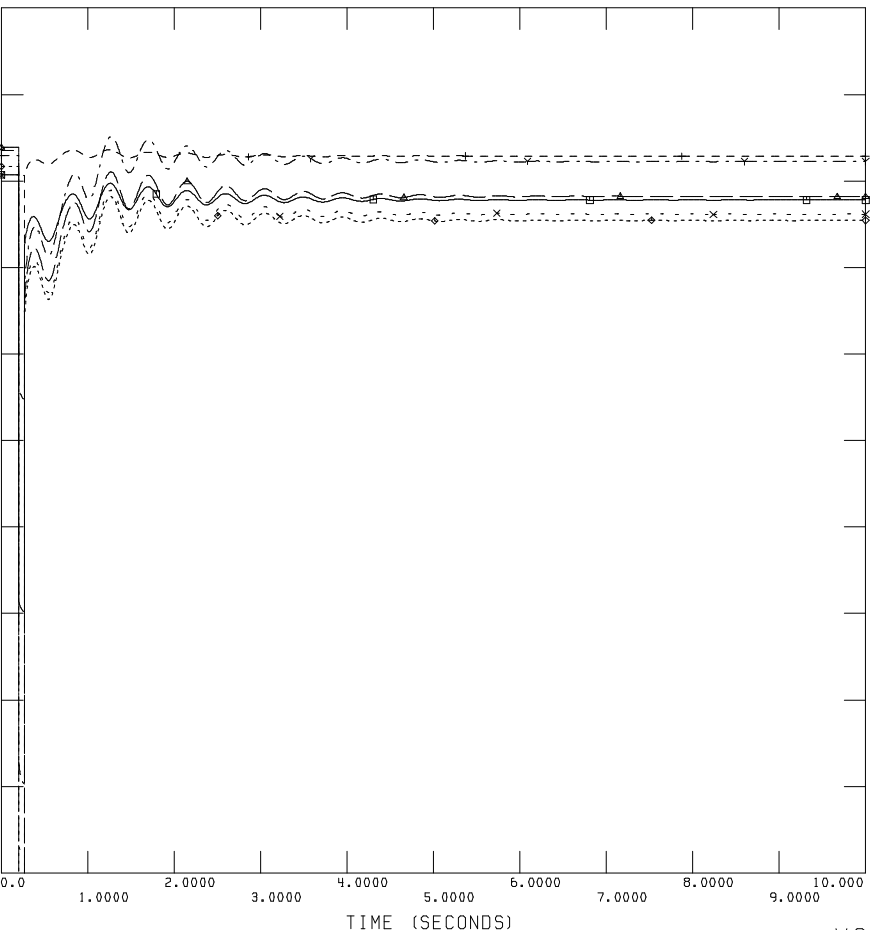
1.2000 CHNL # 208: EVOLTI 70060 EBOONE 115,00J3 0.20000

1.2000 CHNL # 206: EVOLTI 70253 CLAMAR C0115,00J3 0.20000

1.2000 CHNL # 212: EVOLTI 70452 EVILBS 115,00J3 0.20000

1.2000 CHNL # 210: EVOLTI 70247 CLAJUNTAT115,00J3 0.20000

1.2000

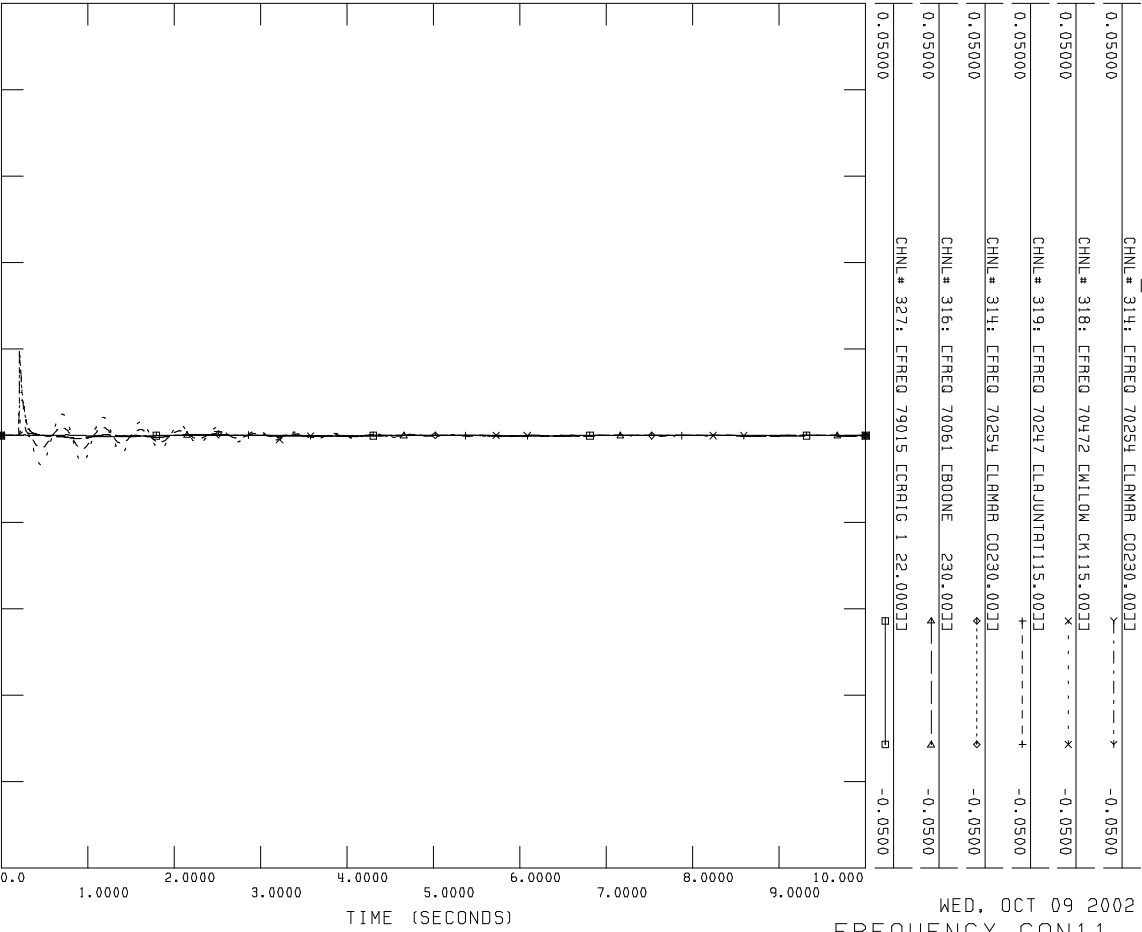






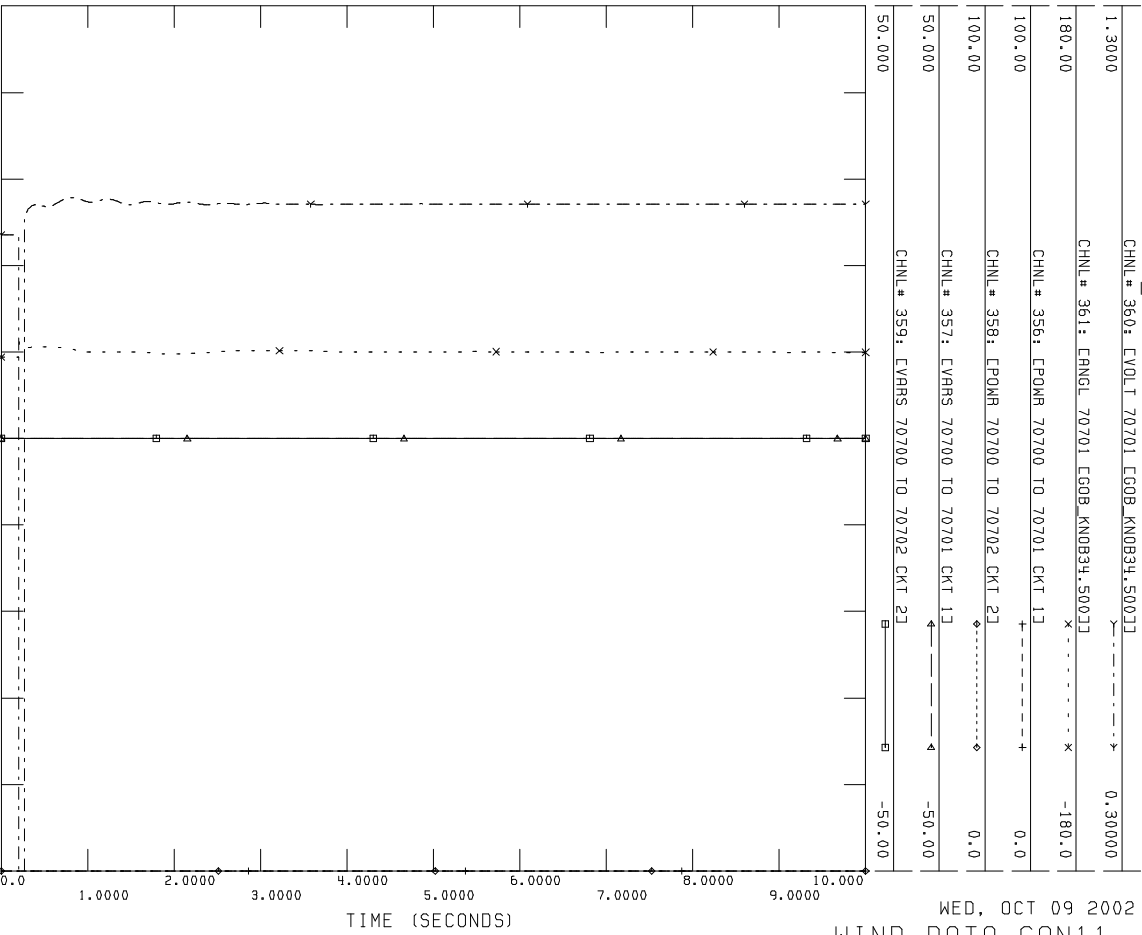
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON11-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON11-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 12 (CON12-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON12-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON BOONE 230 KV BUS 70061  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP BRANCH FROM BOONE 230 KV BUS 70061 TO BOONE 115 KV BUS 70060  
CLEAR FAULT AT BOONE 230 KV BUS 70061  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON12-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.500J C1 JJ

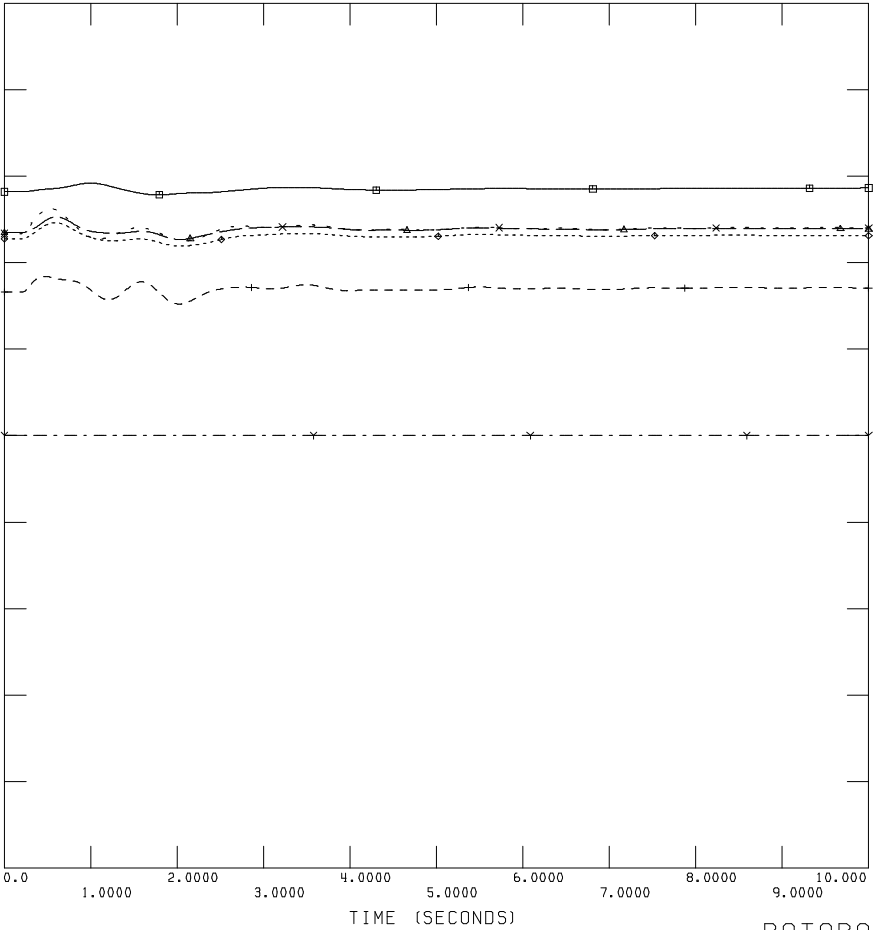
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



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ROTORANGLES 1 CON12 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON12-OFF.OUT

CHNL# 18: CANGL 70133 CCRB\_LAM 14.400J C1 JJ

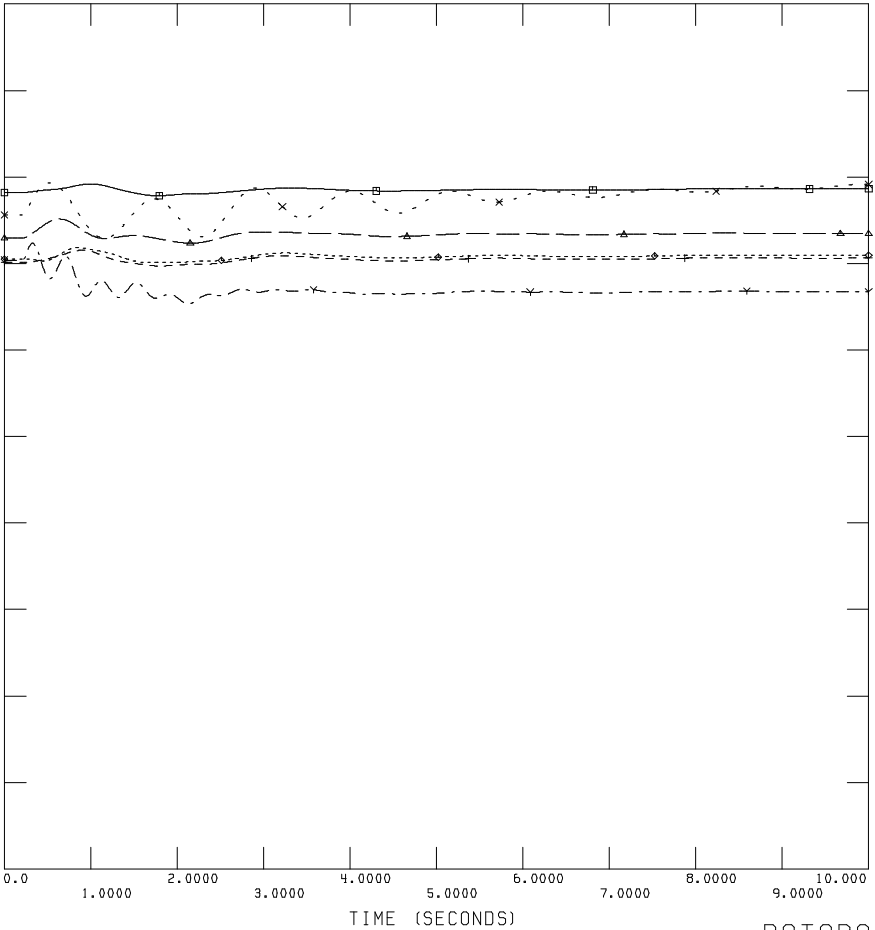
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



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ROTORANGLES 2 CON12 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON12-OFF.OUT

CHNL # 220: EVOLT 70701 CGOB\_KNOB34.50000

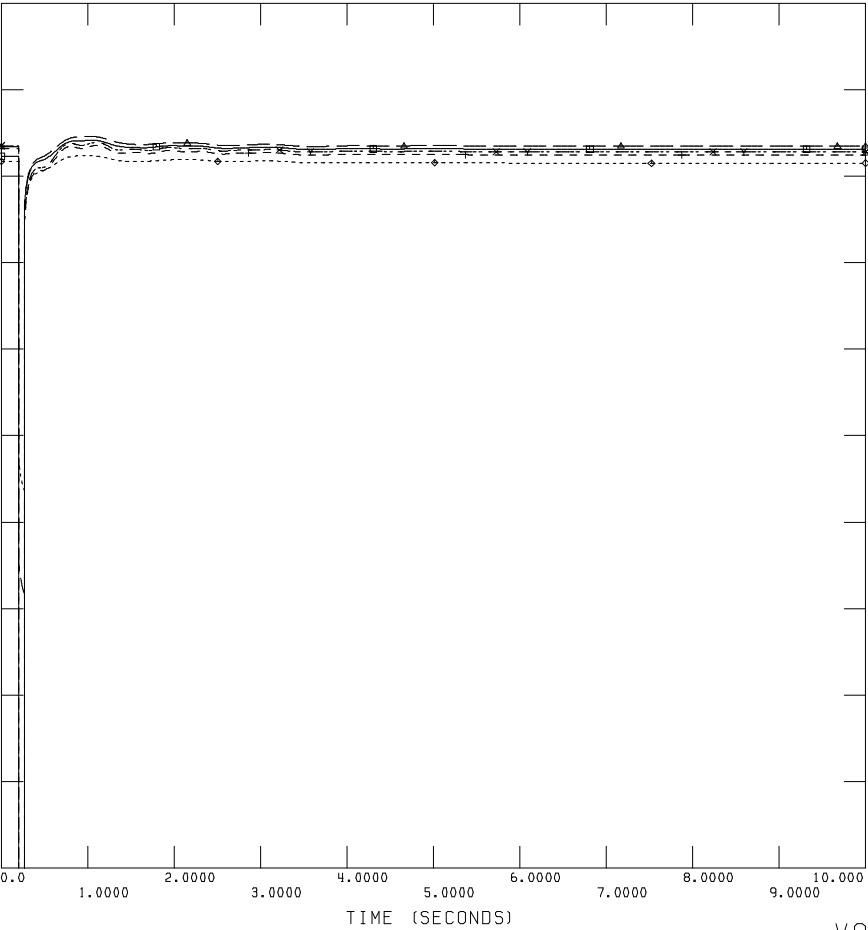
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230.0000 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230.0000 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230.0000 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230.0000 0.20000

1.2000 CHNL # 207: EVOLT 70061 EBOONE\_230.0000 0.20000



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VOLTAGE 1 CON12 0MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON12-OFF.OUT

CHNL # 219: EVOLT 70136 CDTY\_LAM 69.00000

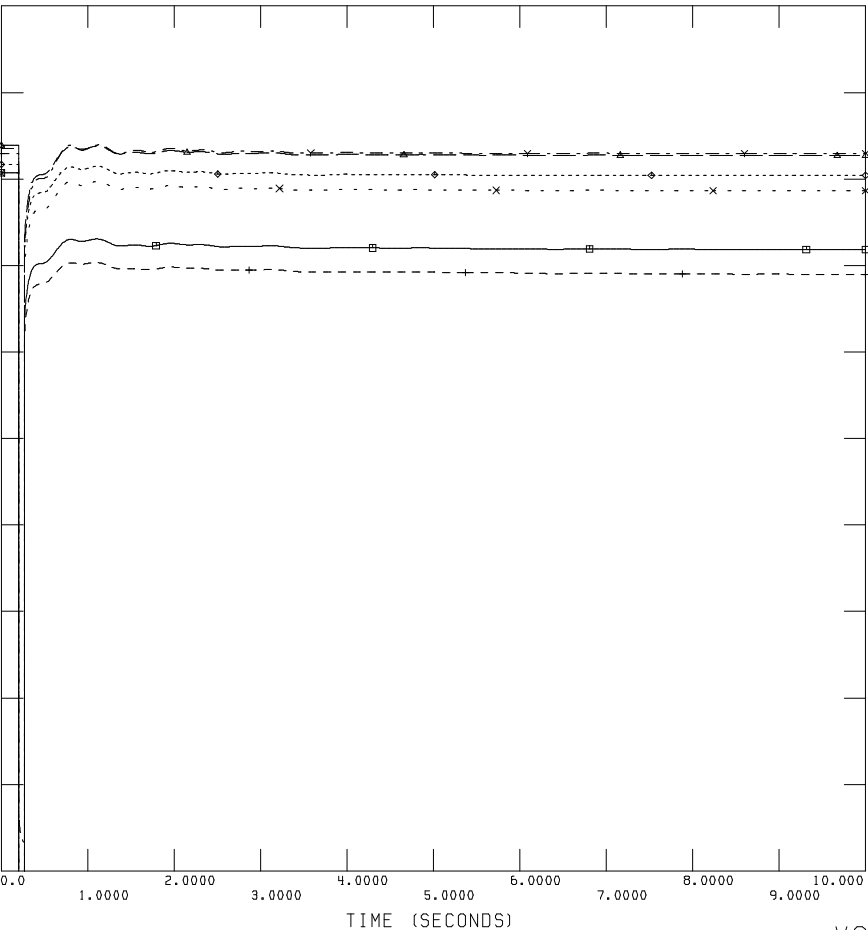
1.2000 CHNL # 209: EVOLT 70472 CMILLOW\_CK115.0000 0.20000

1.2000 CHNL # 208: EVOLT 70060 EBOONE\_115.0000 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115.0000 0.20000

1.2000 CHNL # 212: EVOLT 70452 CVILBS\_115.0000 0.20000

1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115.0000 0.20000

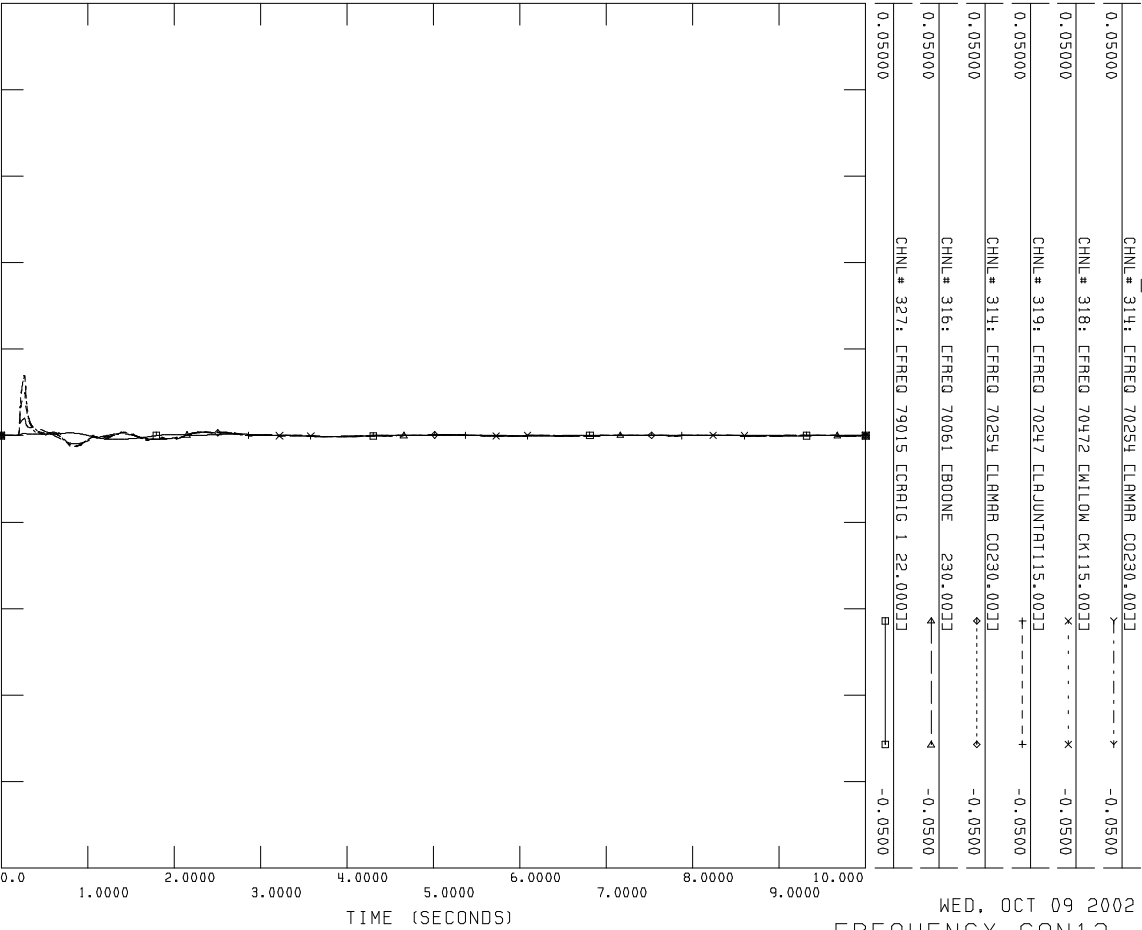


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VOLTAGE 2 CON12 0MW



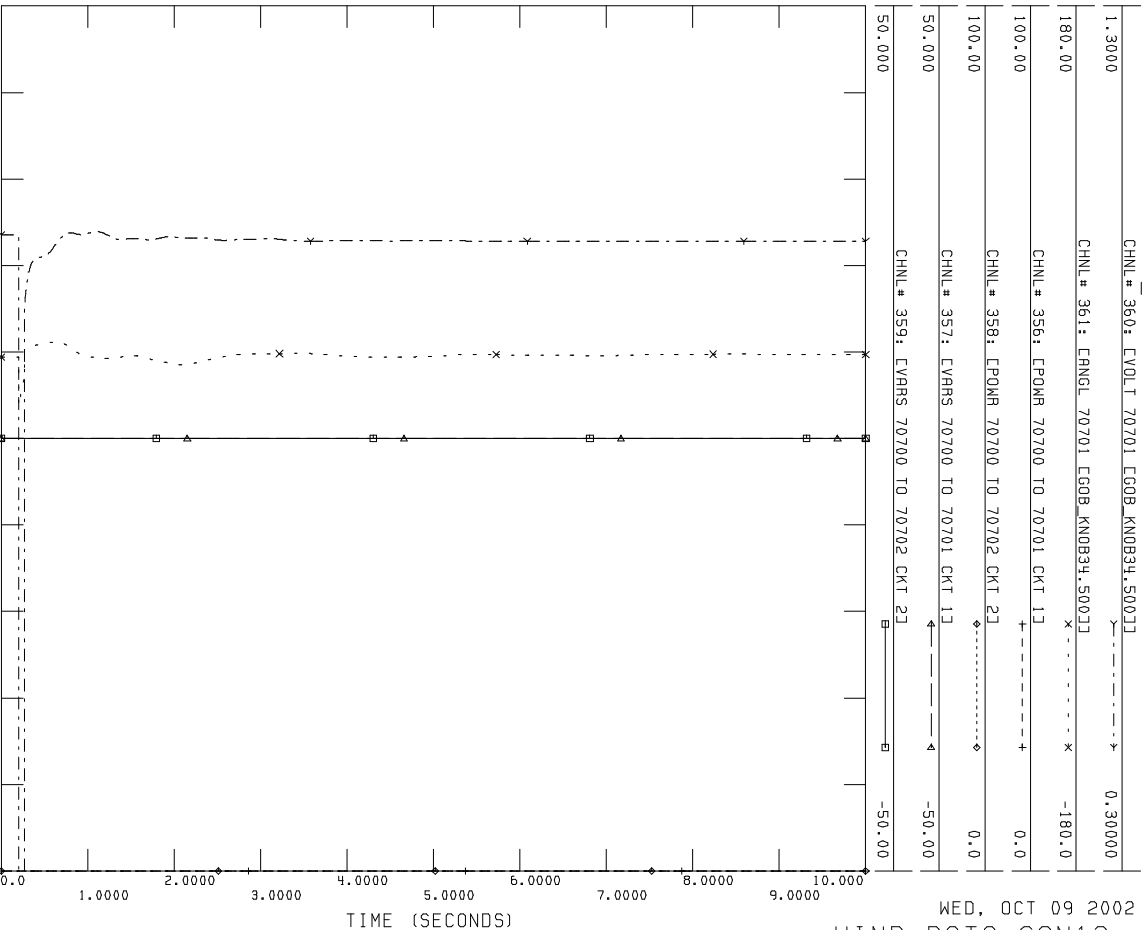
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON12-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON12-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 13 (CON13-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON13-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON LAMARE 115 KV BUS 70253  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM LAMAR BUS 70253 TO WILLOW CREEK BUS 70472  
CLEAR FAULT AT LAMAR BUS 70253  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON13-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.500J C1 JJ

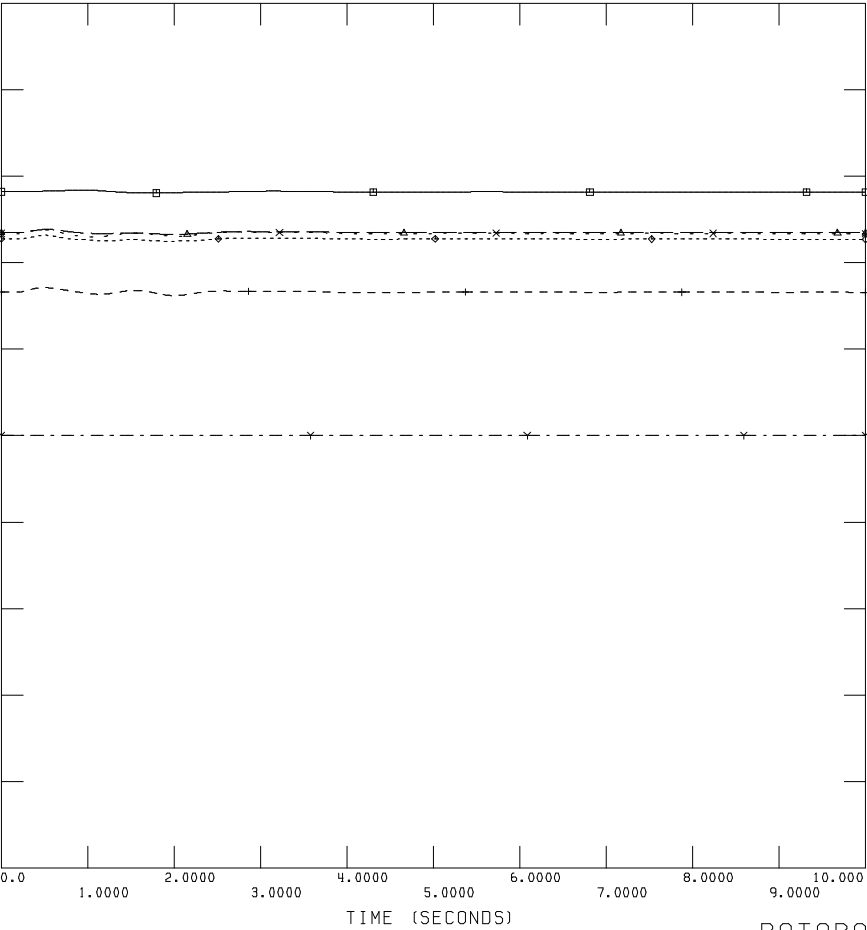
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 ERD NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 EDRAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



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2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON13-OFF.OUT

CHNL# 18: CANGL 70133 CCRB\_LAM 14.400J C1 JJ

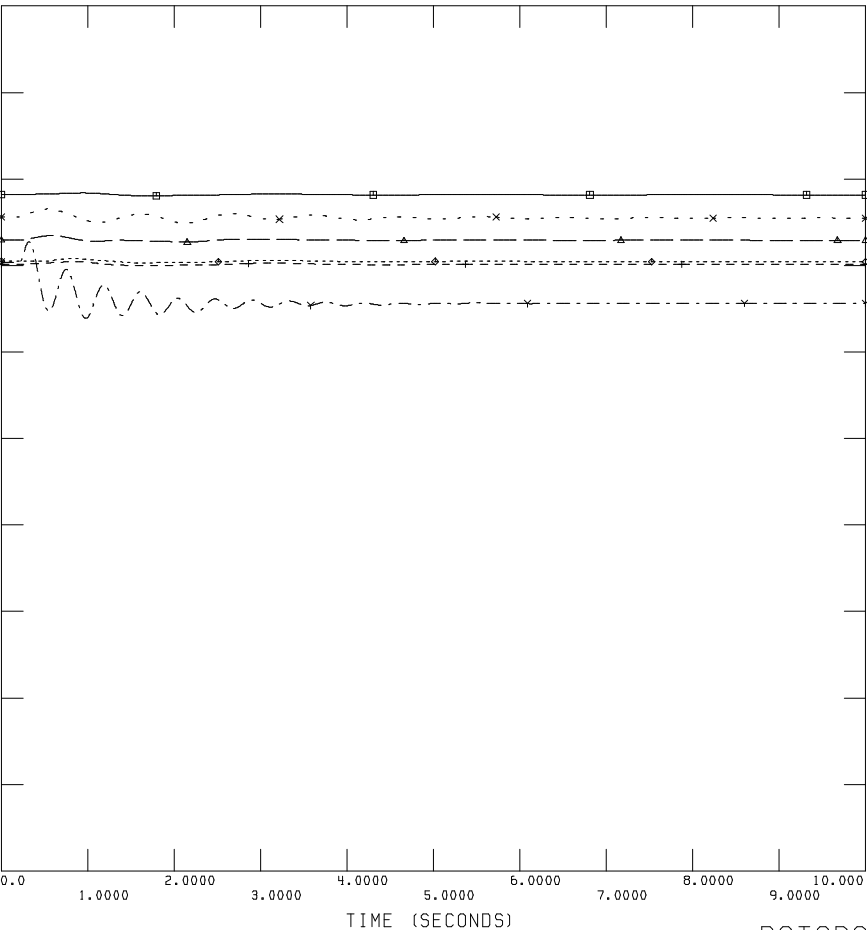
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0

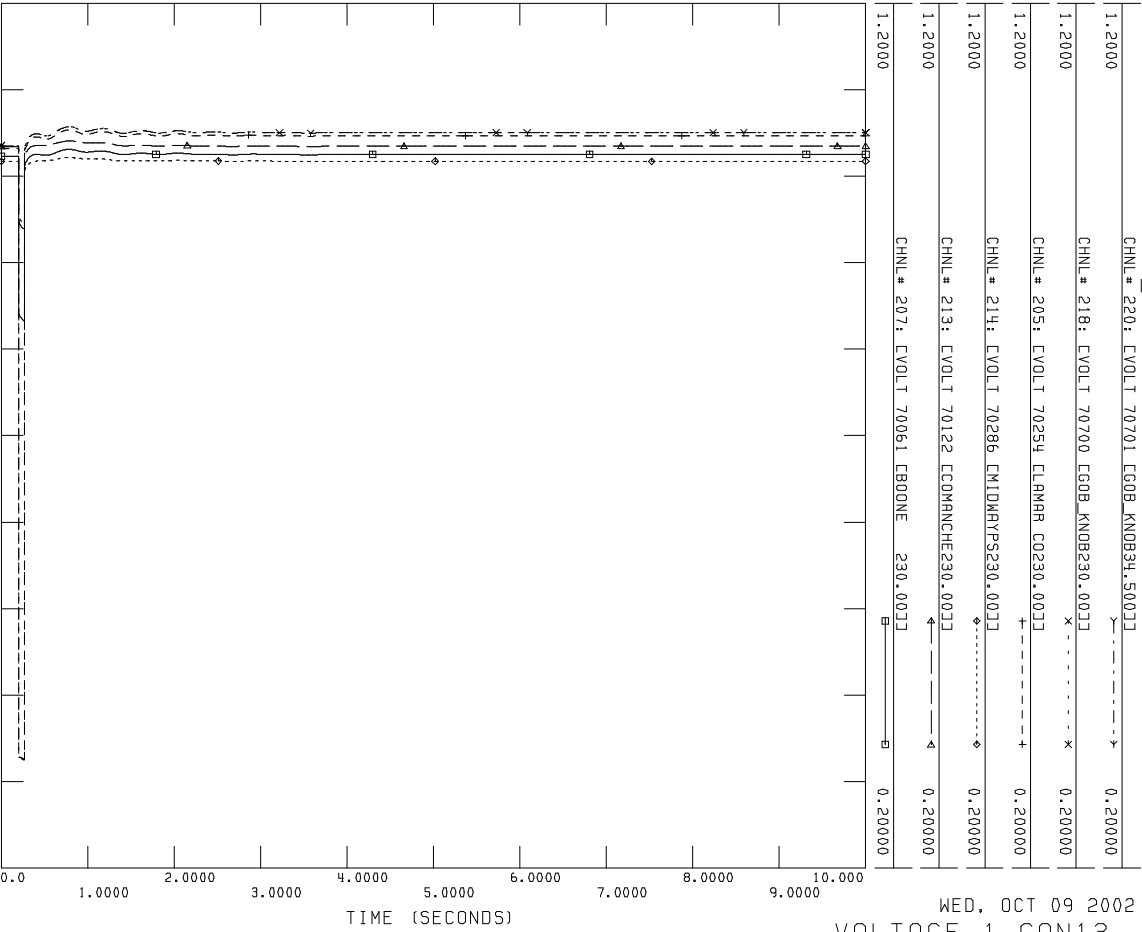


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ROTORANGLES 2 CON13 QMW



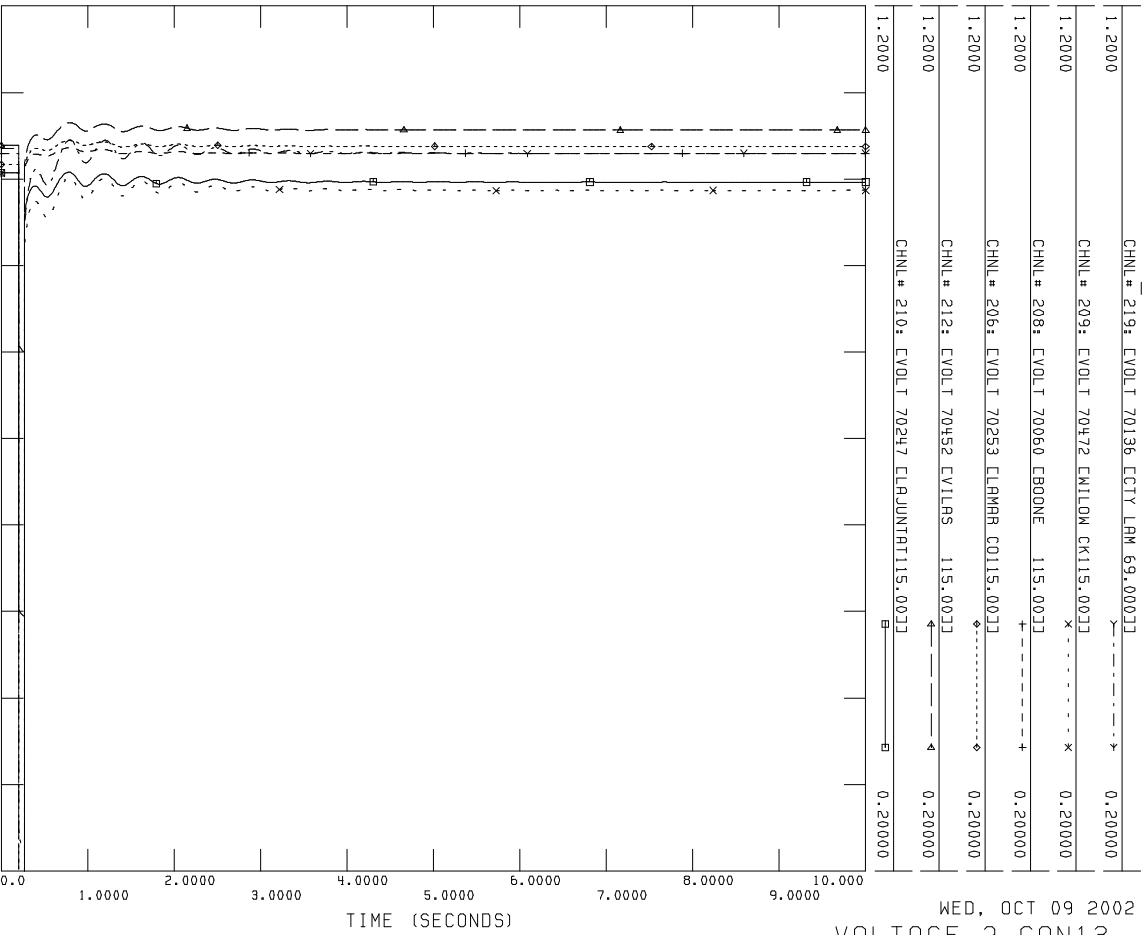
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON13-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON13-OFF.OUT

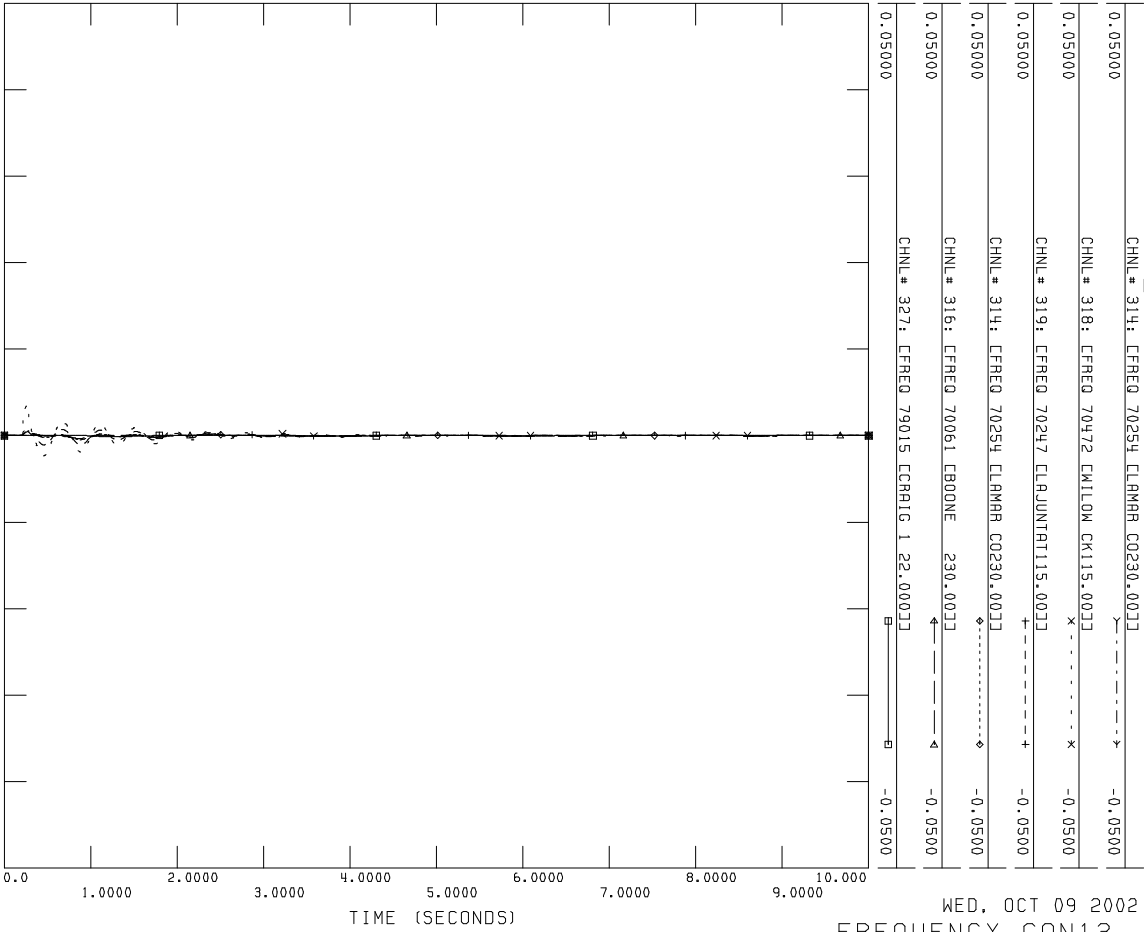






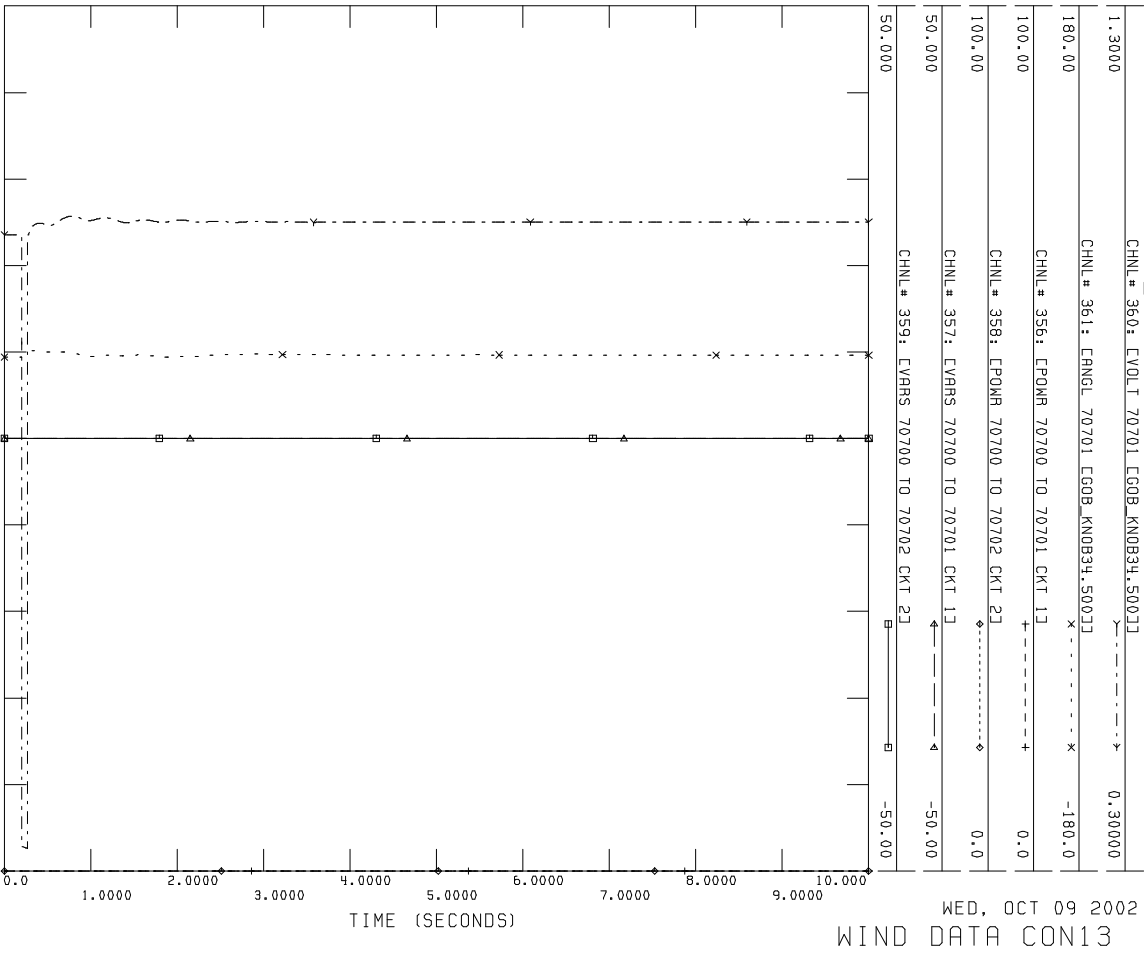
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON13-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON13-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 14 (CON14-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON14-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON LAMARE 115 KV BUS 70253  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM LAMAR BUS 70253 TO VILAS BUS 70452  
CLEAR FAULT AT LAMAR BUS 70253  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON14-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.5000 C1 JJ

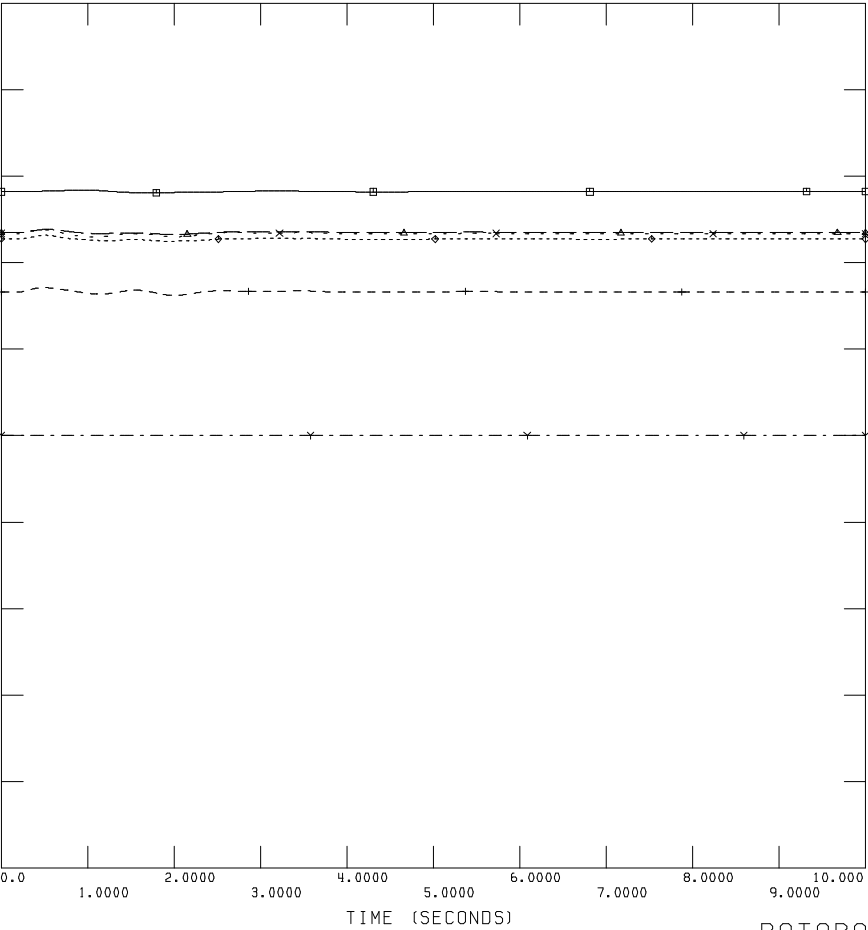
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



WED, OCT 09 2002 0:50  
ROTORANGLES 1 CON14 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON14-OFF.OUT

CHNL# 18: CANGL 70133 CCRB\_LAM 14.4000 C1 JJ

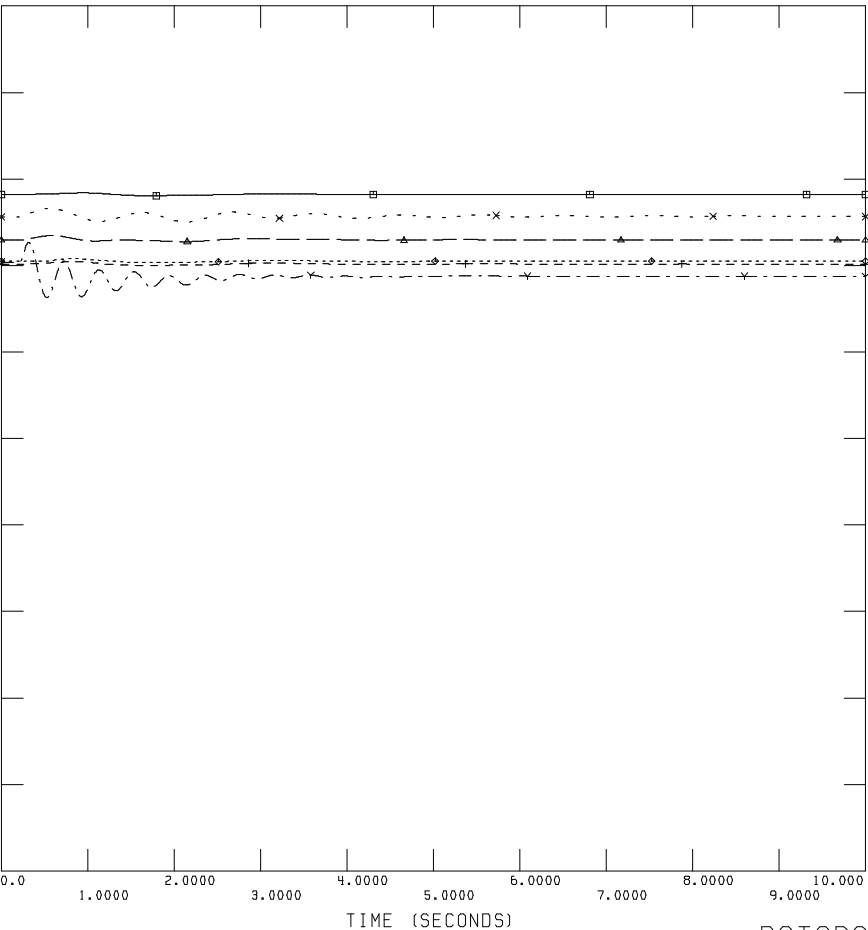
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



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ROTORANGLES 2 CON14 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON14-OFF.OUT

CHNL # 220: EVOLT 70701 CGOB\_KNOB34.50000

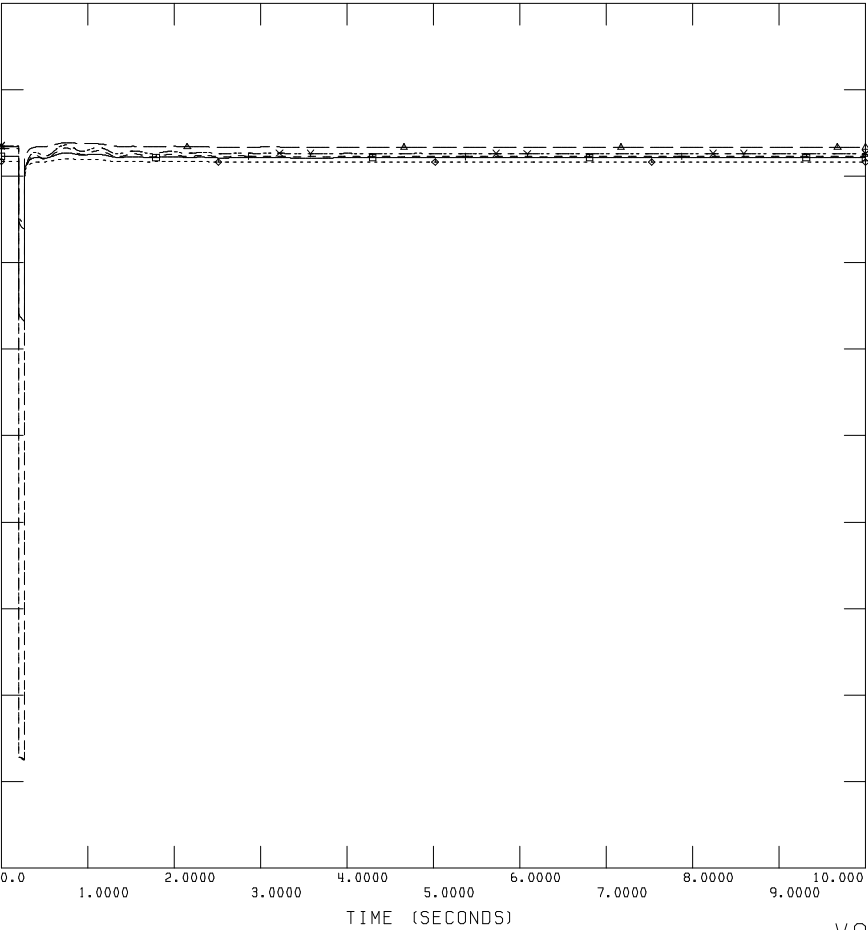
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230.00000 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230.00000 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230.00000 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230.00000 0.20000

1.2000 CHNL # 207: EVOLT 70061 EBOONE\_230.00000 0.20000



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VOLTAGE 1 CON14 0MM



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON14-OFF.OUT

CHNL # 219: EVOLT 70136 CDTY\_LAM\_69.00000

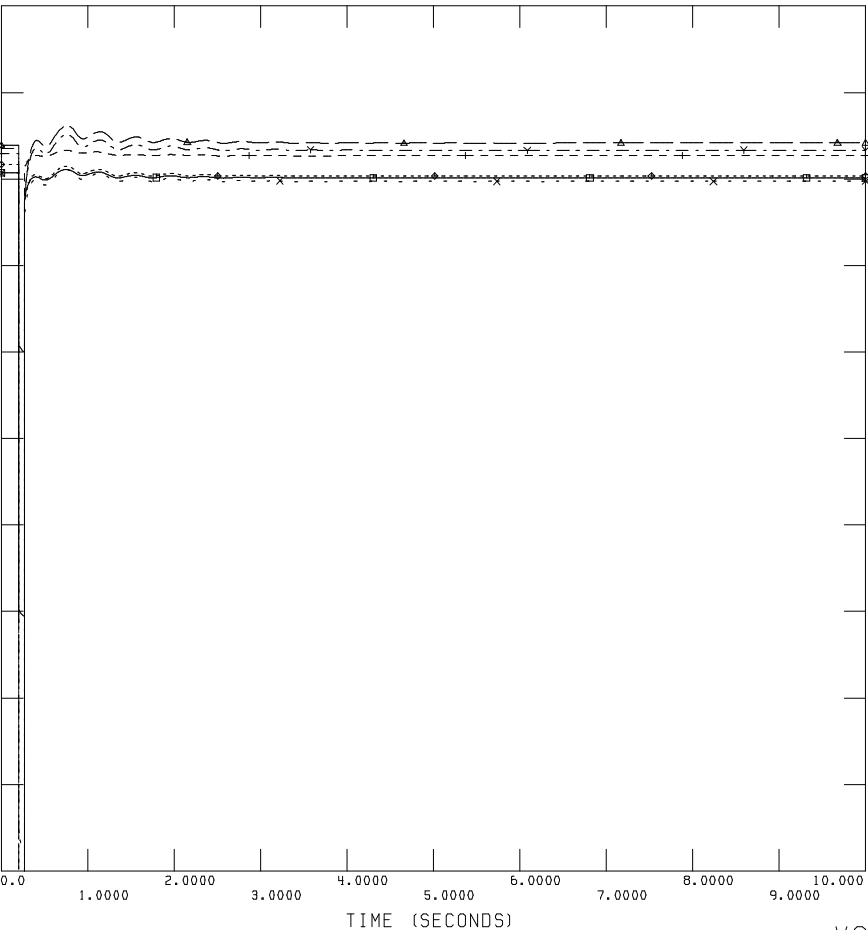
1.2000 CHNL # 209: EVOLT 70472 CMILDM\_CK115.00000 0.20000

1.2000 CHNL # 208: EVOLT 70060 EBOONE\_115.00000 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115.00000 0.20000

1.2000 CHNL # 212: EVOLT 70452 EVILBS\_115.00000 0.20000

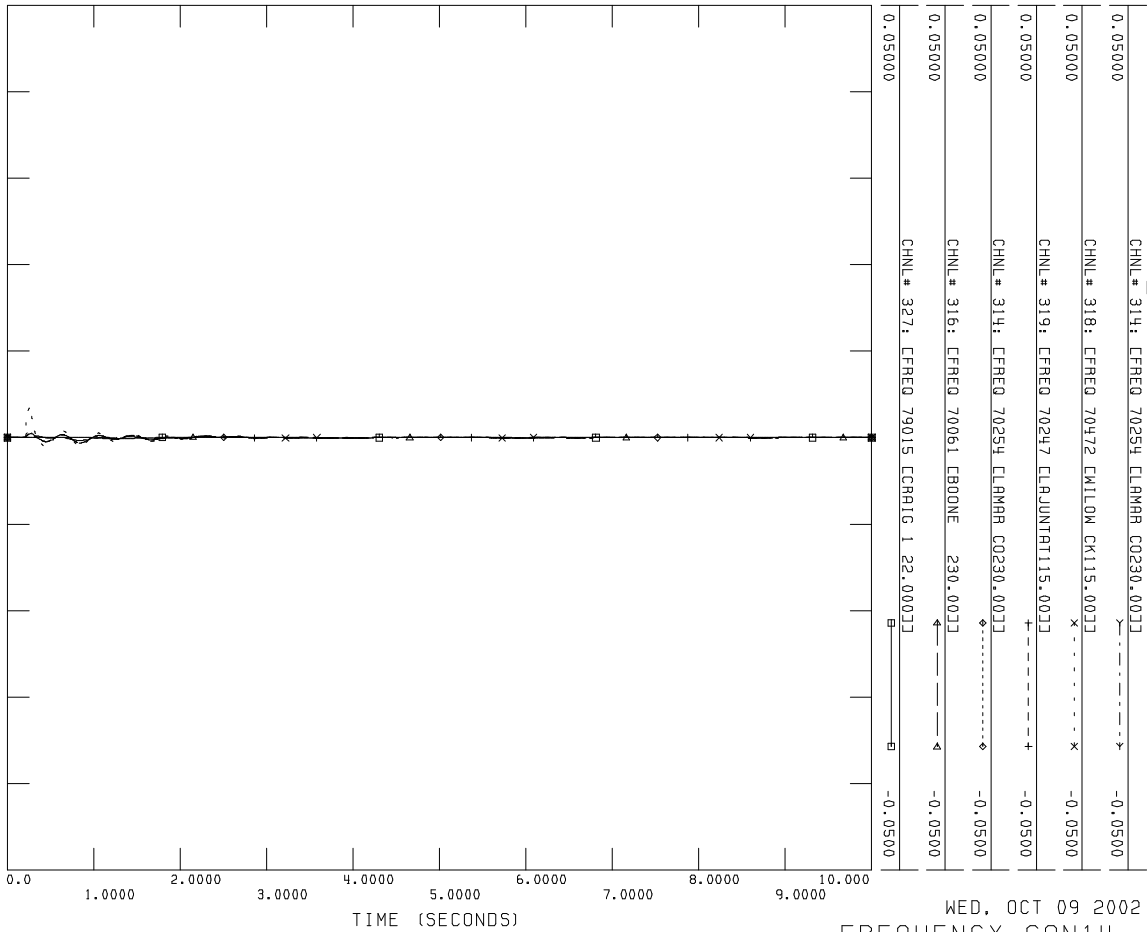
1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115.00000 0.20000



WED, OCT 09 2002 0:50  
VOLTAGE 2 CON14 0MM

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSAT073ADD. SAV  
A/A70, 73 FROM 2003 LAMAR WIND CASE 9/25/02 MHC, WIND 0 MM

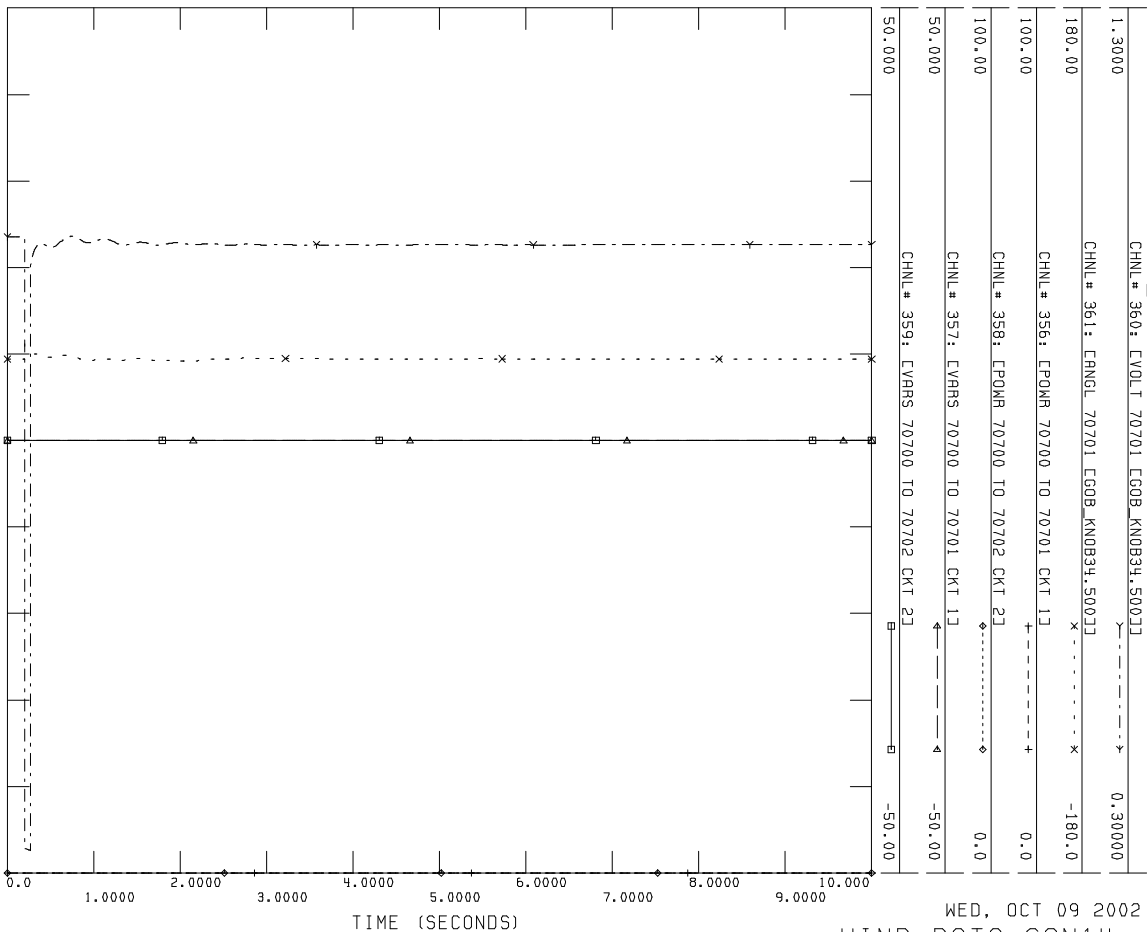
FILE: C:\Xcel1\_windfarm\new-offs\CON14-OFF.OUT



WED, OCT 09 2002 0:50  
FREQUENCY CON14 0MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70.73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MW

FILE: C:\Xcel\_windfarm\2003\new-offs\CON14-OFF.OUT



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WIND DATA CON14 0MW

WIND FARM OFF-LINE: SIMULATION RUN 15 (CON15-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON15-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON LA JUNTA 115 KV BUS 70247  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM LA JUNTA 115 KV BUS 70247 TO WILLOW CREEK BUS 70472  
CLEAR FAULT AT LA JUNTA 115 KV BUS 70247  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON15-OFF.OUT

CHNL# 11: [RANGL 7070] [CGR\_KNOB34.500] C1 JJ

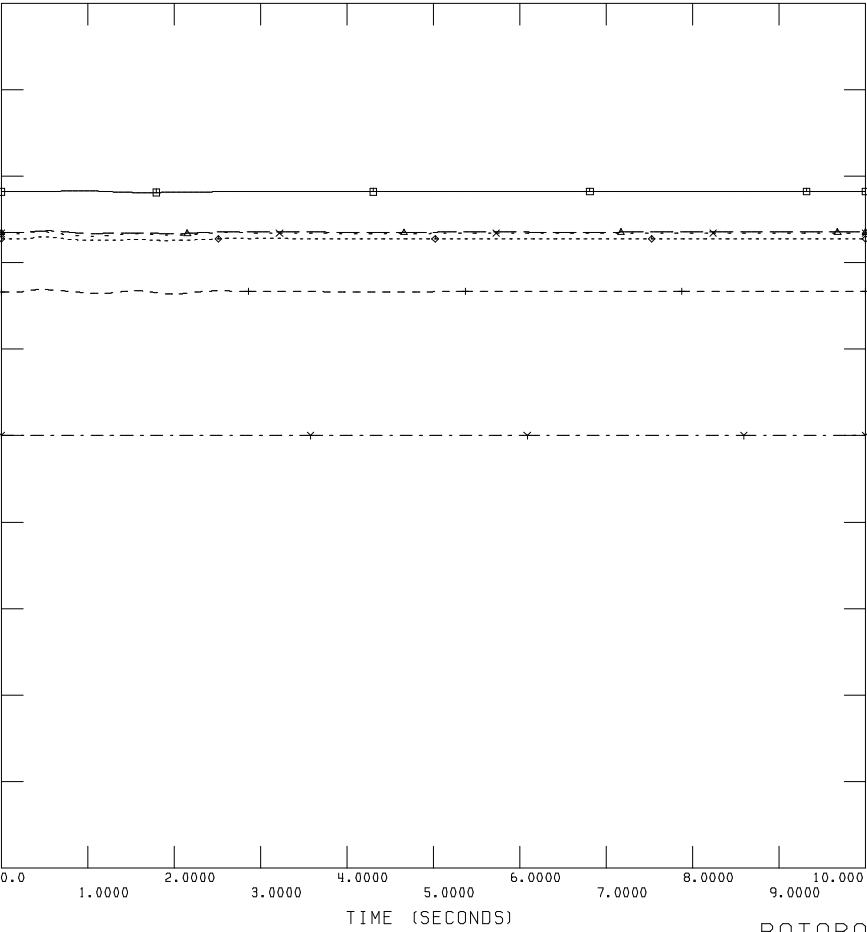
180.00 CHNL# 17: [RANGL 70120] [CCOMAN 2 24.000] C1 JJ -180.0

180.00 CHNL# 26: [RANGL 70337] [CPUEBL0 14.000] C1 JJ -180.0

180.00 CHNL# 88: [RANGL 73418] [RD\_NIXON20.000] C1 JJ -180.0

180.00 CHNL# 89: [RANGL 73423] [CDRAKE 7 13.800] C1 JJ -180.0

180.00 CHNL# 98: [RANGL 79015] [CGRATG 1 22.000] C1 JJ -180.0



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON15-OFF.OUT

CHNL# 18: [RANGL 70133] [CCTY LRM 14.400] C1 JJ

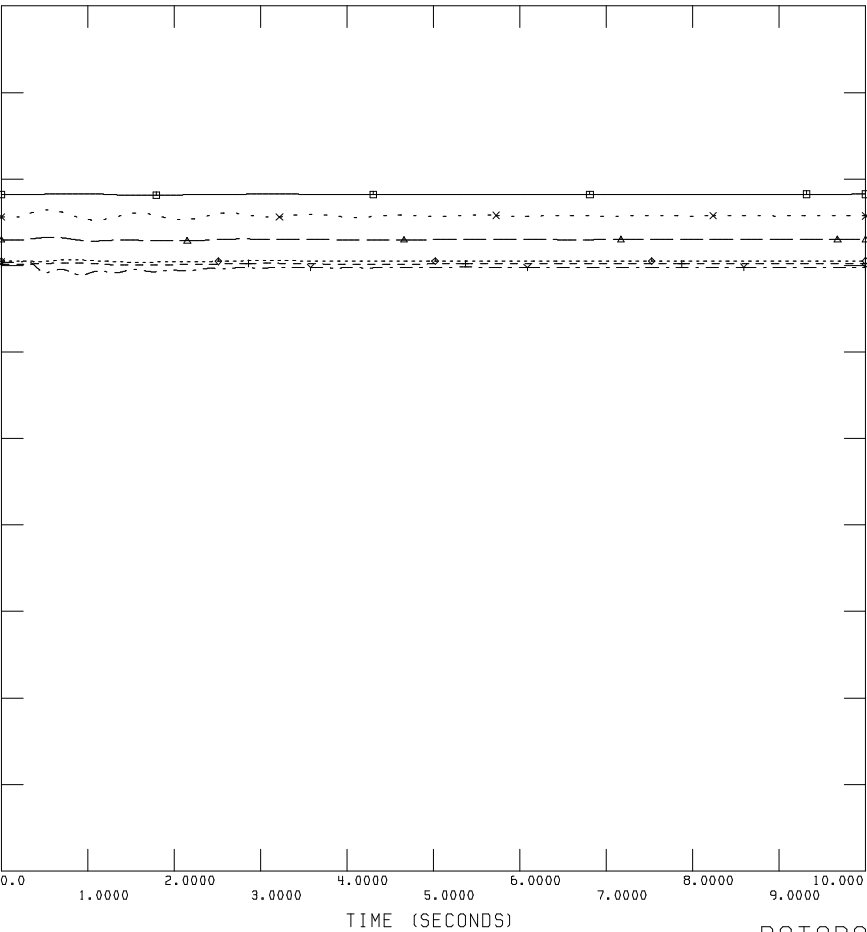
180.00 CHNL# 28: [RANGL 70344] [R.F.DSL44.1600] C1 JJ -180.0

180.00 CHNL# 5: [RANGL 70035] [CRRAP4 13.800] C1 JJ -180.0

180.00 CHNL# 15: [RANGL 70106] [CCHEROKY 22.000] C1 JJ -180.0

180.00 CHNL# 96: [RANGL 73532] [CLINCOLN13.800] C1 JJ -180.0

180.00 CHNL# 98: [RANGL 79015] [CGRATG 1 22.000] C1 JJ -180.0





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON15-OFF.OUT

CHNL # 220: EVOLT 70701 CGOB\_KNOB34.50000

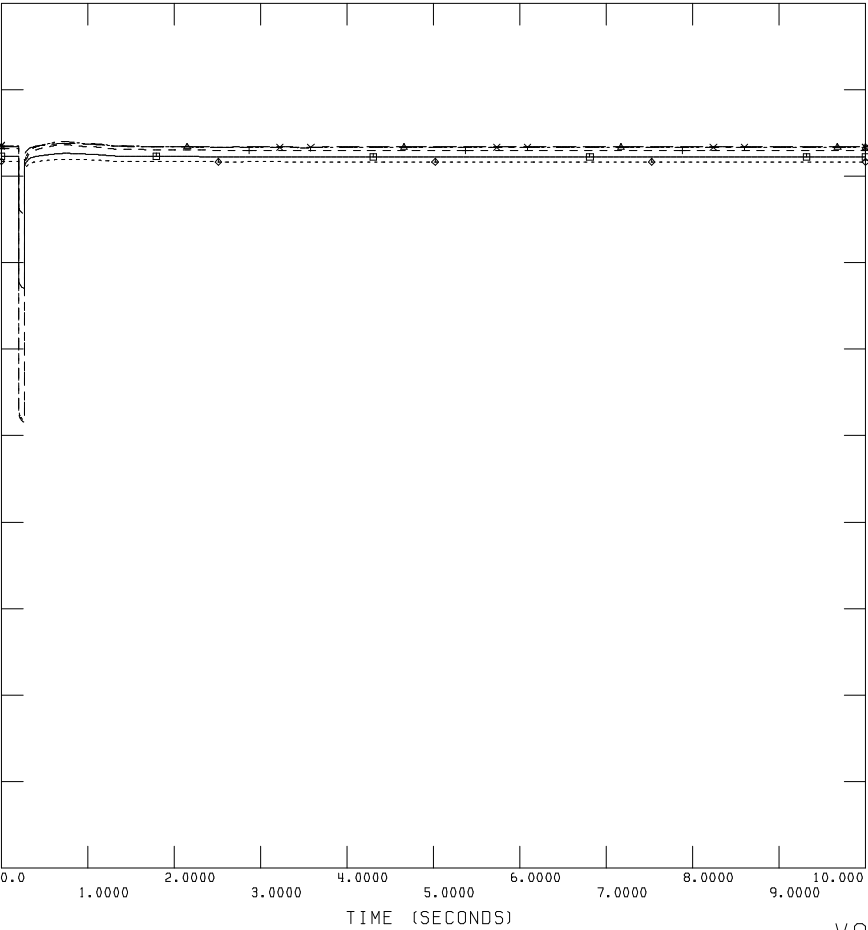
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230.0000 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230.0000 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230.0000 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230.0000 0.20000

1.2000 CHNL # 207: EVOLT 70061 EBOONE\_230.0000 0.20000



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VOLTAGE 1 CON15 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON15-OFF.OUT

CHNL # 219: EVOLT 70136 CDTY\_LAM 69.00000

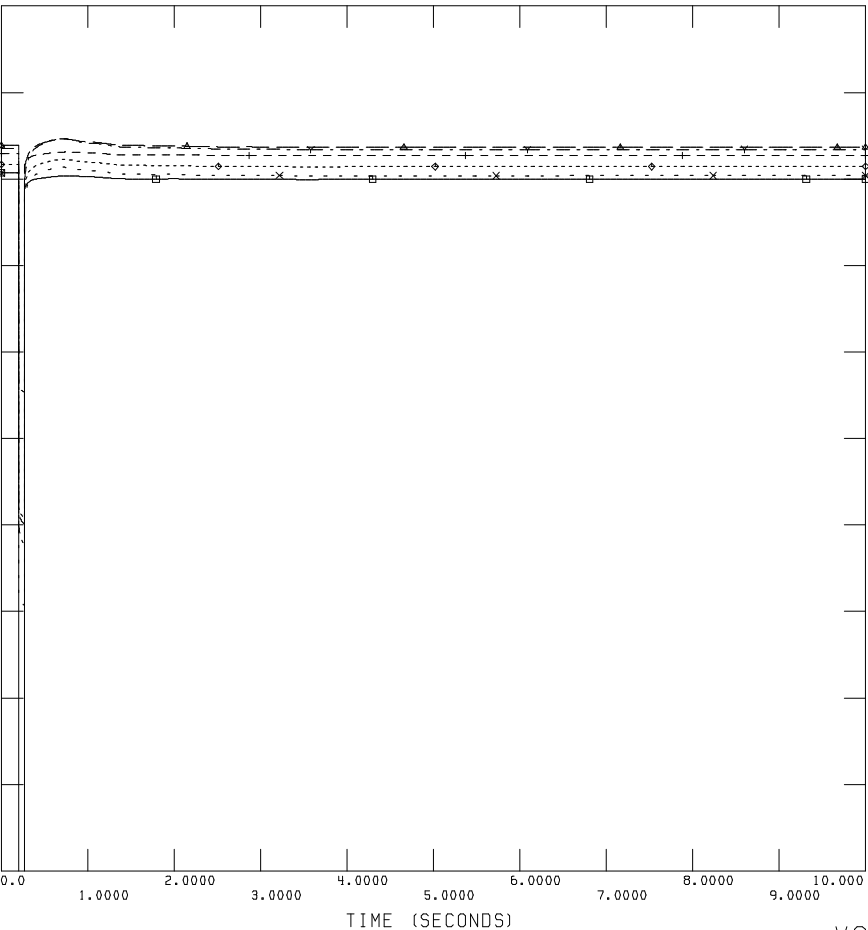
1.2000 CHNL # 209: EVOLT 70472 CNILDM\_CK115.0000 0.20000

1.2000 CHNL # 208: EVOLT 70060 EBOONE\_115.0000 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115.0000 0.20000

1.2000 CHNL # 212: EVOLT 70452 EVILBS\_115.0000 0.20000

1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115.0000 0.20000



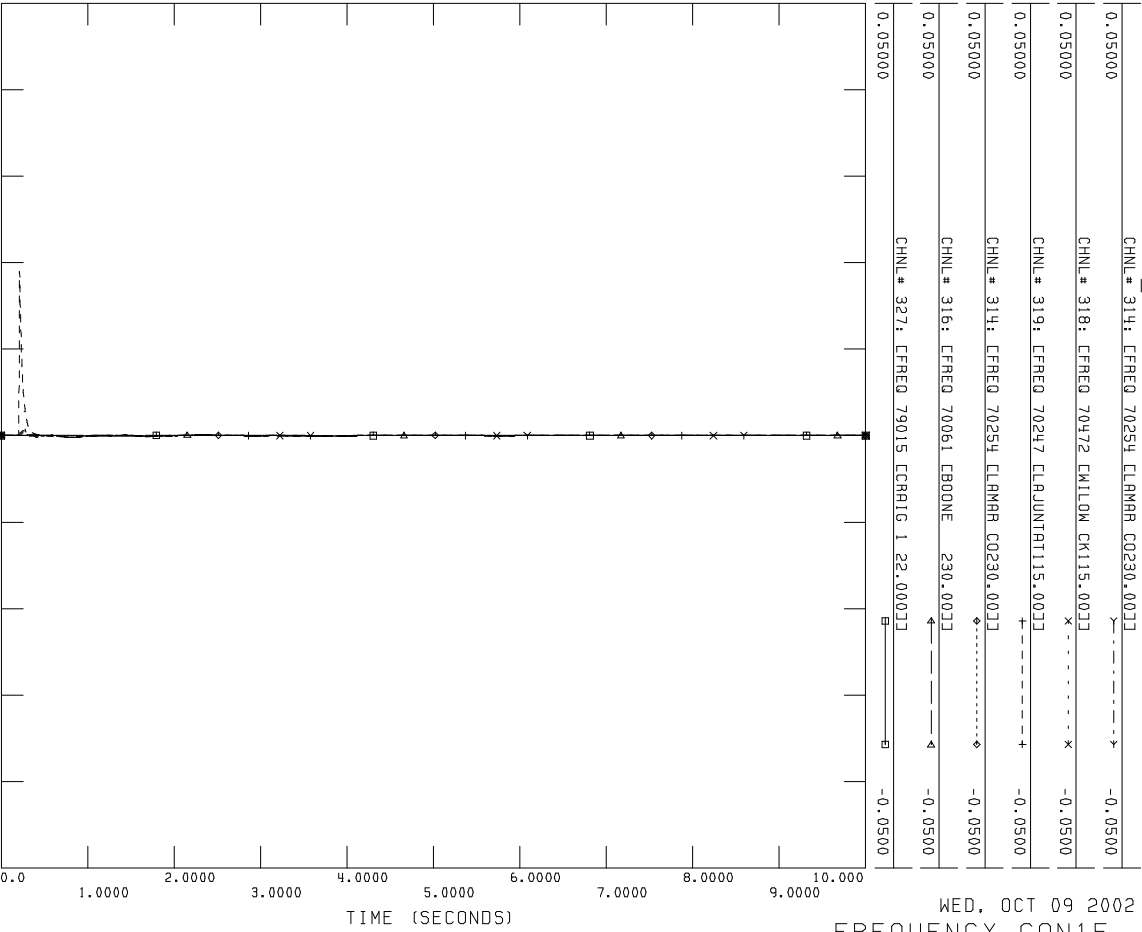
WED, OCT 09 2002 0:51  
VOLTAGE 2 CON15 QMW





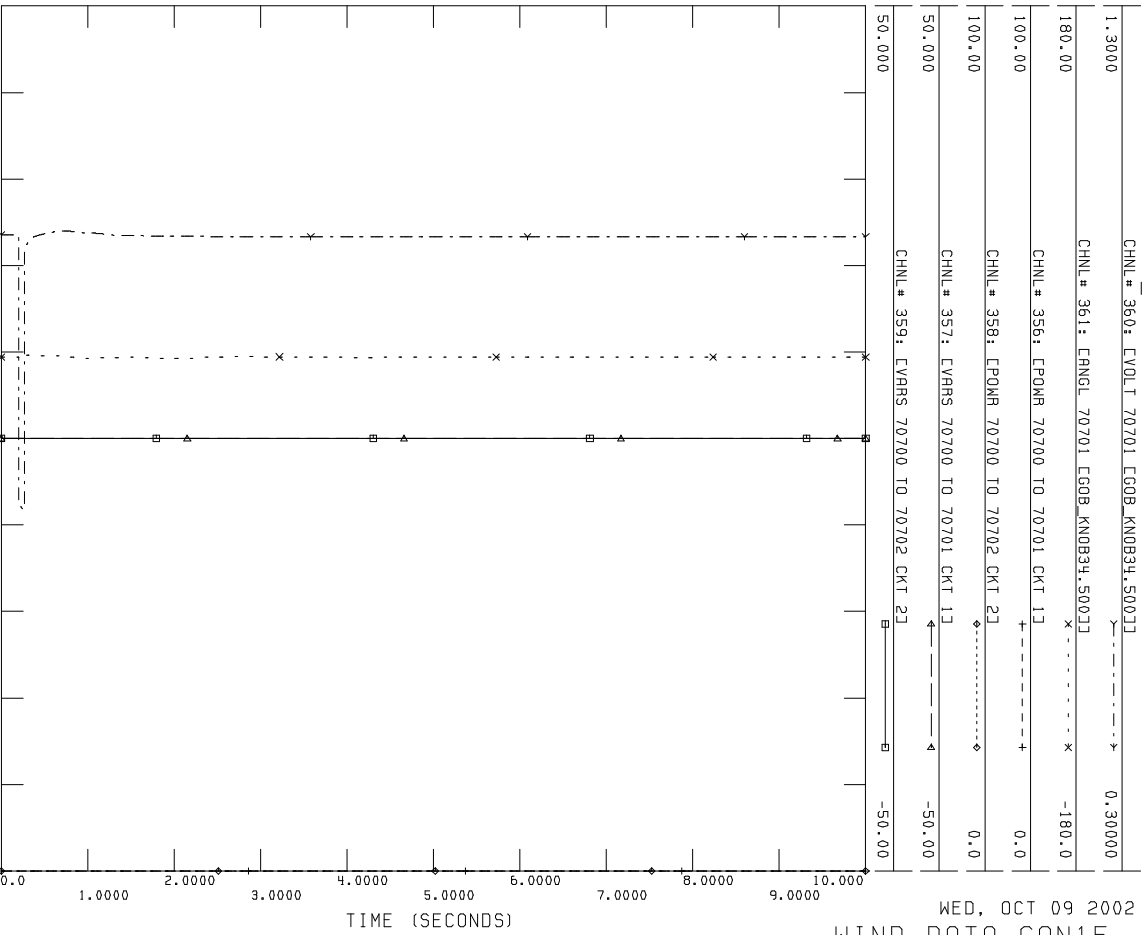
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON15-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON15-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 16 (CON16-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON16-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON BOONE 115 KV BUS 70060  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM BOONE 115 KV BUS 70060 TO LA JUNTA BUS 70247  
CLEAR FAULT AT BOONE 115 KV BUS 70060  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON16-OFF.OUT

CHNL# 11: CANGL 70701 CCRB 14.5000 C1 JJ

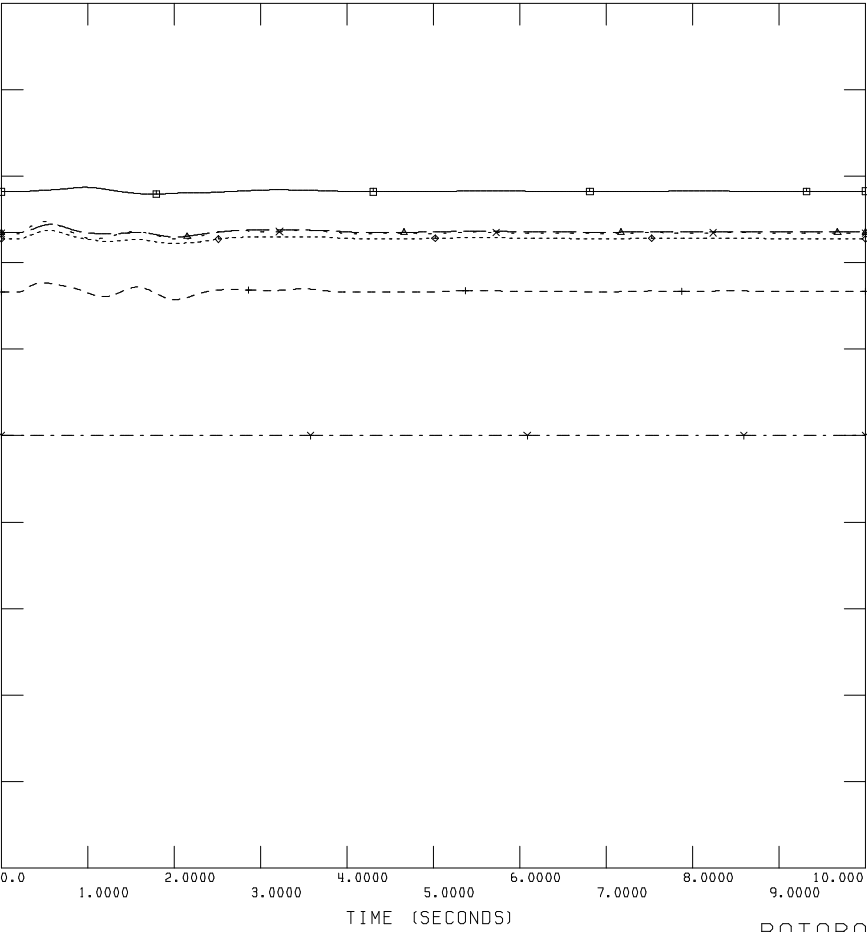
180.00 CHNL# 17: CANGL 70120 ECOMAN 2.24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7.13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB16 1.22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON16 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON16-OFF.OUT

CHNL# 18: CANGL 70133 CCRB 14.5000 C1 JJ

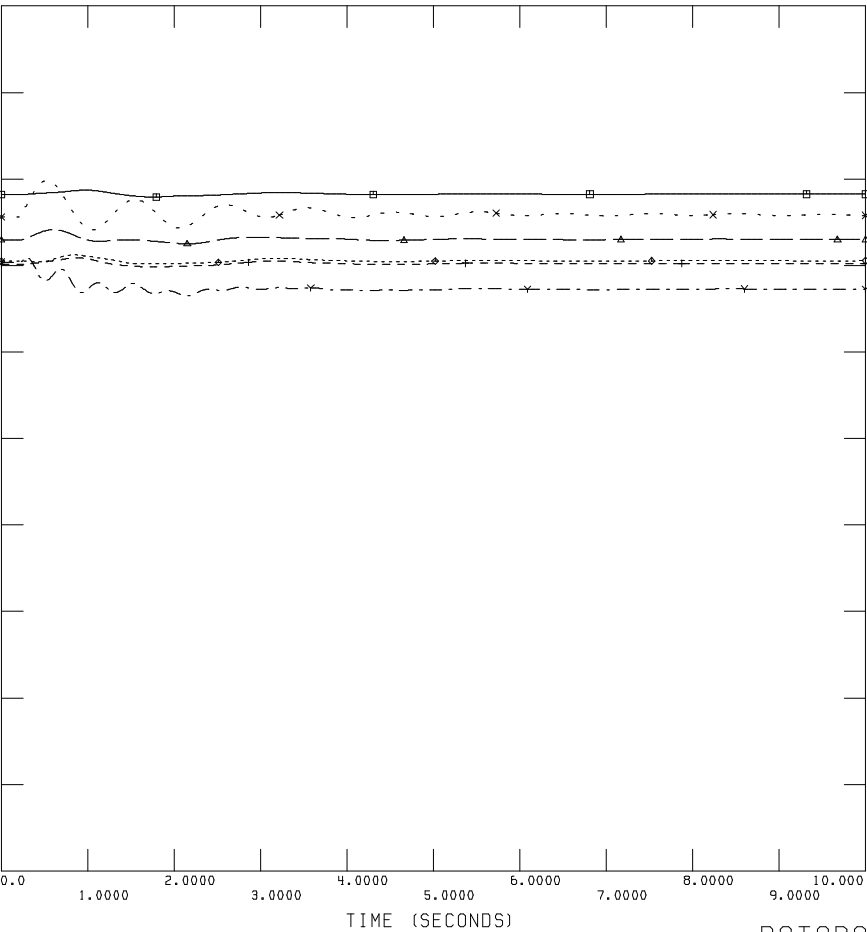
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB16 1.22.0000 C1 JJ -180.0

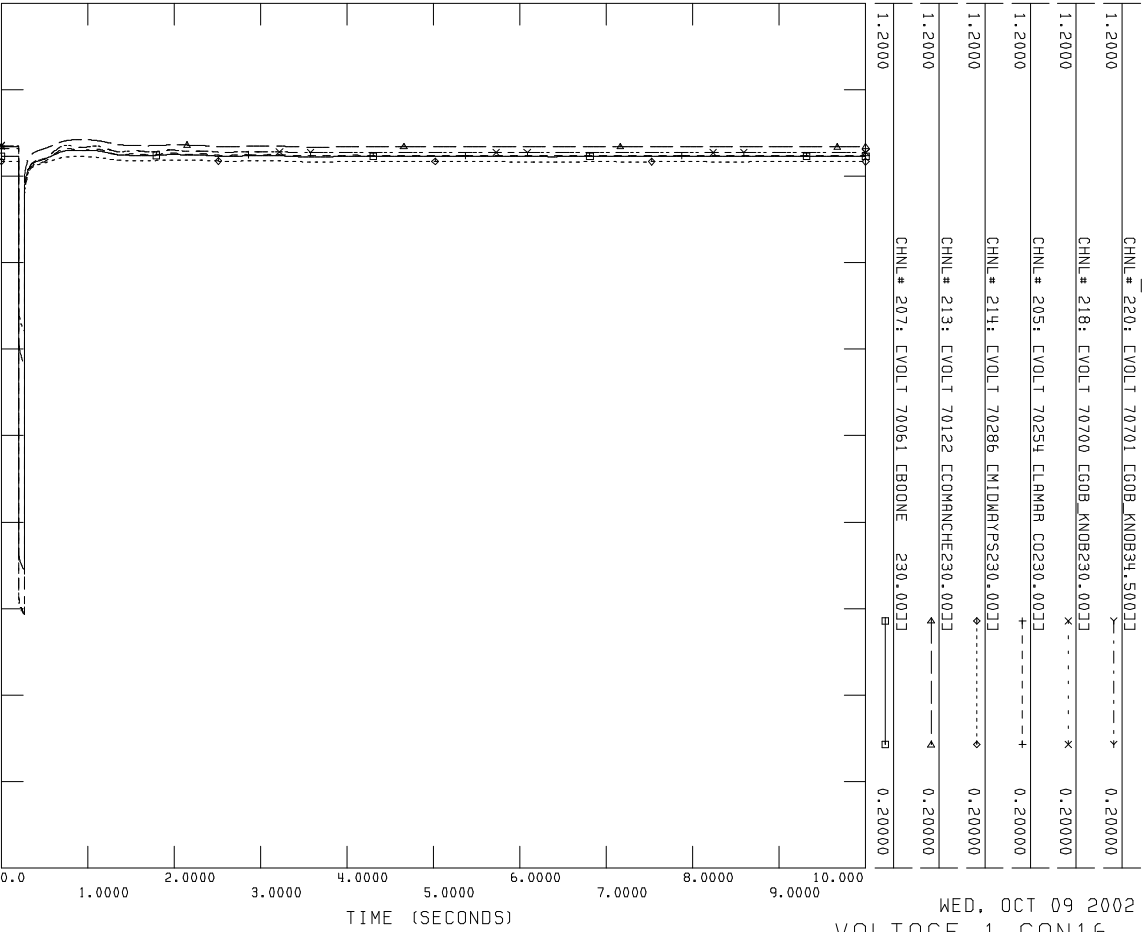


WED, OCT 09 2002 0:51  
ROTORANGLES 2 CON16 QMW



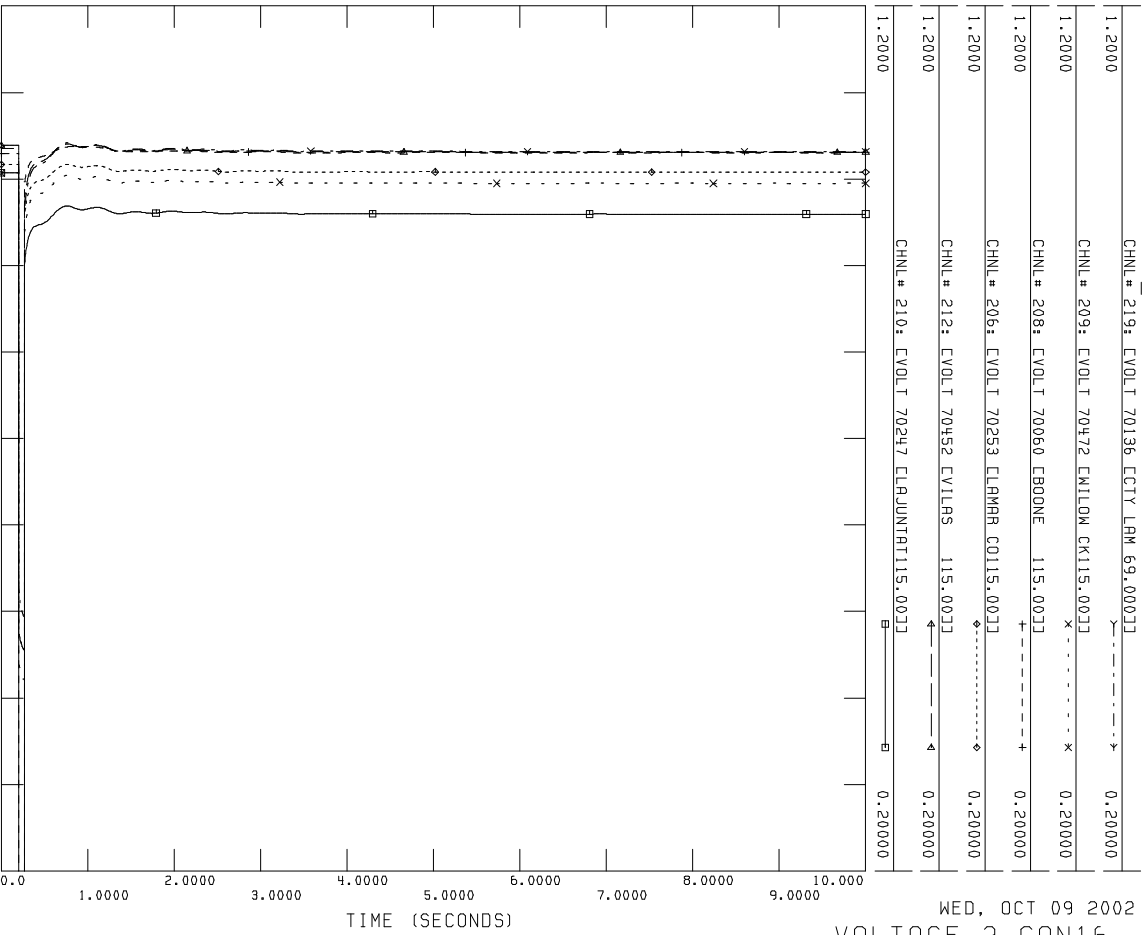
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON16-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

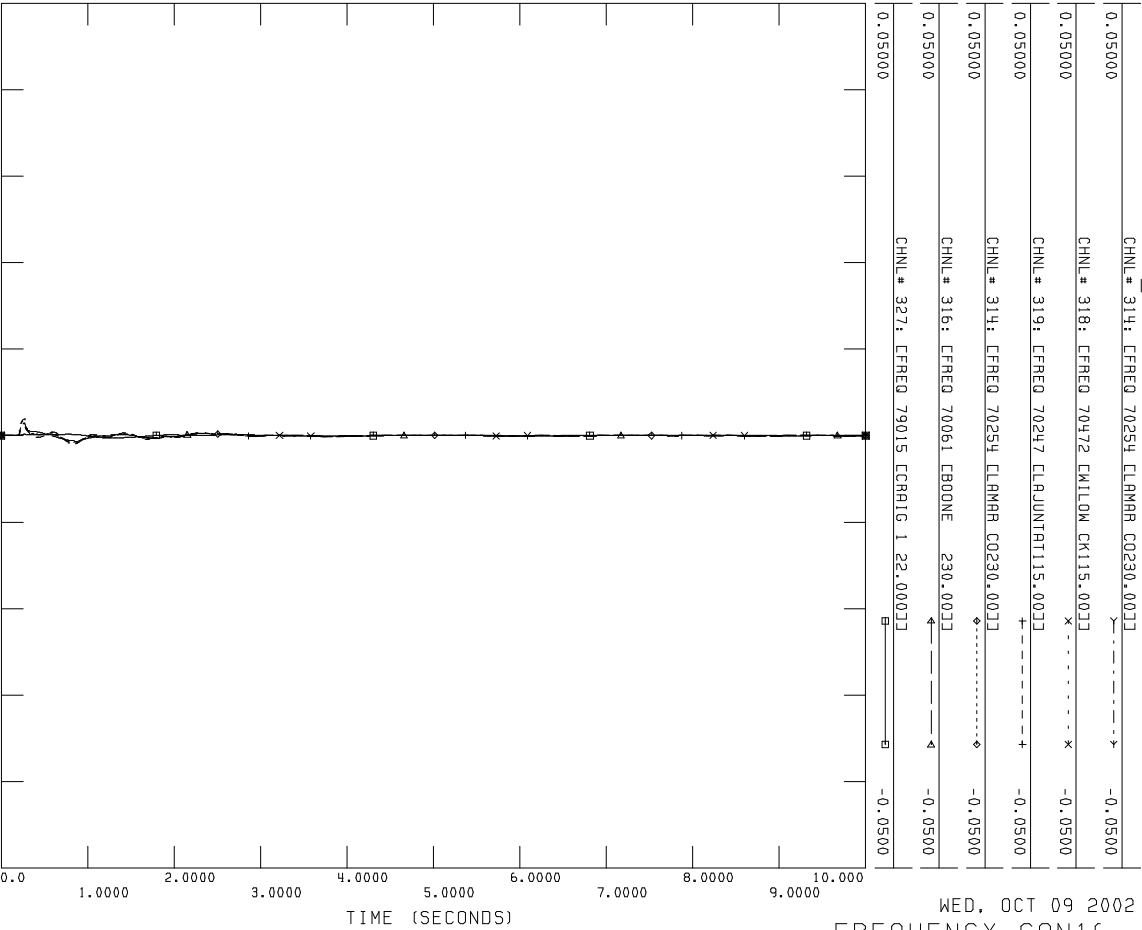
FILE: C:\Xcel\_windfarm\2003\new-offs\CON16-OFF.OUT





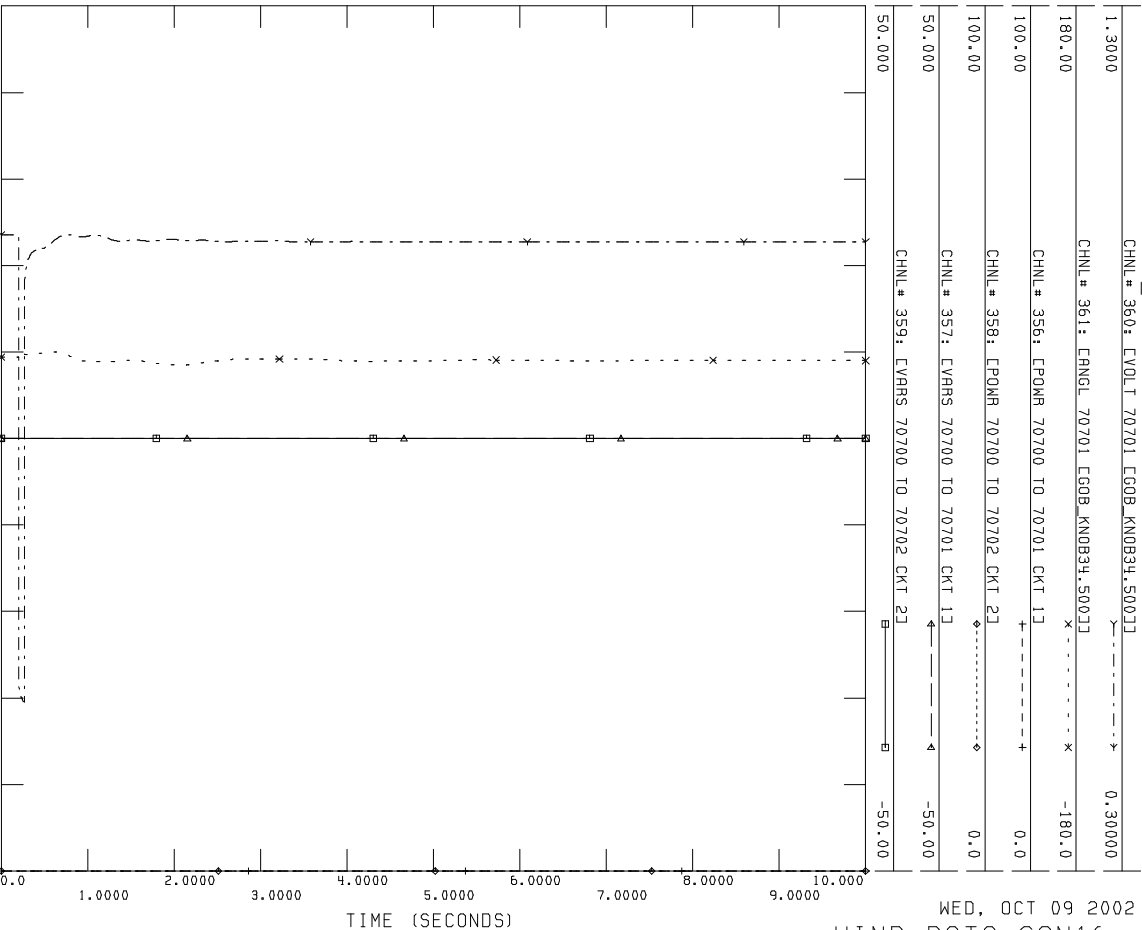
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON16-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON16-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 17 (CON17-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON17-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON BOONE 115 KV BUS 70060  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM BOONE 115 KV BUS 70060 TO LA JUNTA WEST BUS 70249  
CLEAR FAULT AT BOONE 115 KV BUS 70060  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON17-OFF.OUT

CHNL# 11: CANGL 70701 CCRB 14.5000 C1 JJ

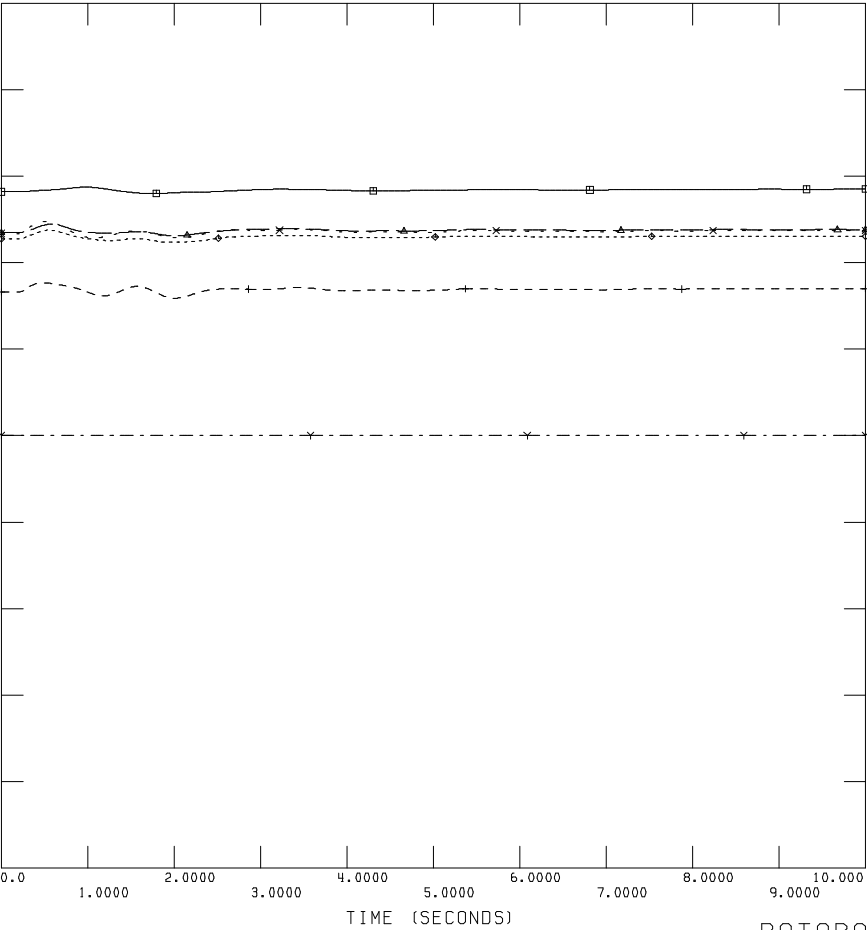
180.00 CHNL# 17: CANGL 70120 ECOMAN 2.24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7.13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATIG 1.22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON17 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON17-OFF.OUT

CHNL# 18: CANGL 70133 CCRB 14.5000 C1 JJ

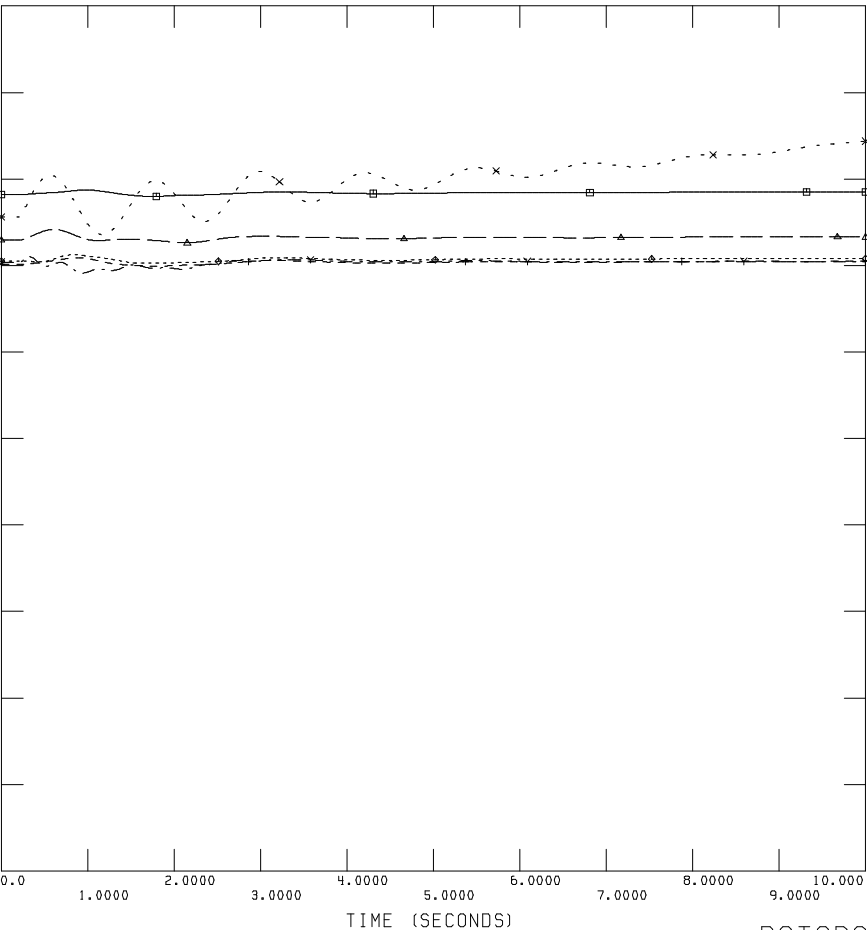
180.00 CHNL# 28: CANGL 70344 CR.F.DSLSH.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATIG 1.22.0000 C1 JJ -180.0



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ROTORANGLES 2 CON17 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON17-OFF.OUT

CHNL # 220: EVOLT 70701 CGOB\_KNOB34.50000

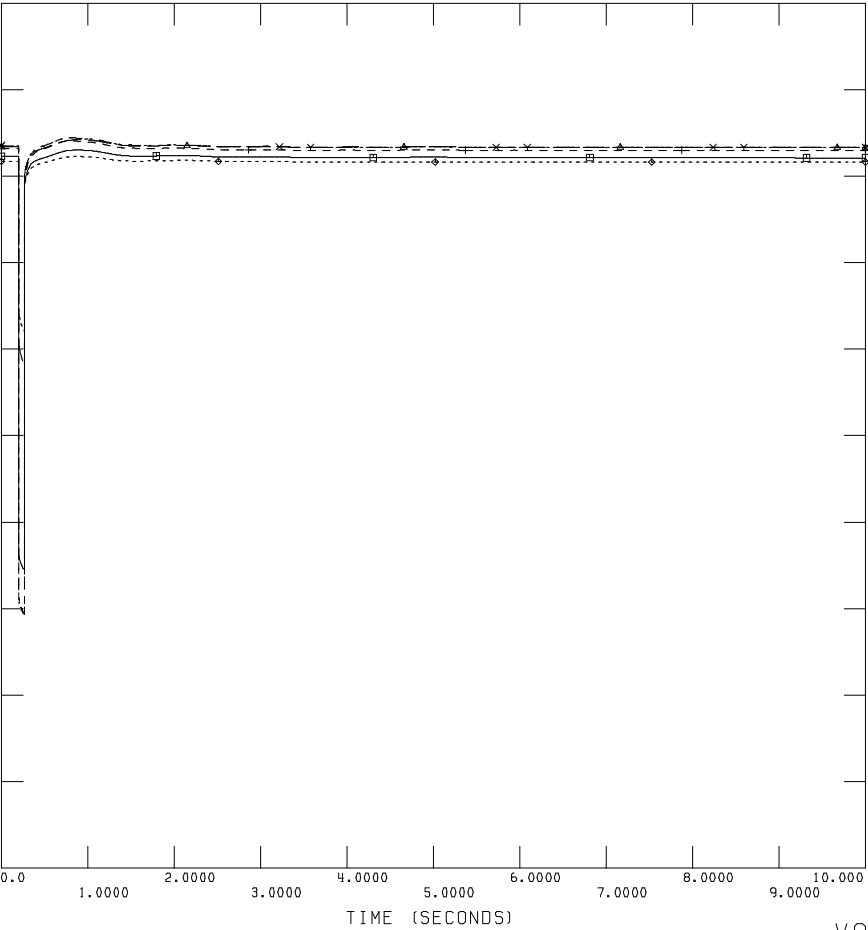
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230.0000 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230.0000 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230.0000 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230.0000 0.20000

1.2000 CHNL # 207: EVOLT 70061 EBOONE\_230.0000 0.20000



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VOLTAGE 1 CON17 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON17-OFF.OUT

CHNL # 219: EVOLT 70136 CDTY\_LAM 69.00000

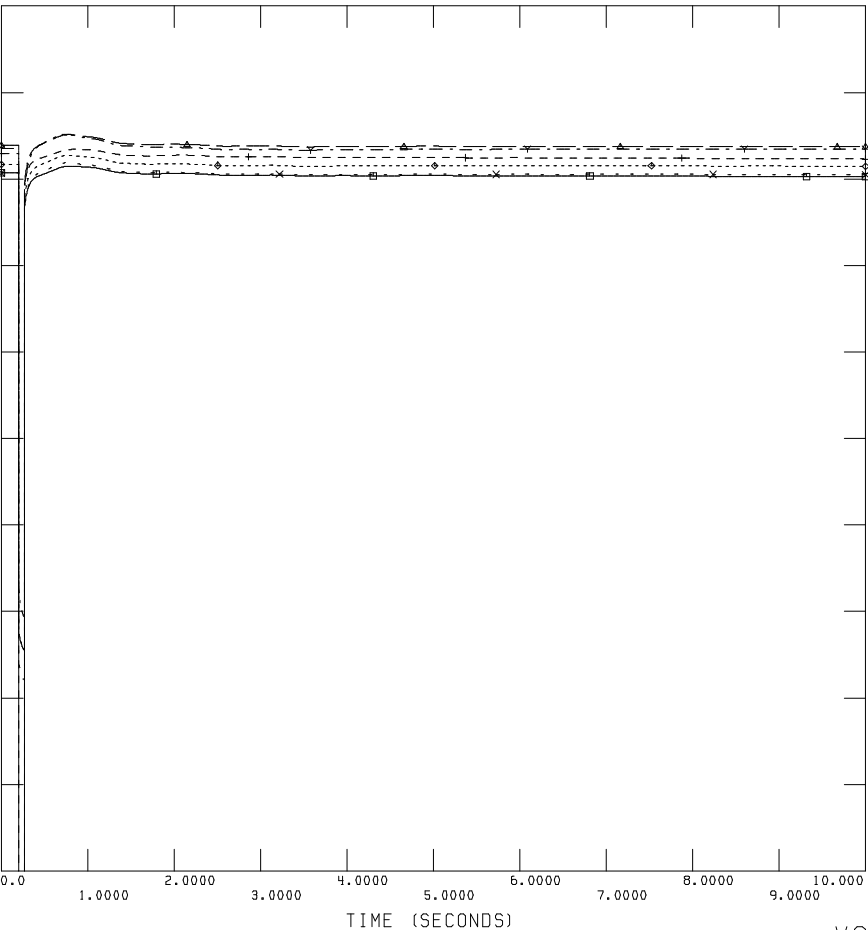
1.2000 CHNL # 209: EVOLT 70472 CMILDM\_CK115.0000 0.20000

1.2000 CHNL # 208: EVOLT 70060 EBOONE\_115.0000 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115.0000 0.20000

1.2000 CHNL # 212: EVOLT 70452 EVILBS\_115.0000 0.20000

1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115.0000 0.20000



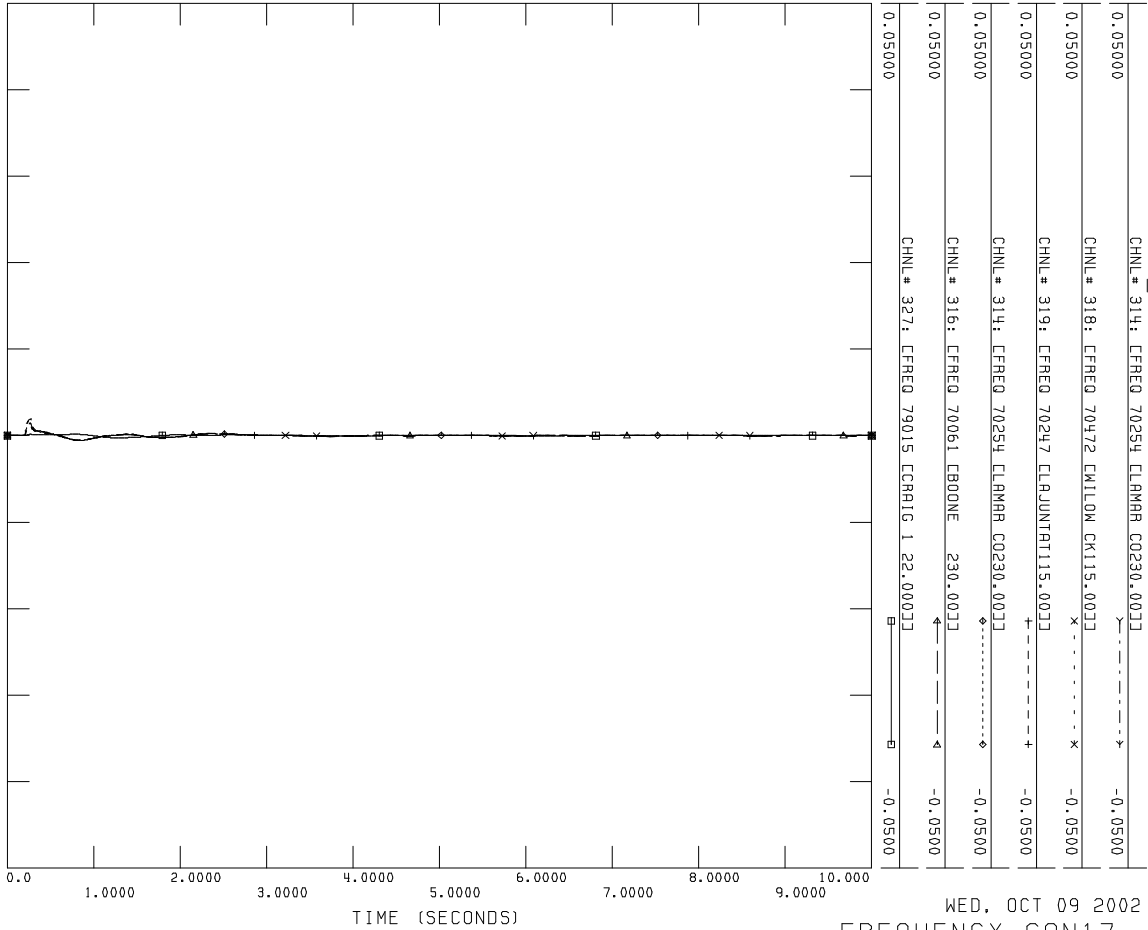
WED, OCT 09 2002 0:51  
VOLTAGE 2 CON17 QMW





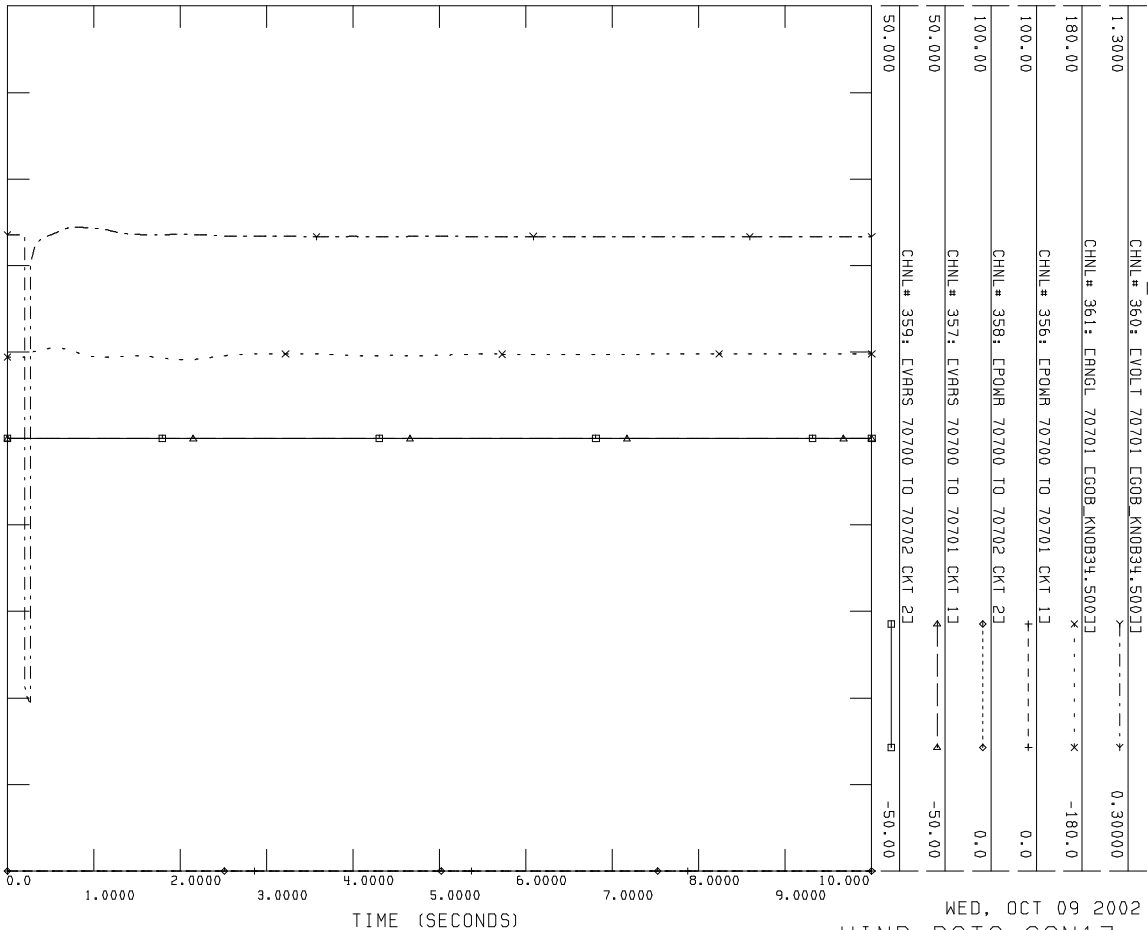
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON17-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON17-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 18 (CON18-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON18-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON WILLOW CREEK 115 KV BUS 70472  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP BRANCH FROM WILLOW CREEK 115 KV BUS 70472 TO WILLOW CREEK 69 KV BUS  
70473  
CLEAR FAULT AT WILLOW CREEK 115 KV BUS 70472  
RUN TO 10 SECONDS PRINT 10 PLOT 1  
  
END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON18-OFF.OUT

CHNL# 11: [RANGL 70701 [CGR\_KNOB34,500] C1 JJ

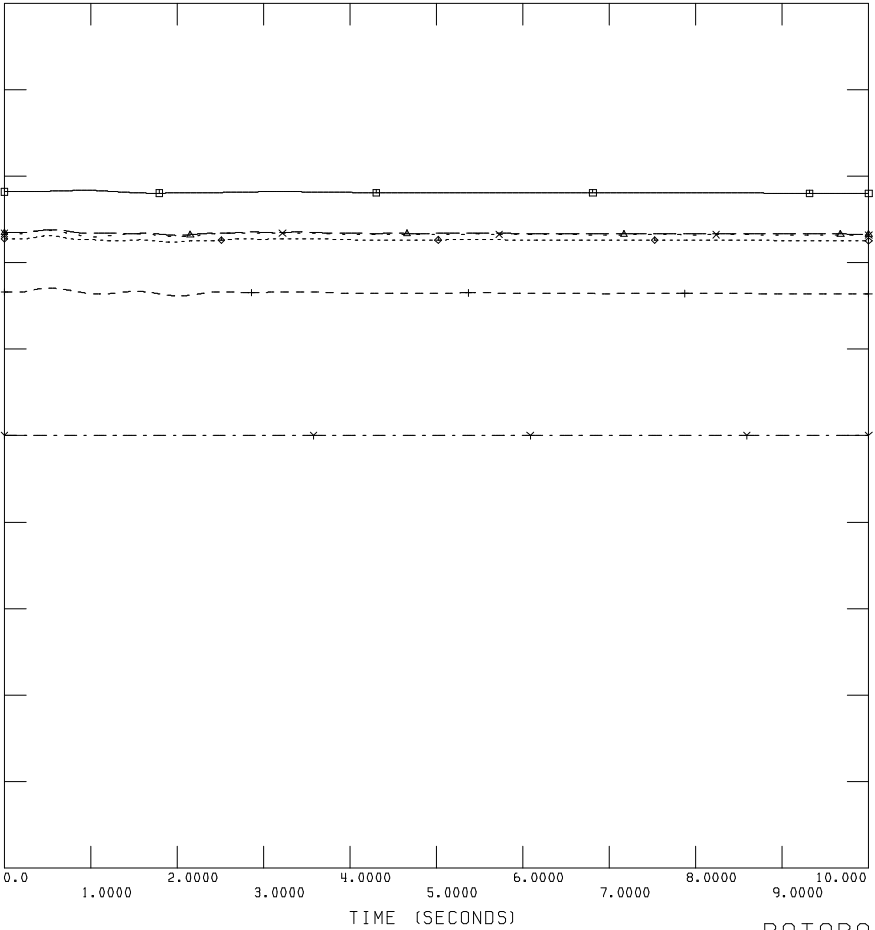
180.00 CHNL# 17: [RANGL 70120 [CCOMAN 2 24,000] C1 JJ -180.0

180.00 CHNL# 26: [RANGL 70337 [PUERBLD 14,000] C1 JJ -180.0

180.00 CHNL# 88: [RANGL 73418 [RD\_NIXON20,000] C1 JJ -180.0

180.00 CHNL# 89: [RANGL 73423 [DRAKE 7 13,800] C1 JJ -180.0

180.00 CHNL# 98: [RANGL 79015 [CRAIG 1 22,000] C1 JJ -180.0



WED, OCT 09 2002 0:52  
ROTORANGLES 1 CON18 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON18-OFF.OUT

CHNL# 18: [RANGL 70133 [CTY LRM 14,400] C1 JJ

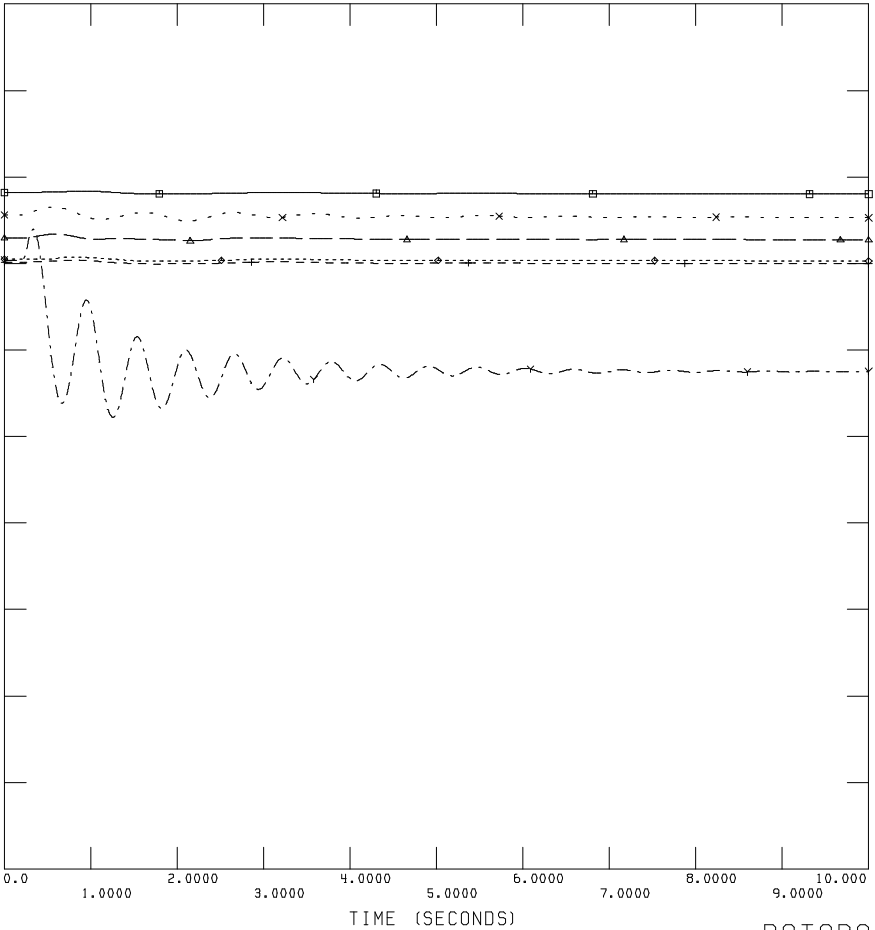
180.00 CHNL# 28: [RANGL 70344 [R.F.DSL54,1600] C1 JJ -180.0

180.00 CHNL# 5: [RANGL 70035 [RRRP4 13,800] C1 JJ -180.0

180.00 CHNL# 15: [RANGL 70106 [CCHEROKY 22,000] C1 JJ -180.0

180.00 CHNL# 96: [RANGL 73532 [LINCOLN113,800] C1 JJ -180.0

180.00 CHNL# 98: [RANGL 79015 [CRAIG 1 22,000] C1 JJ -180.0

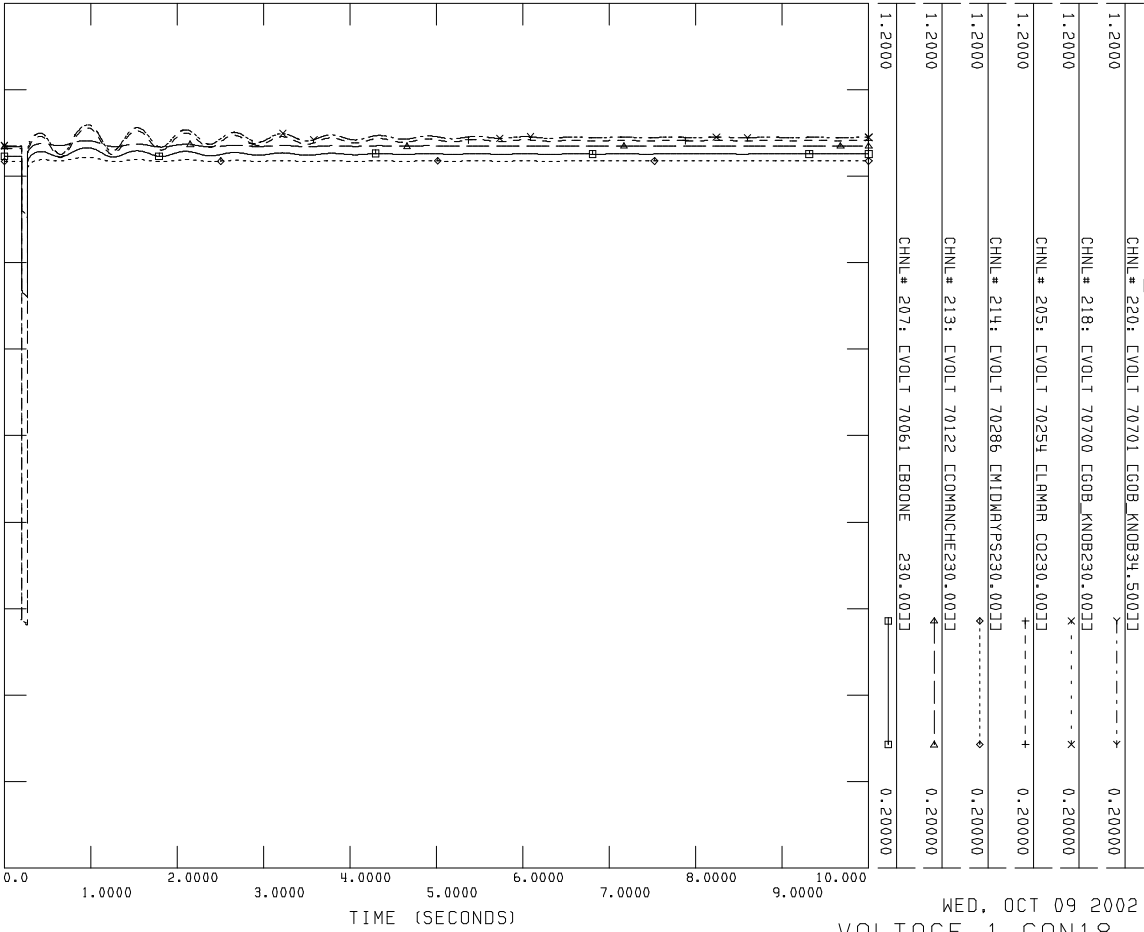


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ROTORANGLES 2 CON18 QMW



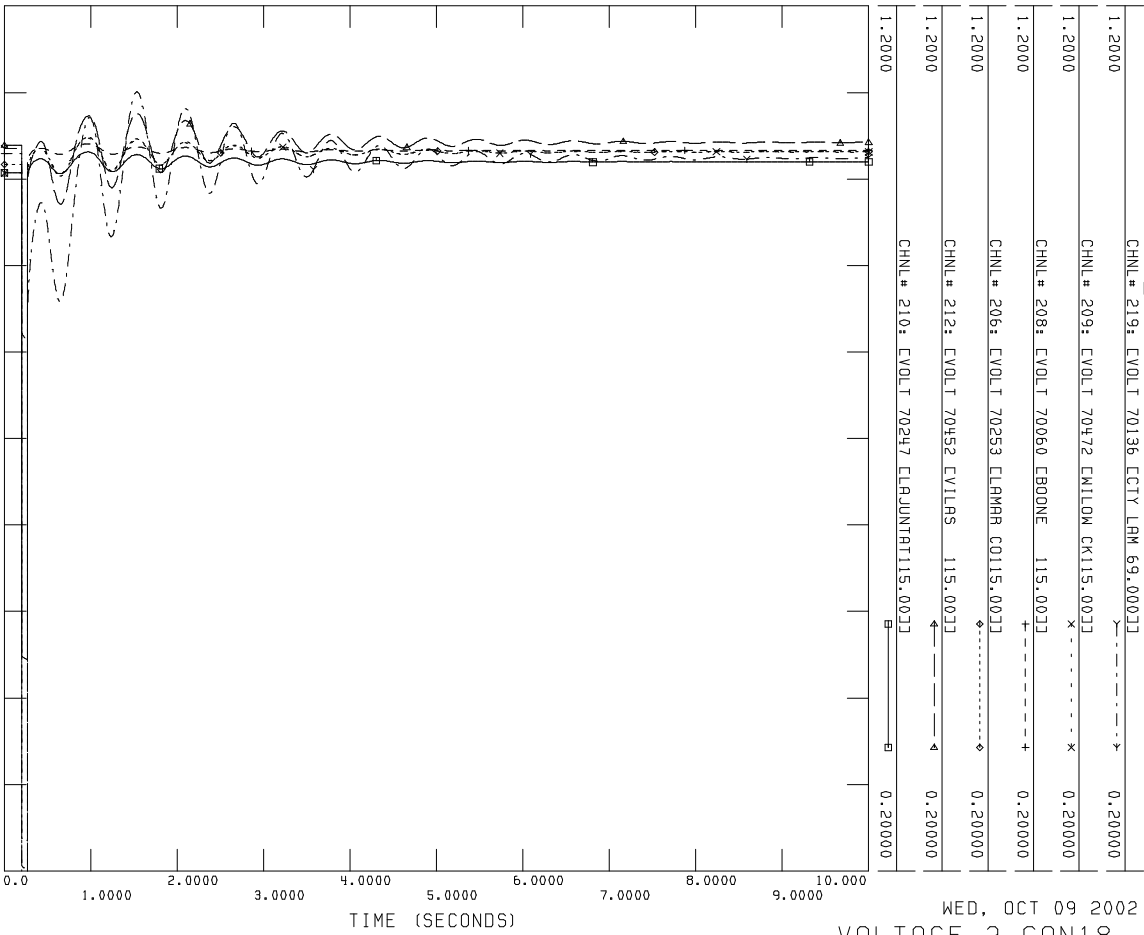
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON18-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

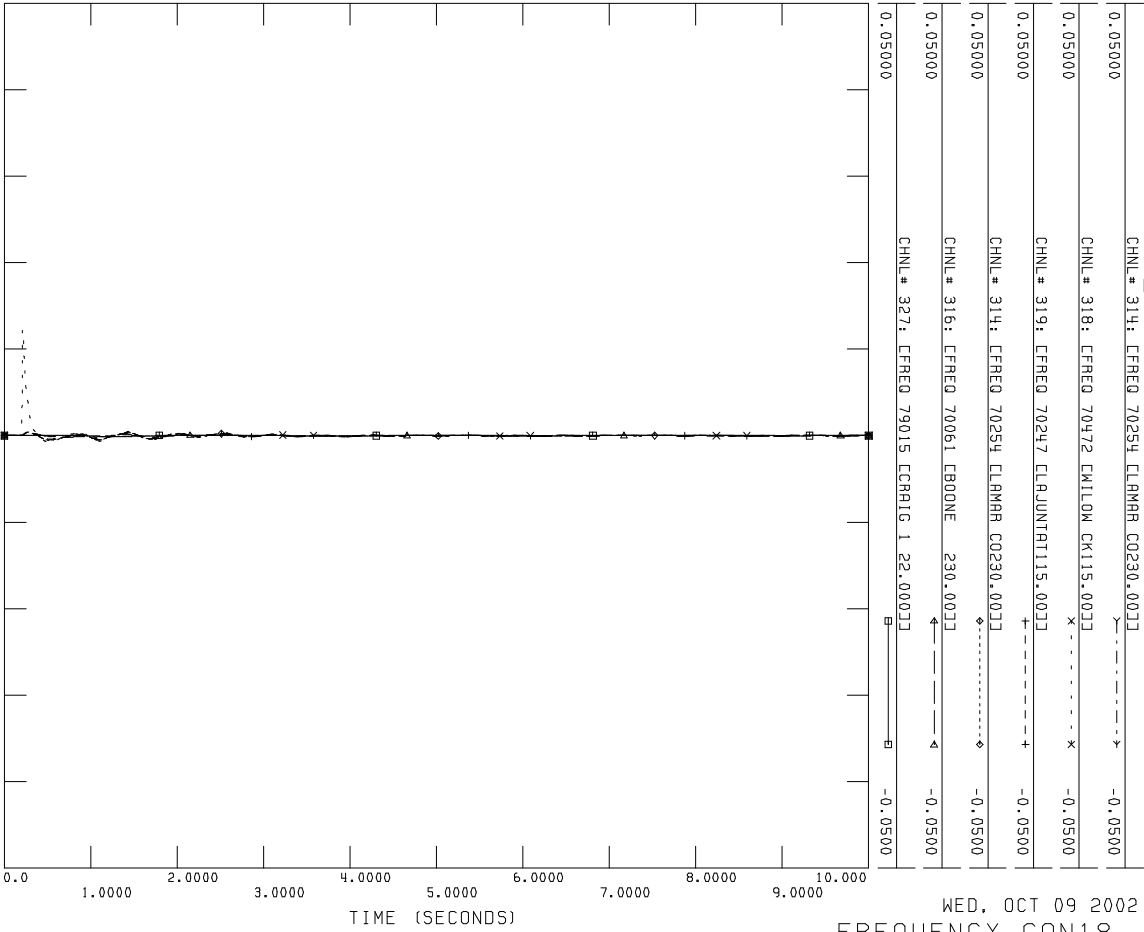
FILE: C:\Xcel\_windfarm\2003\new-offs\CON18-OFF.OUT





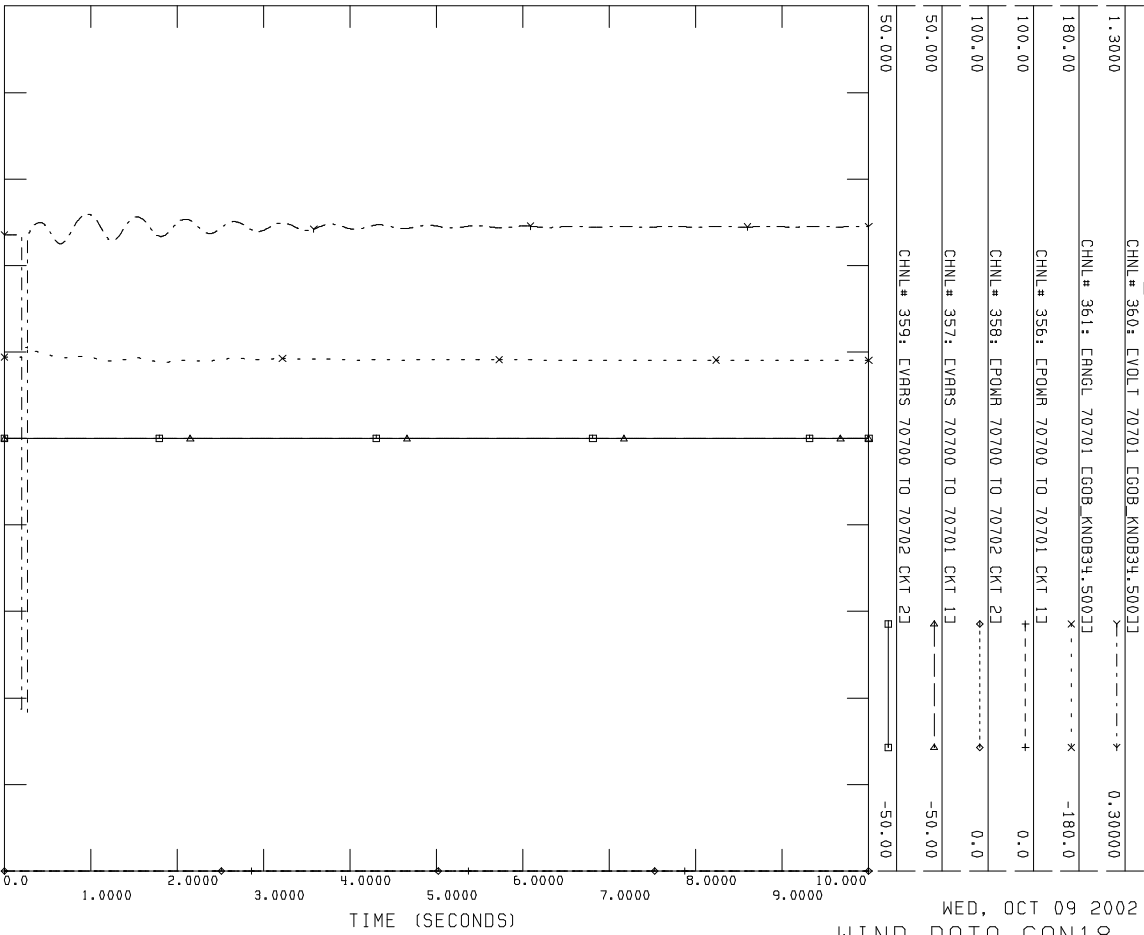
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON18-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON18-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 19 (CON19-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON19-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON LAMAR 230 KV BUS 70254  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM BOONE BUS 70061 TO LAMAR BUS 70254  
CLEAR FAULT AT LAMAR 230 KV BUS 70254  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON19-OFF.OUT

CHNL# 111: CANGL 70701 CCRB 79015 CCRB16 1 22.0000 C1 JJ

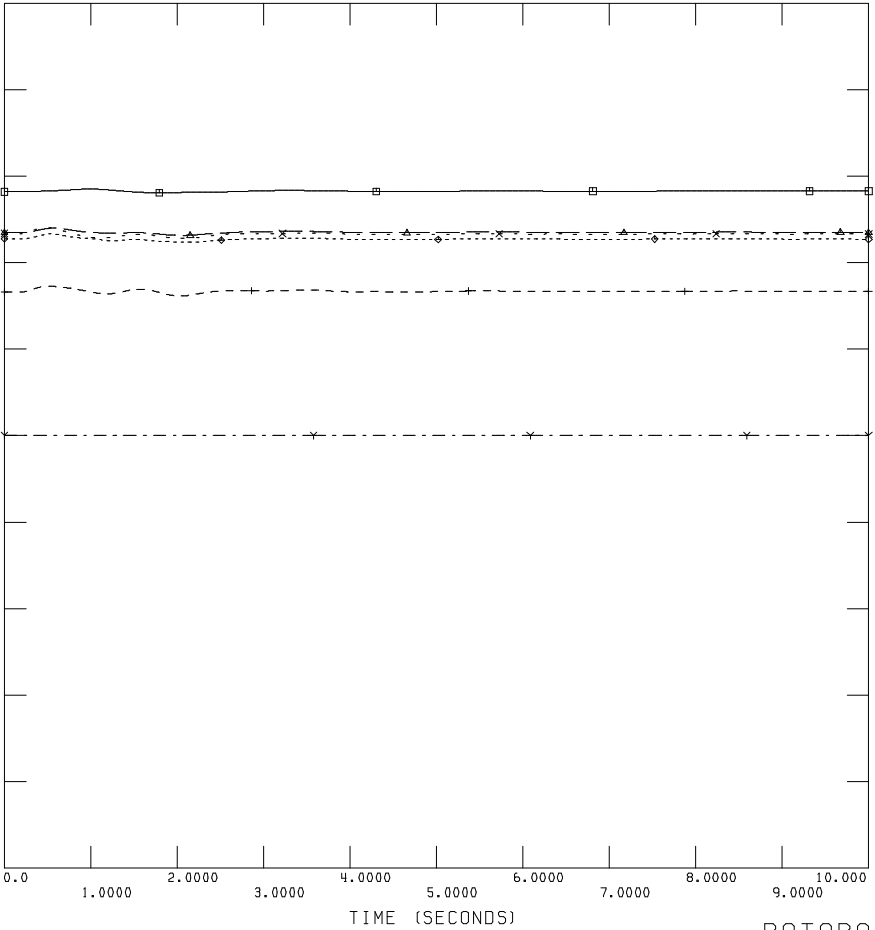
180.00 CHNL# 17: CANGL 70120 CCOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBLD 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB16 1 22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON19 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON19-OFF.OUT

CHNL# 18: CANGL 70133 CCRB 79015 CCRB16 1 22.0000 C1 JJ

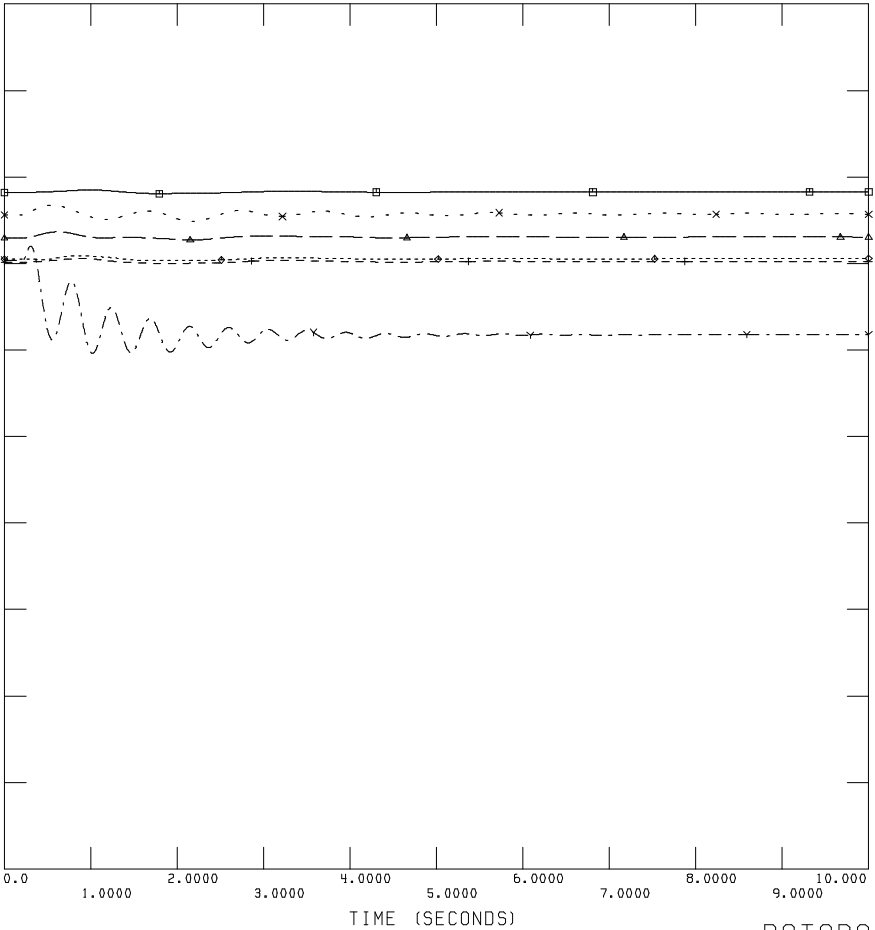
180.00 CHNL# 28: CANGL 70344 CR.F.DSLSH.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB16 1 22.0000 C1 JJ -180.0

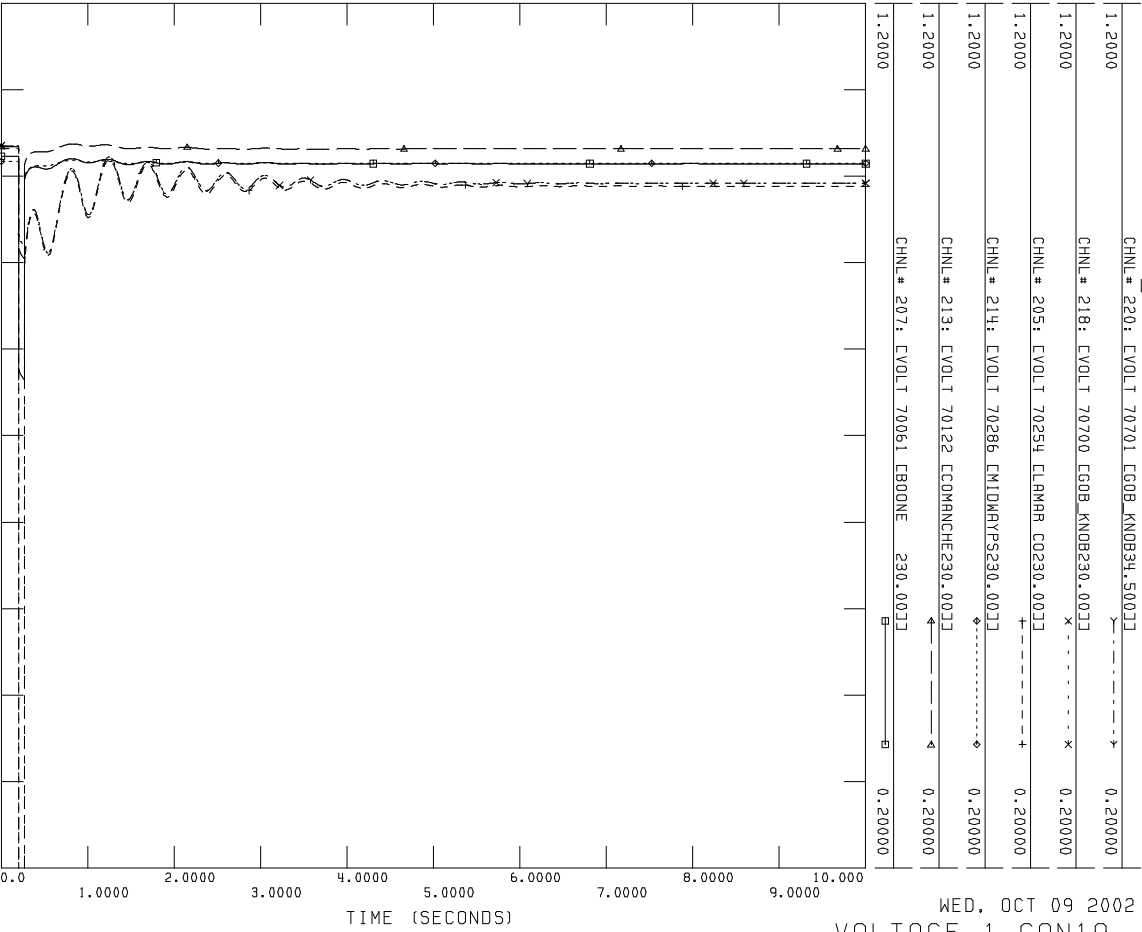


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ROTORANGLES 2 CON19 QMW



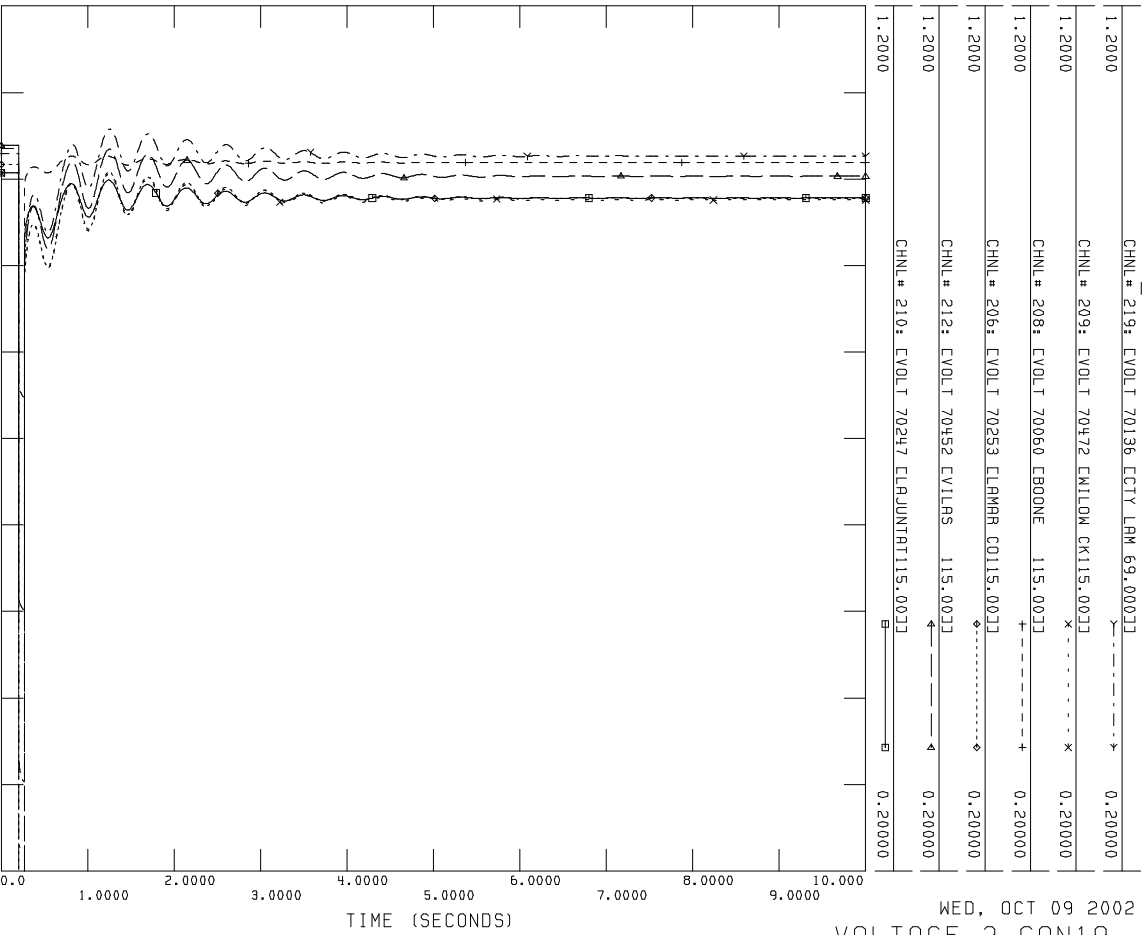
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON19-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON19-OFF.OUT

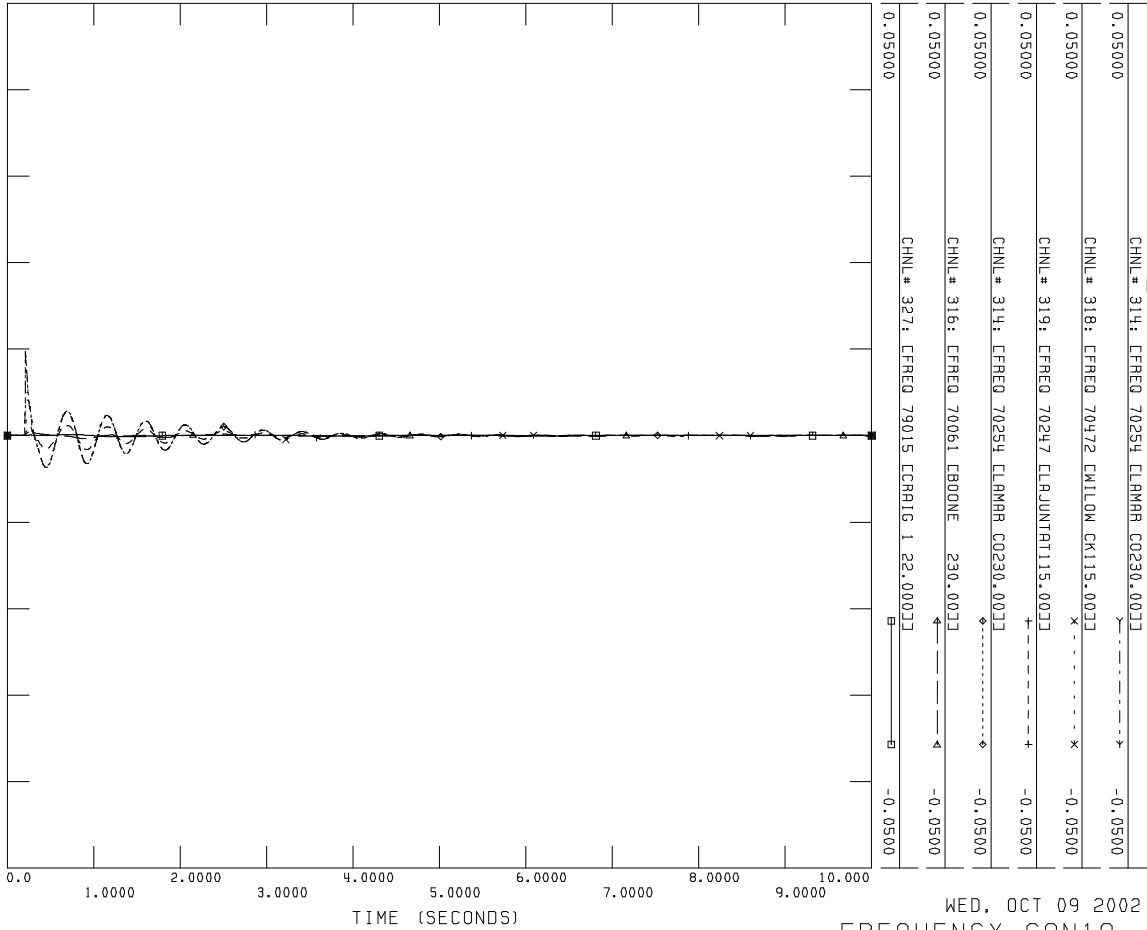






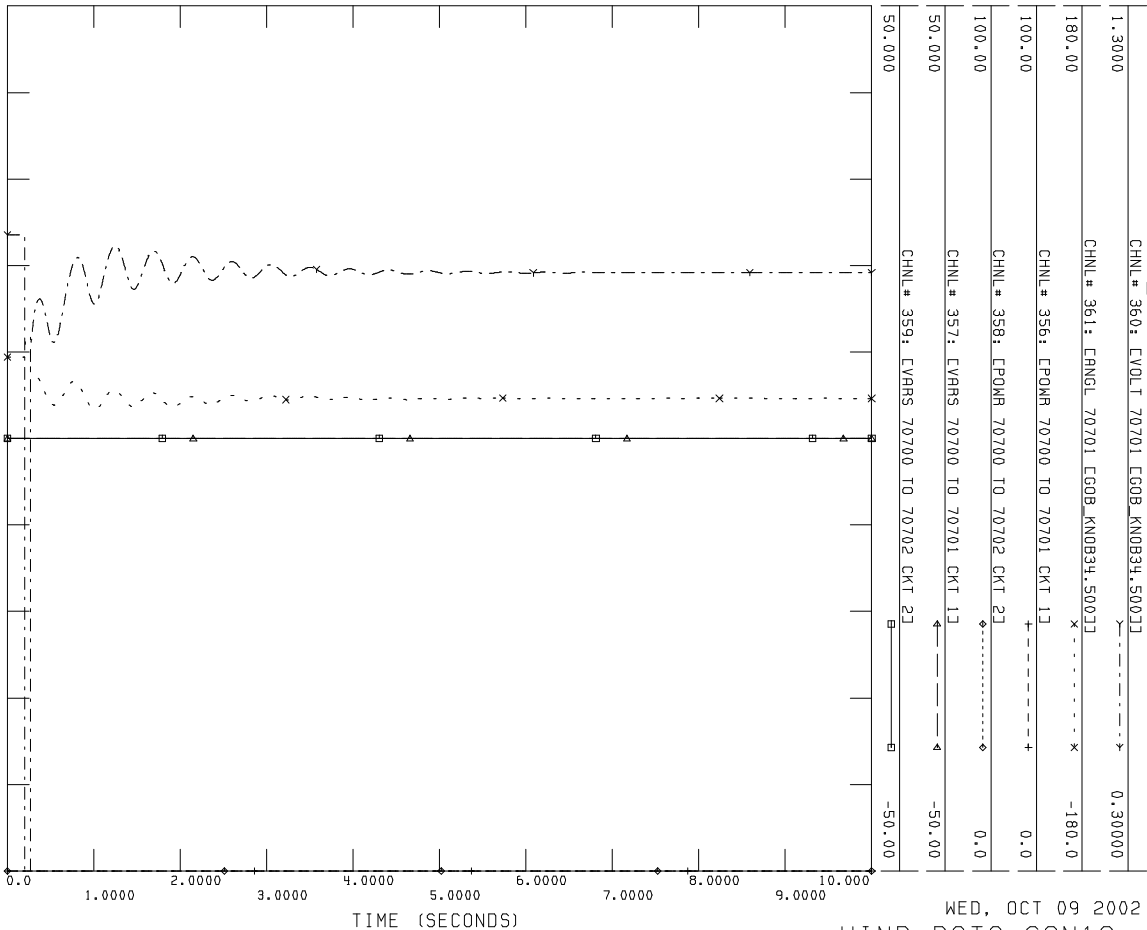
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON19-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON19-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 20 (CON20-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON20-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON MIDWAY 230 KV BUS 70286  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM BOONE BUS 70061 TO MIDWAY BUS 70286  
CLEAR FAULT AT MIDWAY 230 KV BUS 70286  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\xcel\windfarm\2003\new-offs\CON20-OFF.OUT

CHNL# 11: CANGL 70701 CCRB\_KNOB34.5000 C1 JJ

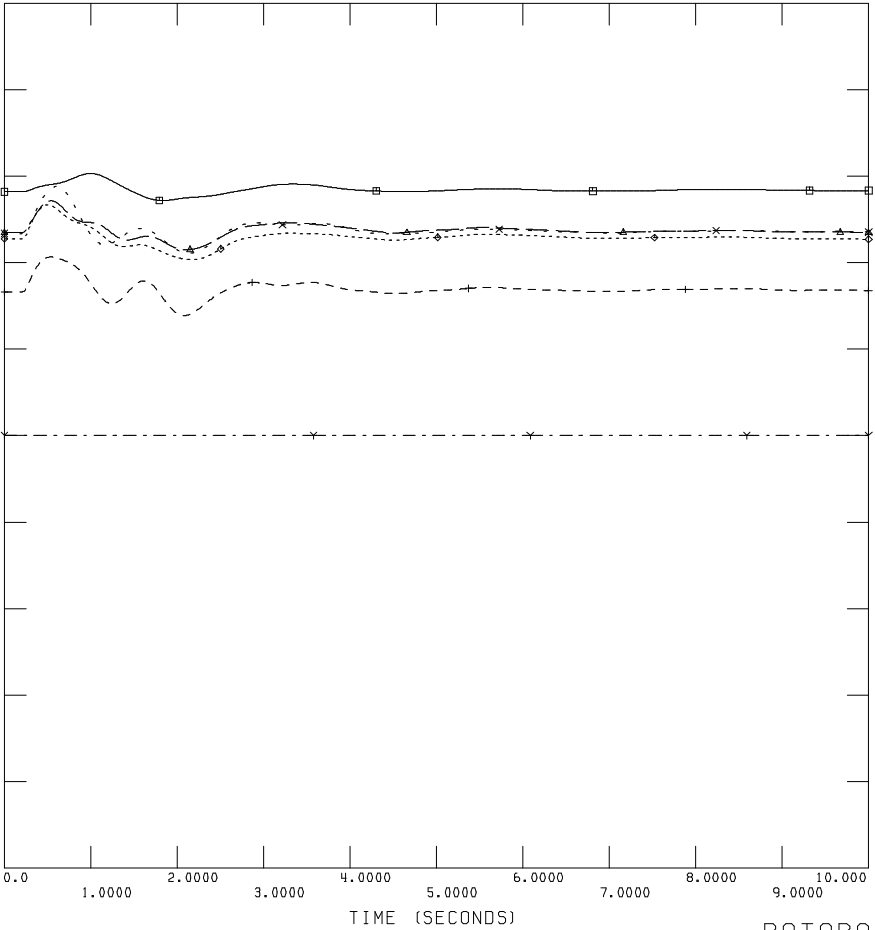
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON20 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\xcel\windfarm\2003\new-offs\CON20-OFF.OUT

CHNL# 18: CANGL 70133 CCRB\_LAM 14.4000 C1 JJ

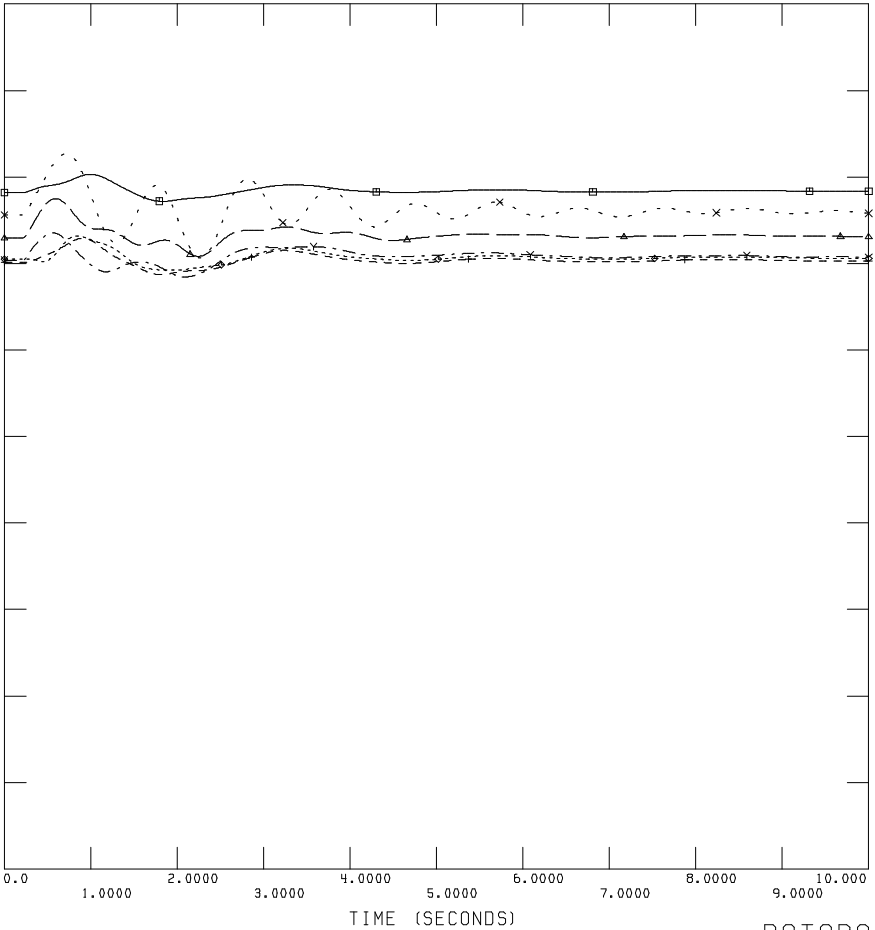
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



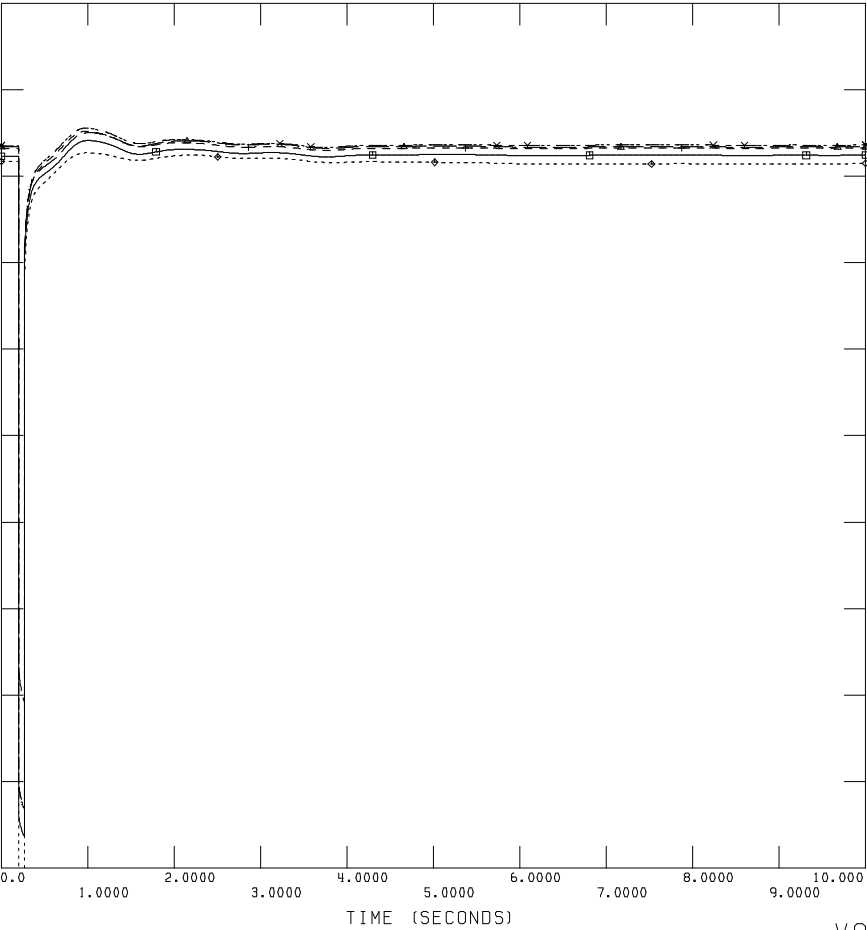
WED, OCT 09 2002 0:53  
ROTORANGLES 2 CON20 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON20-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 218: EVOLT 70700 CGOB_KNOB230.00JJ | 0.20000 |
| 1.2000 | CHNL # 205: EVOLT 70254 CLAMAR_C0230.00JJ | 0.20000 |
| 1.2000 | CHNL # 214: EVOLT 70286 EMIDMHTPS230.00JJ | 0.20000 |
| 1.2000 | CHNL # 213: EVOLT 70122 ECOMANCHE230.00JJ | 0.20000 |
| 1.2000 | CHNL # 207: EVOLT 70061 EBOONE_230.00JJ   | 0.20000 |



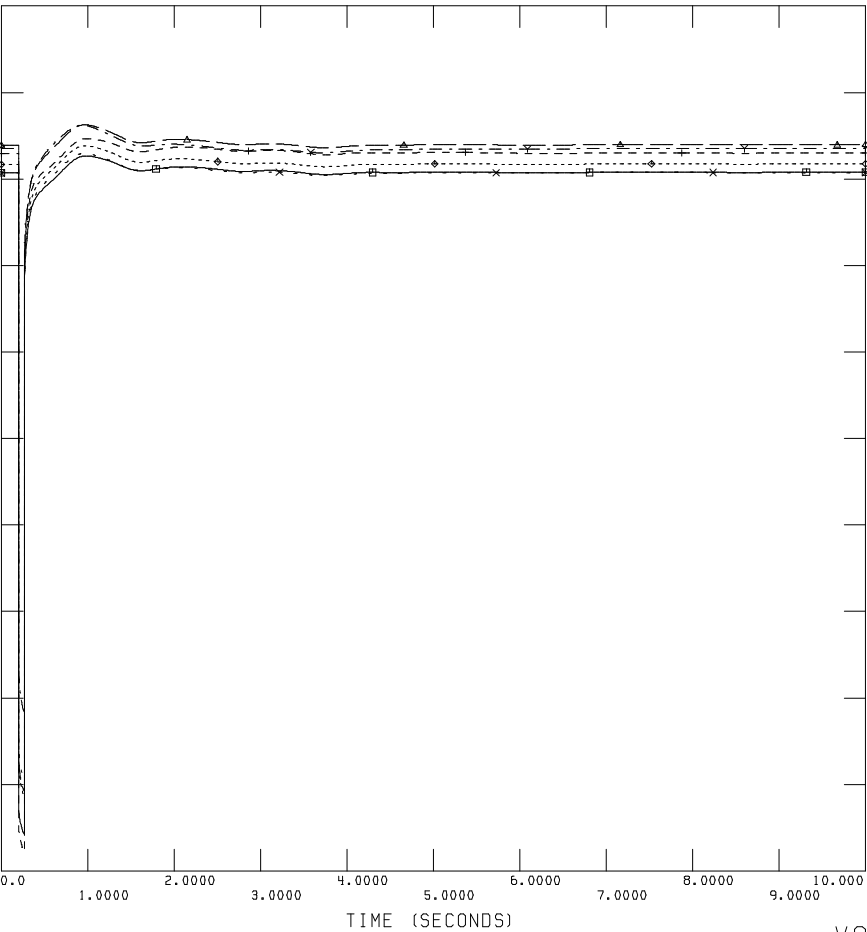
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0MM



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON20-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 209: EVOLT 70472 CMILDM_CK115.00JJ | 0.20000 |
| 1.2000 | CHNL # 208: EVOLT 70060 EBOONE_115.00JJ   | 0.20000 |
| 1.2000 | CHNL # 206: EVOLT 70253 CLAMAR_C0115.00JJ | 0.20000 |
| 1.2000 | CHNL # 212: EVOLT 70452 EVILBS_115.00JJ   | 0.20000 |
| 1.2000 | CHNL # 210: EVOLT 70247 CLAJUNTAT115.00JJ | 0.20000 |

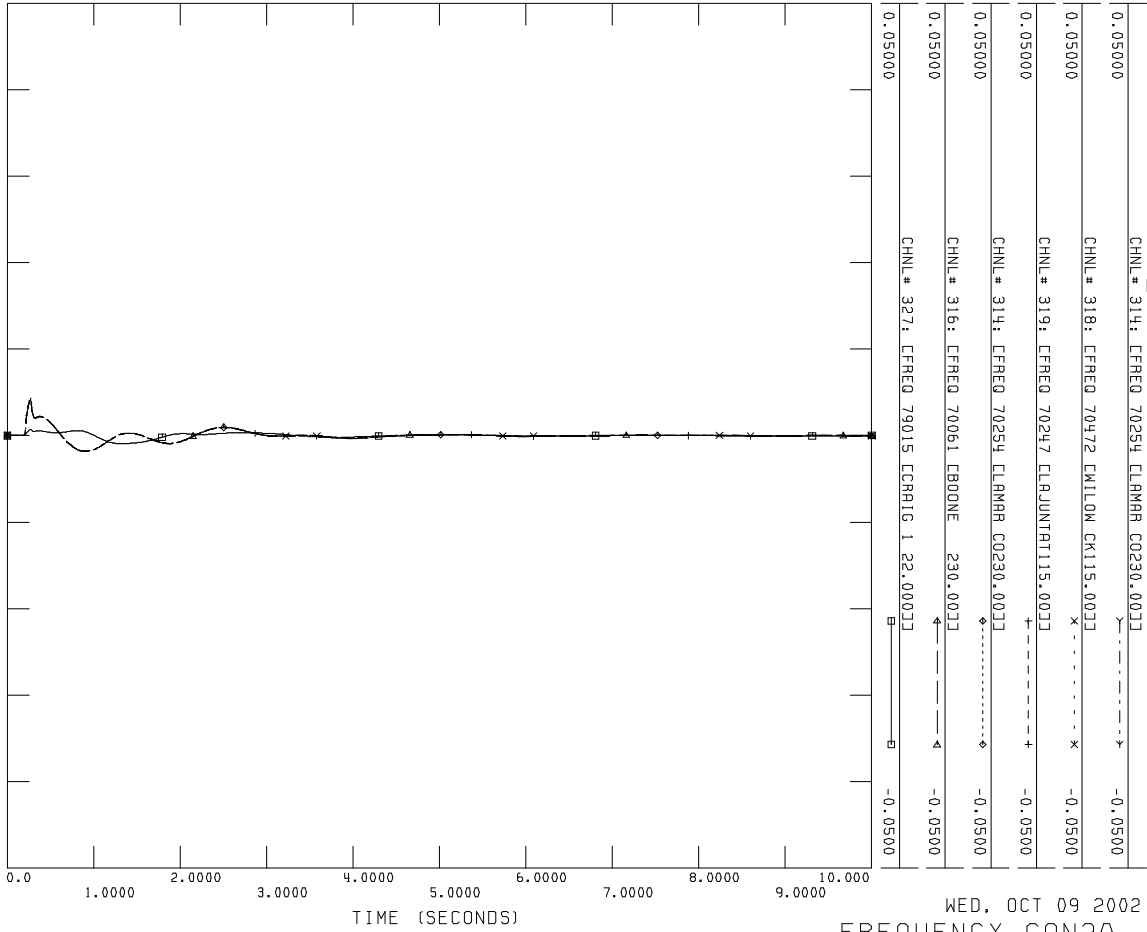


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0MM



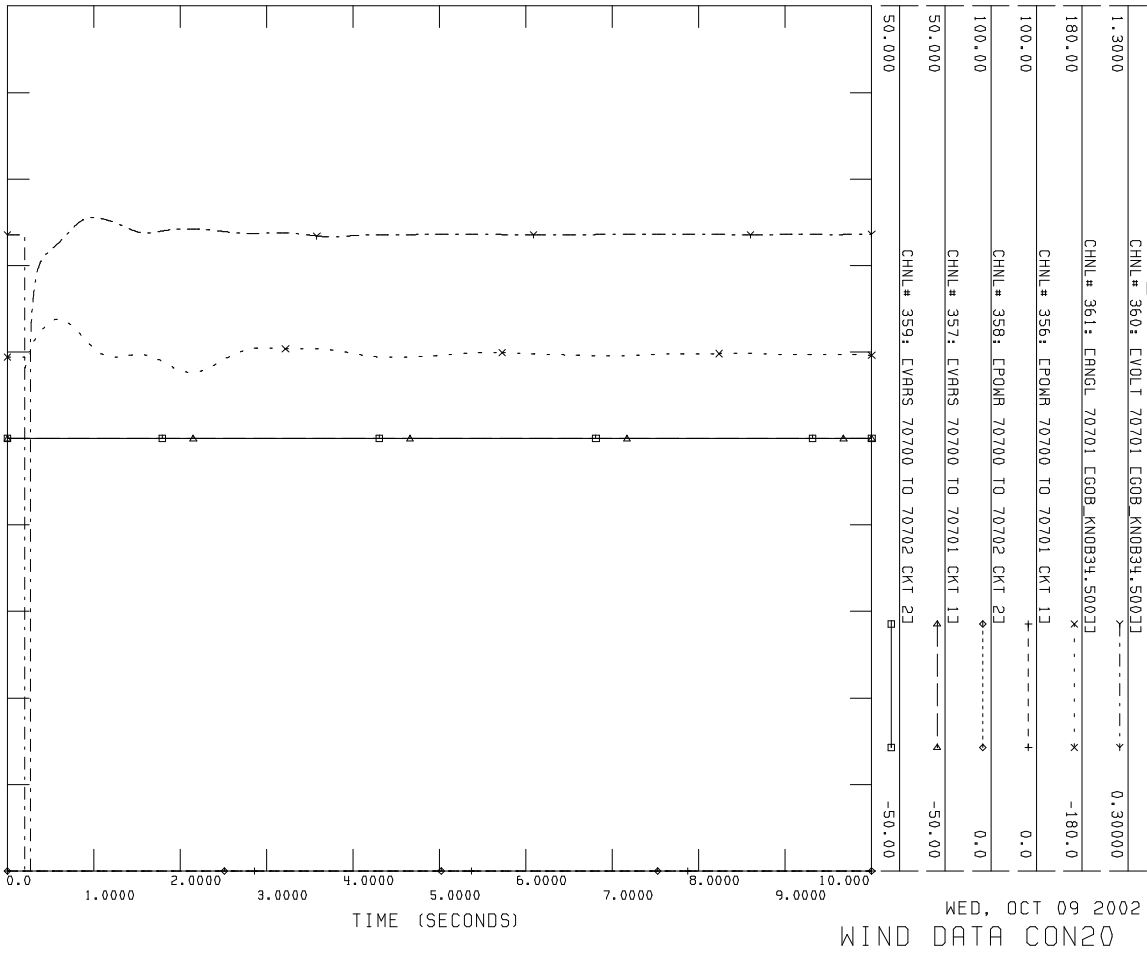
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON20-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON20-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 21 (CON21-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON21-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON MIDWAY 230 KV BUS 70286  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM DANIELS PARK 230 KV BUS 70139 TO MIDWAY BUS 70286  
CLEAR FAULT AT MIDWAY 230 KV BUS 70286  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



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2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON2-OFF.0UT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.500J C1 JJ

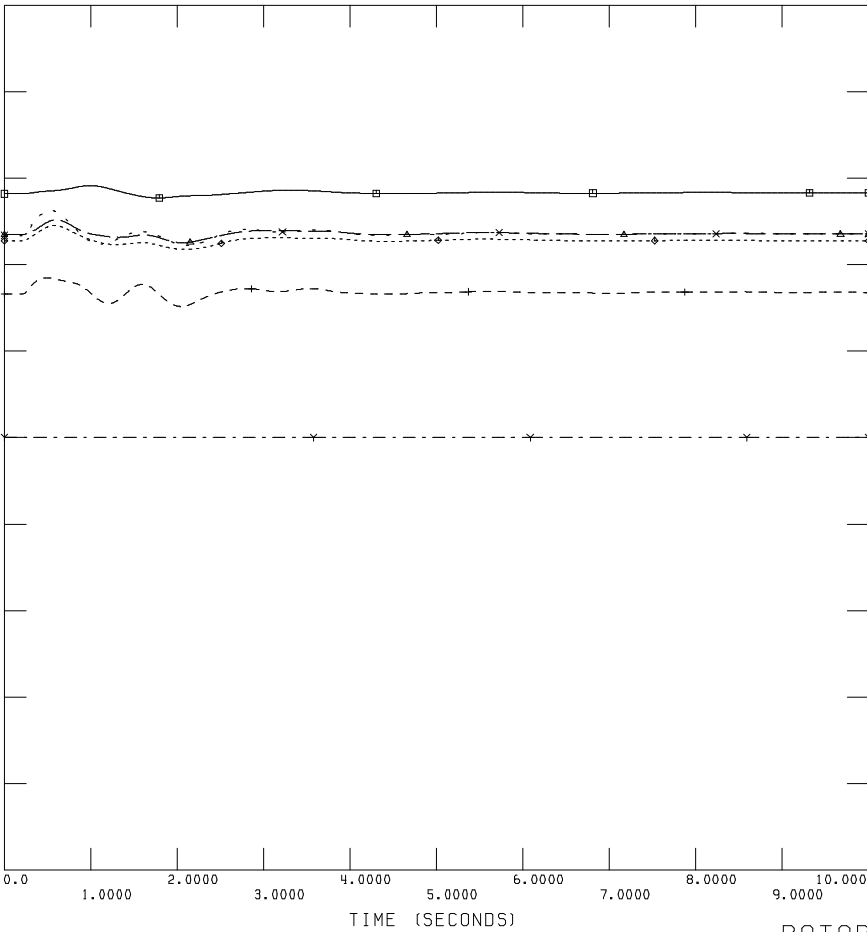
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



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TECHNOLOGIES,  
INC.

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON2-OFF.0UT

CHNL# 18: CANGL 70133 CTTY LRM 14.400J C1 JJ

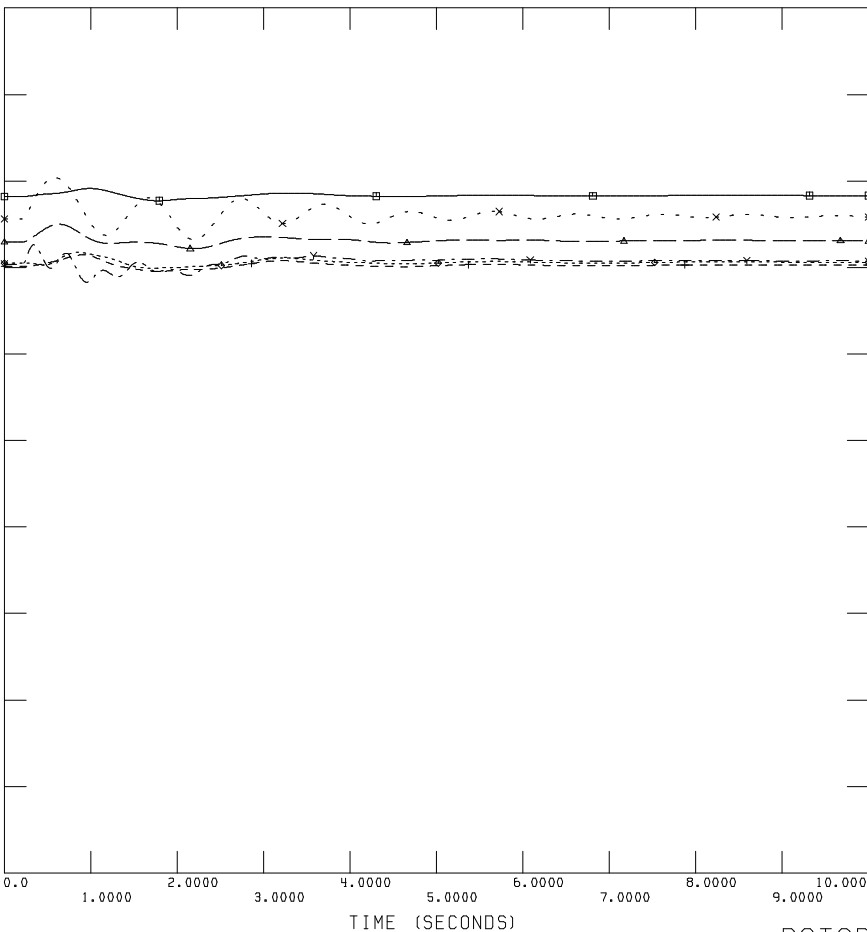
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRRP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON21-OFF.OUT

CHNL # 220: EVOLT 70701 CGOB\_KNOB34.50000

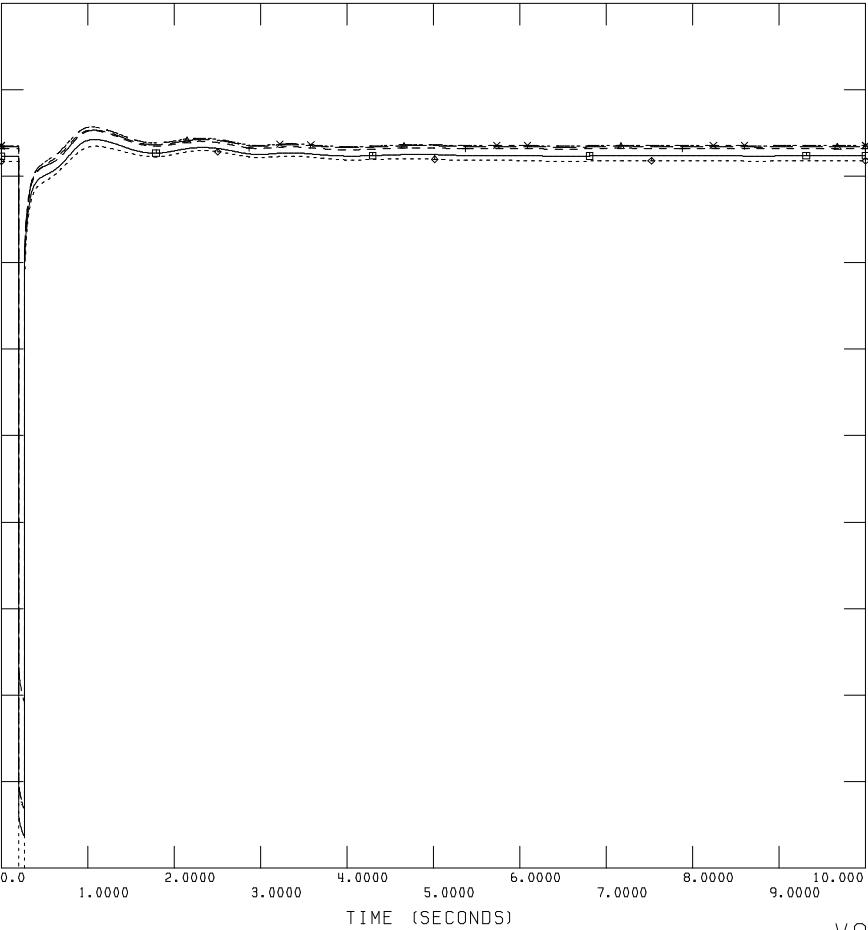
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230.00000 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230.00000 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230.00000 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230.00000 0.20000

1.2000 CHNL # 207: EVOLT 70061 EBOONE\_230.00000 0.20000



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VOLTAGE 1 CON21 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON21-OFF.OUT

CHNL # 219: EVOLT 70136 CDTY\_LAM\_69.00000

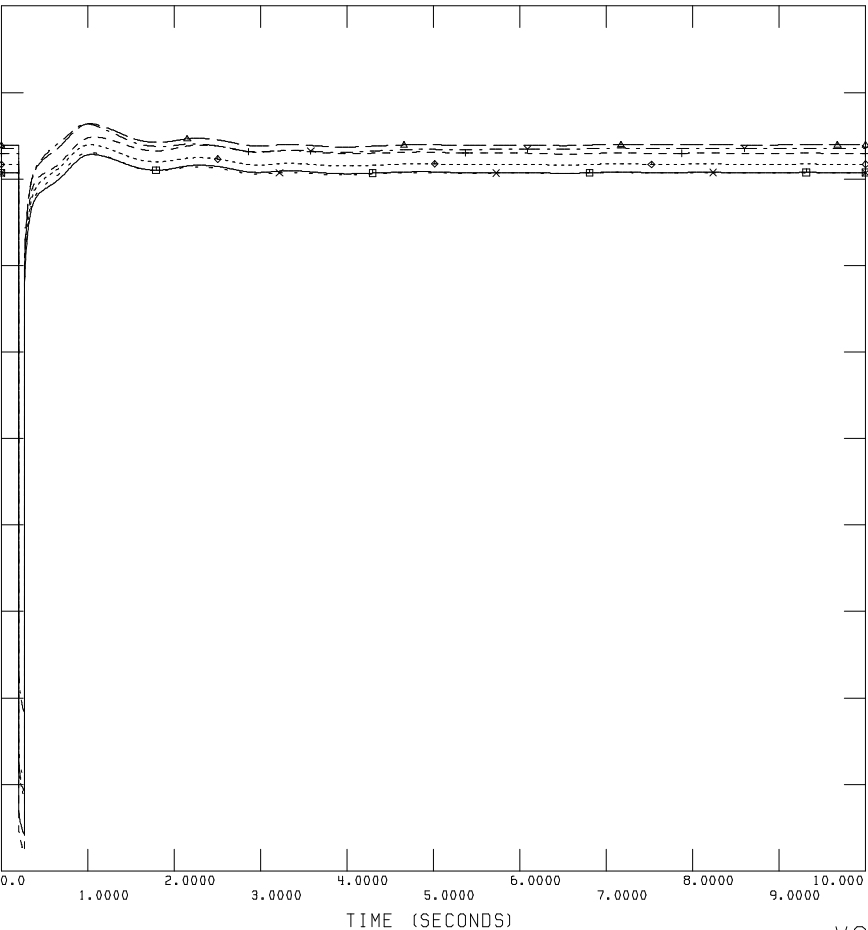
1.2000 CHNL # 209: EVOLT 70472 CMILDM\_CK115.00000 0.20000

1.2000 CHNL # 208: EVOLT 70060 EBOONE\_115.00000 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115.00000 0.20000

1.2000 CHNL # 212: EVOLT 70452 EVILBS\_115.00000 0.20000

1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115.00000 0.20000



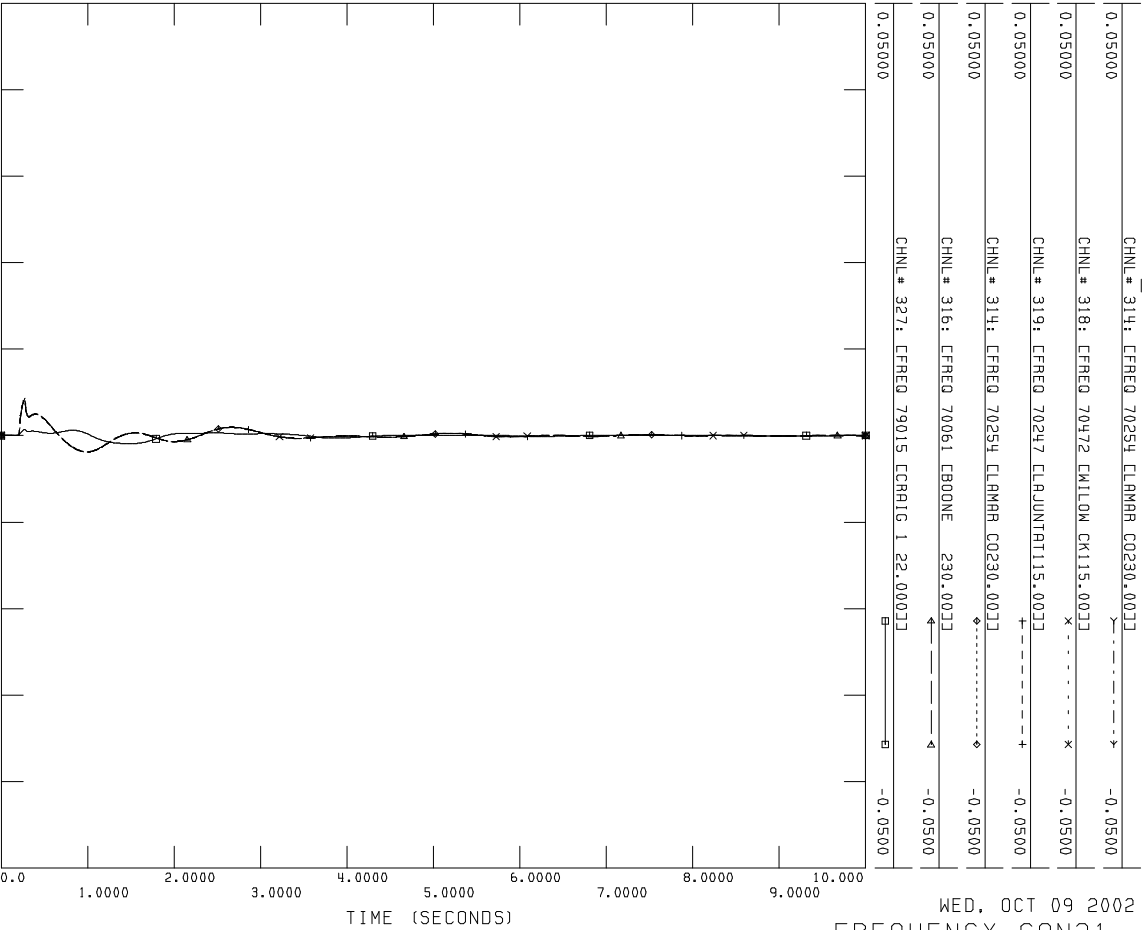
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VOLTAGE 2 CON21 QMW





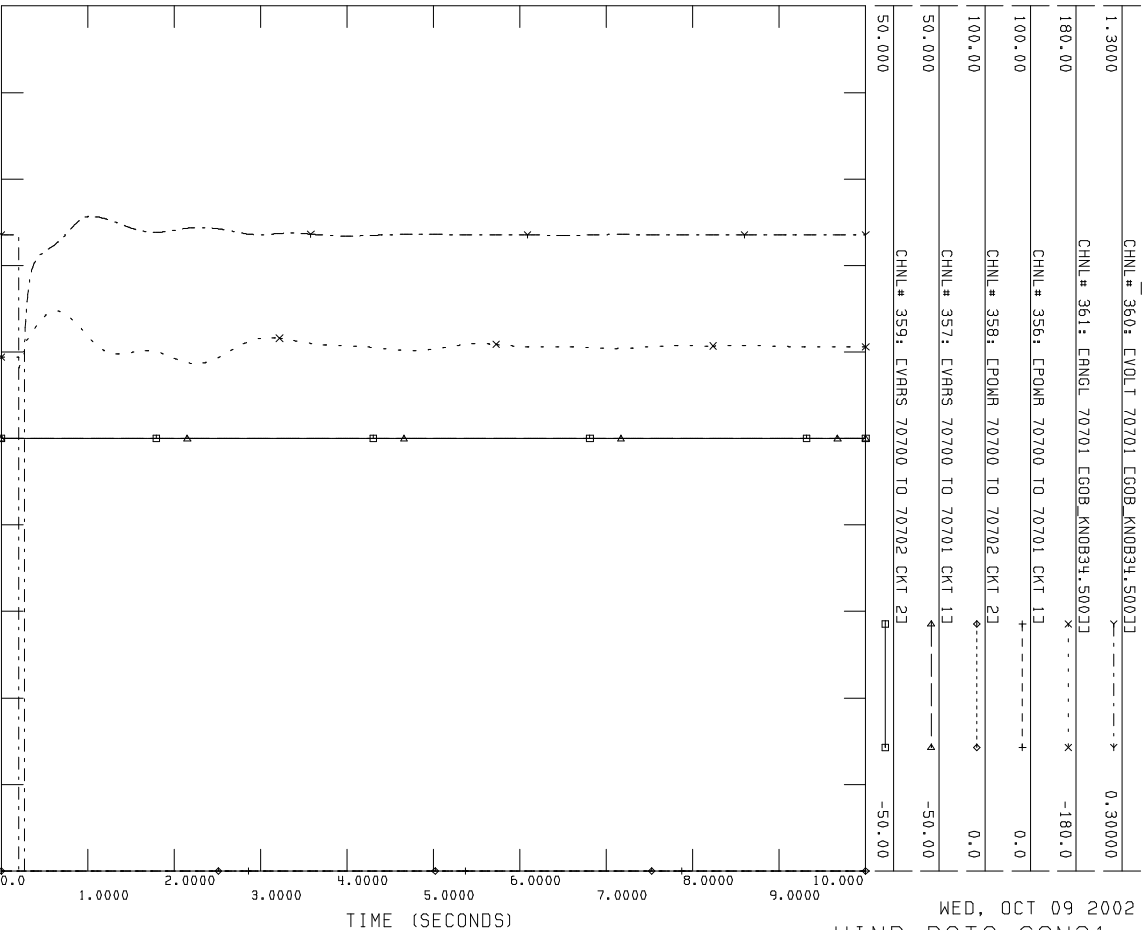
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON21-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON21-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 22 (CON22-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON22-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON MIDWAY BUS 73413  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM MIDWAY BUS 70286 TO MIDWAY TIE BUS 73413  
CLEAR FAULT AT MIDWAY BUS 73413  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON22-OFF.OUT

CHNL# 11: CANGL 70701 CCRB 79015 CCRB1G 1 22.0000 C1 JJ

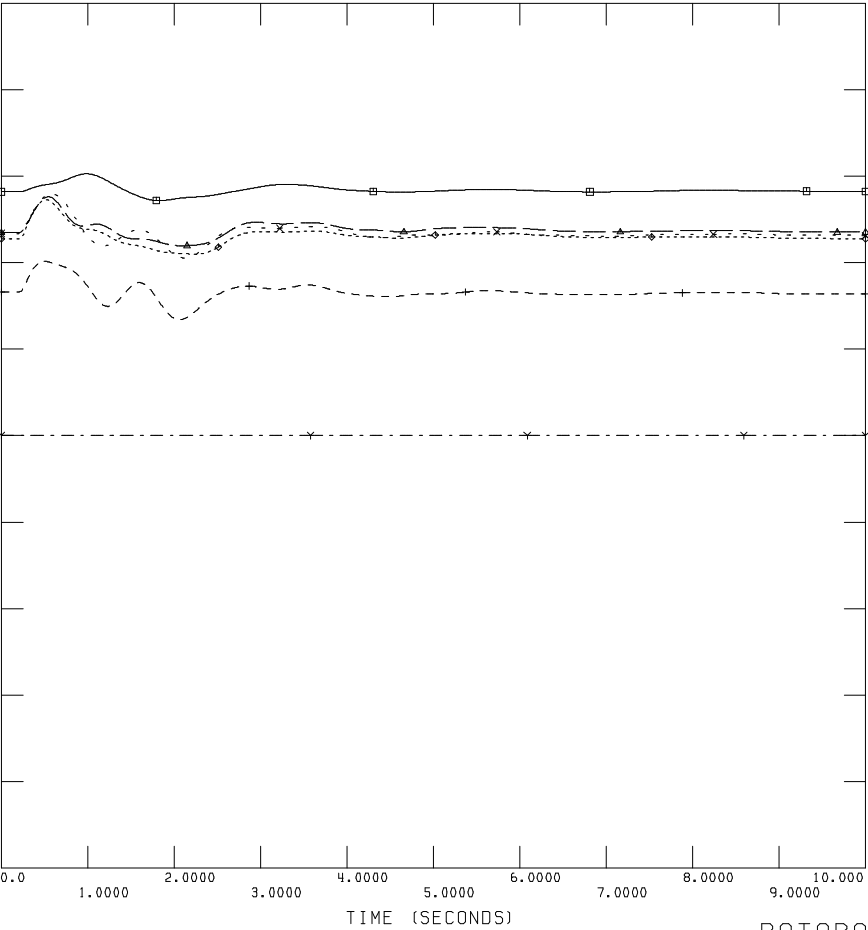
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1 22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON22 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON22-OFF.OUT

CHNL# 18: CANGL 70133 CCRB 79015 CCRB1G 1 22.0000 C1 JJ

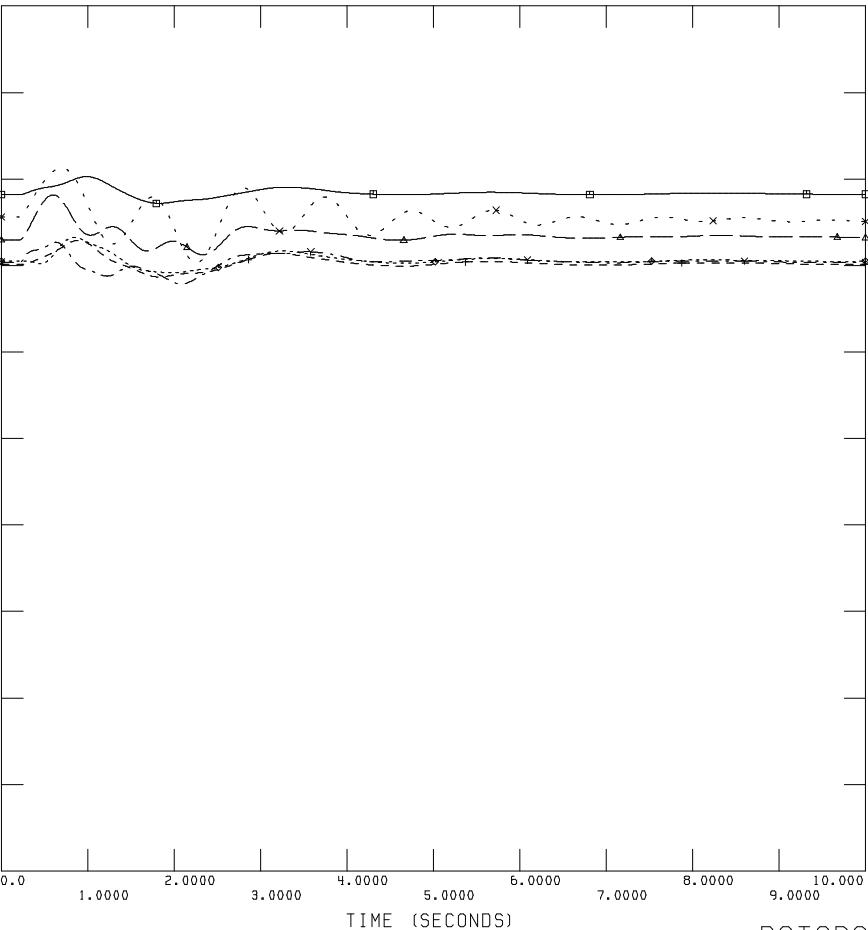
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1 22.0000 C1 JJ -180.0



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ROTORANGLES 2 CON22 QMW



POWER  
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2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON22-OFF.OUT

CHNL # 220: EVOLT 70701 CGOB\_KNOB34,500J

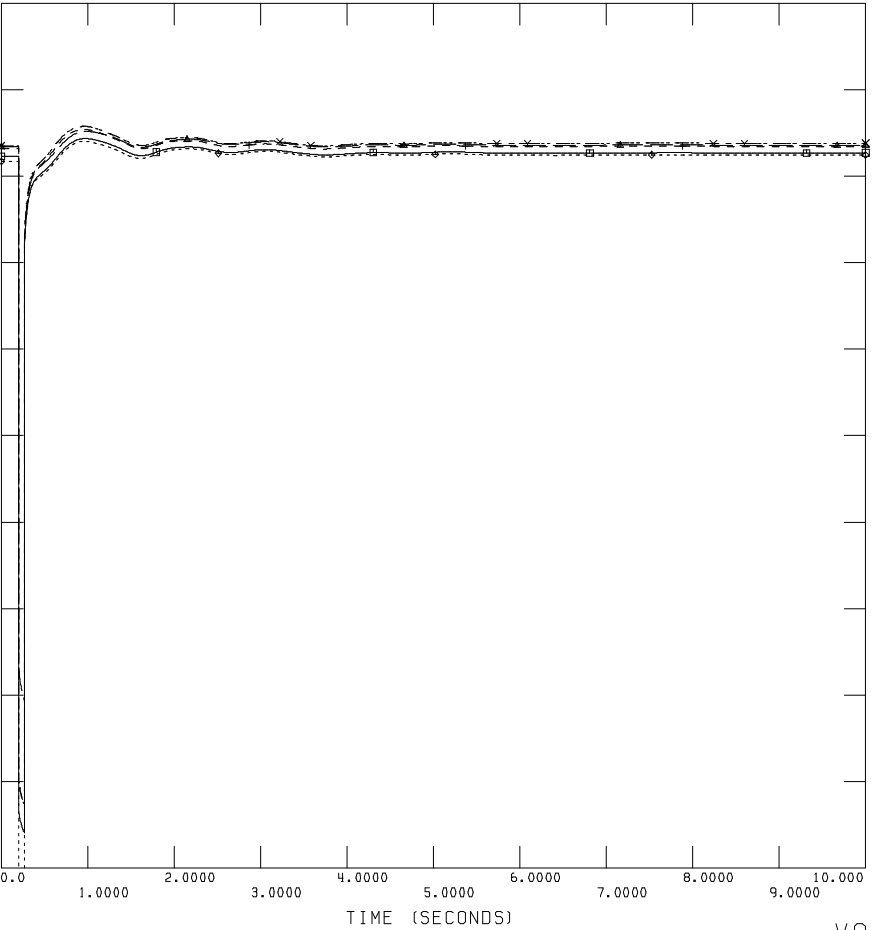
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230,00J 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230,00J 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230,00J 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230,00J 0.20000

1.2000 CHNL # 207: EVOLT 70061 EB00NE\_230,00J 0.20000



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VOLTAGE 1 CON22 0MM



POWER  
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2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON22-OFF.OUT

CHNL # 219: EVOLT 70136 C0TY\_LAM\_69,000J

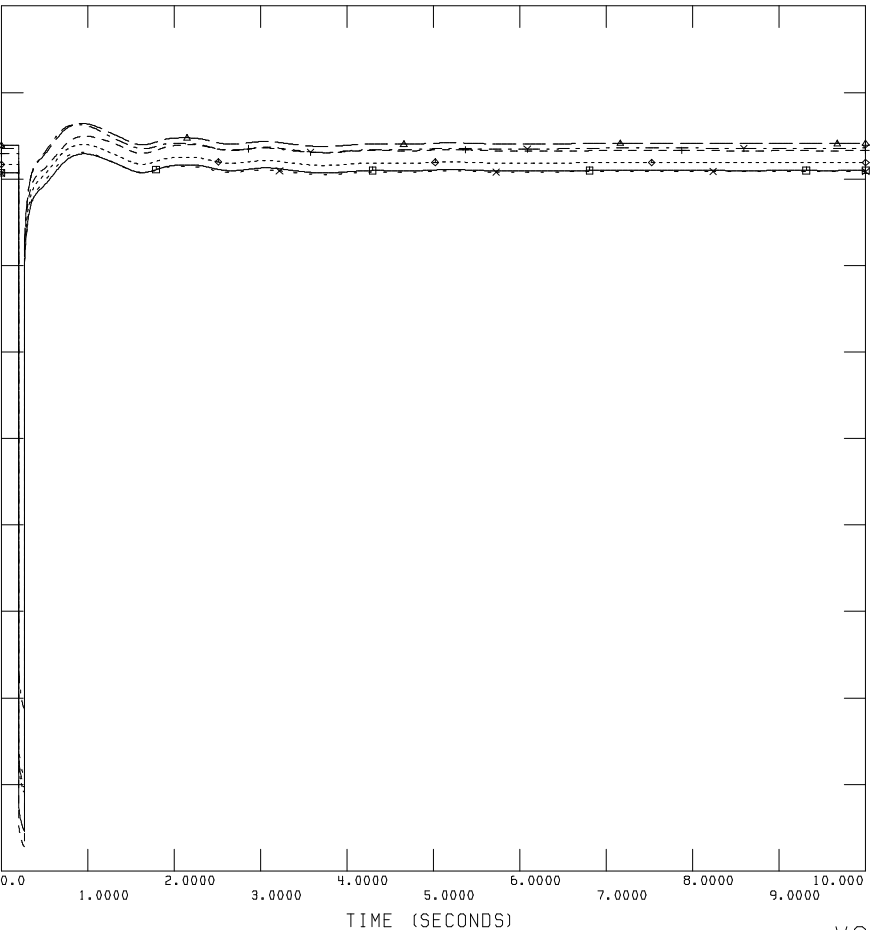
1.2000 CHNL # 209: EVOLT 70472 CMILDM\_CK115,00J 0.20000

1.2000 CHNL # 208: EVOLT 70060 EB00NE\_115,00J 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115,00J 0.20000

1.2000 CHNL # 212: EVOLT 70452 CVILRS\_115,00J 0.20000

1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115,00J 0.20000

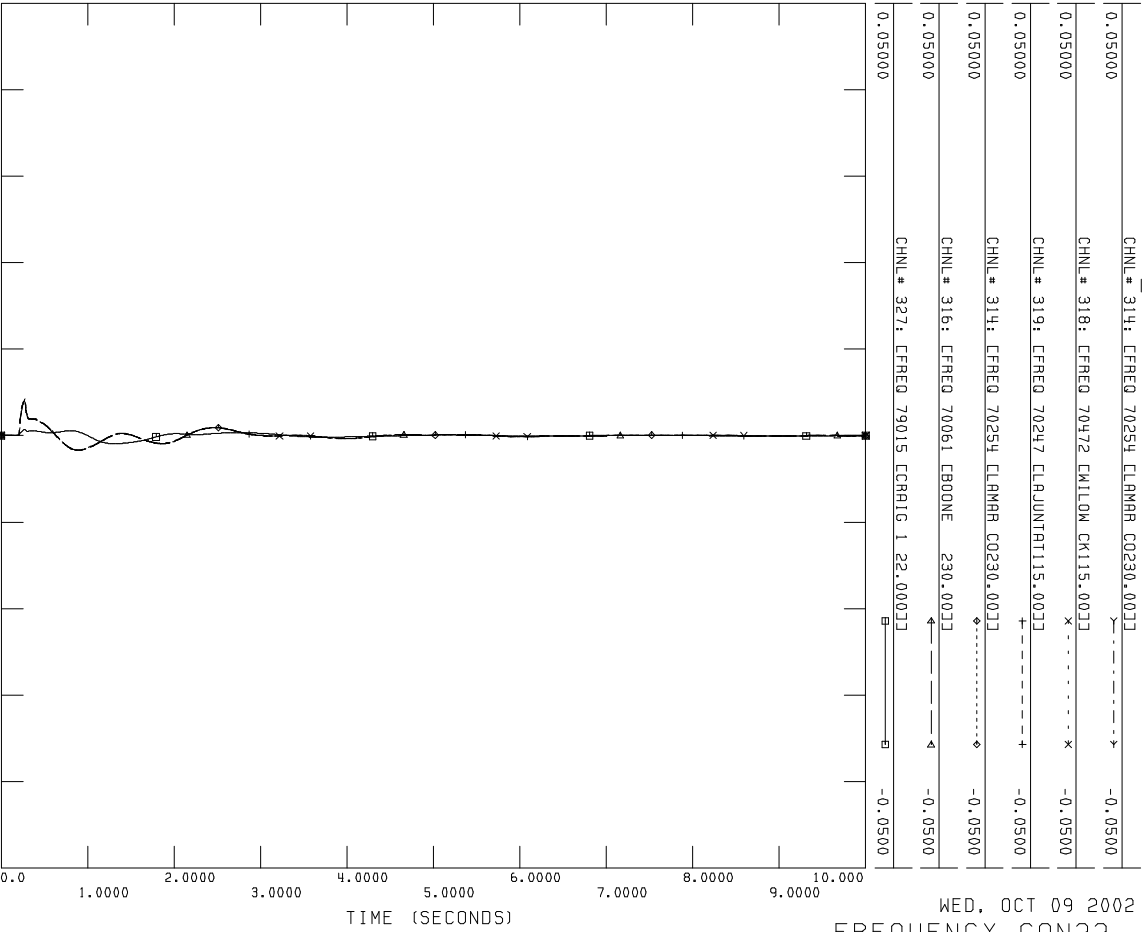


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VOLTAGE 2 CON22 0MM



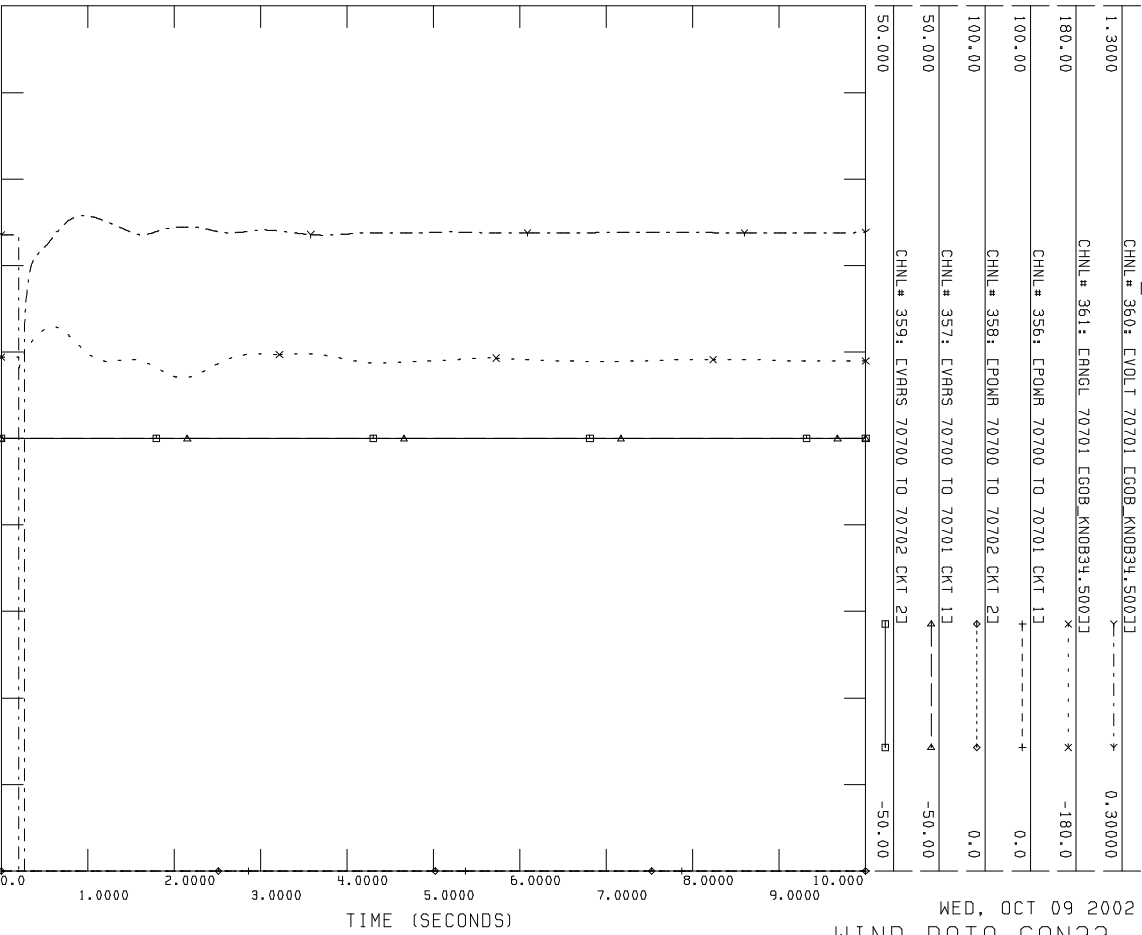
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON22-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON22-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 23 (CON23-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON23-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON MIDWAY 230 KV BUS 70286  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM COMANCHE 230 KV BUS 70122 TO MIDWAY 230 KV BUS 70286  
CLEAR FAULT AT MIDWAY 230 KV BUS 70286  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON23-OFF.OUT

CHNL# 11: CANGL 70701 CCRB 14.5000 C1 JJ

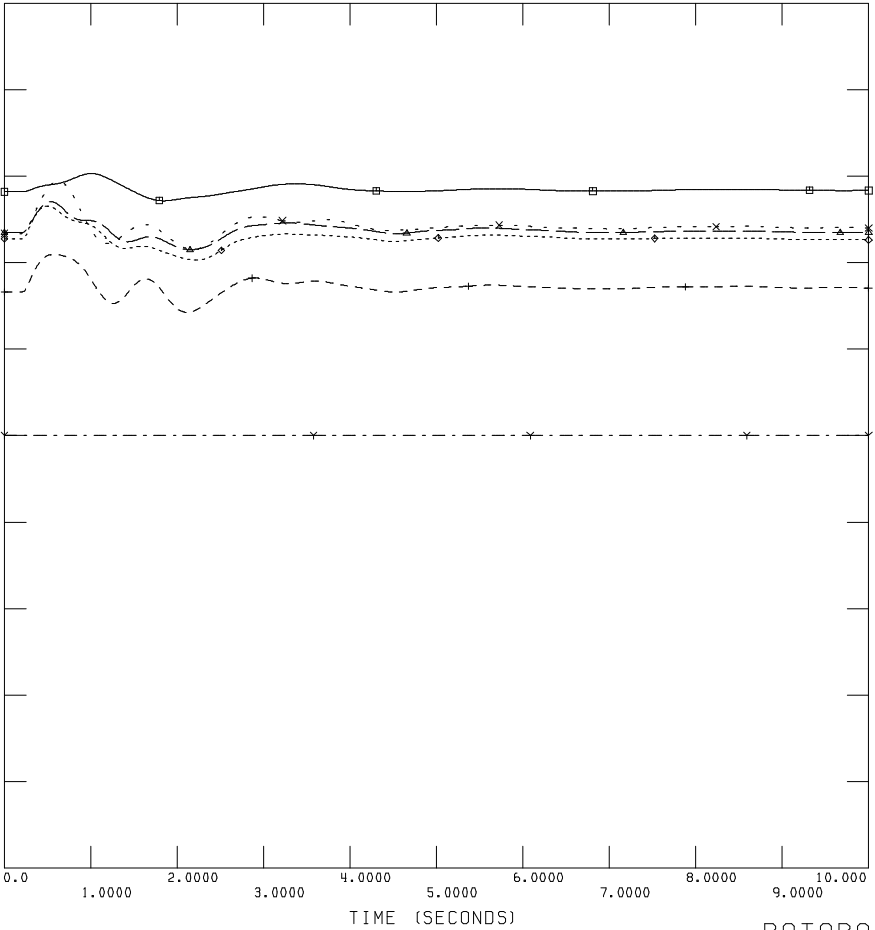
180.00 CHNL# 17: CANGL 70120 ECOMAN 2.24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBLD 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73423 CDRAKE 7.13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATIG 1.22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON23 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON23-OFF.OUT

CHNL# 18: CANGL 70133 CCRB 14.5000 C1 JJ

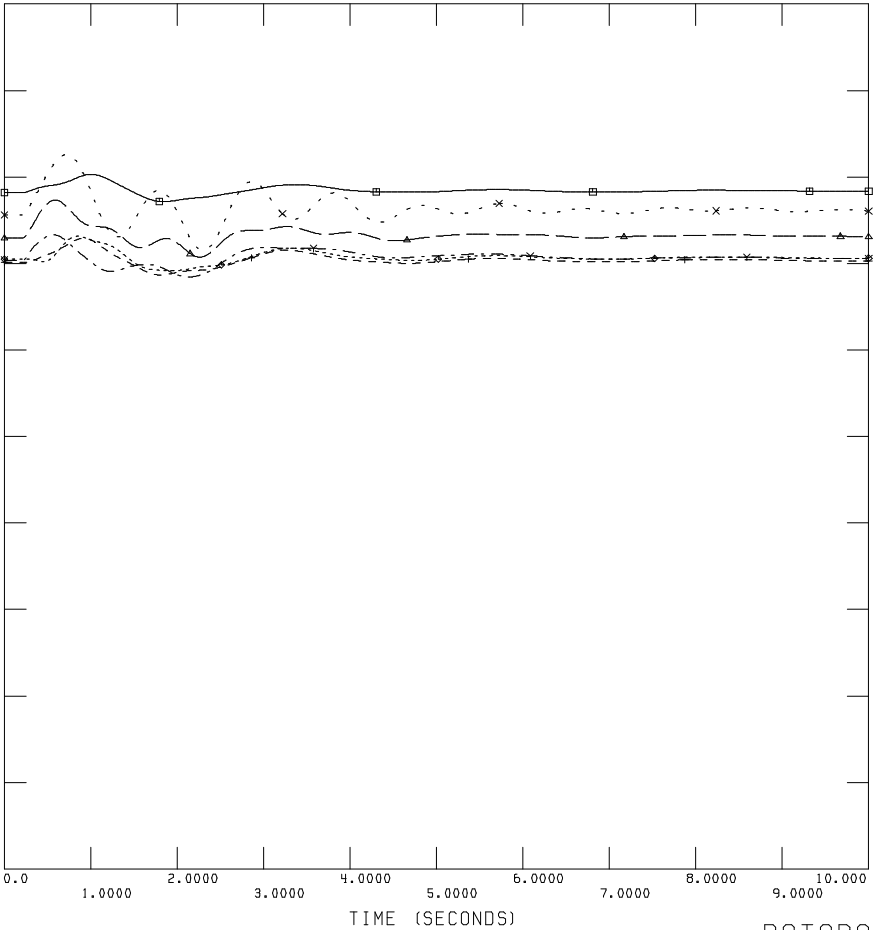
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATIG 1.22.0000 C1 JJ -180.0



WED, OCT 09 2002 0:54  
ROTORANGLES 2 CON23 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON23-OFF.OUT

CHNL # 220: EVOLT 70701 CGOB\_KNOB34,500J3

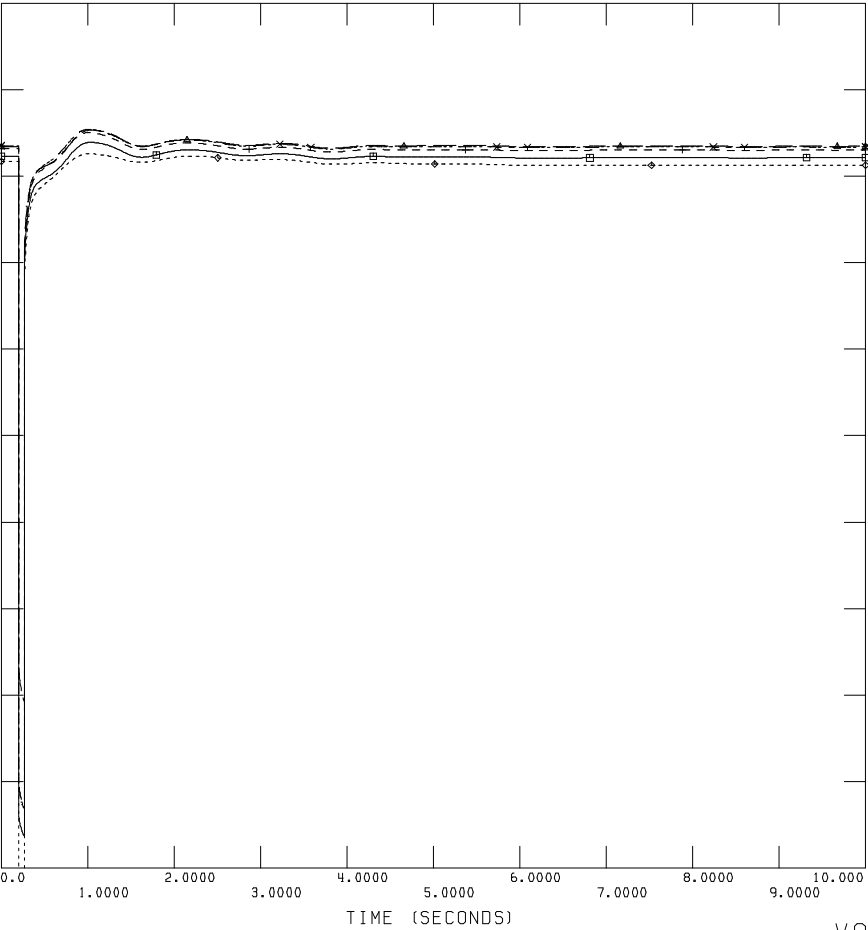
1.2000 CHNL # 218: EVOLT 70700 CGOB\_KNOB230,00J3 0.20000

1.2000 CHNL # 205: EVOLT 70254 CLAMAR\_C0230,00J3 0.20000

1.2000 CHNL # 214: EVOLT 70286 EMIDMHTPS230,00J3 0.20000

1.2000 CHNL # 213: EVOLT 70122 ECOMANCHE230,00J3 0.20000

1.2000 CHNL # 207: EVOLT 70061 EBOONE\_230,00J3 0.20000



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VOLTAGE 1 CON23 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON23-OFF.OUT

CHNL # 219: EVOLT 70136 CDTY\_LAM\_69,000J3

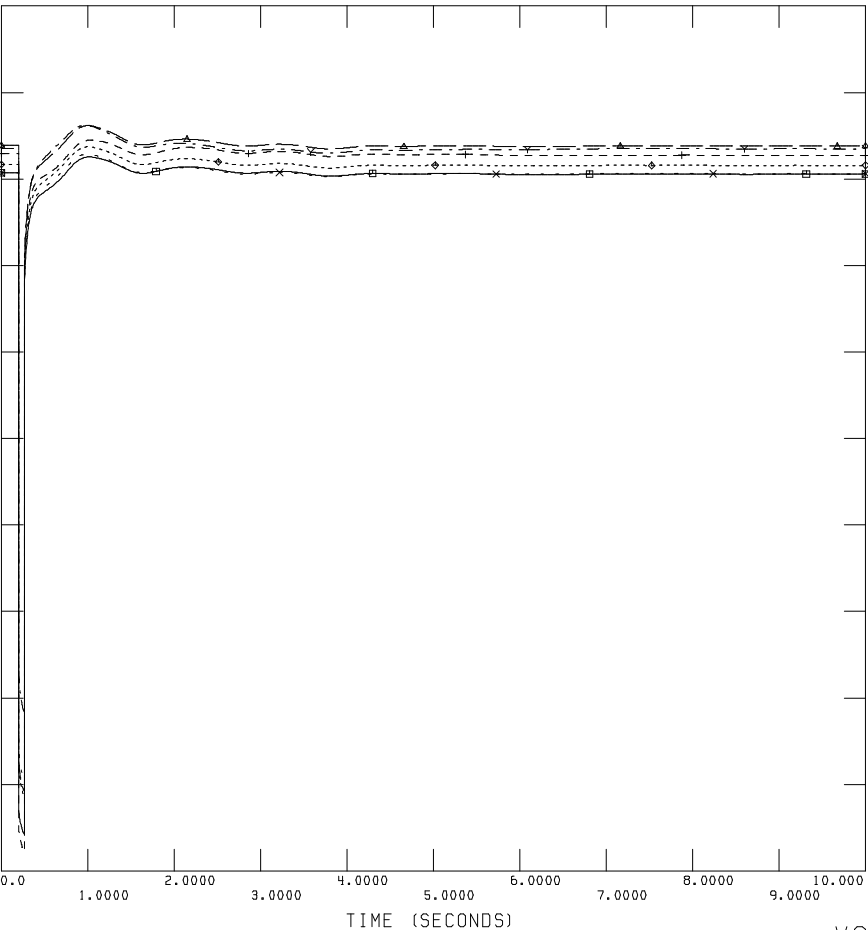
1.2000 CHNL # 209: EVOLT 70472 CMILDM\_CK115,00J3 0.20000

1.2000 CHNL # 208: EVOLT 70060 EBOONE\_115,00J3 0.20000

1.2000 CHNL # 206: EVOLT 70253 CLAMAR\_C0115,00J3 0.20000

1.2000 CHNL # 212: EVOLT 70452 EVILBS\_115,00J3 0.20000

1.2000 CHNL # 210: EVOLT 70247 CLAJUNTAT115,00J3 0.20000



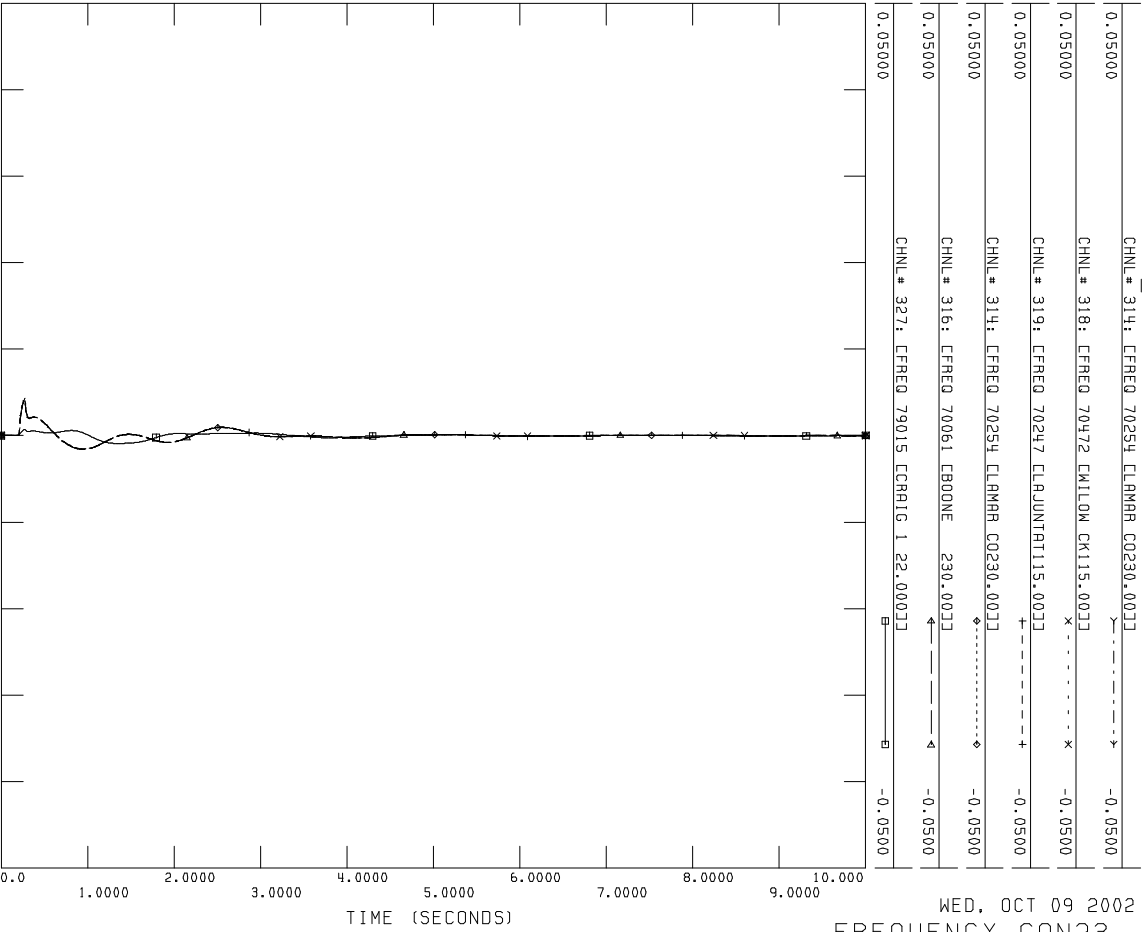
WED, OCT 09 2002 0:54  
VOLTAGE 2 CON23 QMW





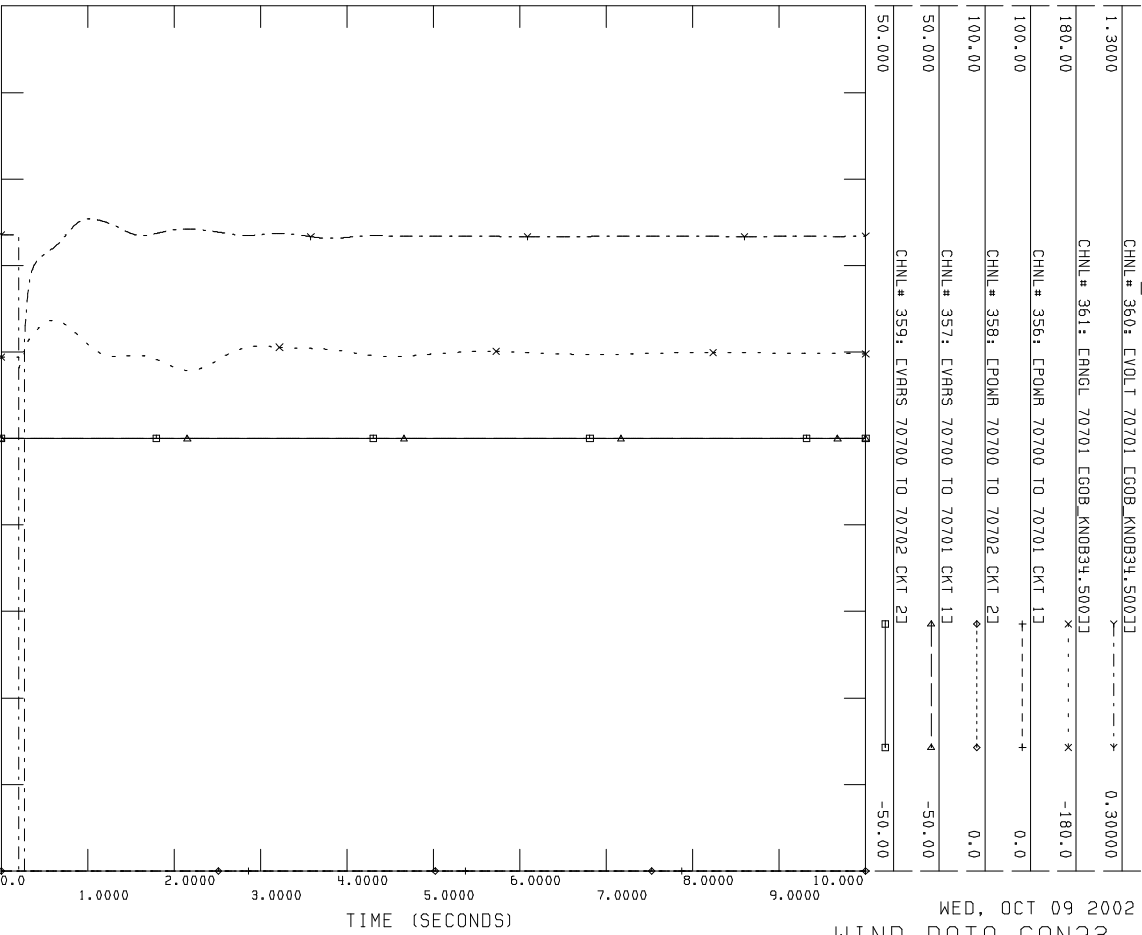
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON23-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON23-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 24 (CON24-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON24-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON WALSENBURG 230 KV BUS 70459  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM COMANCHE 230 KV BUS 70122 TO WALSENBURG 230 KV BUS 70459  
CLEAR FAULT AT WALSENBURG 230 KV BUS 70459  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON24-OFF.OUT

CHNL# 111: CANGL 70701 CCGR\_KNOB34.500J C1 JJ

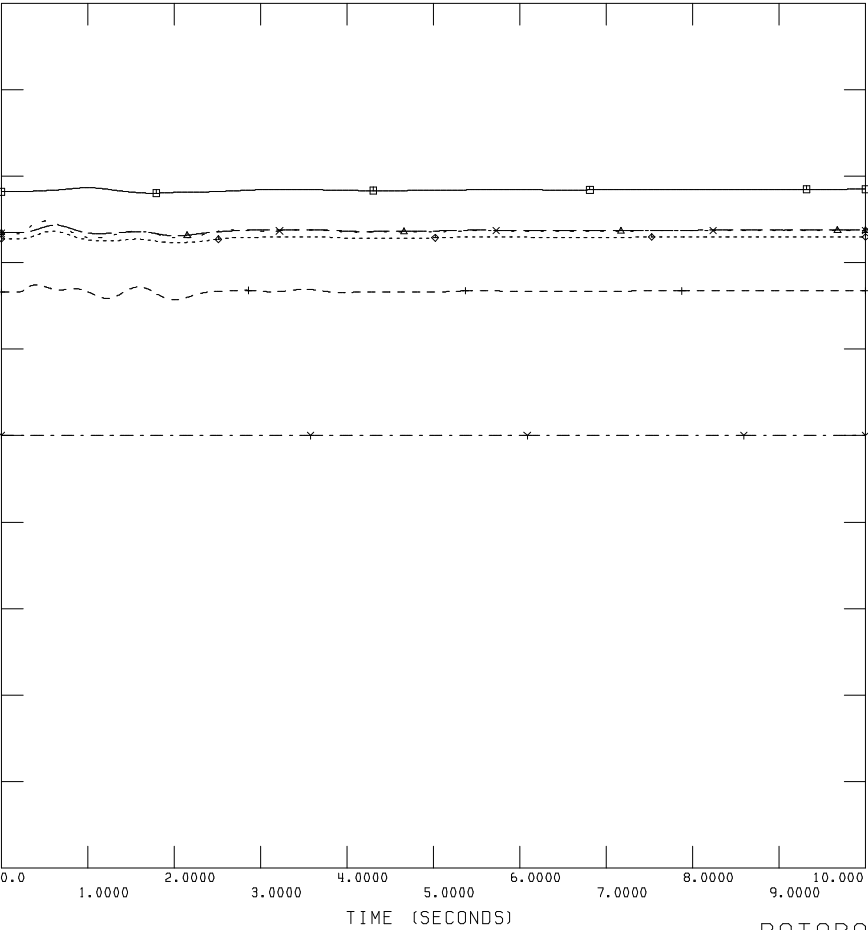
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD\_NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDBAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



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ROTORANGLES 1 CON24 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON24-OFF.OUT

CHNL# 18: CANGL 70133 CDTY LRM 14.400J C1 JJ

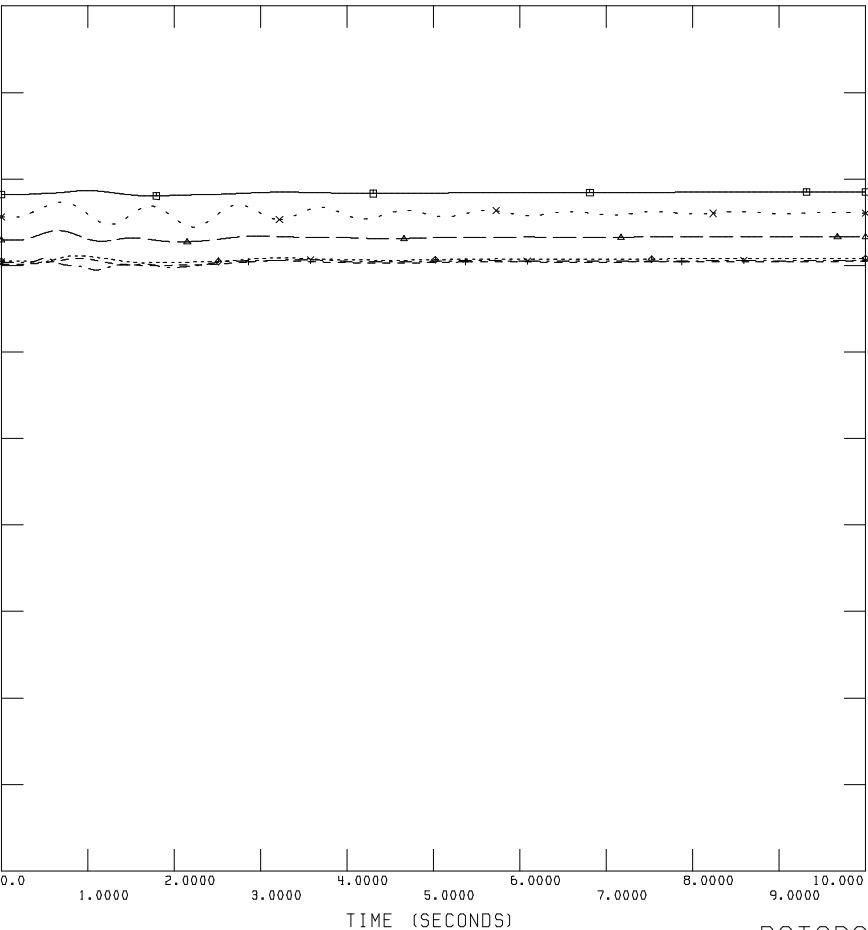
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



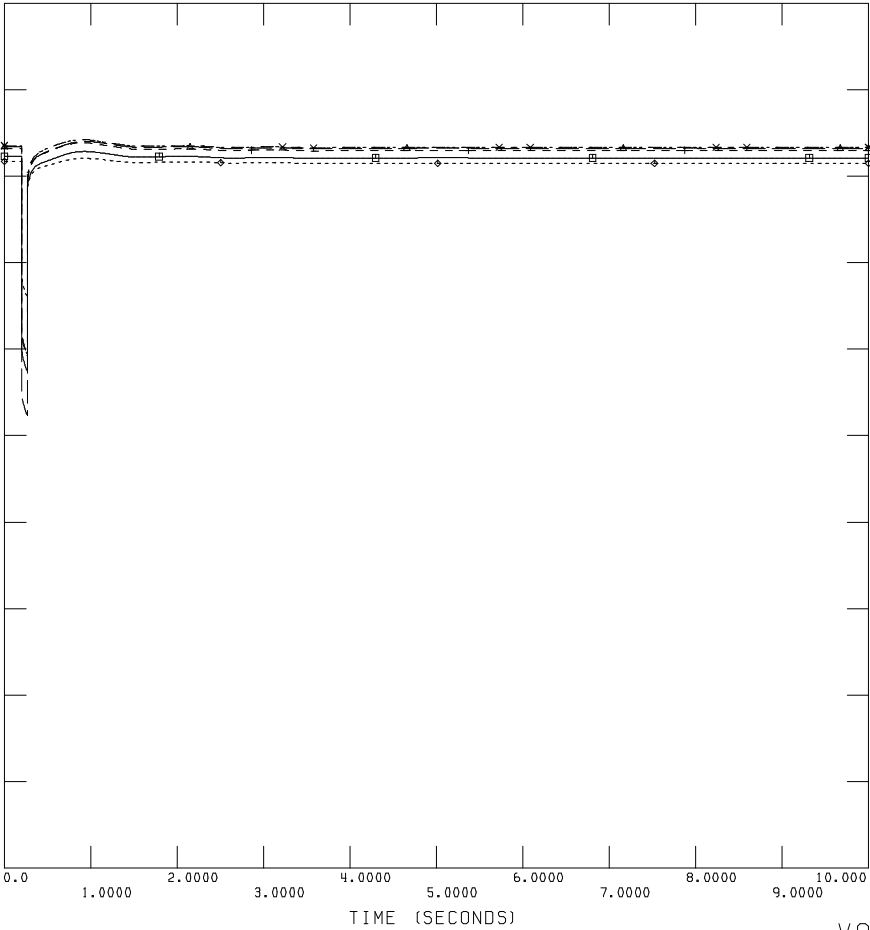
WED, OCT 09 2002 0:55  
ROTORANGLES 2 CON24 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON24-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 220: EVOLT 70701 CGOB_KNOB34.500J3 | 0.20000 |
| 1.2000 | CHNL # 218: EVOLT 70700 CGOB_KNOB230.00J3 | 0.20000 |
| 1.2000 | CHNL # 205: EVOLT 70254 CLAMAR_C0230.00J3 | 0.20000 |
| 1.2000 | CHNL # 214: EVOLT 70286 EMIDMHTPS230.00J3 | 0.20000 |
| 1.2000 | CHNL # 213: EVOLT 70122 ECOMANCHE230.00J3 | 0.20000 |
| 1.2000 | CHNL # 207: EVOLT 70061 EBOONE_230.00J3   | 0.20000 |



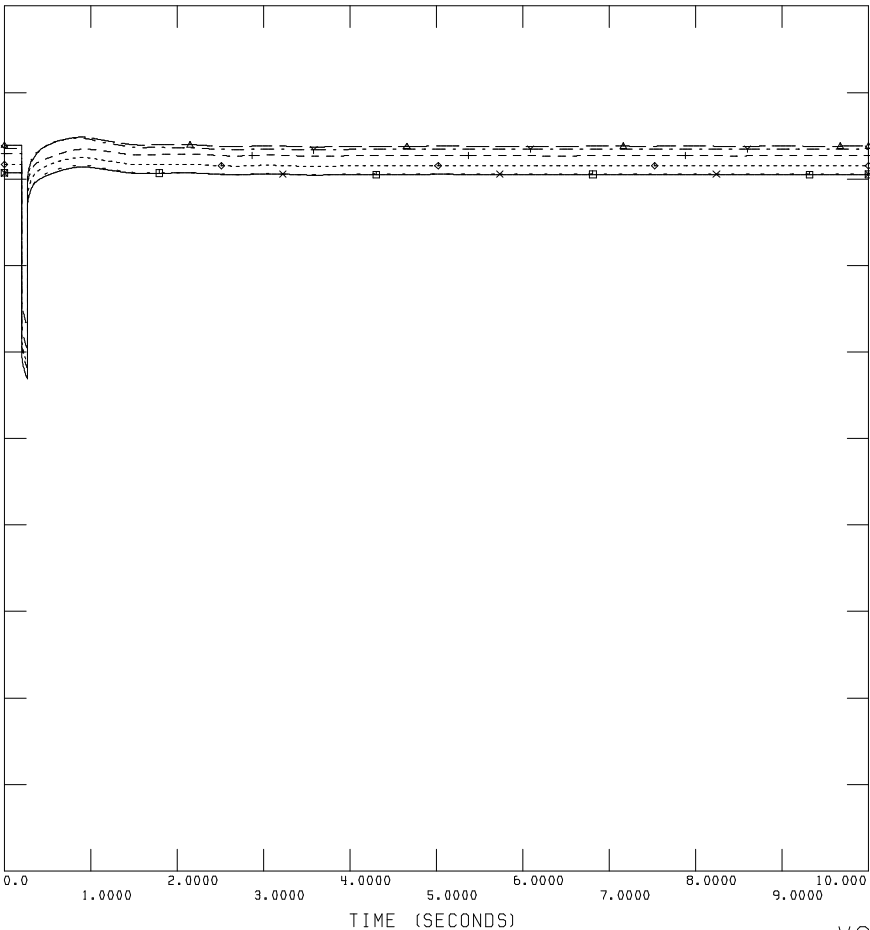
WED, OCT 09 2002 0:55  
VOLTAGE 1 CON24 0MM



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON24-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 209: EVOLT 70472 CMILDM_CK115.00J3 | 0.20000 |
| 1.2000 | CHNL # 208: EVOLT 70060 EBOONE_115.00J3   | 0.20000 |
| 1.2000 | CHNL # 206: EVOLT 70253 CLAMAR_C0115.00J3 | 0.20000 |
| 1.2000 | CHNL # 212: EVOLT 70452 EVILBS_115.00J3   | 0.20000 |
| 1.2000 | CHNL # 210: EVOLT 70247 CLAJUNTAT115.00J3 | 0.20000 |

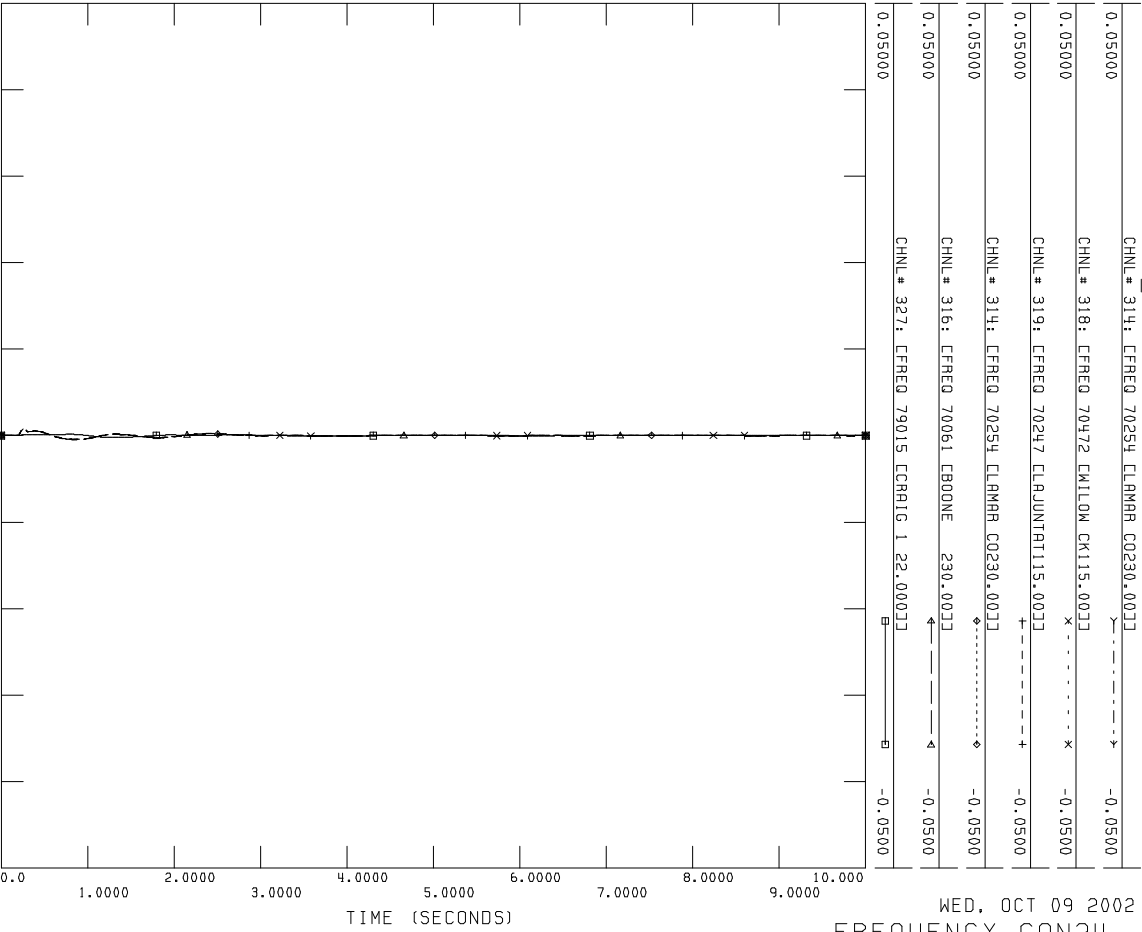


WED, OCT 09 2002 0:55  
VOLTAGE 2 CON24 0MM



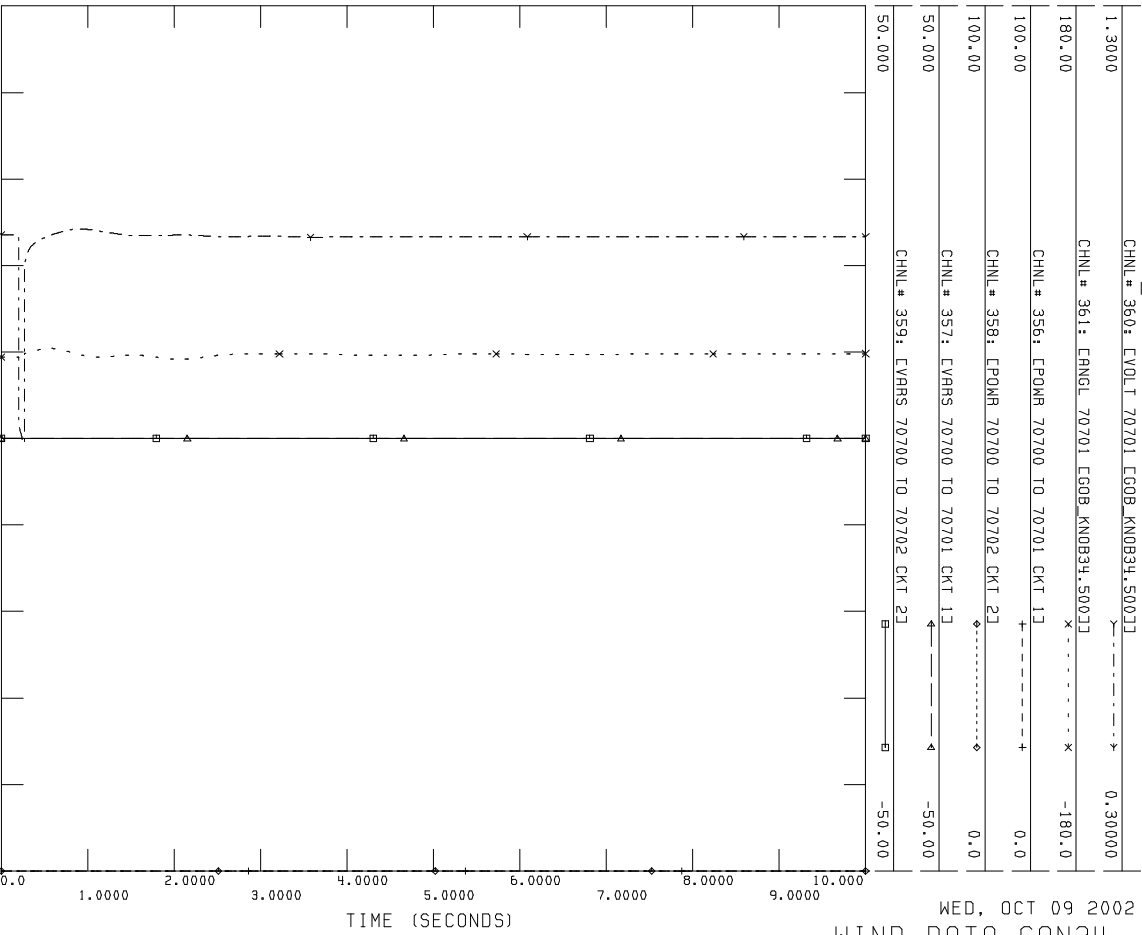
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON24-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON24-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 25 (CON25-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON25-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON FULLER 230 KV BUS 73477  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM COMANCHE 230 KV BUS 70122 TO FULLER 230 KV BUS 73477  
CLEAR FAULT AT FULLER 230 KV BUS 73477  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON25-OFF.OUT

CHNL# 11: CANGL 70701 CCRB\_KNOB34.500J C1 JJ

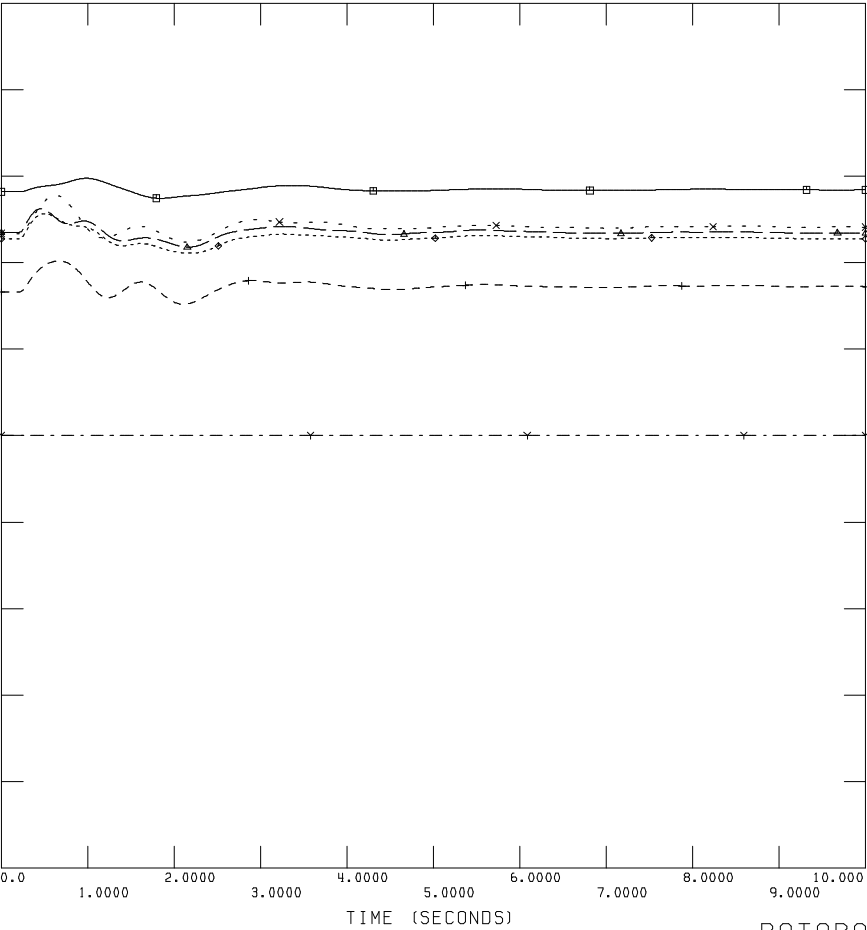
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBLO 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATIG 1 22.000J C1 JJ -180.0



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ROTORANGLES 1 CON25 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON25-OFF.OUT

CHNL# 18: CANGL 70133 CCRB\_LAM 14.400J C1 JJ

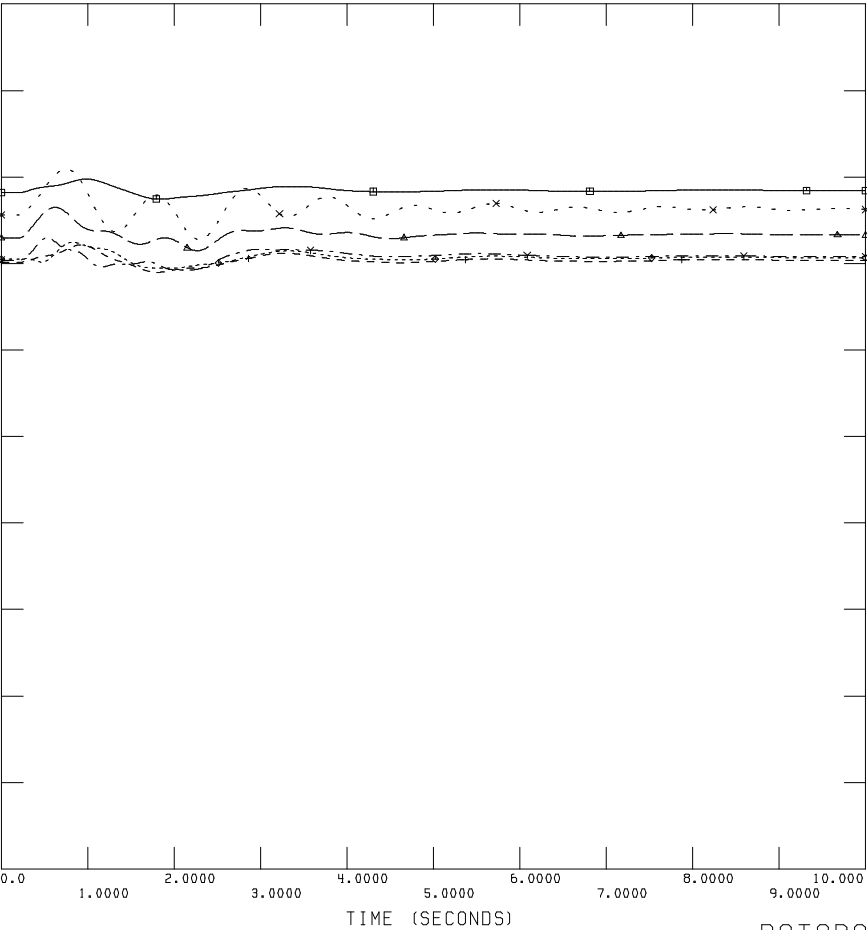
180.00 CHNL# 28: CANGL 70344 CR.F.DSLSH.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATIG 1 22.000J C1 JJ -180.0



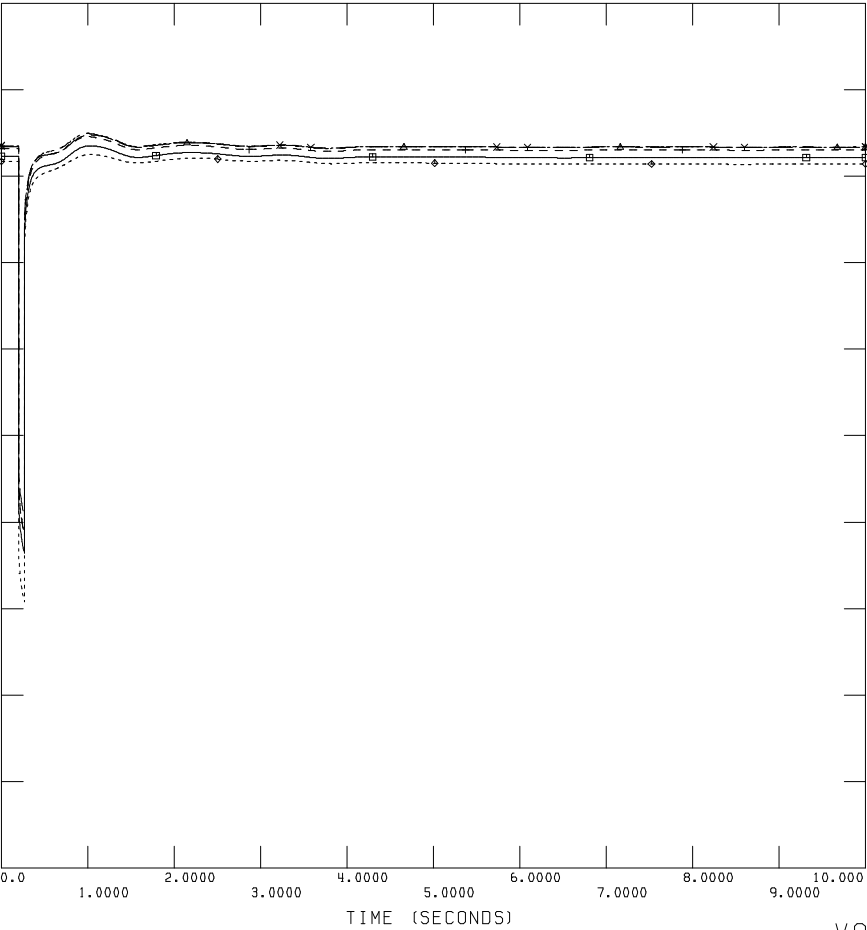
WED, OCT 09 2002 0:55  
ROTORANGLES 2 CON25 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON25-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 218: EVOLT 70700 CGOB_KNOB230.00JJ | 0.20000 |
| 1.2000 | CHNL # 205: EVOLT 70254 CLAMAR_C0230.00JJ | 0.20000 |
| 1.2000 | CHNL # 214: EVOLT 70286 EMIDMHTPS230.00JJ | 0.20000 |
| 1.2000 | CHNL # 213: EVOLT 70122 ECOMANCHE230.00JJ | 0.20000 |
| 1.2000 | CHNL # 207: EVOLT 70061 EBOONE_230.00JJ   | 0.20000 |



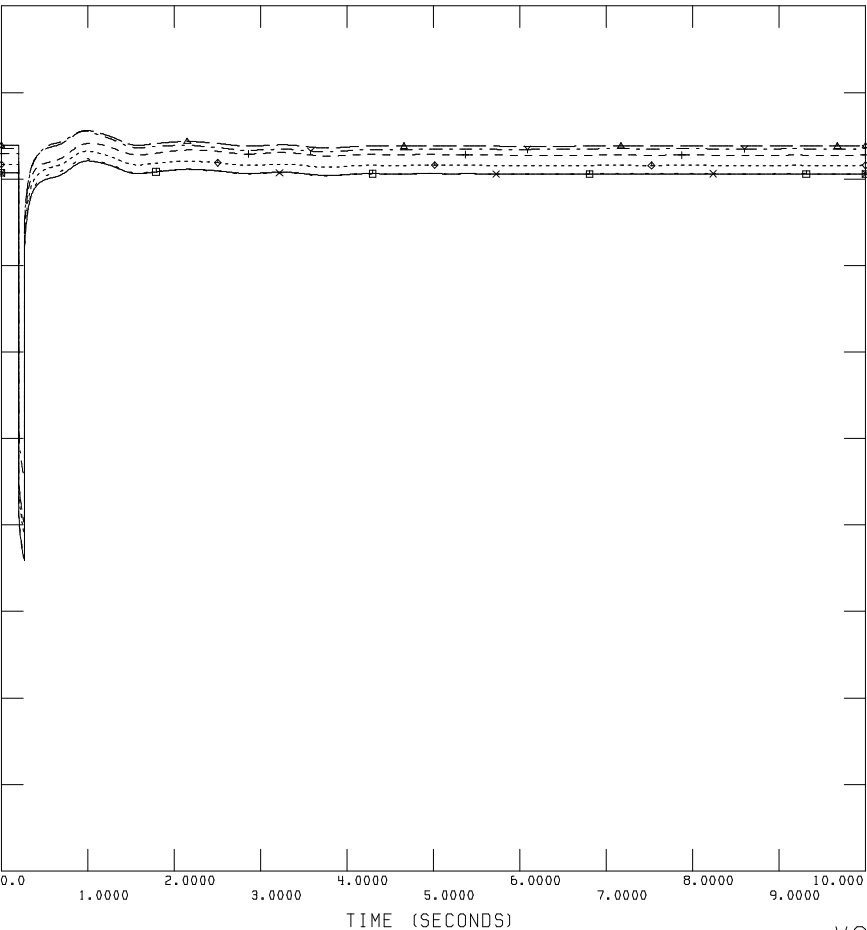
WED, OCT 09 2002 0:55  
VOLTAGE 1 CON25 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON25-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 209: EVOLT 70472 CNILDM_CK115.00JJ | 0.20000 |
| 1.2000 | CHNL # 208: EVOLT 70060 EBOONE_115.00JJ   | 0.20000 |
| 1.2000 | CHNL # 206: EVOLT 70253 CLAMAR_C0115.00JJ | 0.20000 |
| 1.2000 | CHNL # 212: EVOLT 70452 CVILRS_115.00JJ   | 0.20000 |
| 1.2000 | CHNL # 210: EVOLT 70247 CLAJUNTAT115.00JJ | 0.20000 |



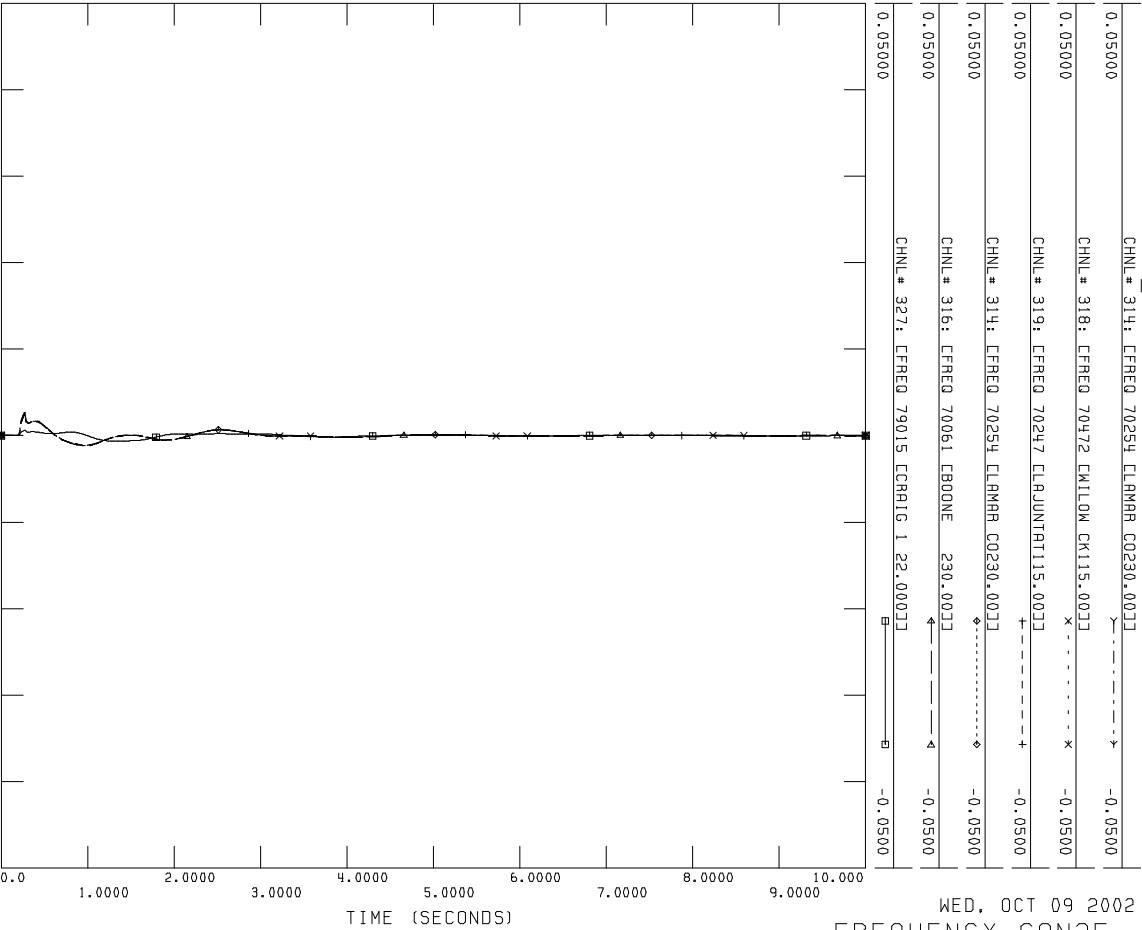
WED, OCT 09 2002 0:55  
VOLTAGE 2 CON25 QMW





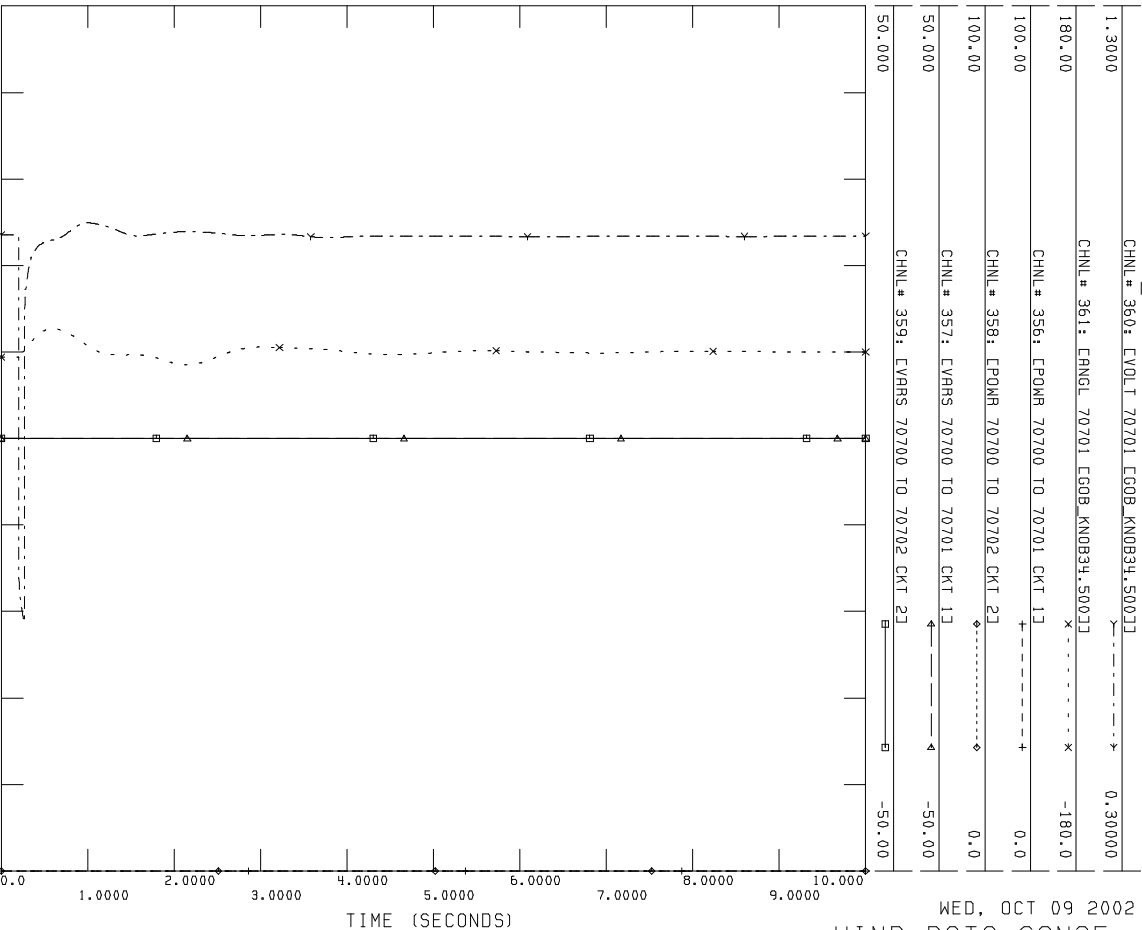
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON25-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON25-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 26 (CON26-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON26-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON FURNITURE 230 KV BUS 70094  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM COMANCHE 230 KV BUS 70122 TO CF & I FURNITURE 230 KV BUS 70094  
CLEAR FAULT AT FURNITURE 230 KV BUS 70094  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON26-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.5000 C1 JJ

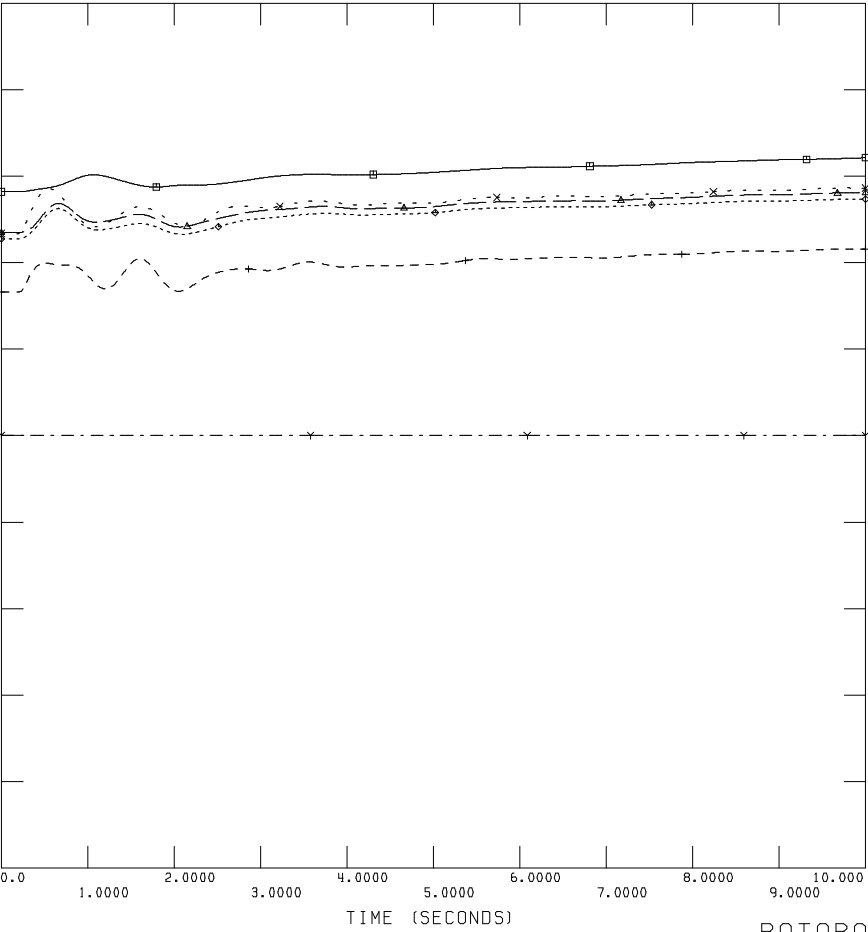
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73423 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATIG 1 22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON26 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON26-OFF.OUT

CHNL# 18: CANGL 70133 CTTY LRM 14.4000 C1 JJ

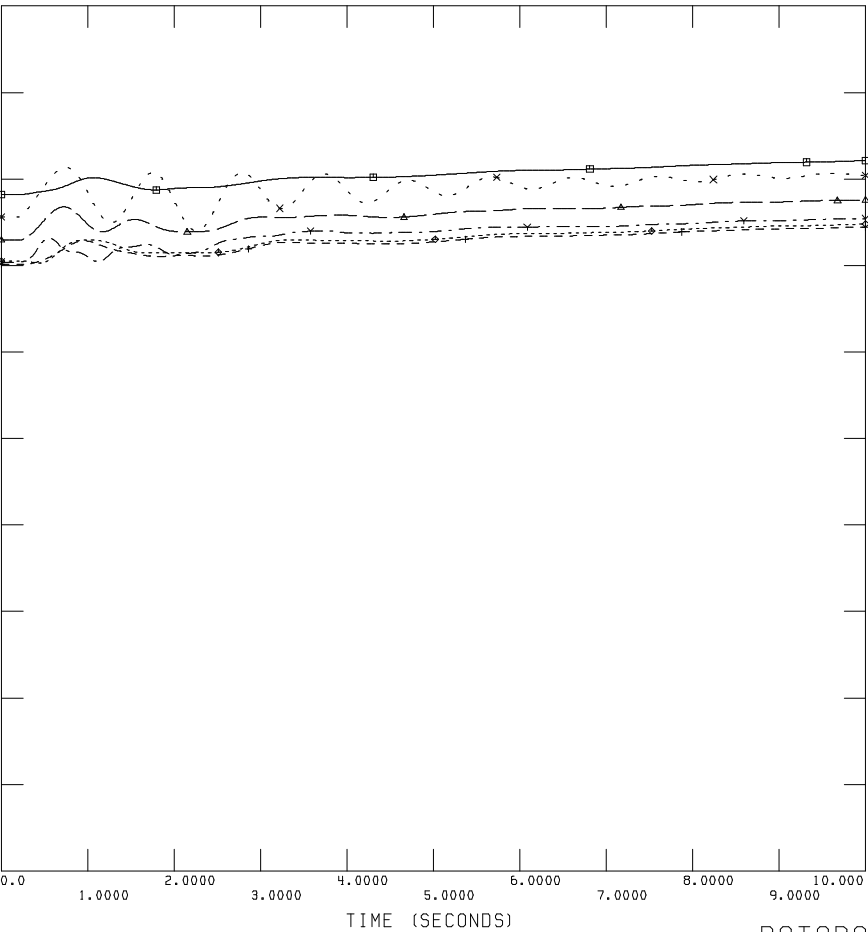
180.00 CHNL# 28: CANGL 70344 CR.F.DSLSH.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATIG 1 22.0000 C1 JJ -180.0



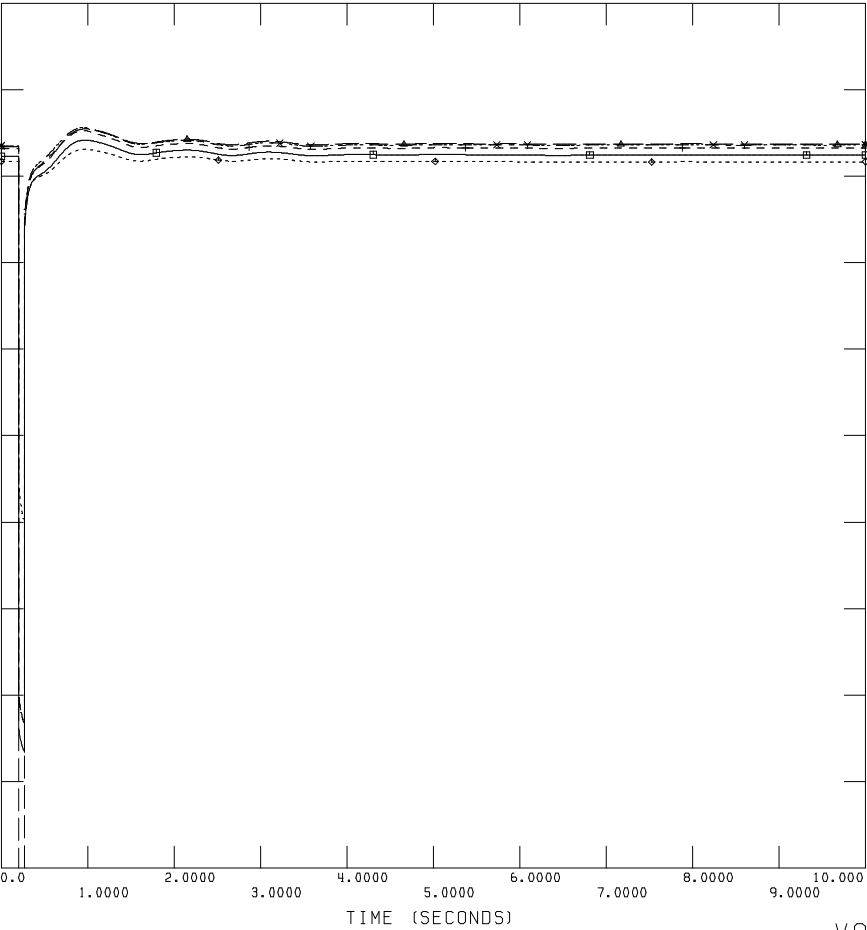
WED, OCT 09 2002 0:55  
ROTORANGLES 2 CON26 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON26-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 218: EVOLT 70700 CGOB_KNOB230.00JJ | 0.20000 |
| 1.2000 | CHNL # 205: EVOLT 70254 CLAMAR_C0230.00JJ | 0.20000 |
| 1.2000 | CHNL # 214: EVOLT 70286 EMIDMHTPS230.00JJ | 0.20000 |
| 1.2000 | CHNL # 213: EVOLT 70122 ECOMANCHE230.00JJ | 0.20000 |
| 1.2000 | CHNL # 207: EVOLT 70061 EBOONE_230.00JJ   | 0.20000 |



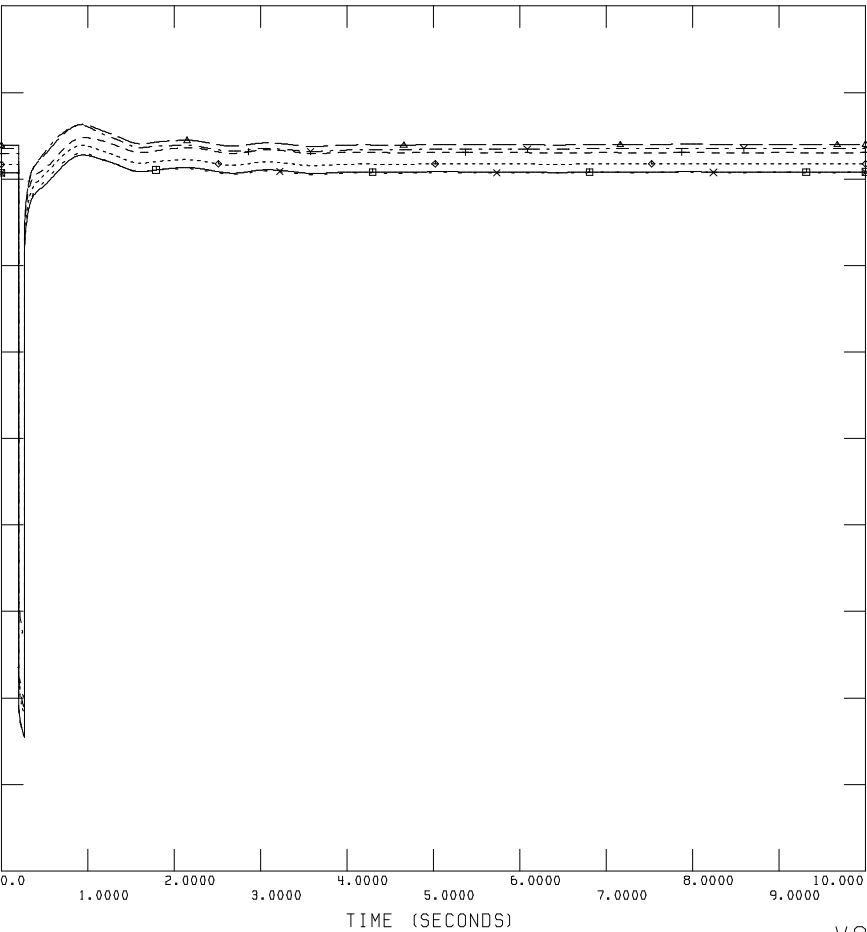
WED, OCT 09 2002 0:56  
VOLTAGE 1 CON26 0MM



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON26-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 209: EVOLT 70472 CMILDM_CK115.00JJ | 0.20000 |
| 1.2000 | CHNL # 208: EVOLT 70060 EBOONE_115.00JJ   | 0.20000 |
| 1.2000 | CHNL # 206: EVOLT 70253 CLAMAR_C0115.00JJ | 0.20000 |
| 1.2000 | CHNL # 212: EVOLT 70452 EVILBS_115.00JJ   | 0.20000 |
| 1.2000 | CHNL # 210: EVOLT 70247 CLAJUNTAT115.00JJ | 0.20000 |

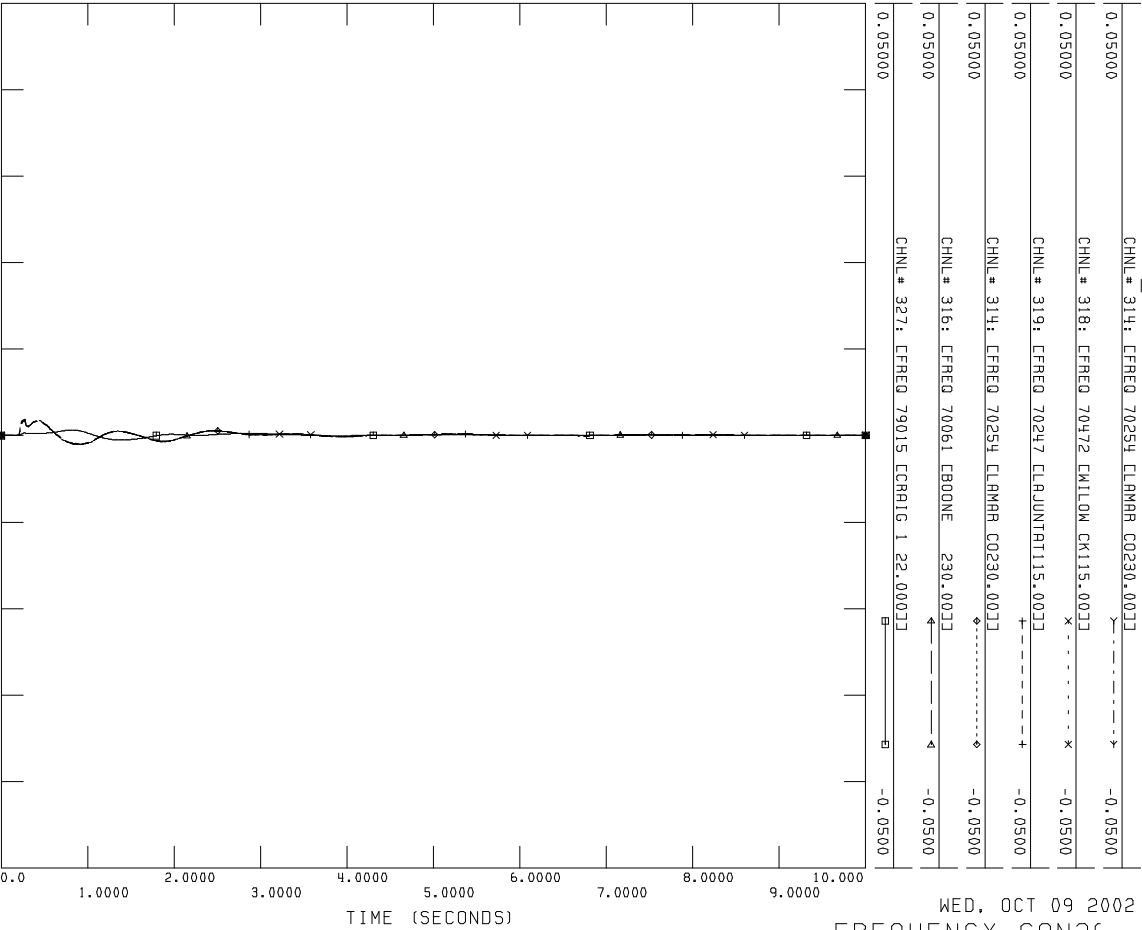


WED, OCT 09 2002 0:56  
VOLTAGE 2 CON26 0MM



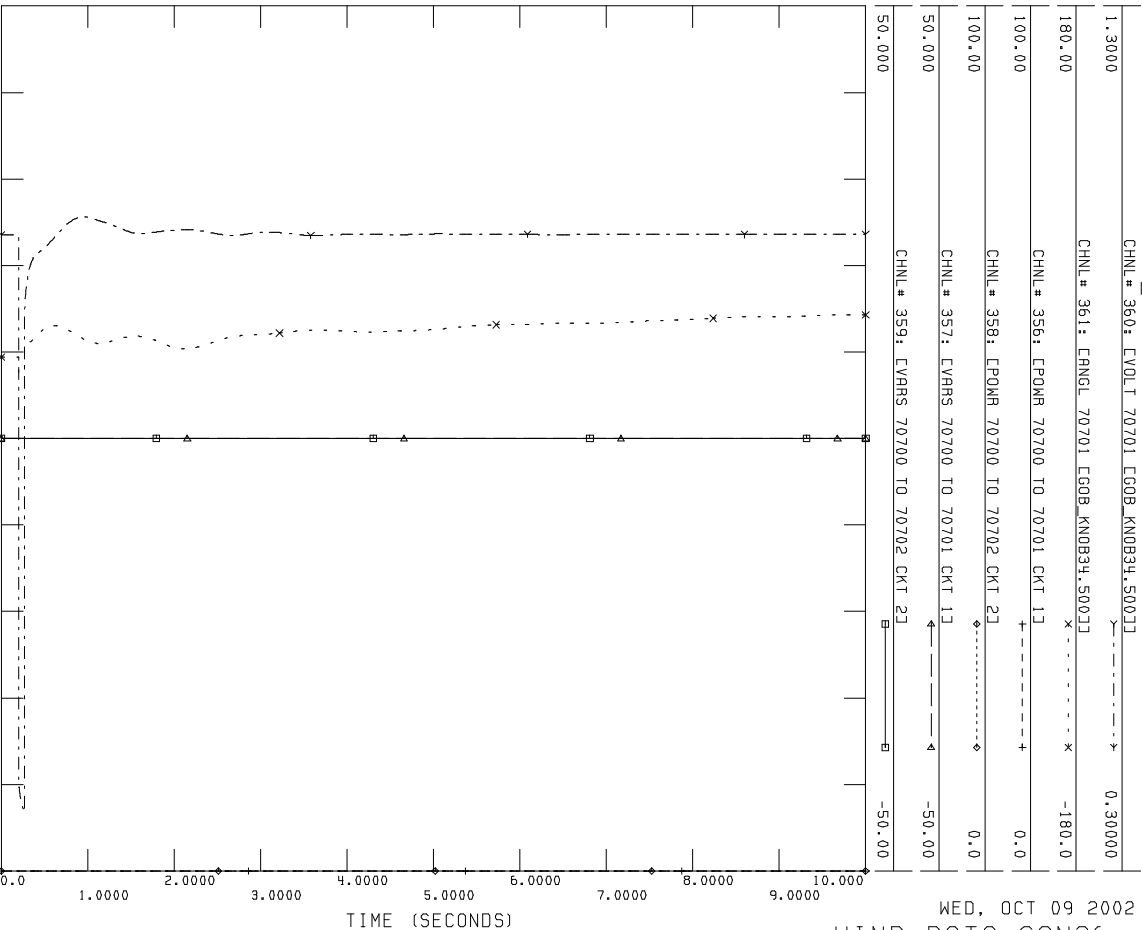
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON26-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON26-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 27 (CON27-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON27-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON BOONE 230 KV BUS 70061  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM COMANCHE 230 KV BUS 70122 TO BOONE 230 KV BUS 70061  
CLEAR FAULT AT BOONE 230 KV BUS 70061  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



POWER  
TECHNICAL SERVICES,  
INC.

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON27-OFF.OUT

CHNL# 11: CANGL 70701 CCRB 14.5000 C1 JJ

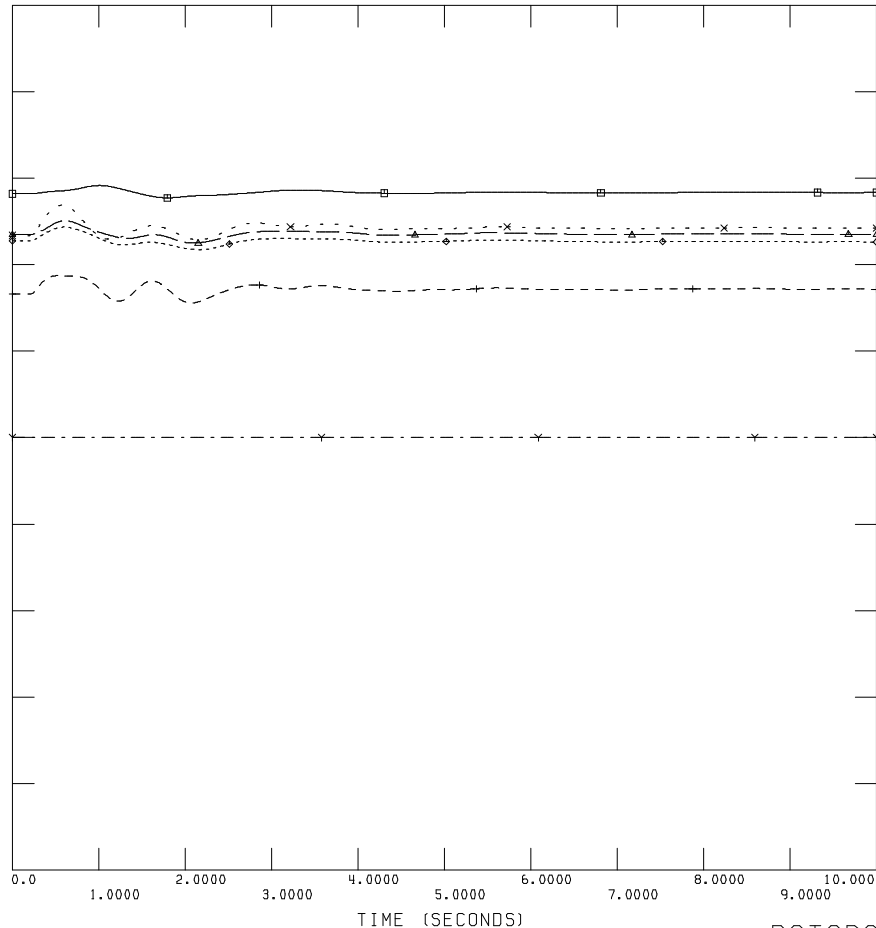
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON27 QMW



POWER  
TECHNICAL SERVICES,  
INC.

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON27-OFF.OUT

CHNL# 18: CANGL 70133 CCRB 14.5000 C1 JJ

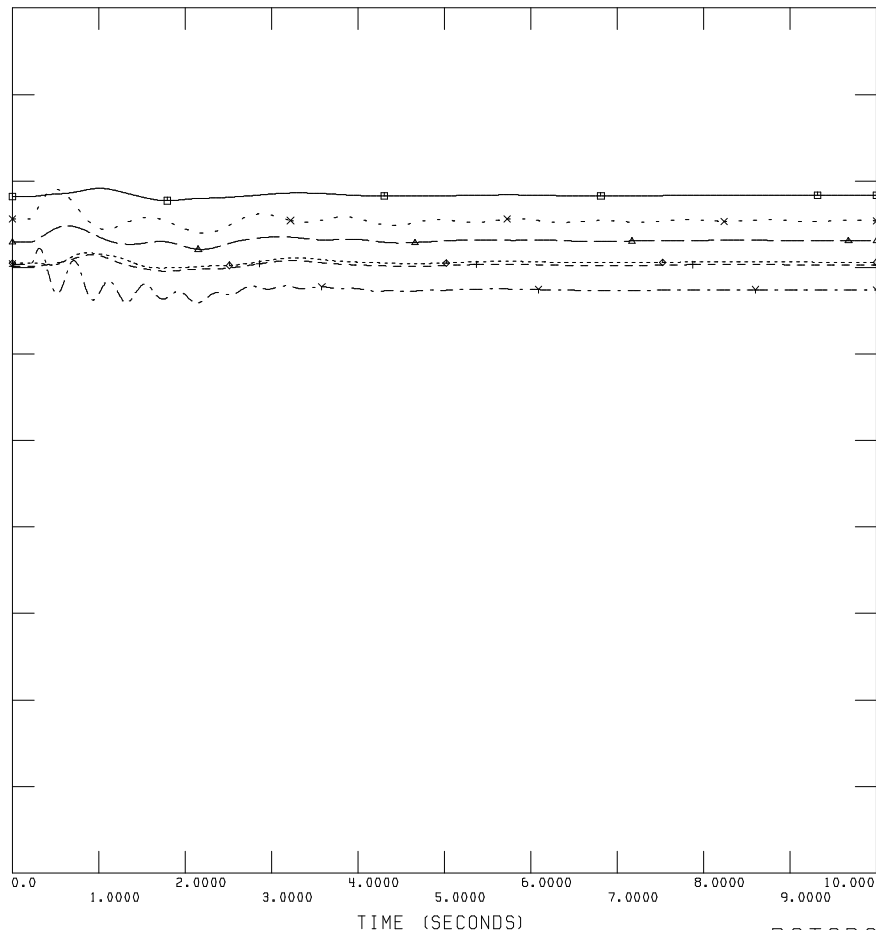
180.00 CHNL# 28: CANGL 70344 CR.F.DSLSH.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.0000 C1 JJ -180.0

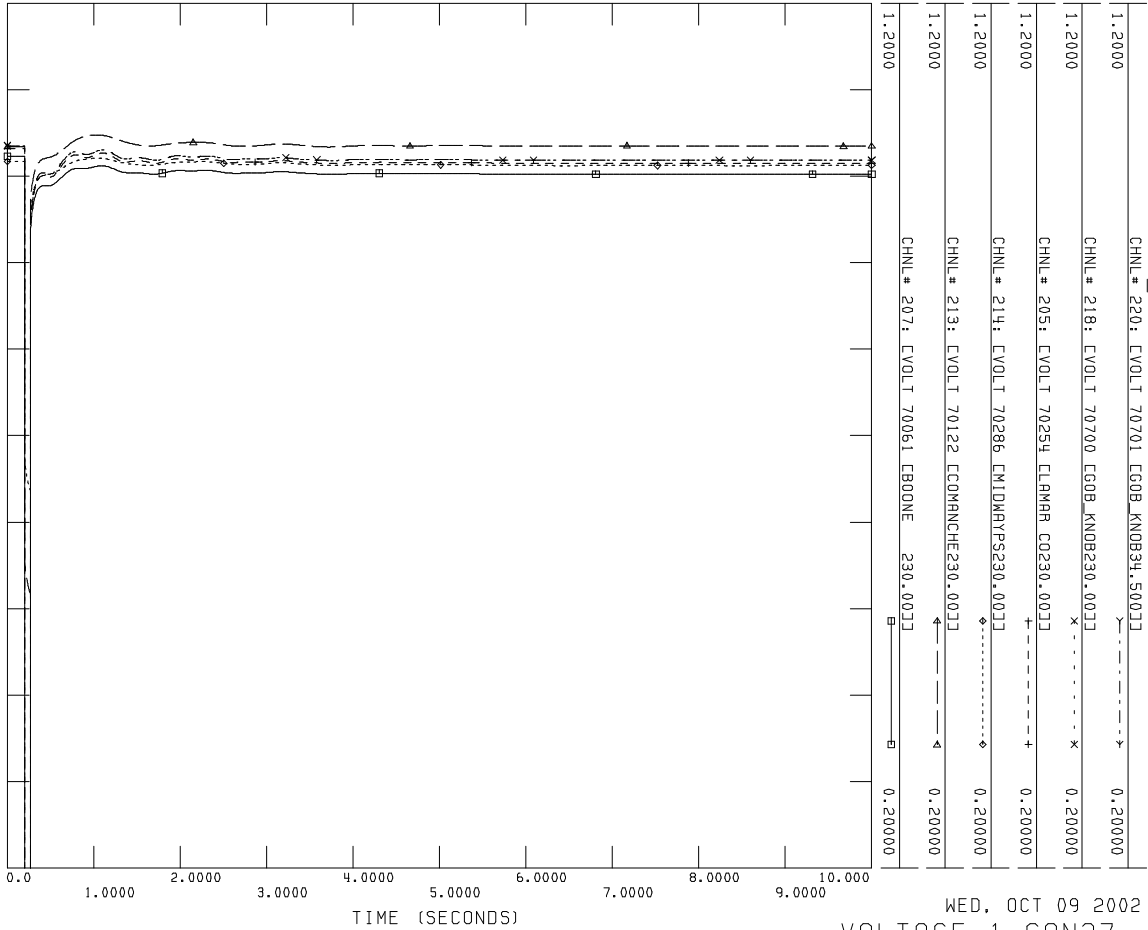


WED, OCT 09 2002 0:56  
ROTORANGLES 2 CON27 QMW



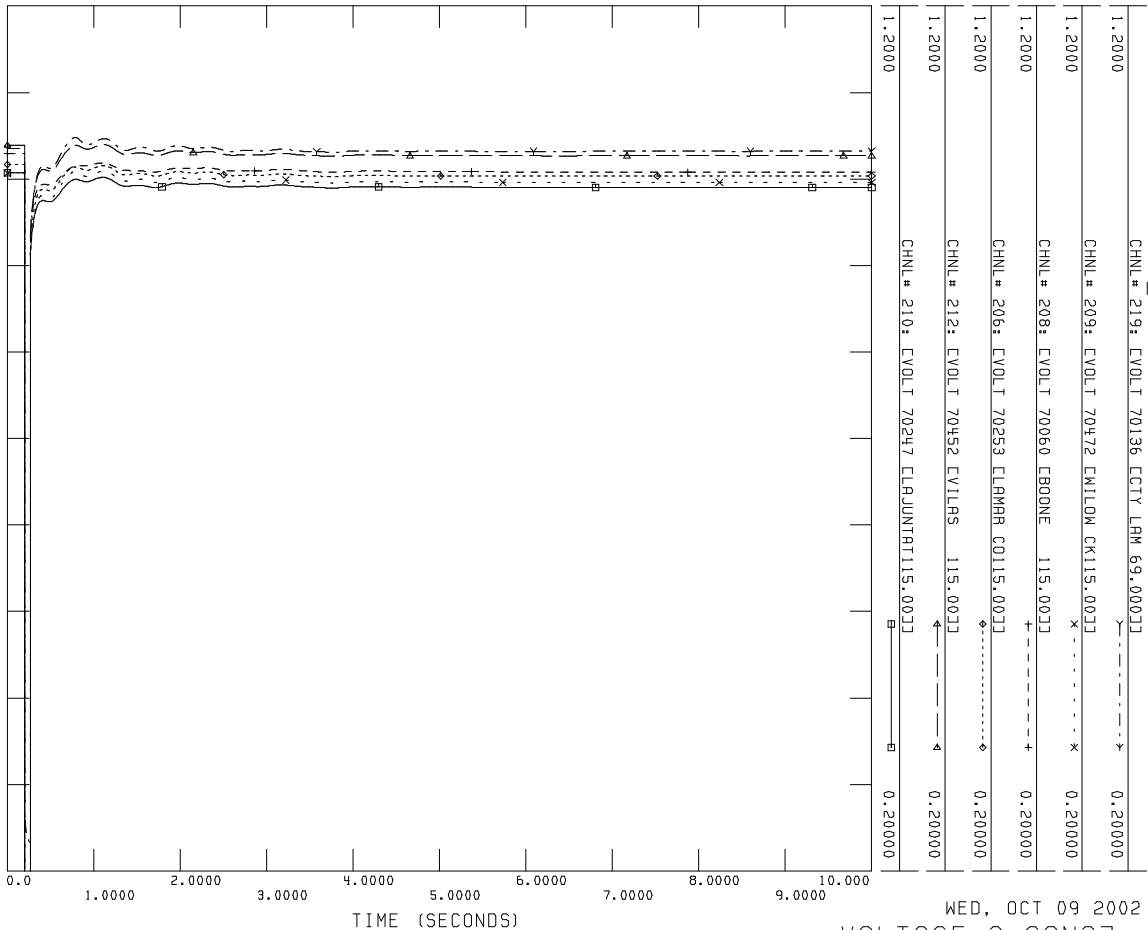
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON27-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON27-OFF.OUT

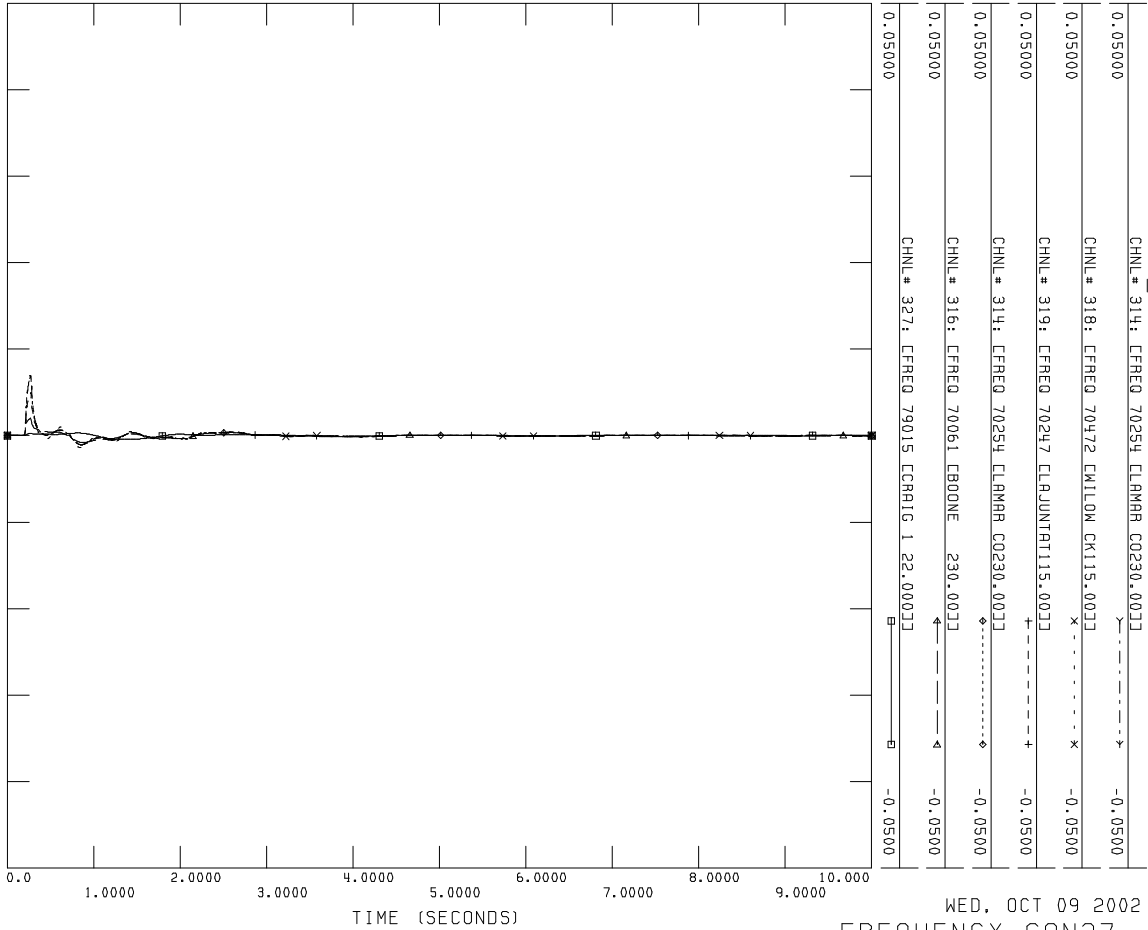






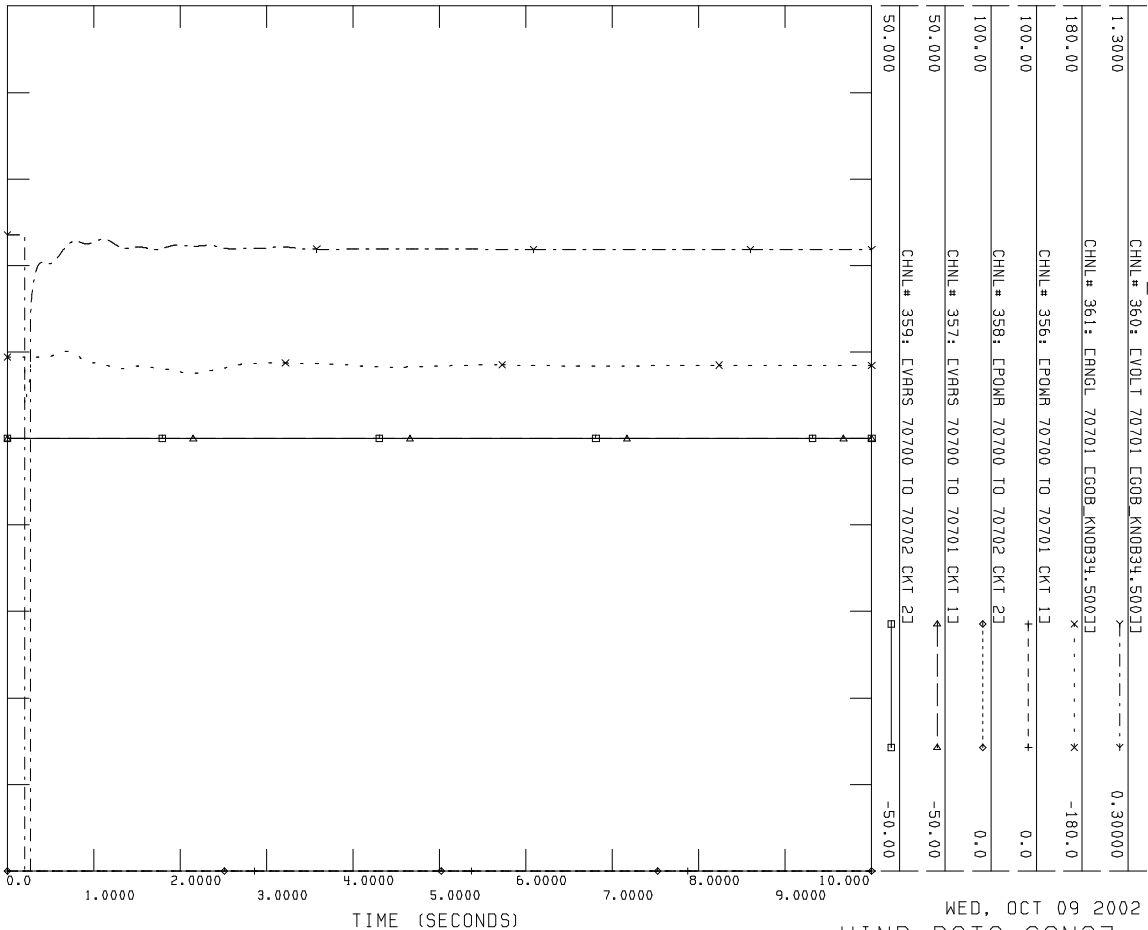
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON27-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON27-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 28 (CON28-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON28-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON GP WIND FARM BUS 70700  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM LAMAR BUS 70254 TO GP WIND FARM BUS 70700  
DROP GENERATOR 1 AT GOB\_KNOB 34.5 BUS 70701  
DROP GENERATOR 1 AT GOB\_KNOB 34.5 BUS 70702  
CLEAR FAULT AT GP WIND FARM BUS 70700  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON28-OFF.OUT

CHNL# 111: CANGL 70701 CCOB\_KNOB34.500J C1 JJ

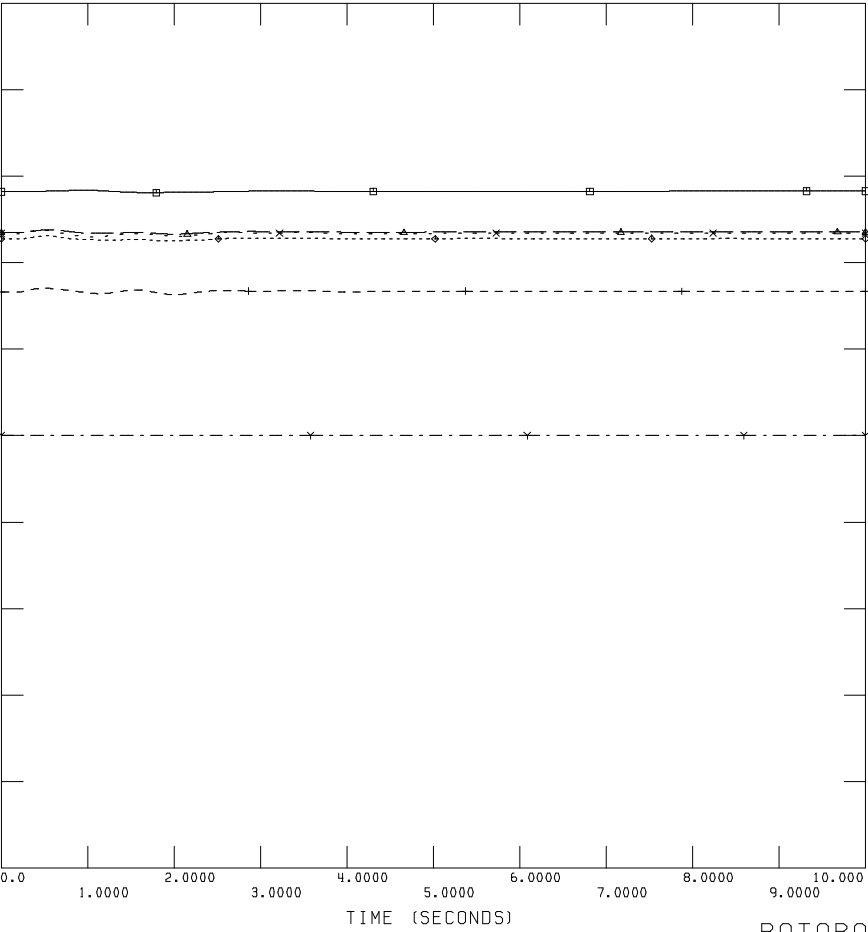
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 ERD\_NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 EDBAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
R/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON28-OFF.OUT

CHNL# 18: CANGL 70133 CDTY LRM 14.400J C1 JJ

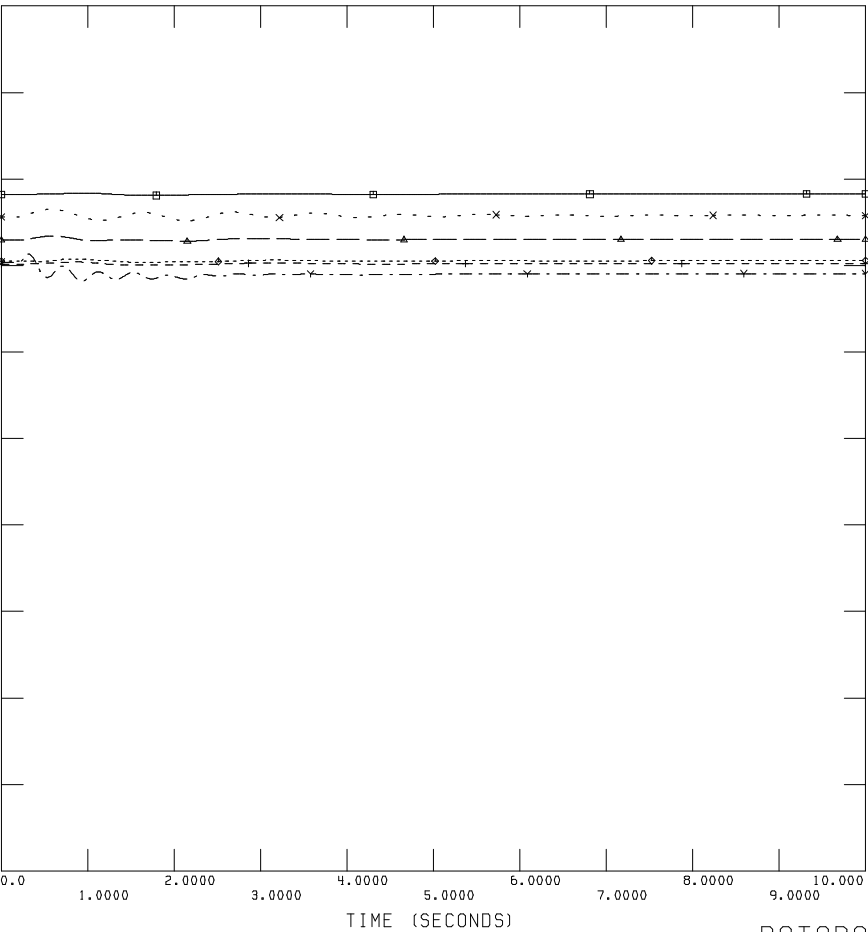
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 ECHEROK4 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0

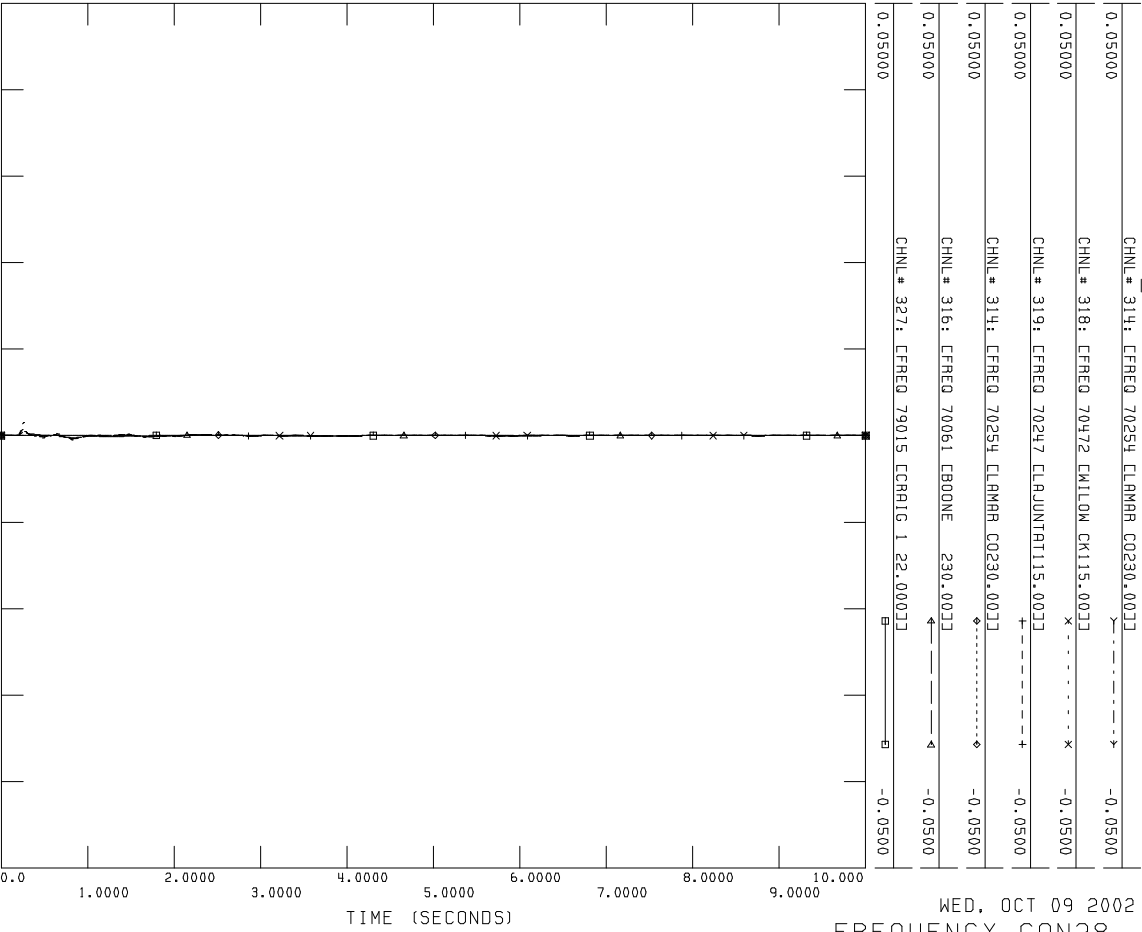






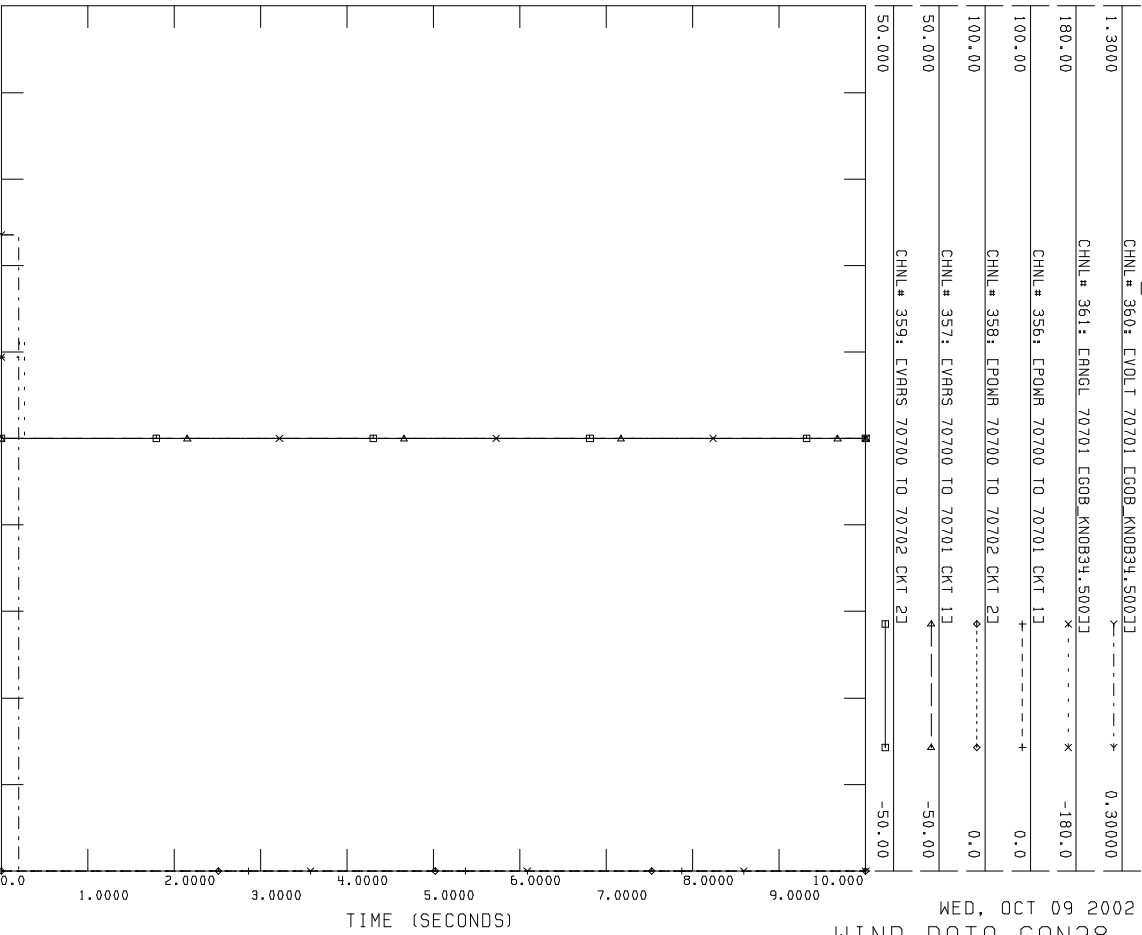
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON28-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON28-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 29 (CON29-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON29-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON LAMAR 115 KV BUS 70253  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP BRANCH FROM LAMAR 230 KV BUS 70254 TO LAMAR 115 KV BUS 70253  
CLEAR FAULT AT LAMAR 115 KV BUS 70253  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON29-OFF.OUT

CHNL# 11: CANGL 70701 CCRB\_KNOB34.500J C1 JJ

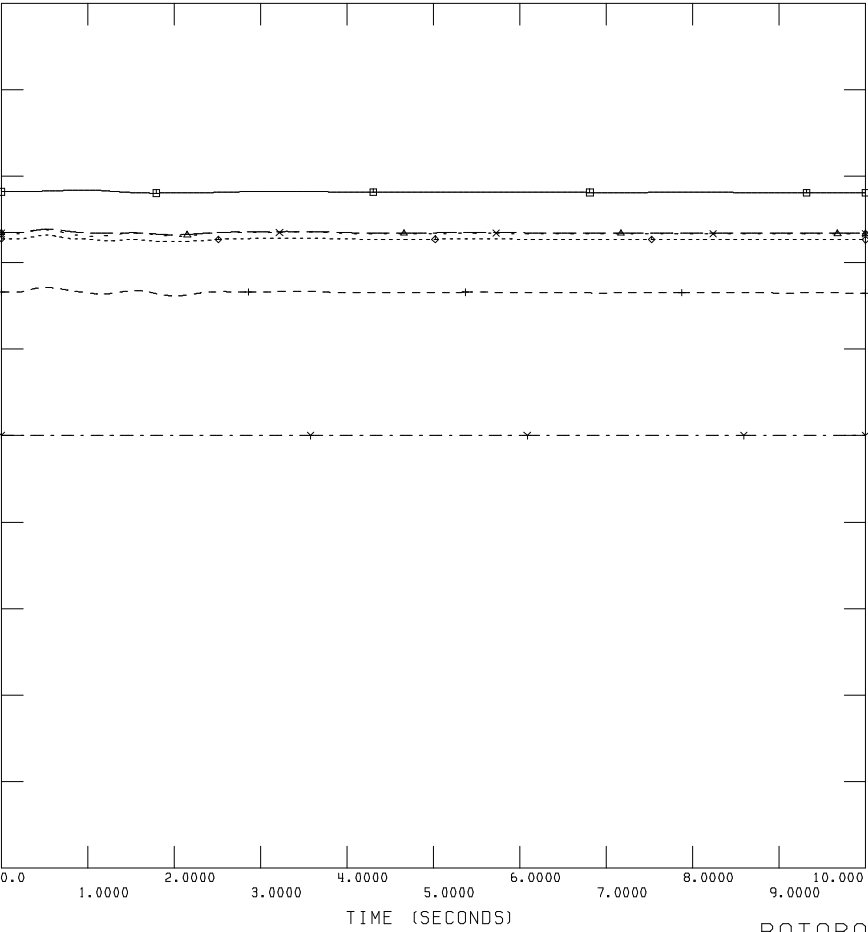
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



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2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON29-OFF.OUT

CHNL# 18: CANGL 70133 CCRB\_LAM 14.400J C1 JJ

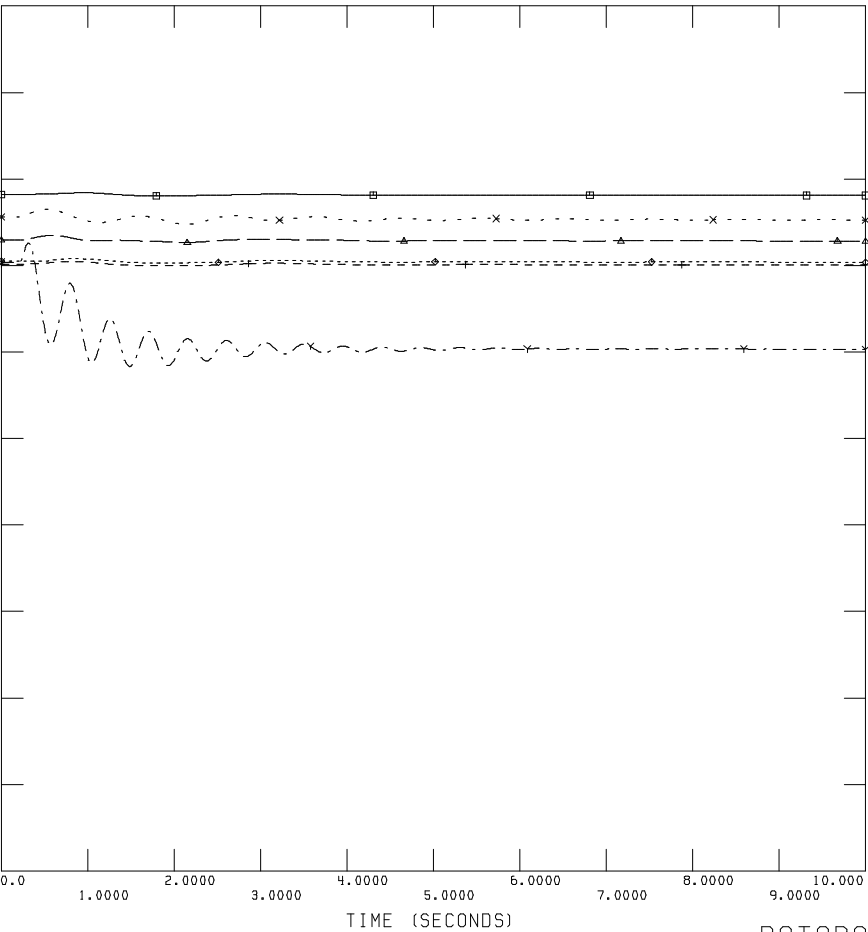
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

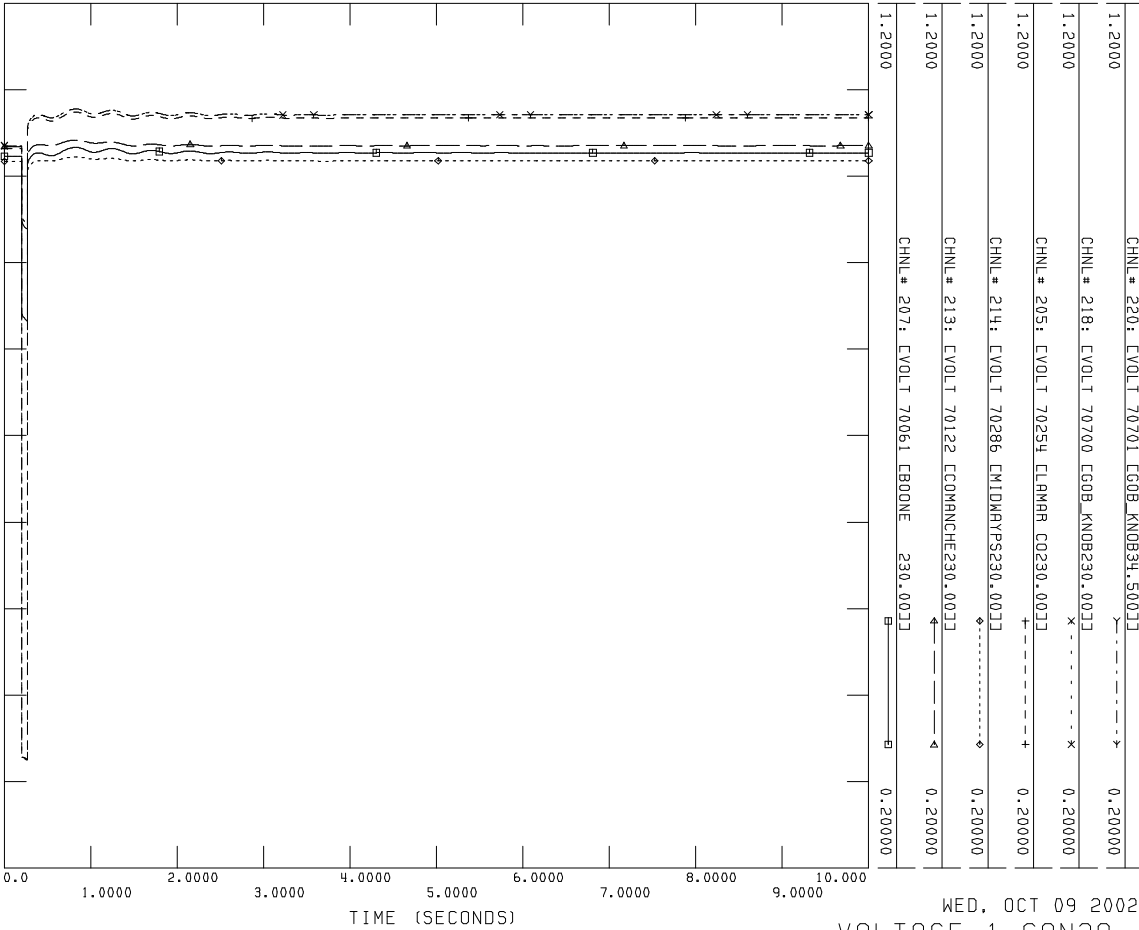
180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



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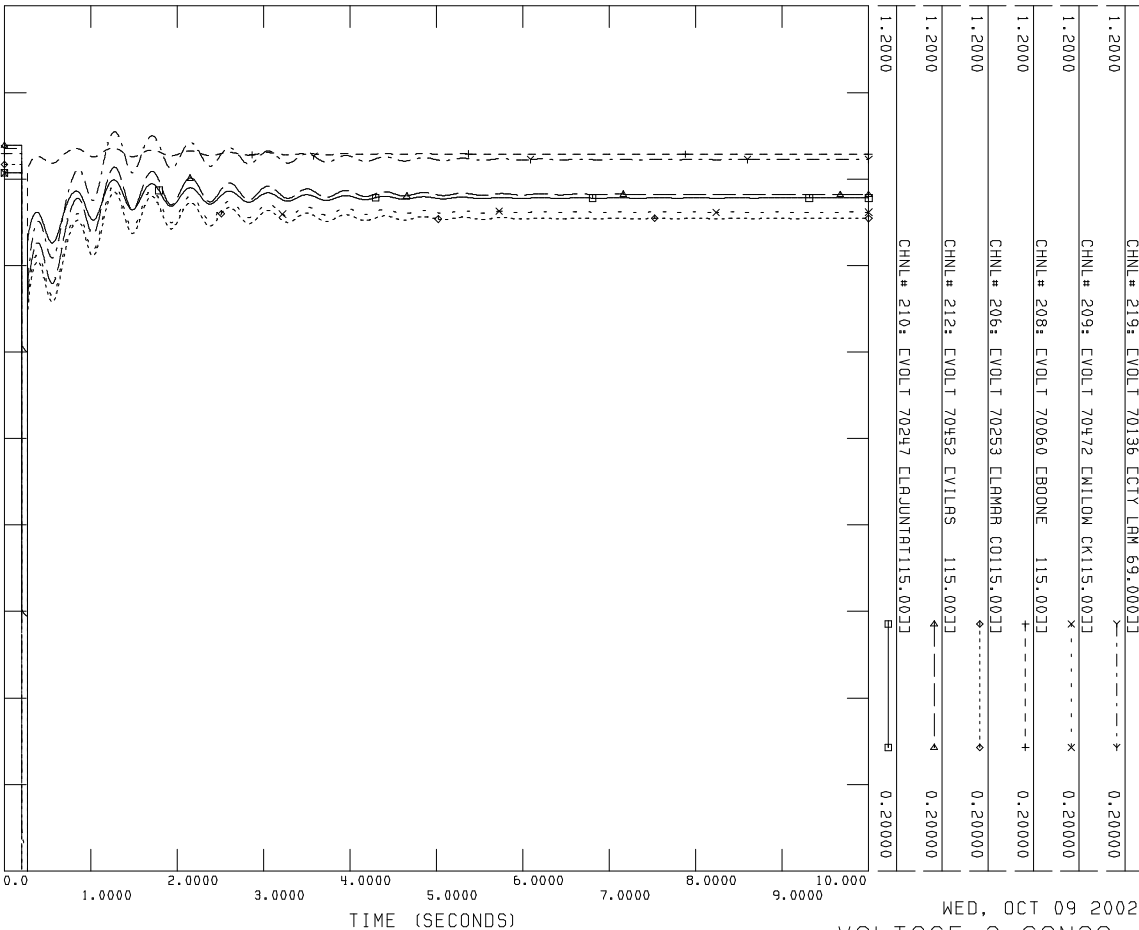
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON29-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON29-OFF.OUT

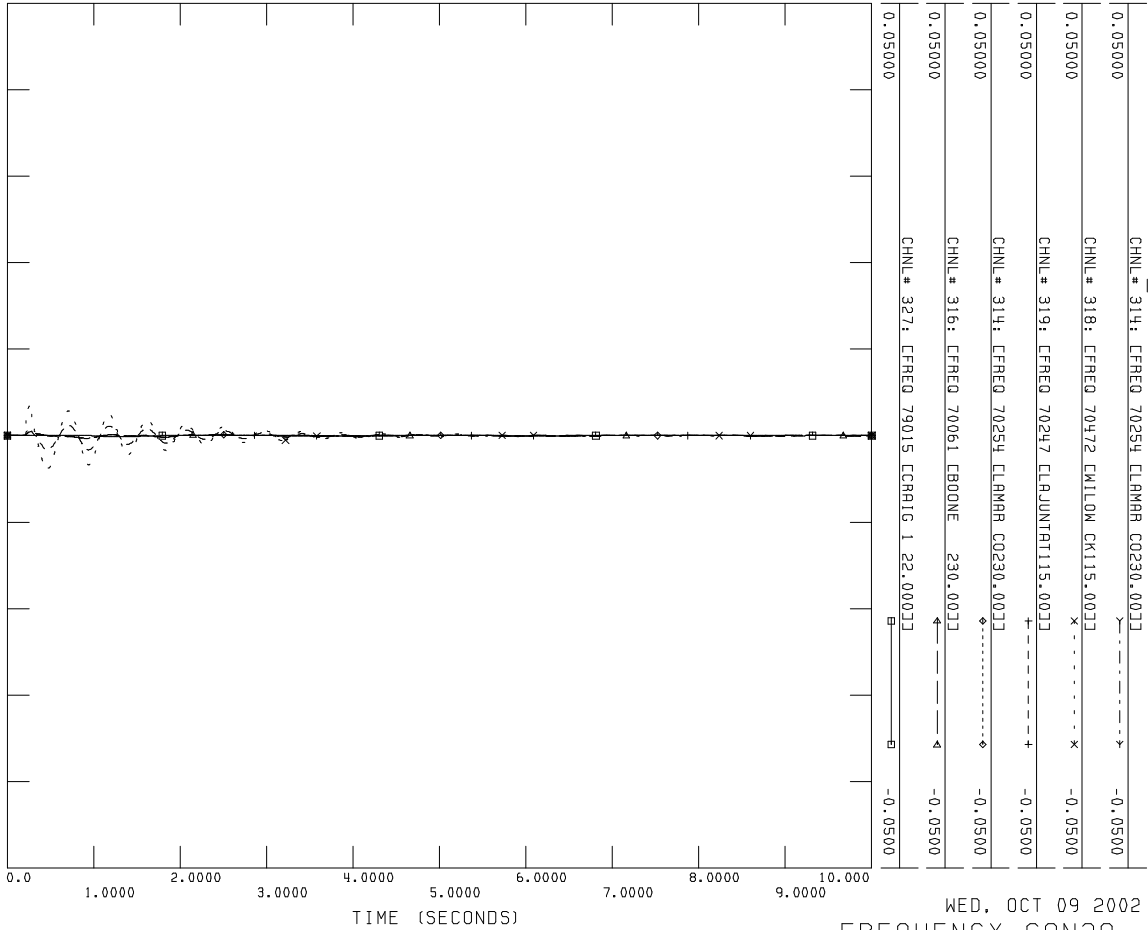






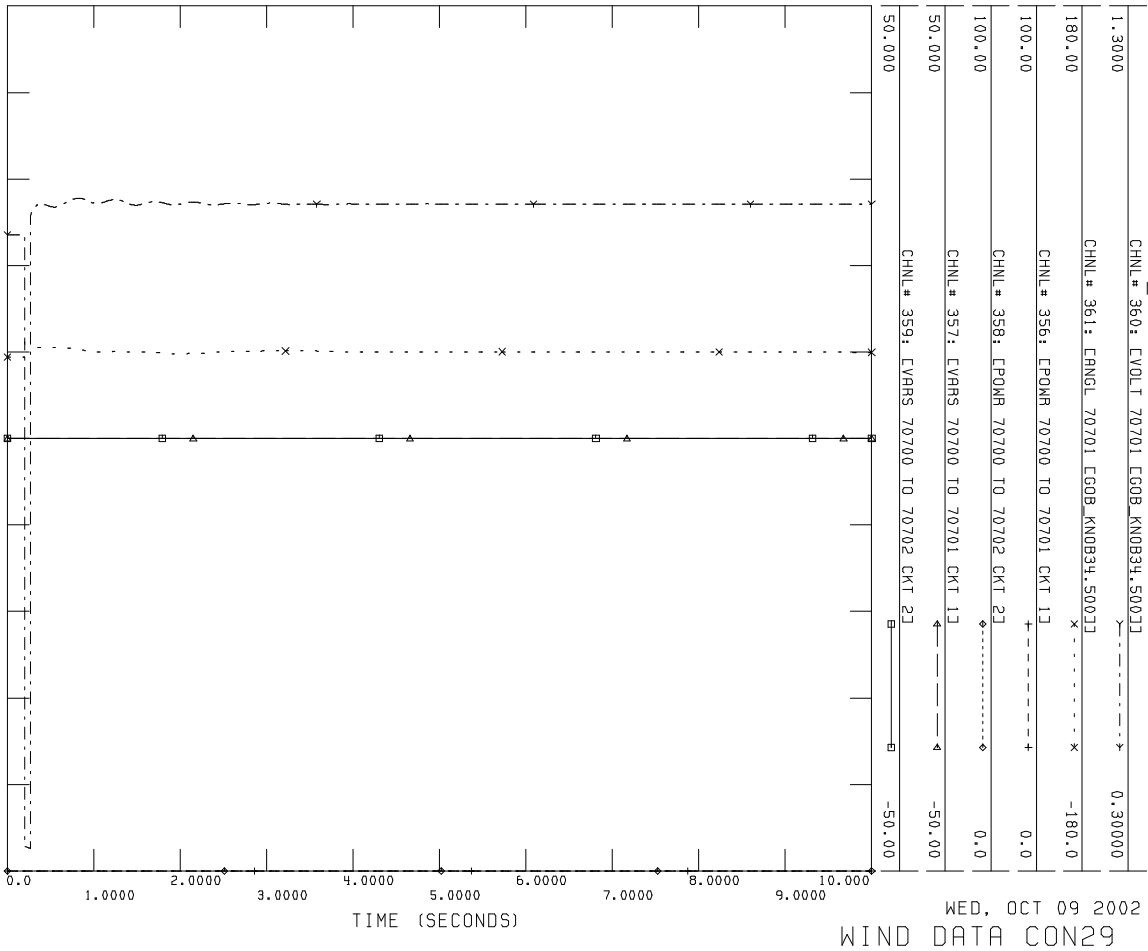
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON29-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON29-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 30 (CON30-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON30-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON BOONE 115 KV BUS 70060  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP BRANCH FROM BOONE 230 KV BUS 70061 TO BOONE 115 KV BUS 70060  
CLEAR FAULT AT BOONE 115 KV BUS 70060  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON30-OFF.OUT

CHNL# 11: CANGL 70701 CCRB 14.5000 C1 JJ

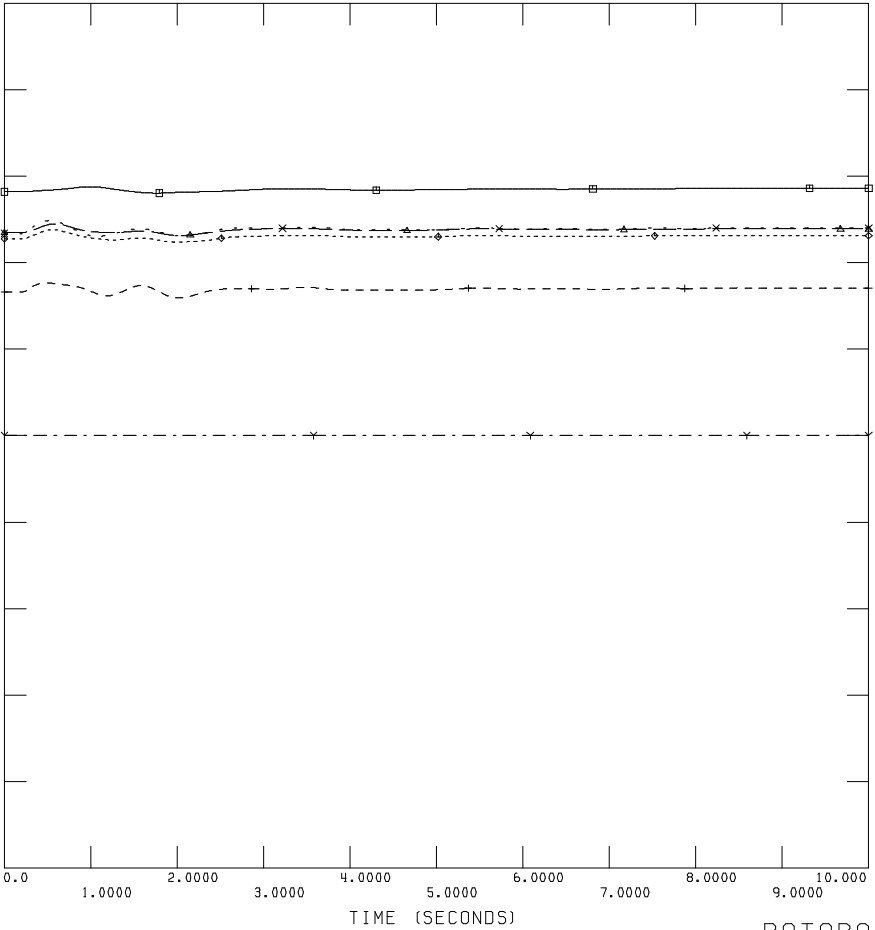
180.00 CHNL# 17: CANGL 70120 ECOMAN 2.24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDBAKE 7.13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1.22.0000 C1 JJ -180.0



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ROTORANGLES 1 CON30 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON30-OFF.OUT

CHNL# 18: CANGL 70133 CCRB 14.5000 C1 JJ

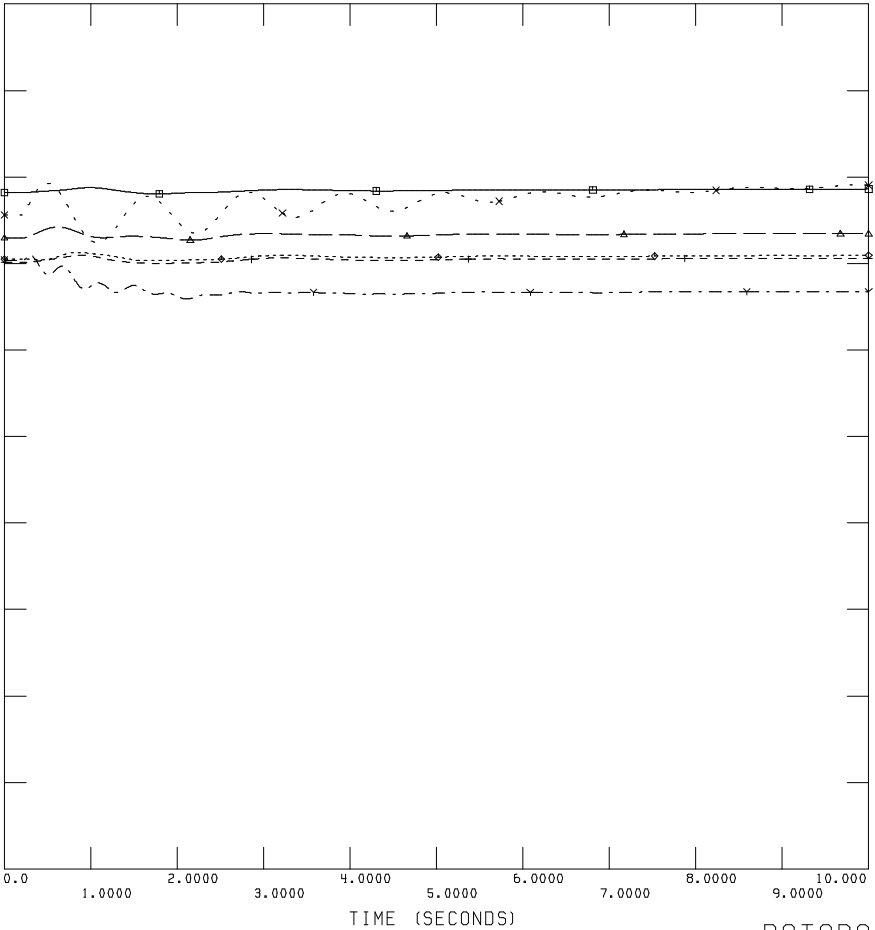
180.00 CHNL# 28: CANGL 70344 CR.F.DSLSH.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRBP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1.22.0000 C1 JJ -180.0

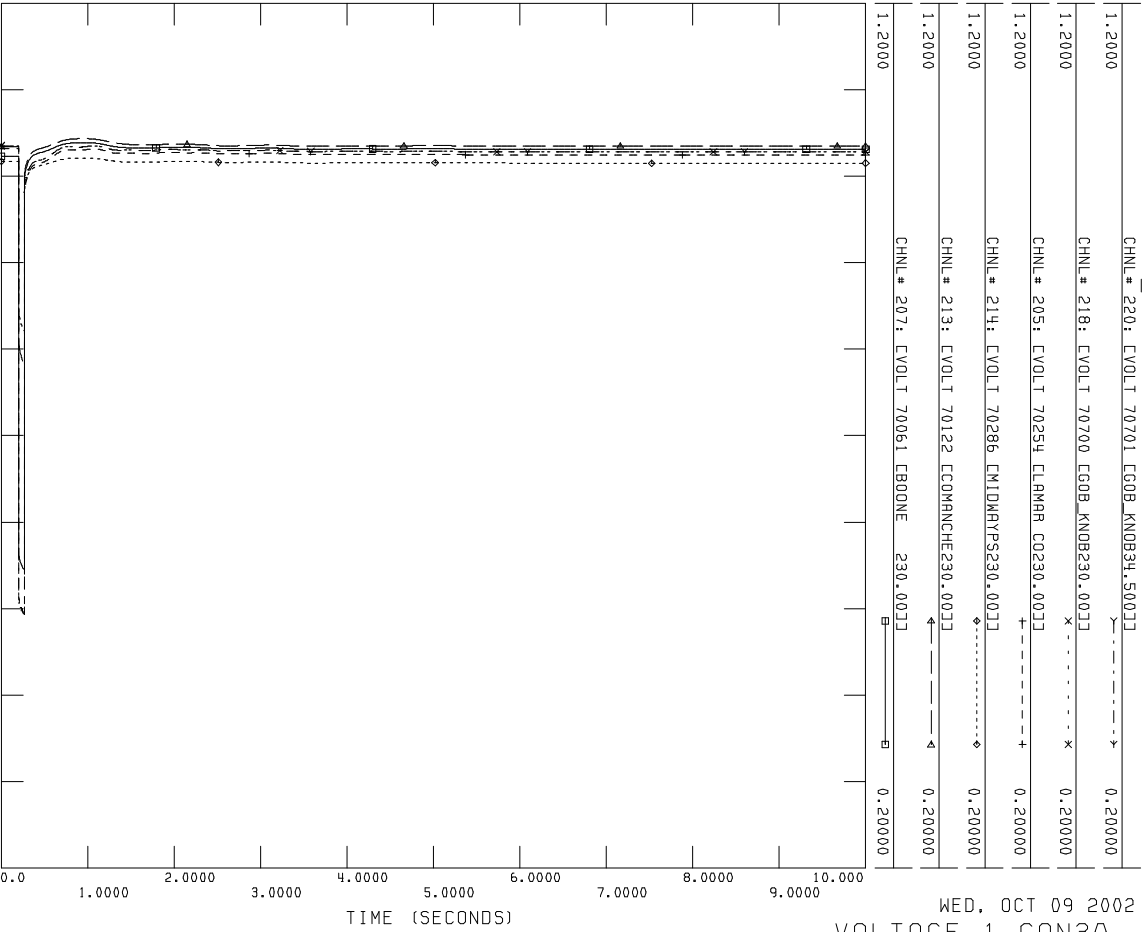


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ROTORANGLES 2 CON30 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON30-OFF.OUT

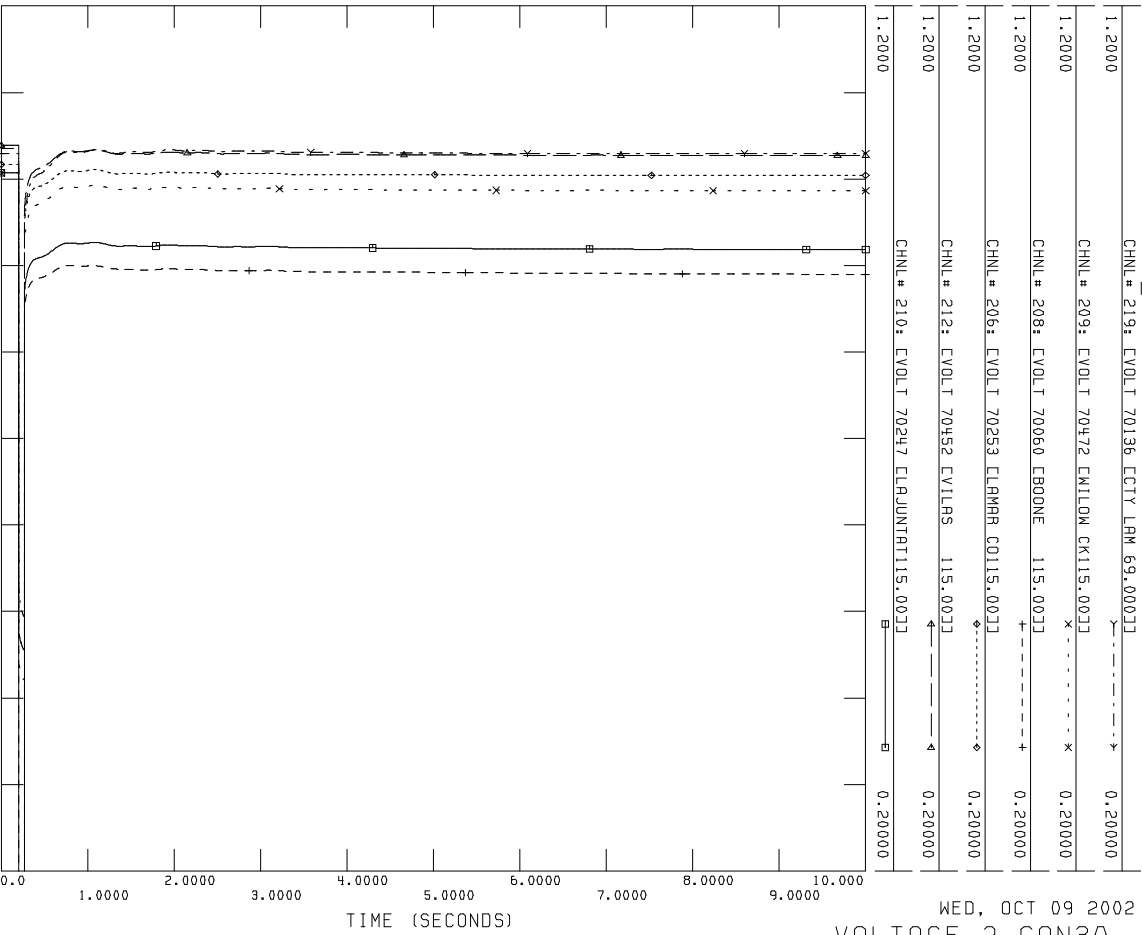


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VOLTAGE 1 CON30 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON30-OFF.OUT

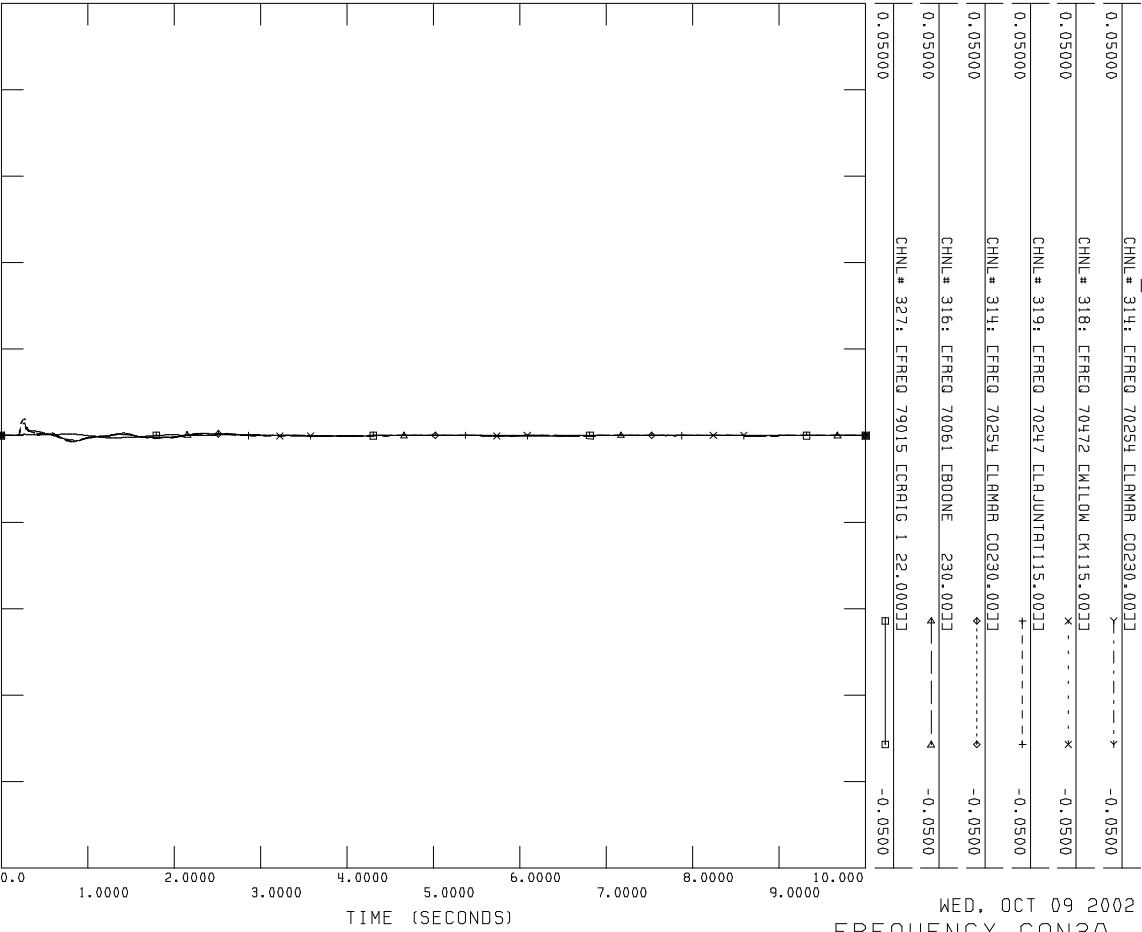


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VOLTAGE 2 CON30 QMW



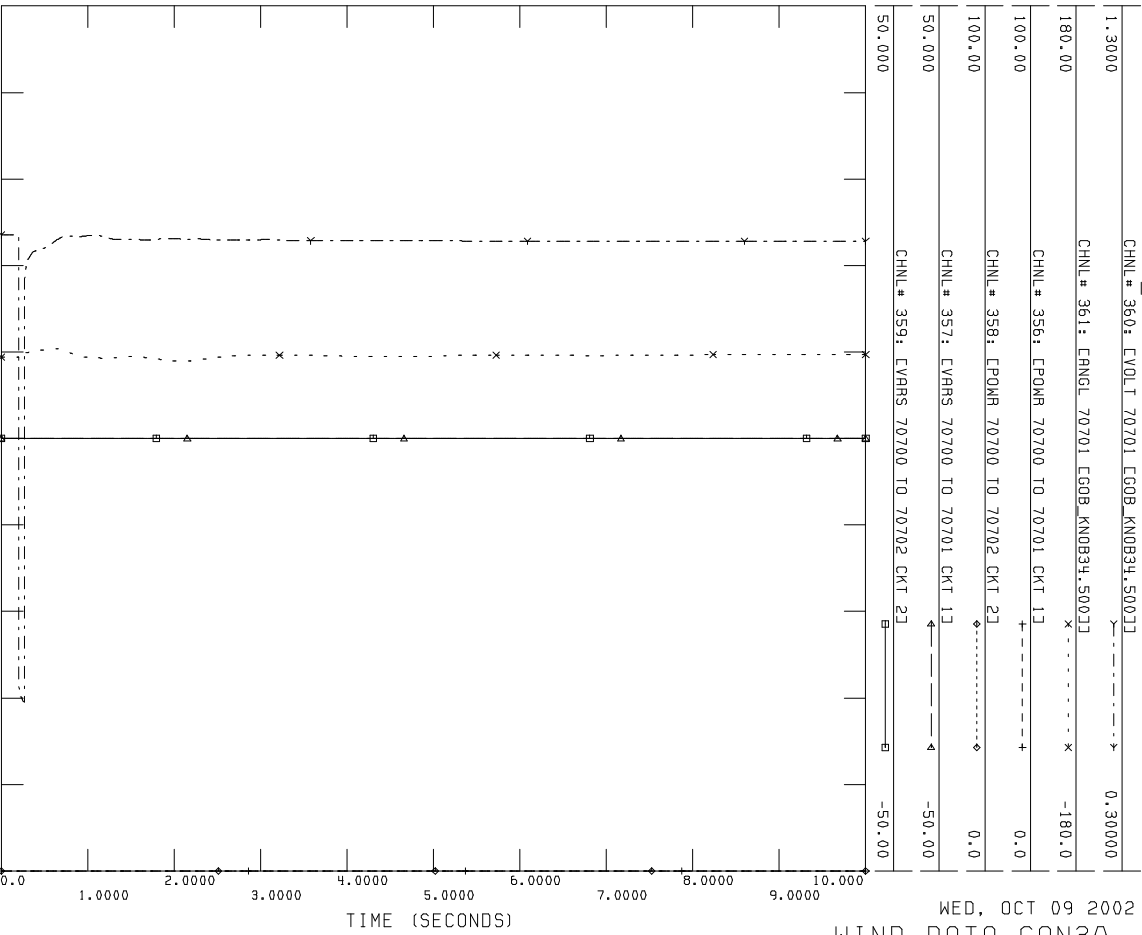
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON30-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON30-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 31 (CON31-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON31-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON WILLOW CREEK BUS 70472  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM LAMAR BUS 70253 TO WILLOW CREEK BUS 70472  
CLEAR FAULT AT WILLOW CREEK BUS 70472  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON31-OFF.OUT

CHNL# 111: CANGL 70701 CCRB\_KNOB34.500J C1 JJ

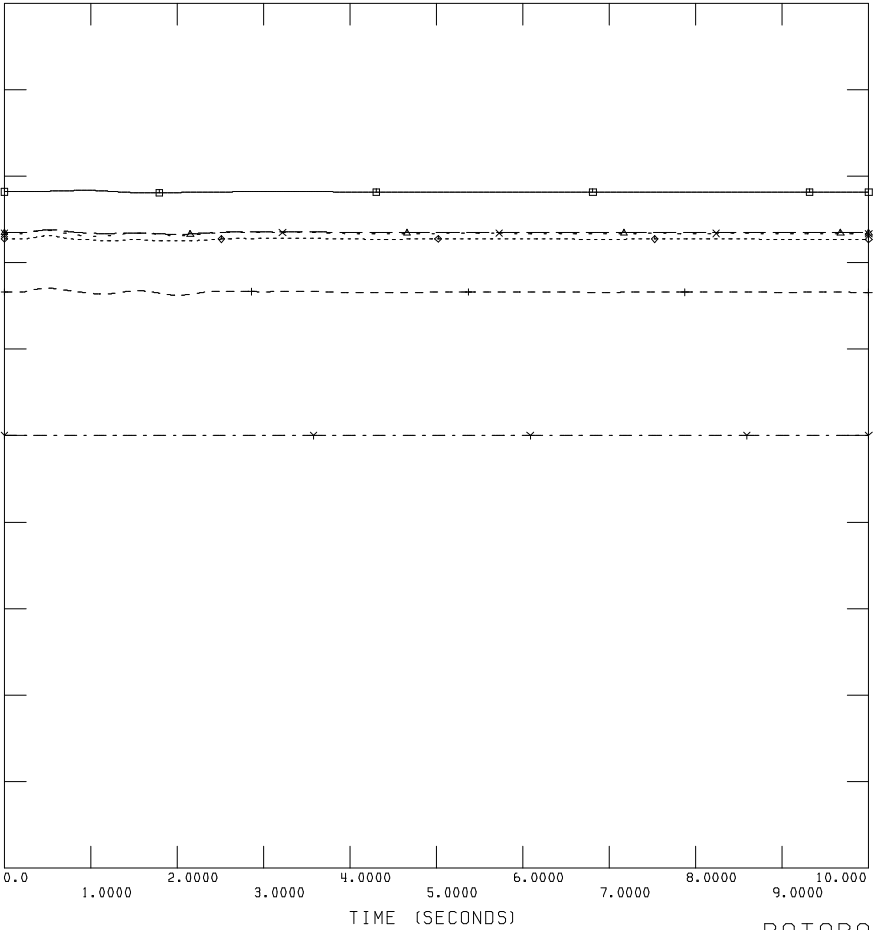
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



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ROTORANGLES 1 CON31 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON31-OFF.OUT

CHNL# 18: CANGL 70133 CCRB\_LAM 14.400J C1 JJ

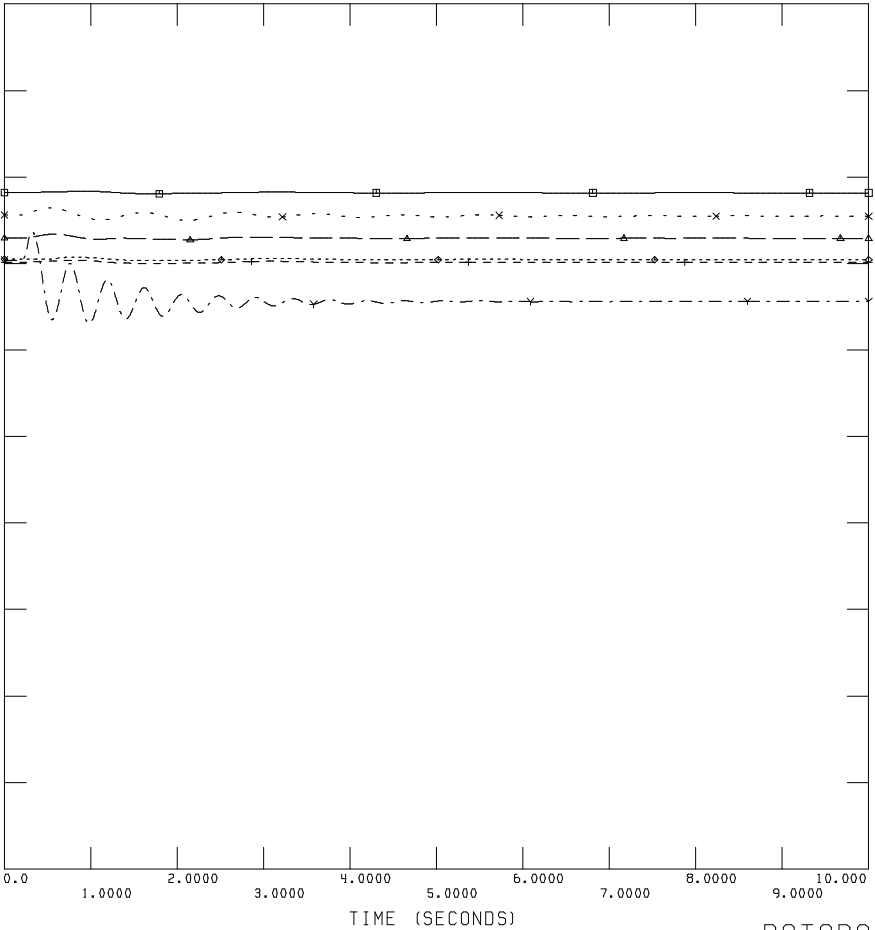
180.00 CHNL# 28: CANGL 70344 CR.F.DSL44.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRAP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0

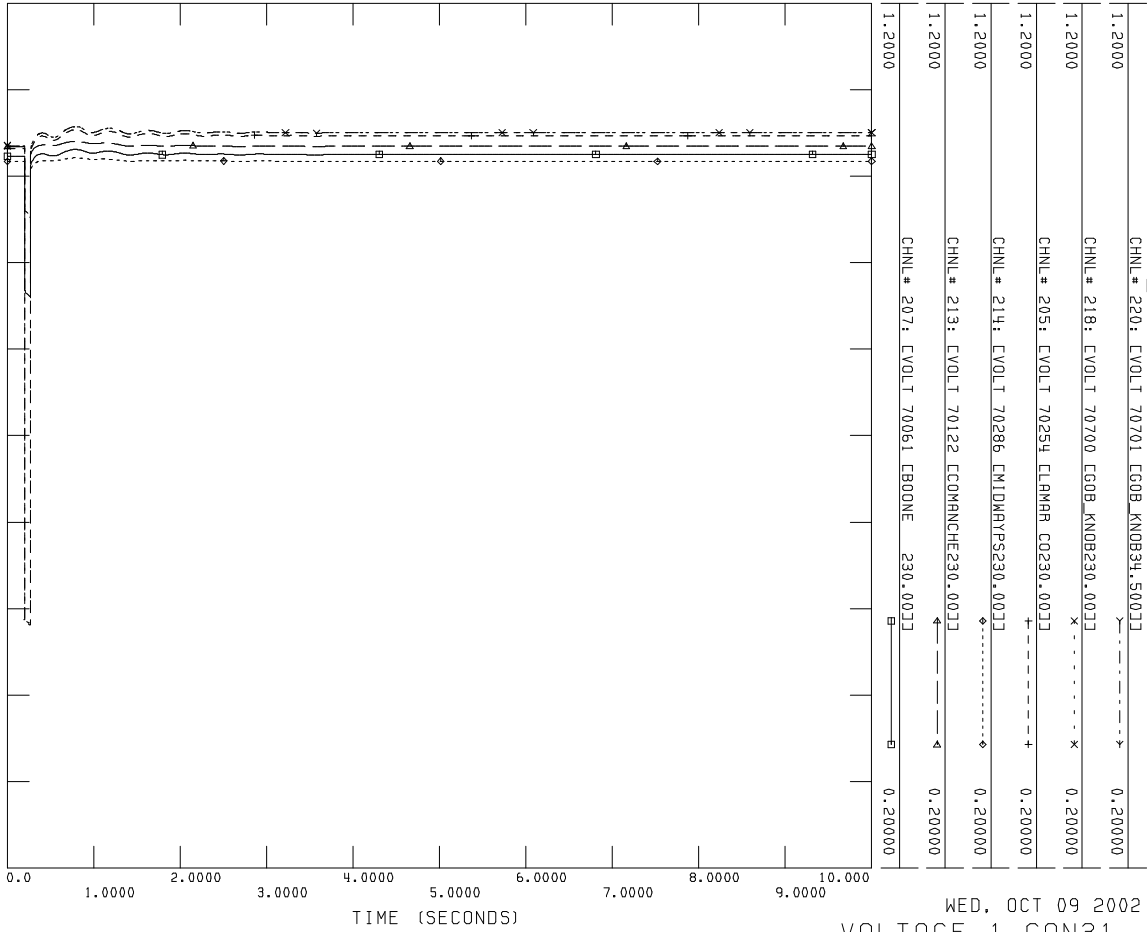


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ROTORANGLES 2 CON31 QMW



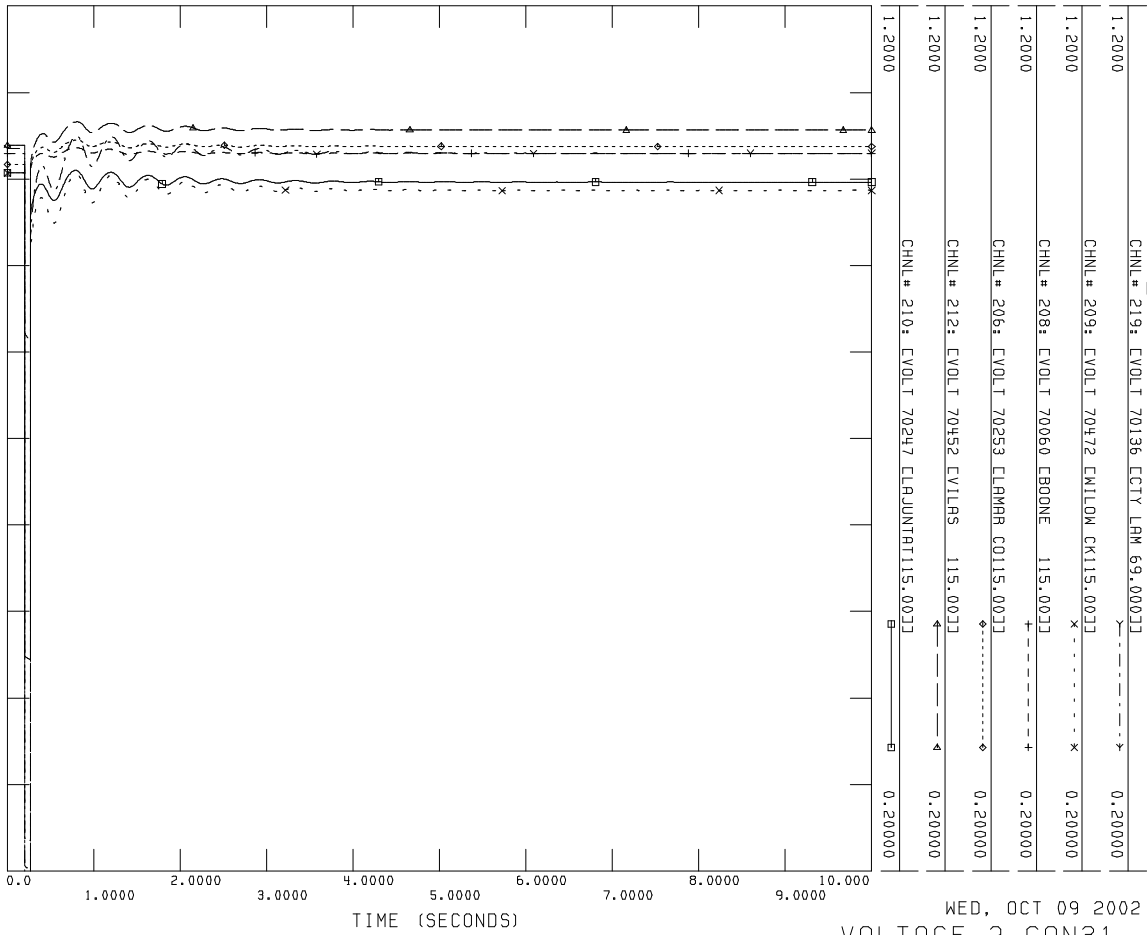
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON31-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON31-OFF.OUT

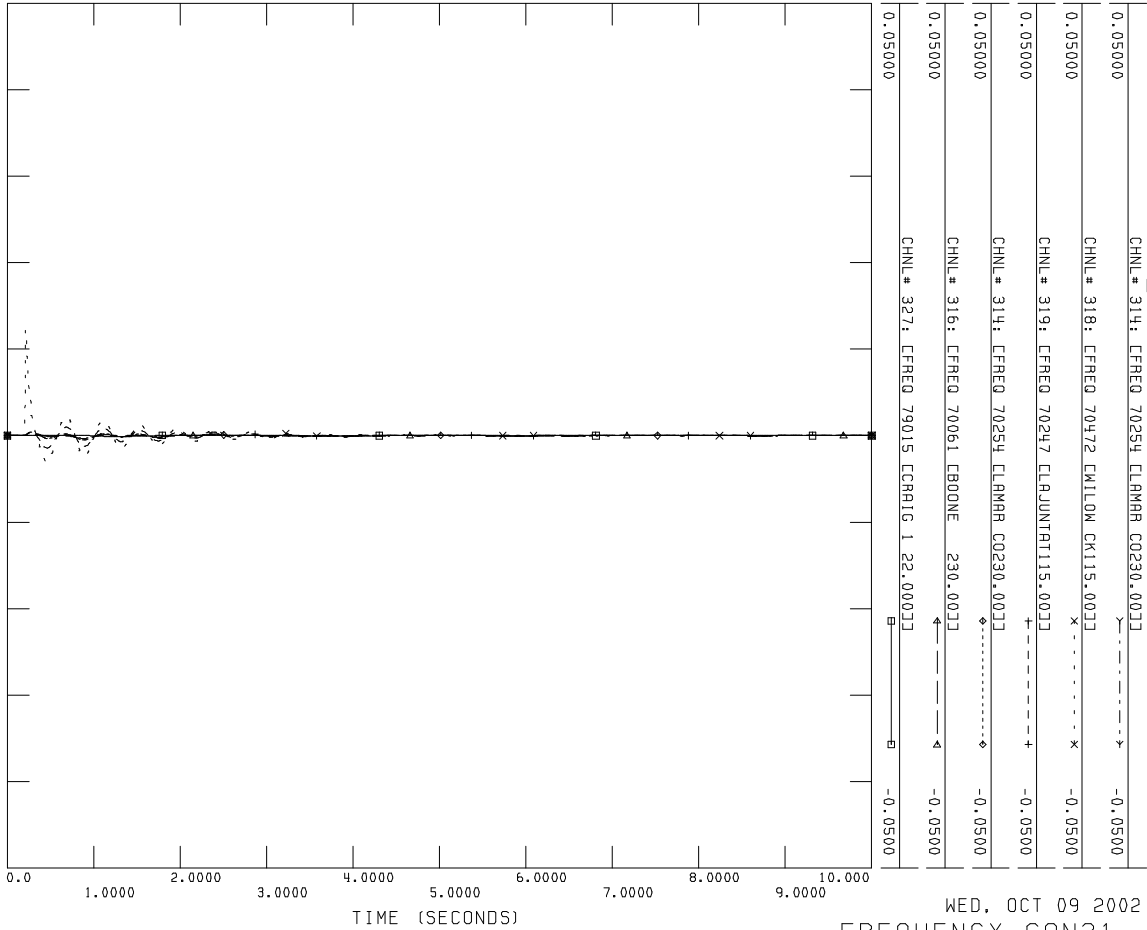






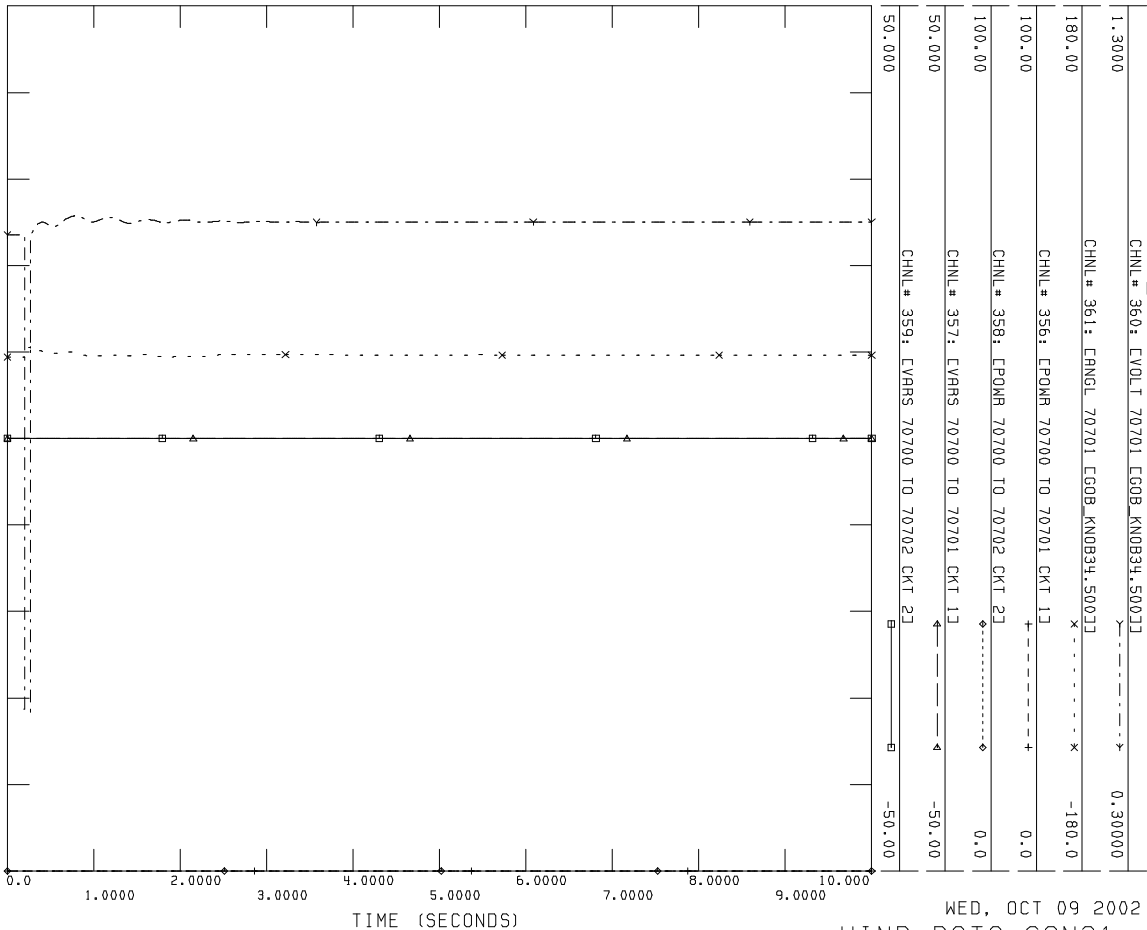
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON31-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON31-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 32 (CON32-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON32-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON VILAS BUS 70452  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM LAMAR BUS 70253 TO VILAS BUS 70452  
CLEAR FAULT AT VILAS BUS 70452  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON32-OFF.OUT

CHNL# 111: CANGL 70701 CCOB\_KNOB34.500J C1 JJ

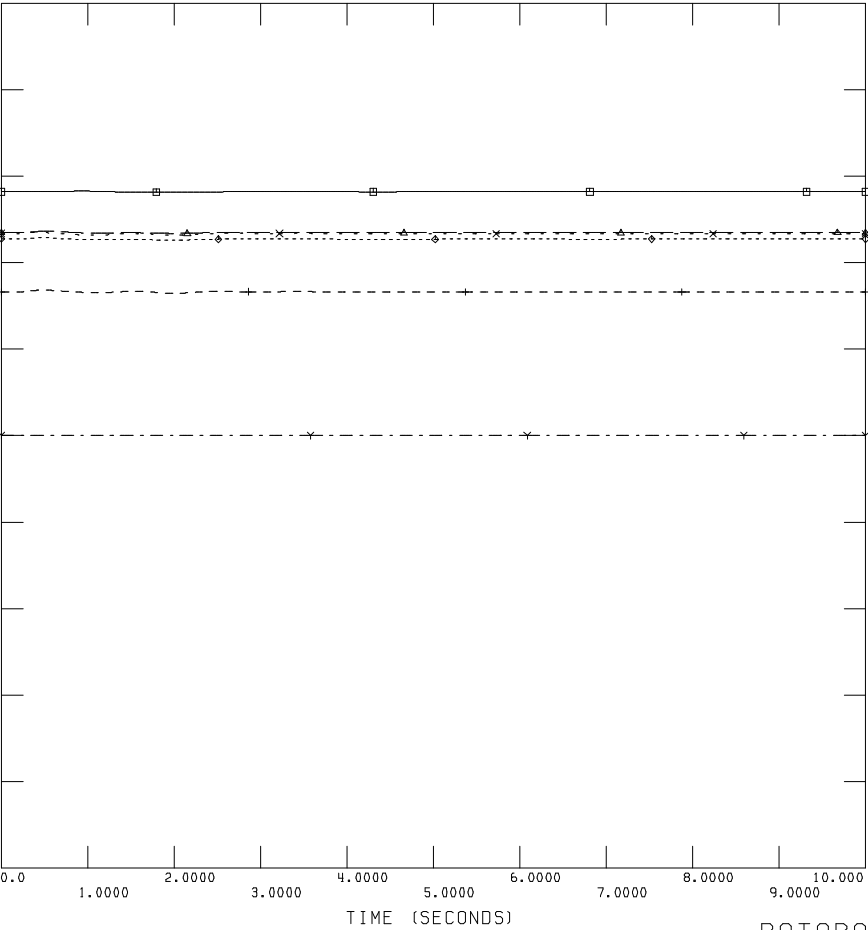
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.000J C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.000J C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 ERD\_NIXON20.000J C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 EDBRAKE 7 13.800J C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON32-OFF.OUT

CHNL# 18: CANGL 70133 CDTY LRM 14.400J C1 JJ

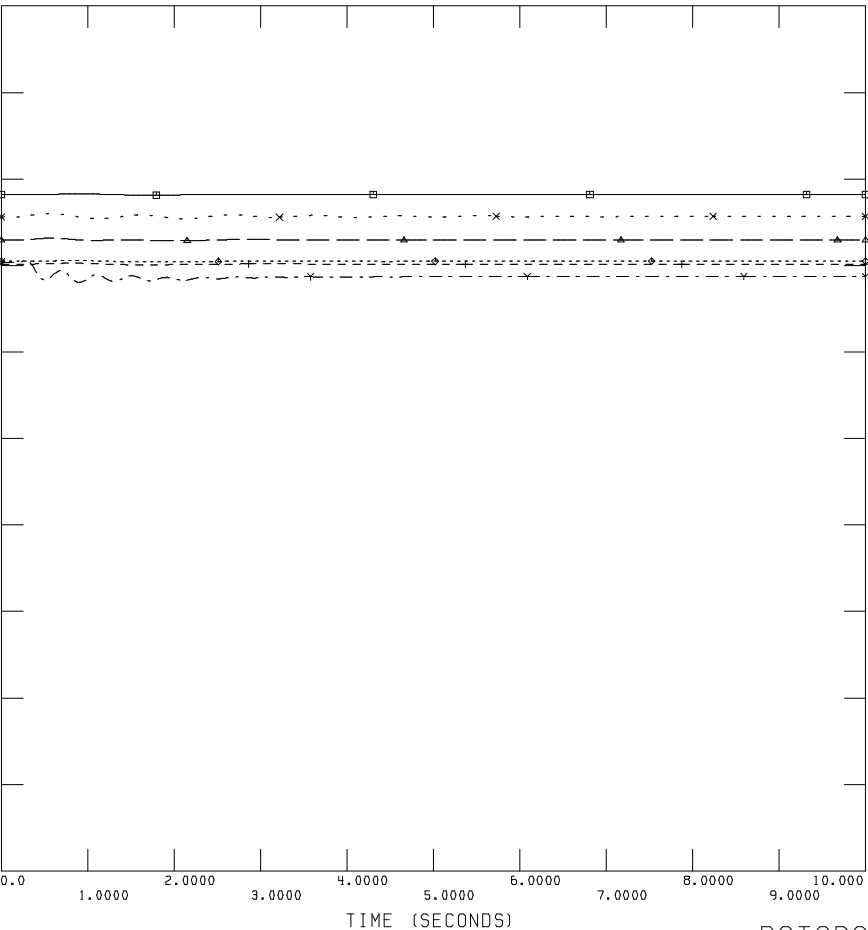
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.1600J C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRRP4 13.800J C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 ECHEROK4 22.000J C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.800J C1 JJ -180.0

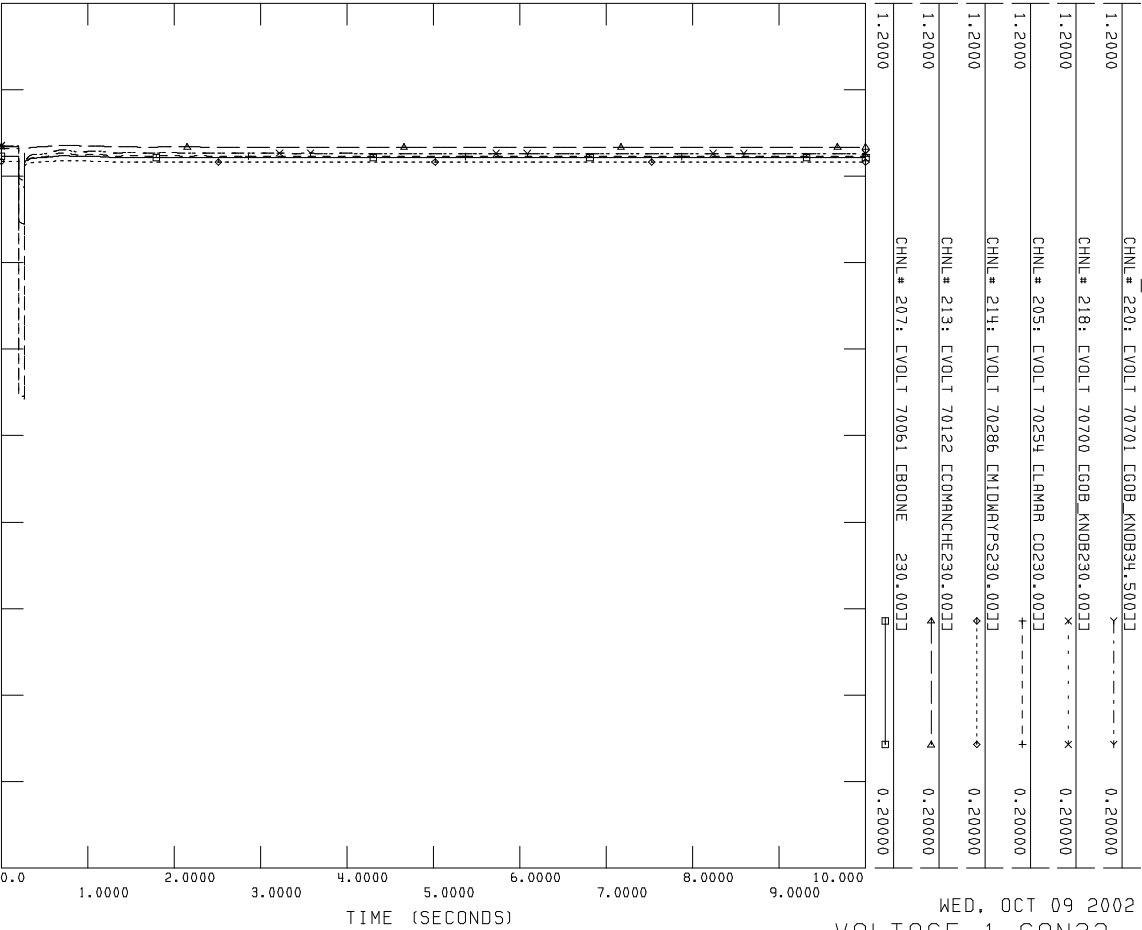
180.00 CHNL# 98: CANGL 79015 CCRATG 1 22.000J C1 JJ -180.0





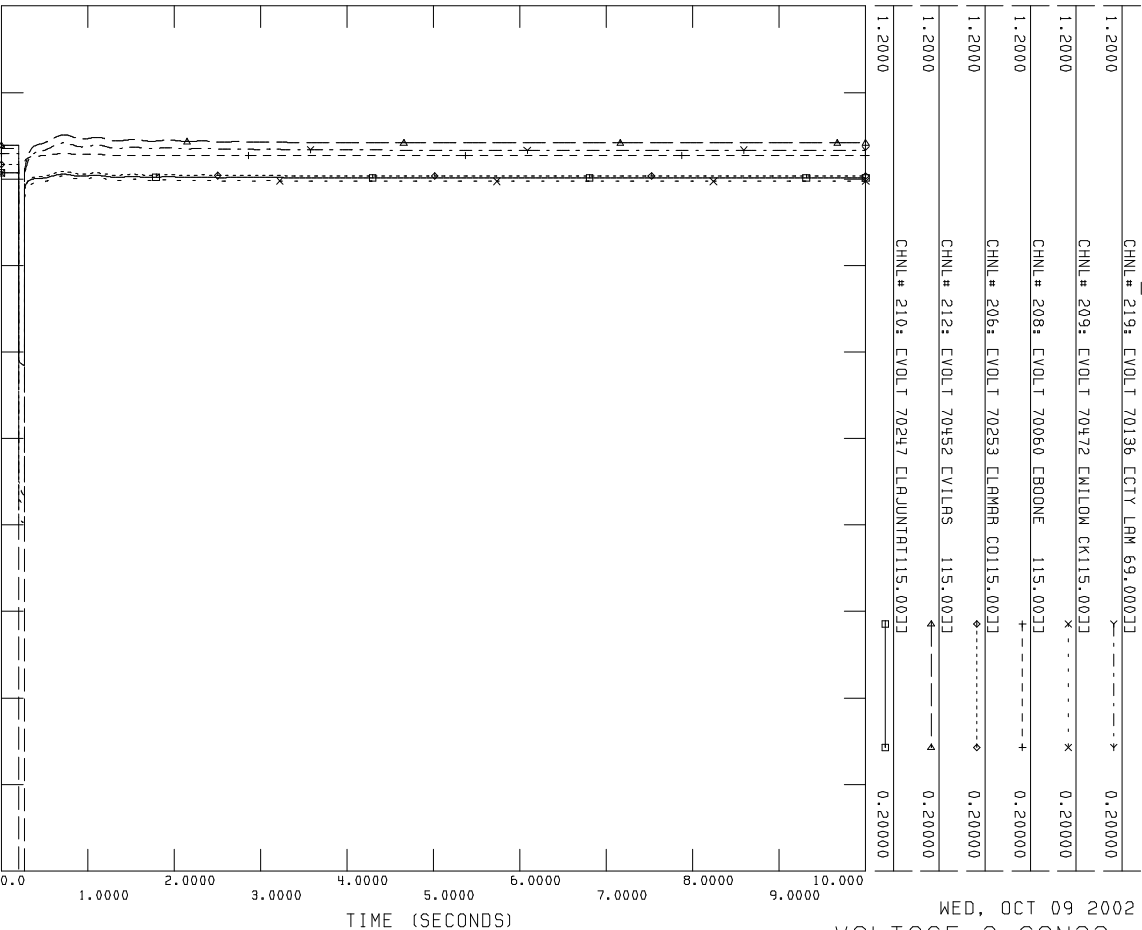
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70.73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON32-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70.73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

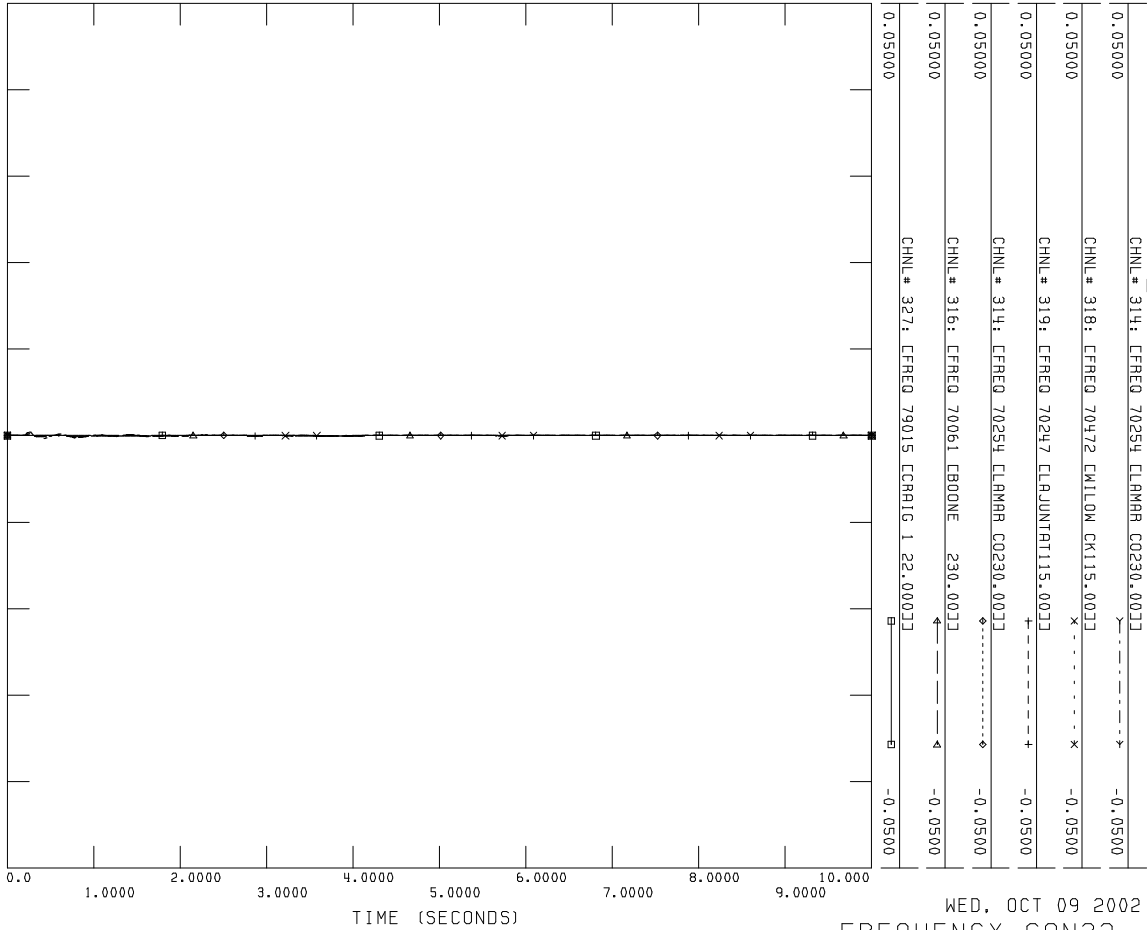
FILE: C:\Xcel\_windfarm\2003\new-offs\CON32-OFF.OUT





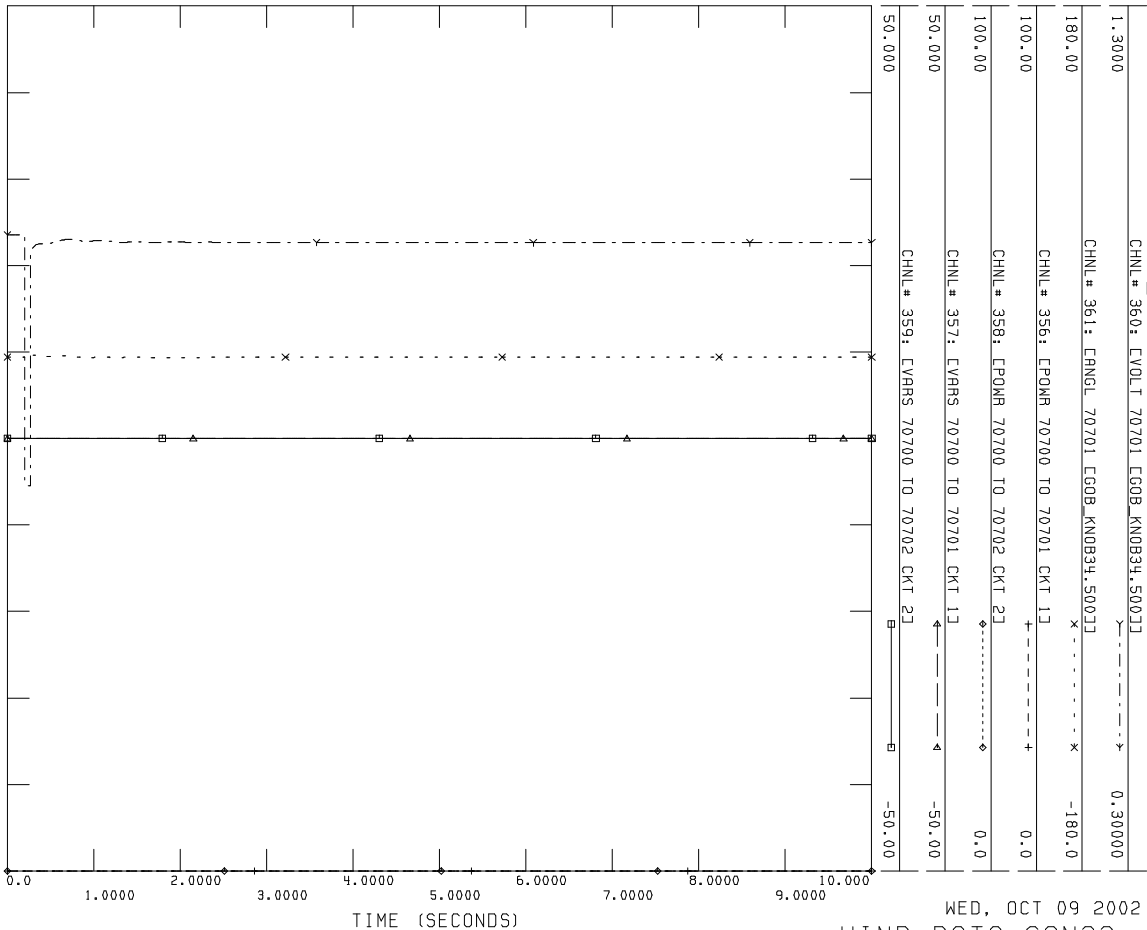
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON32-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON32-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 33 (CON33-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON33-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON WILLOW CREEK BUS 70472  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM LA JUNTA 115 KV BUS 70247 TO WILLOW CREEK BUS 70472  
CLEAR FAULT AT WILLOW CREEK BUS 70472  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\xcel\windfarm\2003\new-offs\CON33-OFF.OUT

CHNL# 11: [RANGL 70701 [COP\_KNOB34,500] C1 JJ

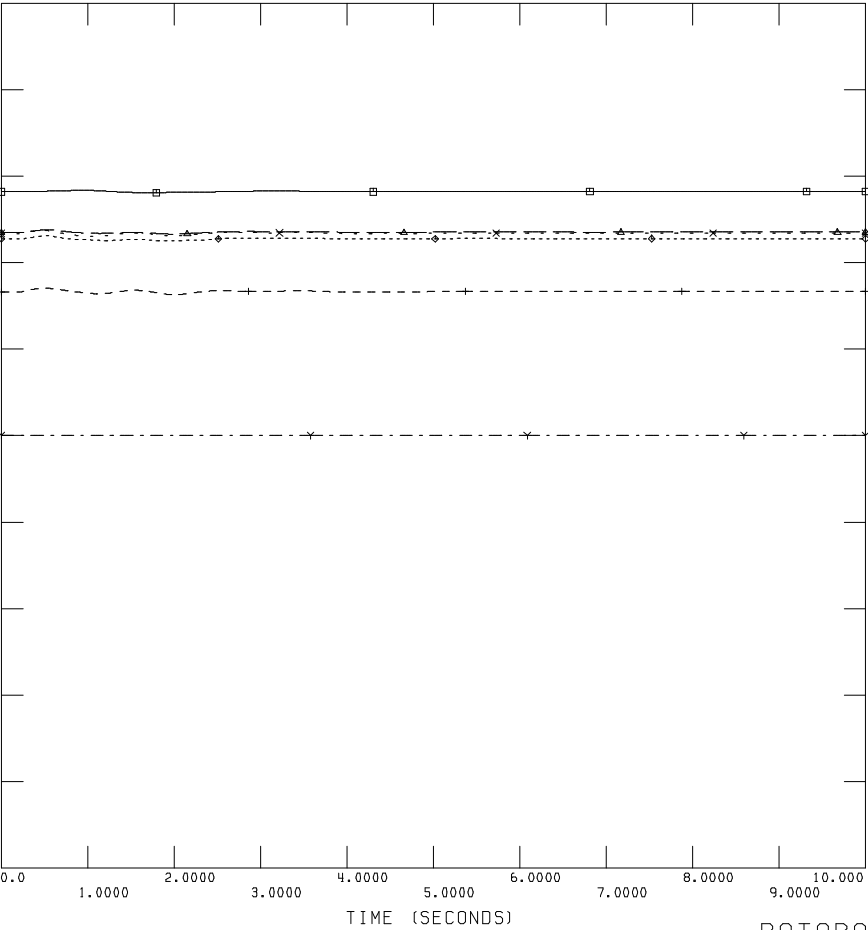
180.00 CHNL# 17: [RANGL 70120 [CCOMAN 2 24,000] C1 JJ -180.0

180.00 CHNL# 26: [RANGL 70337 [PUERBL0 14,000] C1 JJ -180.0

180.00 CHNL# 88: [RANGL 73418 [RD\_NIXON20,000] C1 JJ -180.0

180.00 CHNL# 89: [RANGL 73429 [DRAKE 7 13,800] C1 JJ -180.0

180.00 CHNL# 98: [RANGL 79015 [CRAIG 1 22,000] C1 JJ -180.0



WED, OCT 09 2002 0:58  
ROTORANGLES 1 CON33 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\xcel\windfarm\2003\new-offs\CON33-OFF.OUT

CHNL# 18: [RANGL 70133 [CTY LRM 14,400] C1 JJ

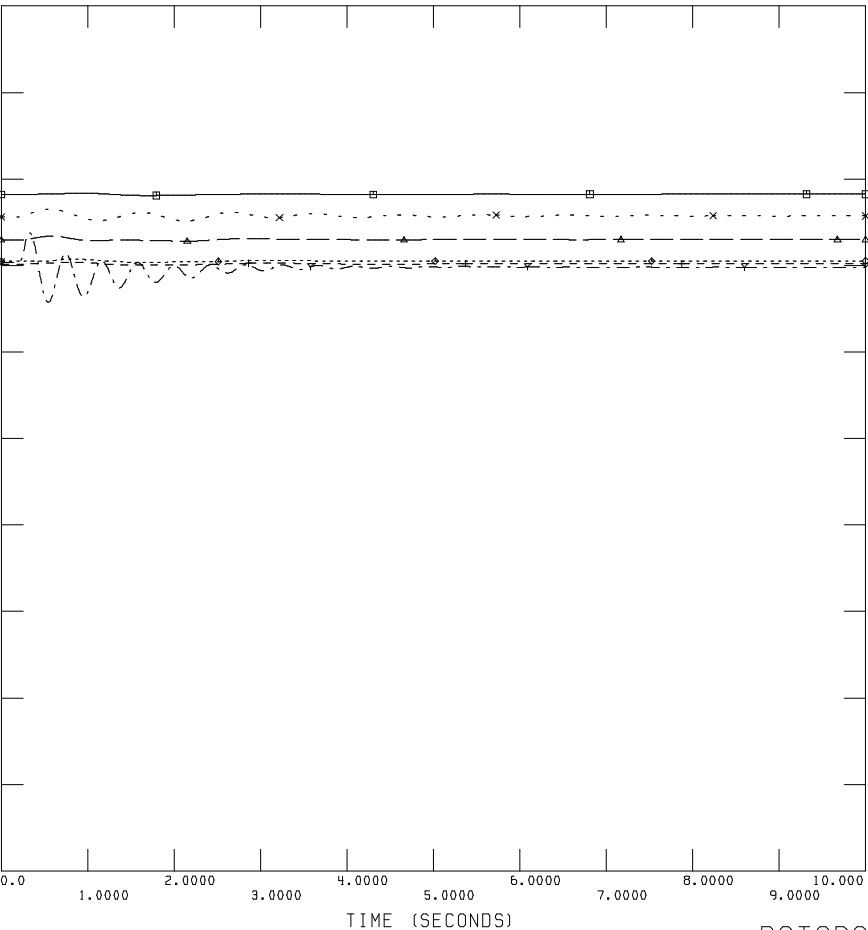
180.00 CHNL# 28: [RANGL 70344 [R.F.DSL54,1600] C1 JJ -180.0

180.00 CHNL# 5: [RANGL 70035 [RRRP4 13,800] C1 JJ -180.0

180.00 CHNL# 15: [RANGL 70106 [CCHEROKY 22,000] C1 JJ -180.0

180.00 CHNL# 96: [RANGL 73532 [LINCOLN113,800] C1 JJ -180.0

180.00 CHNL# 98: [RANGL 79015 [CRAIG 1 22,000] C1 JJ -180.0



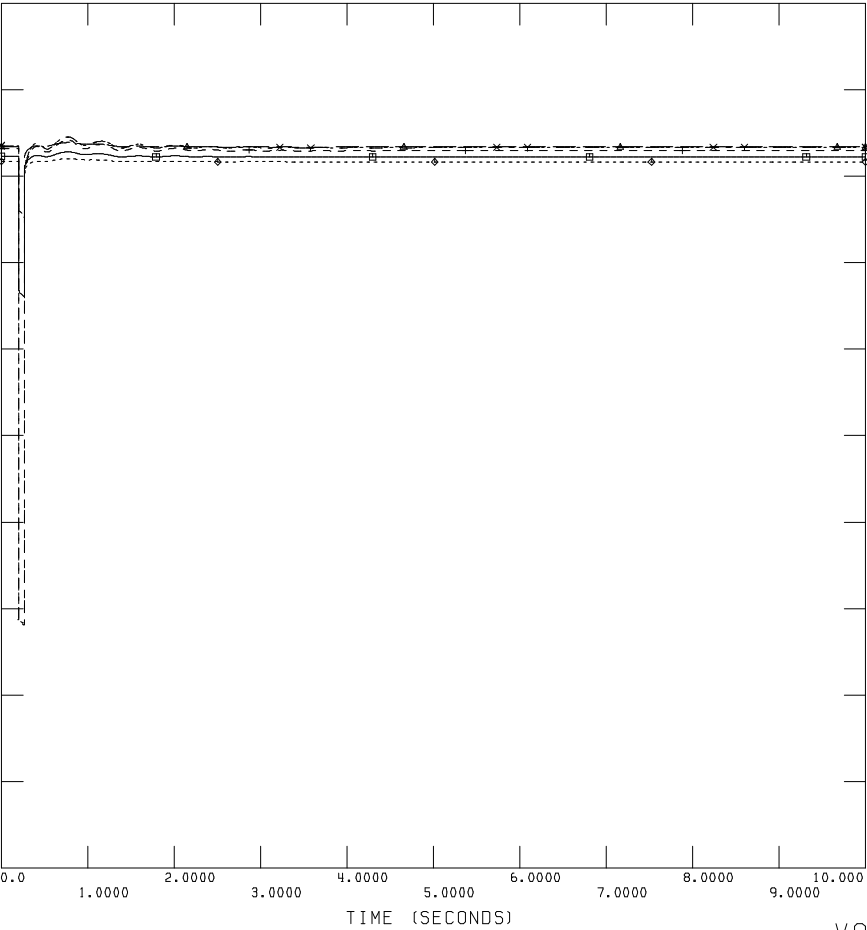
WED, OCT 09 2002 0:59  
ROTORANGLES 2 CON33 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON33-OFF.OUT

|        |                                            |         |
|--------|--------------------------------------------|---------|
| 1.2000 | CHNL # 220: EVOLT 70701 CGOB_KNOB34.50000  | 0.20000 |
| 1.2000 | CHNL # 218: EVOLT 70700 CGOB_KNOB230.00000 | 0.20000 |
| 1.2000 | CHNL # 205: EVOLT 70254 CLAMAR_C0230.00000 | 0.20000 |
| 1.2000 | CHNL # 214: EVOLT 70286 EMIDMHTPS230.00000 | 0.20000 |
| 1.2000 | CHNL # 213: EVOLT 70122 ECOMANCHE230.00000 | 0.20000 |
| 1.2000 | CHNL # 207: EVOLT 70061 EBOONE_230.00000   | 0.20000 |



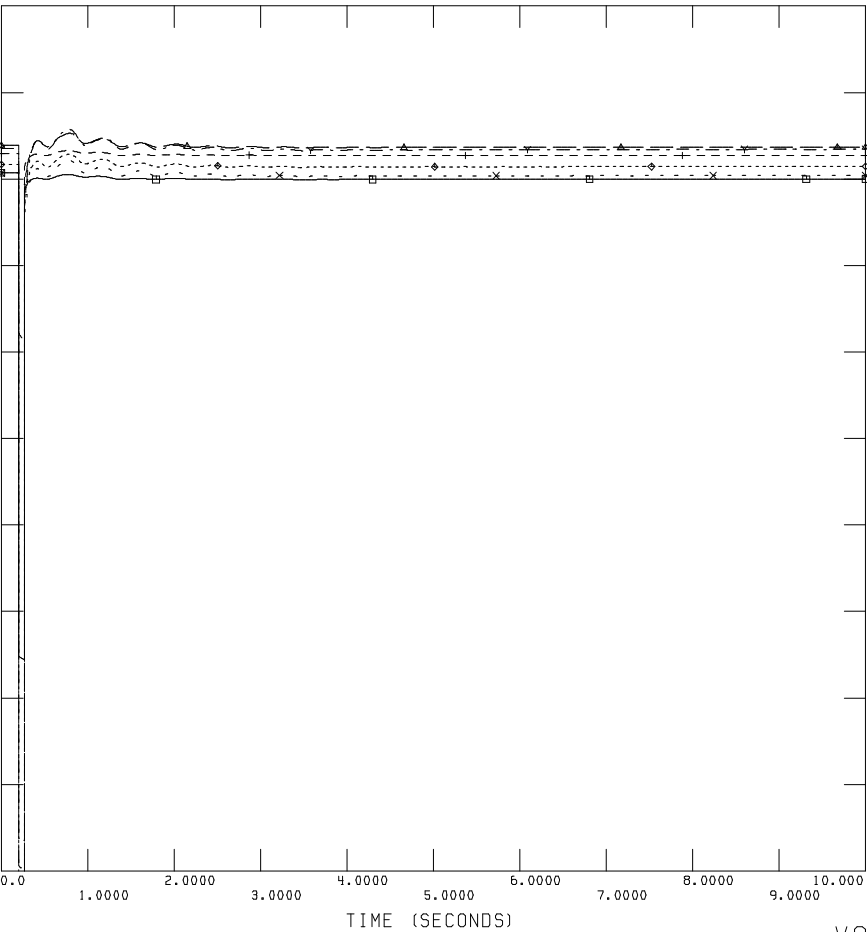
WED, OCT 09 2002 0:59  
VOLTAGE 1 CON33 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON33-OFF.OUT

|        |                                            |         |
|--------|--------------------------------------------|---------|
| 1.2000 | CHNL # 209: EVOLT 70472 CMILDM_CK115.00000 | 0.20000 |
| 1.2000 | CHNL # 208: EVOLT 70060 EBOONE_115.00000   | 0.20000 |
| 1.2000 | CHNL # 206: EVOLT 70253 CLAMAR_C0115.00000 | 0.20000 |
| 1.2000 | CHNL # 212: EVOLT 70452 EVILBS_115.00000   | 0.20000 |
| 1.2000 | CHNL # 210: EVOLT 70247 CLAJUNTAT115.00000 | 0.20000 |



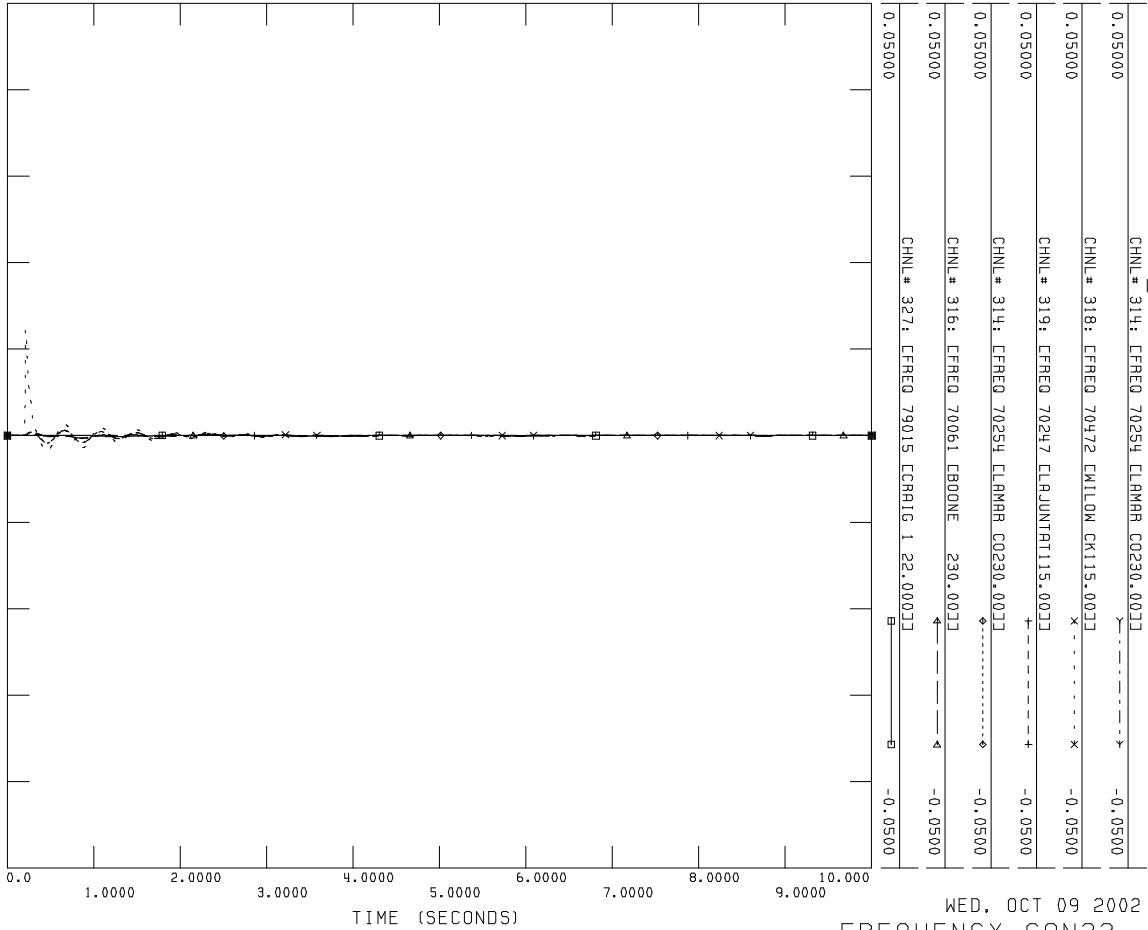
WED, OCT 09 2002 0:59  
VOLTAGE 2 CON33 QMW





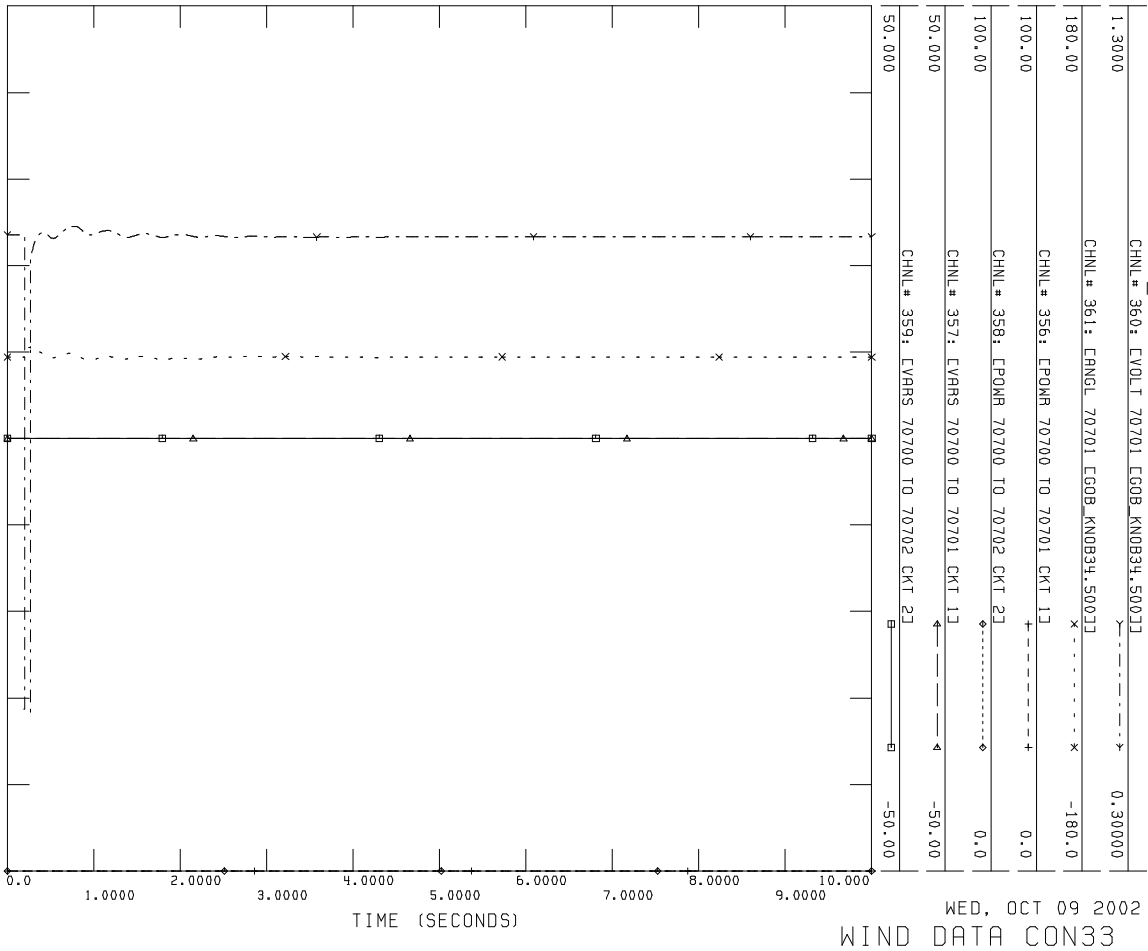
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON33-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON33-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 34 (CON34-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON34-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON LA JUNTA BUS 70247  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM BOONE 115 KV BUS 70060 TO LA JUNTA BUS 70247  
CLEAR FAULT AT LA JUNTA BUS 70247  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON34-OFF.OUT

CHNL# 111: CANGL 70701 CCRB 14.5000 C1 JJ

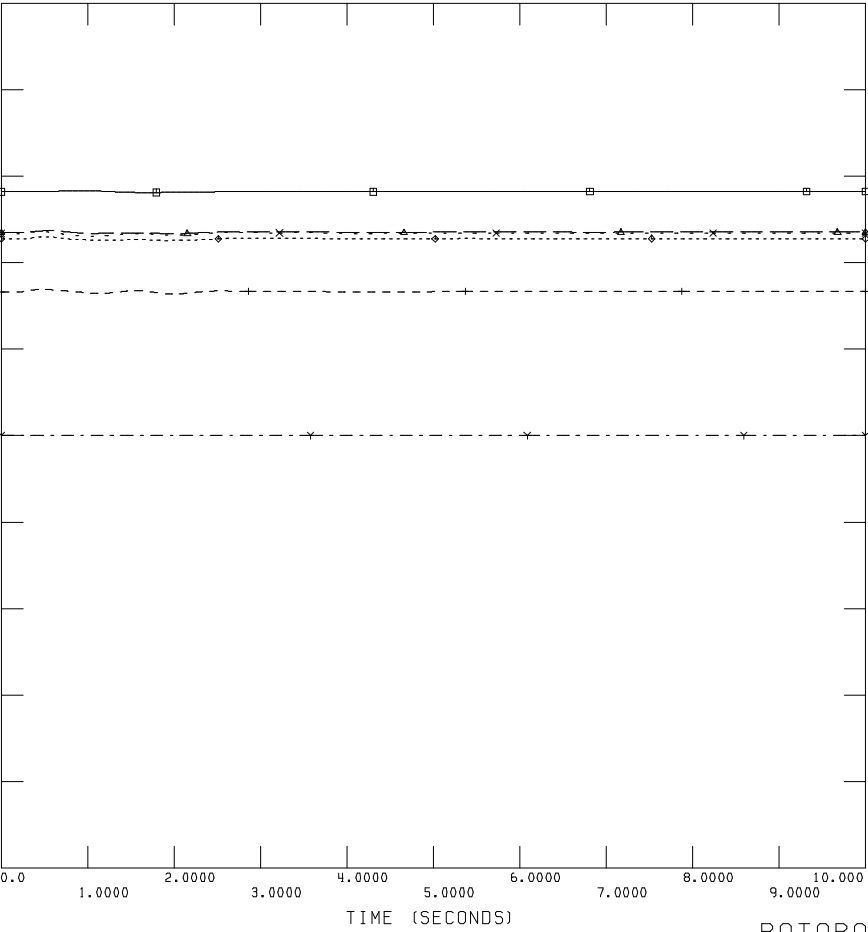
180.00 CHNL# 17: CANGL 70120 ECOMAN 2.24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRBKE 7.13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1.22.0000 C1 JJ -180.0



WED, OCT 09 2002 0:59  
ROTORANGLES 1 CON34



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON34-OFF.OUT

CHNL# 18: CANGL 70133 CCRB 14.5000 C1 JJ

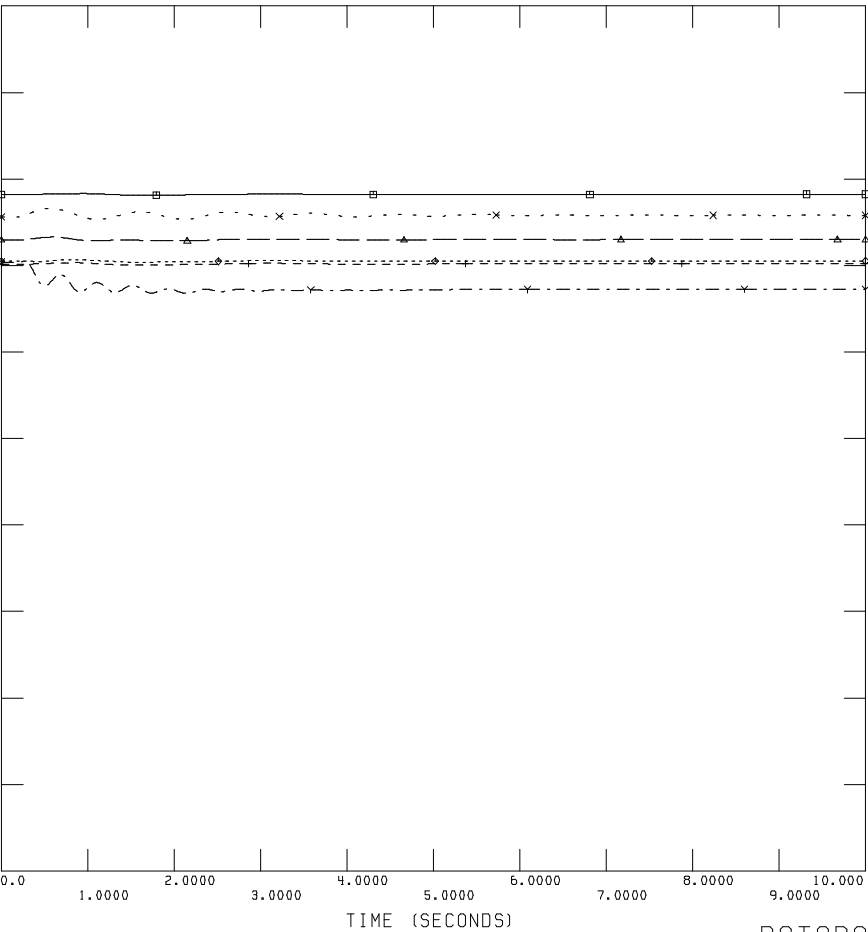
180.00 CHNL# 28: CANGL 70344 CR.F.DSL54.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRBP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1.22.0000 C1 JJ -180.0

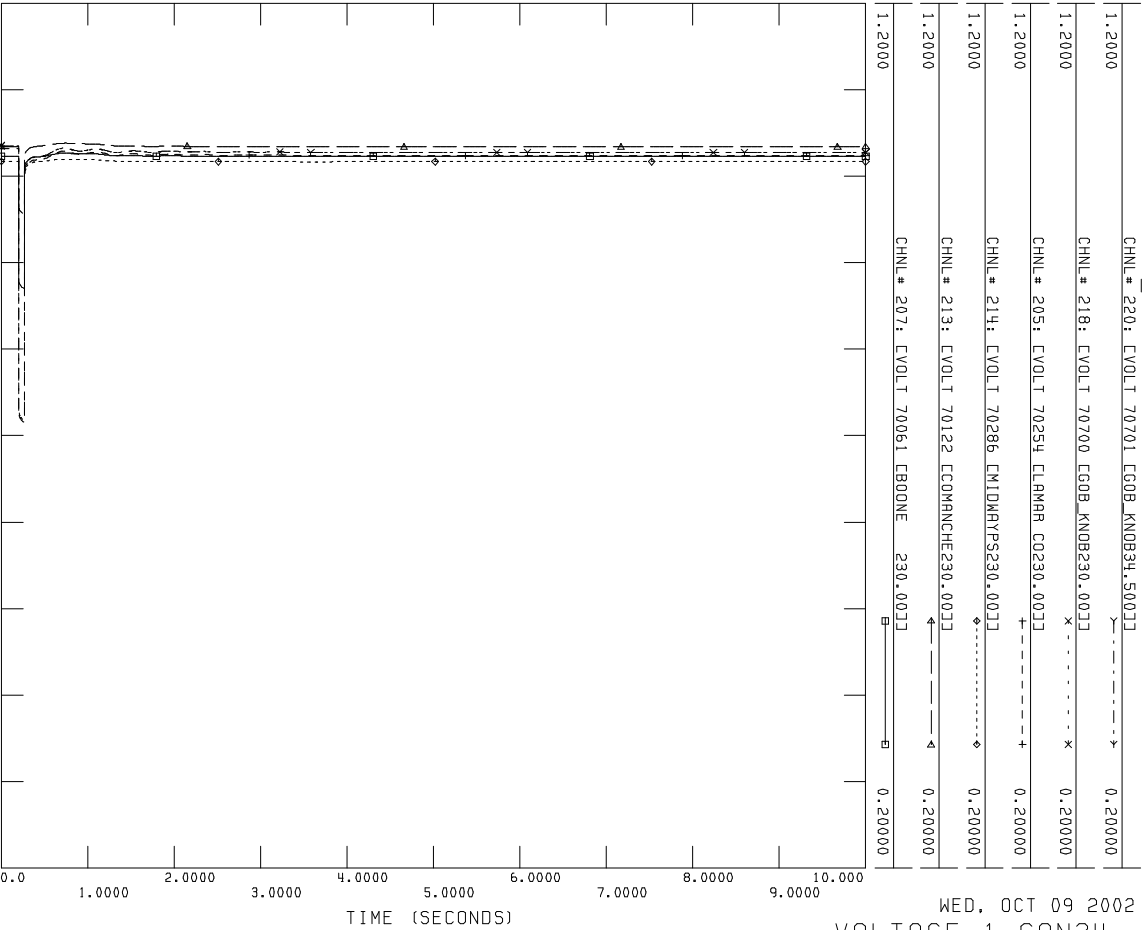


WED, OCT 09 2002 0:59  
ROTORANGLES 2 CON34



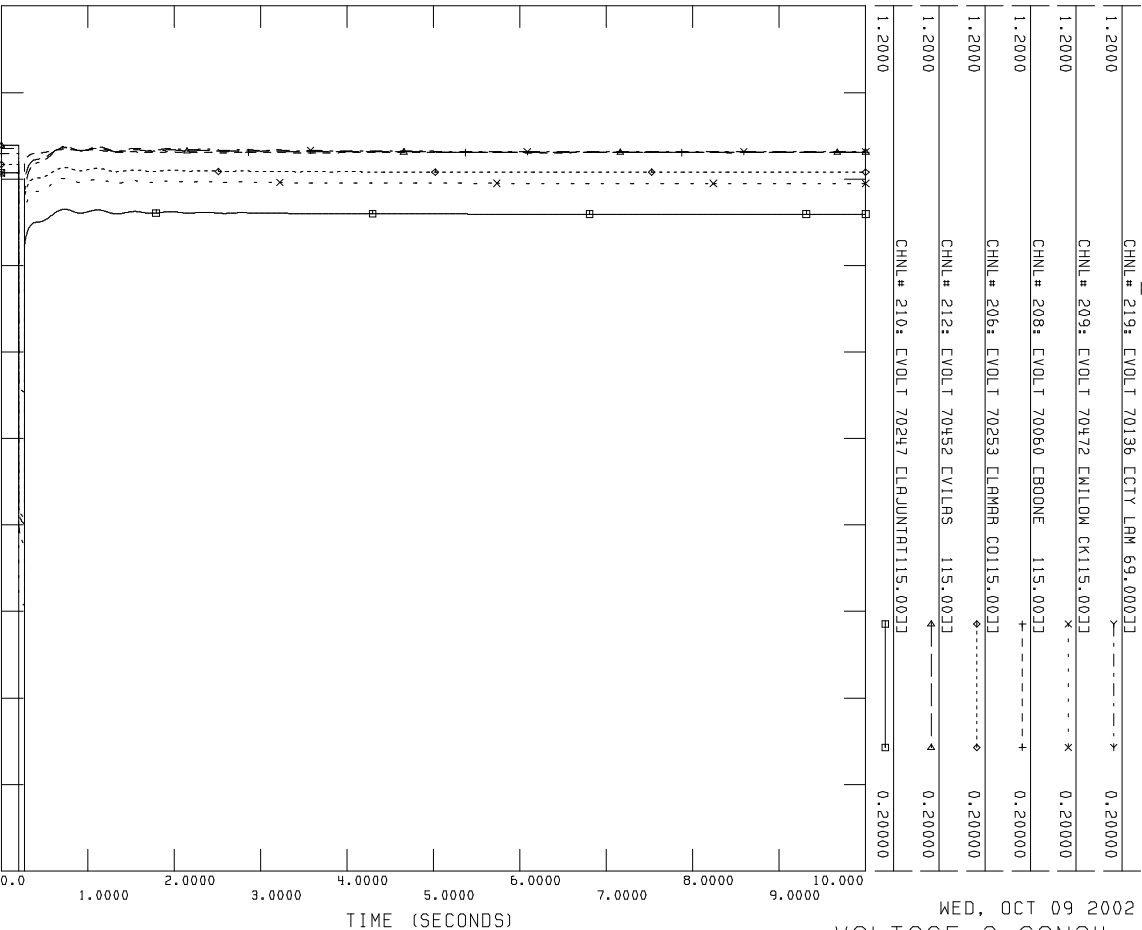
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON34-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

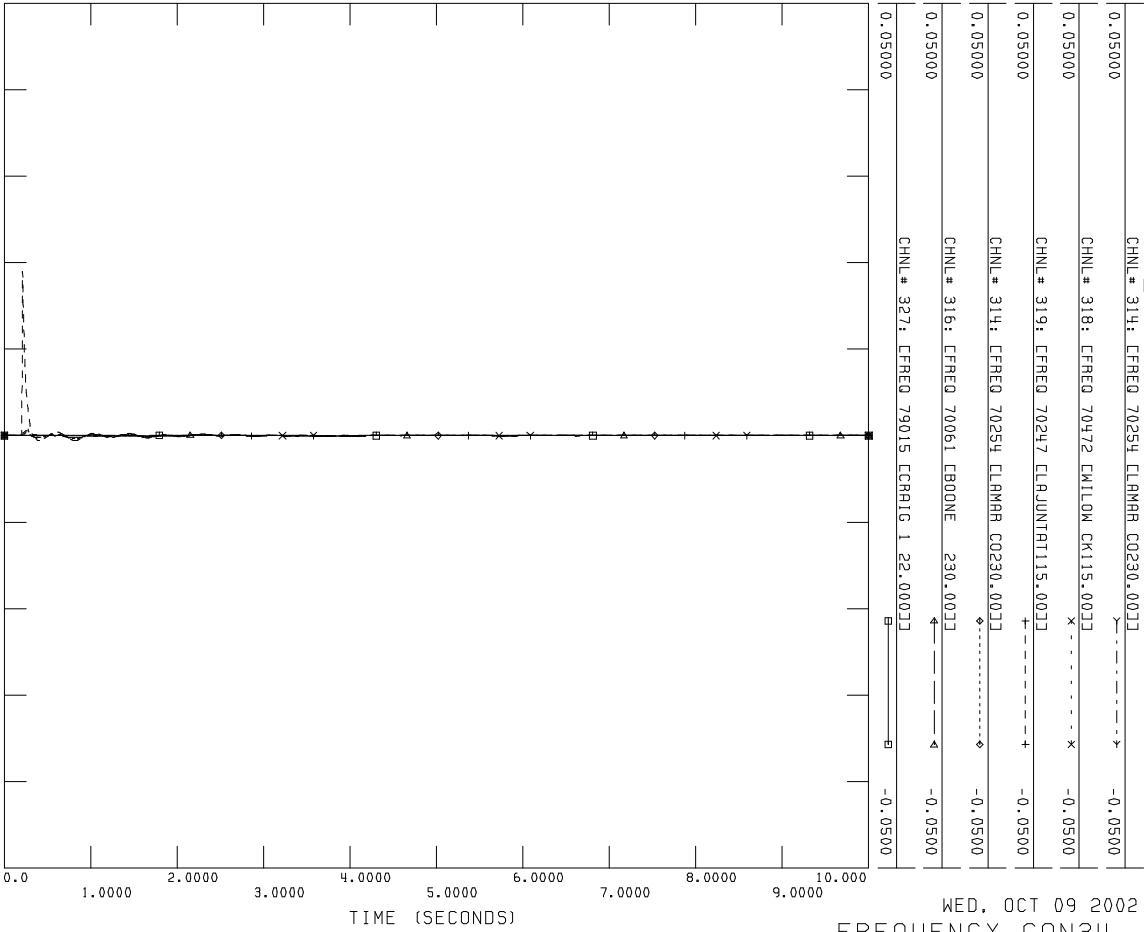
FILE: C:\Xcel\_windfarm\2003\new-offs\CON34-OFF.OUT





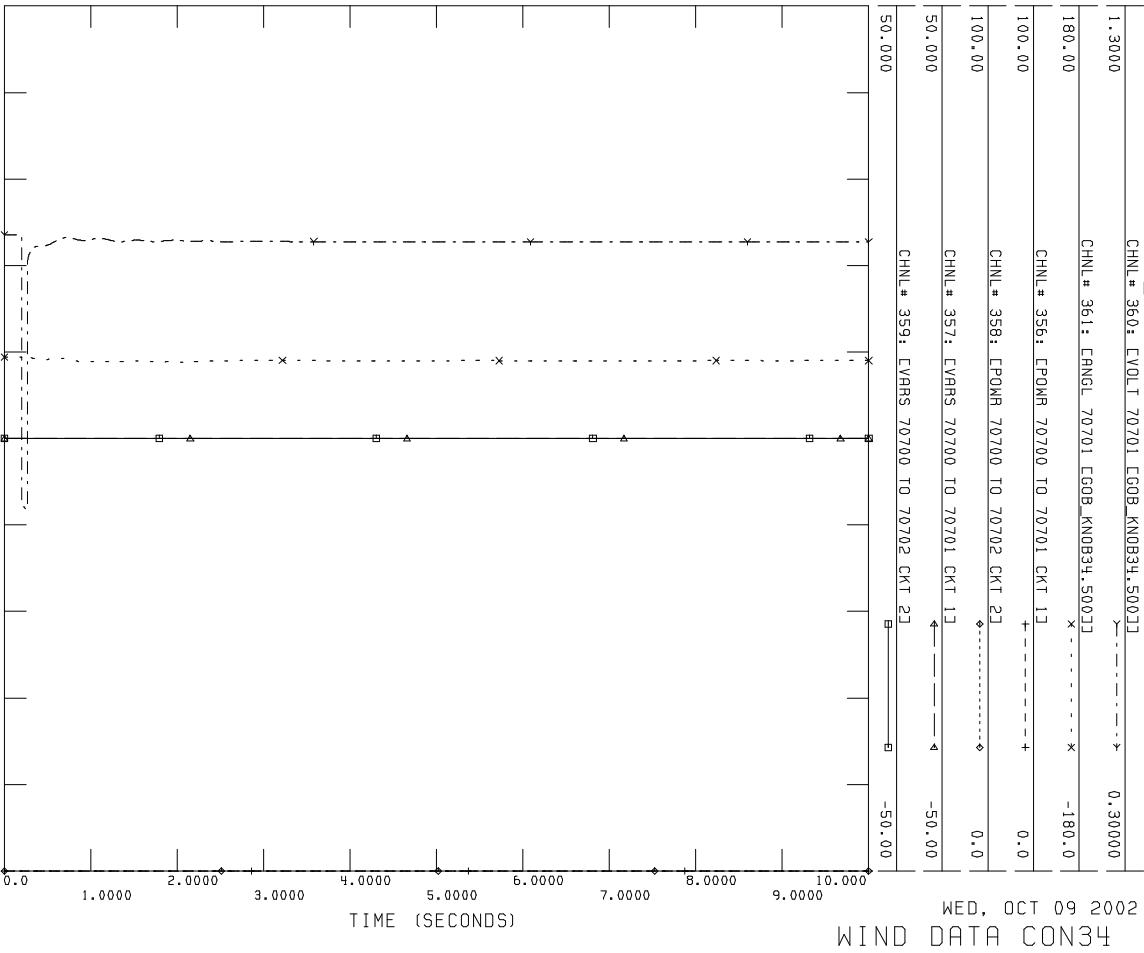
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON34-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON34-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 35 (CON35-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON35-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON LA JUNTA WEST BUS 70249  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP LINE FROM BOONE 115 KV BUS 70060 TO LA JUNTA WEST BUS 70249  
CLEAR FAULT AT LA JUNTA WEST BUS 70249  
RUN TO 10 SECONDS PRINT 10 PLOT 1

END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON35-OFF.OUT

CHNL# 111: CANGL 70701 CCRB 79015 CCRB1G 1 22.0000 C1 JJ

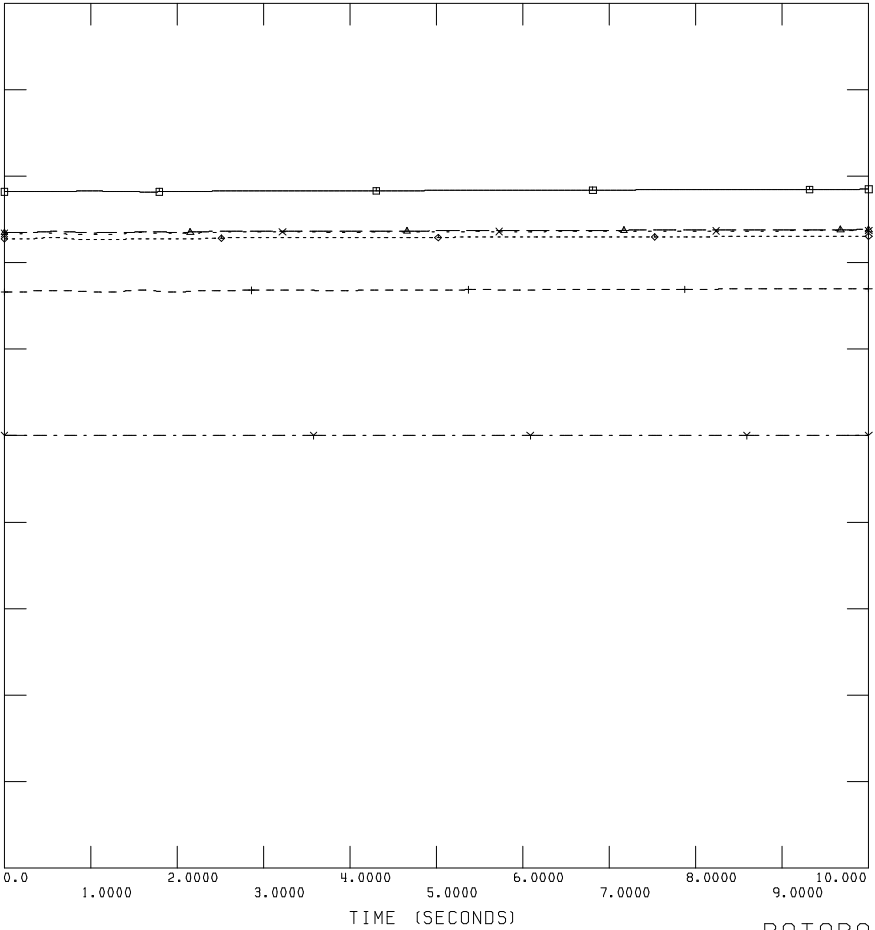
180.00 CHNL# 17: CANGL 70120 ECOMAN 2 24.0000 C1 JJ -180.0

180.00 CHNL# 26: CANGL 70337 CPUEBL0 14.0000 C1 JJ -180.0

180.00 CHNL# 88: CANGL 73418 CRD NIXON20.0000 C1 JJ -180.0

180.00 CHNL# 89: CANGL 73429 CDRAKE 7 13.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1 22.0000 C1 JJ -180.0



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON35-OFF.OUT

CHNL# 18: CANGL 70133 CCRB 79015 CCRB1G 1 22.0000 C1 JJ

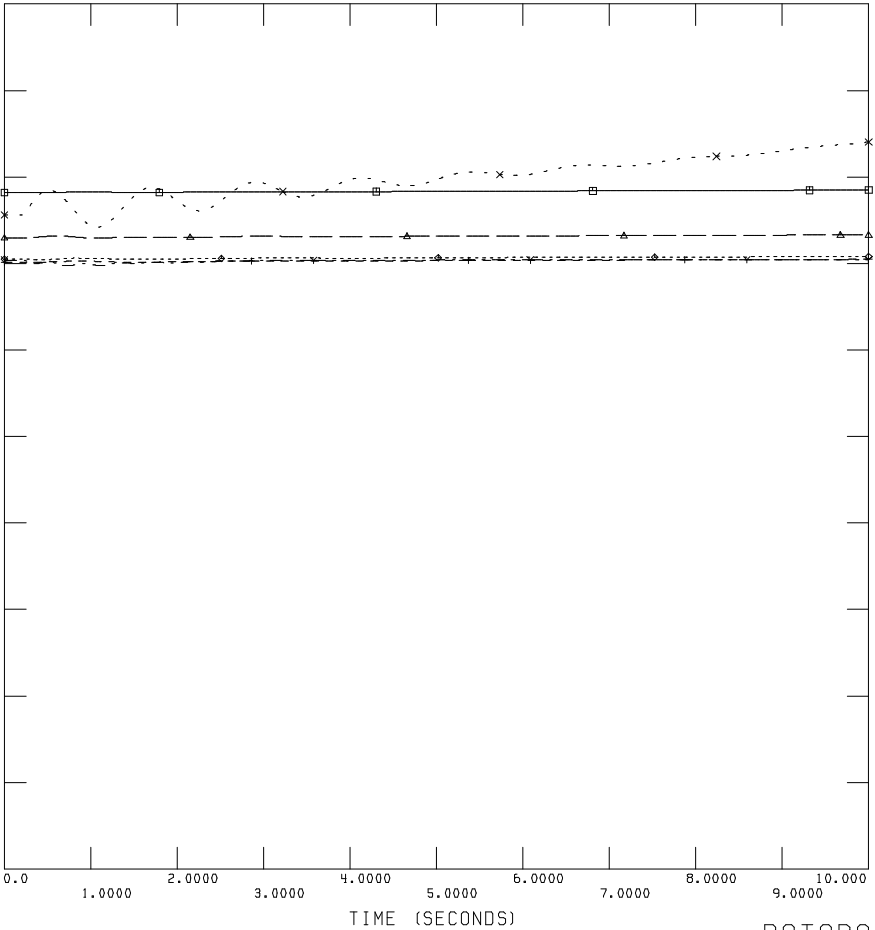
180.00 CHNL# 28: CANGL 70344 CR.F.DSLSH.16000 C1 JJ -180.0

180.00 CHNL# 5: CANGL 70035 CRRBP4 13.8000 C1 JJ -180.0

180.00 CHNL# 15: CANGL 70106 CCHEROKY 22.0000 C1 JJ -180.0

180.00 CHNL# 96: CANGL 73532 CLINCOLN113.8000 C1 JJ -180.0

180.00 CHNL# 98: CANGL 79015 CCRB1G 1 22.0000 C1 JJ -180.0

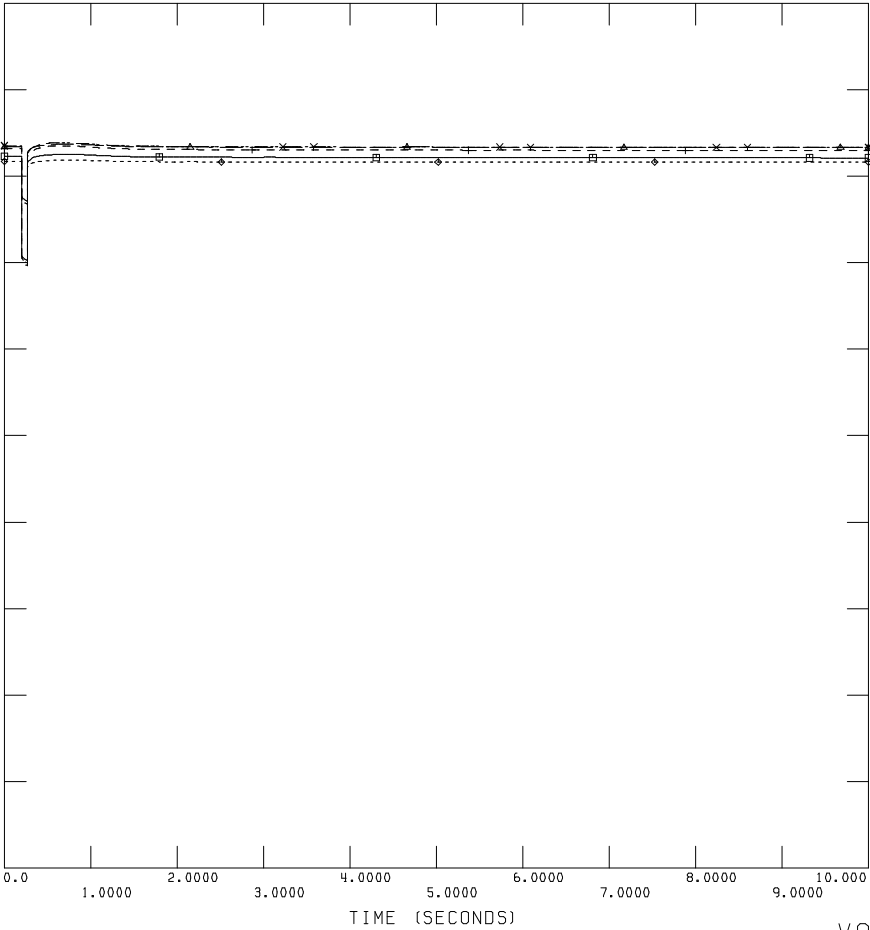




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON35-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 218: EVOLT 70700 CGOB_KNOB230.00JJ | 0.20000 |
| 1.2000 | CHNL # 205: EVOLT 70254 CLAMAR_C0230.00JJ | 0.20000 |
| 1.2000 | CHNL # 214: EVOLT 70286 EMIDMHTPS230.00JJ | 0.20000 |
| 1.2000 | CHNL # 213: EVOLT 70122 ECOMANCHE230.00JJ | 0.20000 |
| 1.2000 | CHNL # 207: EVOLT 70061 EBOONE_230.00JJ   | 0.20000 |



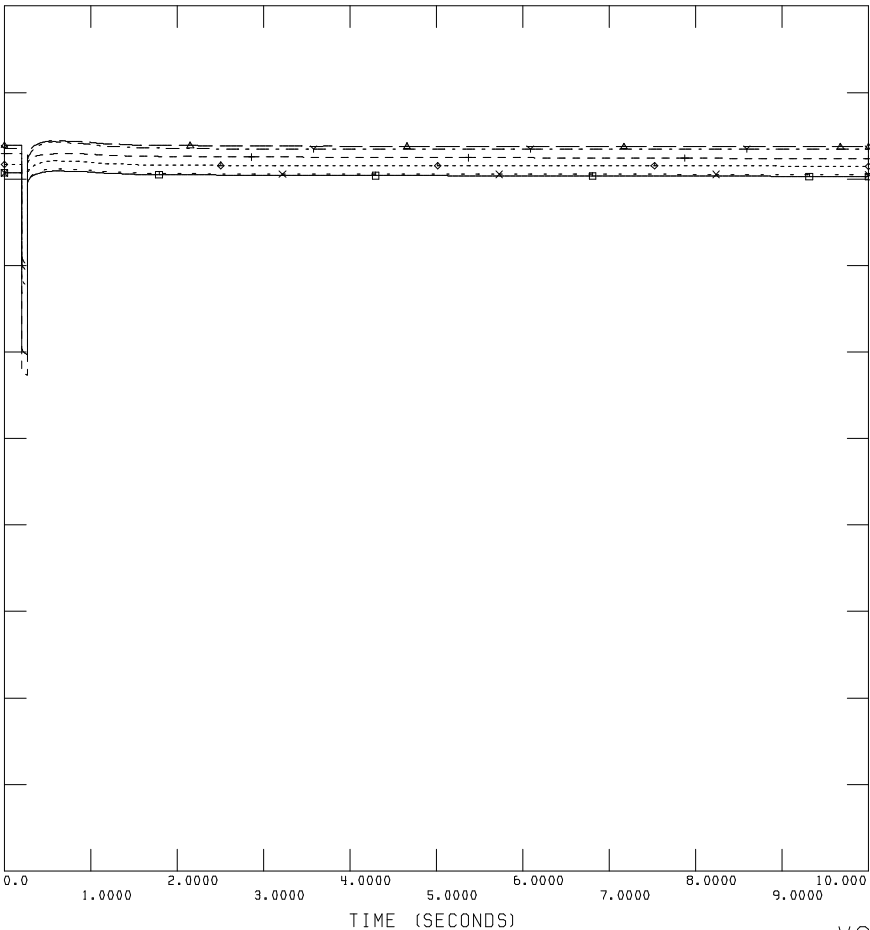
WED, OCT 09 2002 1:00  
VOLTAGE 1 CON35 0MM



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON35-OFF.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL # 209: EVOLT 70472 CMILDM_CK115.00JJ | 0.20000 |
| 1.2000 | CHNL # 208: EVOLT 70060 EBOONE_115.00JJ   | 0.20000 |
| 1.2000 | CHNL # 206: EVOLT 70253 CLAMAR_C0115.00JJ | 0.20000 |
| 1.2000 | CHNL # 212: EVOLT 70452 EVILBS_115.00JJ   | 0.20000 |
| 1.2000 | CHNL # 210: EVOLT 70247 CLAJUNTAT115.00JJ | 0.20000 |



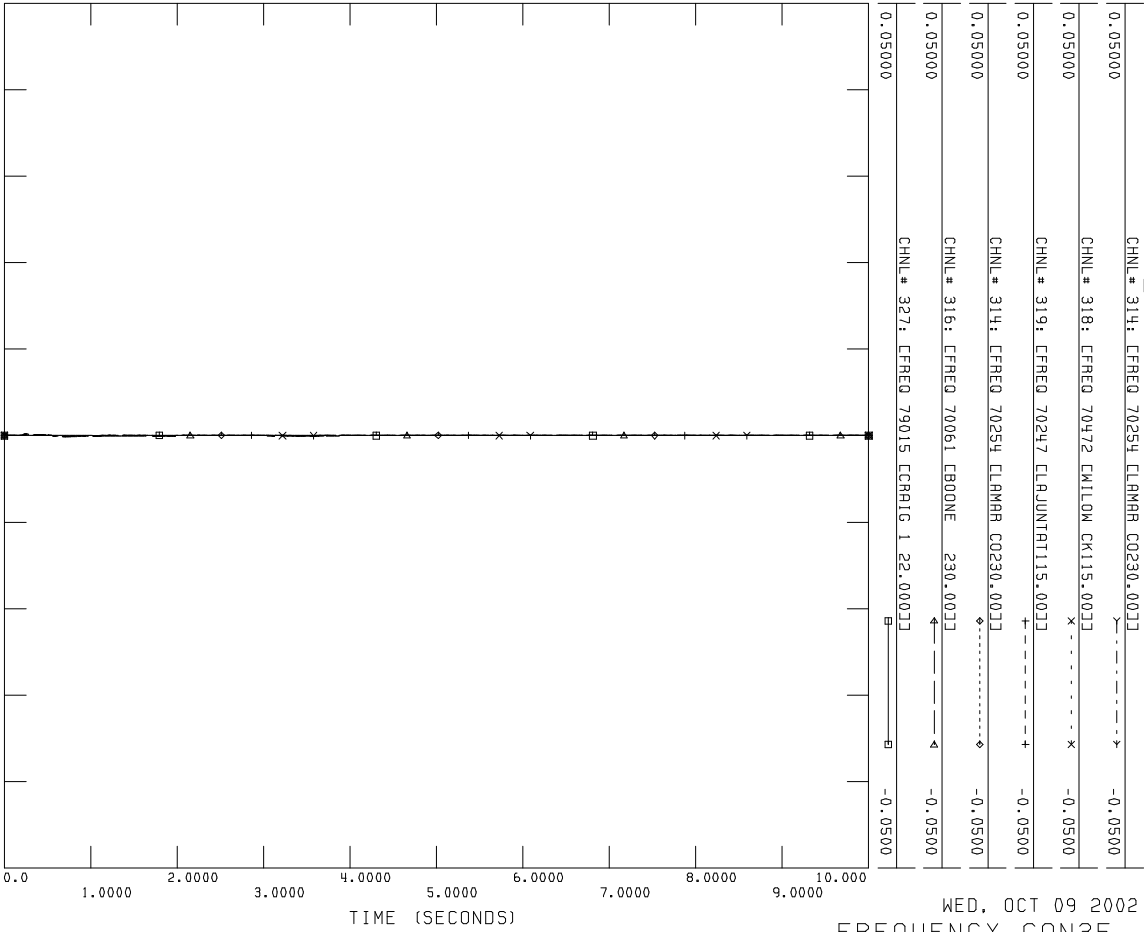
WED, OCT 09 2002 1:00  
VOLTAGE 2 CON35 0MM





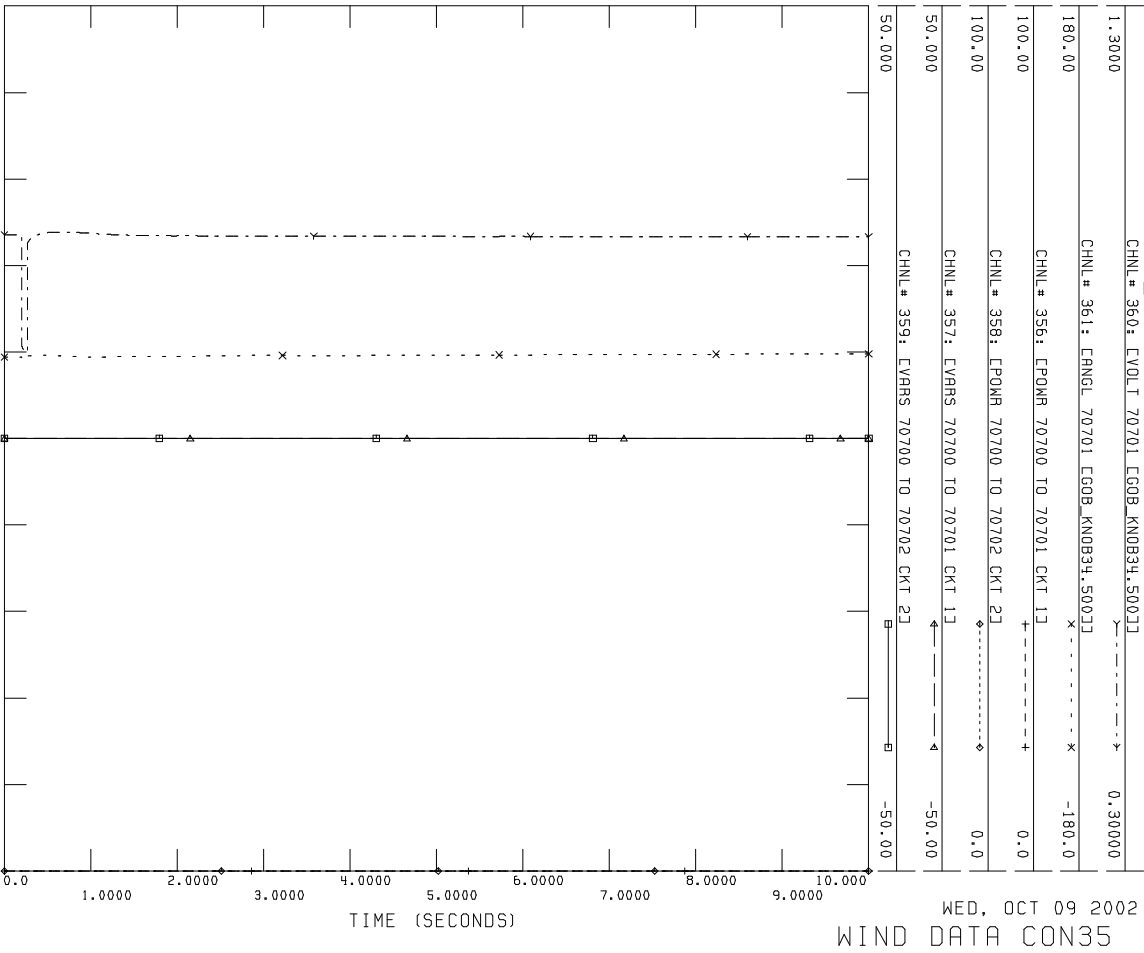
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON35-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON35-OFF.OUT



WIND FARM OFF-LINE: SIMULATION RUN 36 (CON3-OFF)

RECOVER FROM 03NEW7073C-CHANNELS.SNP AND 03NEW7073C.SAV  
START OUTPUT CON36-OFF.OUT  
RUN TO 0.2 SECONDS PRINT 5 PLOT 1  
APPLY FAULT ON WILLOW CREEK 69 NKV BUS 70473  
RUN FOR 4 CYCLES PRINT 5 PLOT 1  
TRIP BRANCH FROM WILLOW CREEK 115 KV BUS 70472 TO WILLOW CREEK 69 NKV BUS  
70473  
CLEAR FAULT AT WILLOW CREEK 69 NKV BUS 70473  
RUN TO 10 SECONDS PRINT 10 PLOT 1  
  
END



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON36-OFF.OUT

CHNL# 11: [RANGL 7070] [CGR\_KNOB34.500] C1 JJ

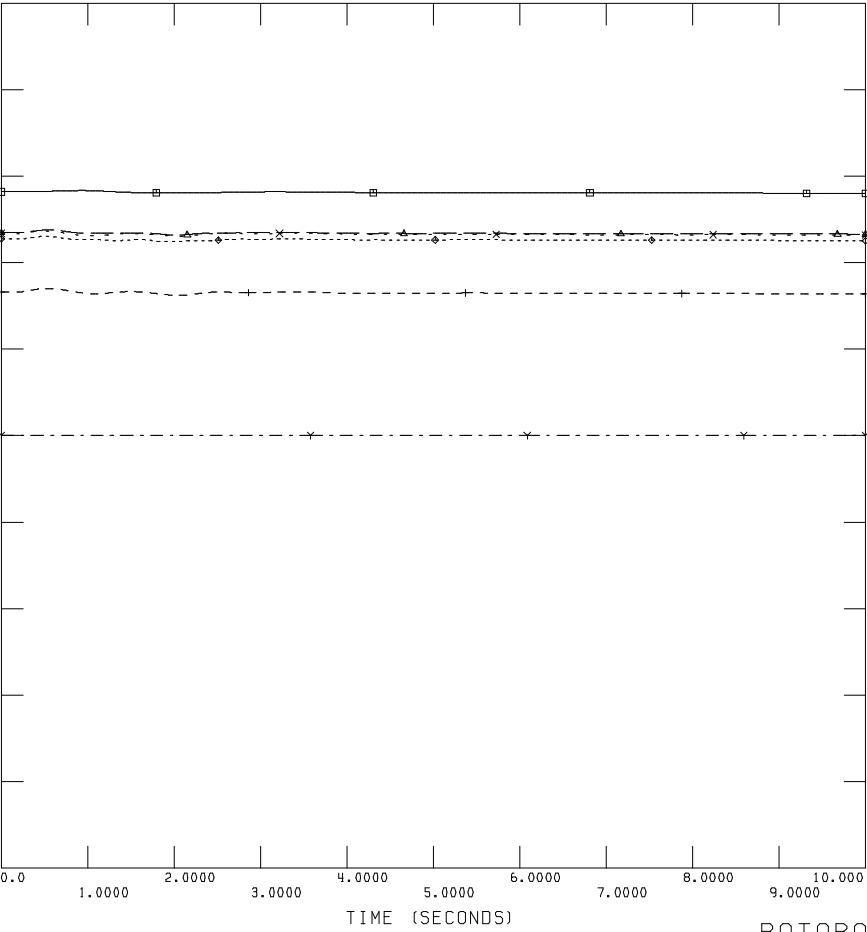
180.00 CHNL# 17: [RANGL 70120] [CCOMAN 2.24.000] C1 JJ -180.0

180.00 CHNL# 26: [RANGL 70337] [CPUEBL0 14.000] C1 JJ -180.0

180.00 CHNL# 88: [RANGL 73418] [RD\_NIXON20.000] C1 JJ -180.0

180.00 CHNL# 89: [RANGL 73429] [CDRAKE 7.13.800] C1 JJ -180.0

180.00 CHNL# 98: [RANGL 79015] [CRAIG 1.22.000] C1 JJ -180.0



WED, OCT 09 2002 1:00  
ROTORANGLES 1 CON36 QMW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\windfarm\2003\new-offs\CON36-OFF.OUT

CHNL# 18: [RANGL 70133] [CTY\_LRM 14.400] C1 JJ

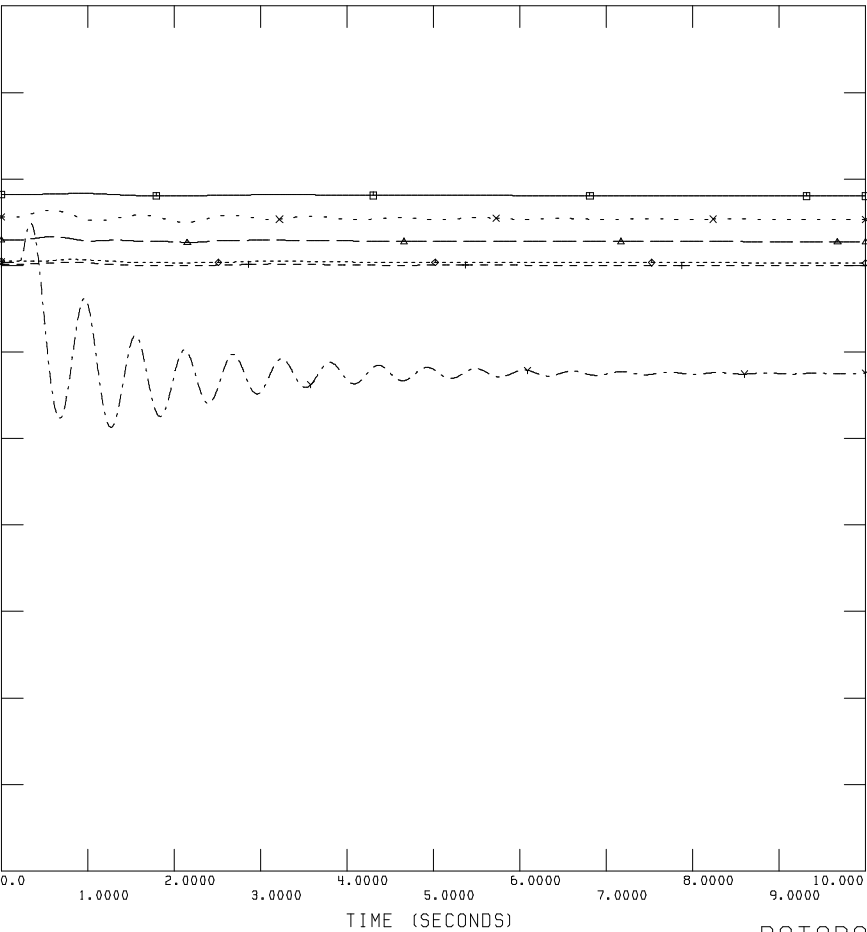
180.00 CHNL# 28: [RANGL 70344] [R.F.DSL54.1600] C1 JJ -180.0

180.00 CHNL# 5: [RANGL 70035] [CRRAP4 13.800] C1 JJ -180.0

180.00 CHNL# 15: [RANGL 70106] [CCHEROKY 22.000] C1 JJ -180.0

180.00 CHNL# 96: [RANGL 73532] [CLINCOLN113.800] C1 JJ -180.0

180.00 CHNL# 98: [RANGL 79015] [CRAIG 1.22.000] C1 JJ -180.0

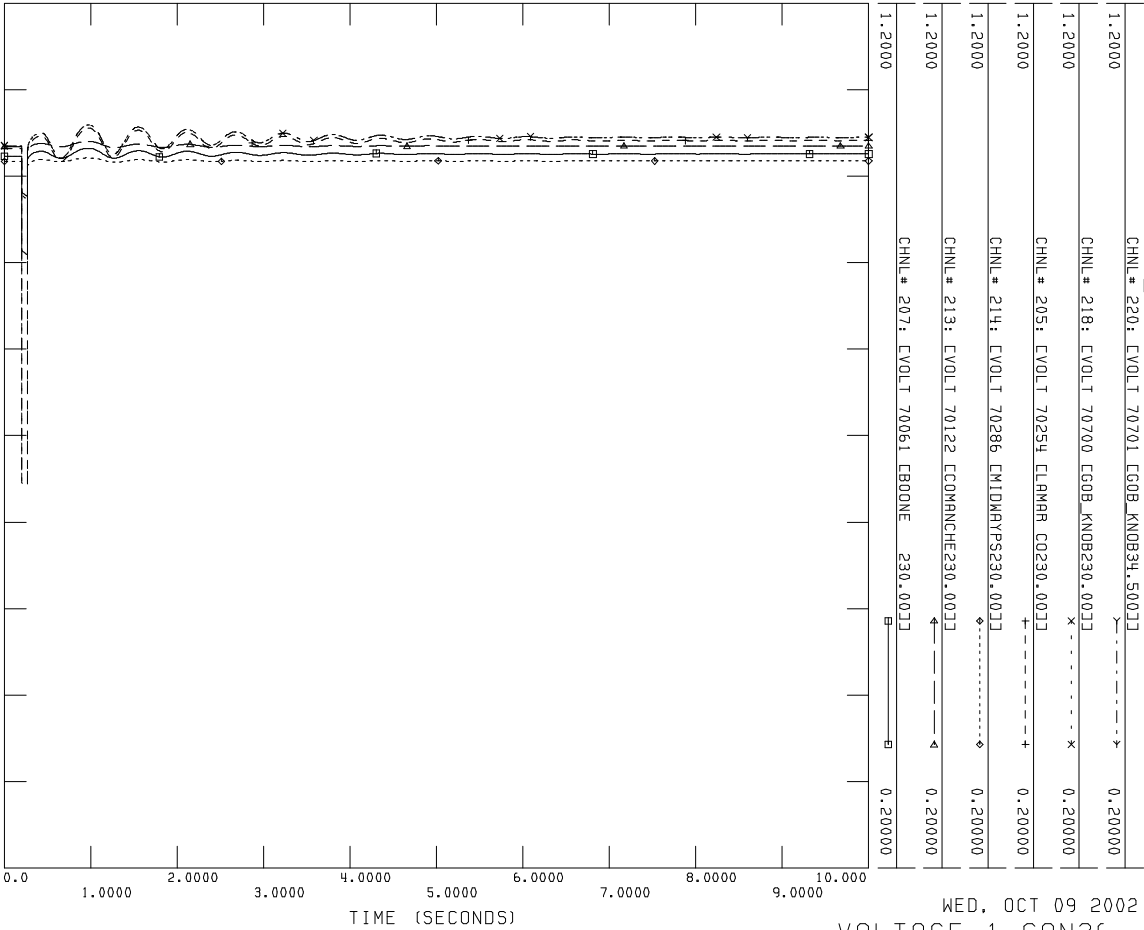


WED, OCT 09 2002 1:00  
ROTORANGLES 2 CON36 QMW



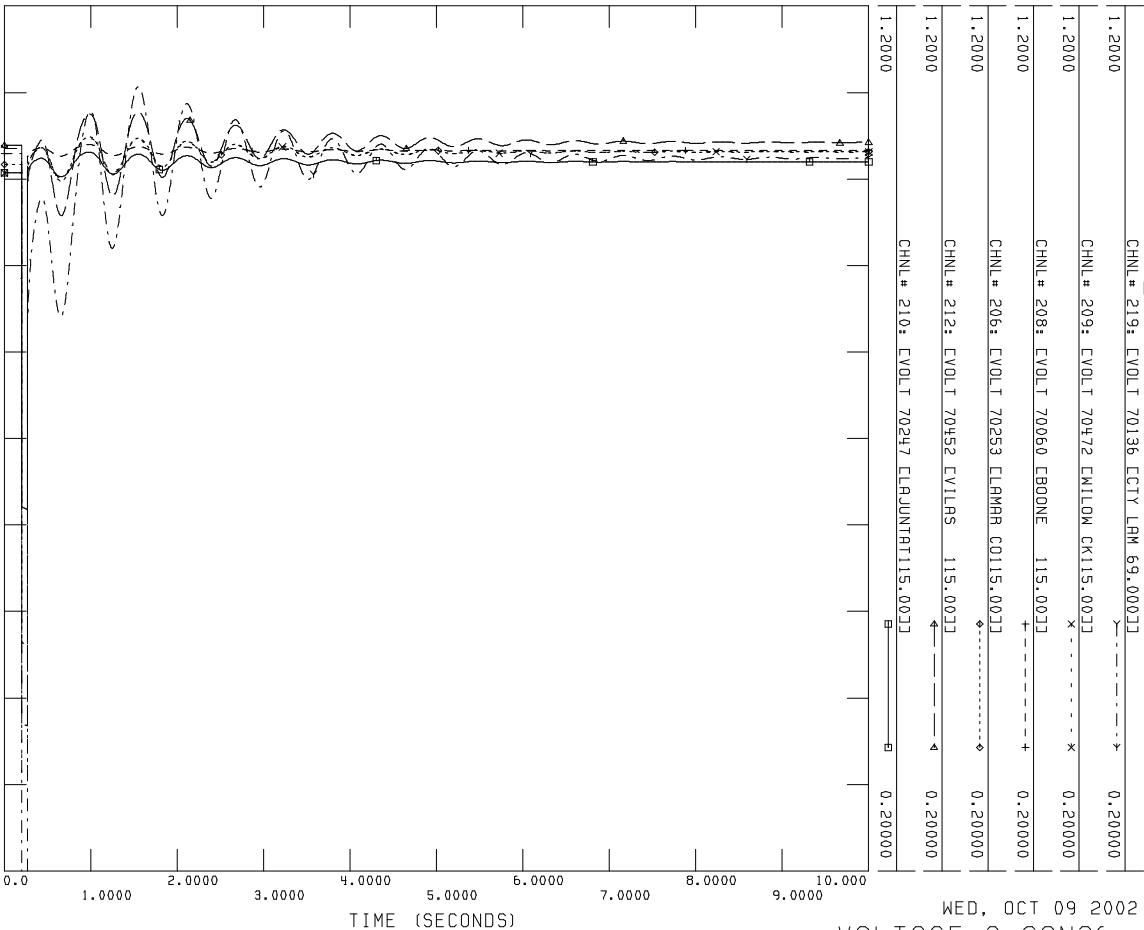
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON36-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

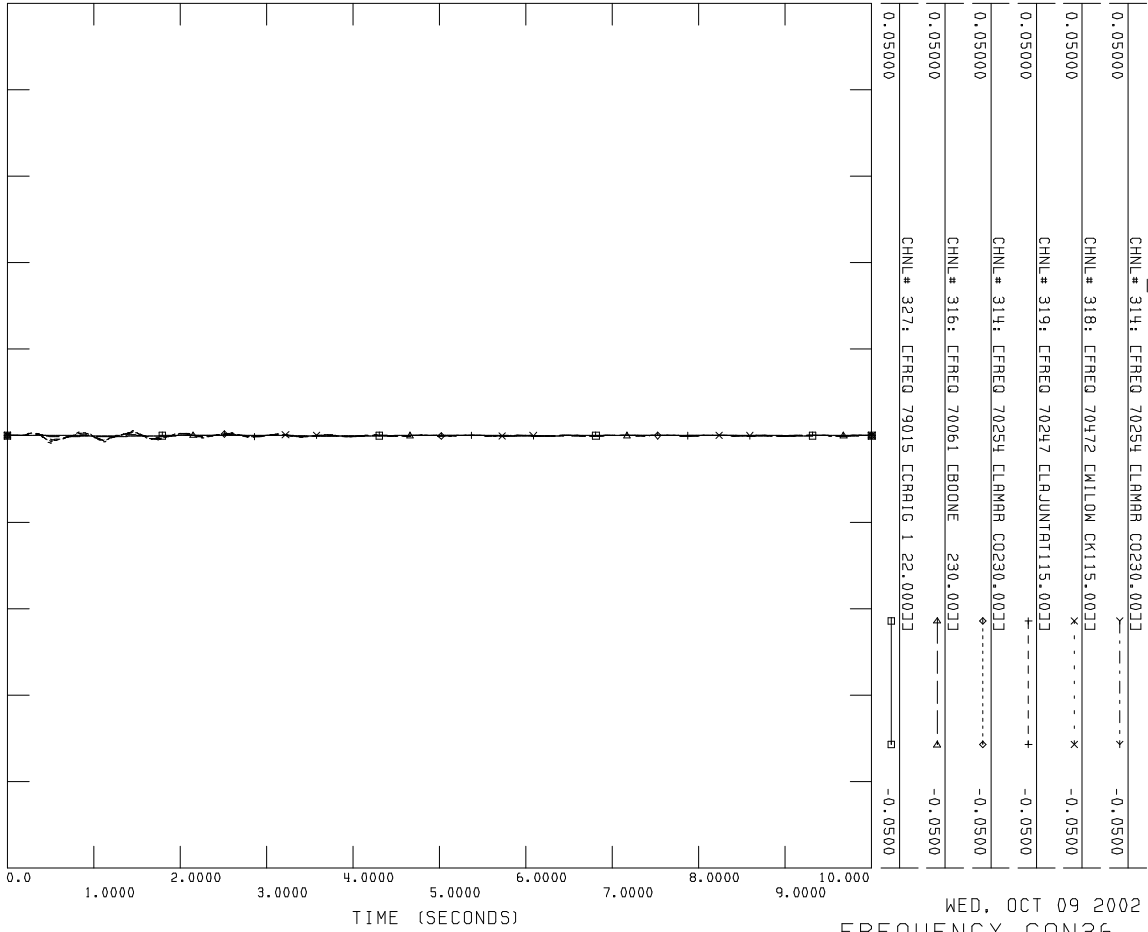
FILE: C:\Xcel\_windfarm\2003\new-offs\CON36-OFF.OUT





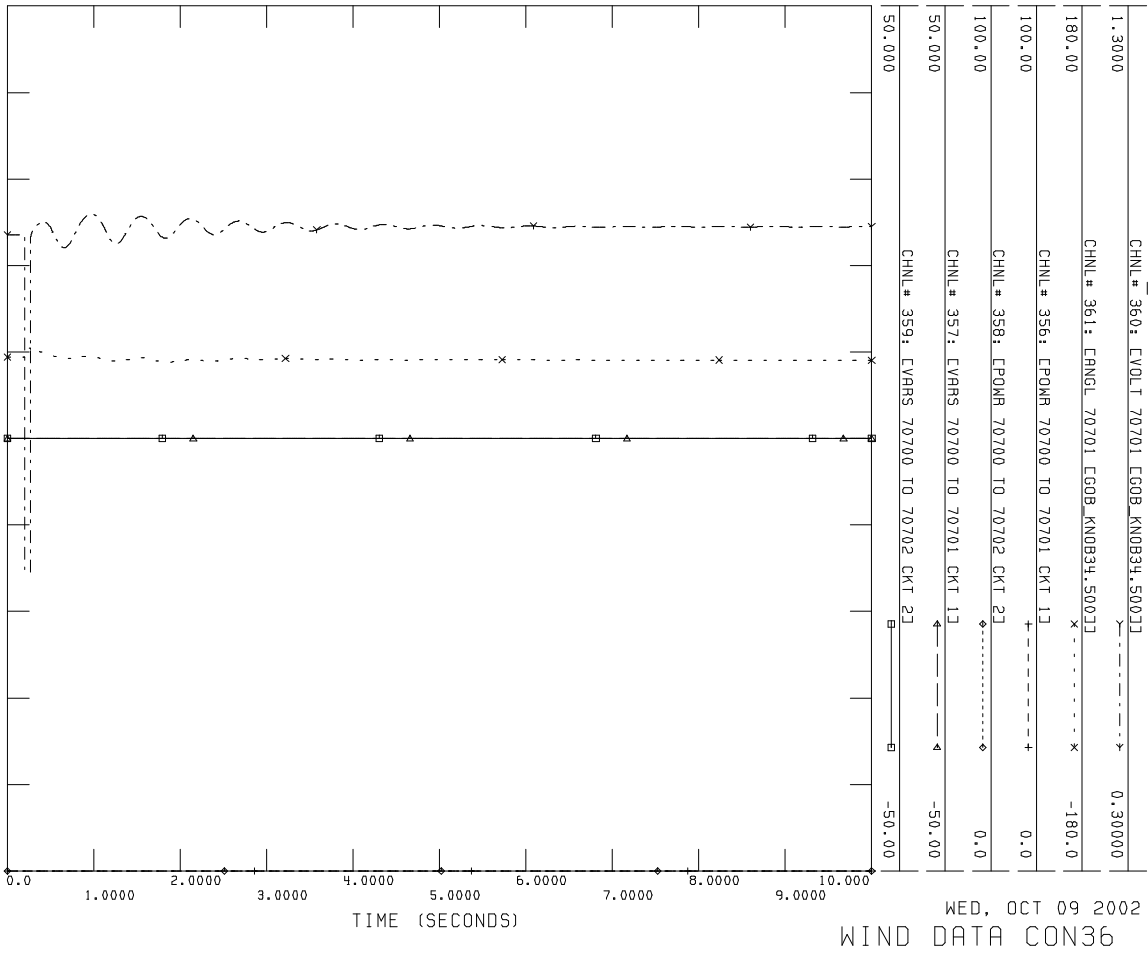
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON36-OFF.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSR7073ADD.SAV  
A/R70,73 FROM 2003 LAMAR WIND CASE 9/25/02 MRC, WIND 0 MM

FILE: C:\Xcel\_windfarm\2003\new-offs\CON36-OFF.OUT

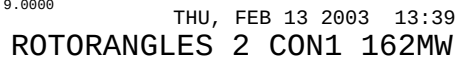
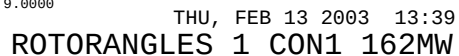




**D-4 - 3-Phase Stability Analysis**

**2003 Base Case**

**With Golden Prairie – Lamar 230-kV Circuit, With Wind Farm Generation**

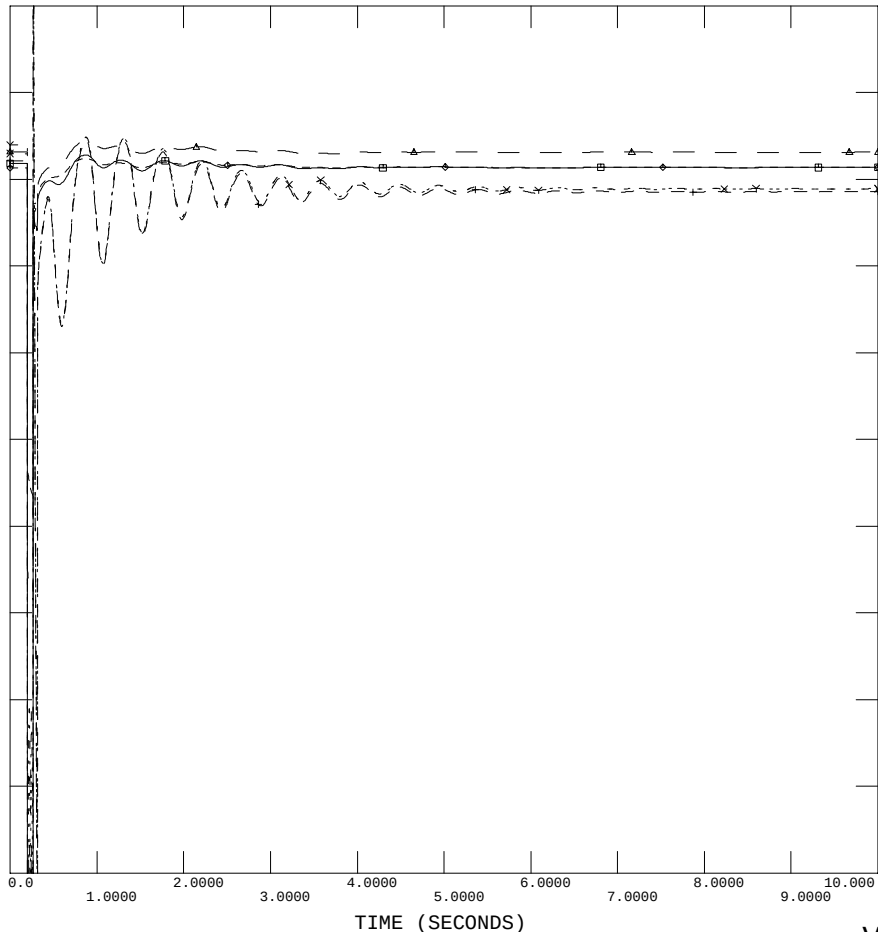




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON1 - FAULT ON BOONE - LAMAR 230 [BOONE END]

FILE: CON1-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR.C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

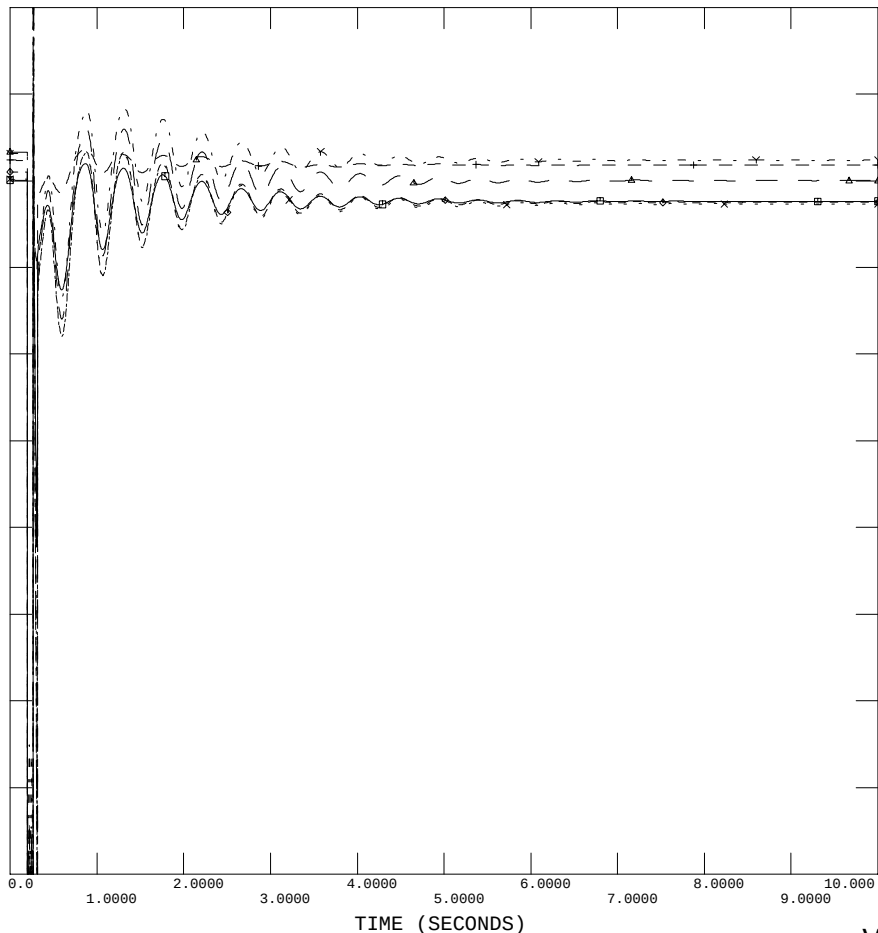


THU, FEB 13 2003 13:39  
VOLTAGE 1 CON1 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON1 - FAULT ON BOONE - LAMAR 230 [BOONE END]

FILE: CON1-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR.C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

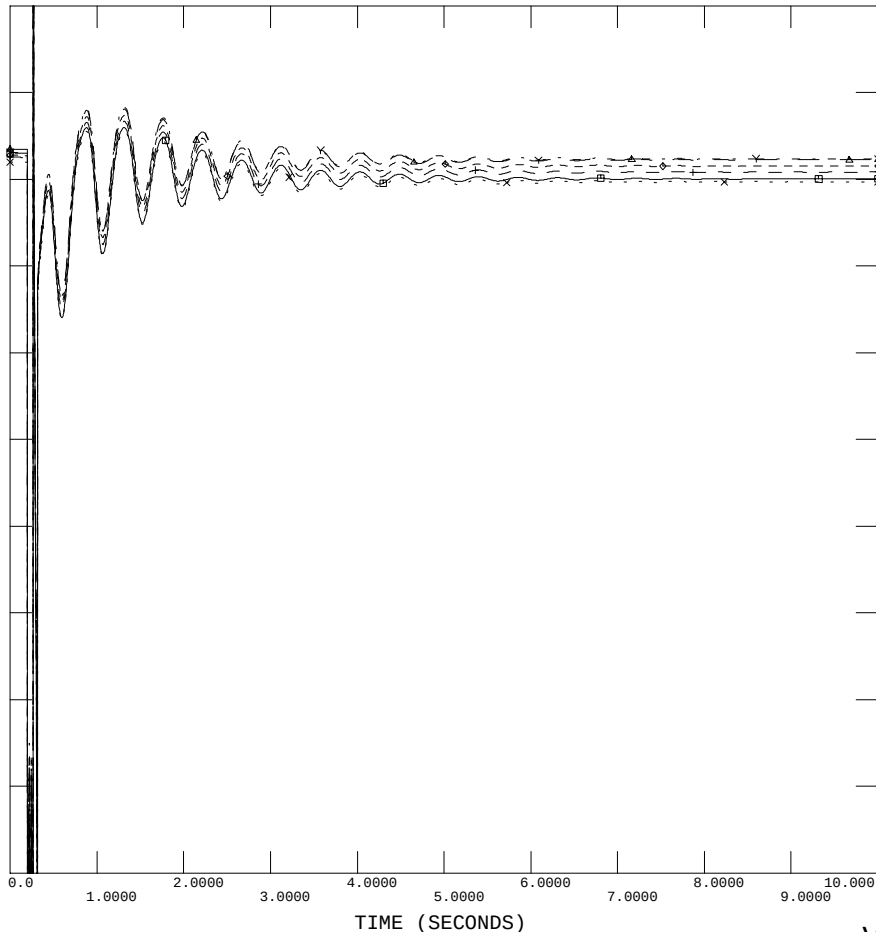


THU, FEB 13 2003 13:39  
VOLTAGE 2 CON1 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON1 - FAULT ON BOONE - LAMAR 230 [BOONE END]

FILE: CON1-ON.OUT

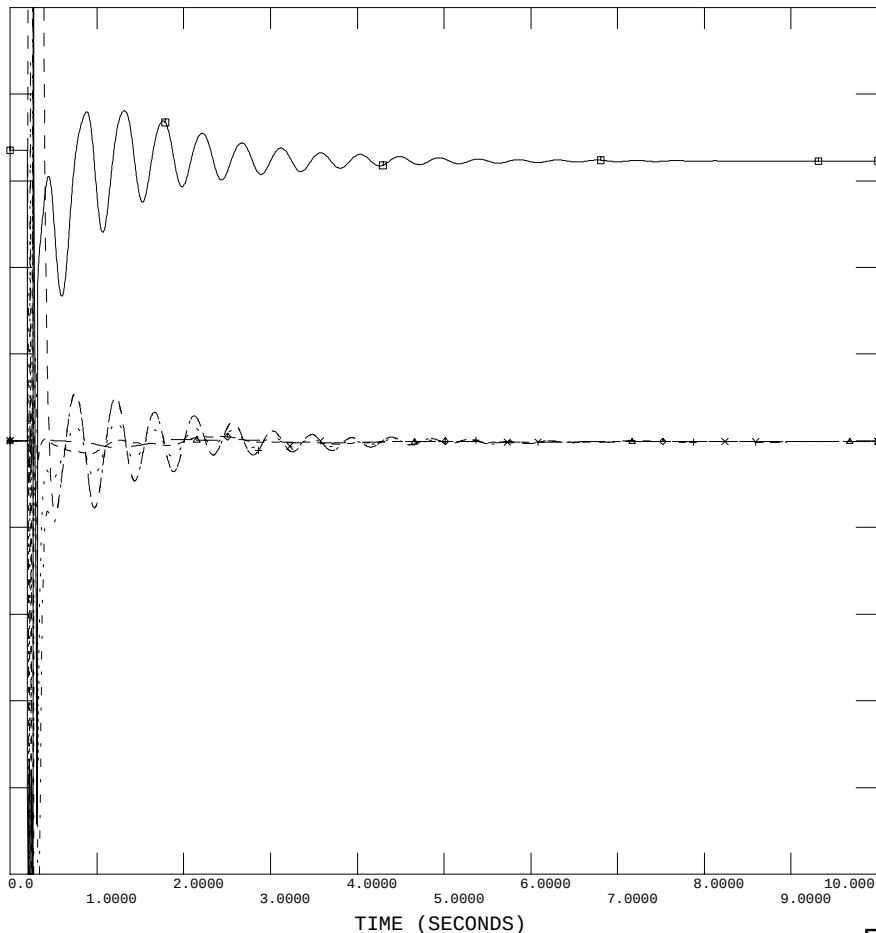
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON1 - FAULT ON BOONE - LAMAR 230 [BOONE END]

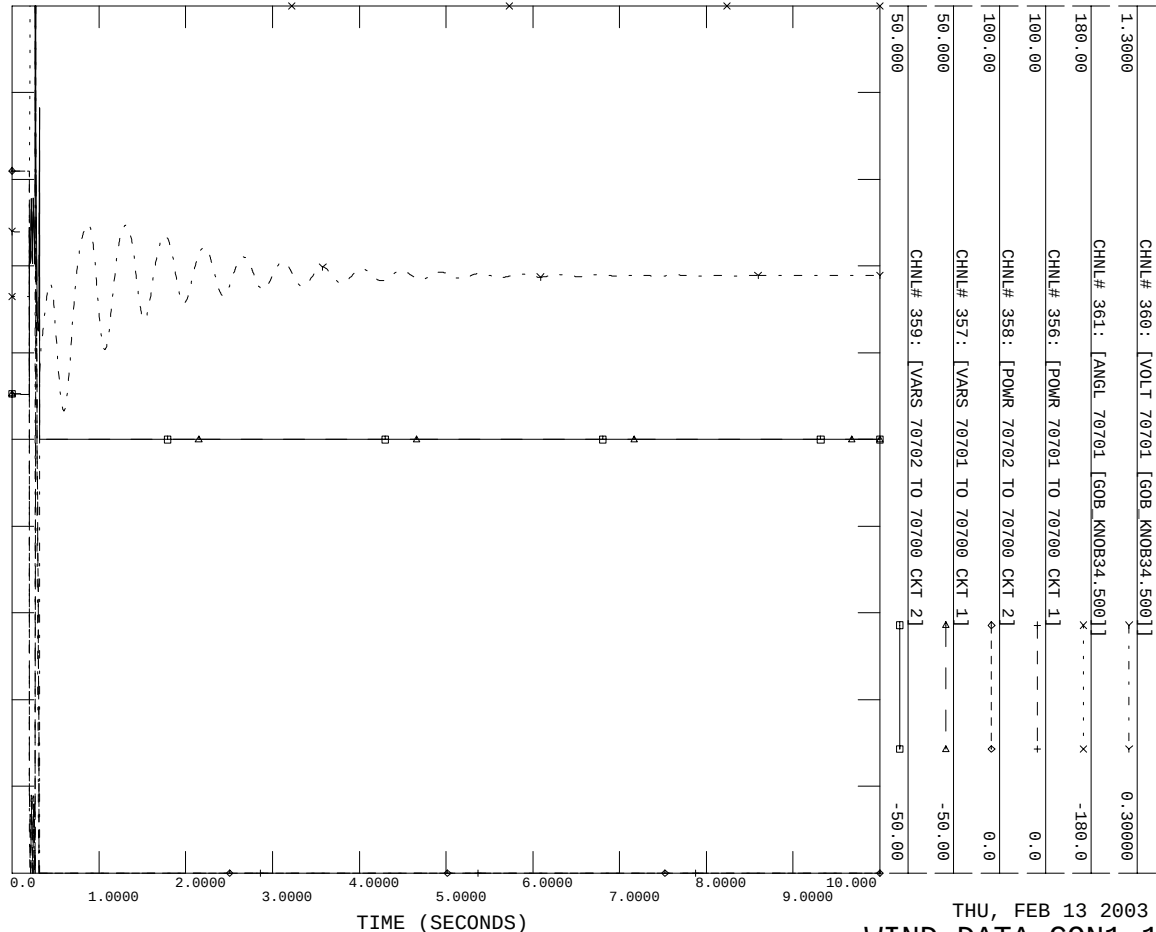
FILE: CON1-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |



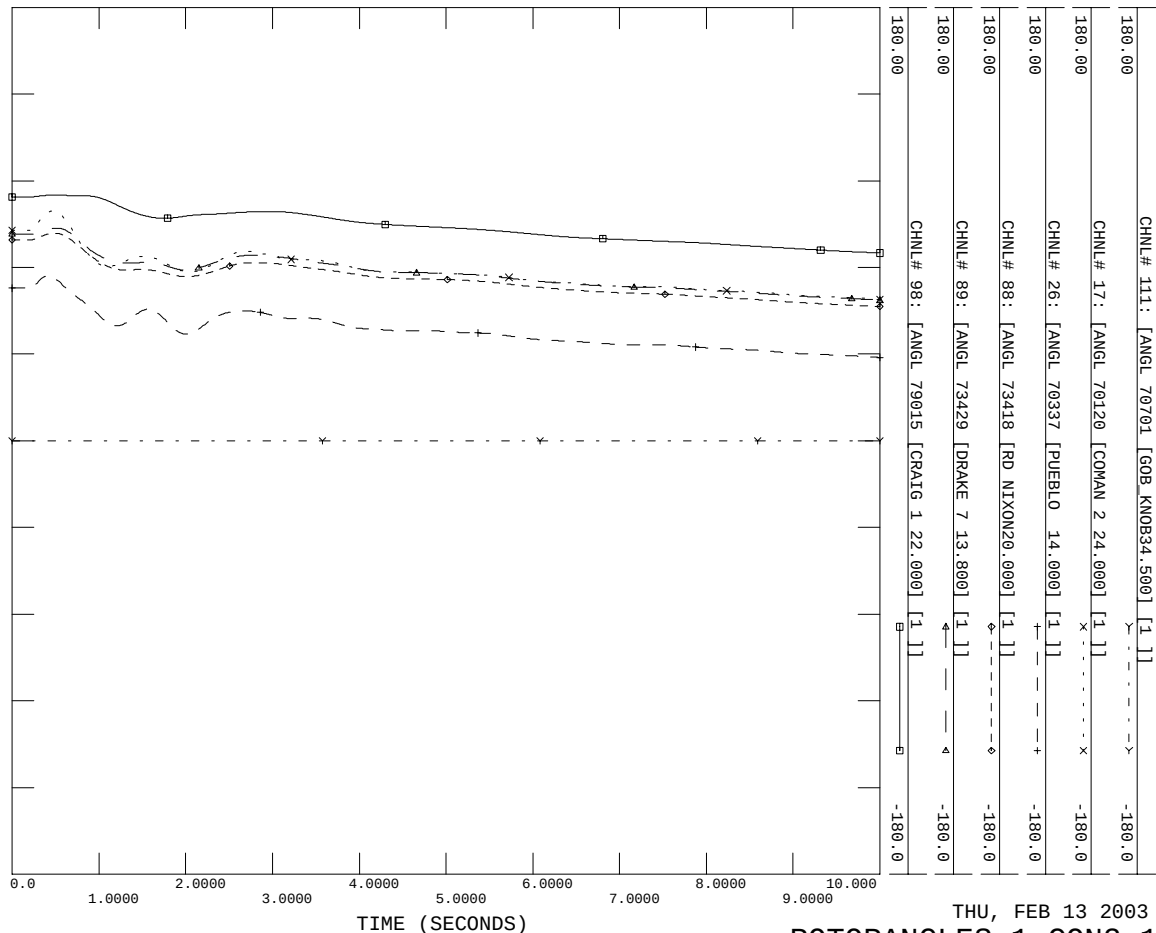
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON1 - FAULT ON BOONE - LAMAR 230 [BOONE END]

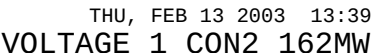
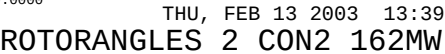
FILE: CON1-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]

FILE: CON2-ON.OUT

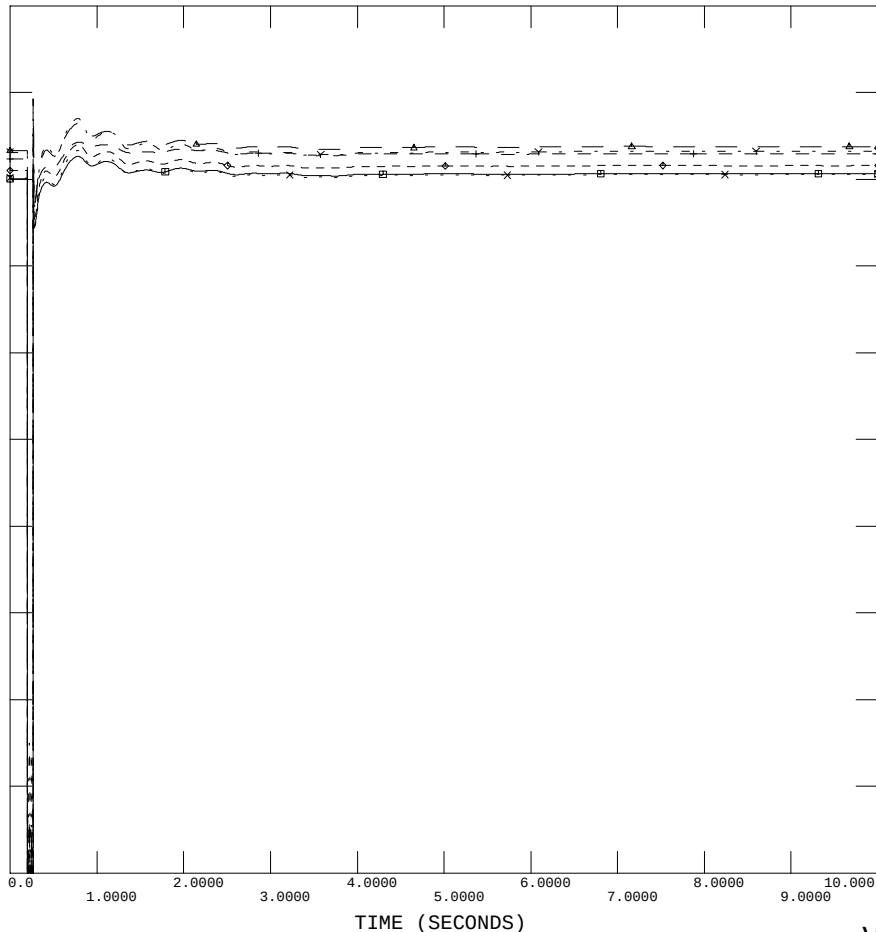




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]

FILE: CON2-ON.OUT

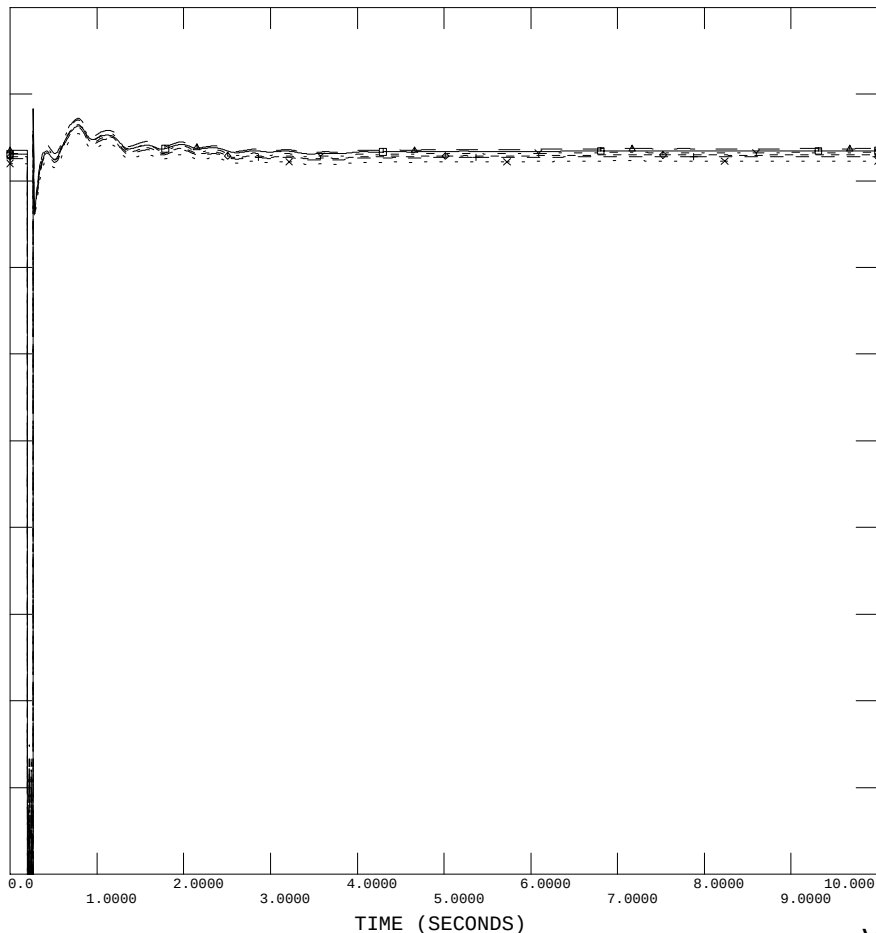
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|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]

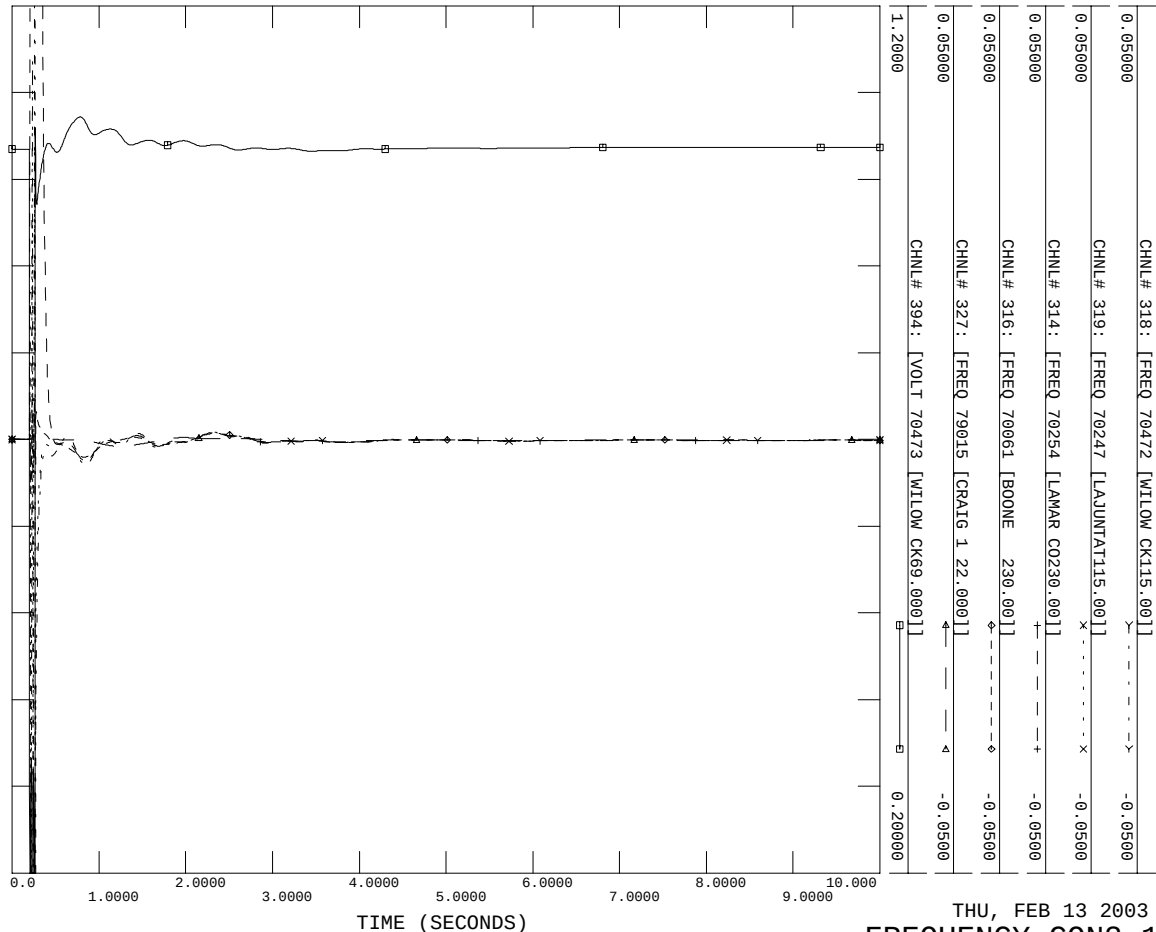
FILE: CON2-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



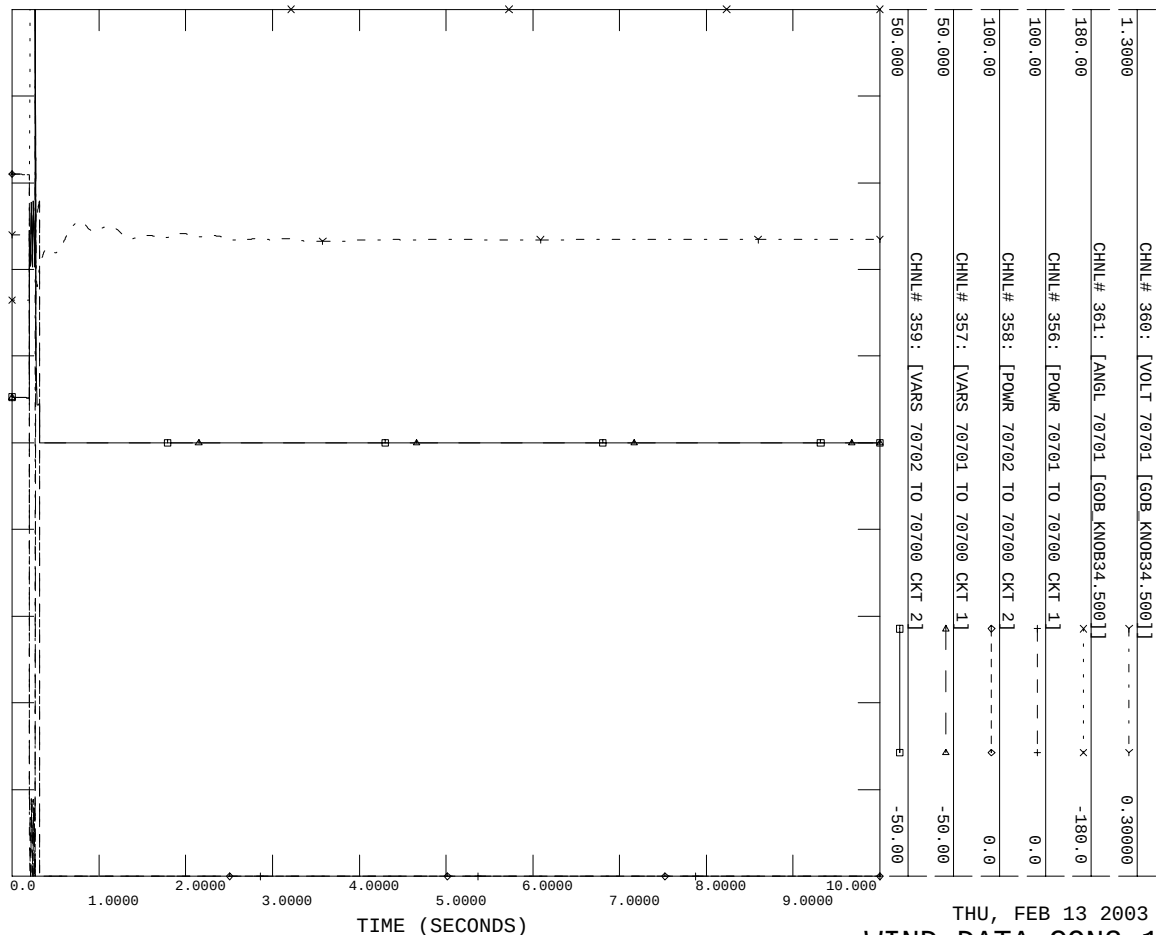
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]

FILE: CON2-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]

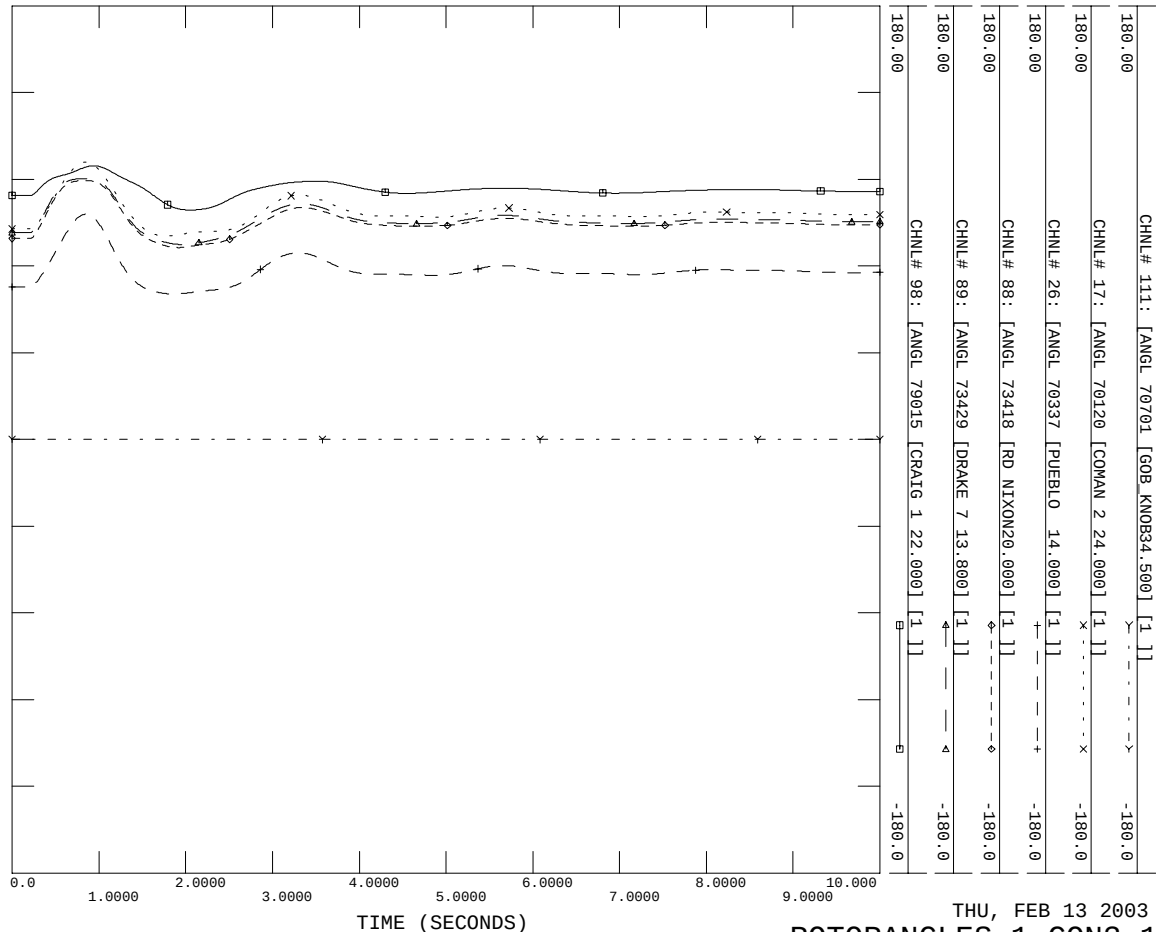
FILE: CON2-ON.OUT





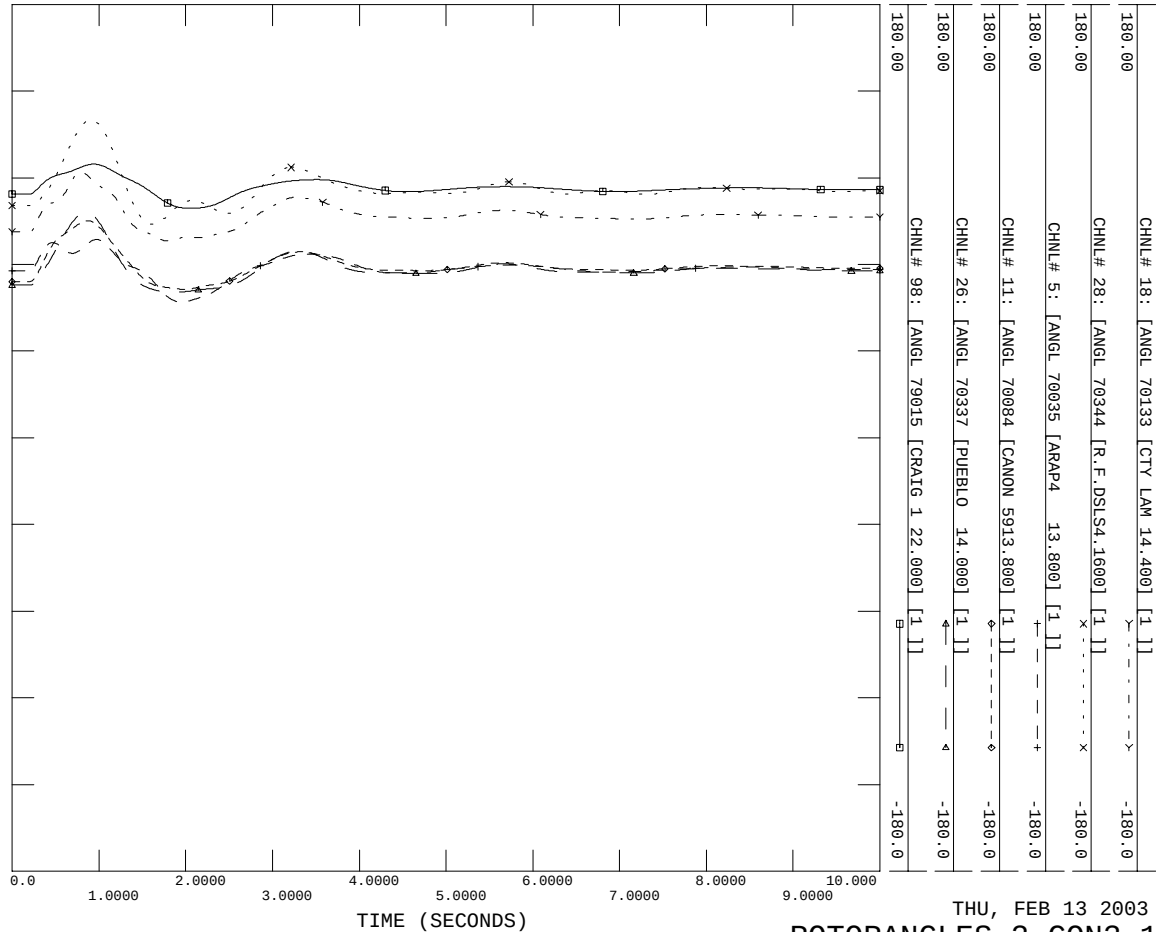
POWER  
TIC  
0.00015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]  
FILE: CON3-ON.OUT



POWER  
TIC  
0.00015

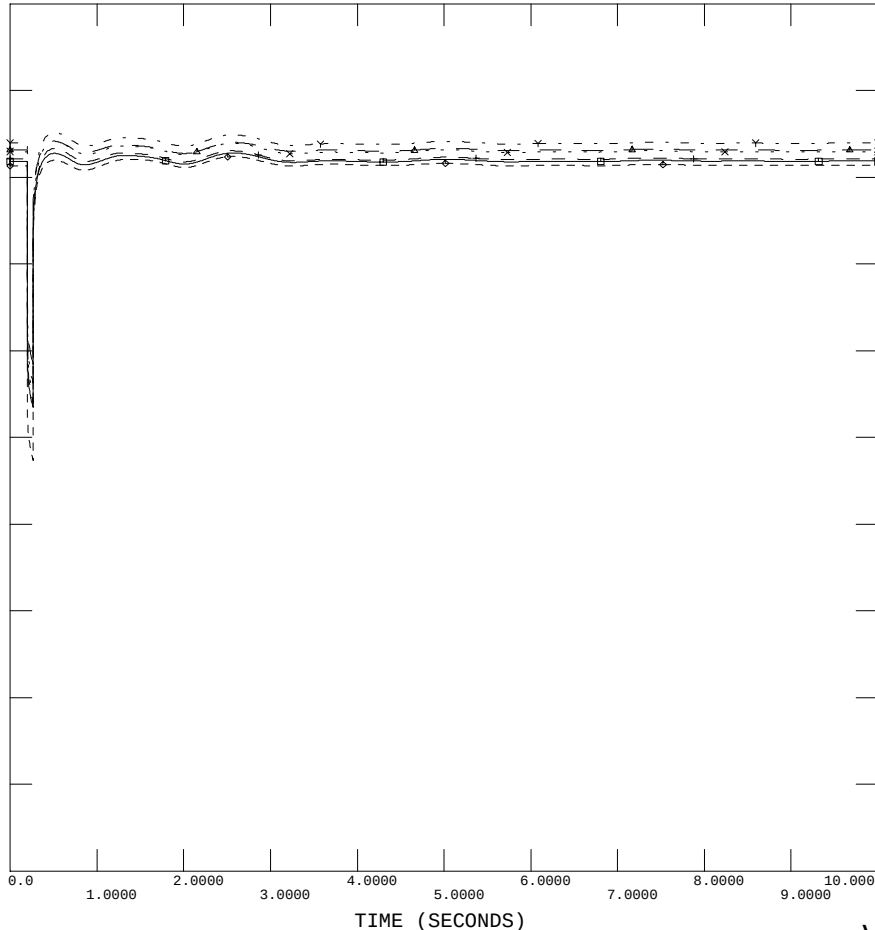
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A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]  
FILE: CON3-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON3-ON.OUT

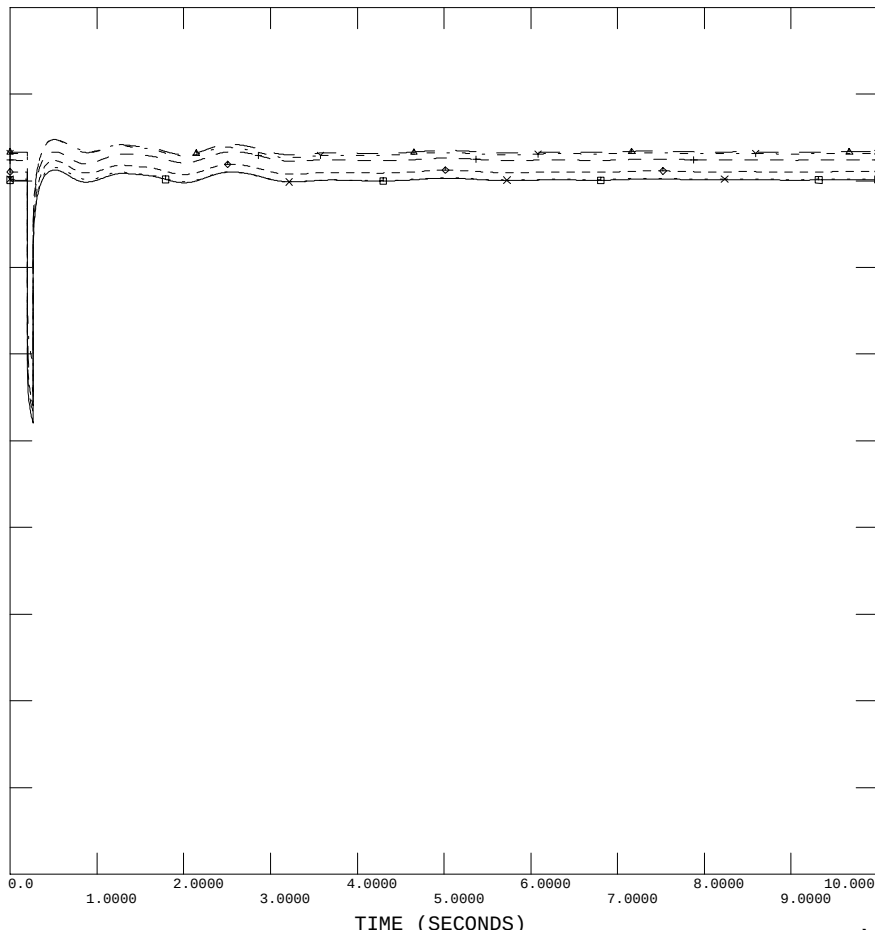
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [60B.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [60B.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR.C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON3-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR.C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

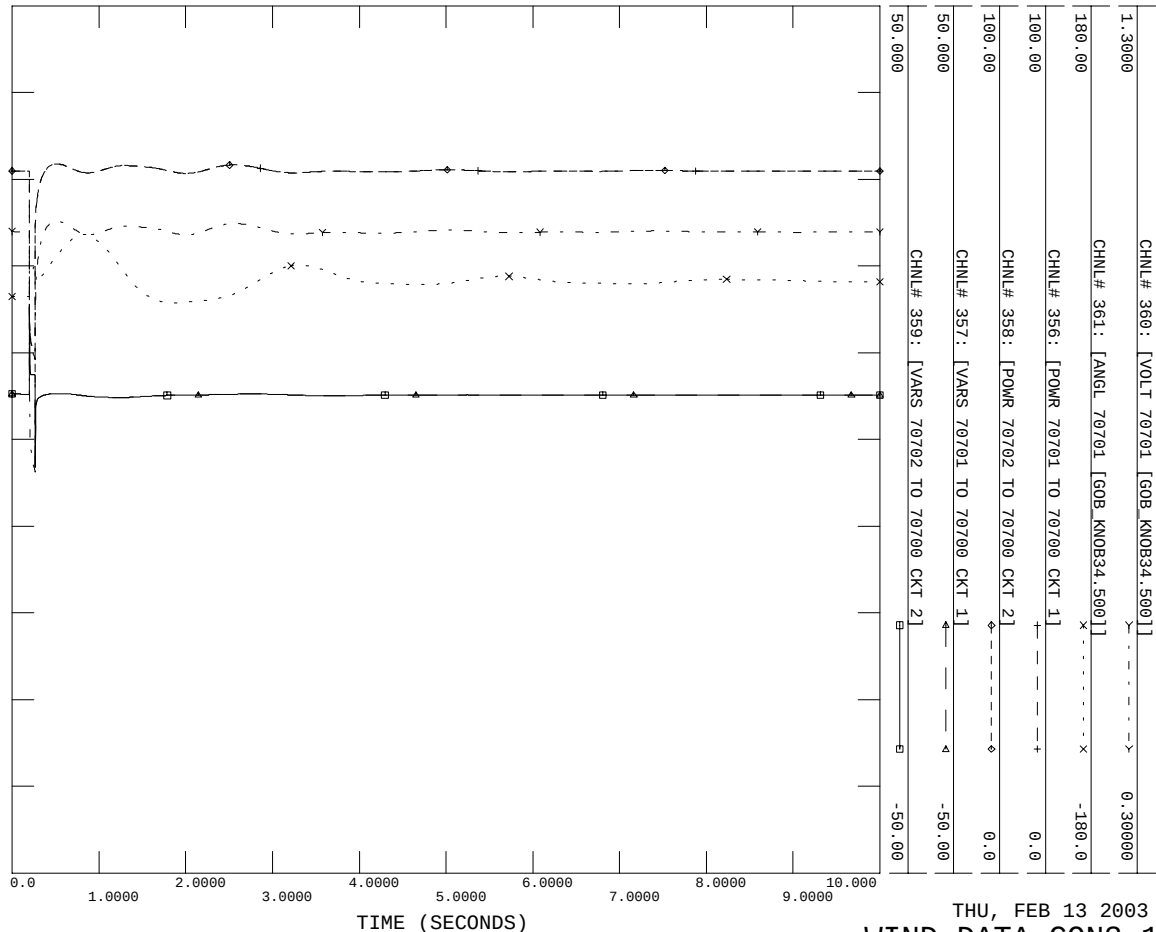






2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

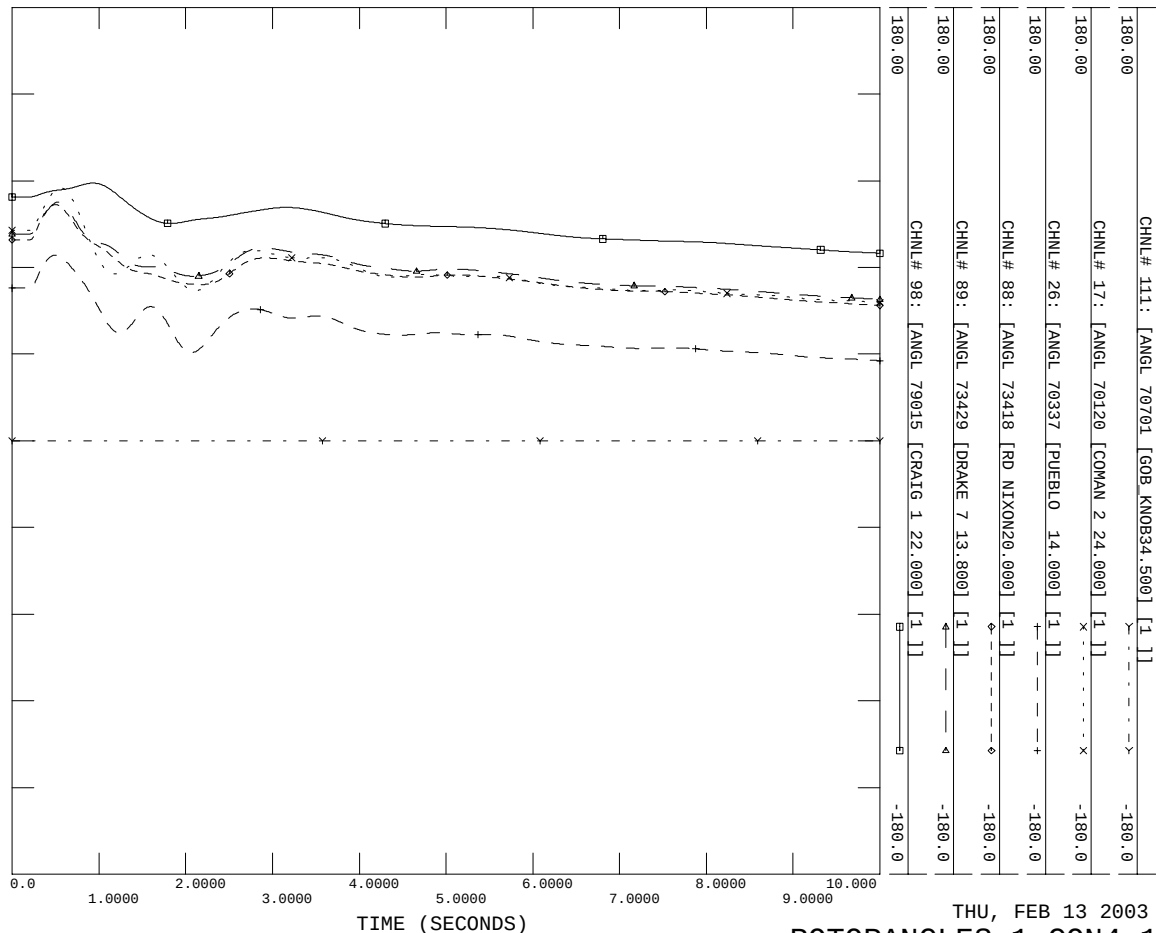
FILE: CON3-ON.OUT



THU, FEB 13 2003 13:39  
WIND DATA CON3 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

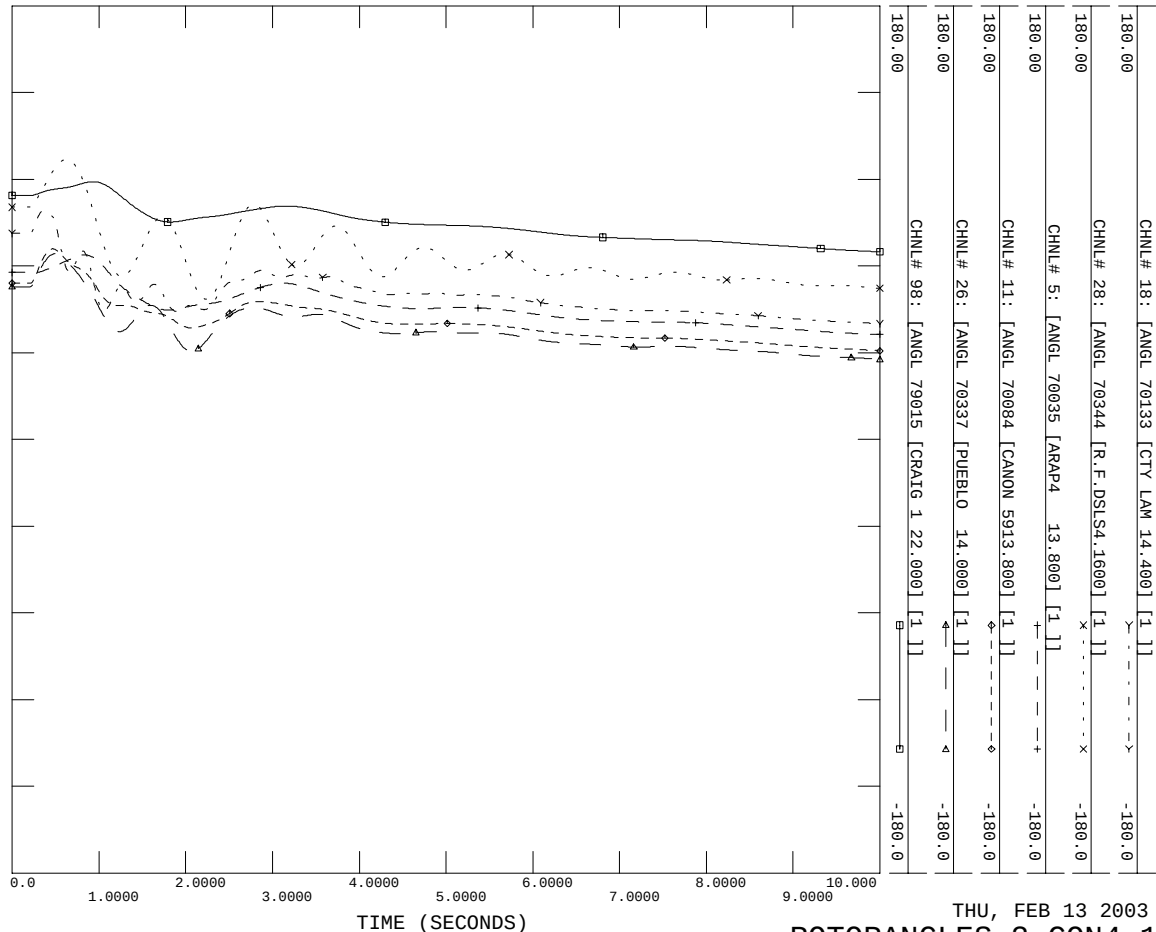
FILE: CON4-ON.OUT



THU, FEB 13 2003 13:39  
ROTORANGLES 1 CON4 162MW

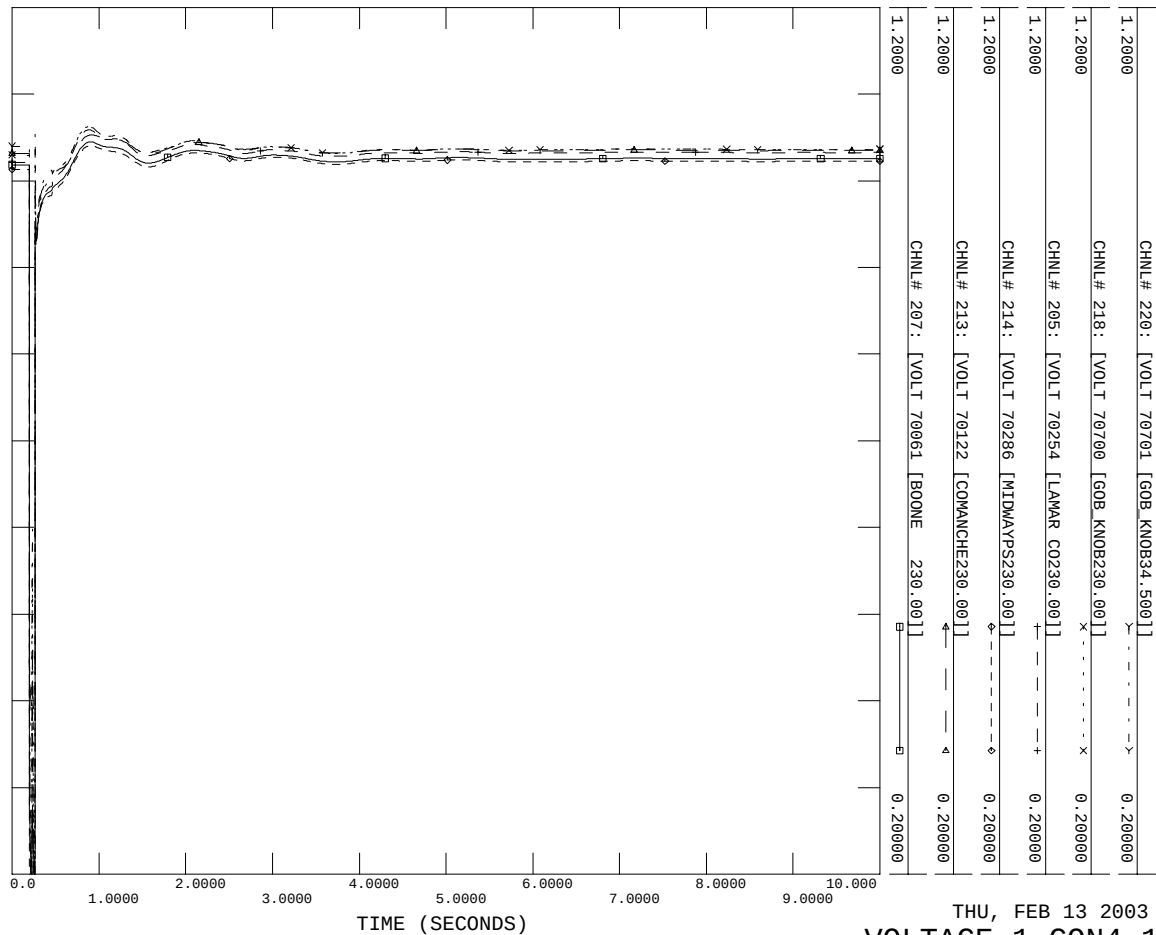
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

FILE: CON4-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

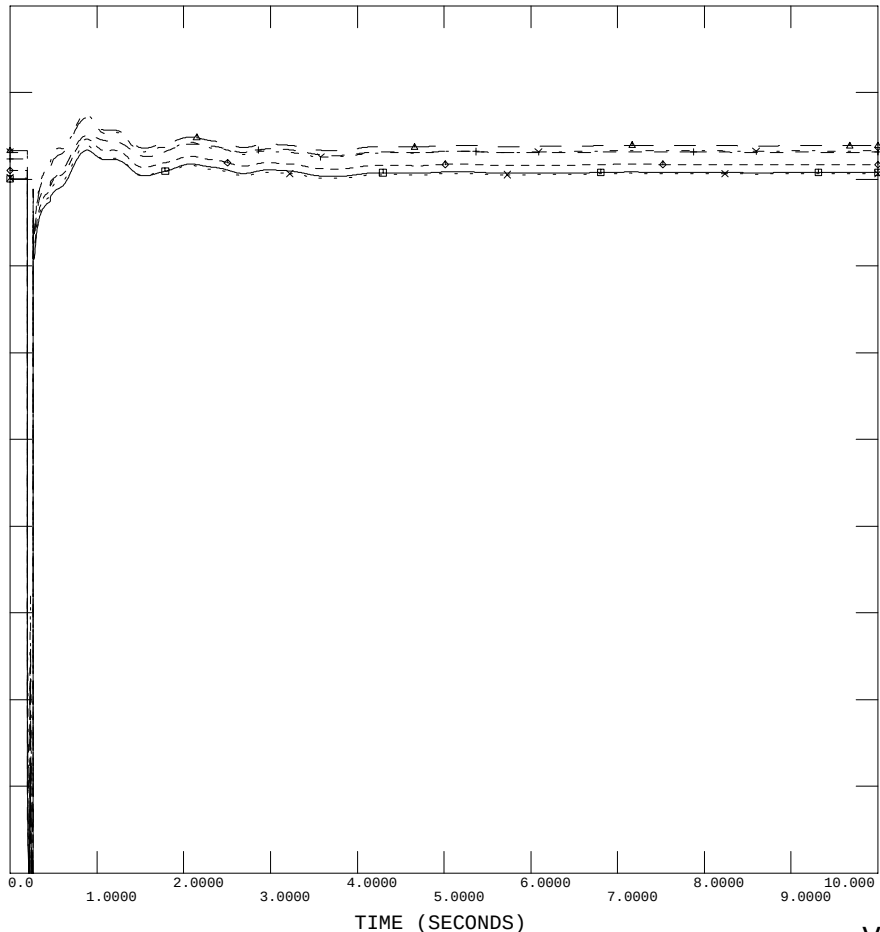
FILE: CON4-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

FILE: CON4-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

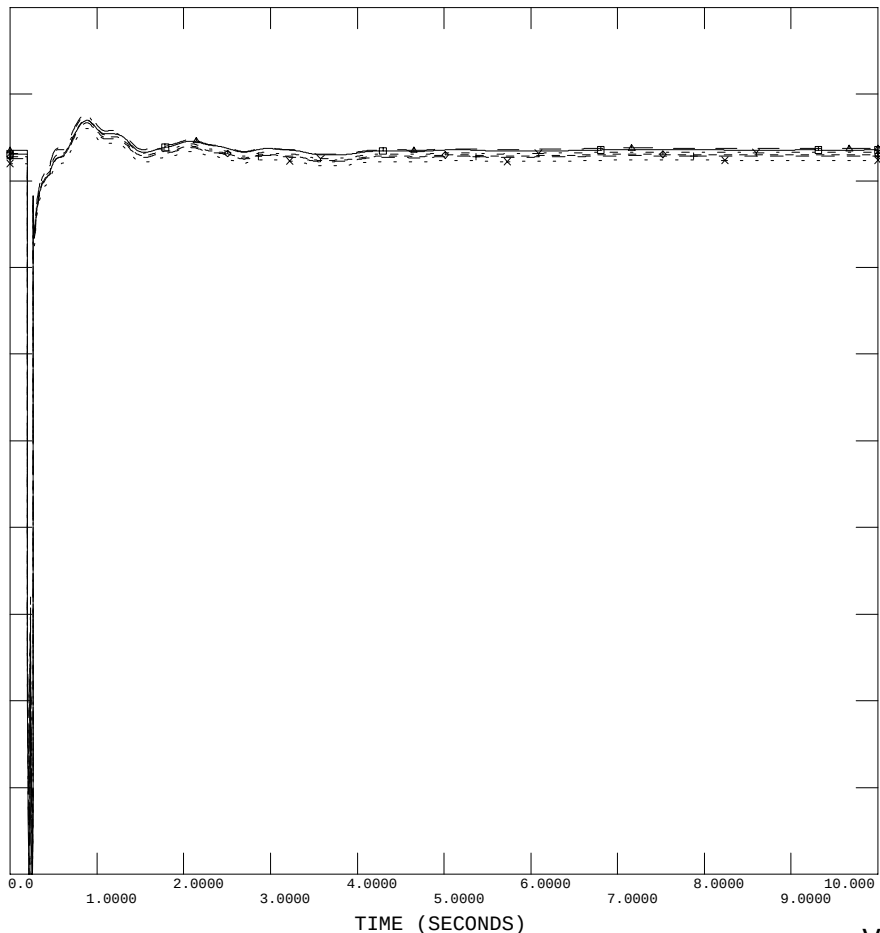


THU, FEB 13 2003 13:39  
VOLTAGE 2 CON4 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

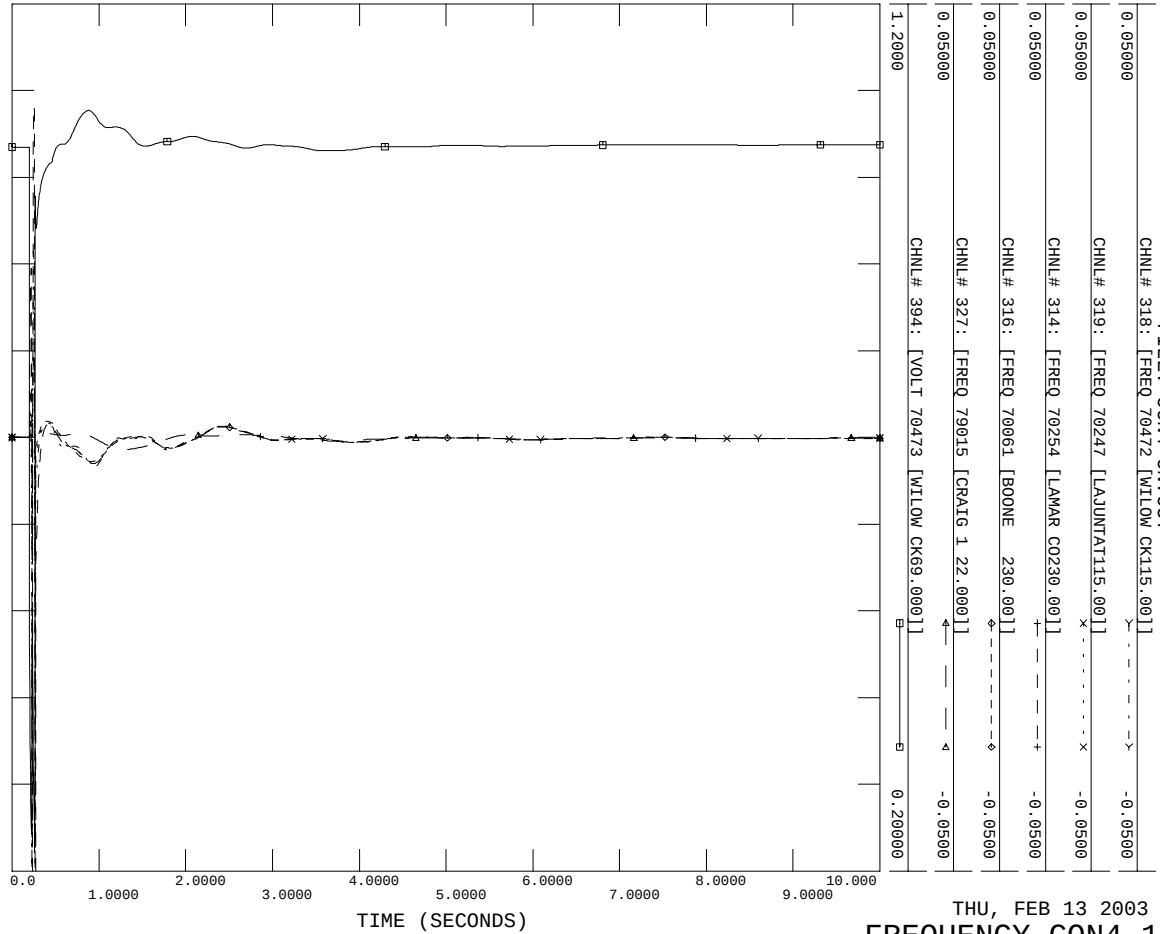
FILE: CON4-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

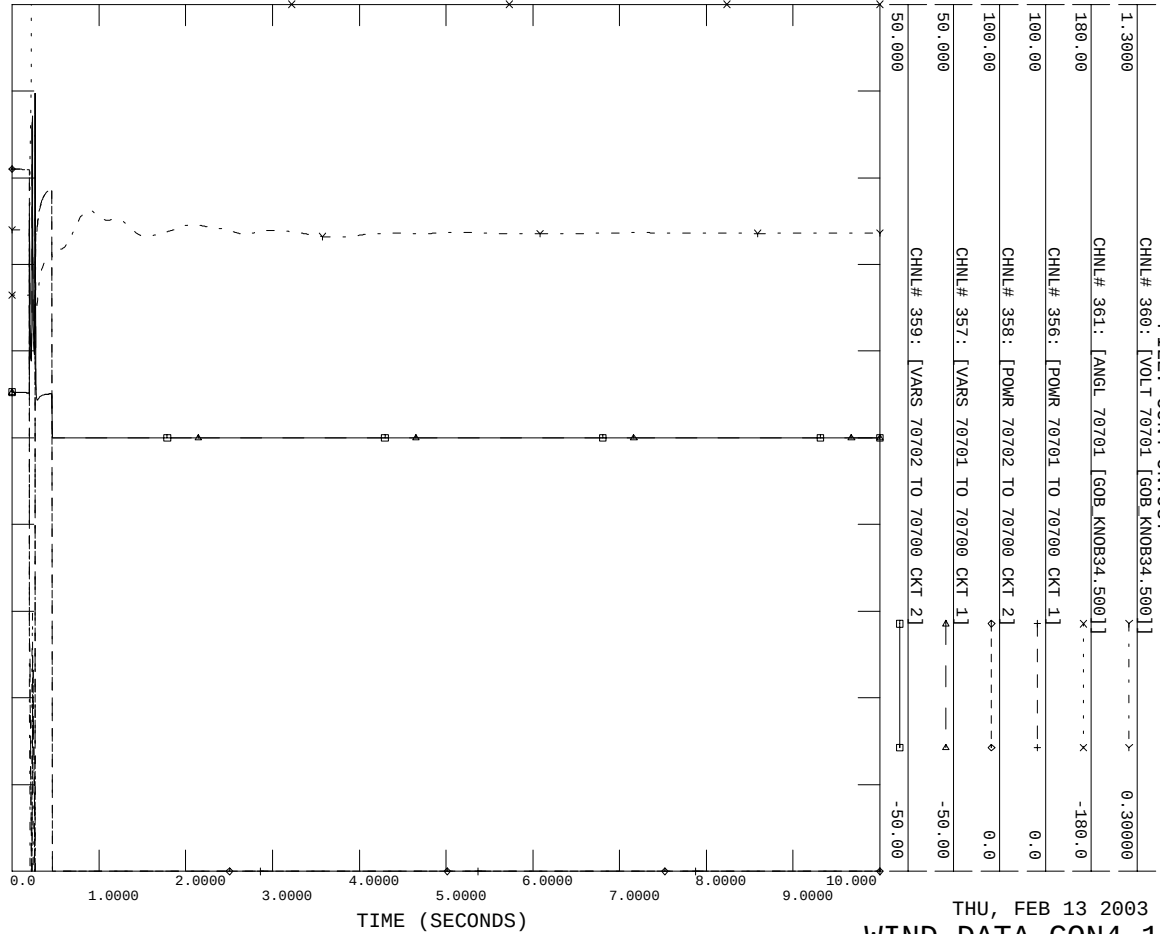


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VOLTAGE 3 CON4 162MW

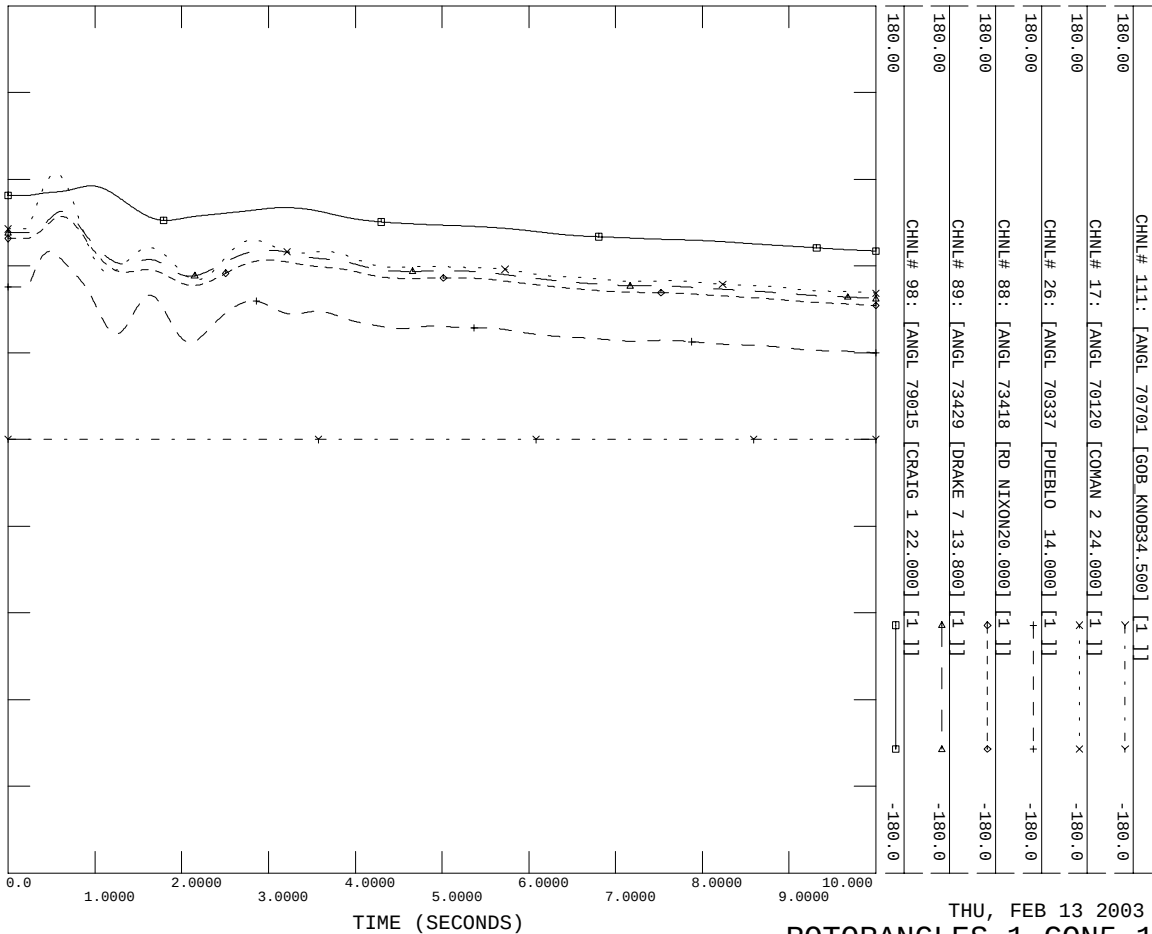
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
FILE: CON4-ON.OUT  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]



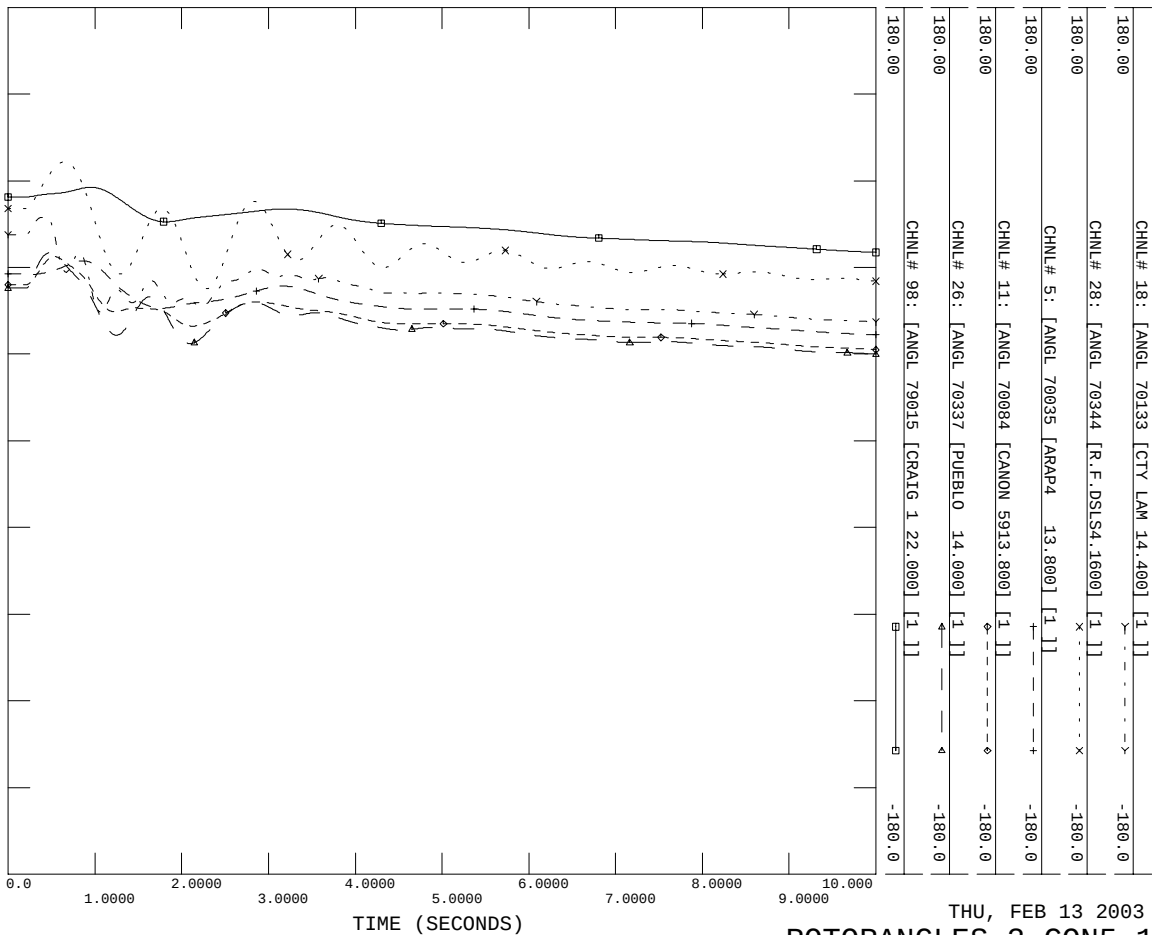
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
FILE: CON4-ON.OUT  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT



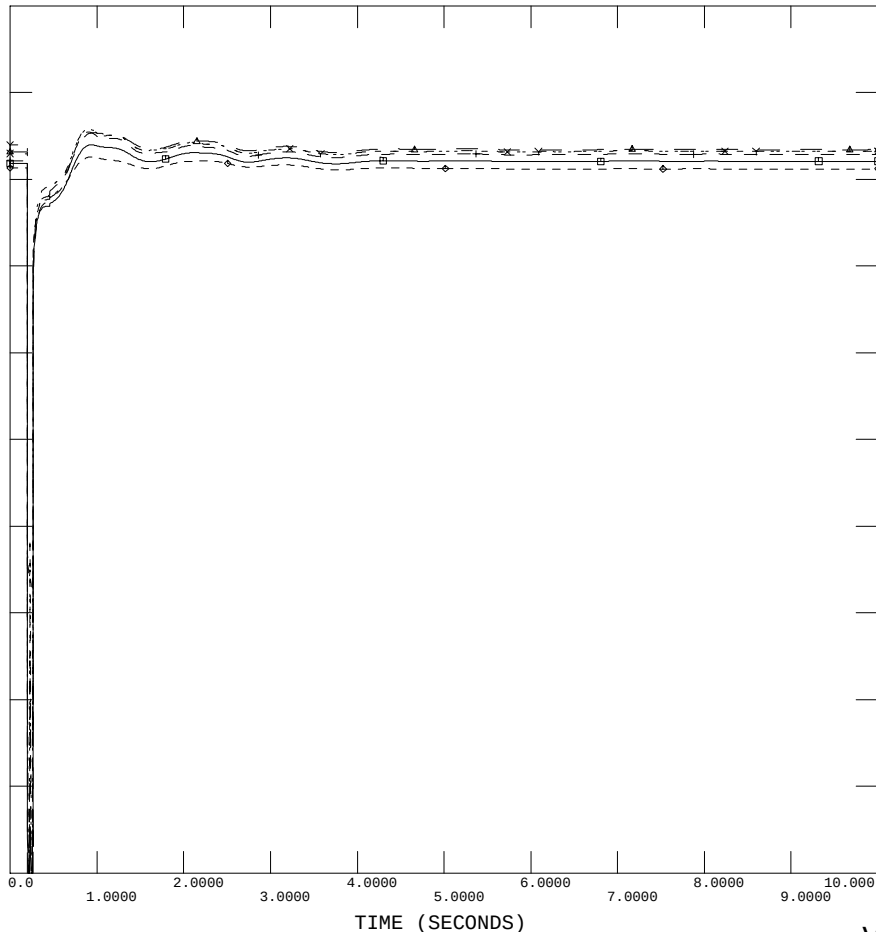
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]

FILE: CONS-ON.OUT

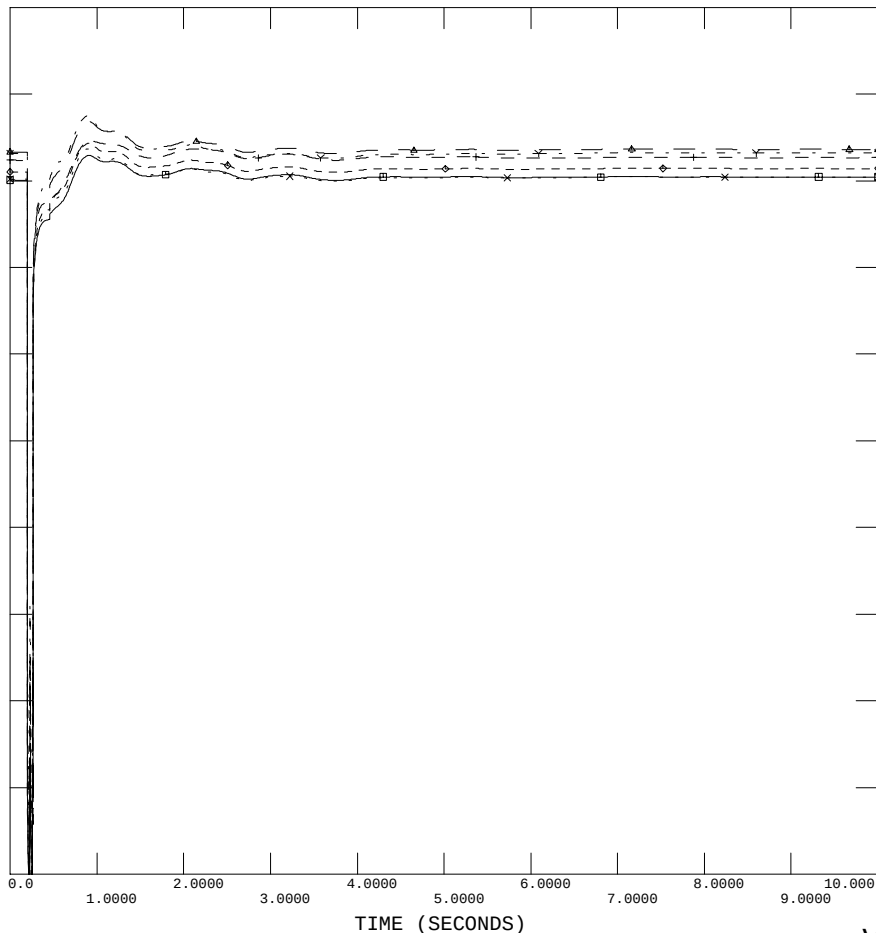
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR.C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]

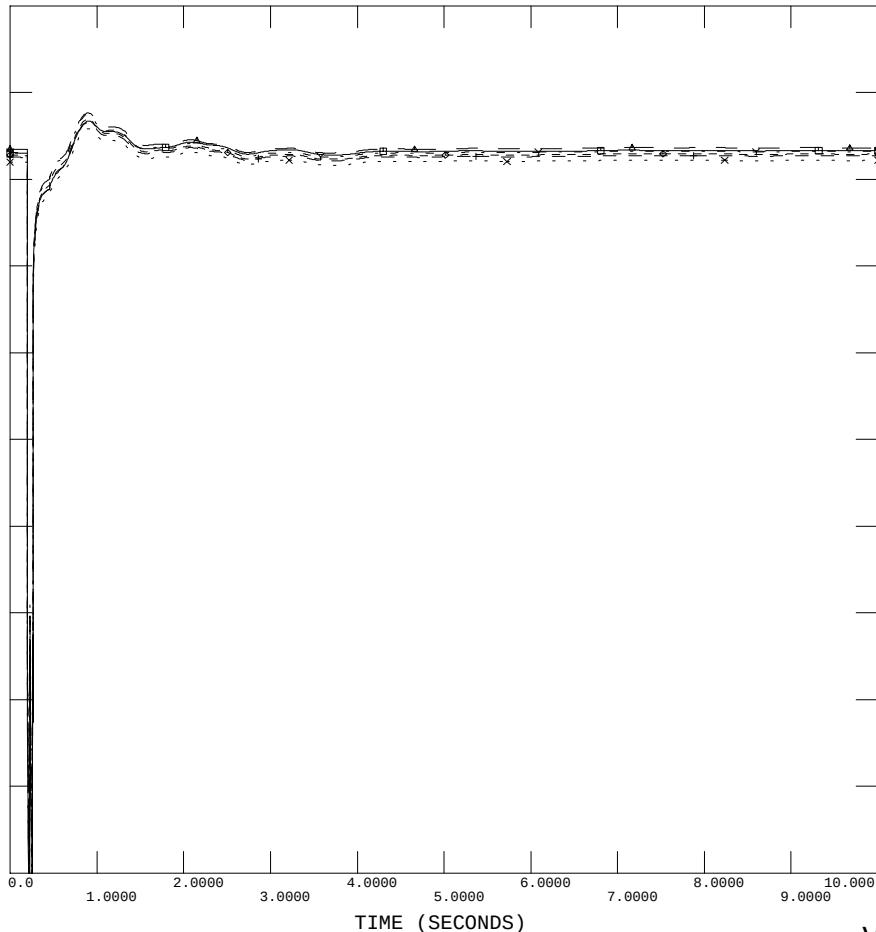
FILE: CONS-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR.C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



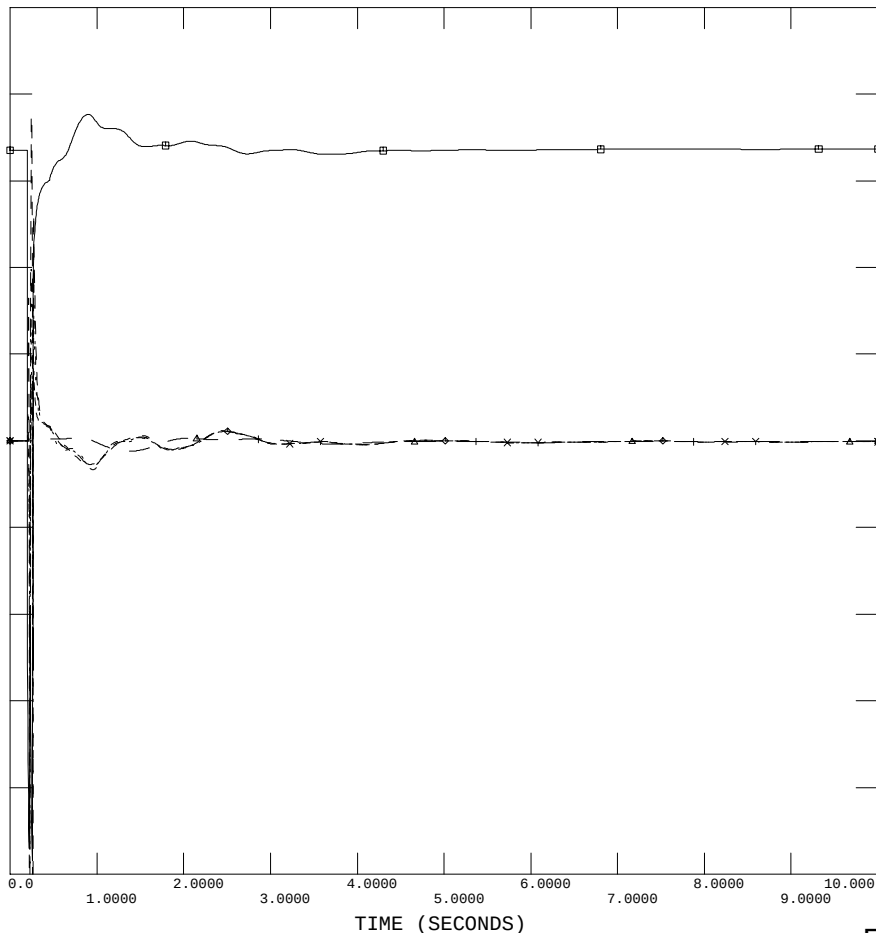
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A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
FILE: CON5-ON.OUT  
CON5 - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
FILE: CON5-ON.OUT  
CON5 - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |



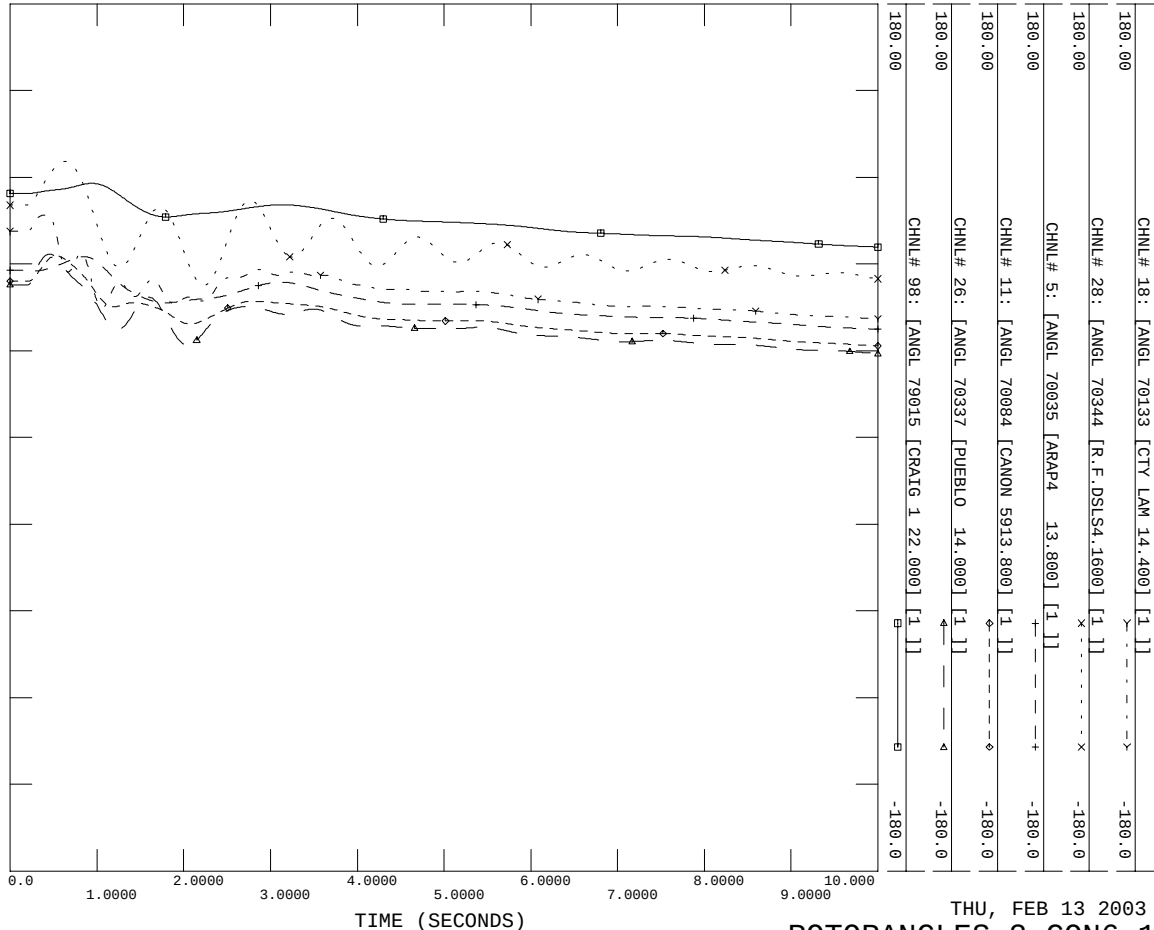






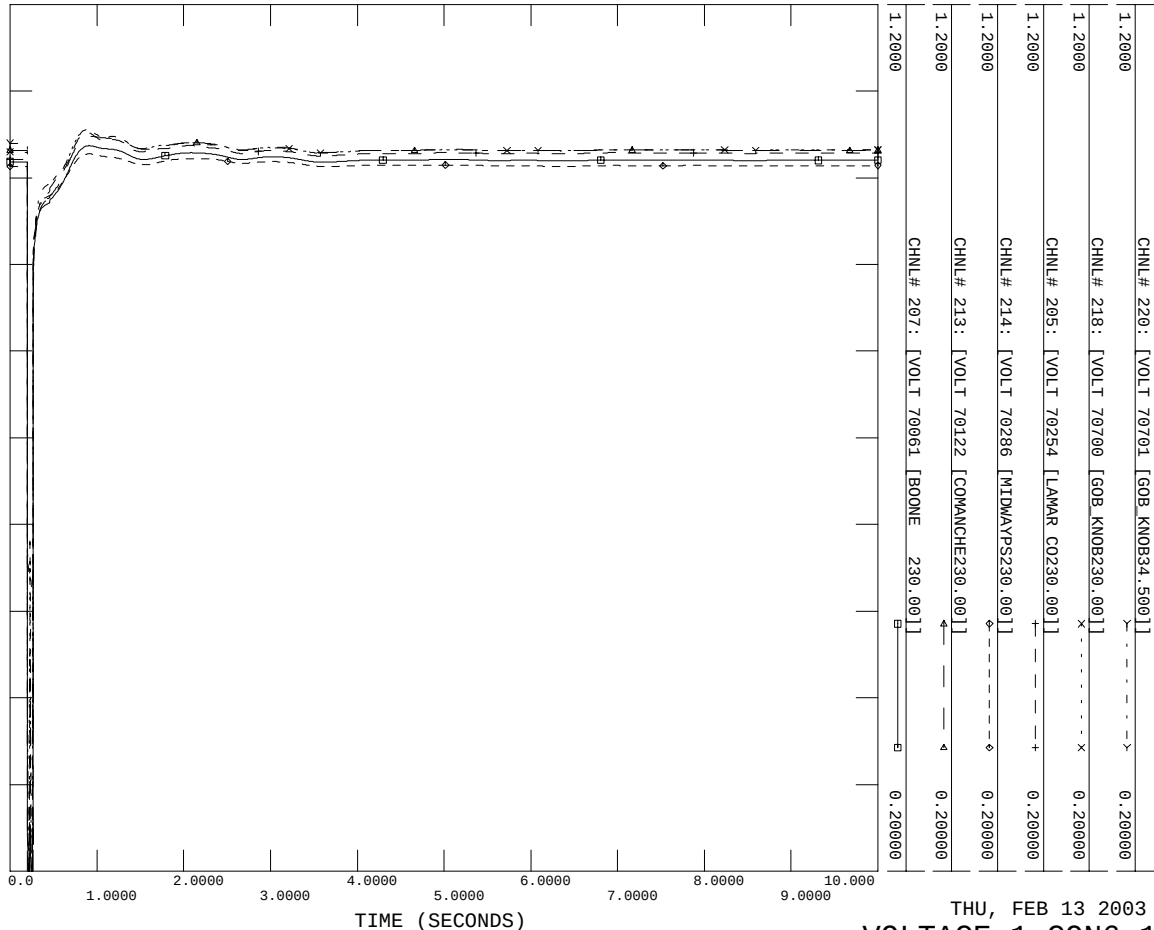
POWER  
TIC  
0.000015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]  
FILE: CON6-ON.OUT



POWER  
TIC  
0.000015

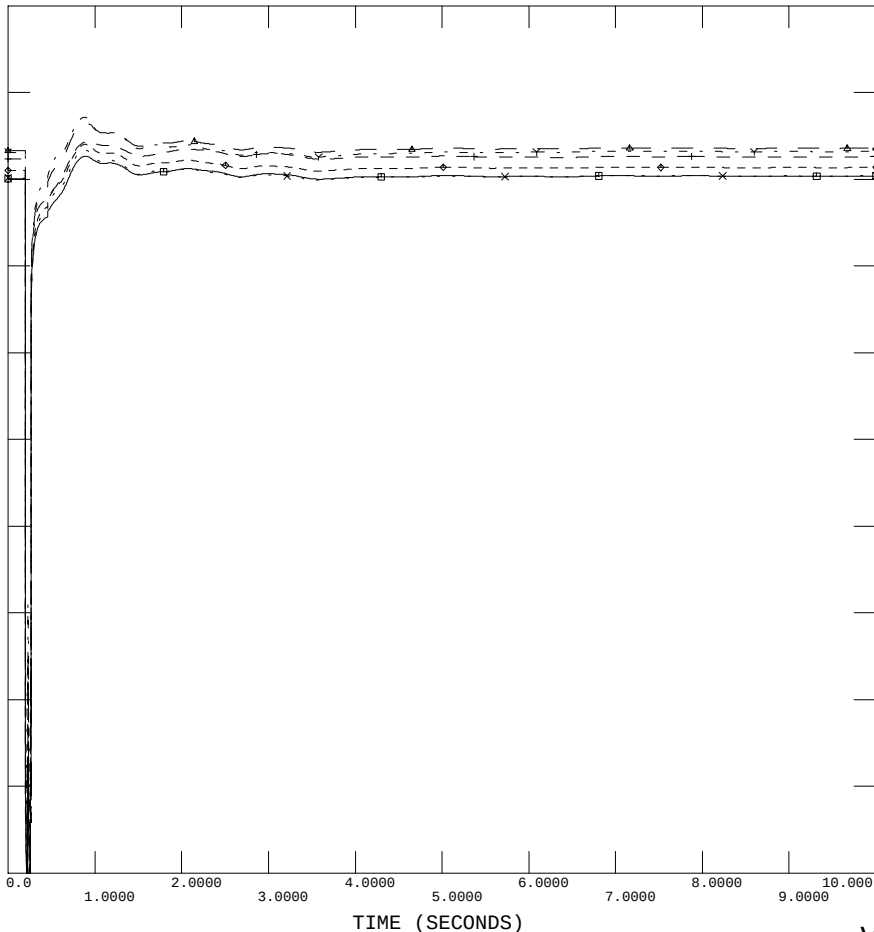
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]  
FILE: CON6-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]

FILE: CON6-ON.OUT

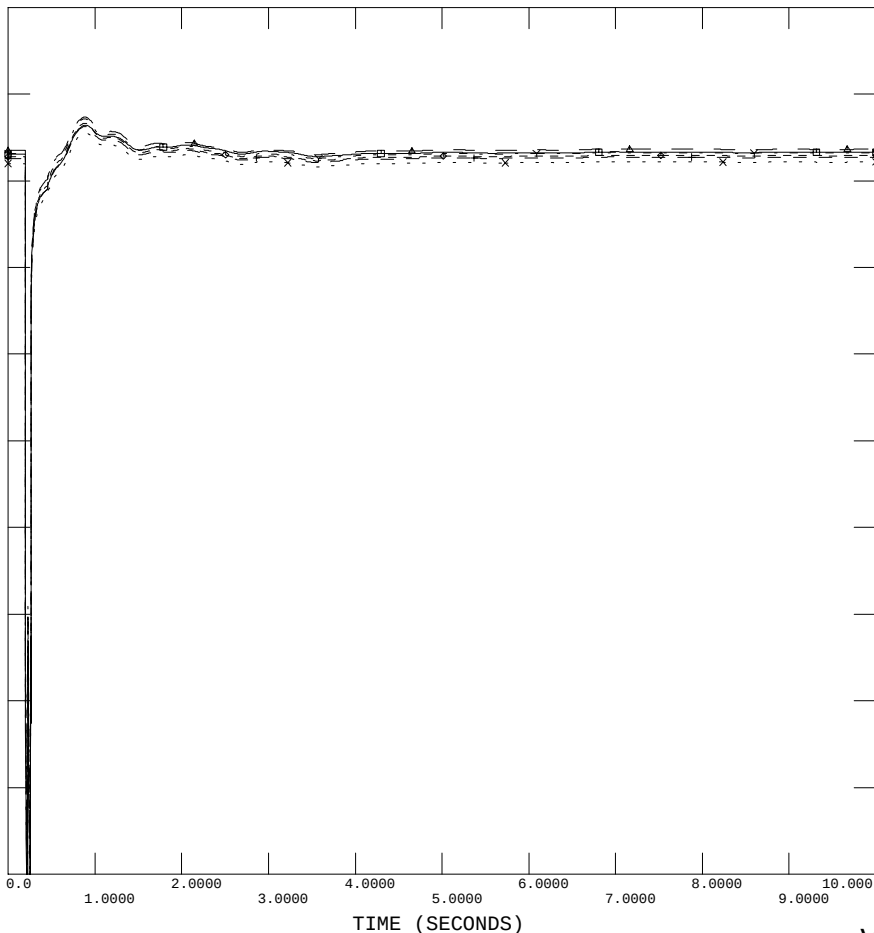
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]

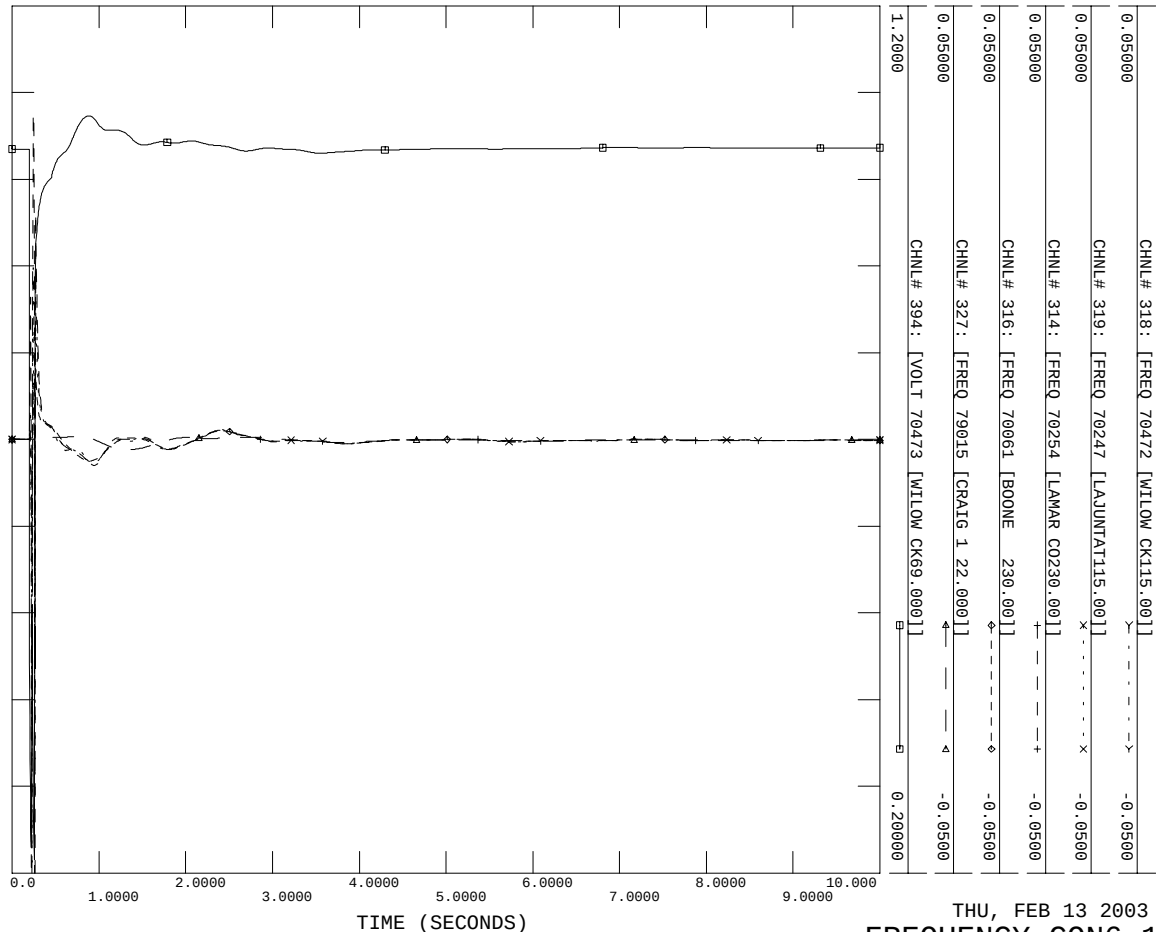
FILE: CON6-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



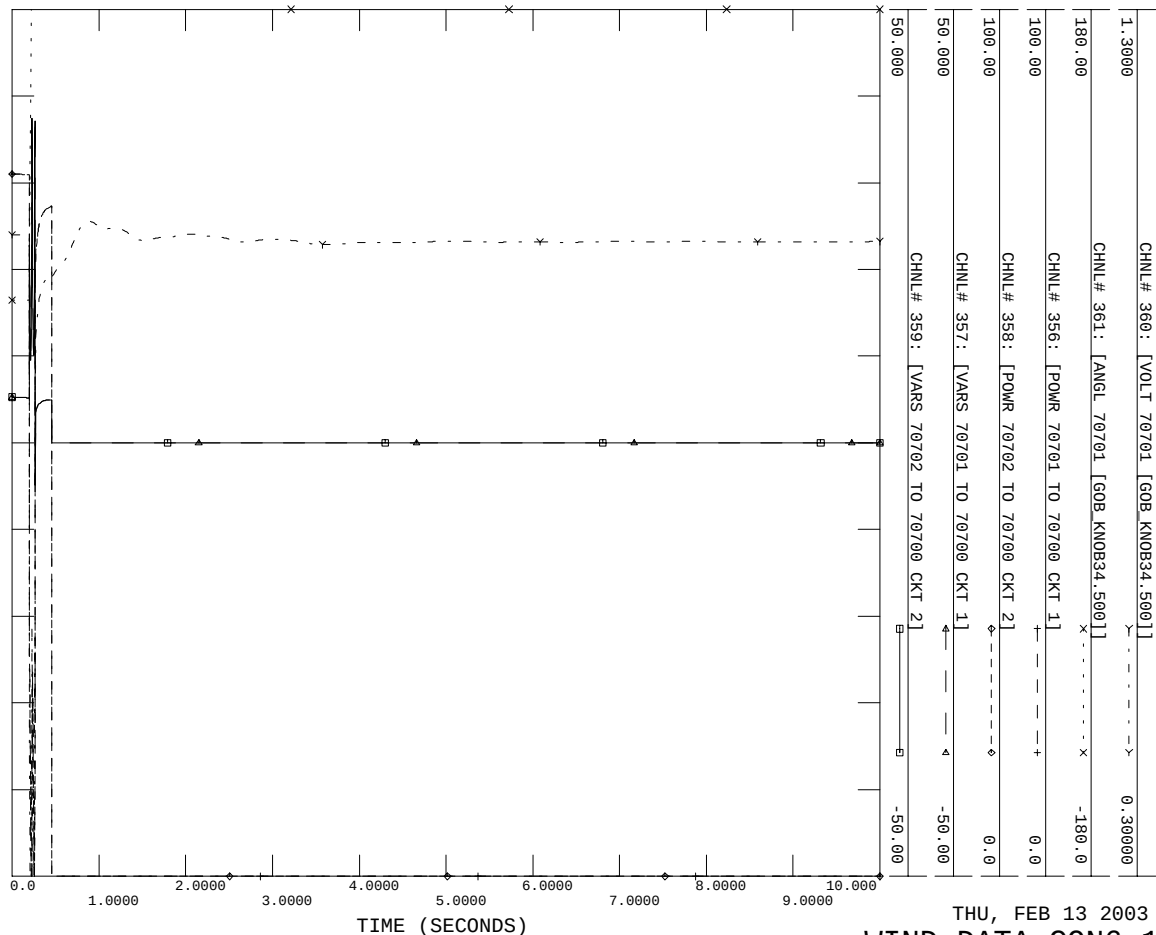
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]

FILE: CON6-ON.OUT



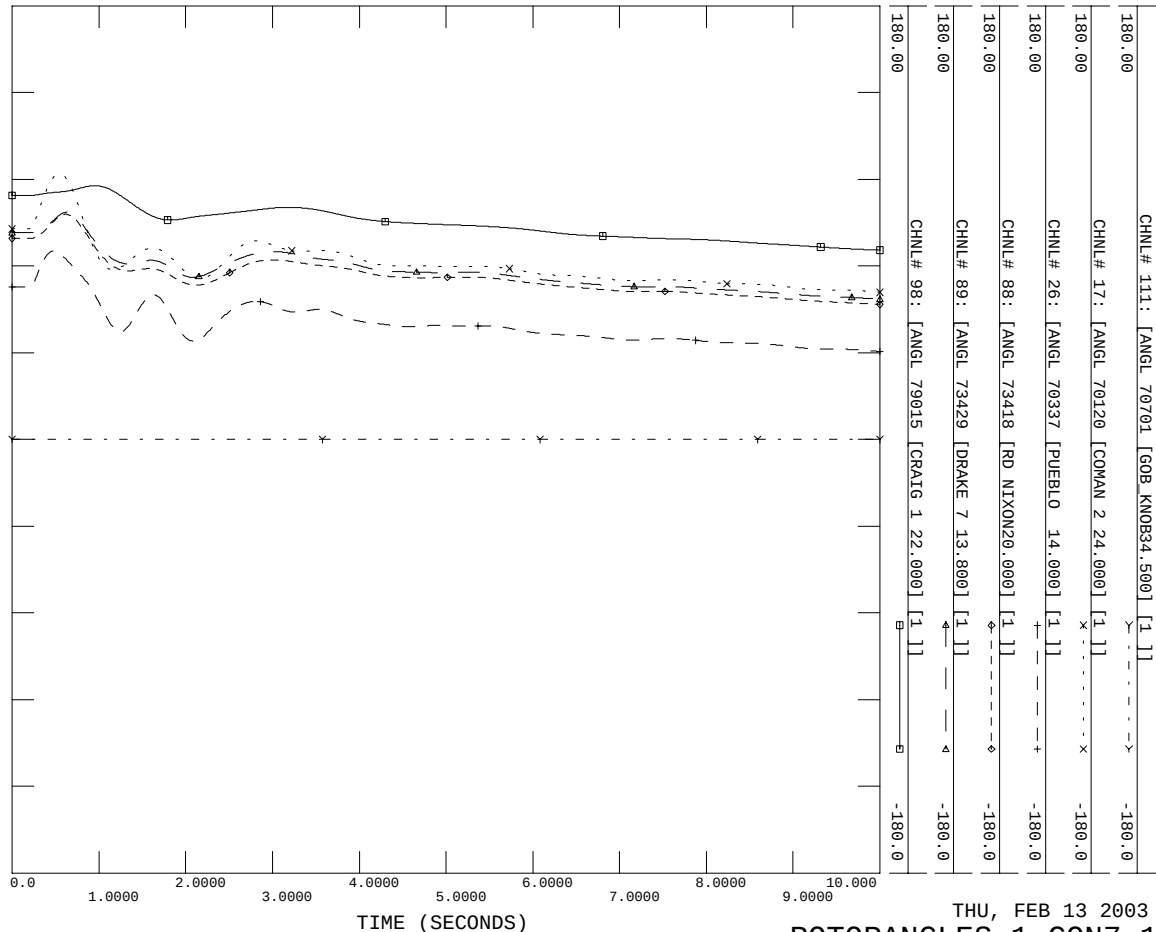
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]

FILE: CON6-ON.OUT



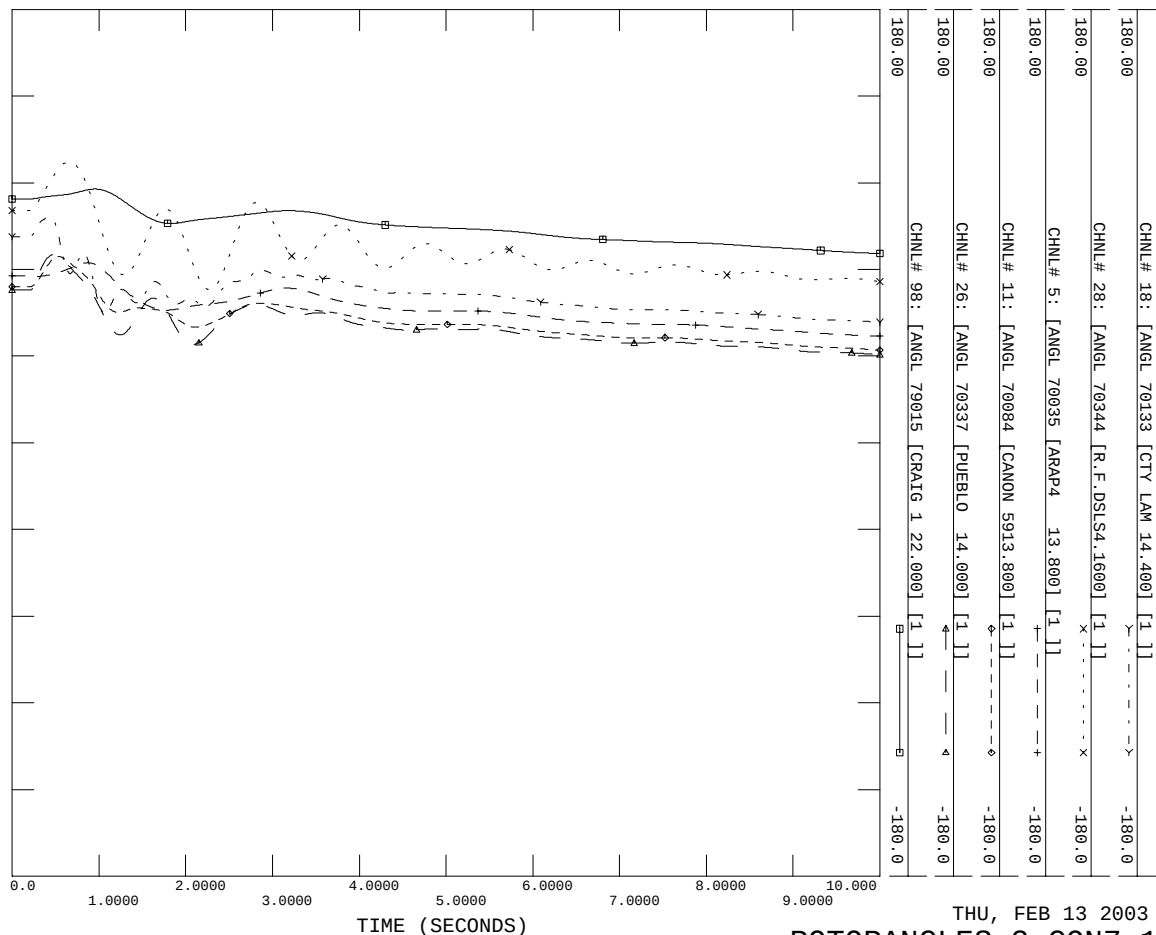
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]

FILE: CON7-ON.OUT



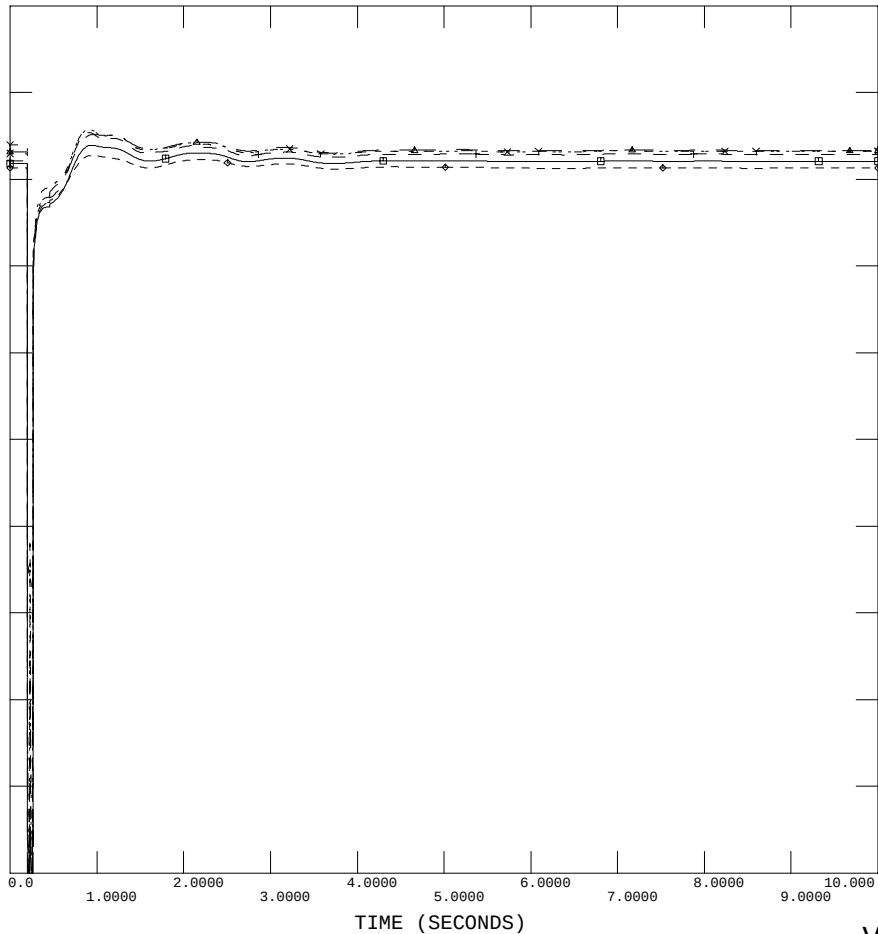
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]

FILE: CON7-ON.OUT



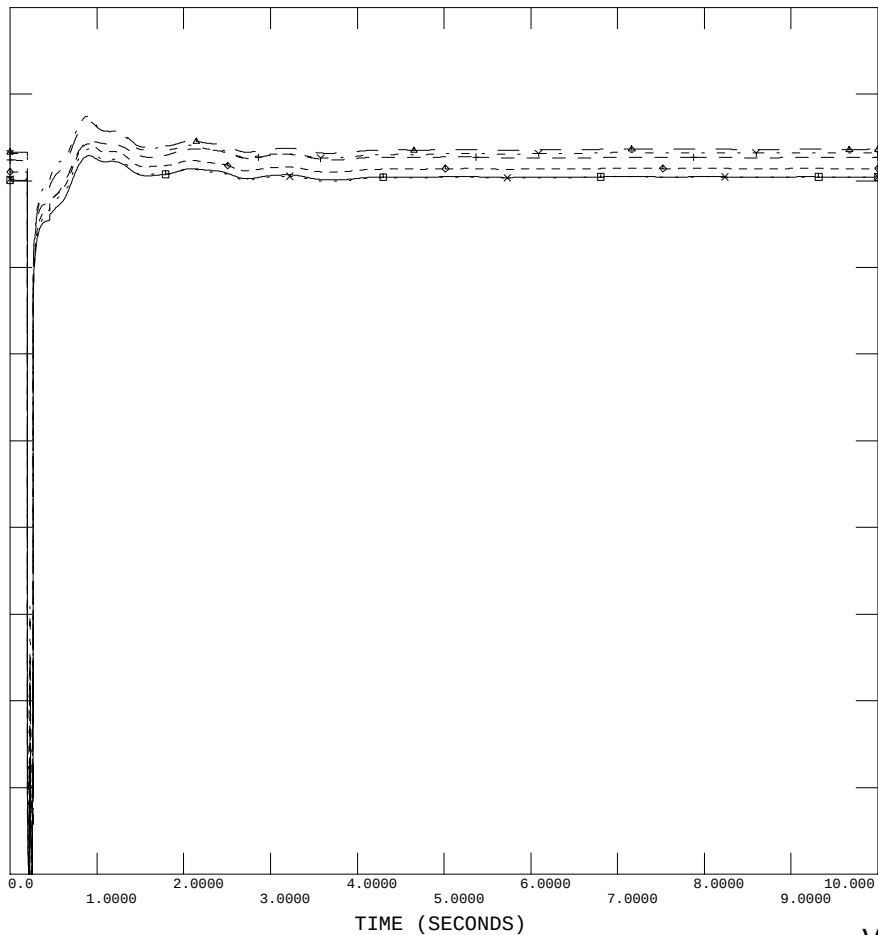
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
FILE: CON7-ON.OUT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR.C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



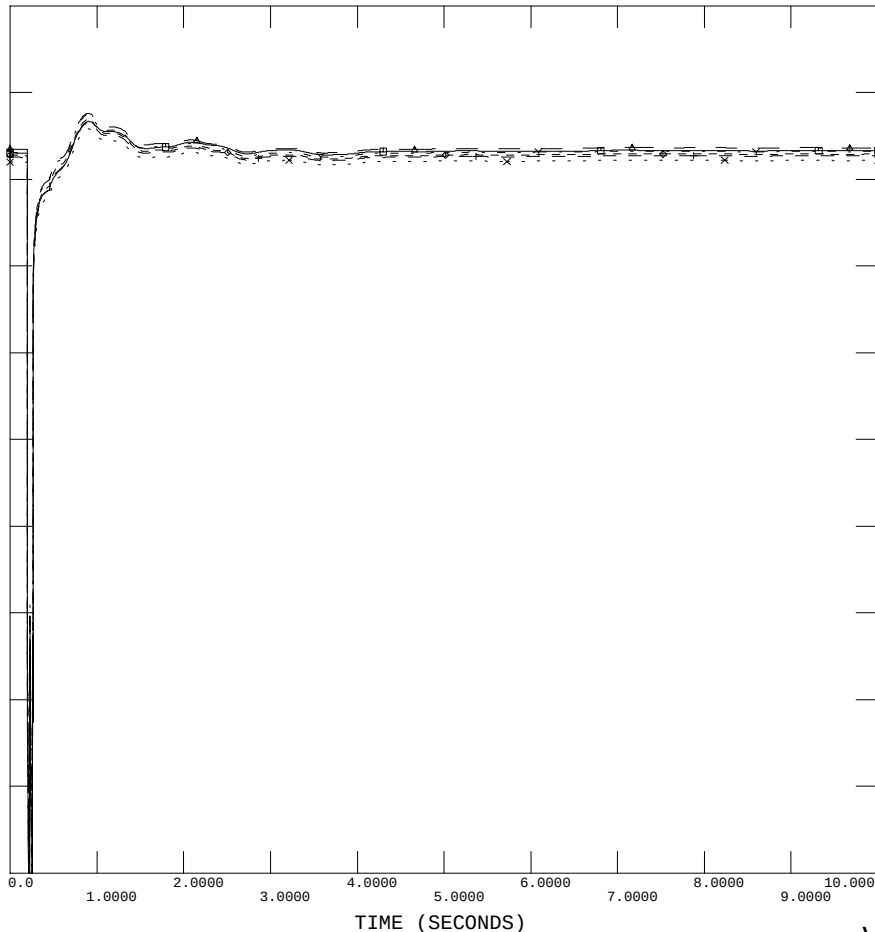
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
FILE: CON7-ON.OUT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW OK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR.C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
FILE: CON7-ON.OUT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]

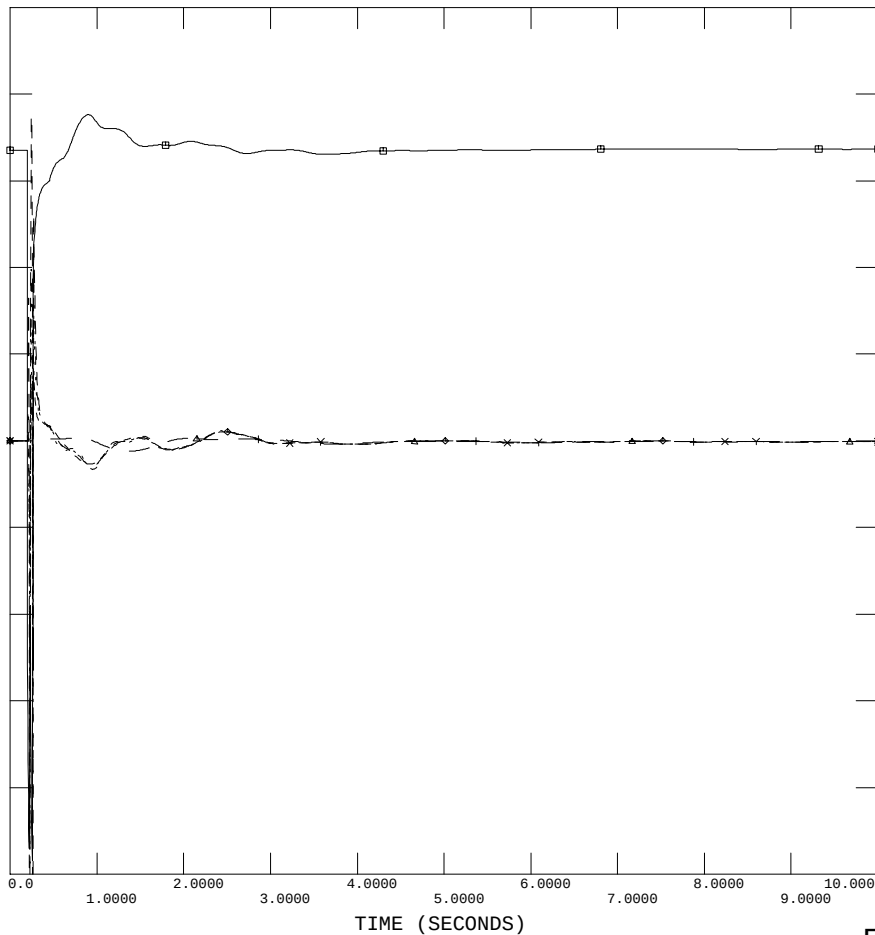
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



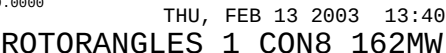
THU, FEB 13 2003 13:40  
VOLTAGE 3 CON7 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
FILE: CON7-ON.OUT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |



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FREQUENCY CON7 162MW

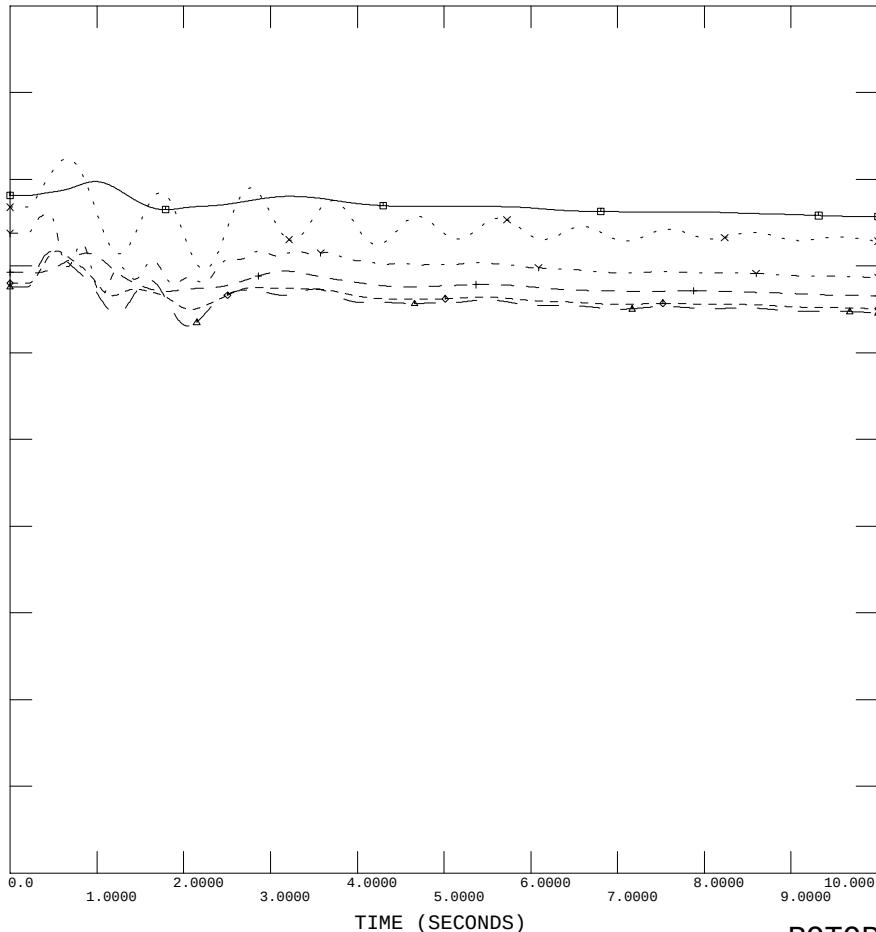






2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]  
FILE: CON8-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1.22.000] [1.]] | -180.0 |

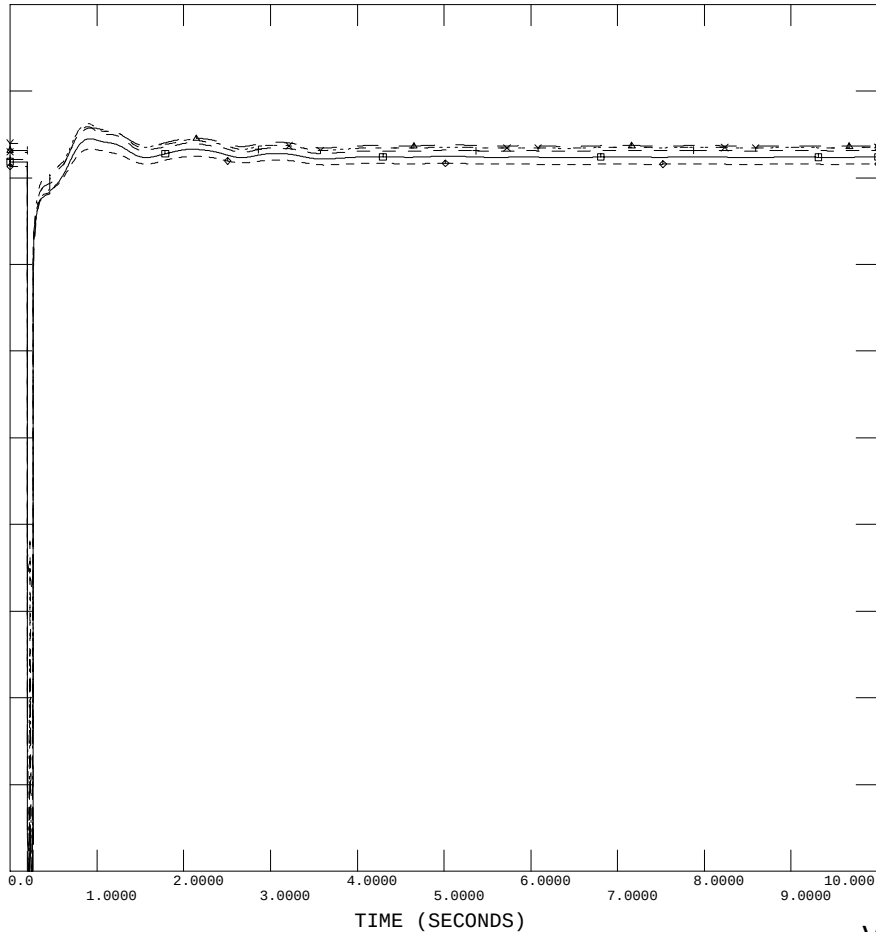


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ROTORANGLES 2 CON8 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]  
FILE: CON8-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

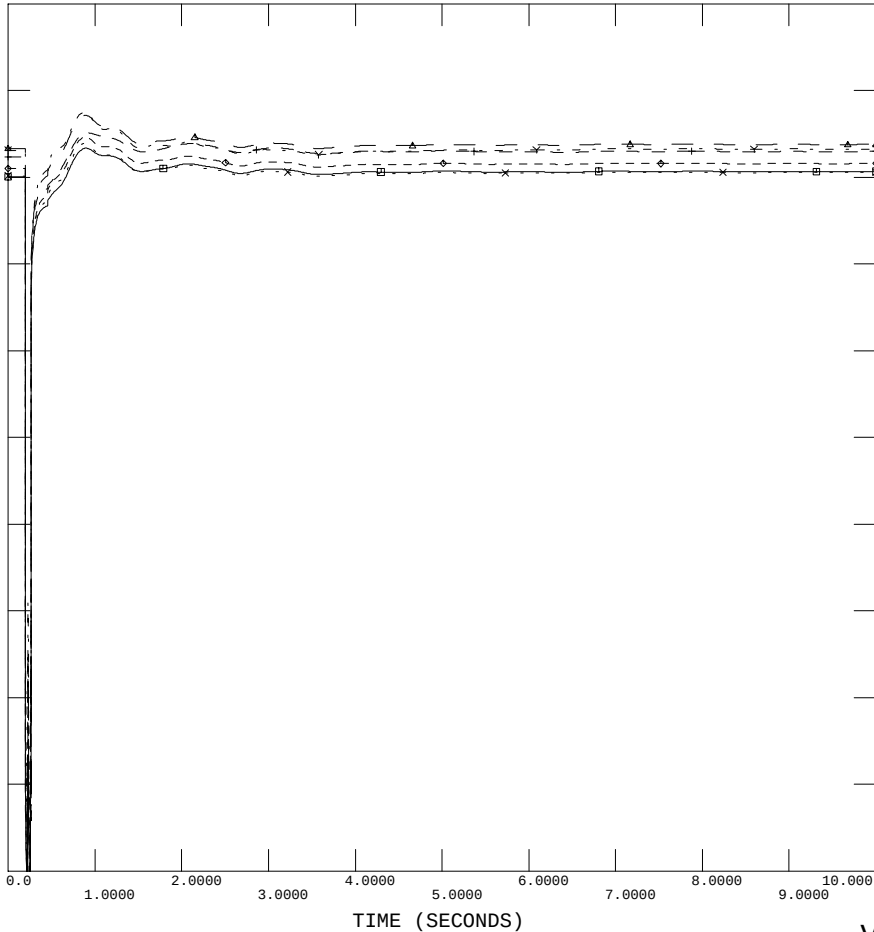


THU, FEB 13 2003 13:40  
VOLTAGE 1 CON8 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]

FILE: CON8-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

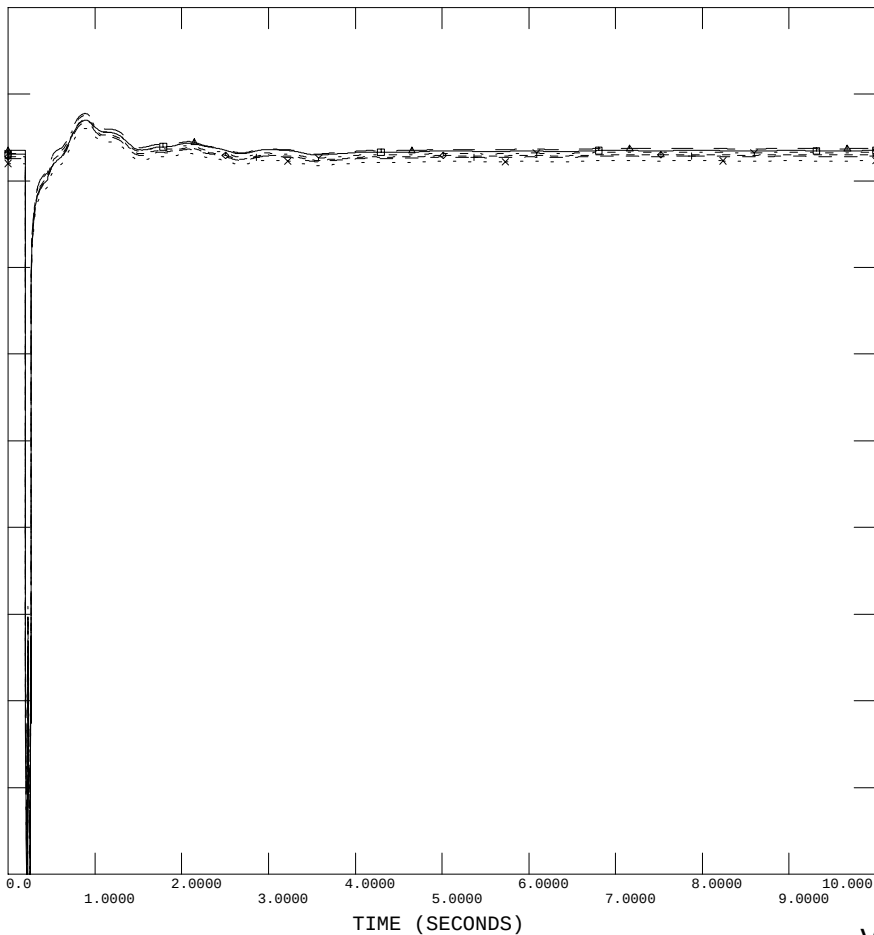


THU, FEB 13 2003 13:40  
VOLTAGE 2 CON8 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]

FILE: CON8-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

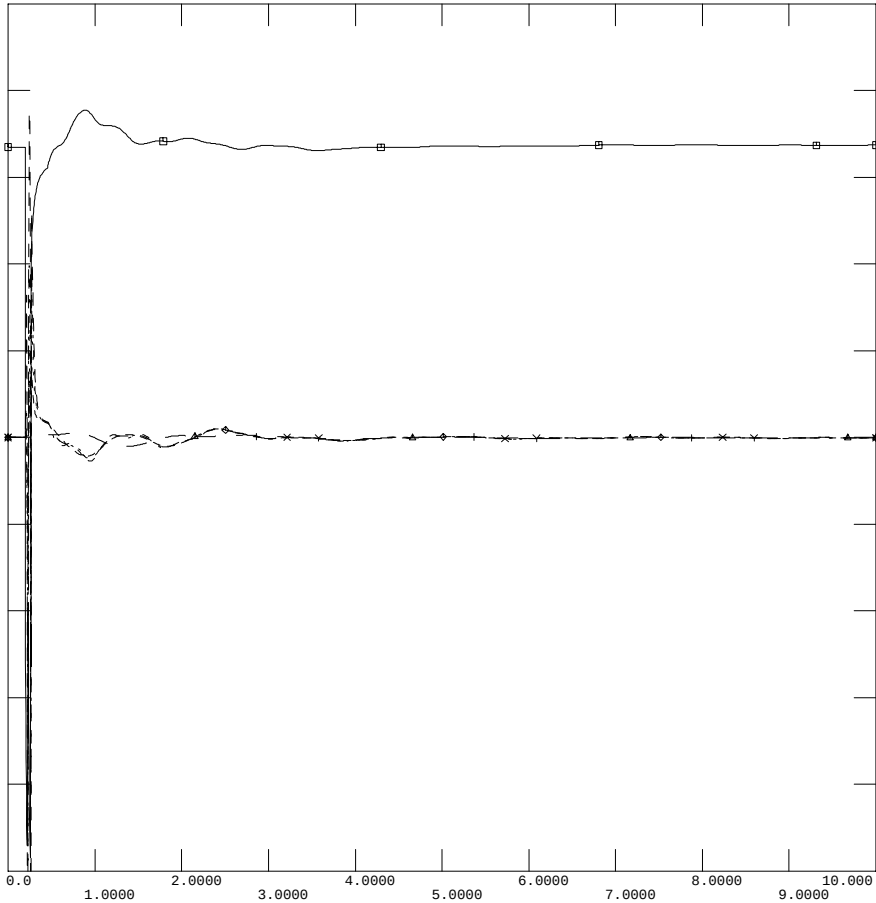


THU, FEB 13 2003 13:40  
VOLTAGE 3 CON8 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]

FILE: CON8-ON.OUT

|         |                                           |          |
|---------|-------------------------------------------|----------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500  |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500  |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500  |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500  |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500  |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.20000 |

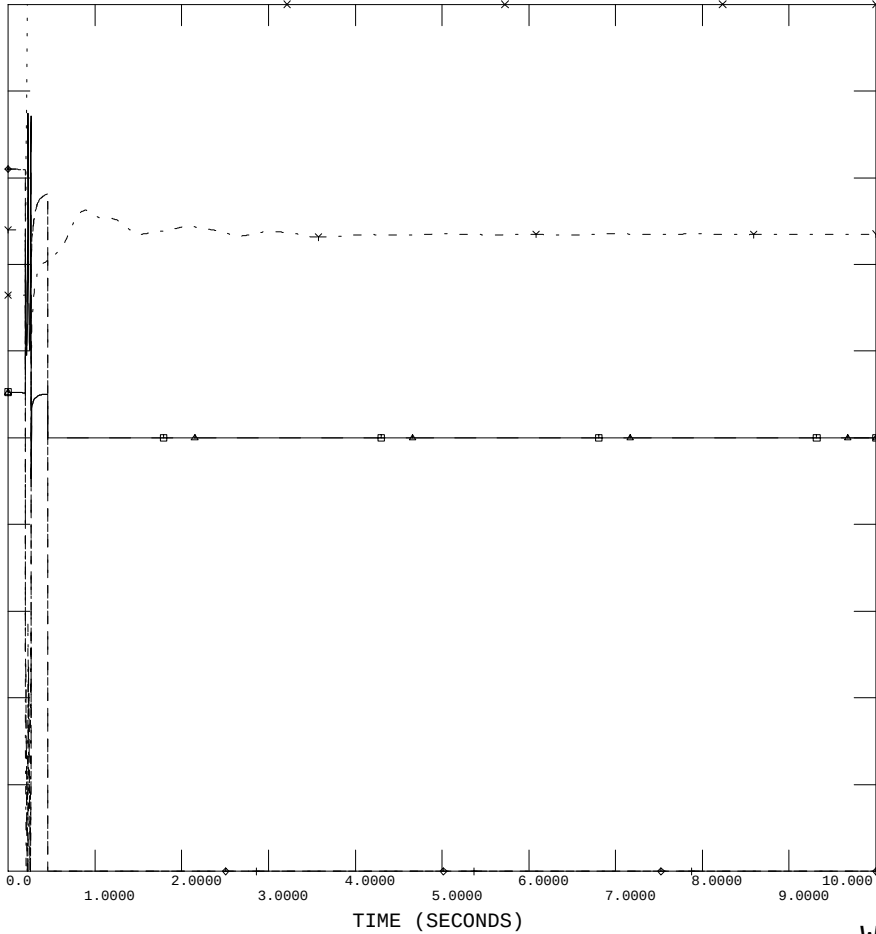


THU, FEB 13 2003 13:40  
FREQUENCY CON8 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]

FILE: CON8-ON.OUT

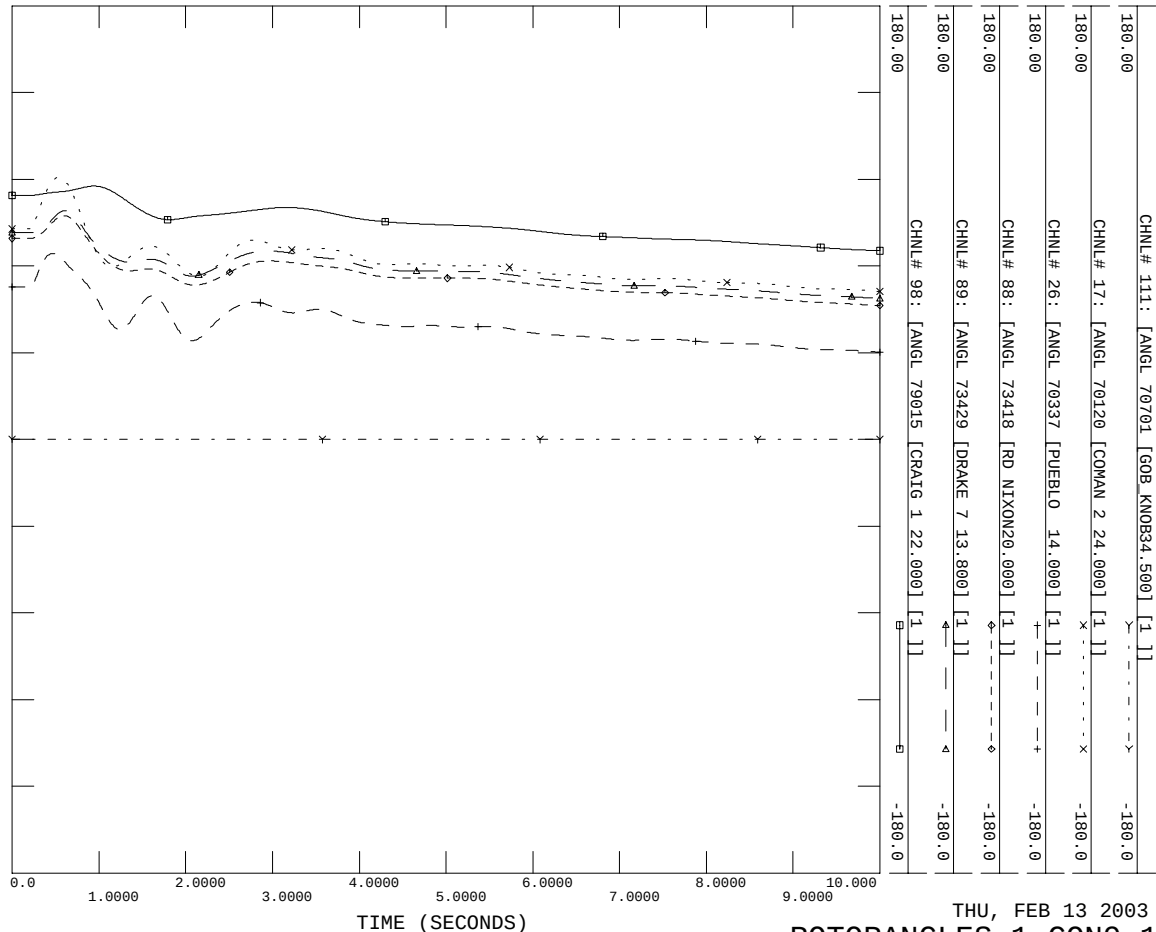
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON8 162MW

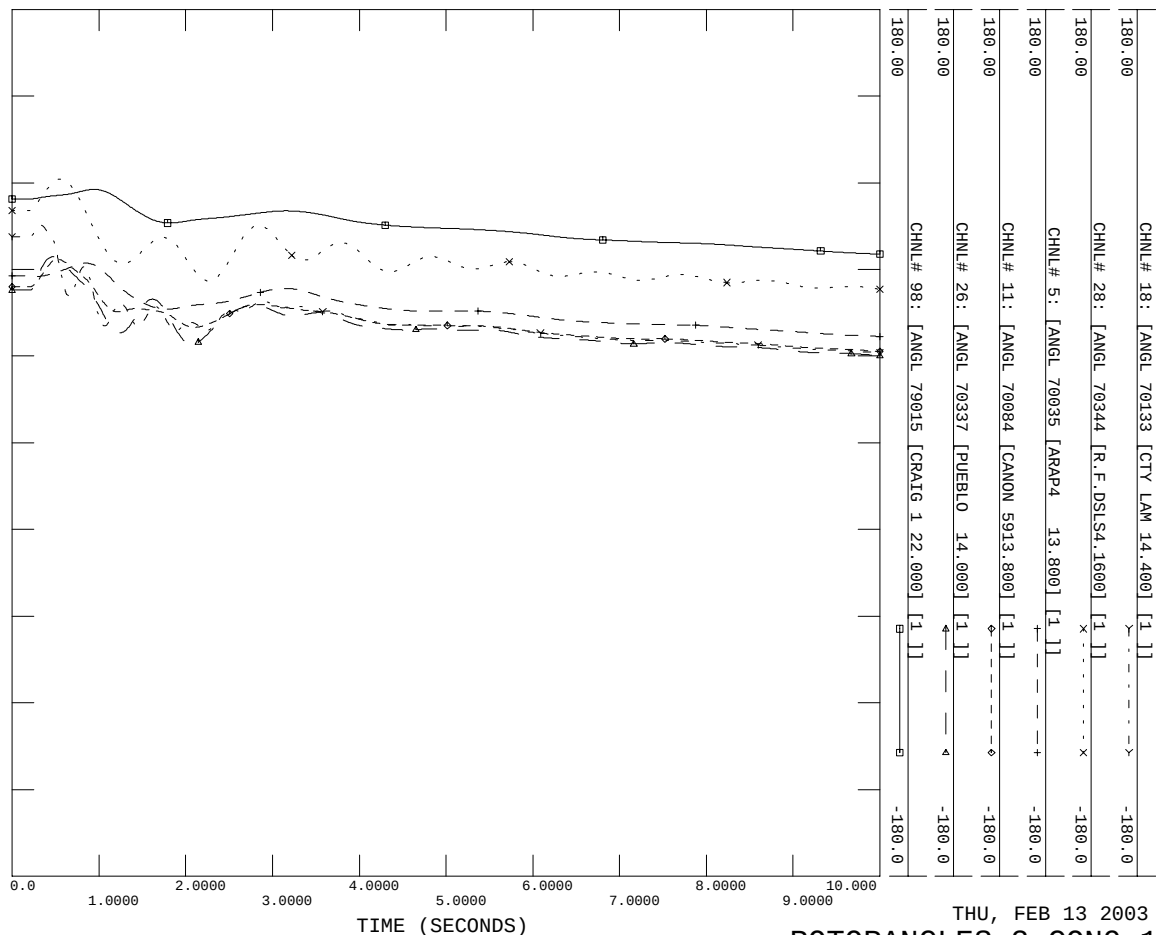
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

FILE: CON9-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

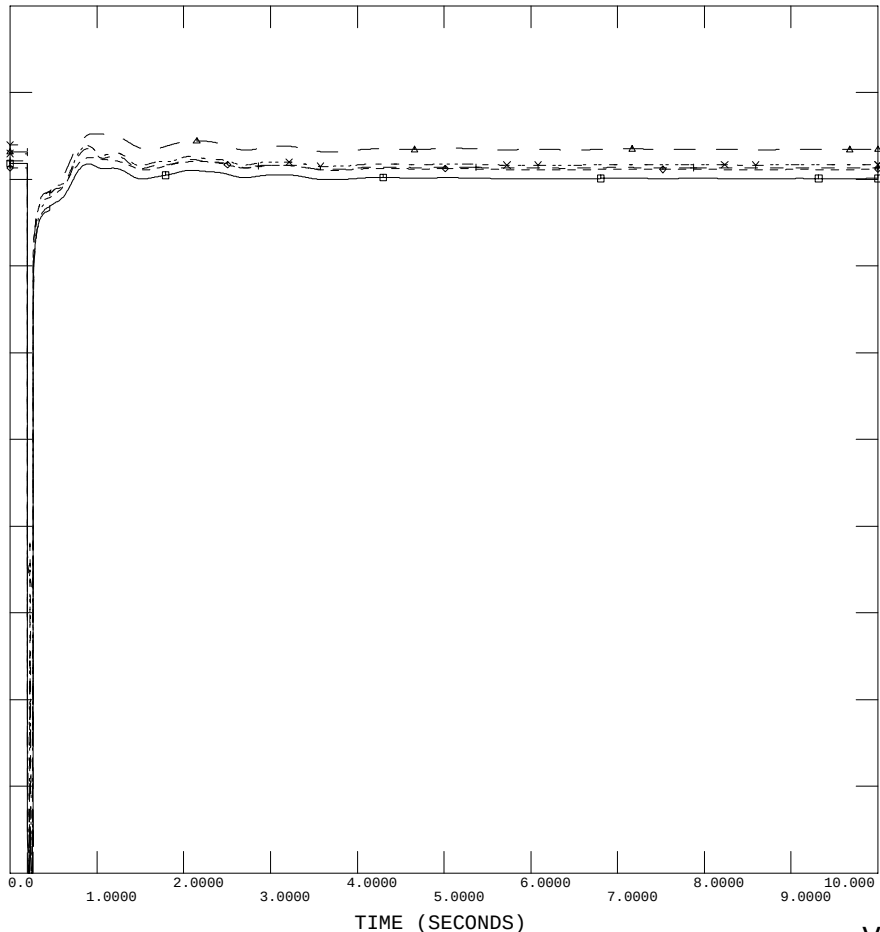
FILE: CON9-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

FILE: CON9-ON.OUT

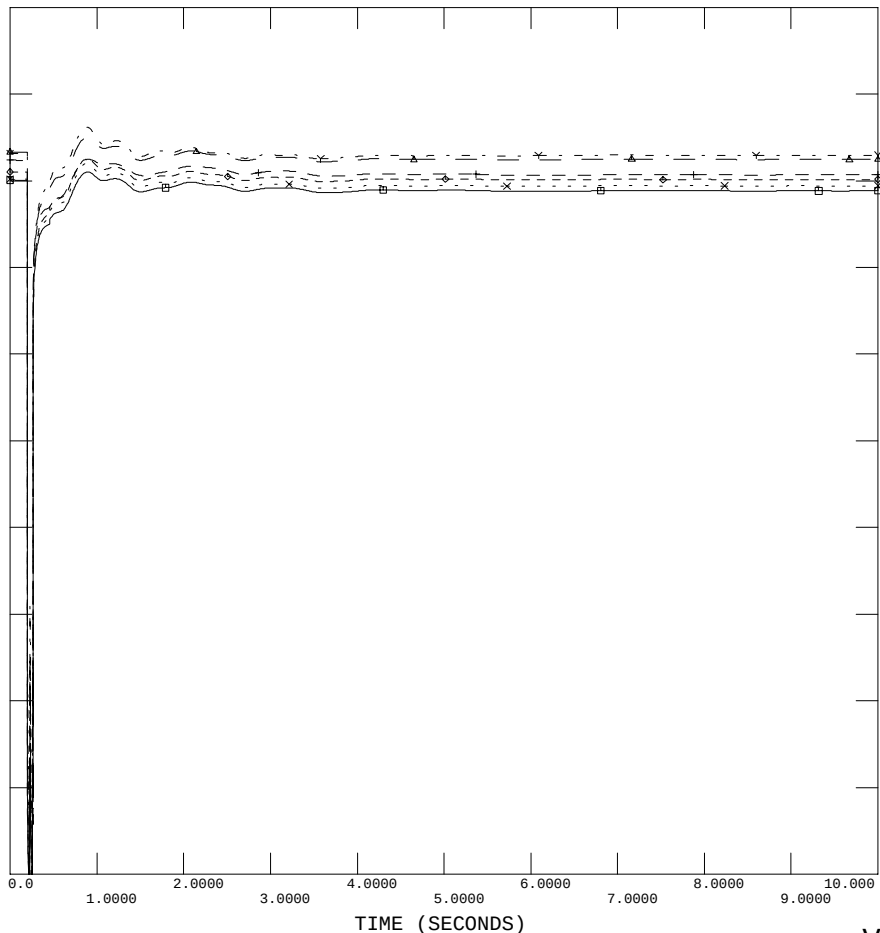
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR.C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

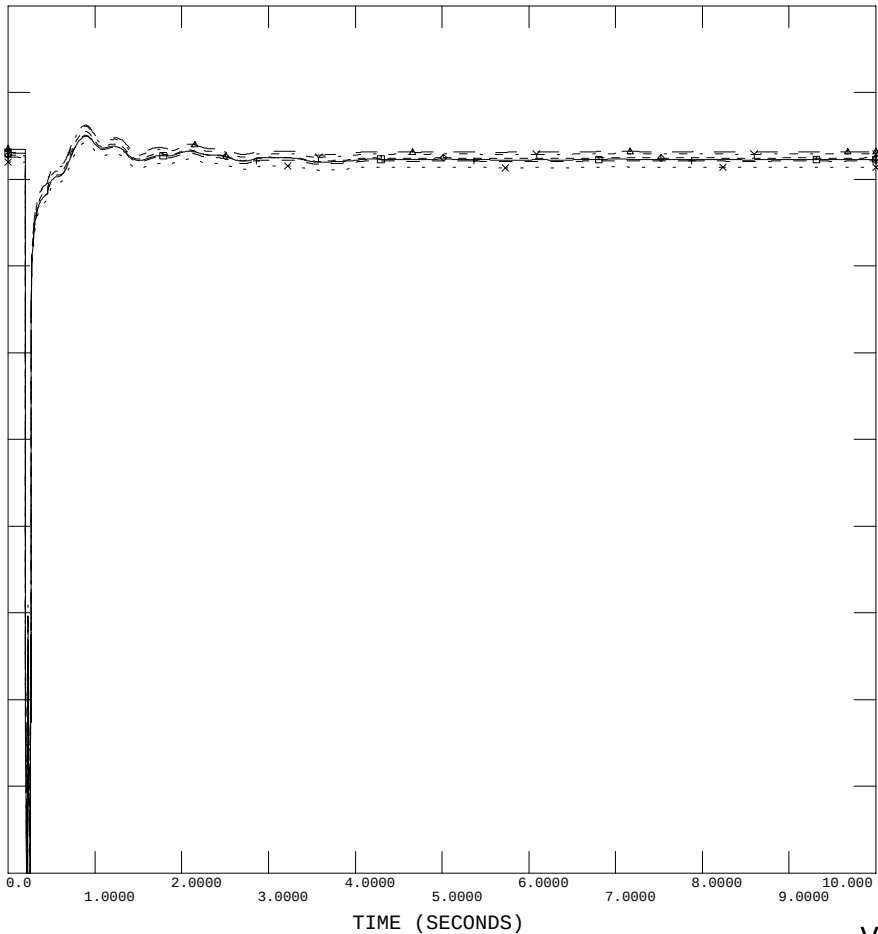
FILE: CON9-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW OK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR.C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
FILE: CON9-ON.OUT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

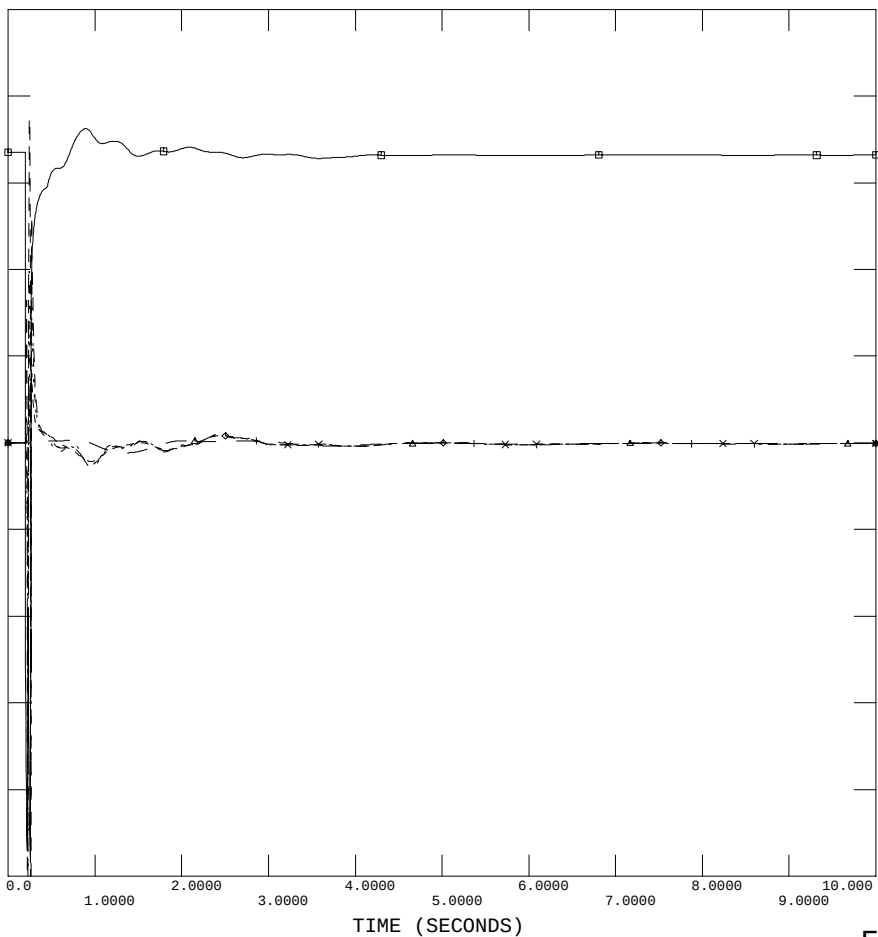
|                         |                                           |         |
|-------------------------|-------------------------------------------|---------|
| POWER<br>TIC<br>0.00000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000                  | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000                  | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000                  | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000                  | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000                  | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



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VOLTAGE 3 CON9 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
FILE: CON9-ON.OUT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

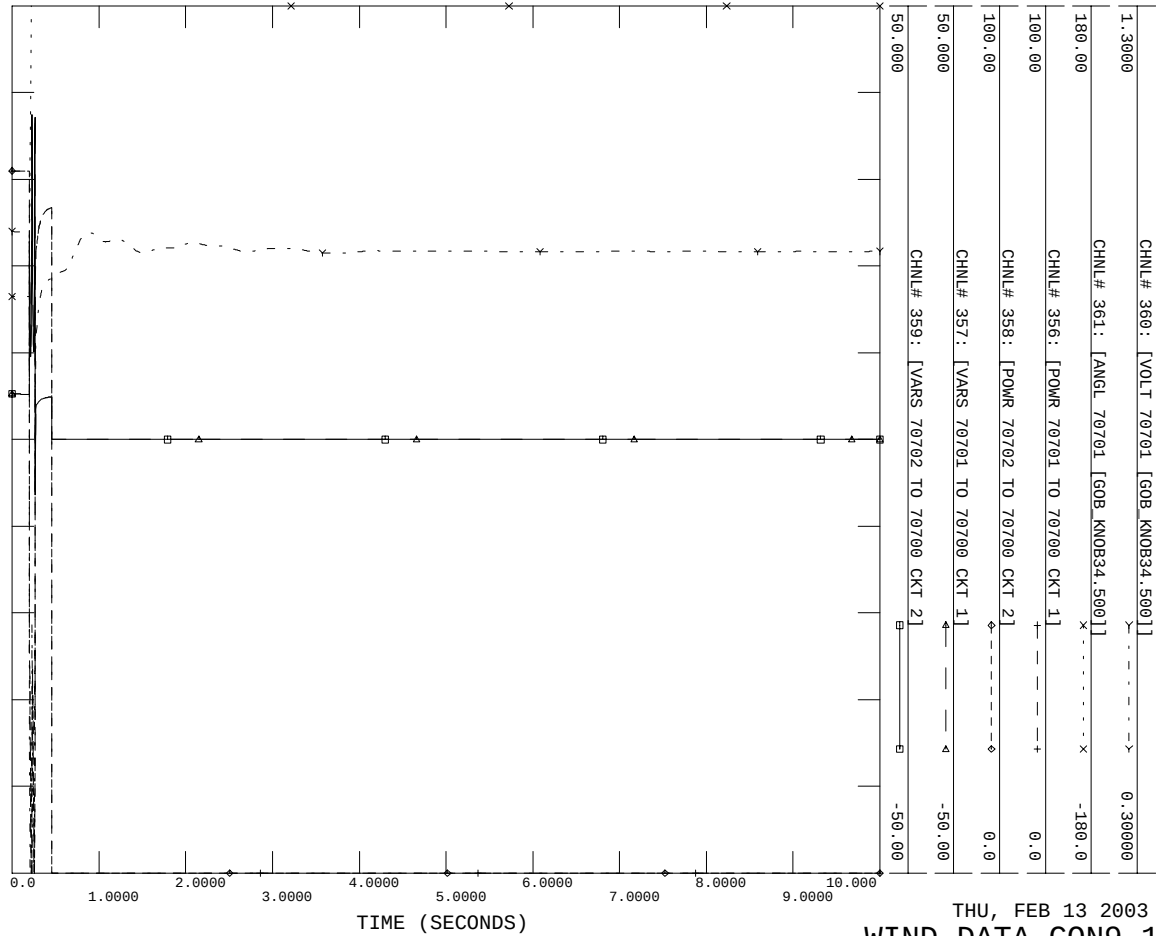
|                         |                                           |         |
|-------------------------|-------------------------------------------|---------|
| POWER<br>TIC<br>0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000                 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000                 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000                 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000                 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000                 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |



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FREQUENCY CON9 162MW

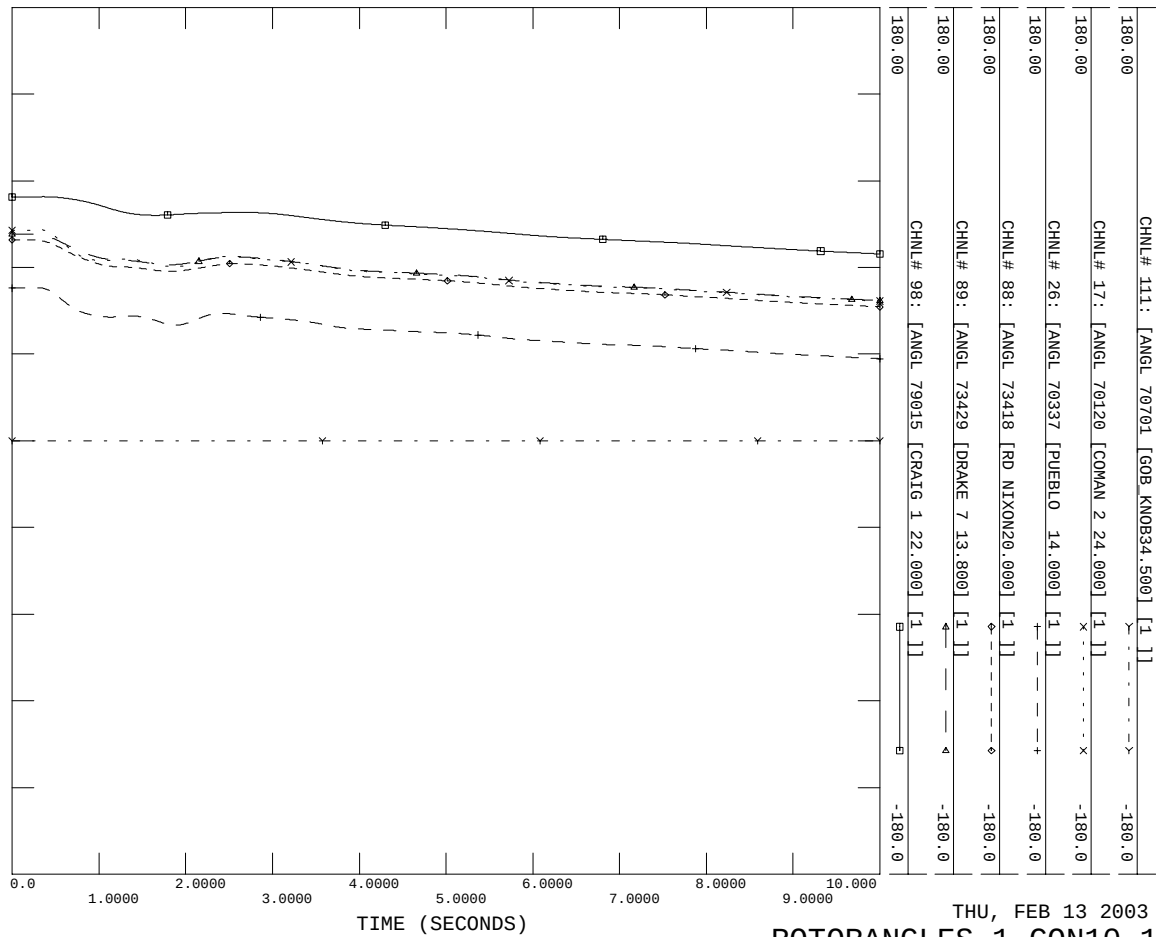
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

FILE: CON9-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT

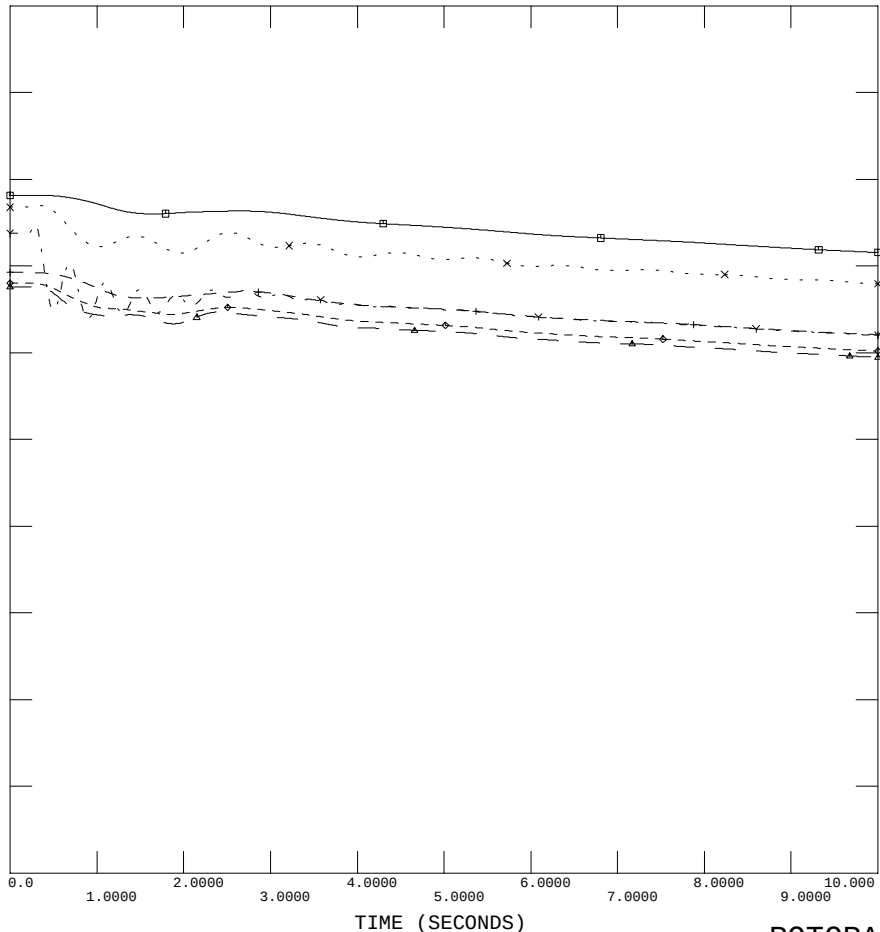




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1.22.000] [1.]] | -180.0 |



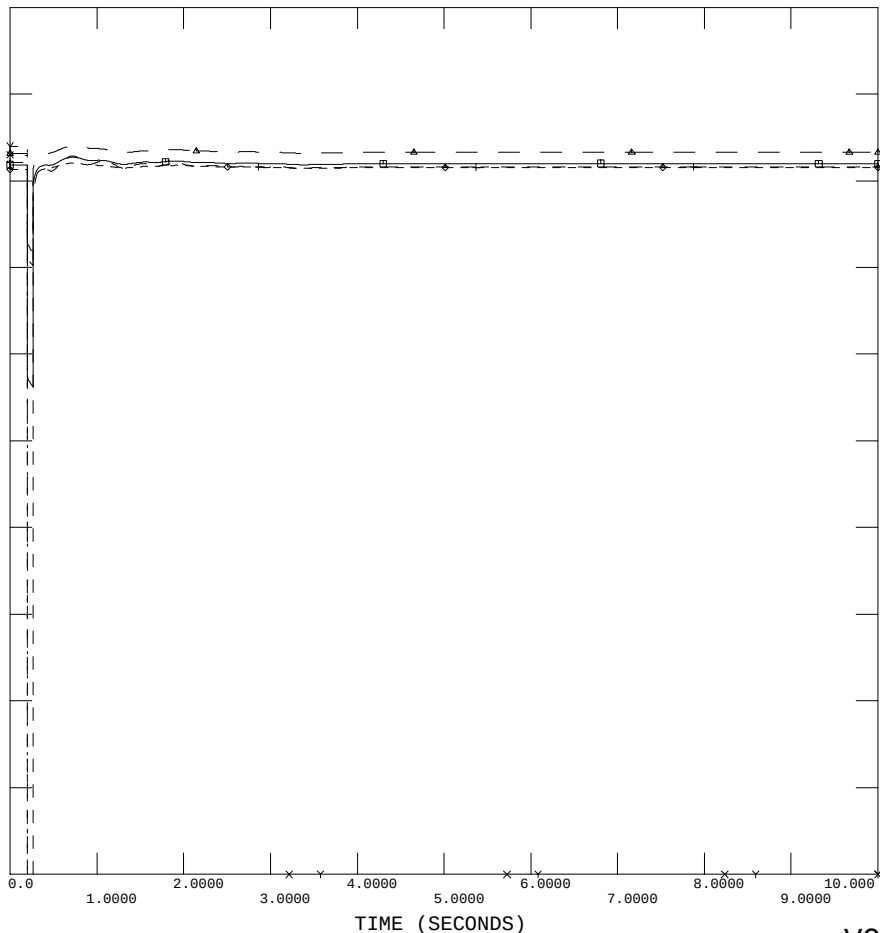
THU, FEB 13 2003 13:40  
ROTORANGLES 2 CON10 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR CO230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

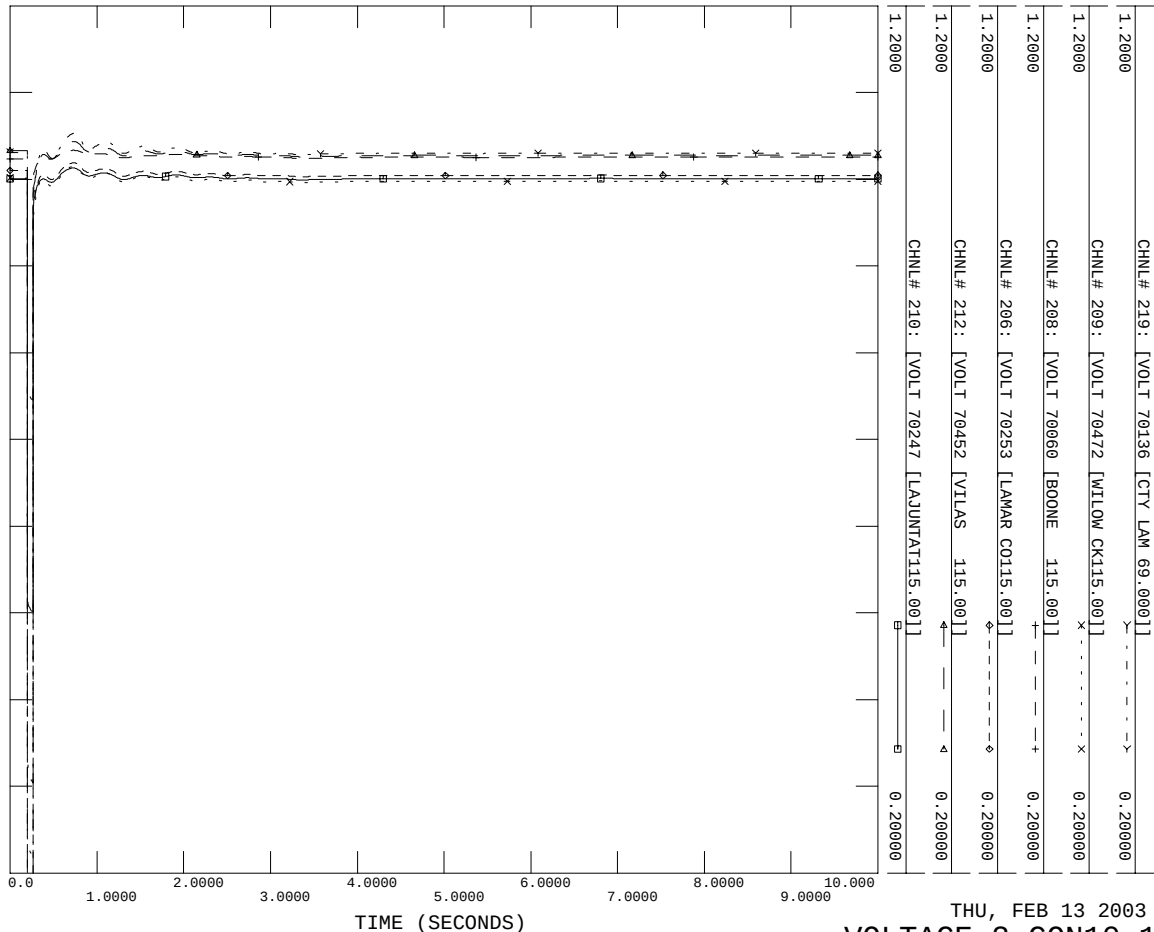


THU, FEB 13 2003 13:40  
VOLTAGE 1 CON10 162MW



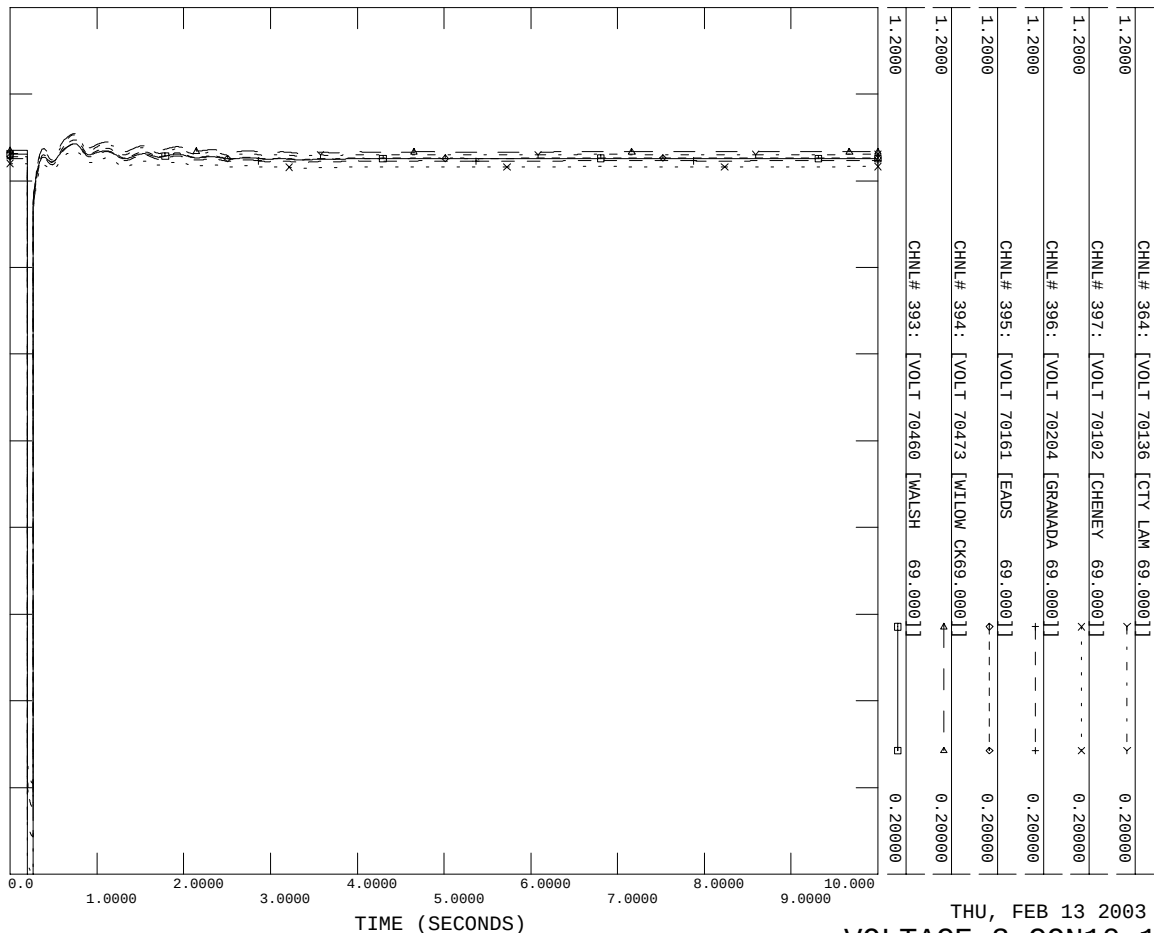
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

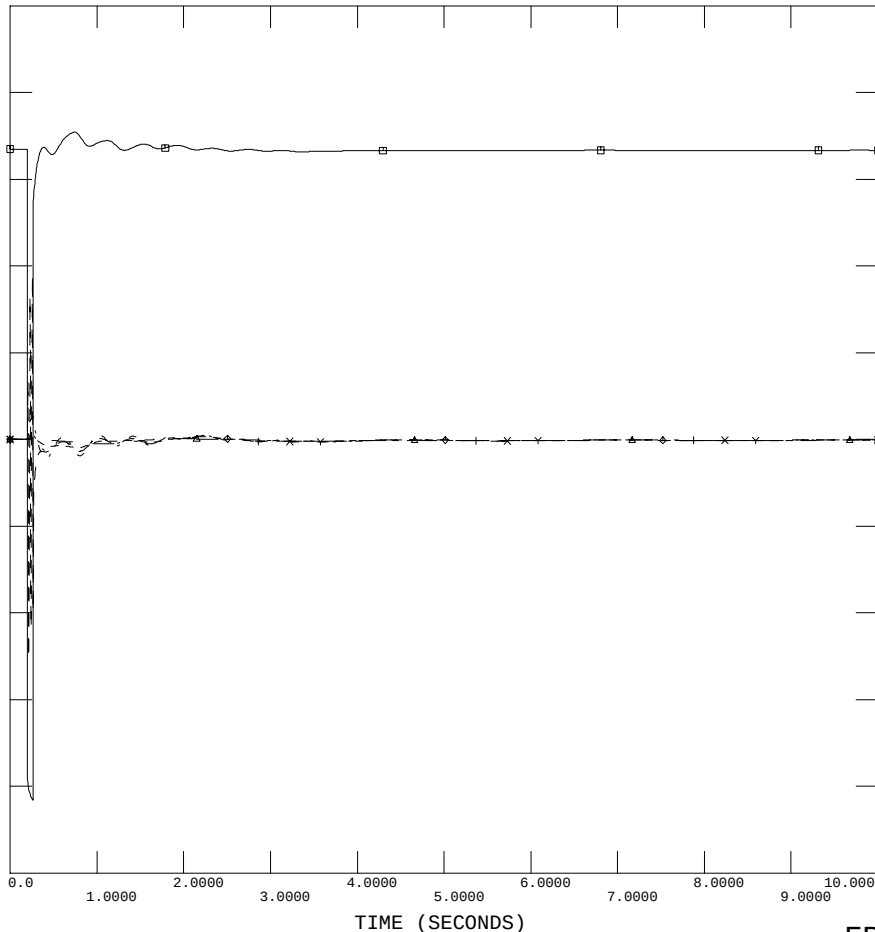
FILE: CON10-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT

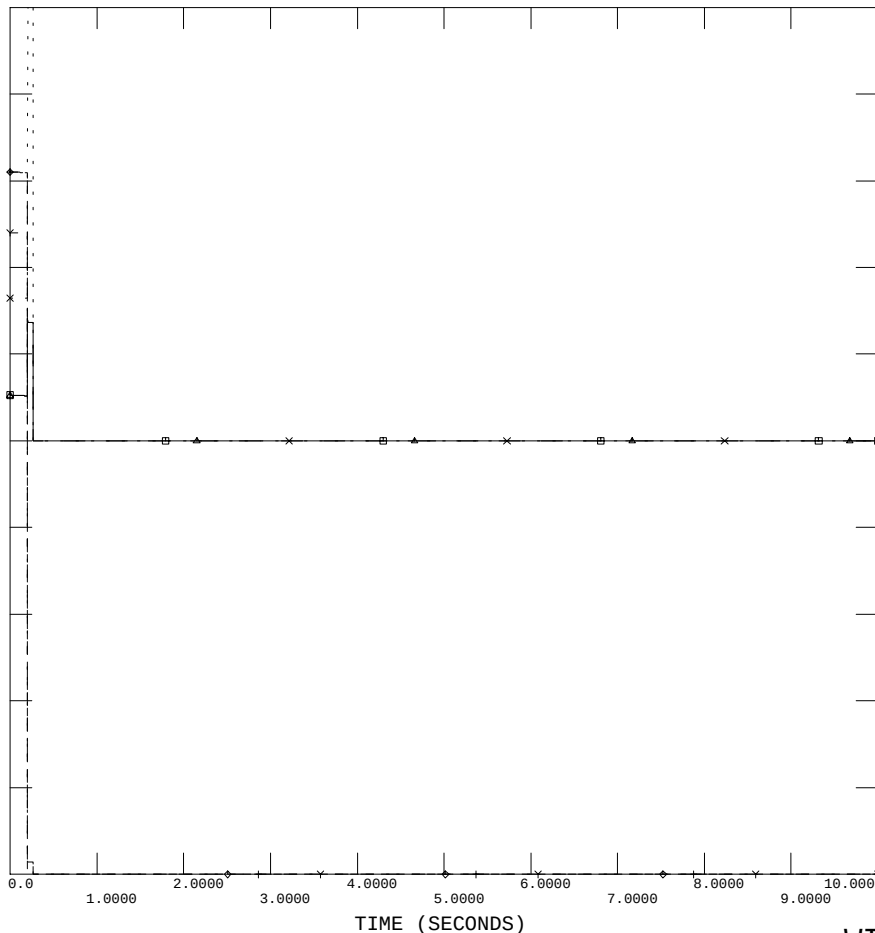
|         |                                           |          |
|---------|-------------------------------------------|----------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500  |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500  |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500  |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500  |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500  |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT

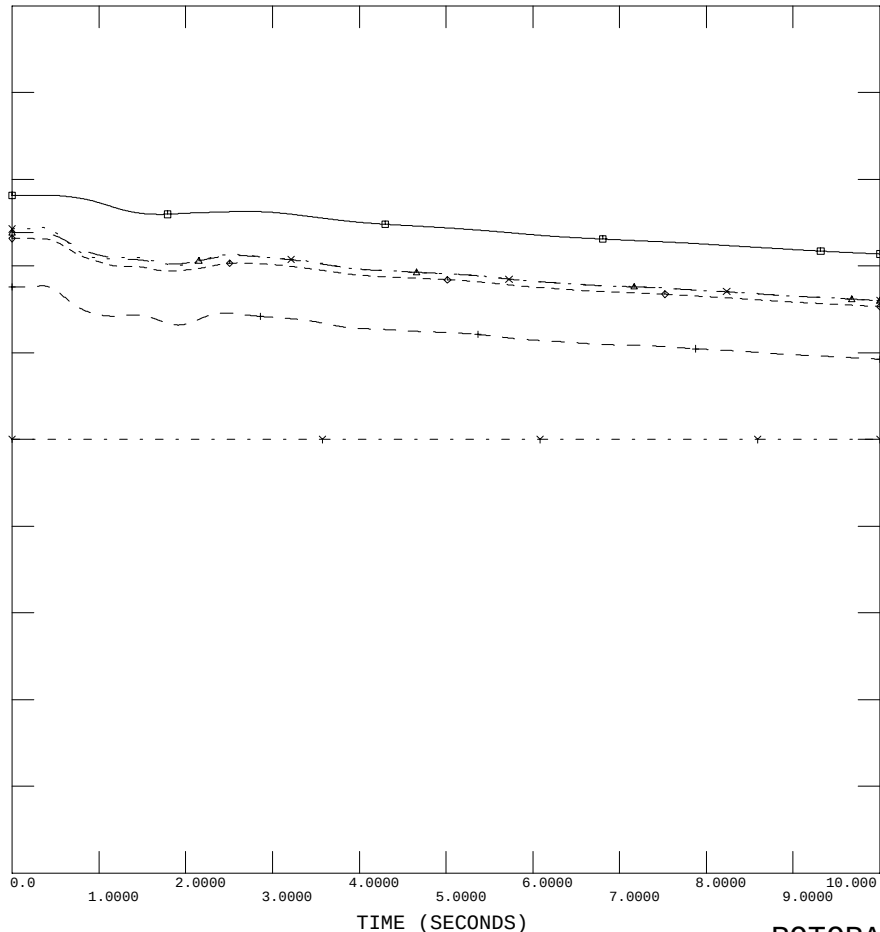
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]

FILE: CON11-ON.OUT

|        |                                               |        |
|--------|-----------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [G0B.KNOB34.500] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]   | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]]  | -180.0 |

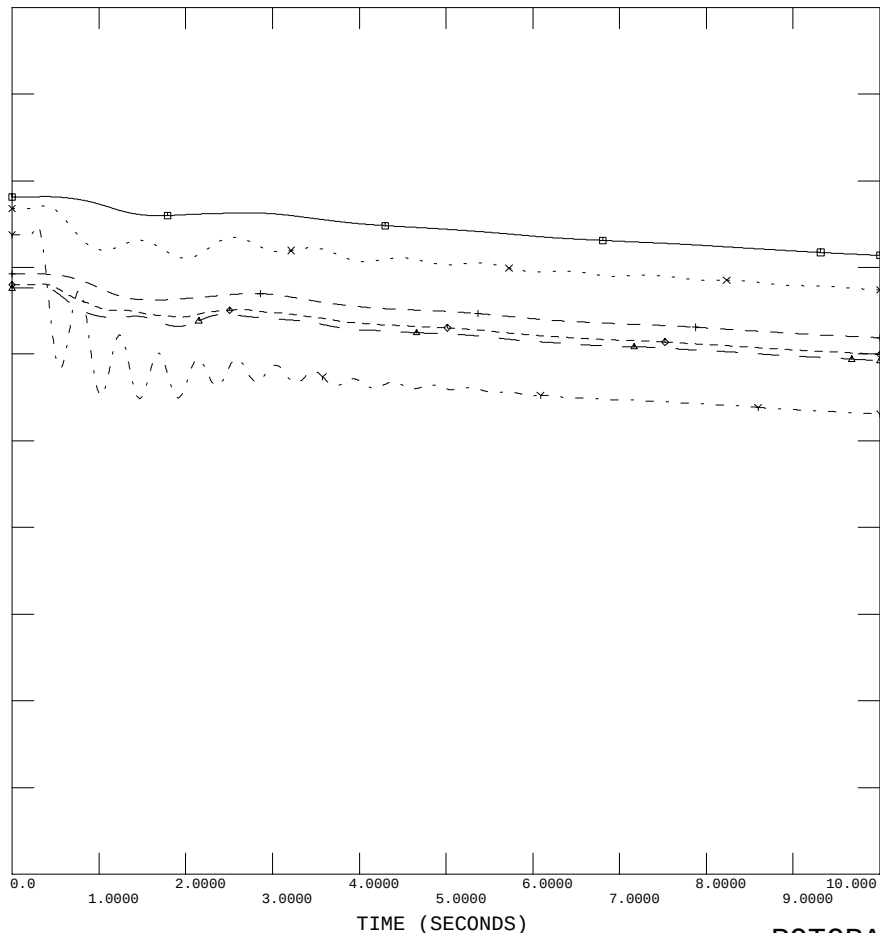


THU, FEB 13 2003 13:40  
ROTORANGLES 1 CON11 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]

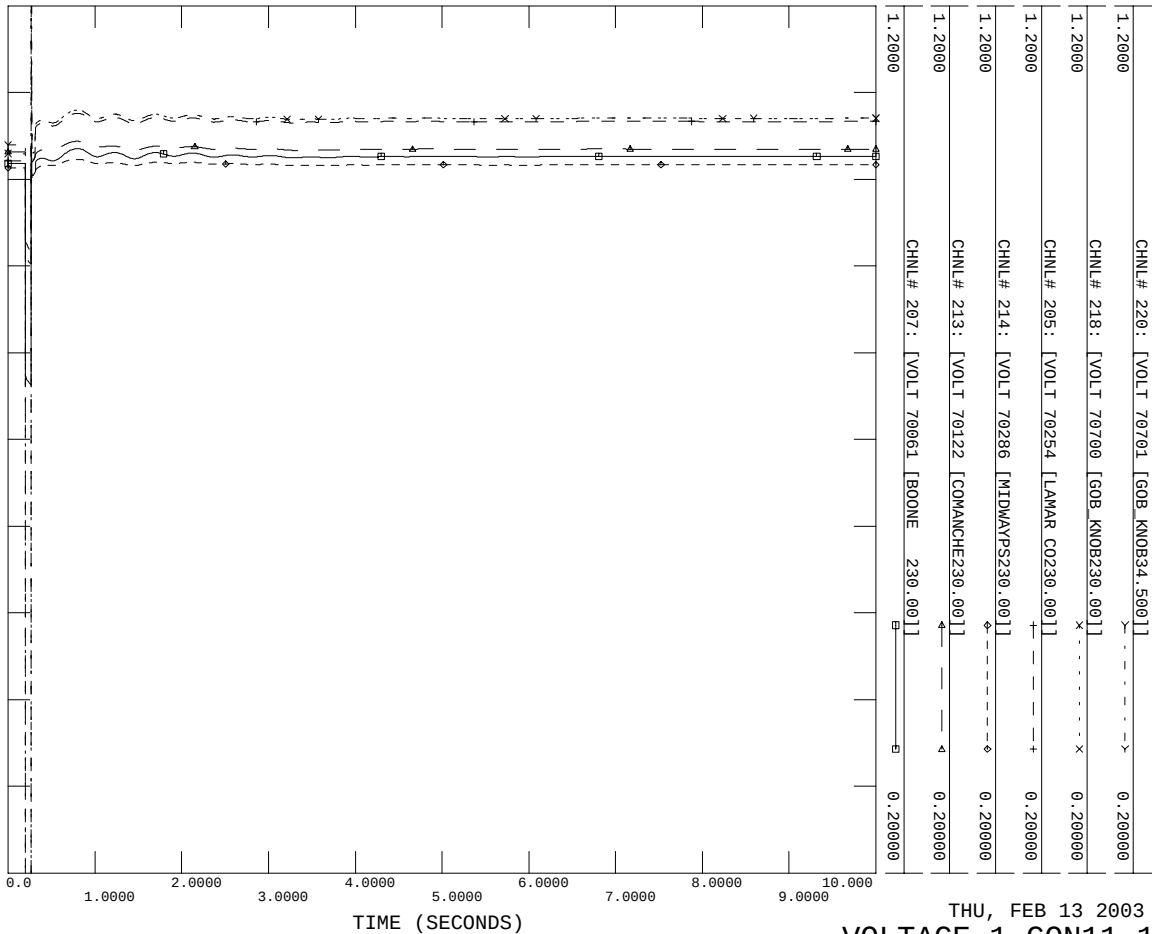
FILE: CON11-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |

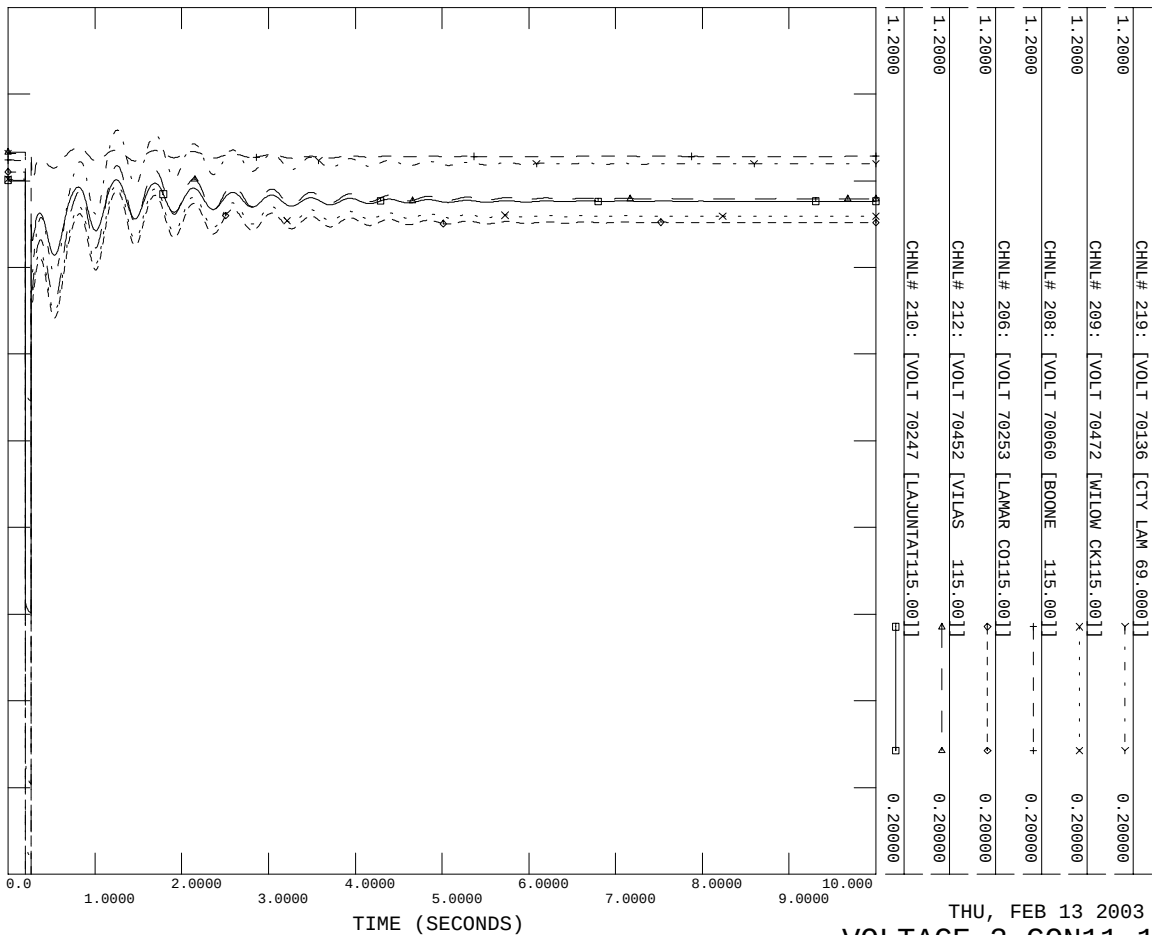


THU, FEB 13 2003 13:40  
ROTORANGLES 2 CON11 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT

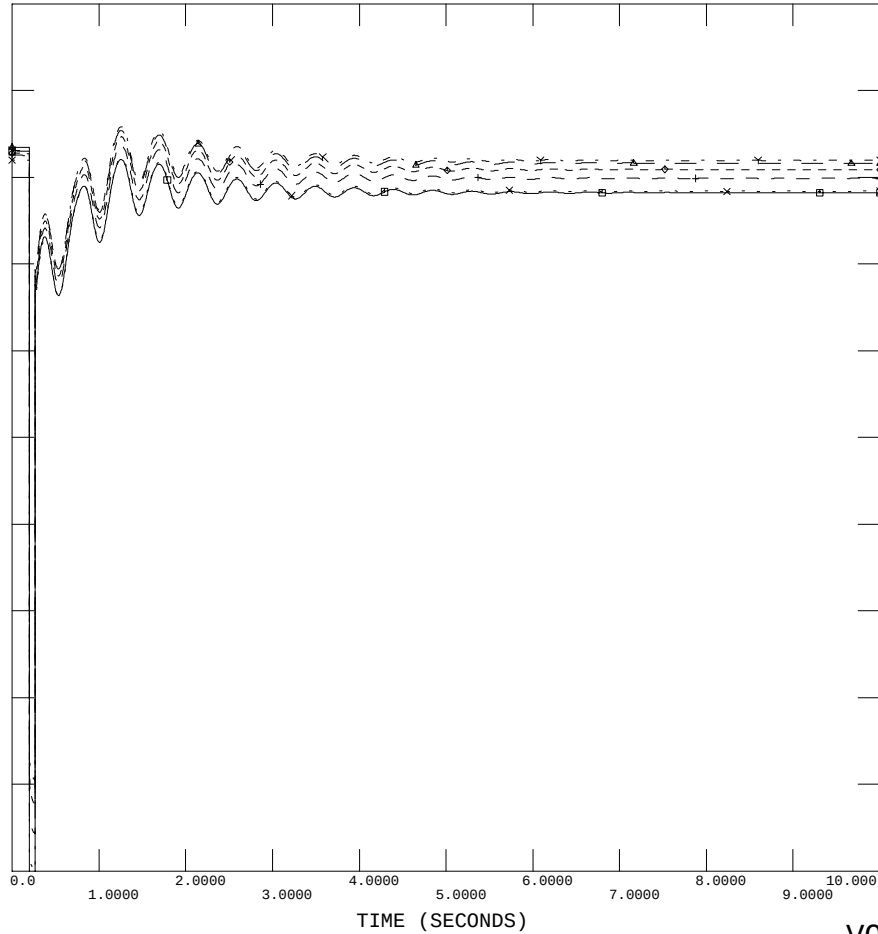


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT

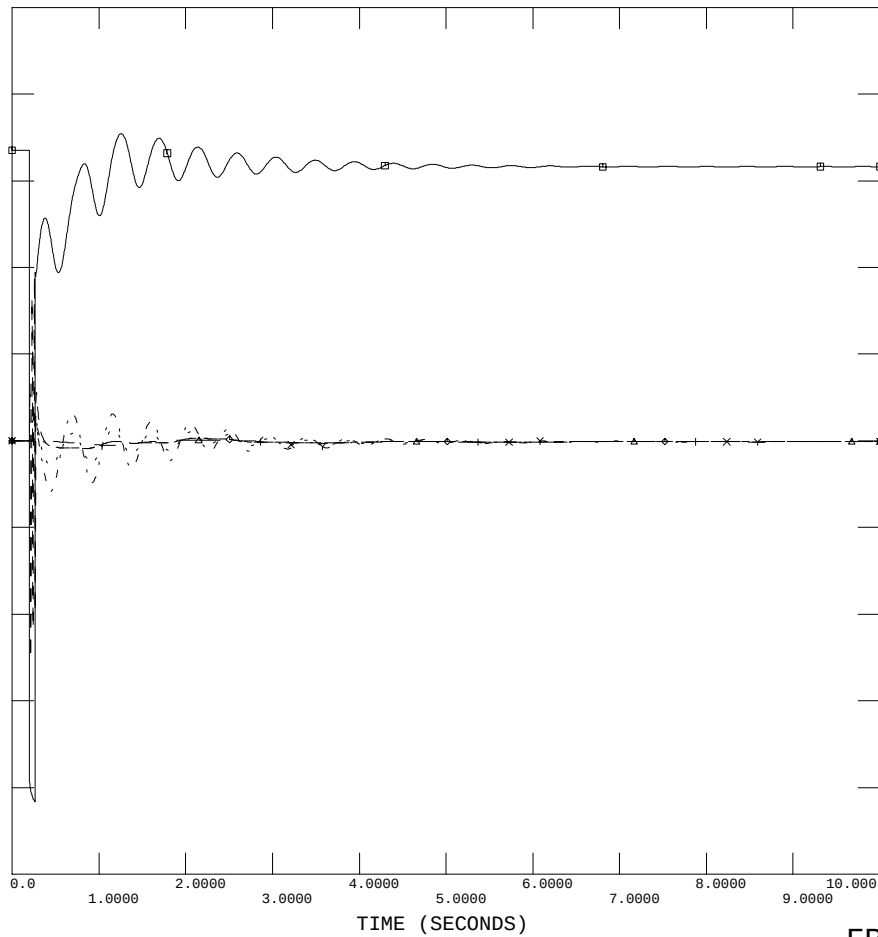
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



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VOLTAGE 3 CON11 162MW

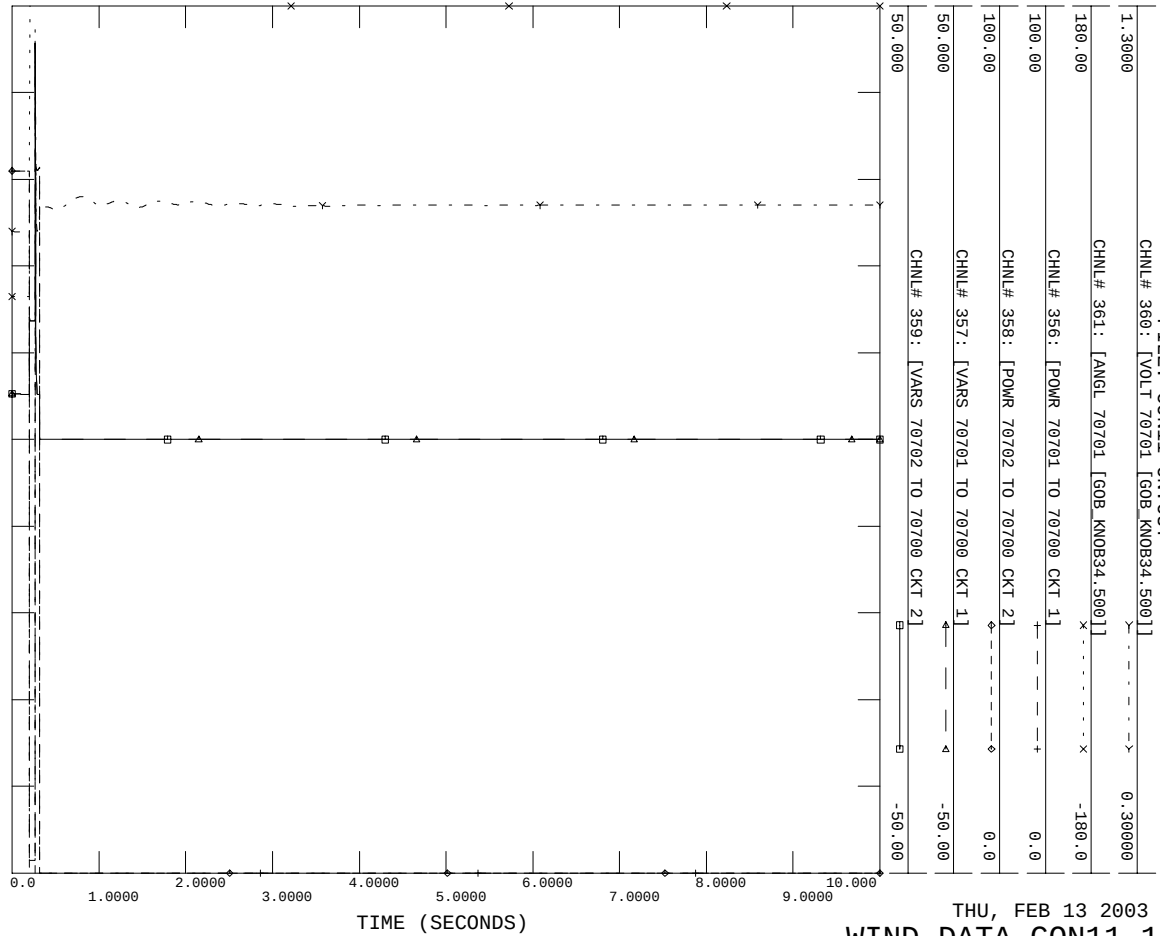
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |



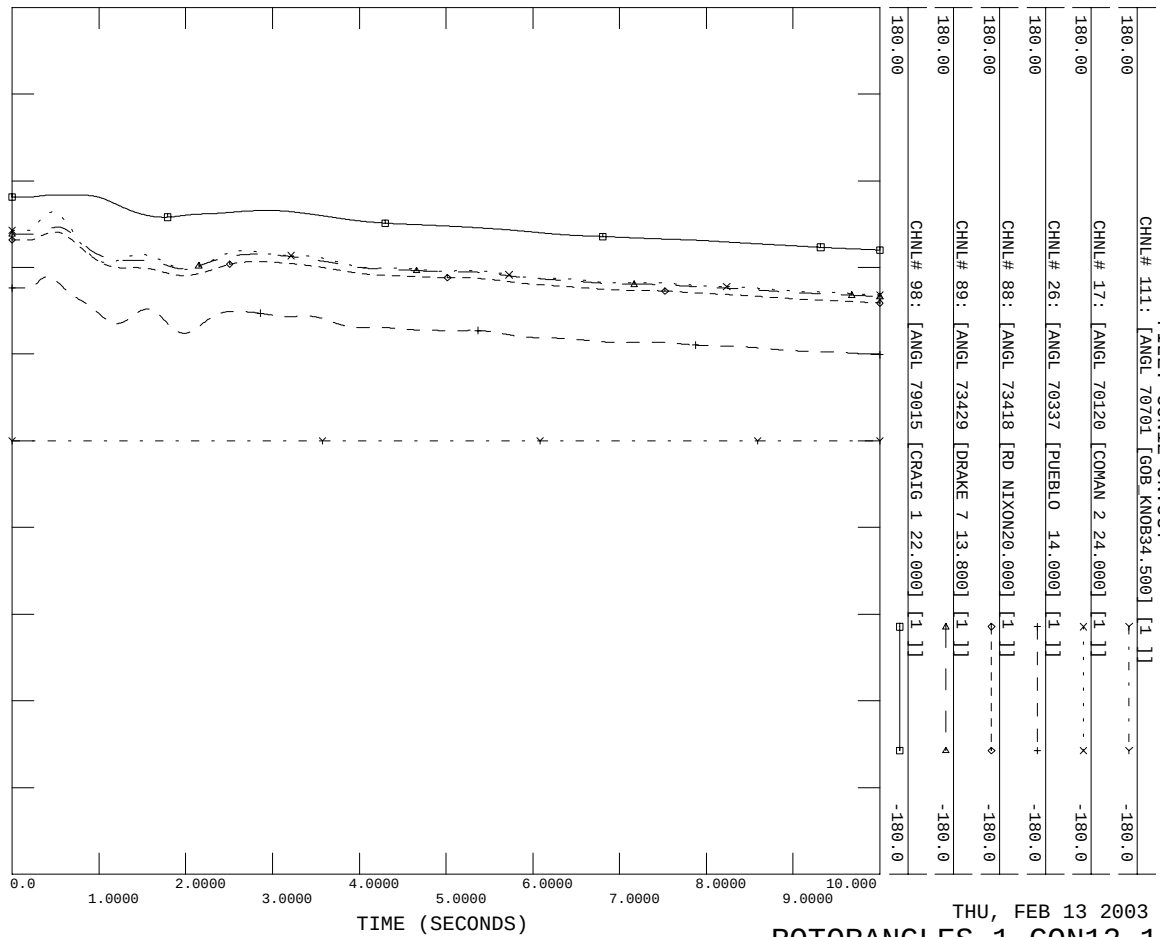
THU, FEB 13 2003 13:40  
FREQUENCY CON11 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT



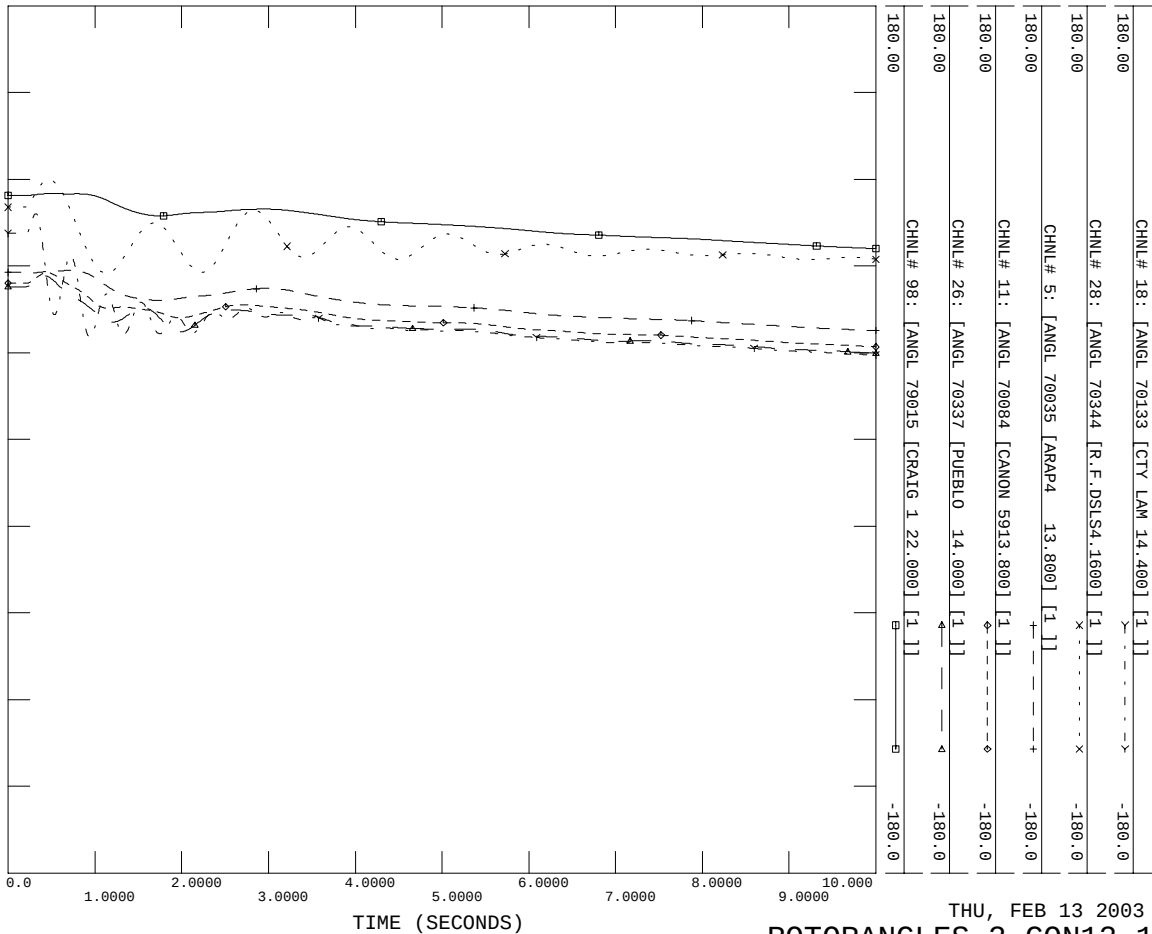
THU, FEB 13 2003 13:40  
WIND DATA CON11 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT

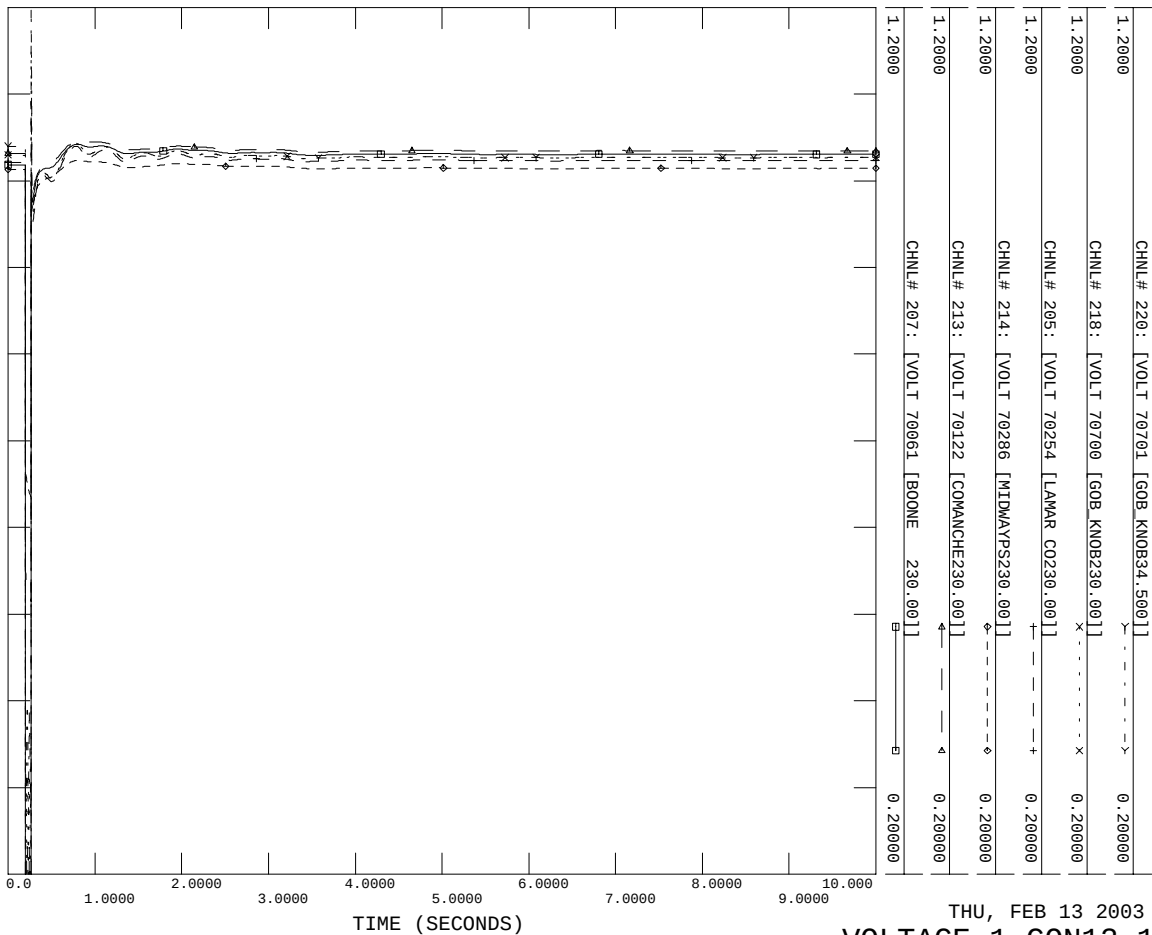


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ROTORANGLES 1 CON12 162MW

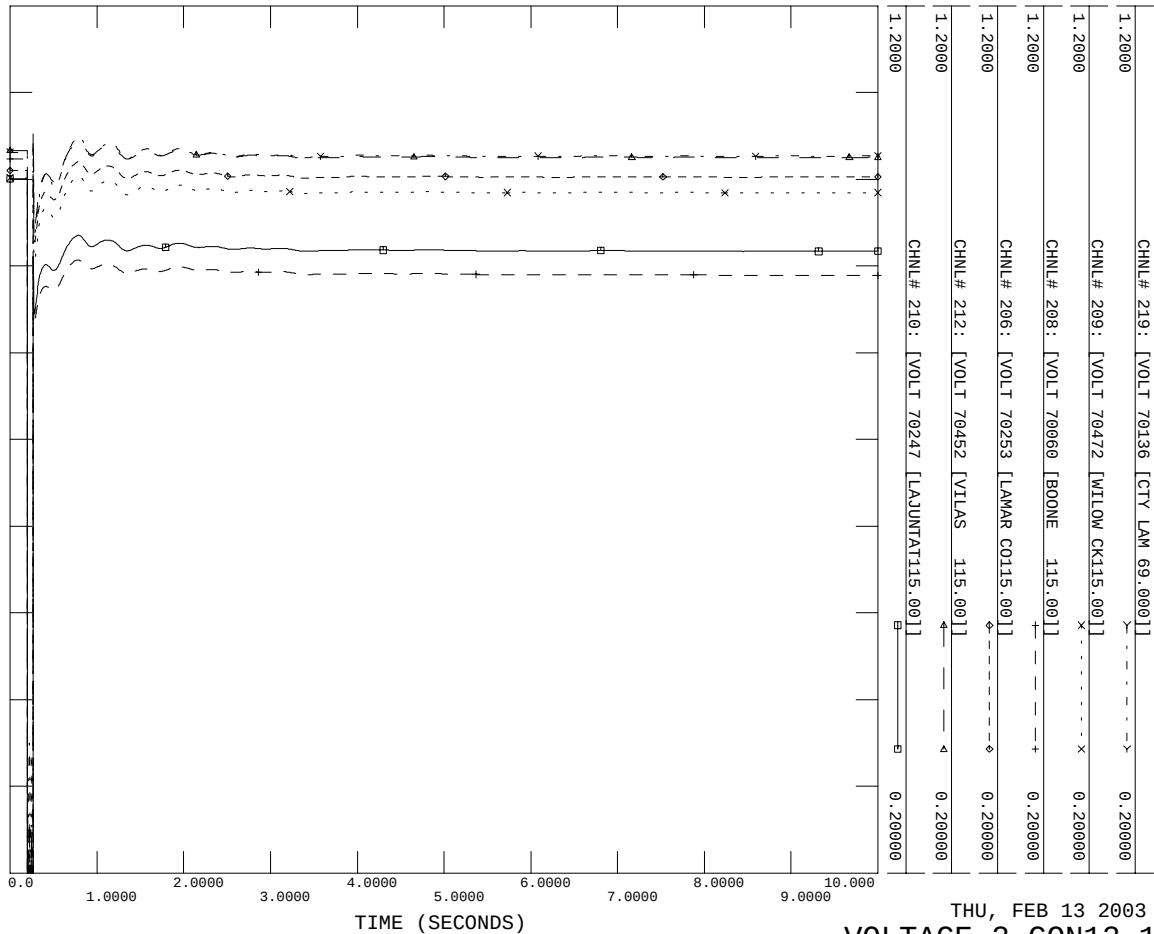
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT

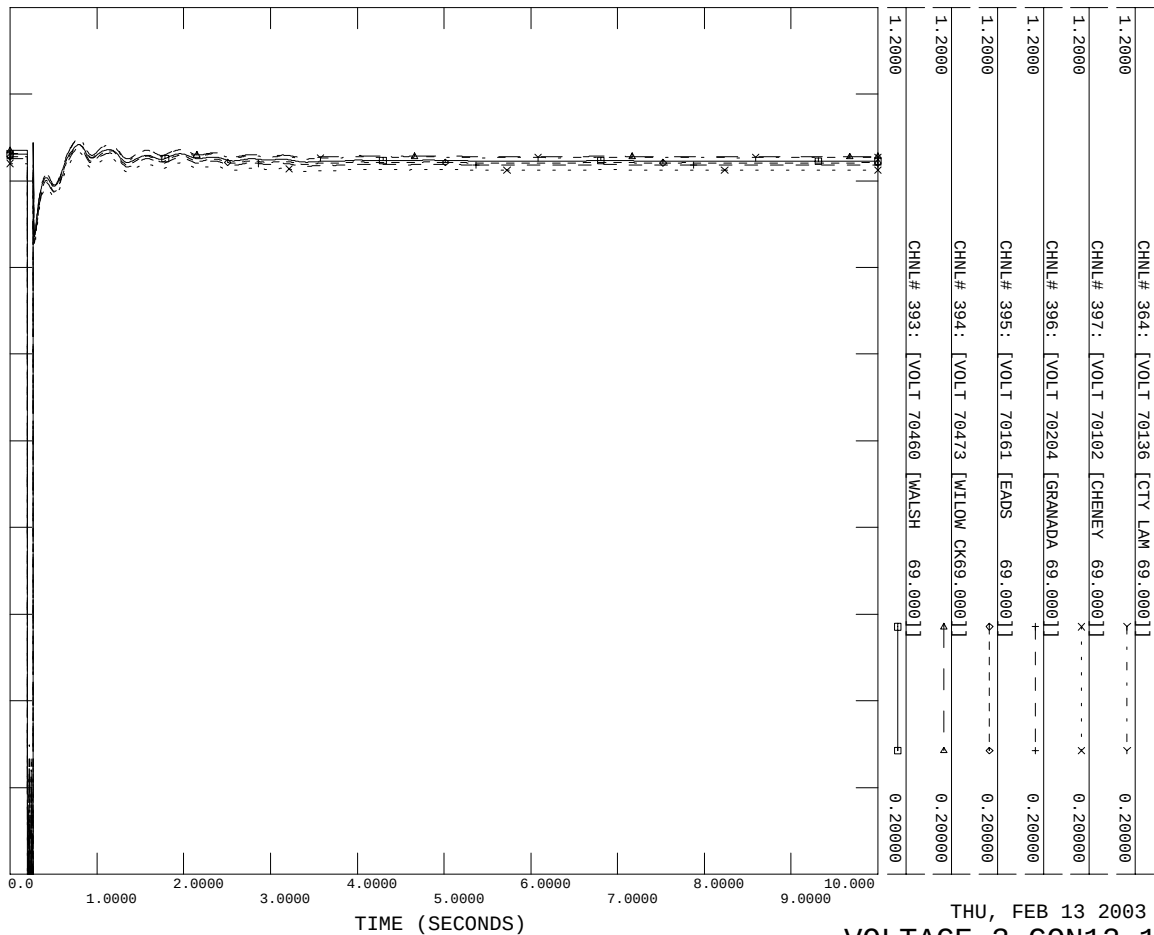


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT



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VOLTAGE 2 CON12 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT

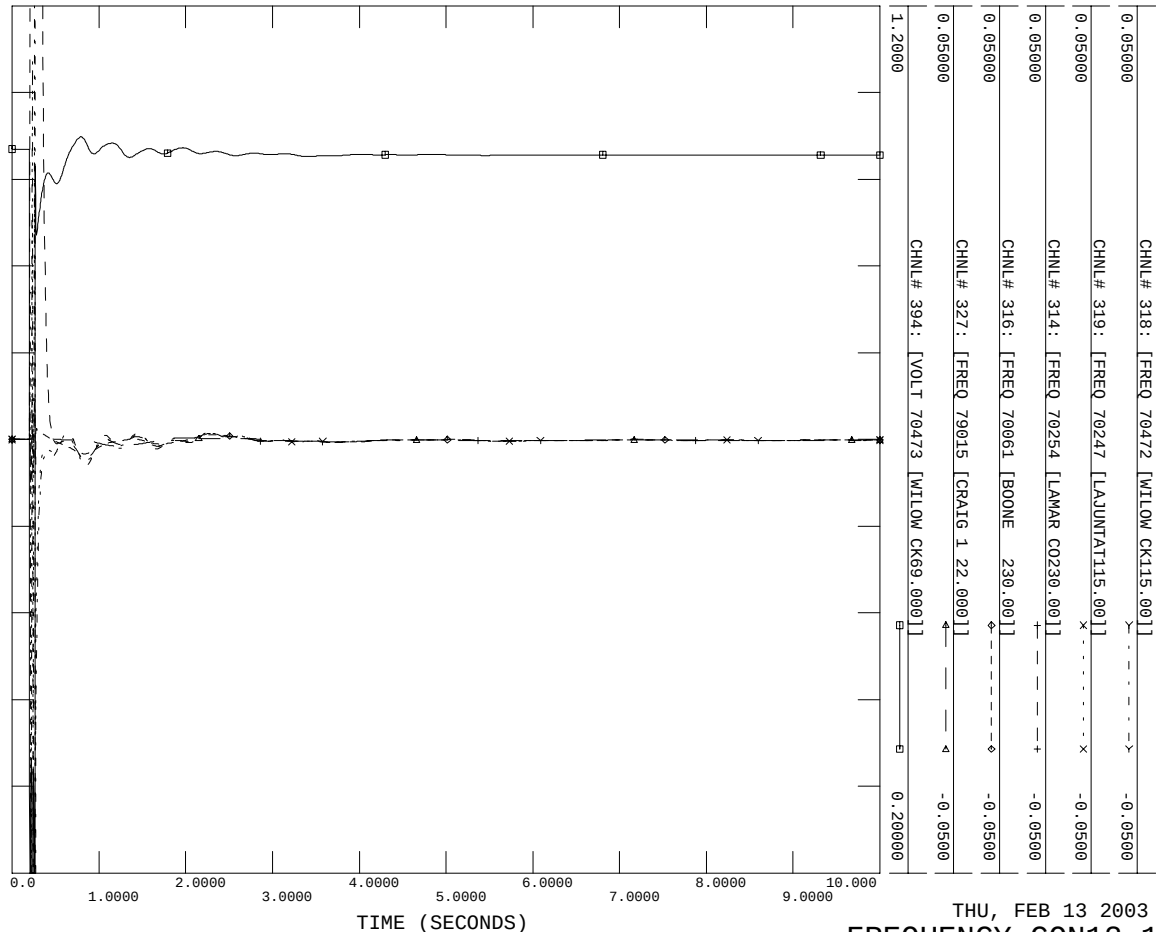


THU, FEB 13 2003 13:40  
VOLTAGE 3 CON12 162MW



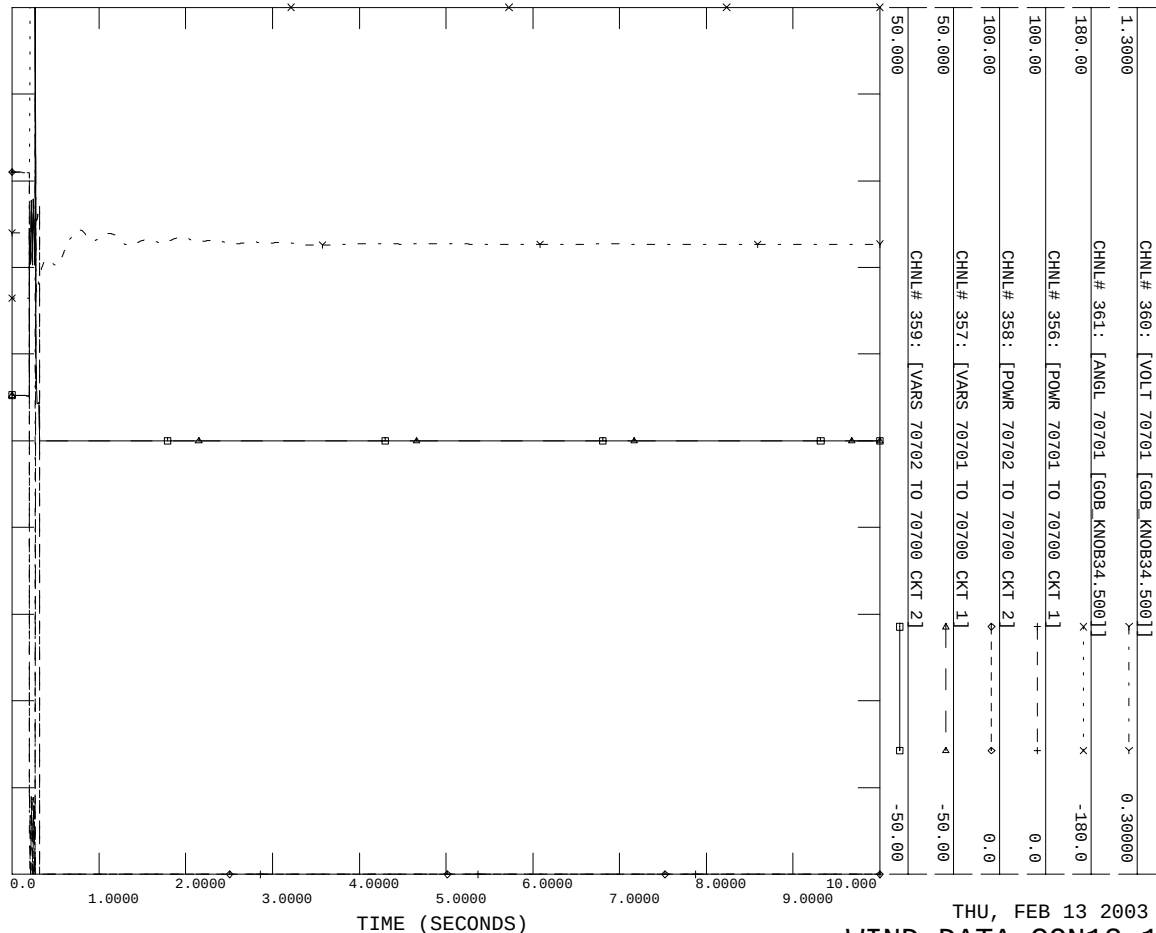
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]

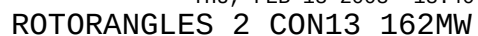
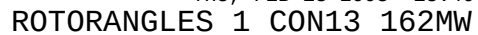
FILE: CON12-ON.OUT



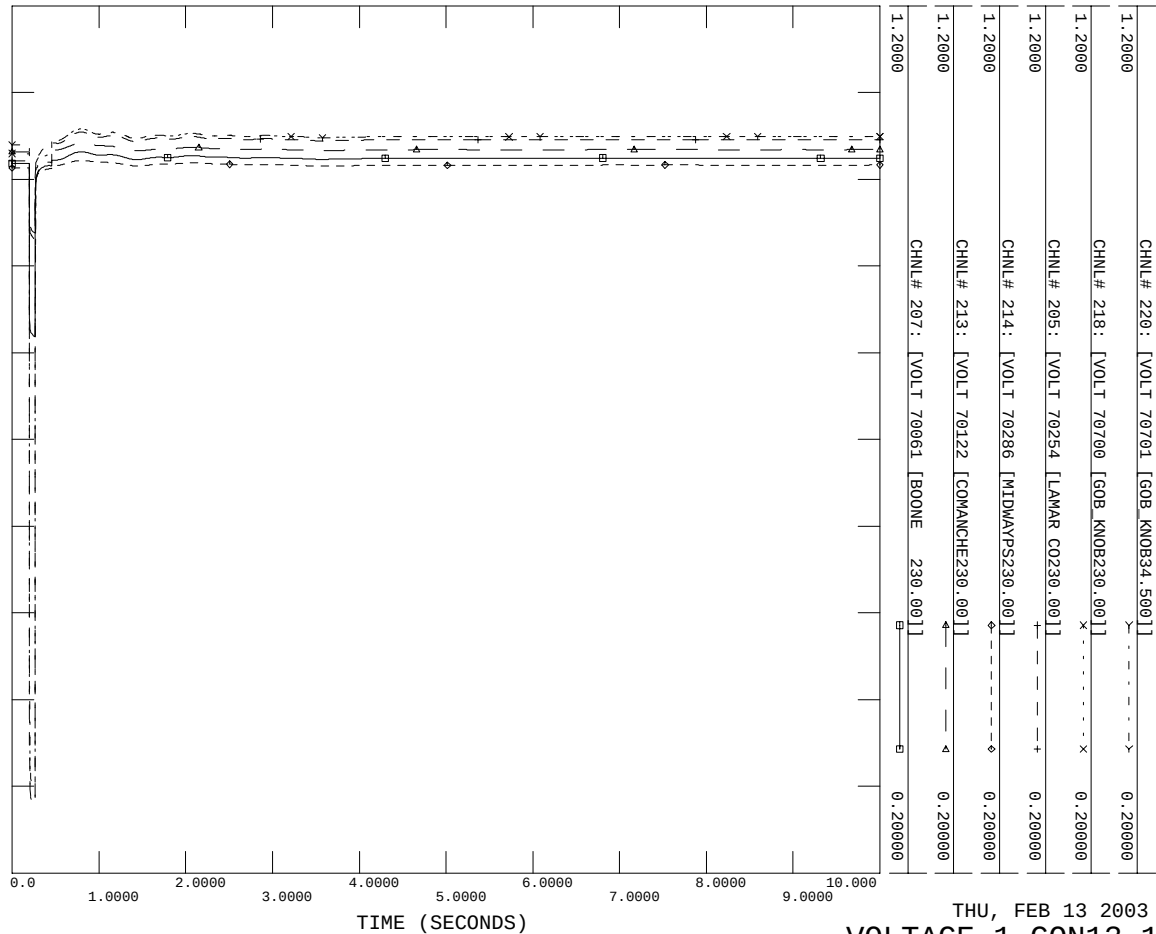
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]

FILE: CON12-ON.OUT

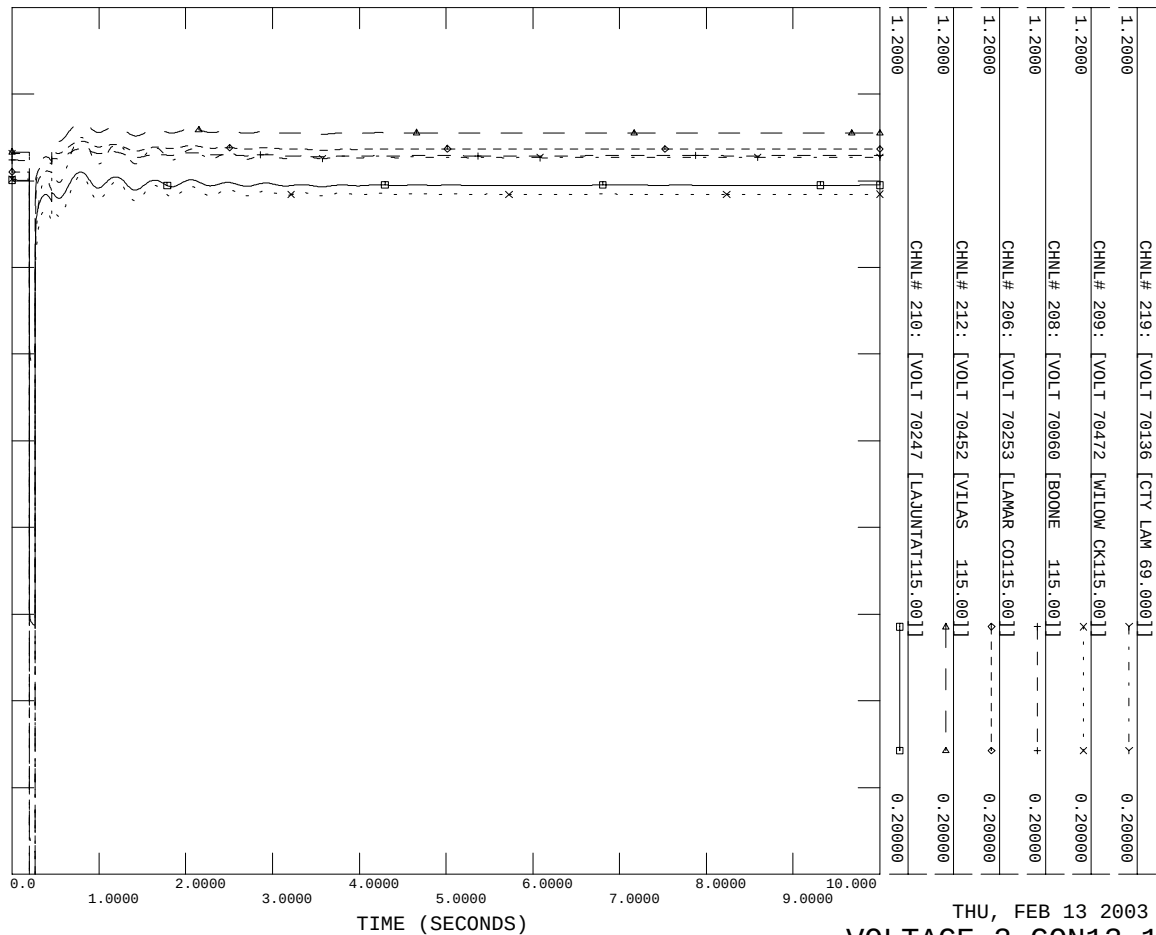




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT

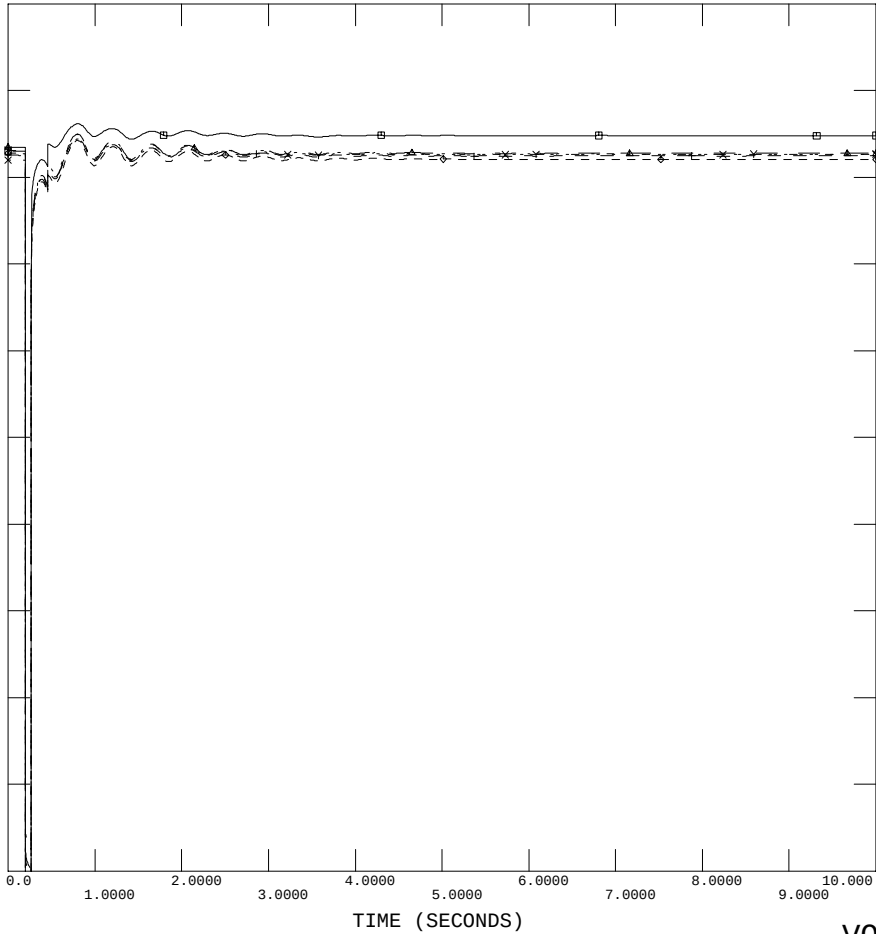


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT

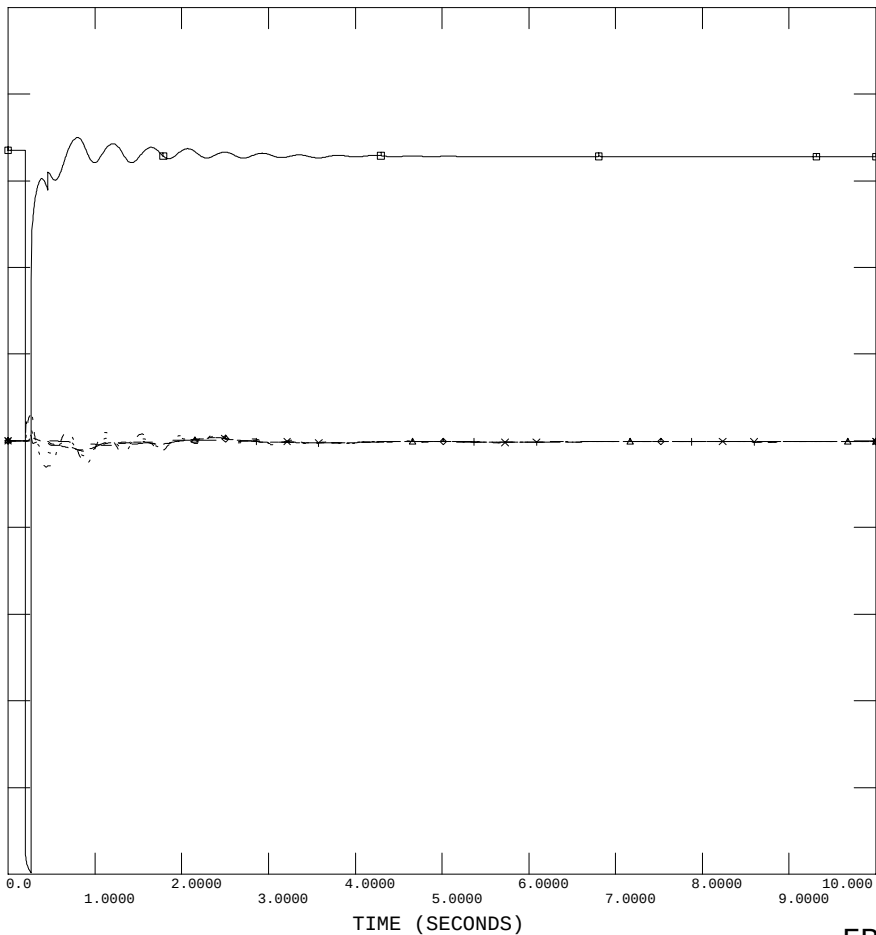
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [LEADS 69.000]]    | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



THU, FEB 13 2003 13:40  
VOLTAGE 3 CON13 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT

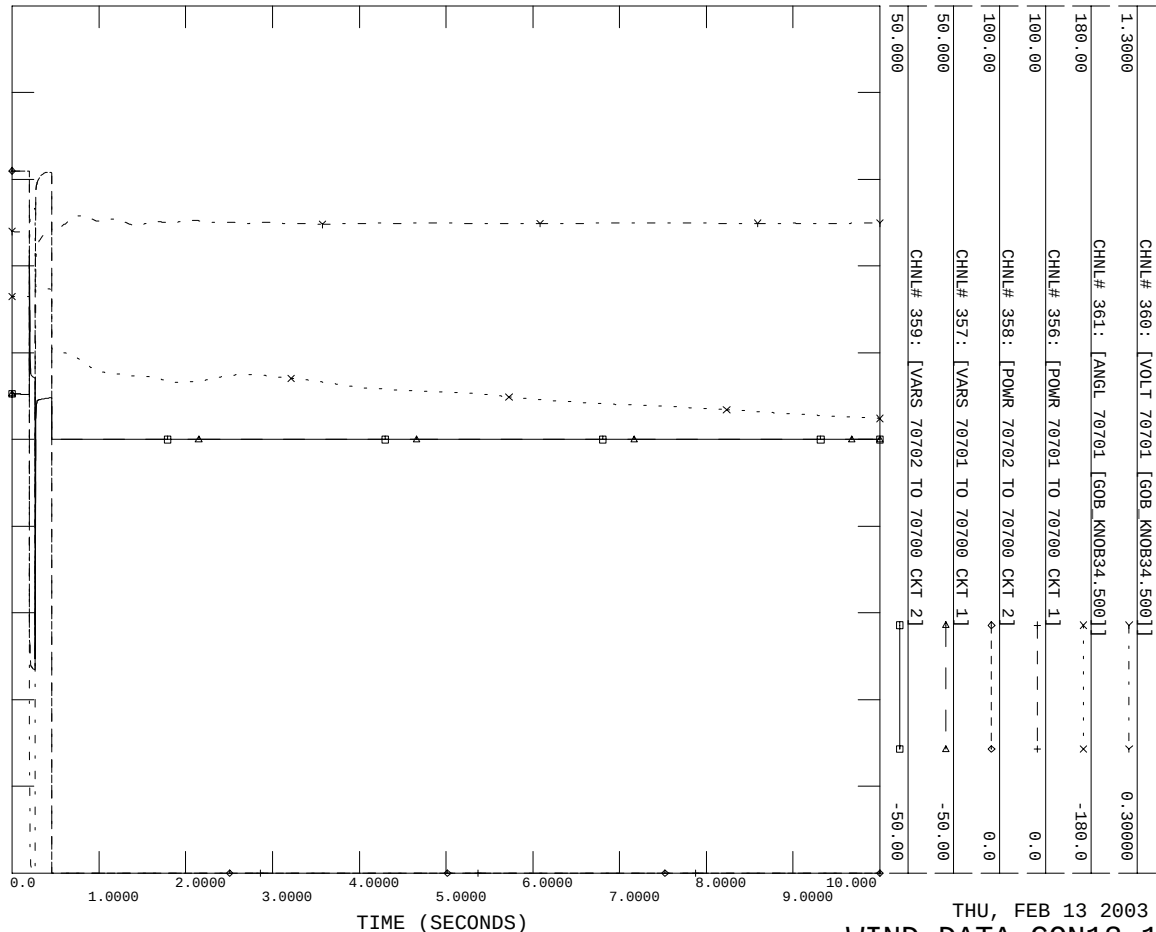
|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |



THU, FEB 13 2003 13:40  
FREQUENCY CON13 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]

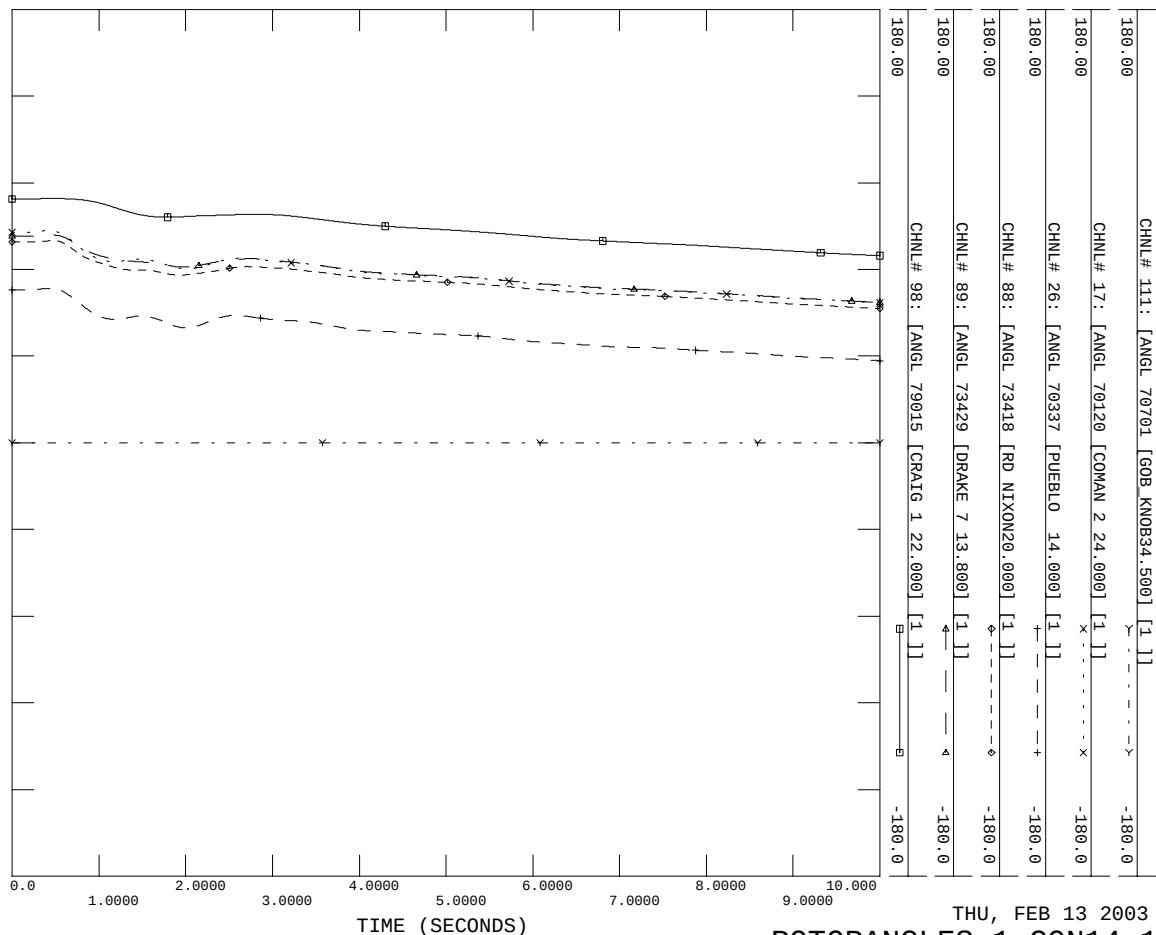
FILE: CON13-ON.OUT



THU, FEB 13 2003 13:40  
WIND DATA CON13 162MW

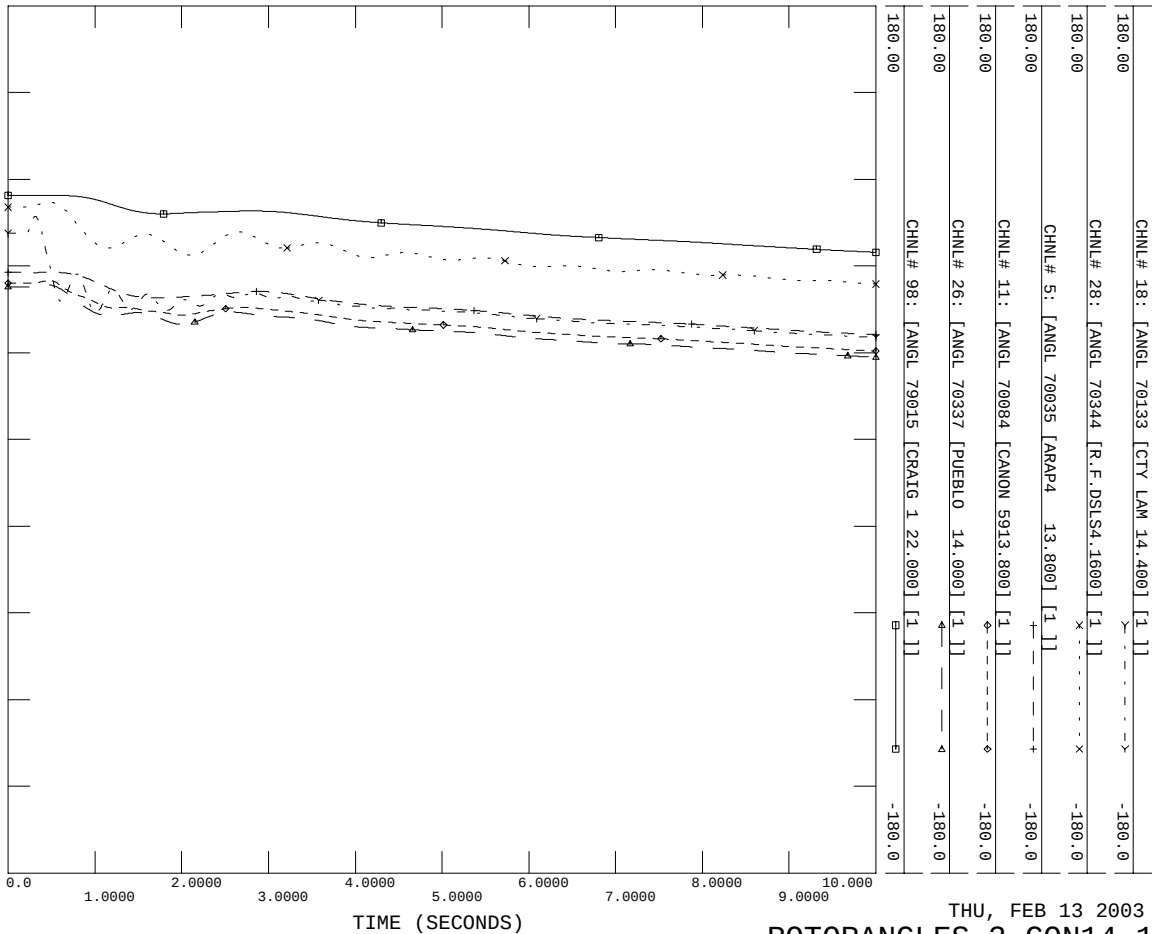
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON14 - FAULT ON LAMAR - VILAS 115 [LAMAR END]

FILE: CON14-ON.OUT

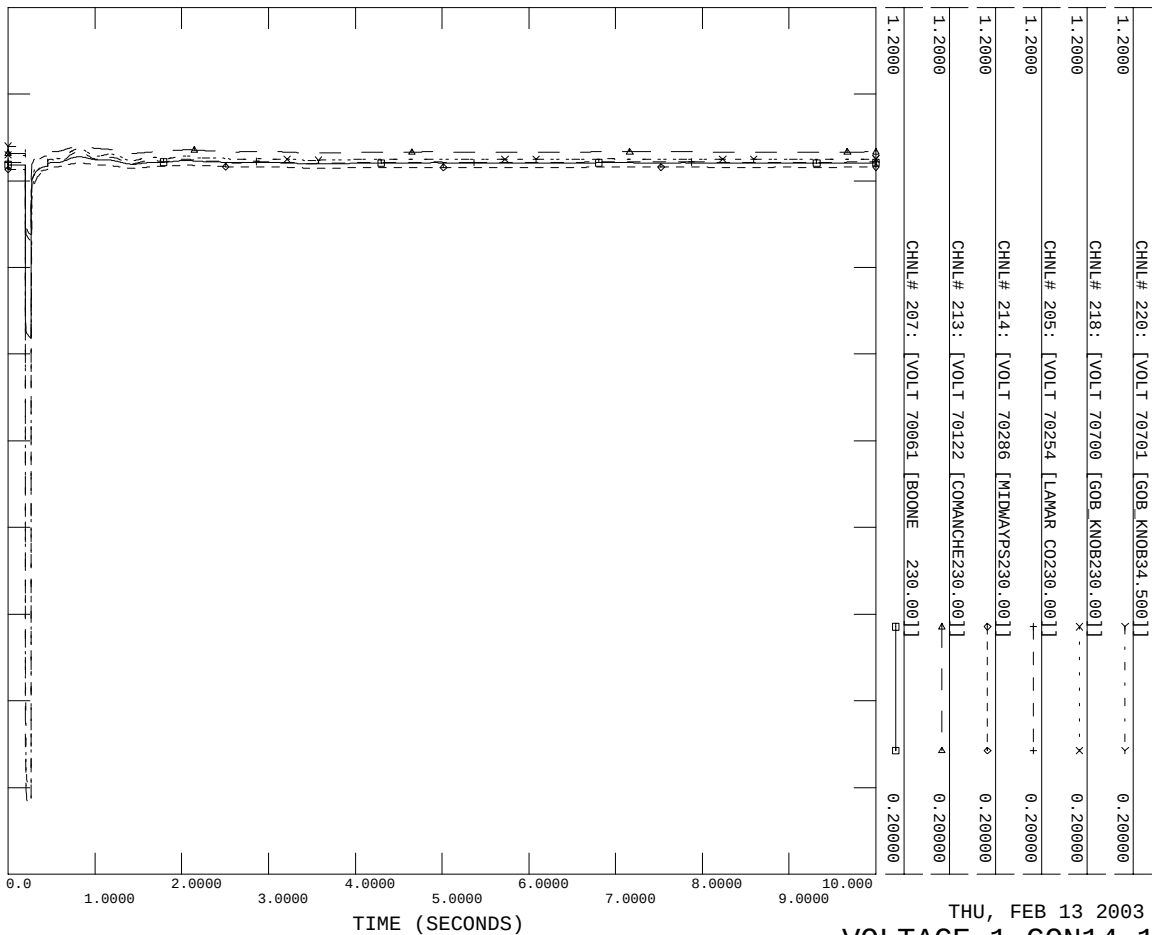


THU, FEB 13 2003 13:40  
ROTORANGLES 1 CON14 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON14 - FAULT ON LAMAR - VILAS 115 [LAMAR END]  
FILE: CON14-ON.OUT

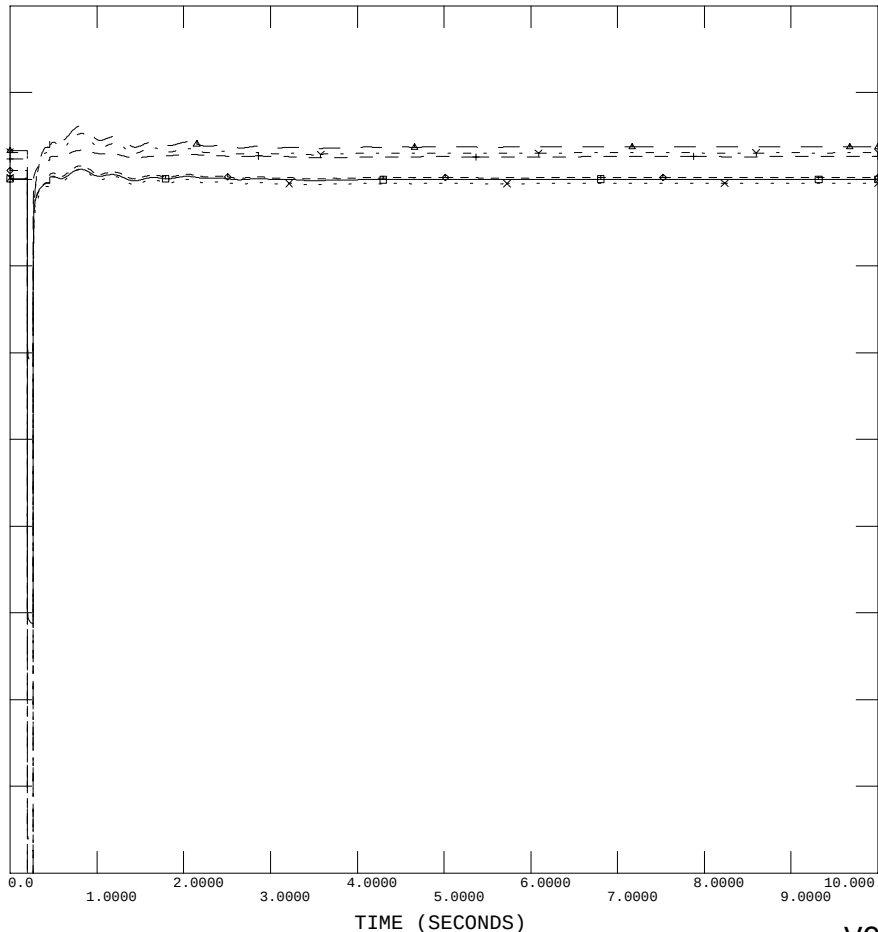


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON14 - FAULT ON LAMAR - VILAS 115 [LAMAR END]  
FILE: CON14-ON.OUT



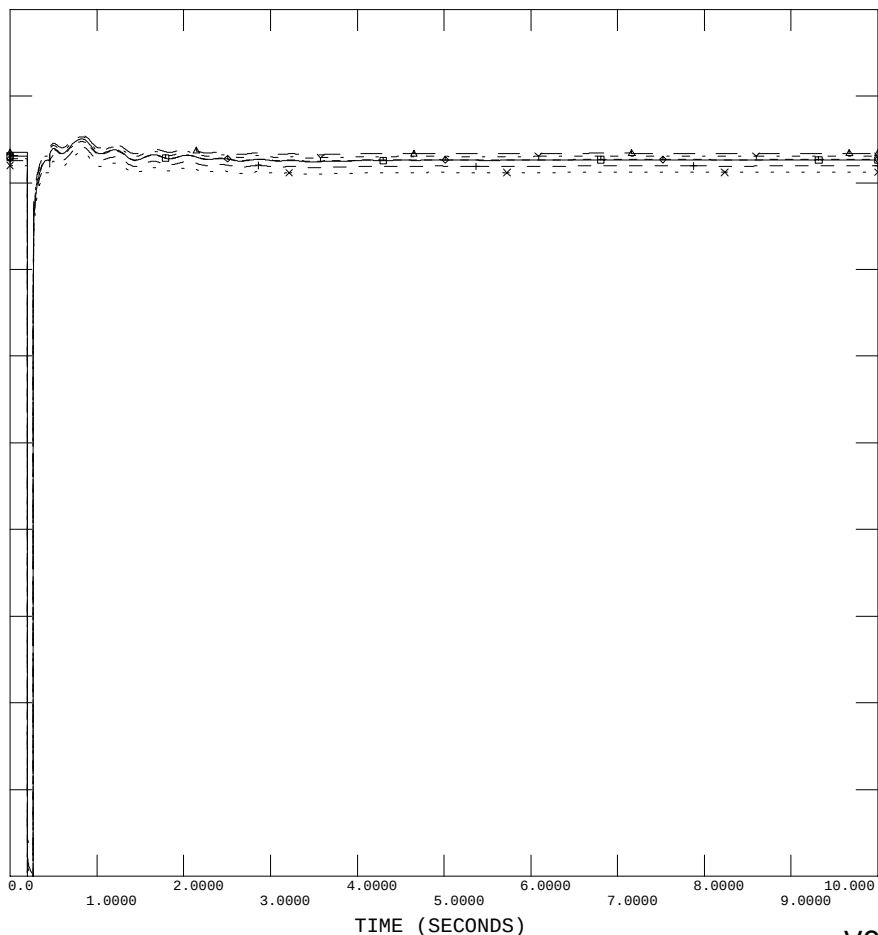
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON14 - FAULT ON LAMAR - VILAS 115 [LAMAR END]  
FILE: CON14-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



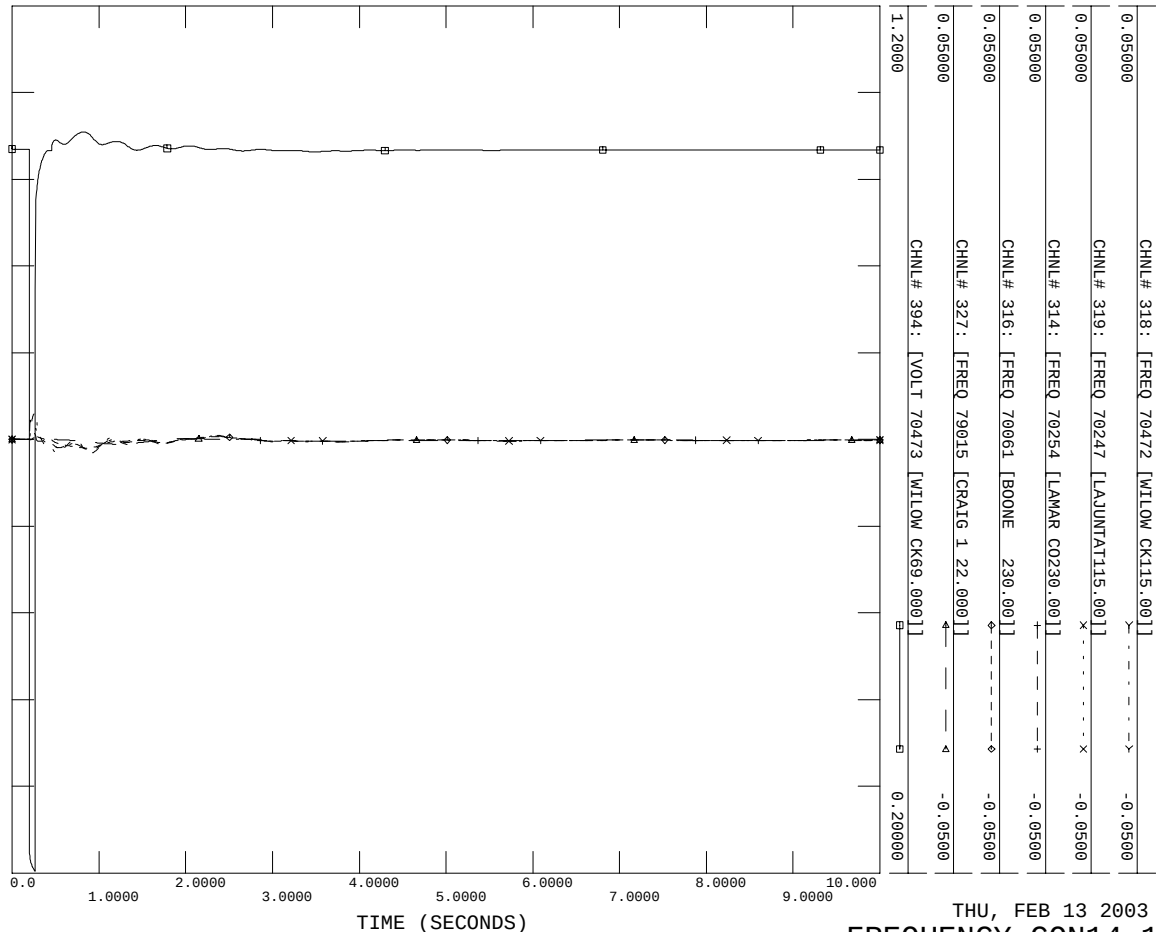
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON14 - FAULT ON LAMAR - VILAS 115 [LAMAR END]  
FILE: CON14-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON14 - FAULT ON LAMAR - VIAS 115 [LAMAR END]

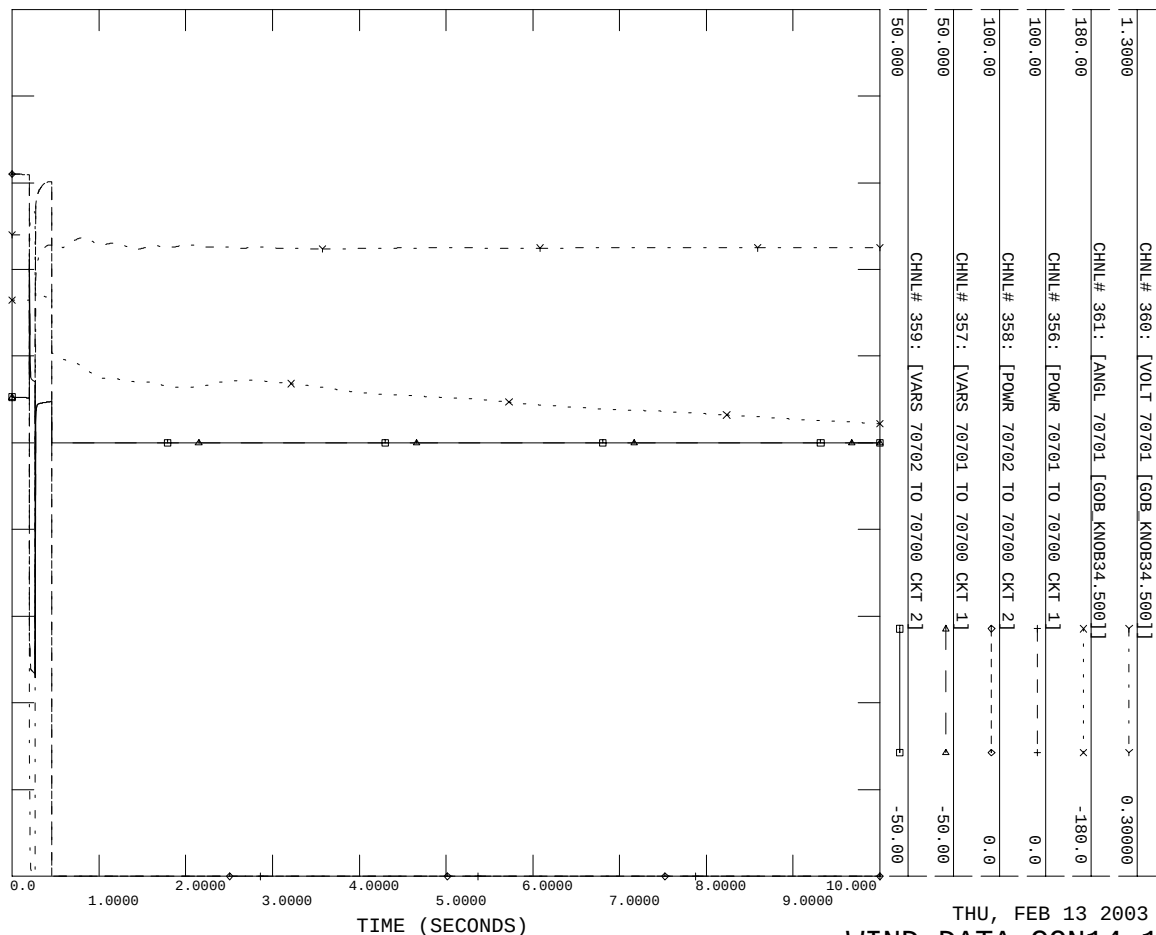
FILE: CON14-ON.OUT



THU, FEB 13 2003 13:40  
FREQUENCY CON14 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON14 - FAULT ON LAMAR - VIAS 115 [LAMAR END]

FILE: CON14-ON.OUT



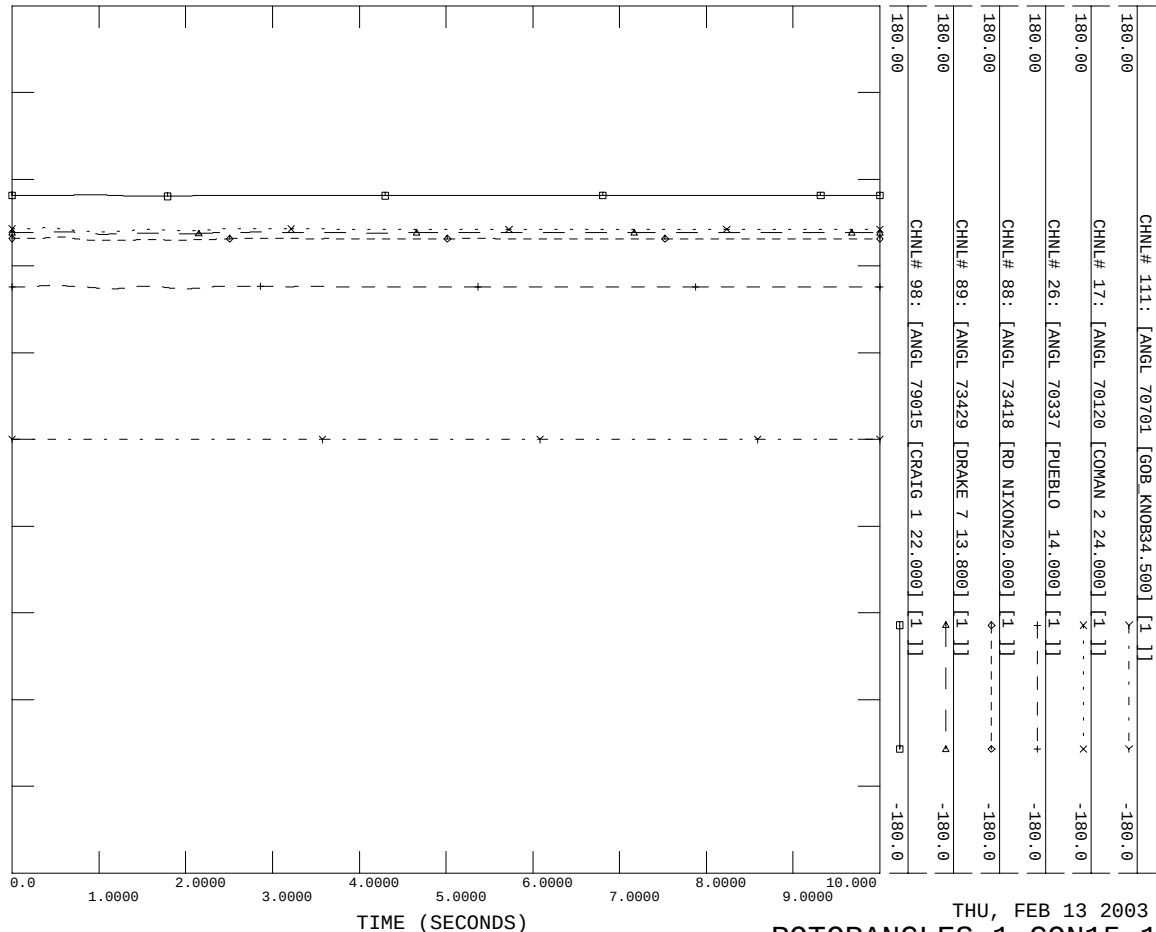
THU, FEB 13 2003 13:40  
WIND DATA CON14 162MW





POWER  
TIC  
0.00015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]  
FILE: CON15-ON.OUT

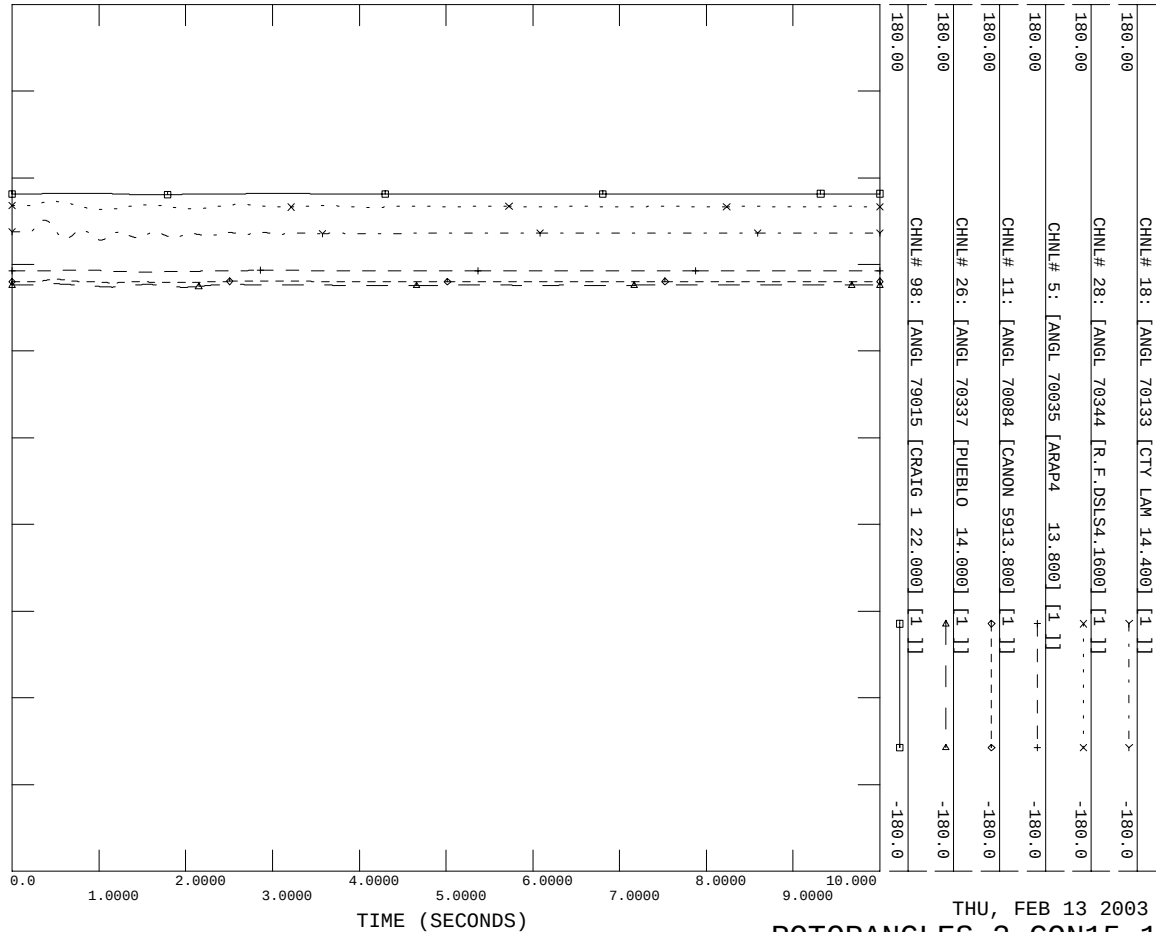


THU, FEB 13 2003 13:40  
ROTORANGLES 1 CON15 162MW

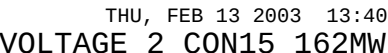
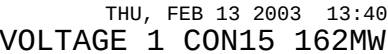


POWER  
TIC  
0.00015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]  
FILE: CON15-ON.OUT

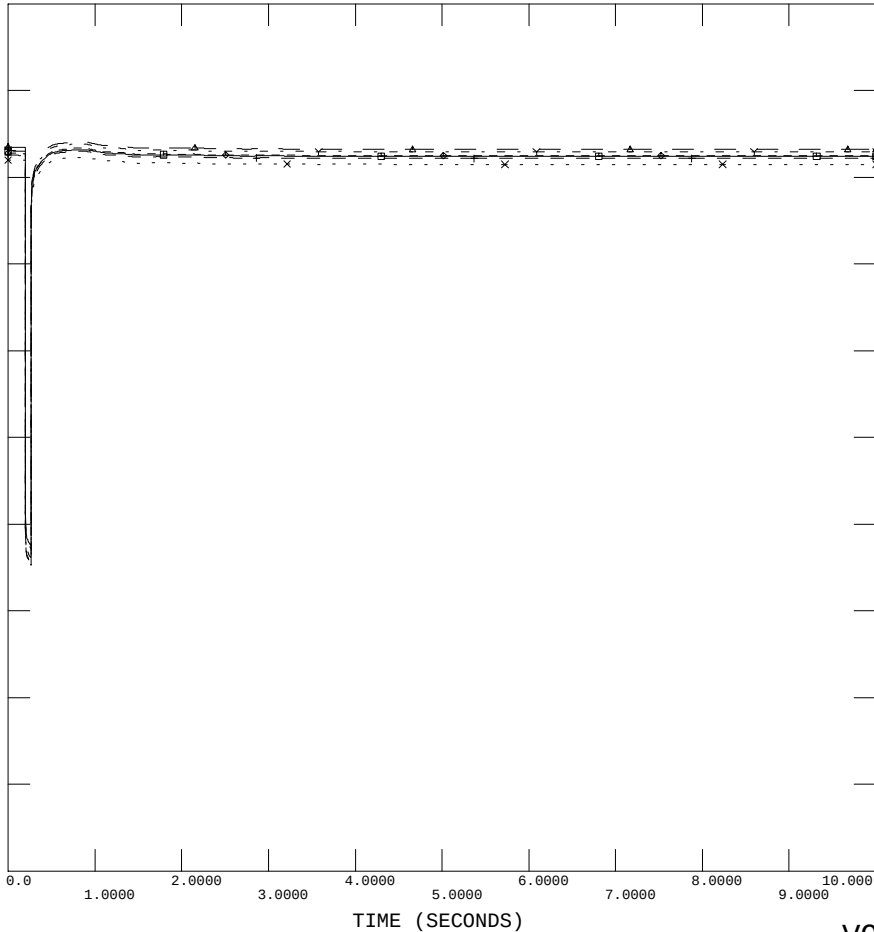


THU, FEB 13 2003 13:40  
ROTORANGLES 2 CON15 162MW



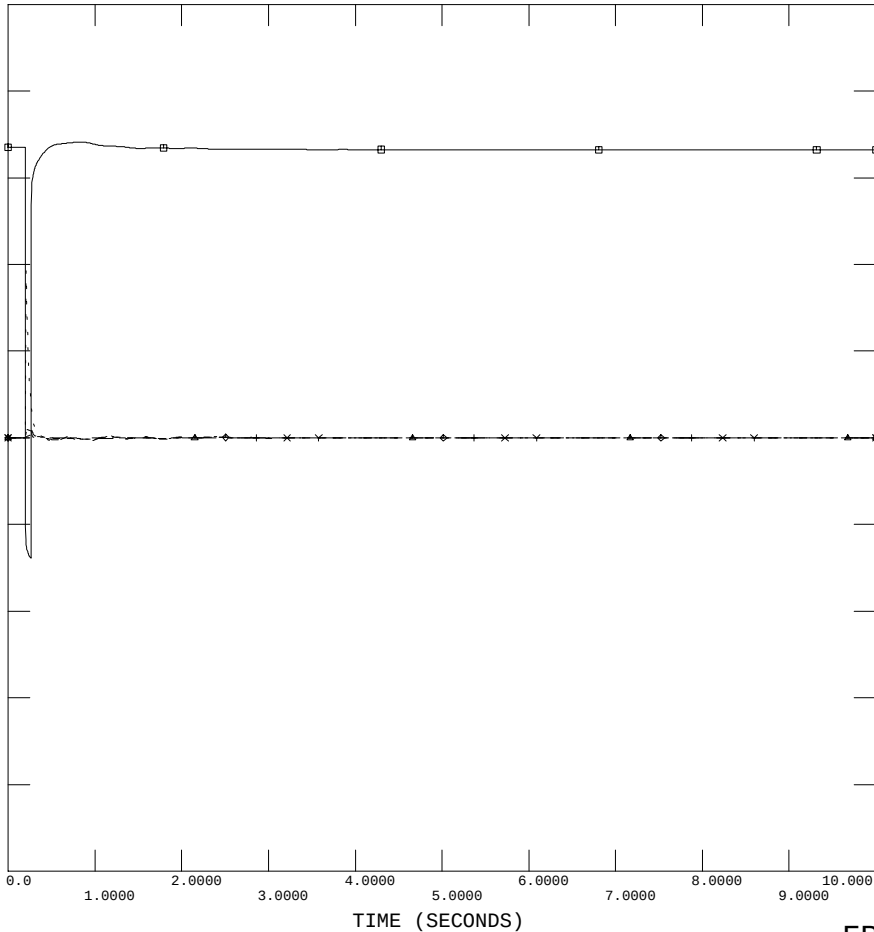
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]  
FILE: CON15-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

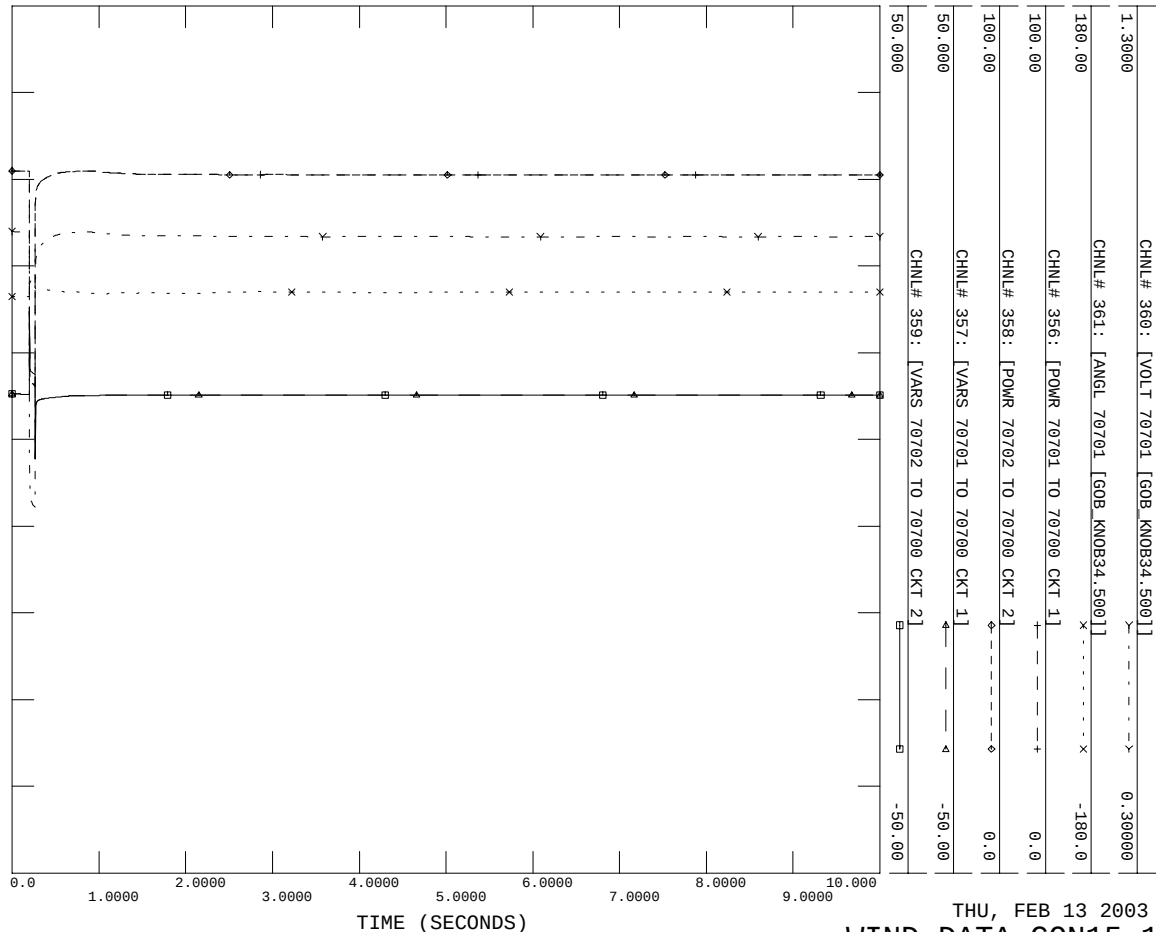


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]  
FILE: CON15-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |

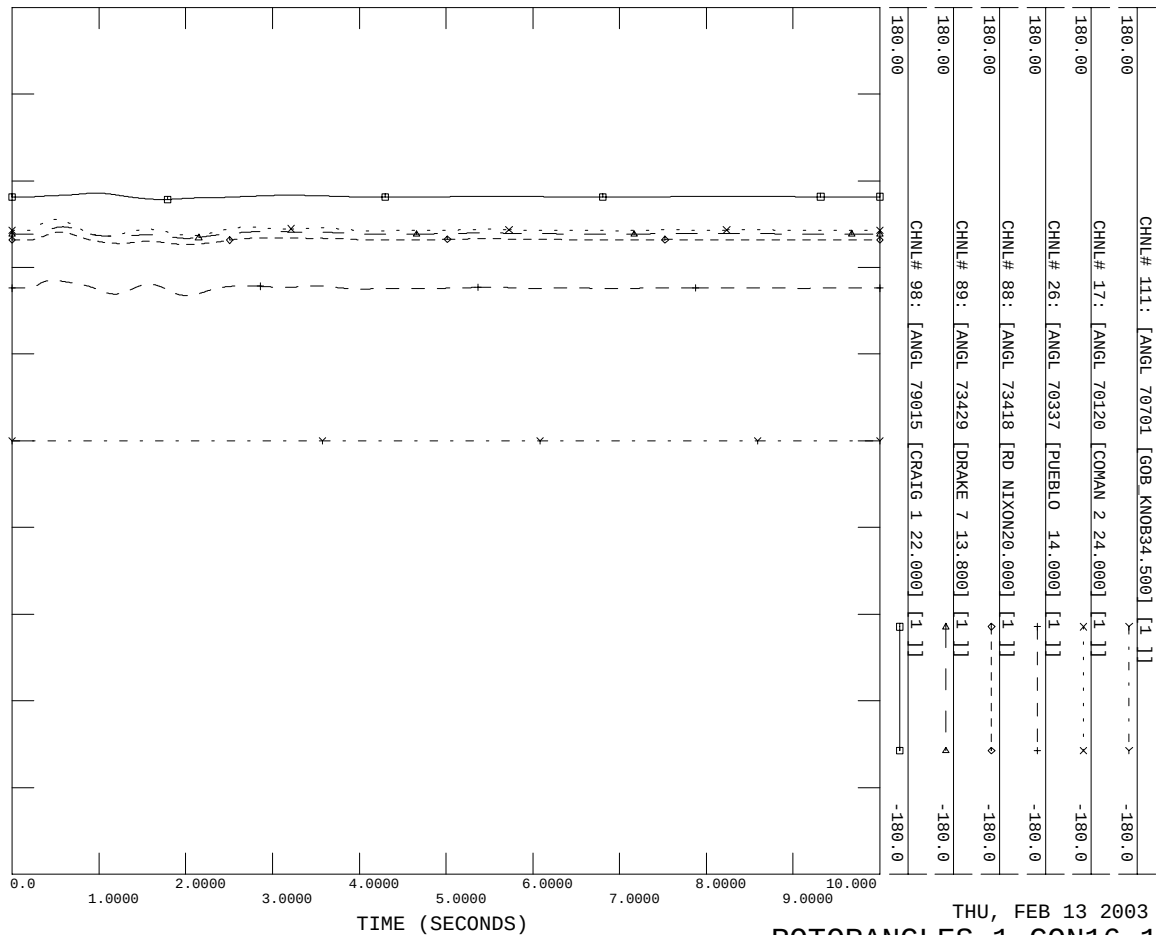


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]  
FILE: CON15-ON.OUT

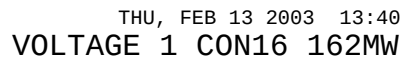
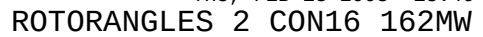


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WIND DATA CON15 162MW

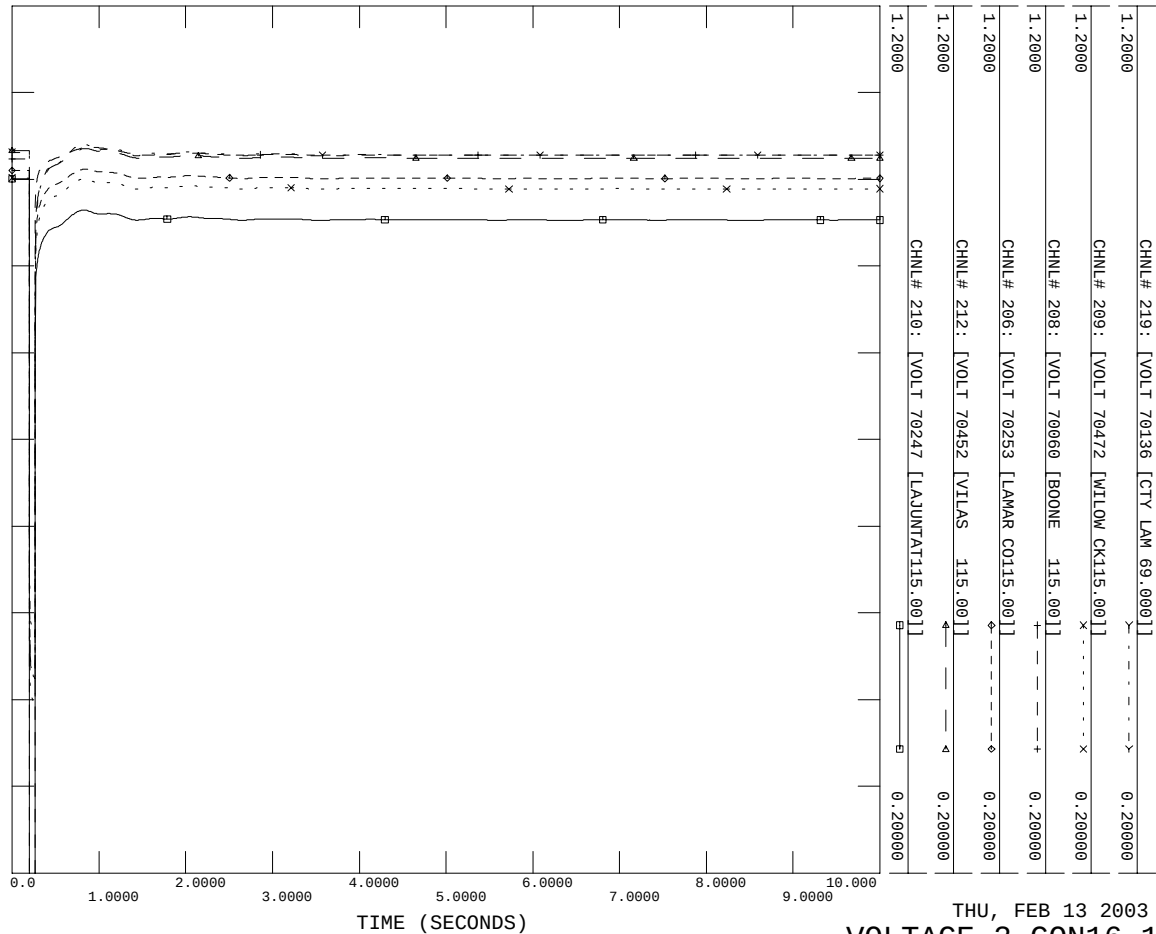
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]  
FILE: CON16-ON.OUT



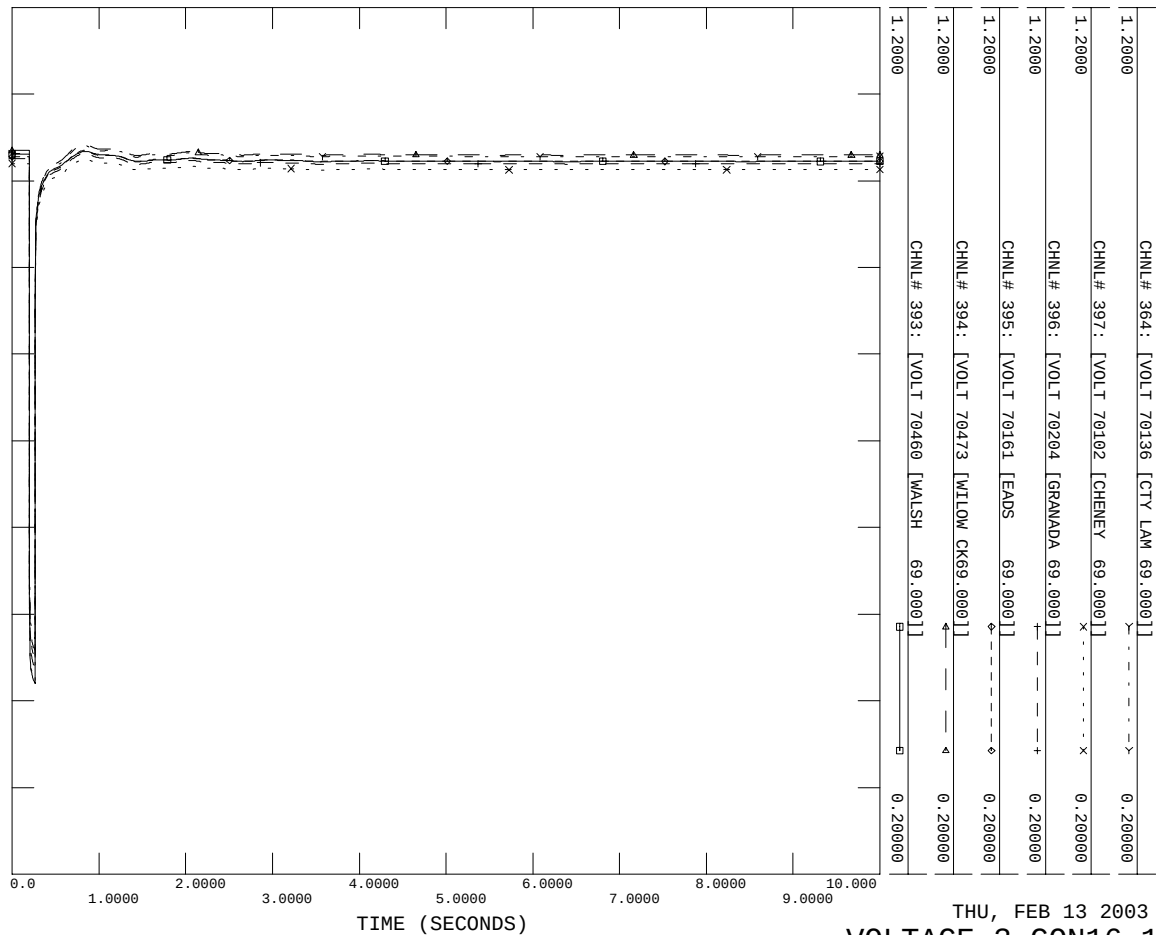
THU, FEB 13 2003 13:40  
ROTORANGLES 1 CON16 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]  
FILE: CON16-ON.OUT



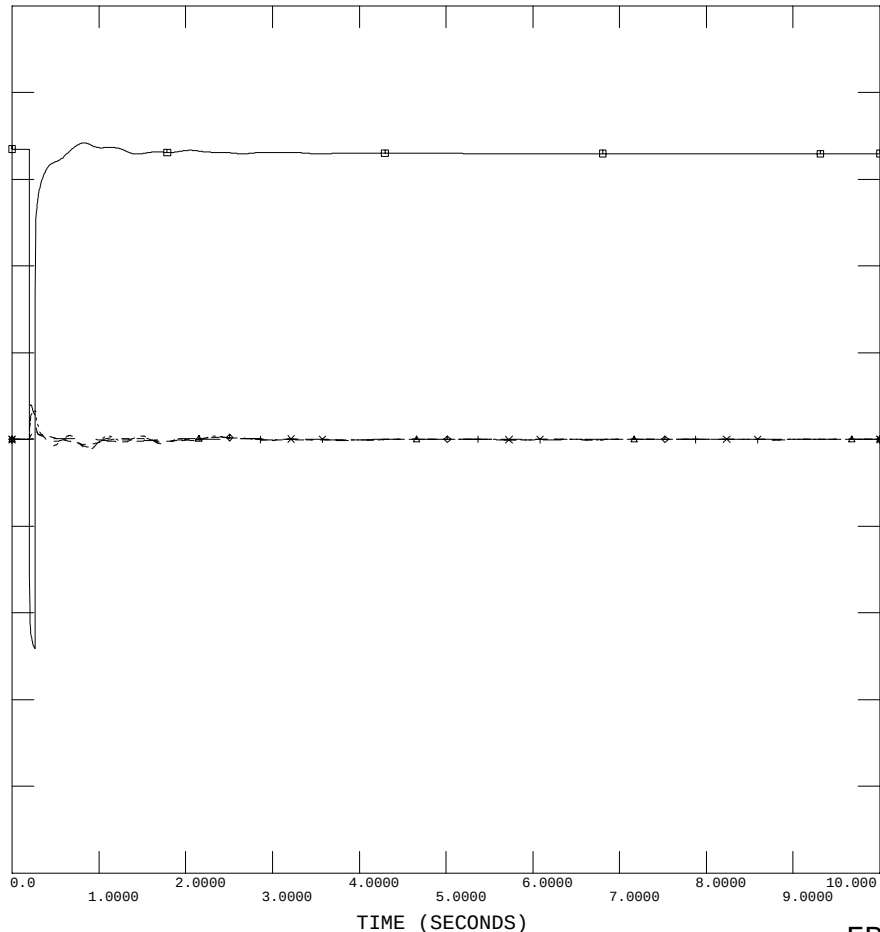
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]  
FILE: CON16-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]

FILE: CON16-ON.OUT

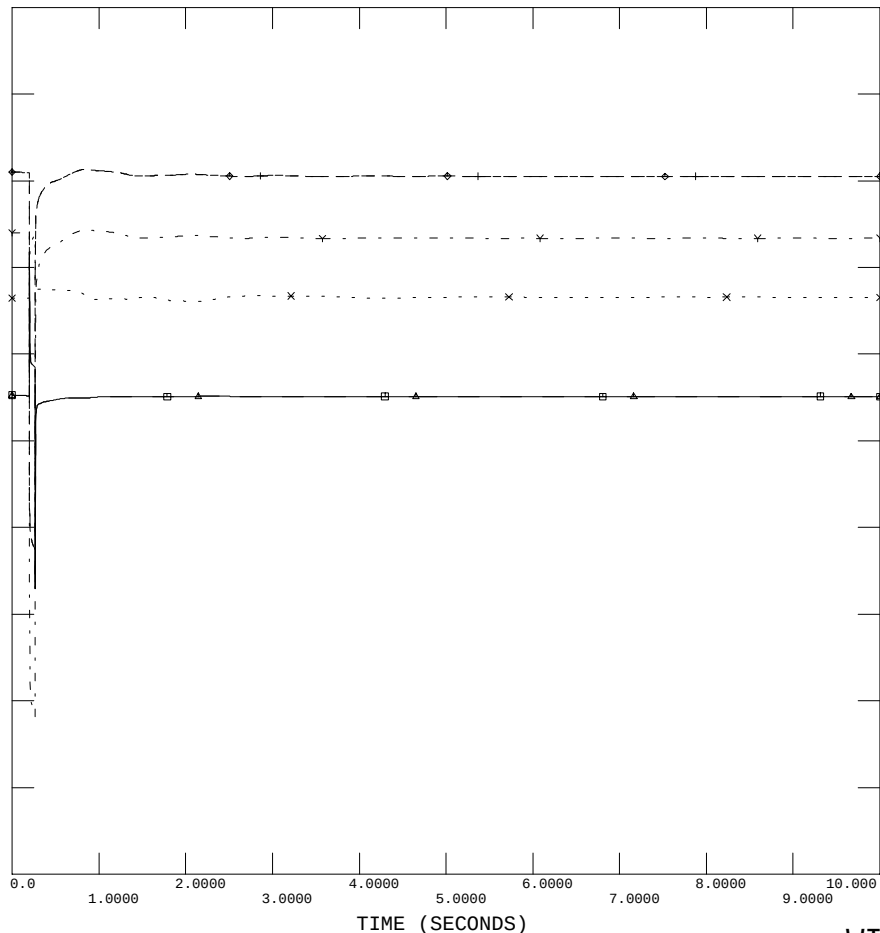
|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |
| 1.2000  |                                           | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]

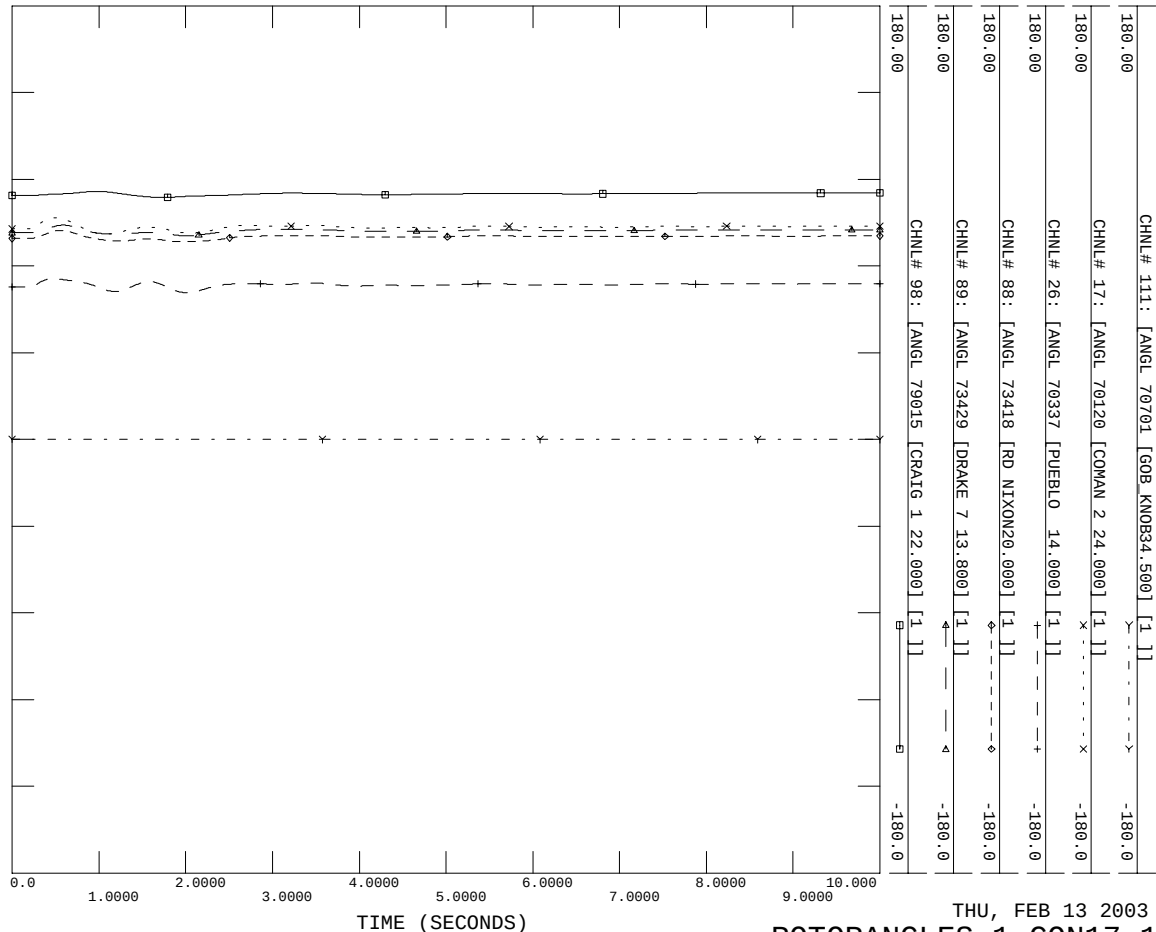
FILE: CON16-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [GOB KNOB34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |
| 50.000 |                                          | -50.00  |



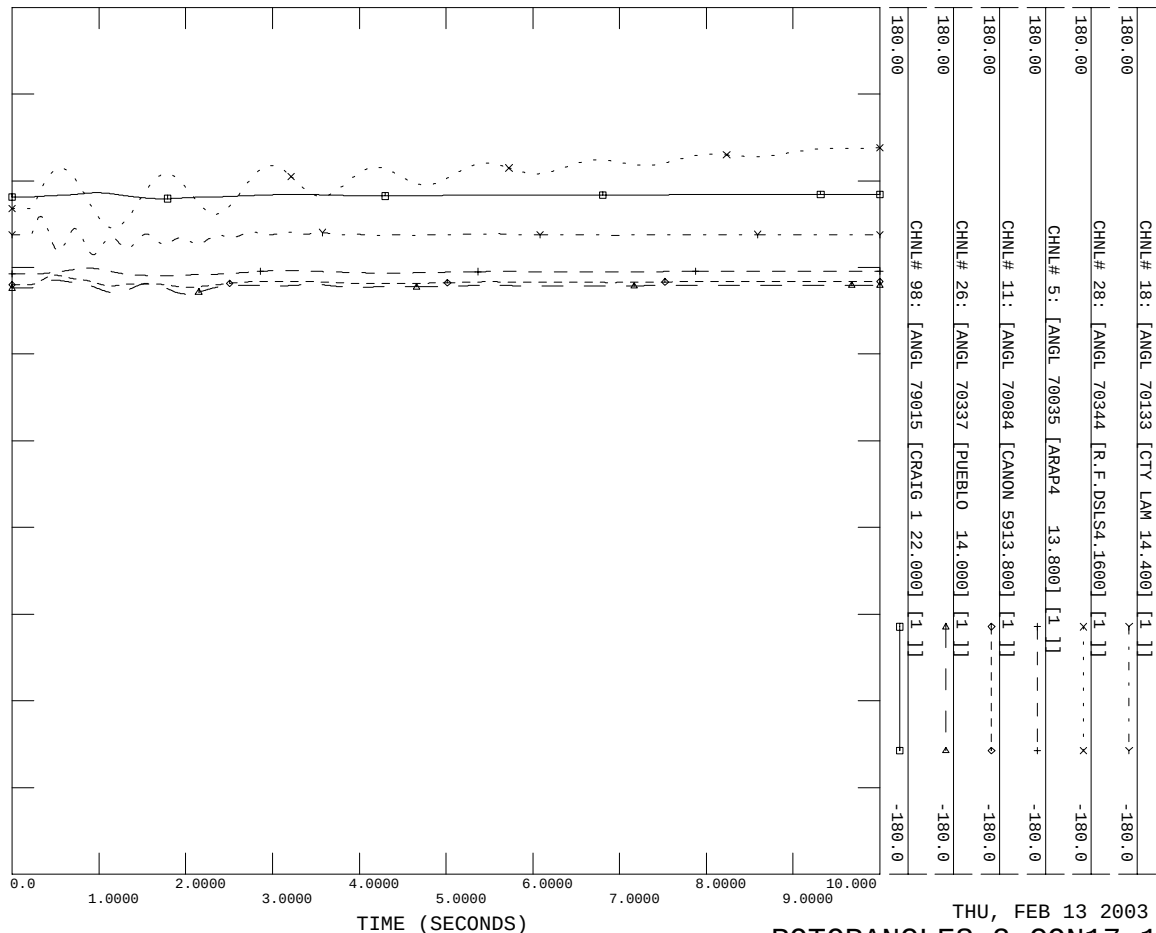
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]

FILE: CON17-ON.OUT



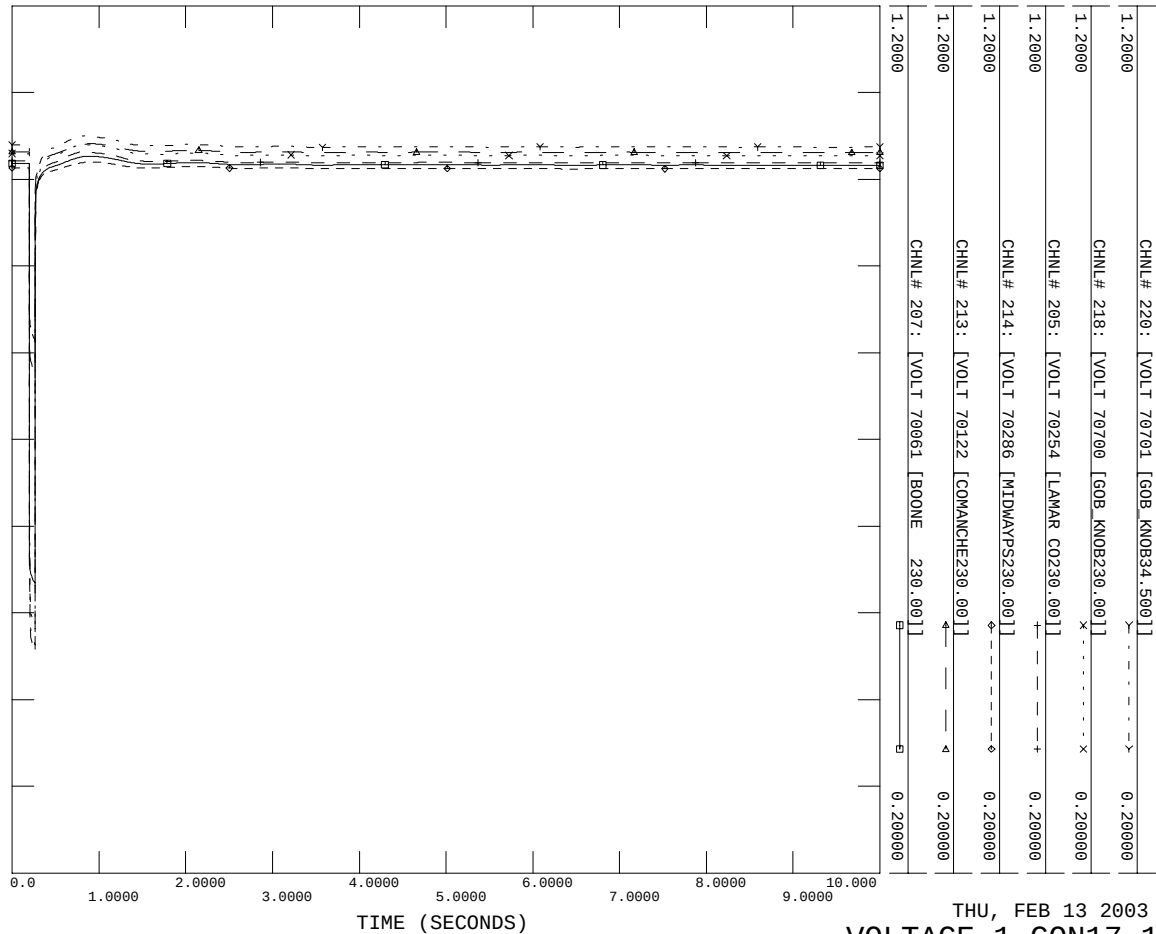
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]

FILE: CON17-ON.OUT

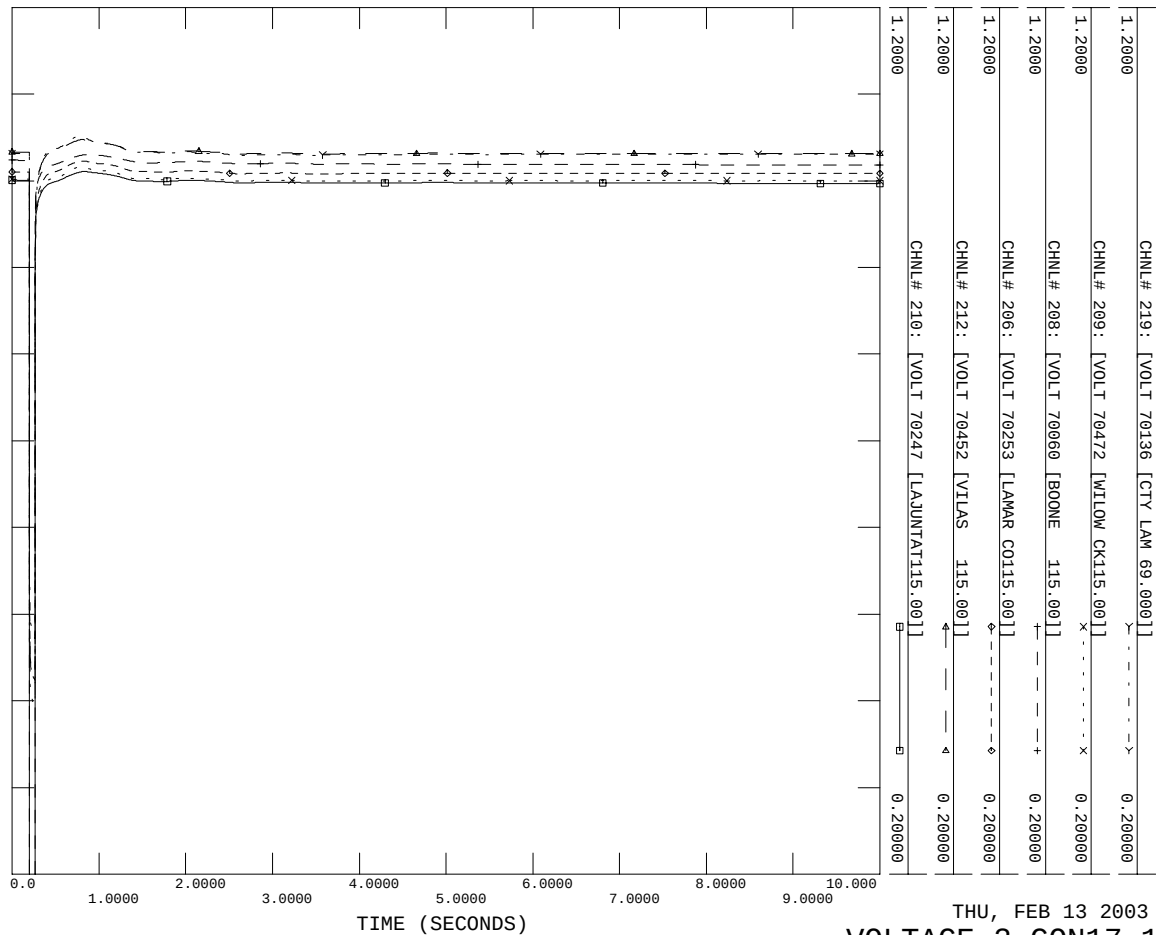




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT

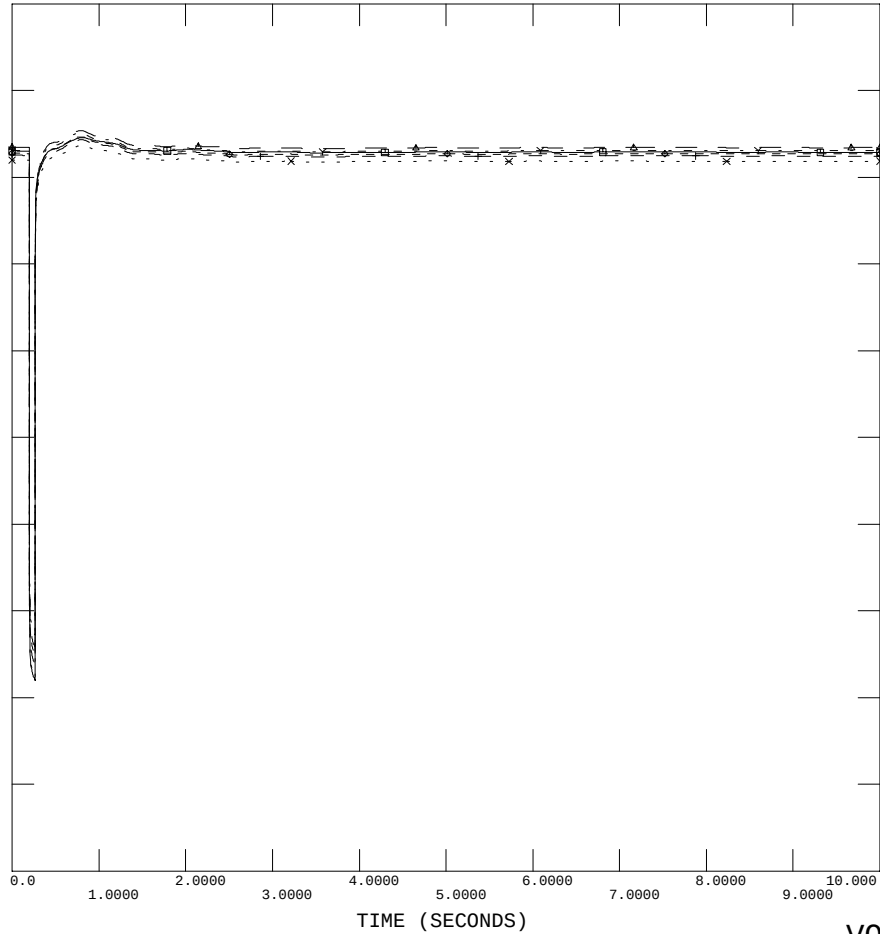


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT

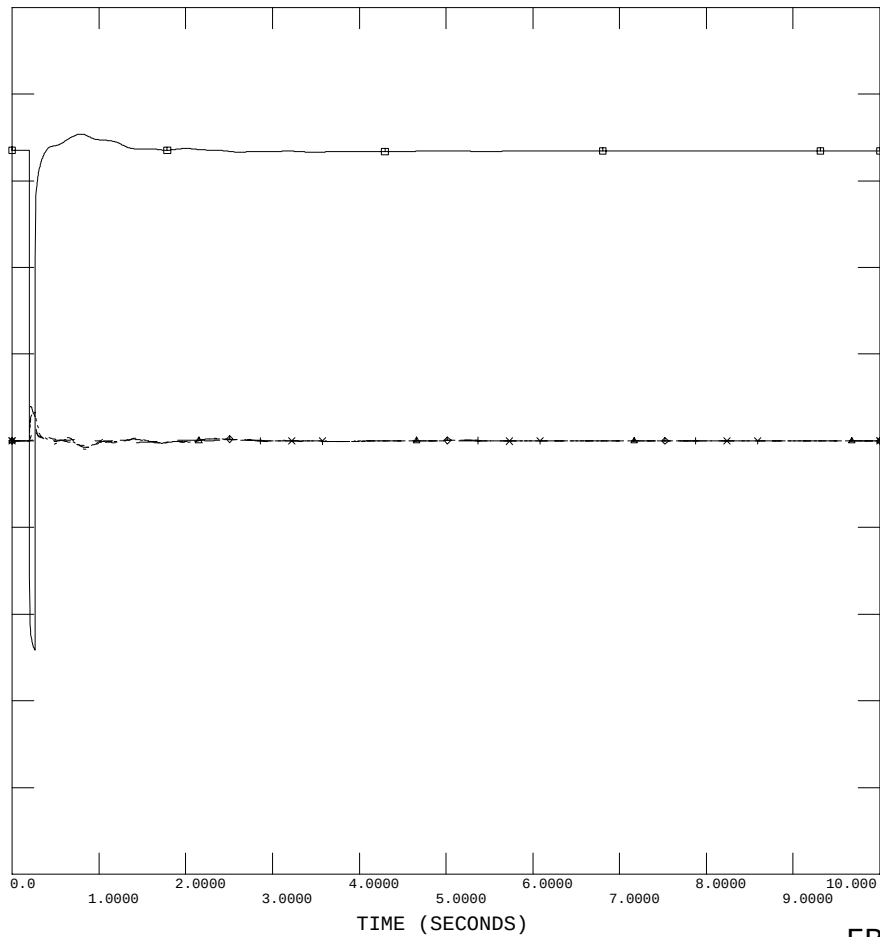
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [LEADS 69.000]]    | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



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VOLTAGE 3 CON17 162MW

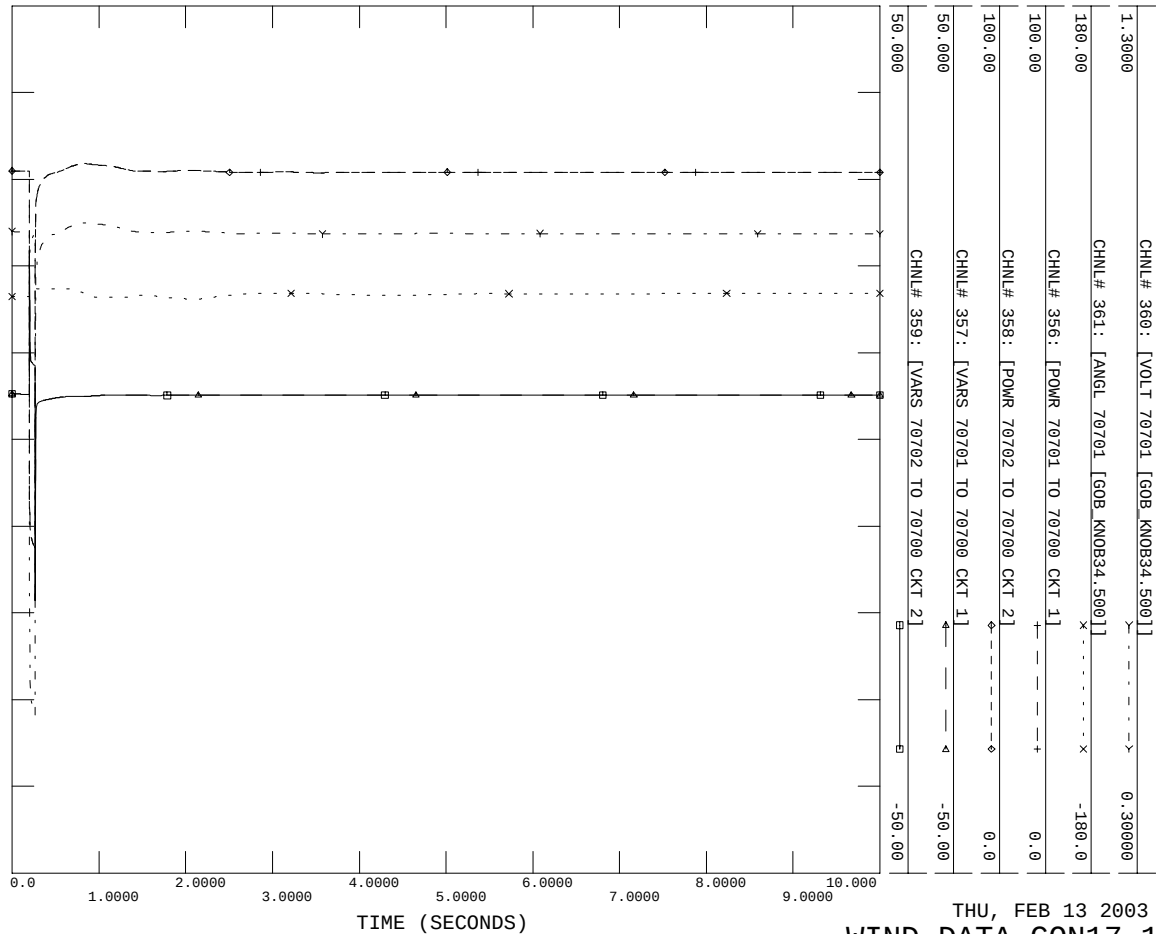
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |

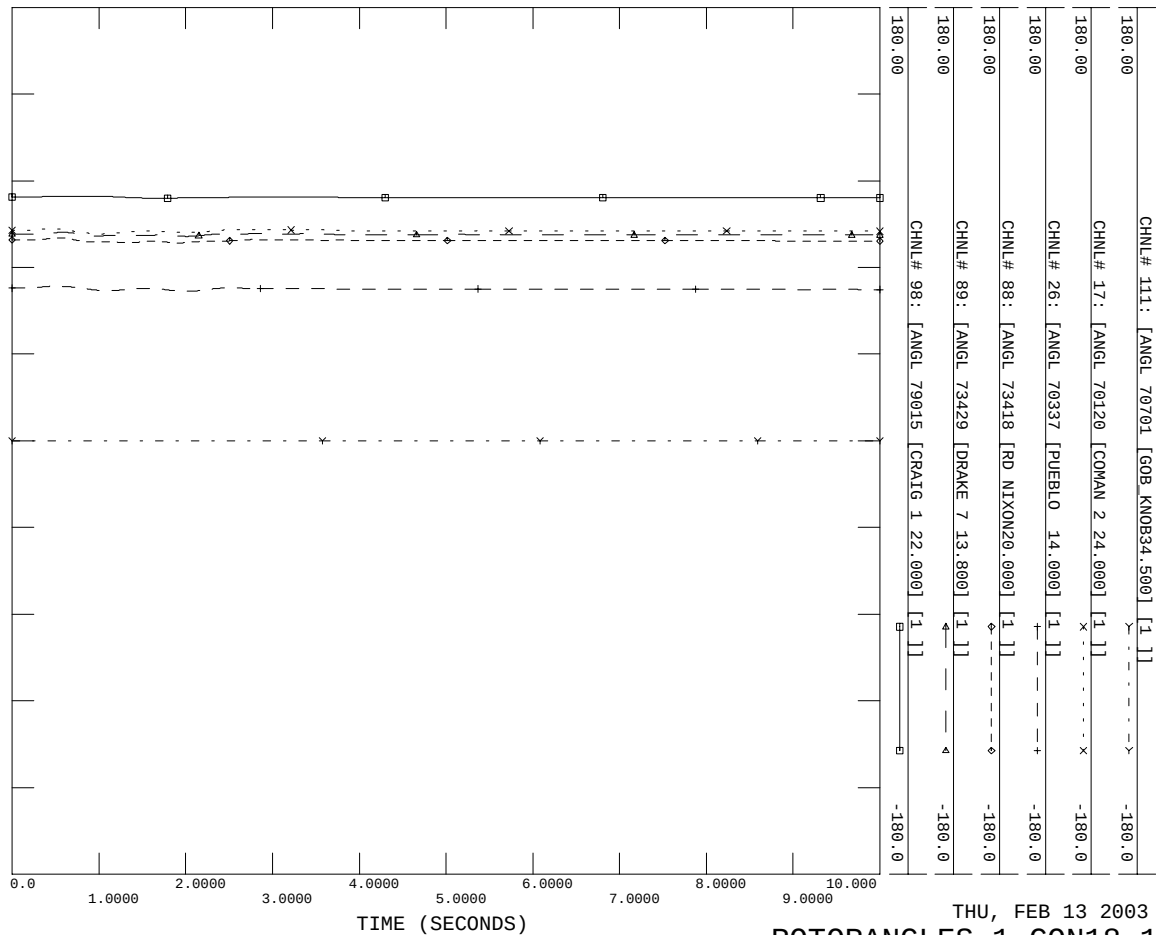


THU, FEB 13 2003 13:40  
FREQUENCY CON17 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT

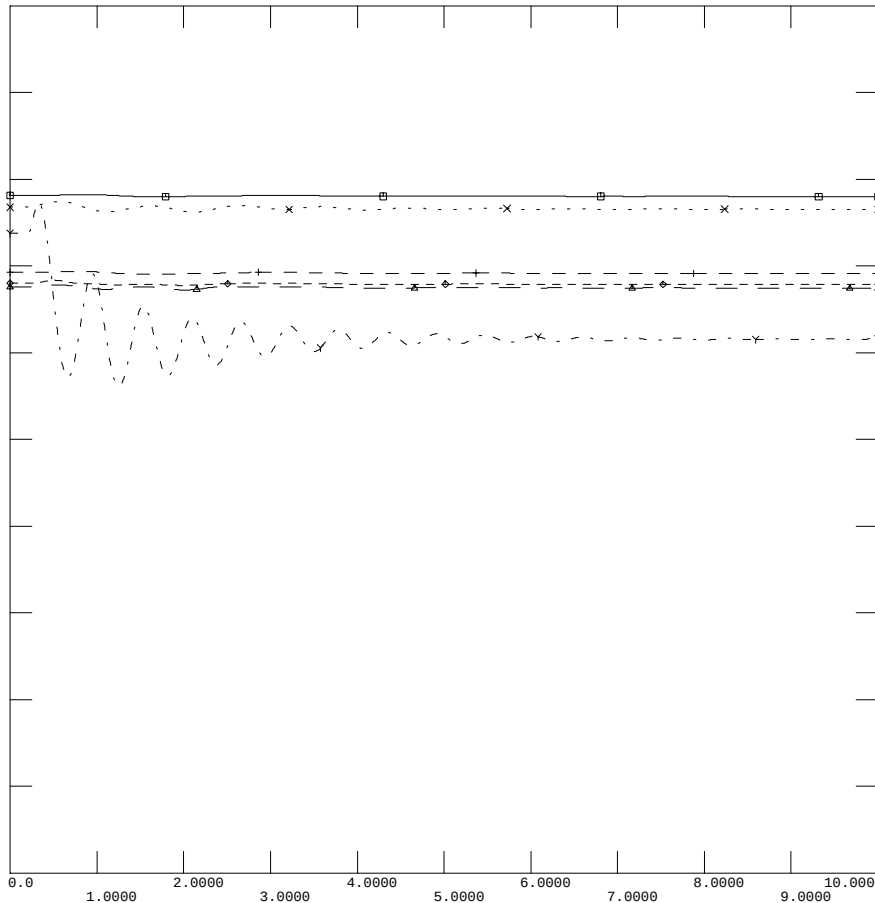




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]

FILE: CON18-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1.22.000] [1.]] | -180.0 |



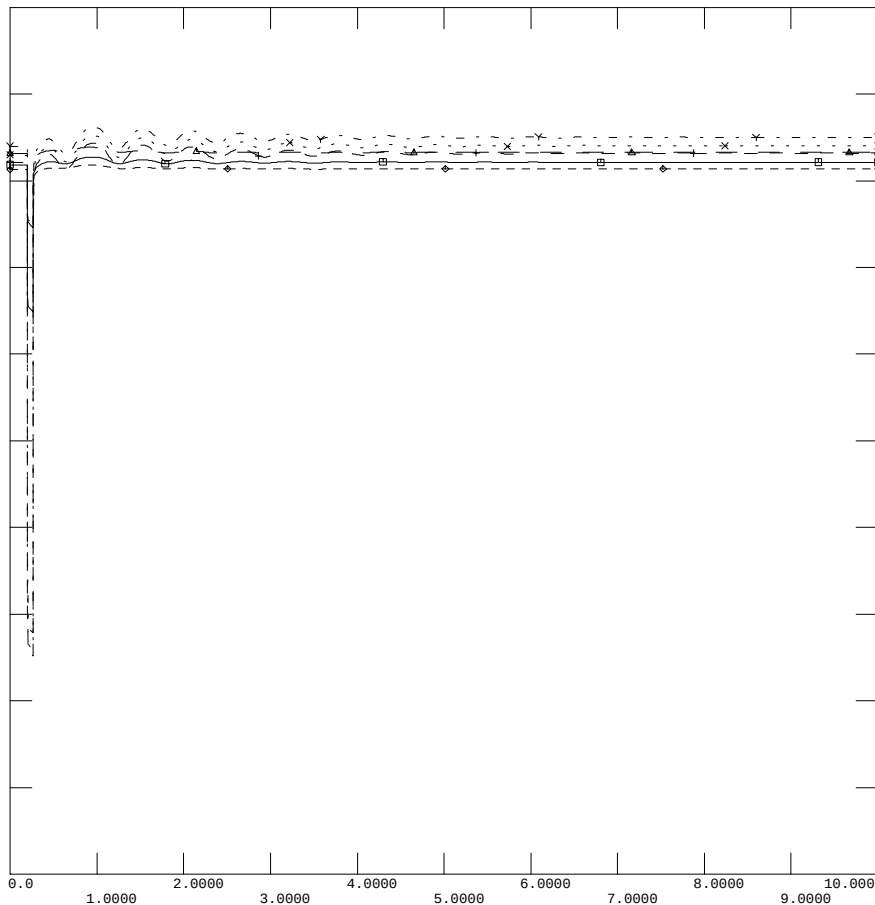
THU, FEB 13 2003 13:40  
ROTORANGLES 2 CON18 162MW



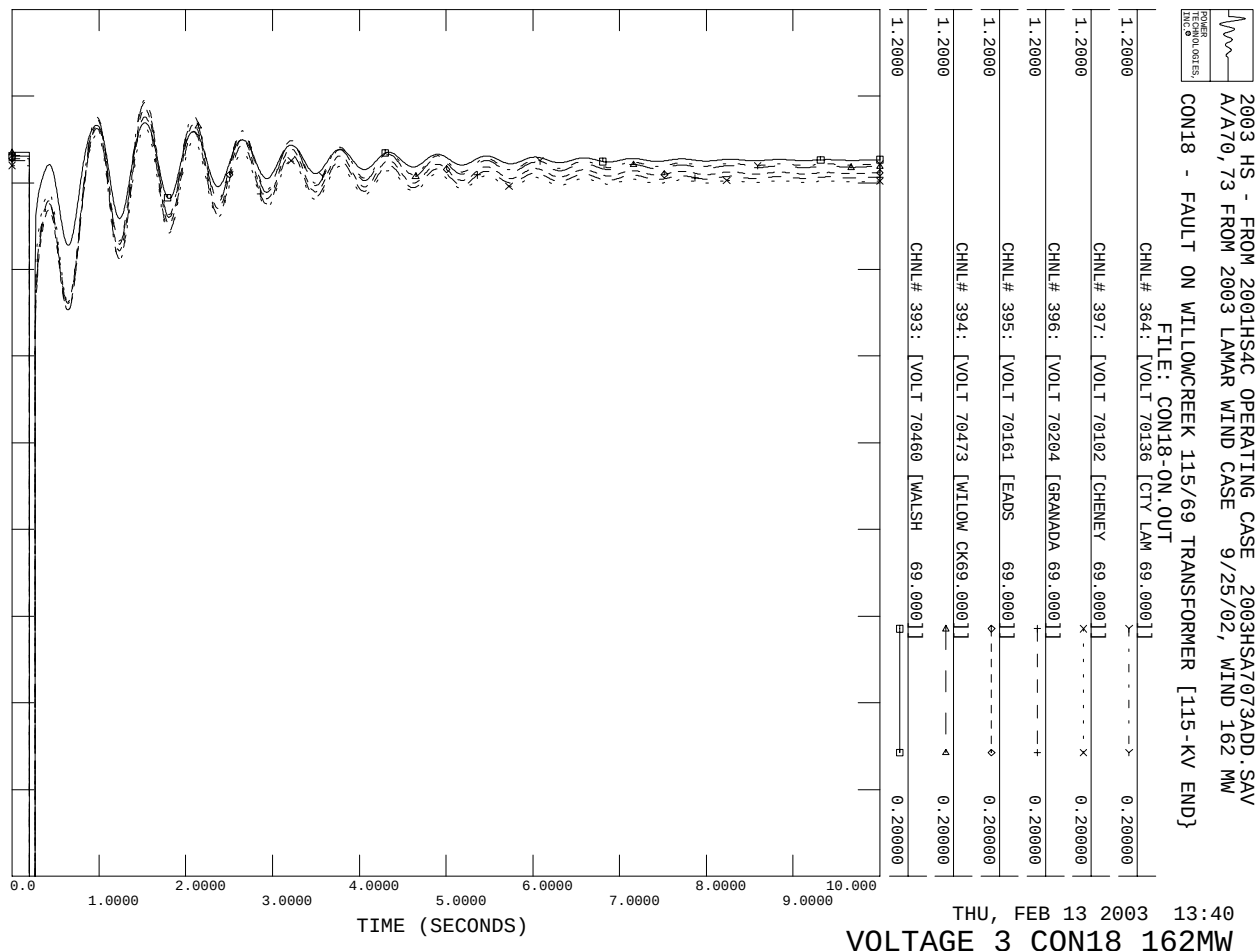
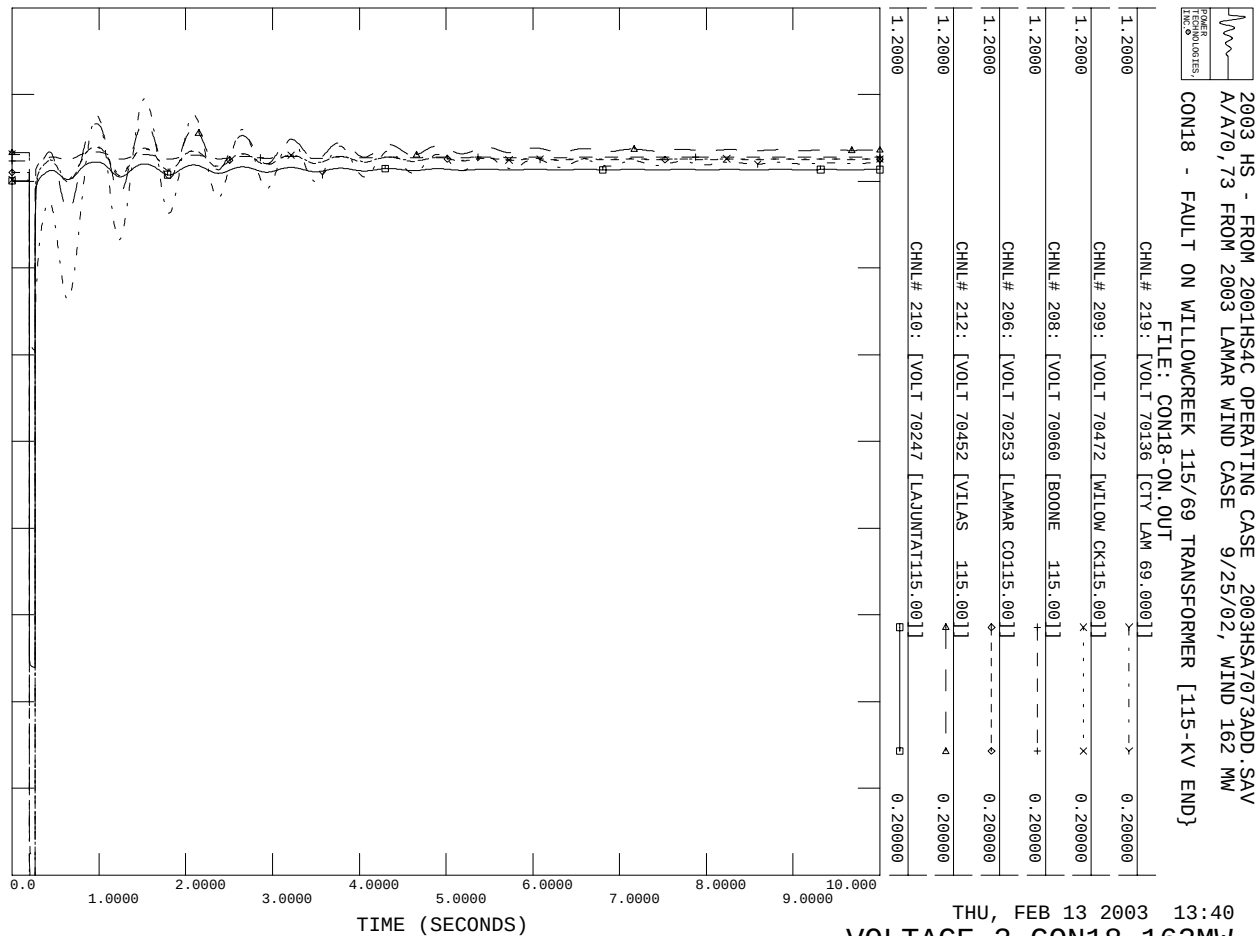
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]

FILE: CON18-ON.OUT

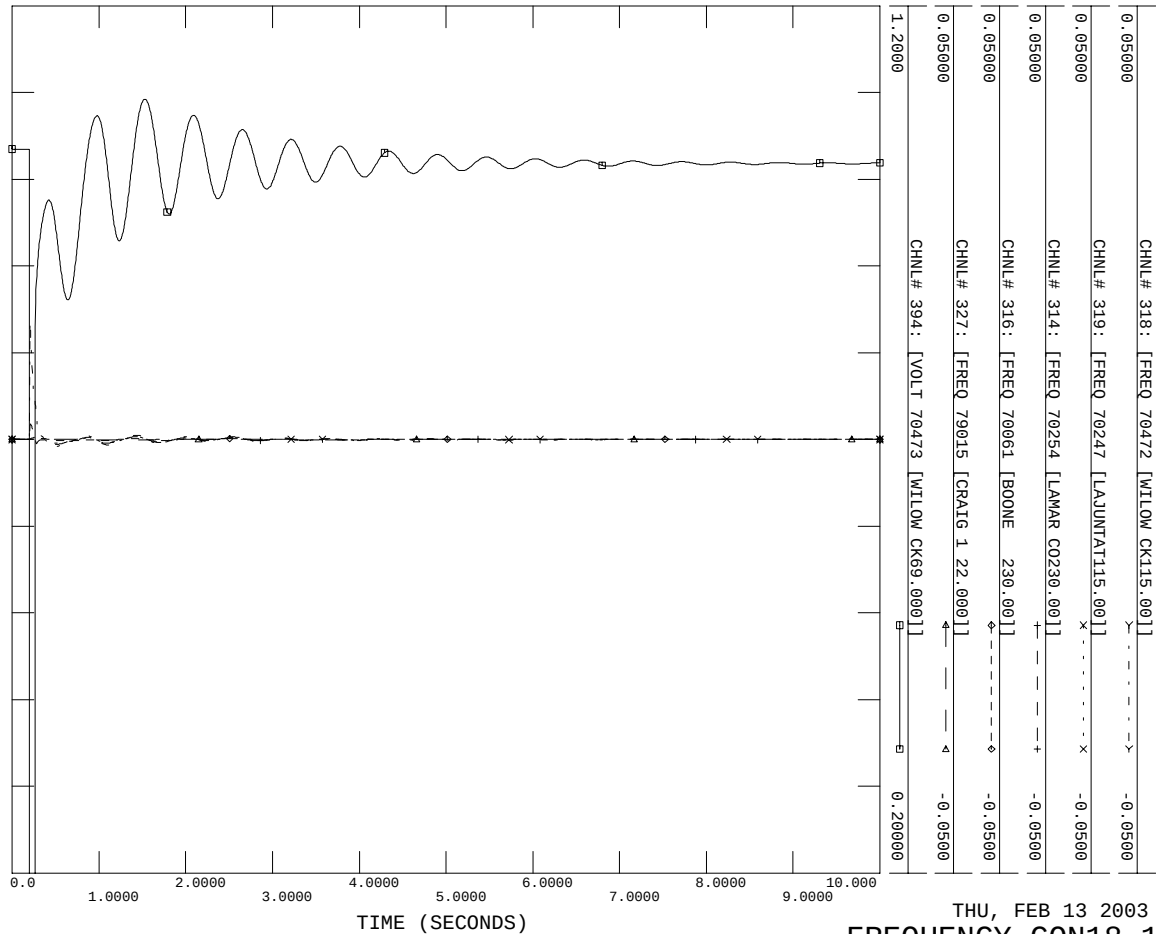
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR CO230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



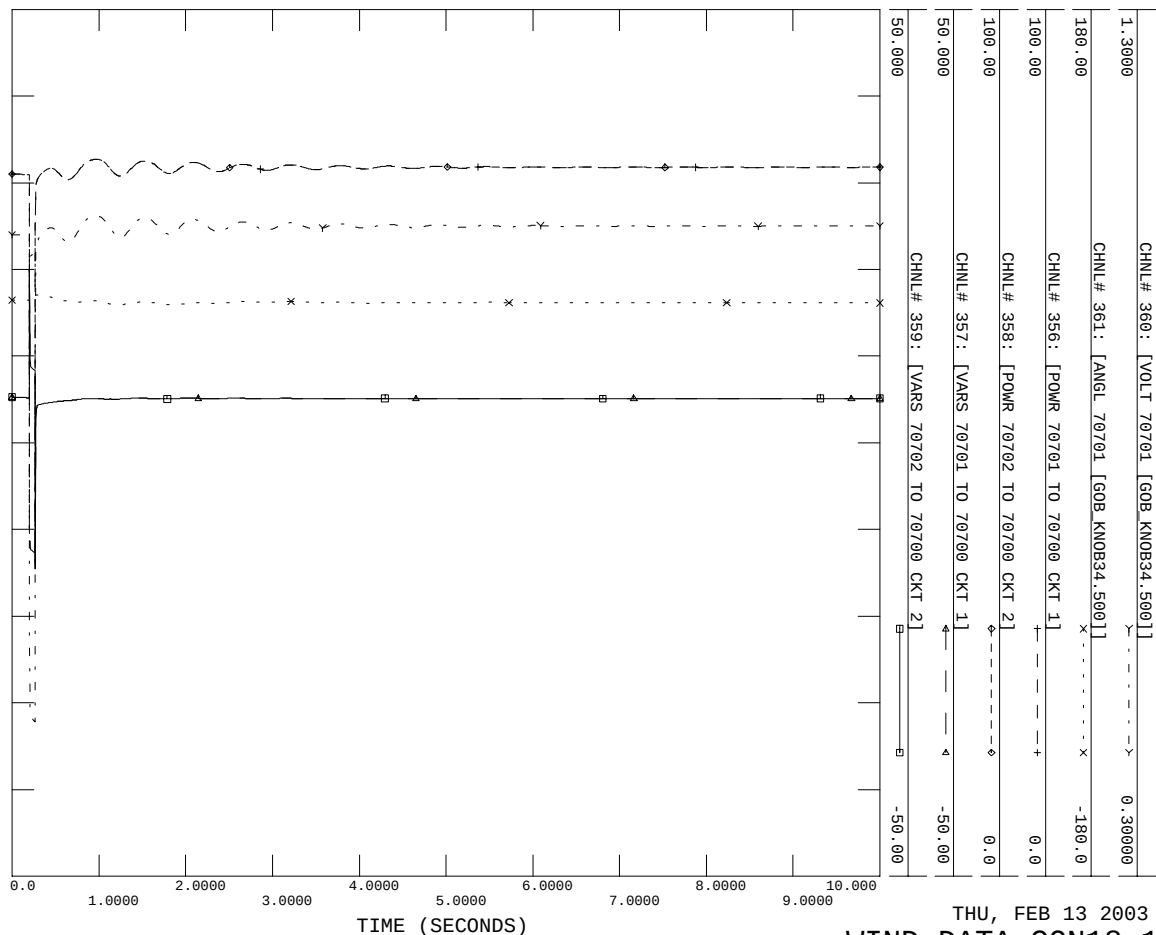
THU, FEB 13 2003 13:40  
VOLTAGE 1 CON18 162MW

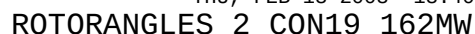
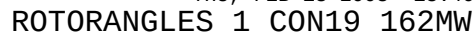


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT

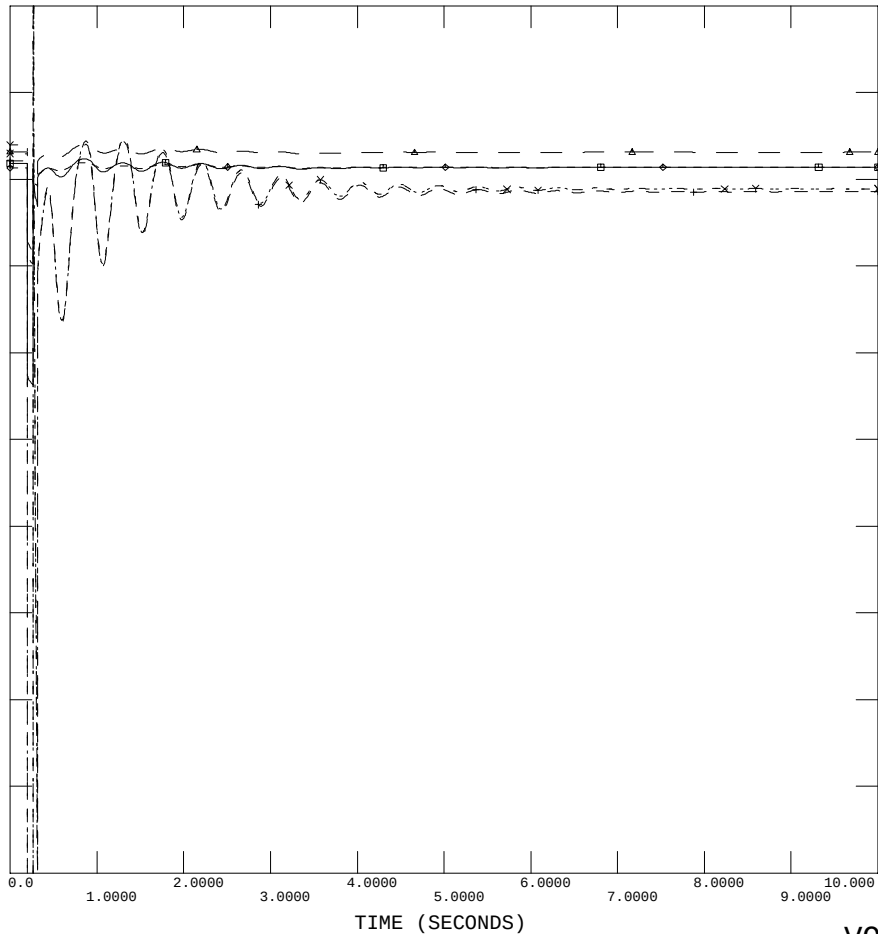




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]

FILE: CON19-ON.OUT

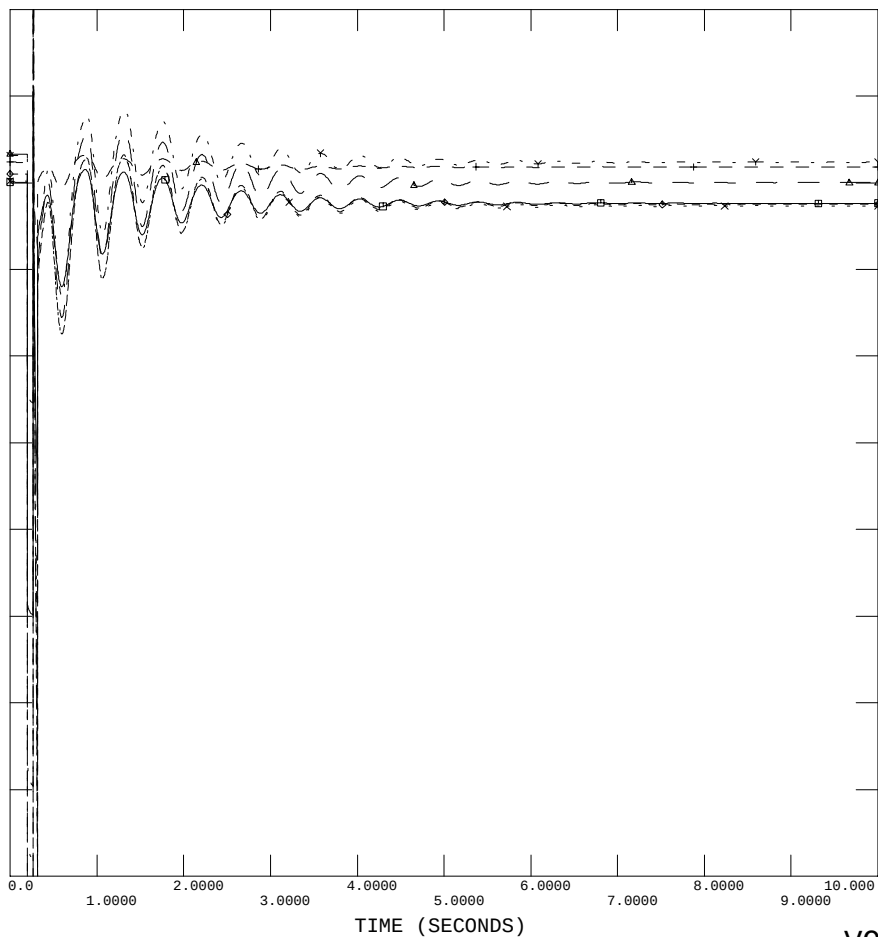
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [60B.KN0B34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [60B.KN0B230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]

FILE: CON19-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

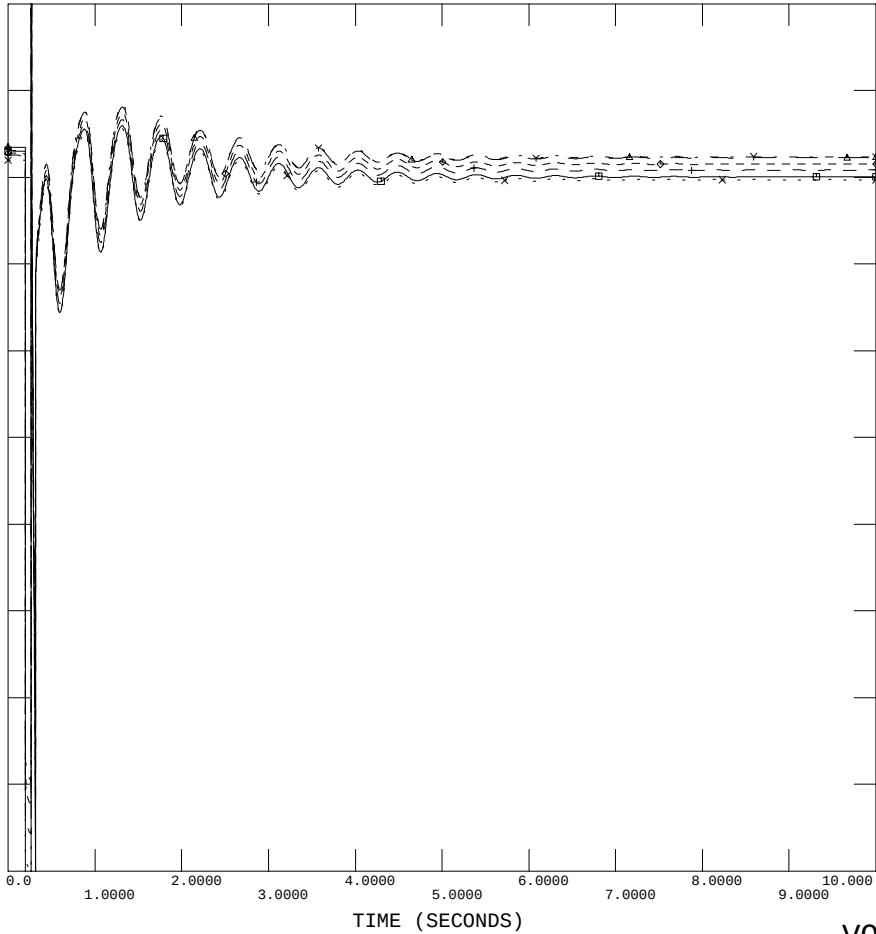




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]

FILE: CON19-ON.OUT

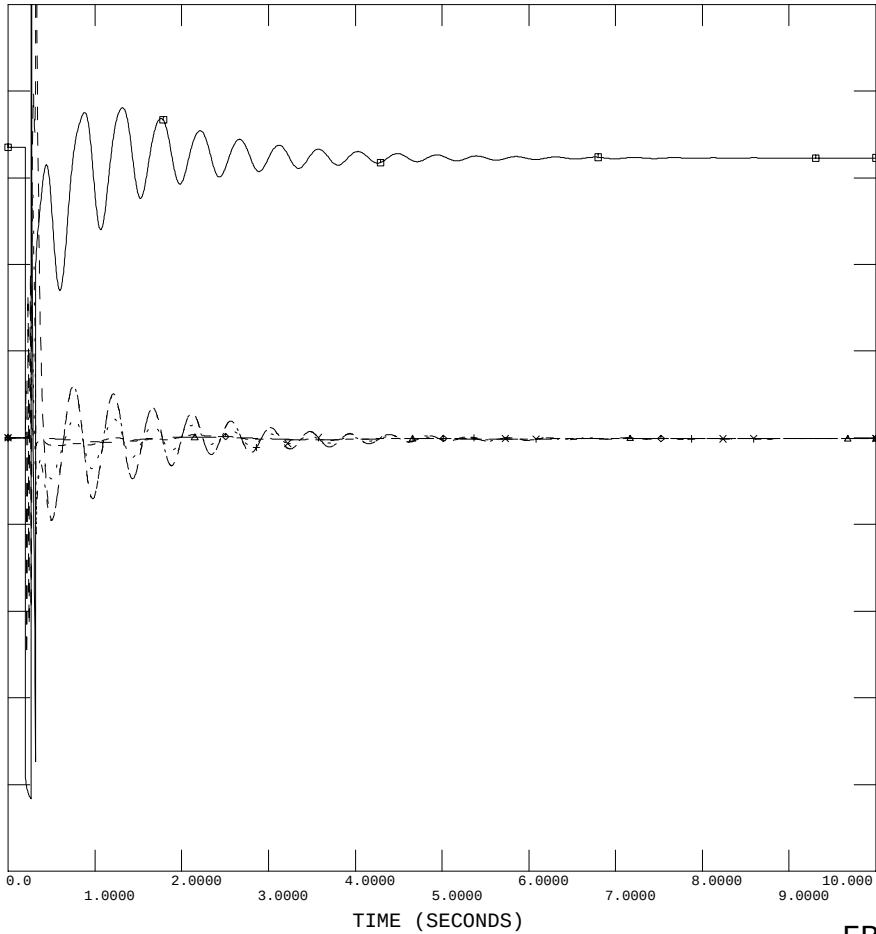
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]

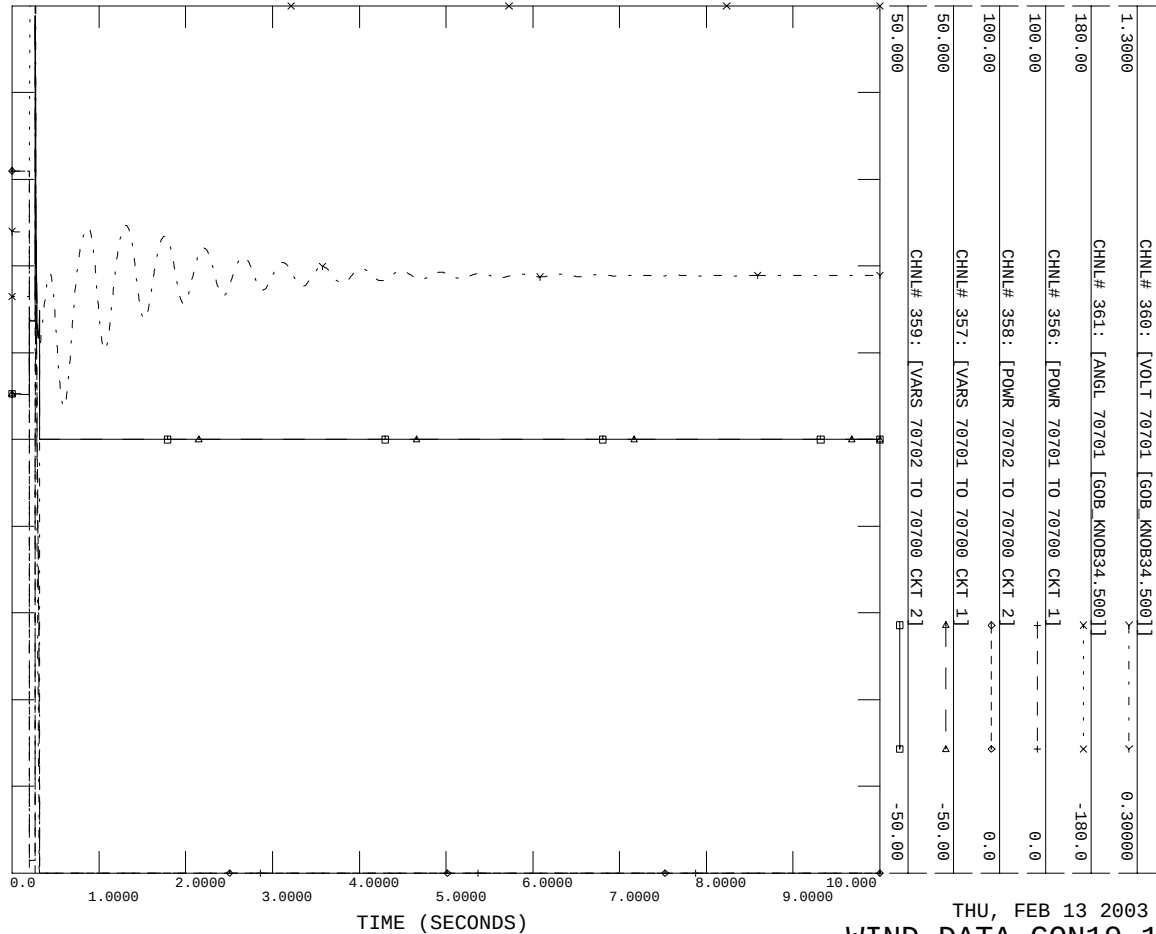
FILE: CON19-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |



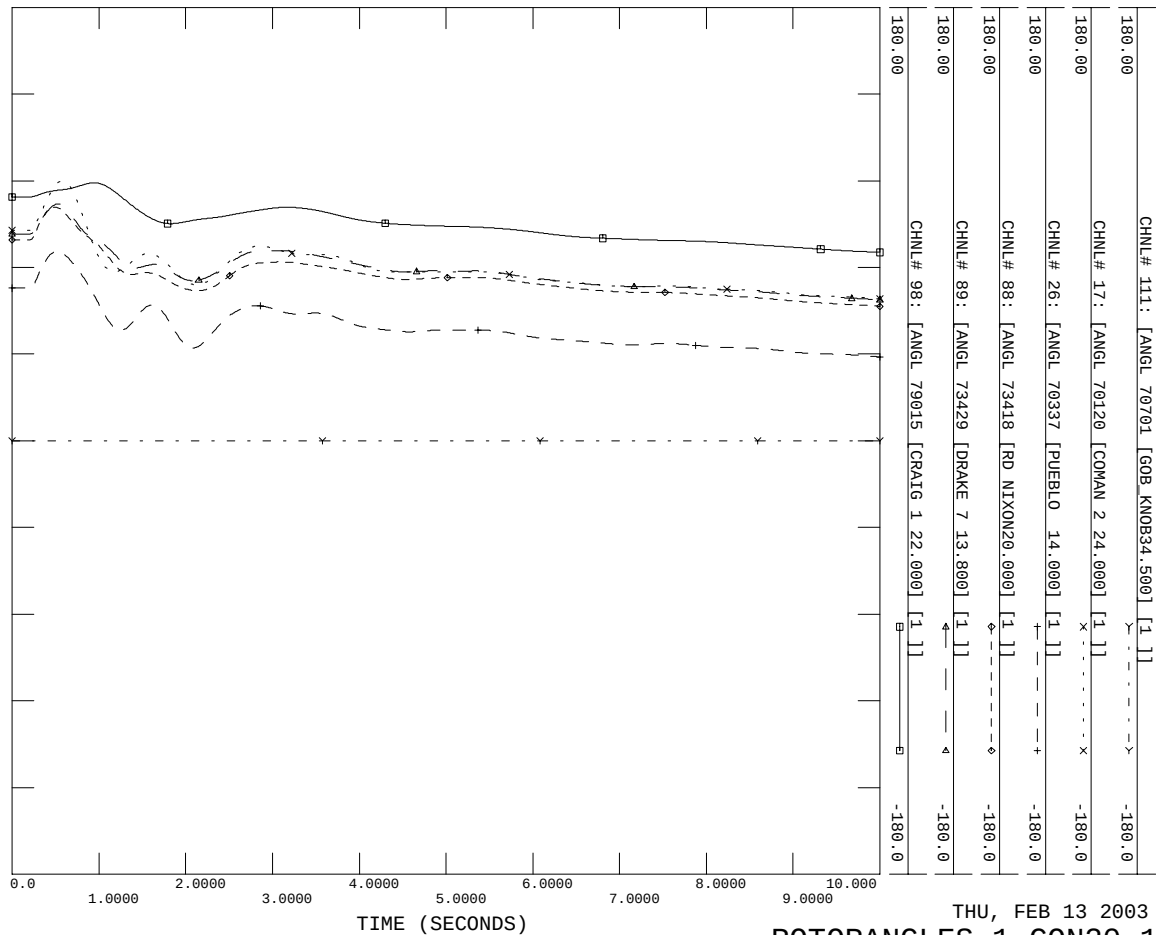
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]

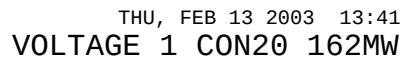
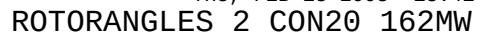
FILE: CON19-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]

FILE: CON20-ON.OUT

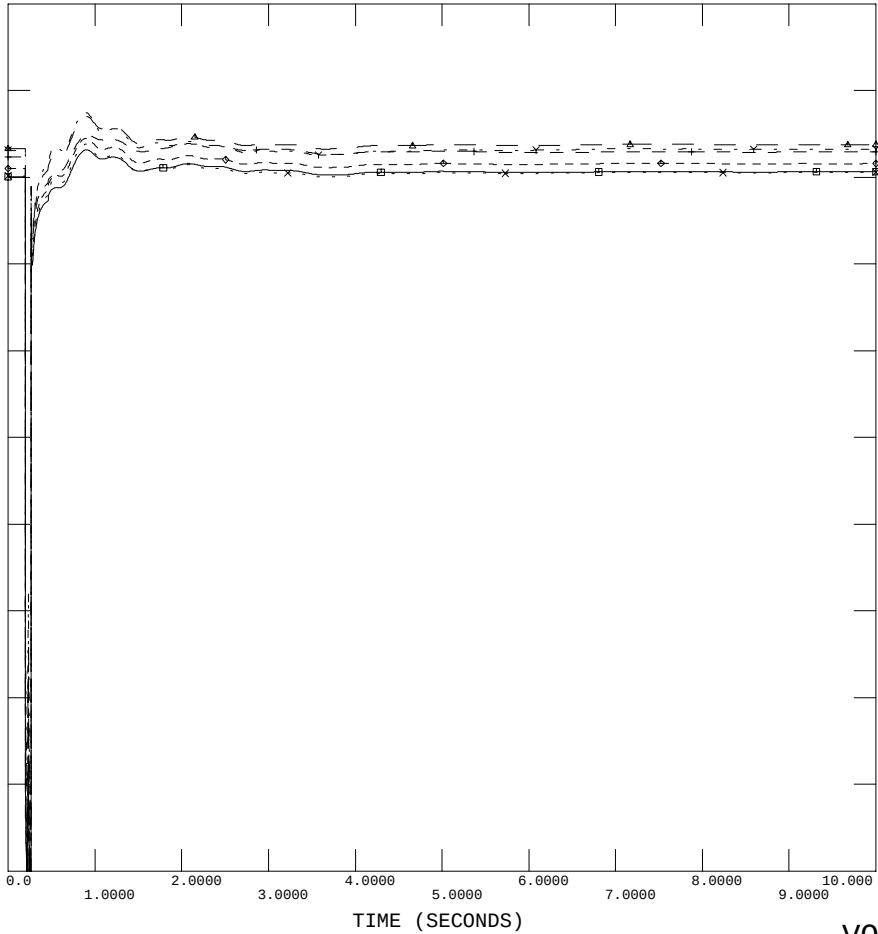




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]

FILE: CON20-ON.OUT

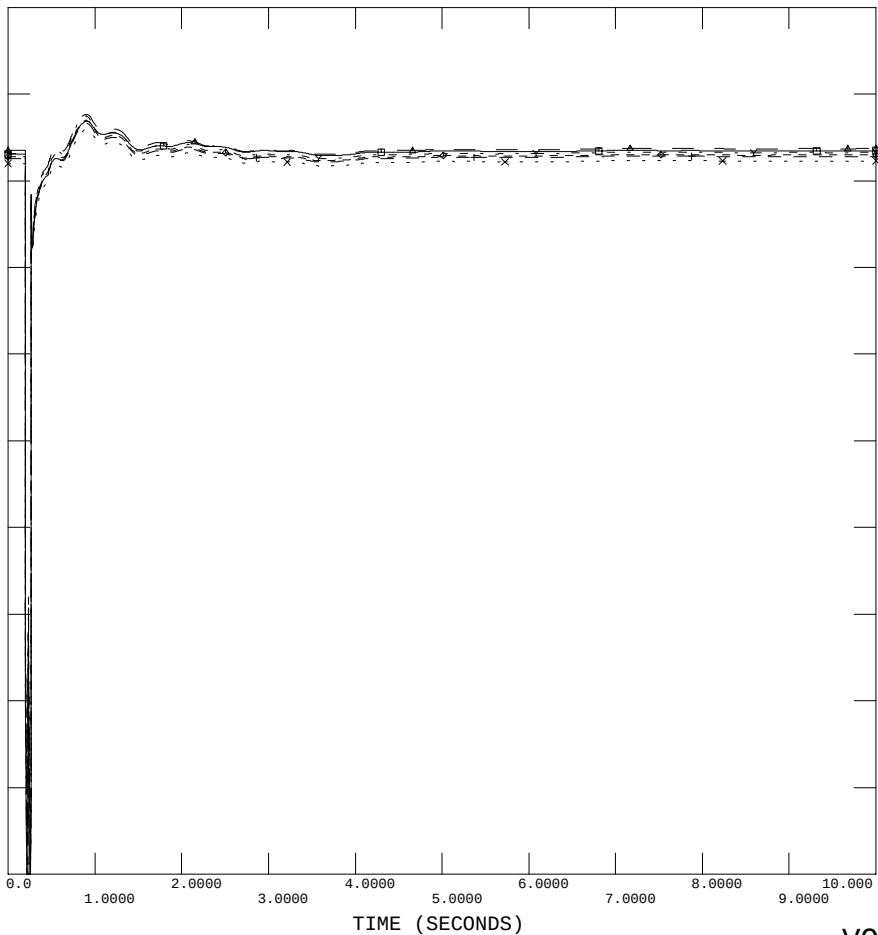
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]

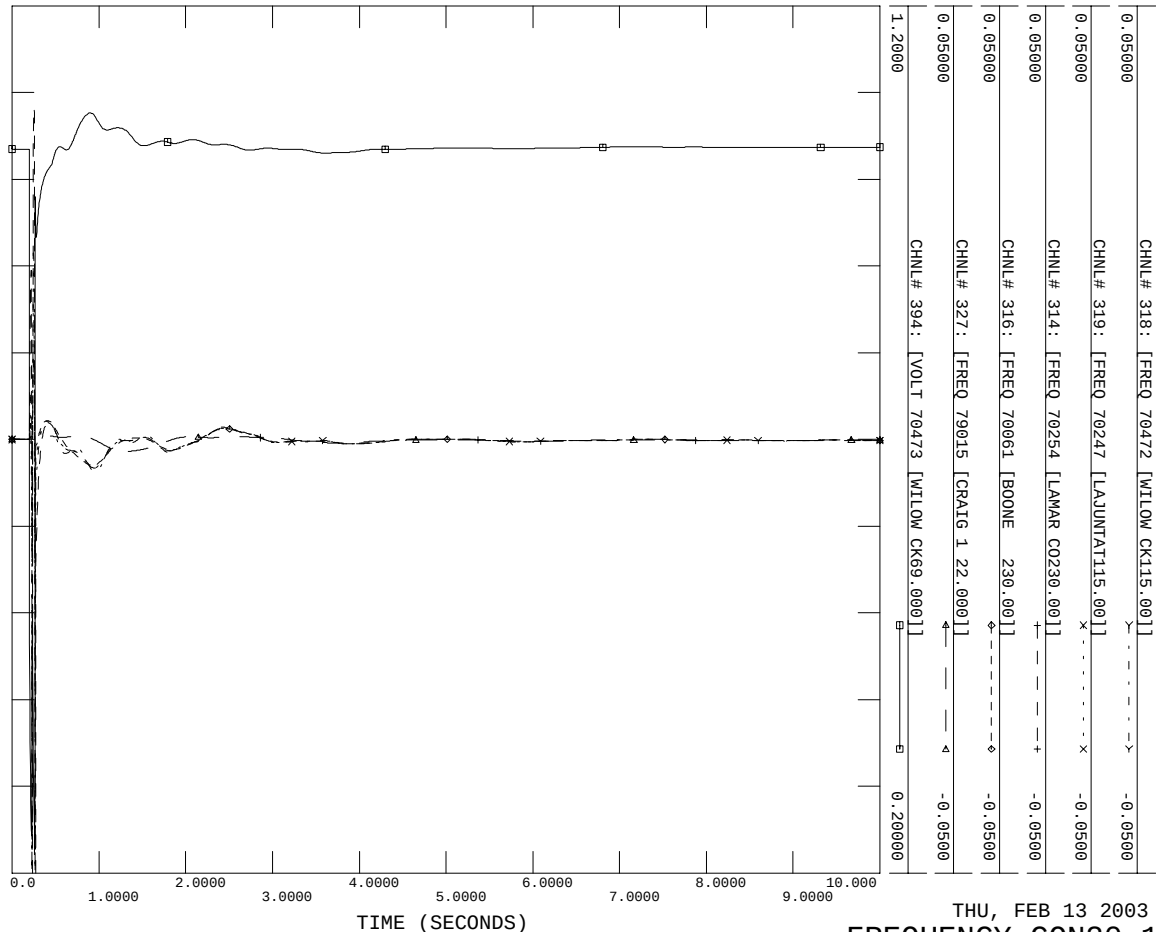
FILE: CON20-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



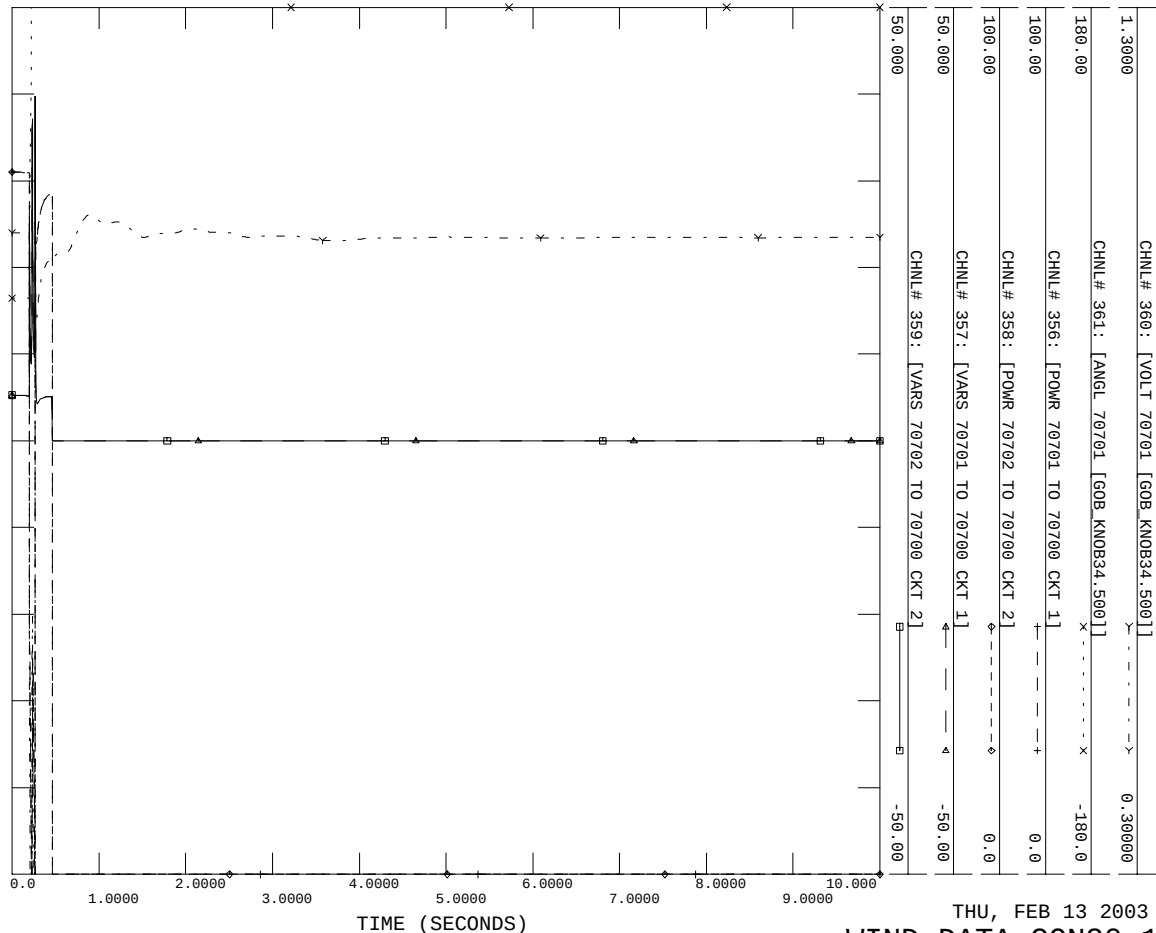
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]

FILE: CON20-ON.OUT



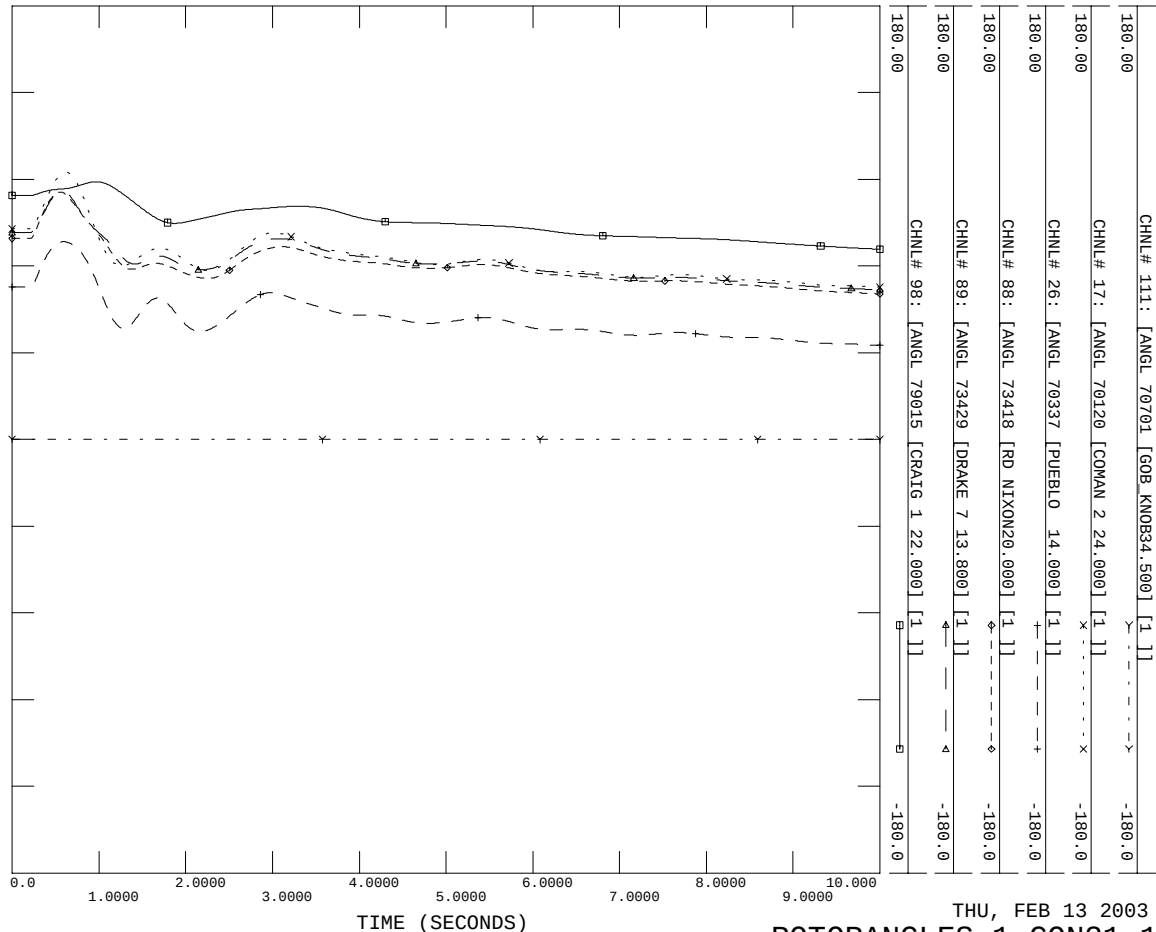
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]

FILE: CON20-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

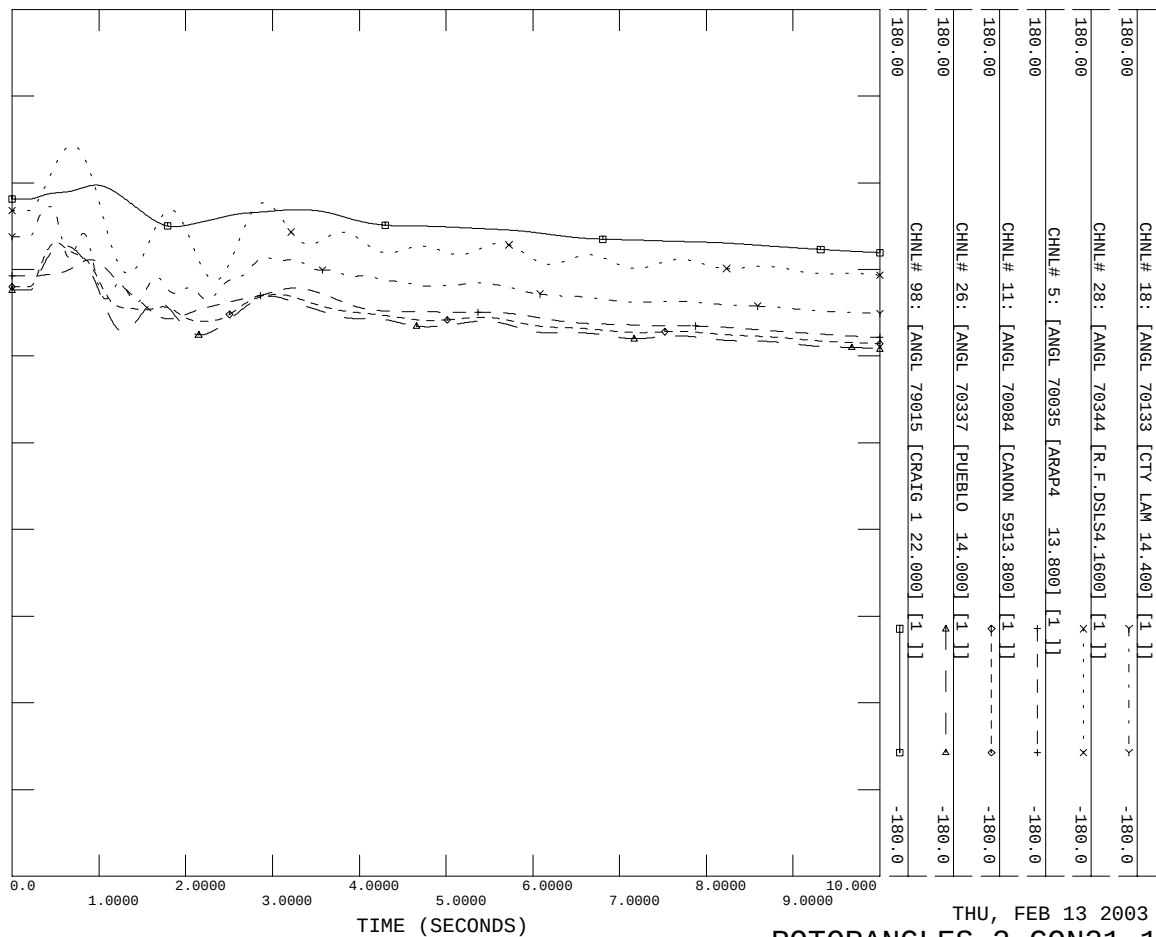
FILE: CON21-ON.OUT



ROTORANGLES 1 CON21 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON21-ON.OUT

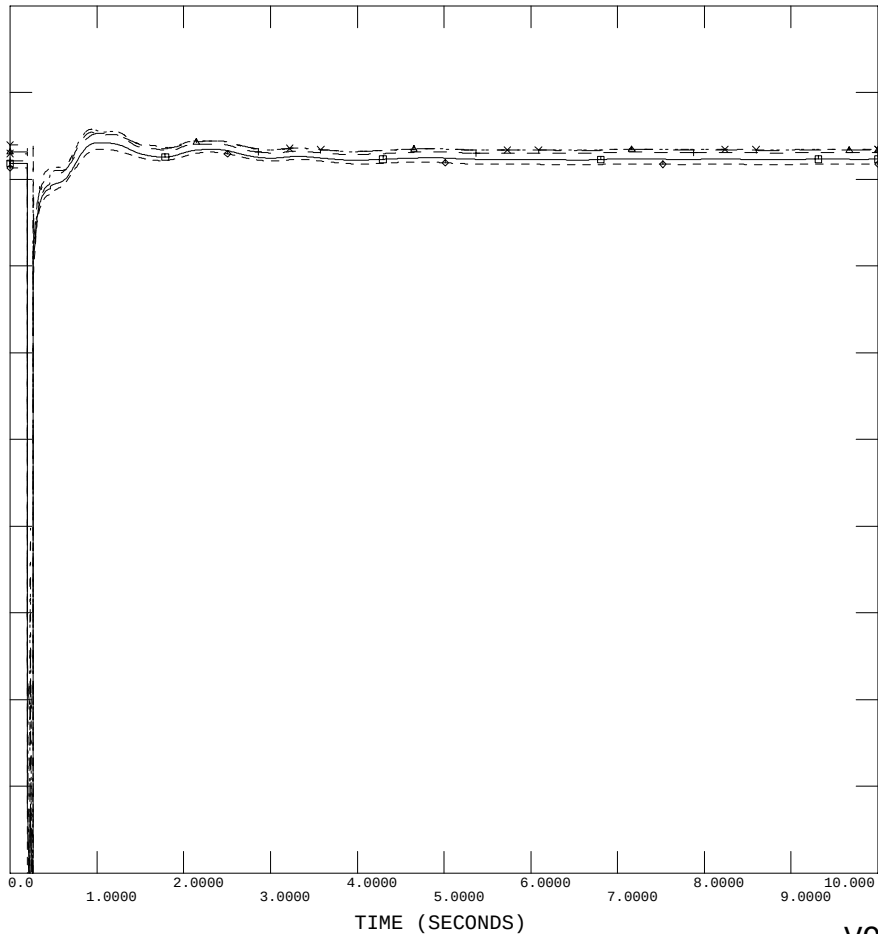


ROTORANGLES 2 CON21 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON21-ON.OUT

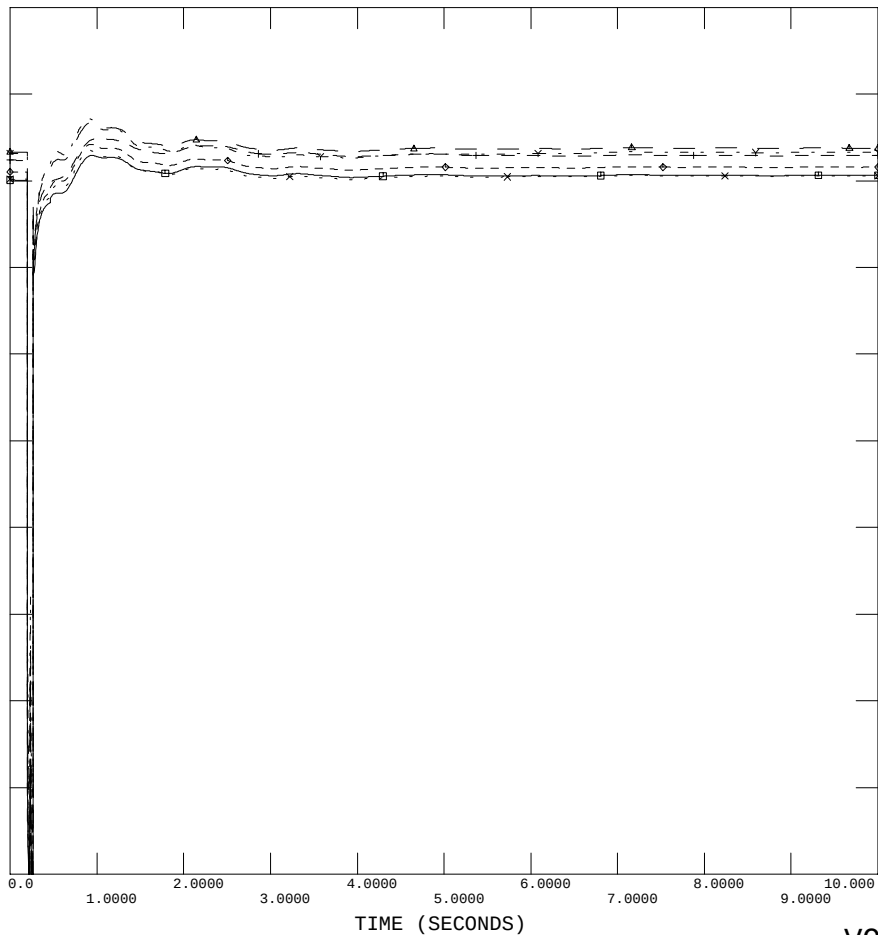
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [60B KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [60B KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

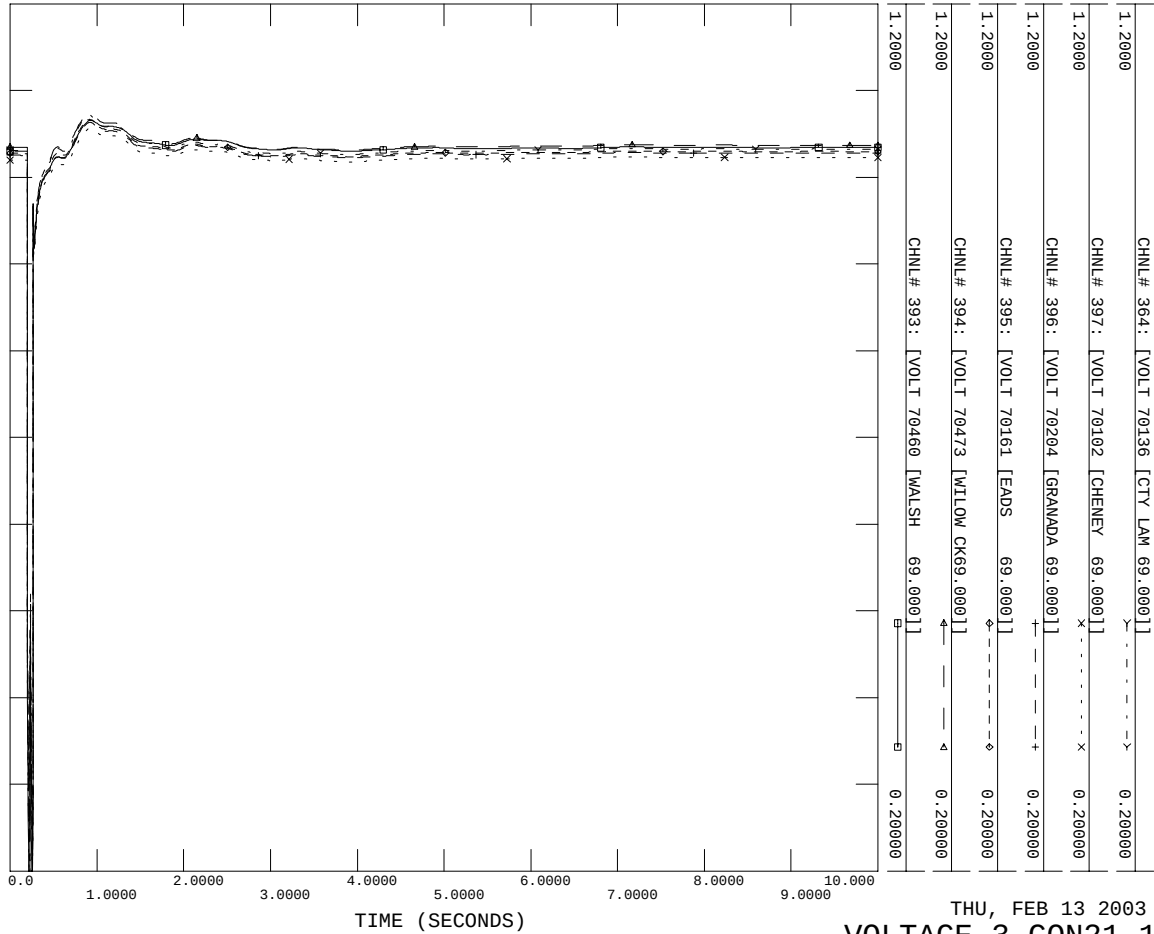
FILE: CON21-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



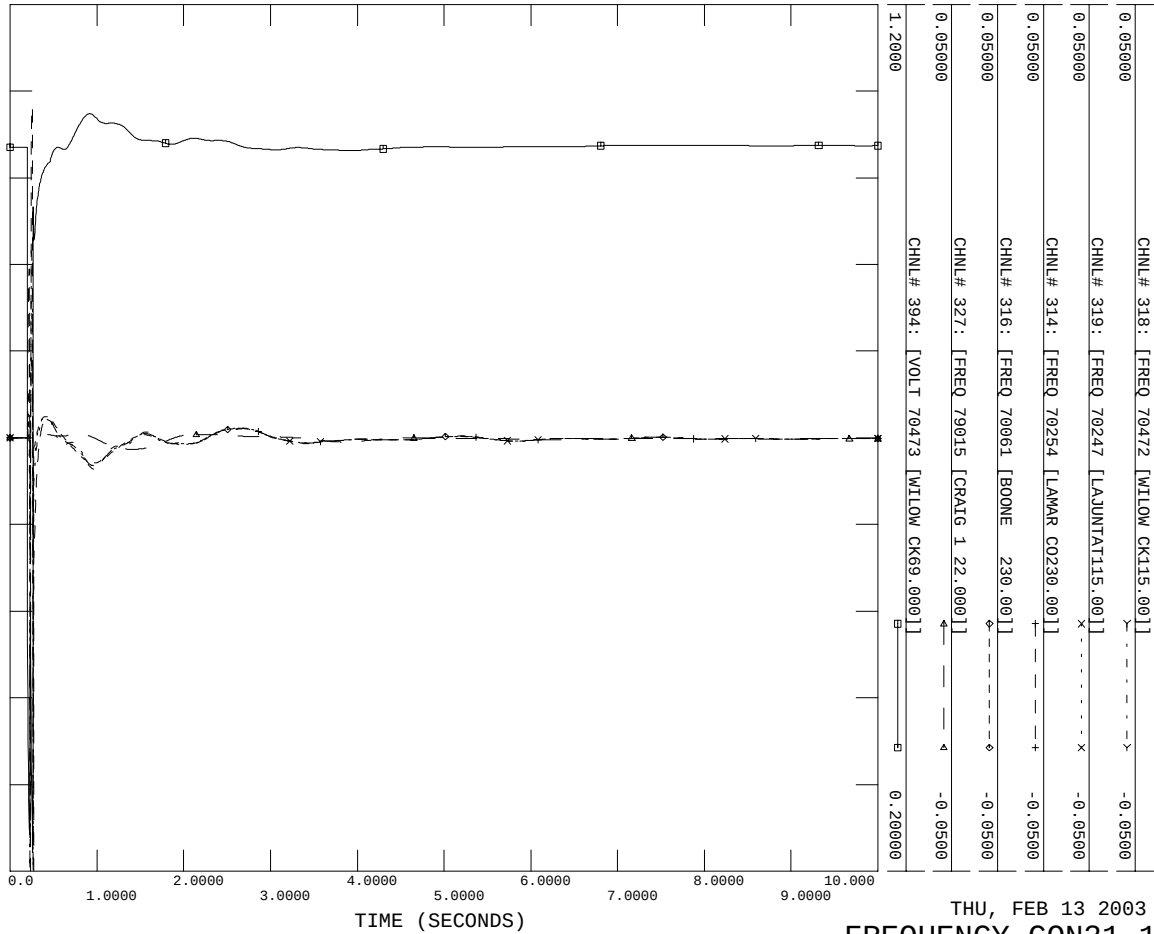
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON21-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

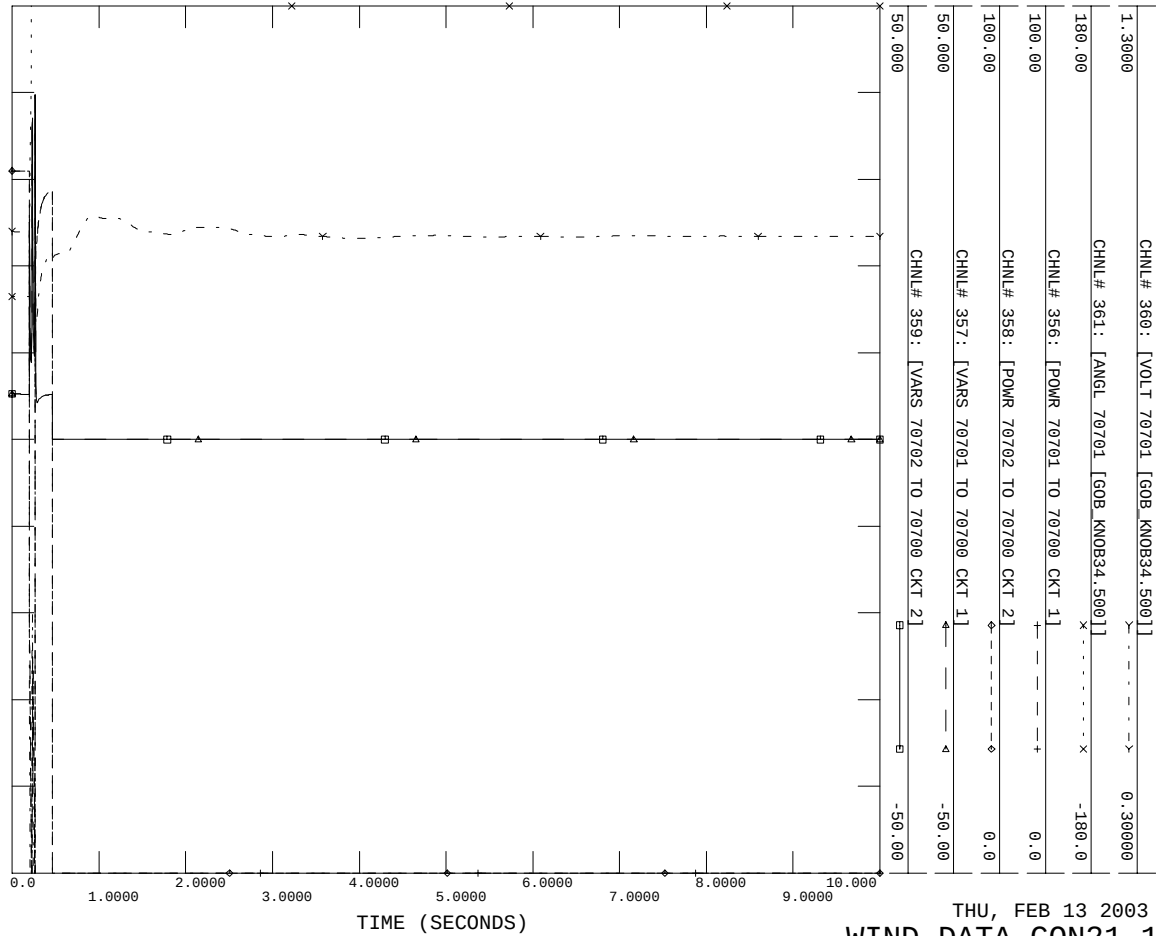
FILE: CON21-ON.OUT





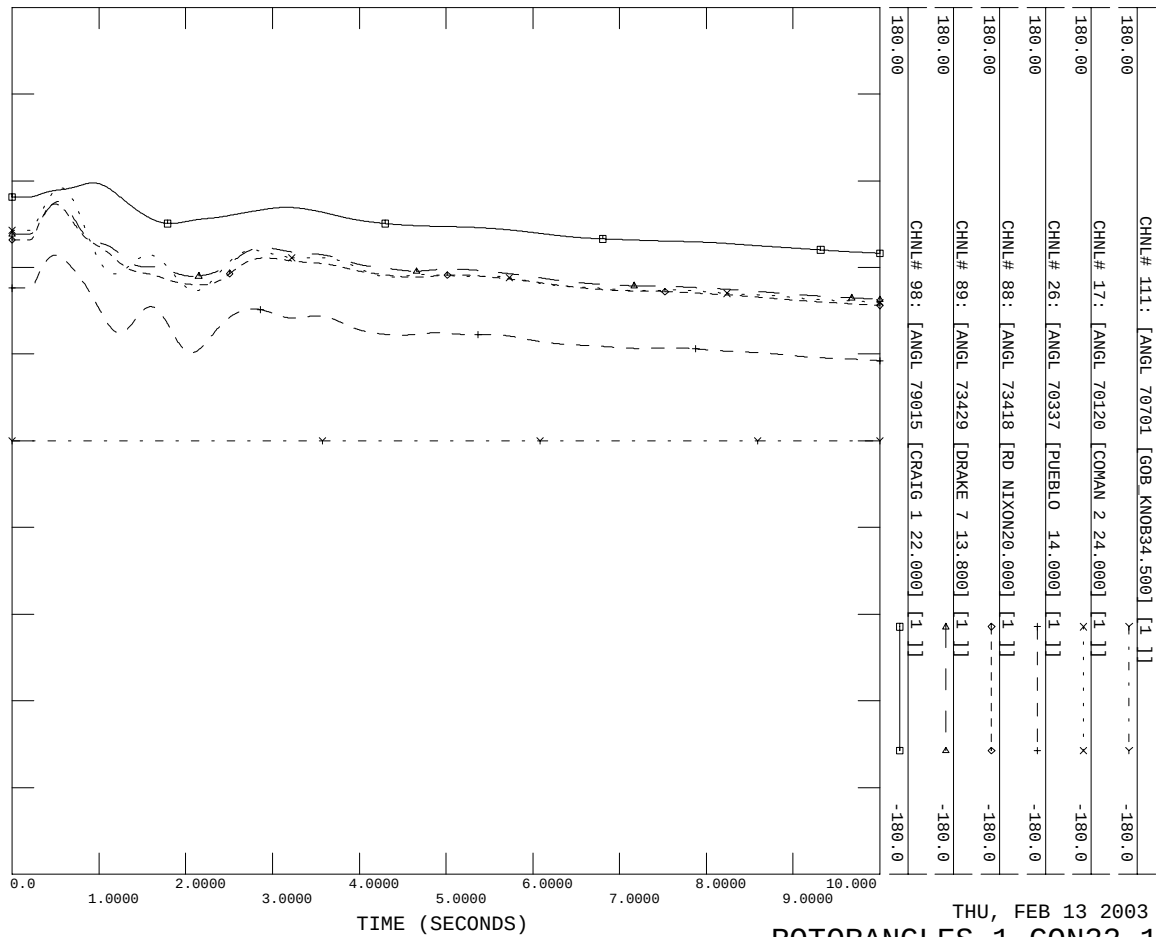
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

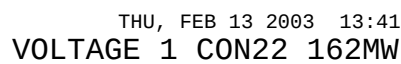
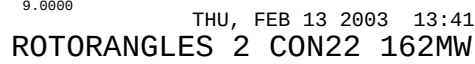
FILE: CON21-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]

FILE: CON22-ON.OUT

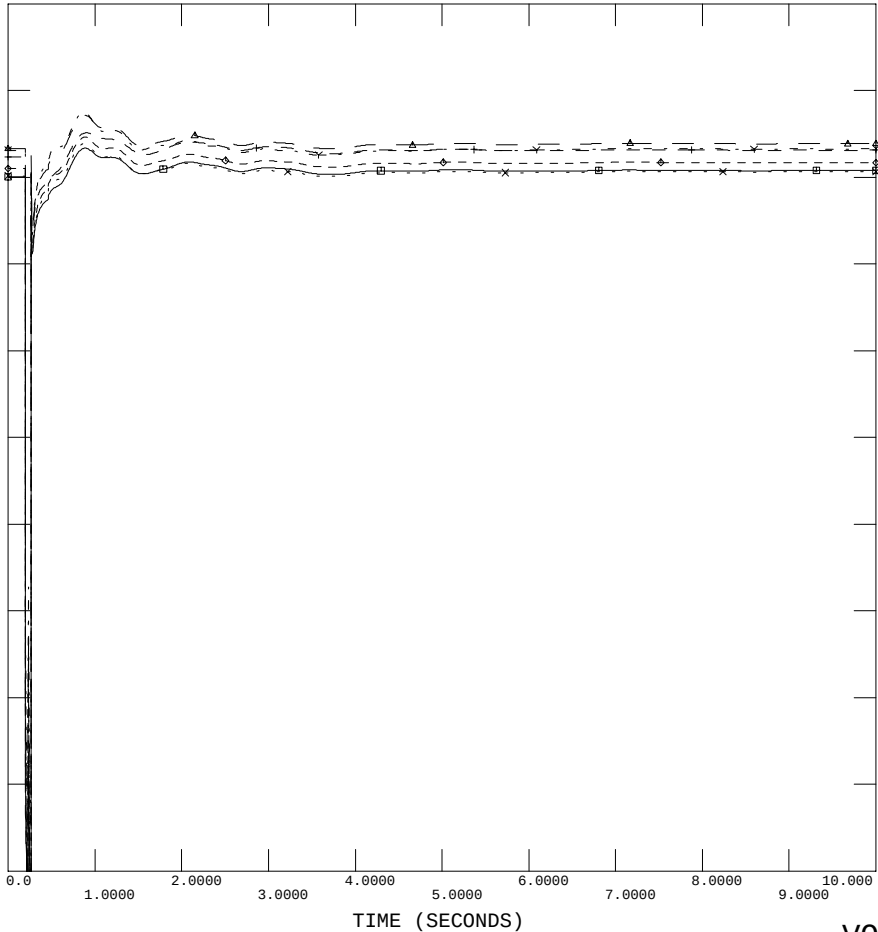




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]

FILE: CON22-ON.OUT

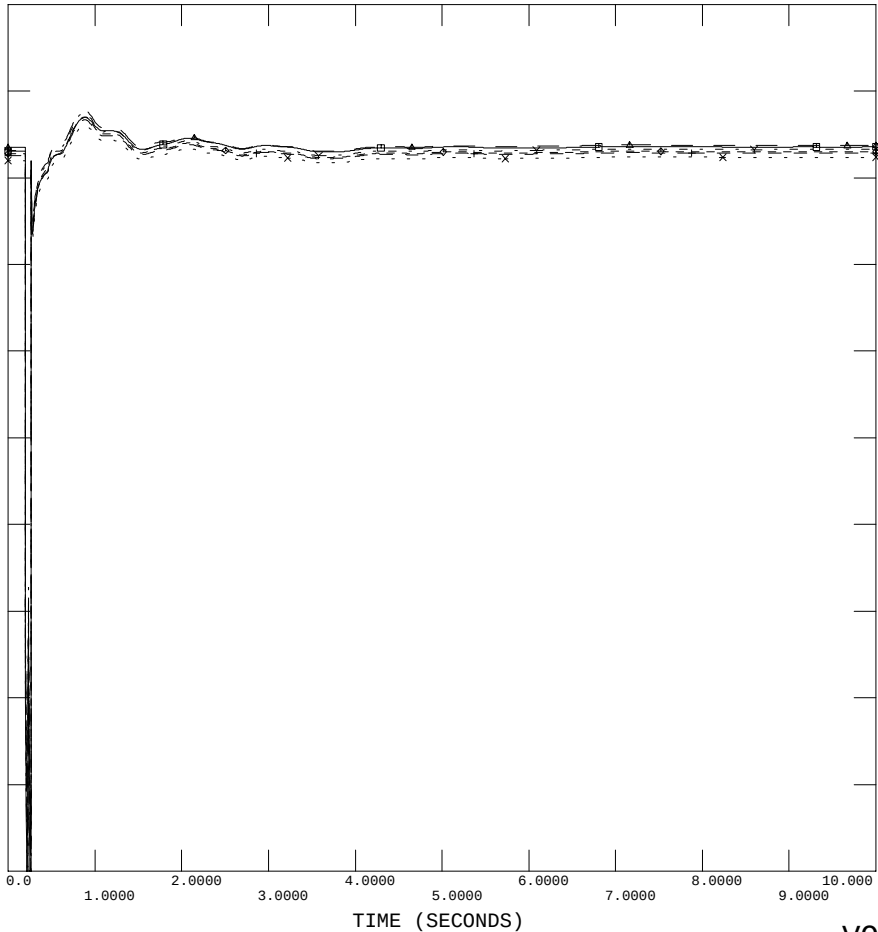
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]

FILE: CON22-ON.OUT

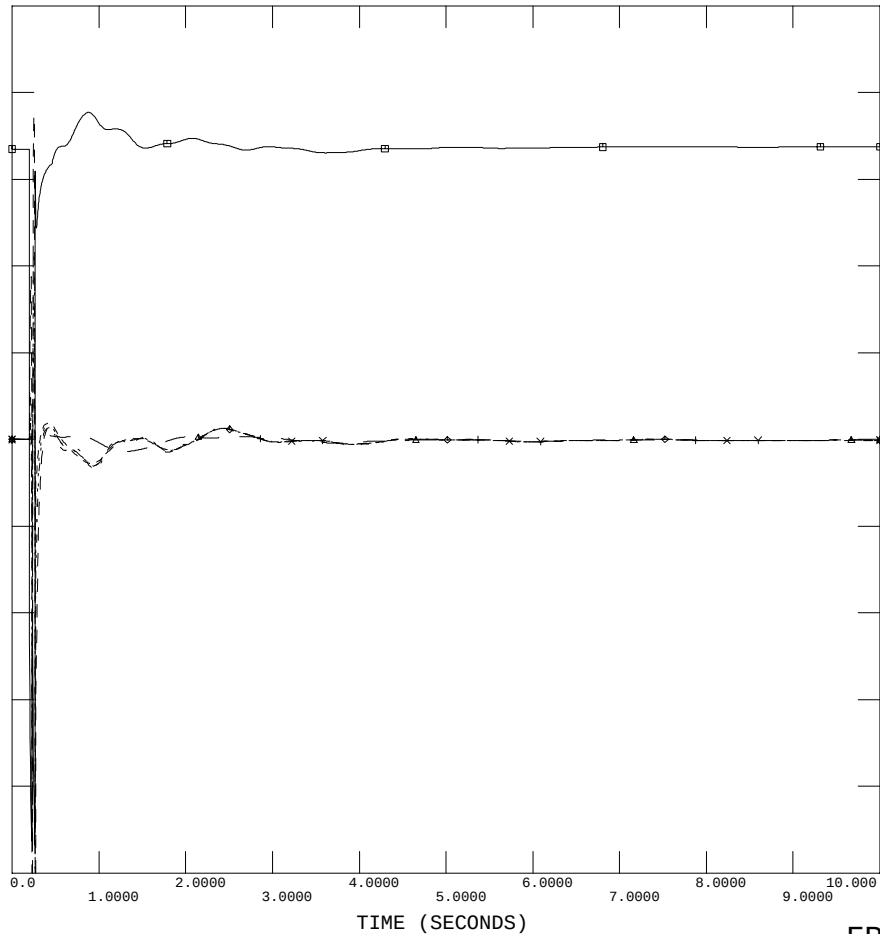
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]

FILE: CON22-ON.OUT

|         |                                           |          |
|---------|-------------------------------------------|----------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500  |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500  |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500  |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500  |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500  |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.20000 |

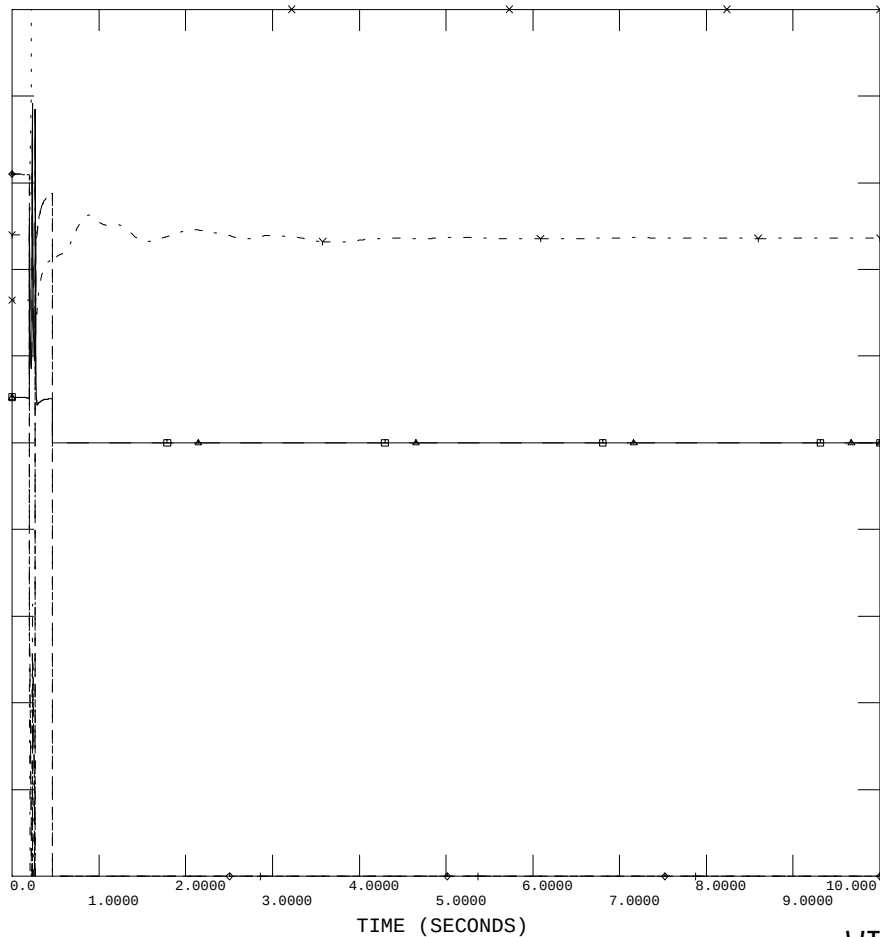


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FREQUENCY CON22 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]

FILE: CON22-ON.OUT

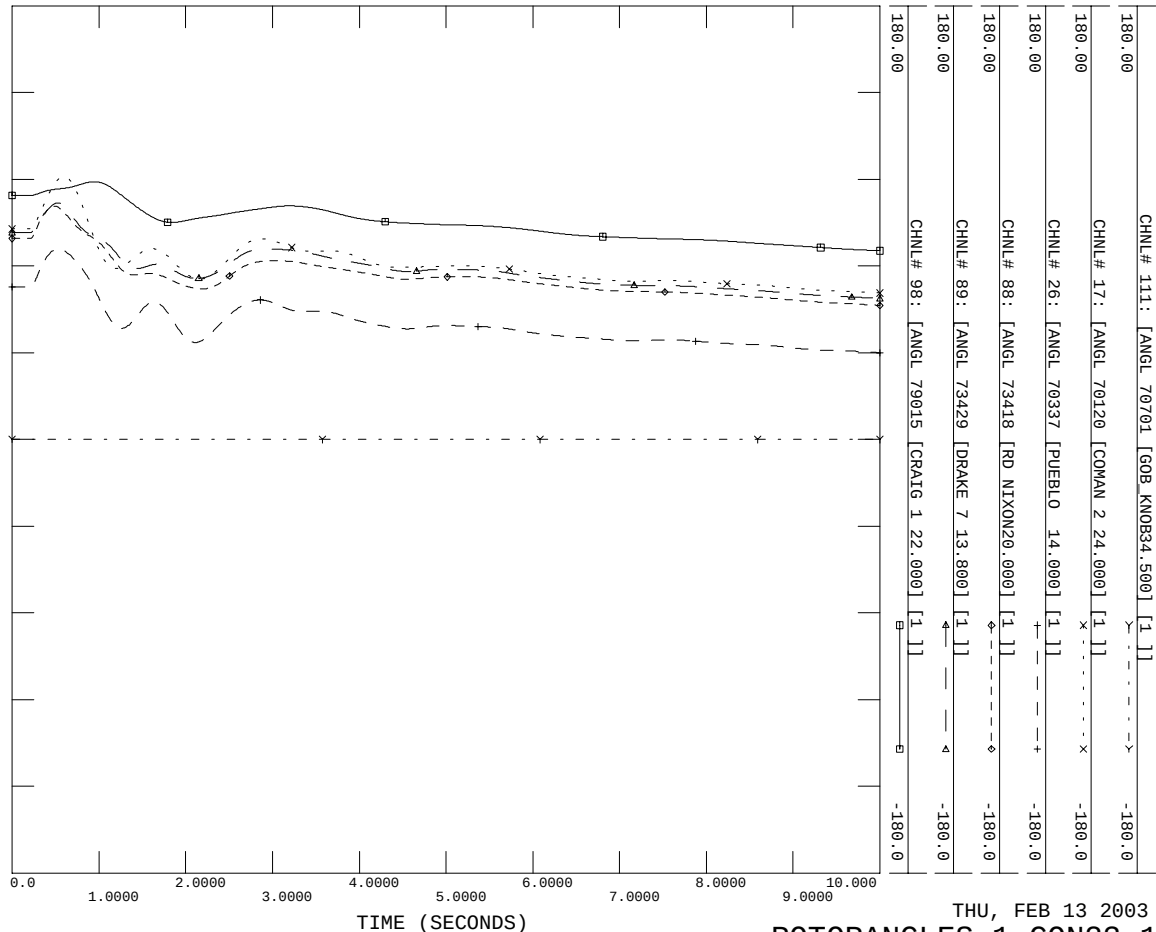
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON22 162MW

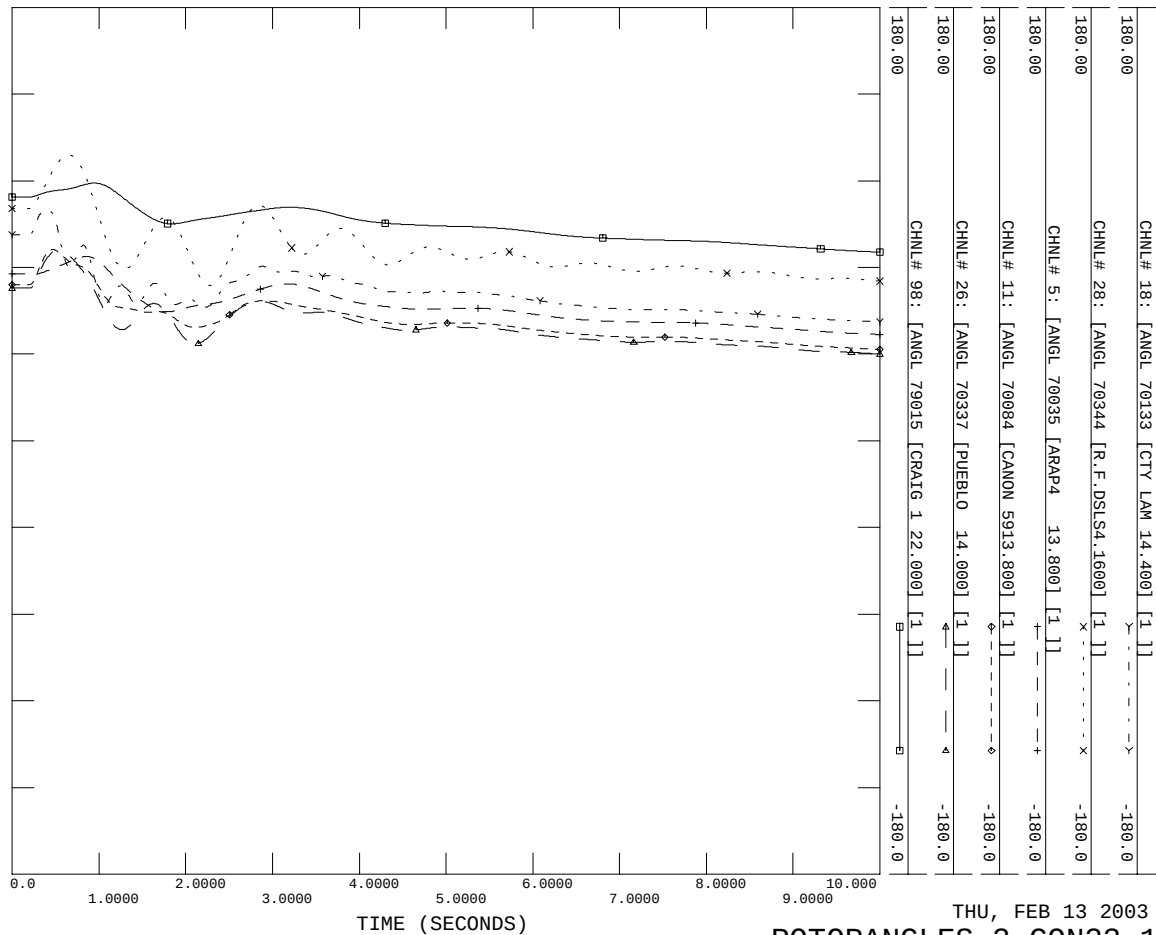
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]

FILE: CON23-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]

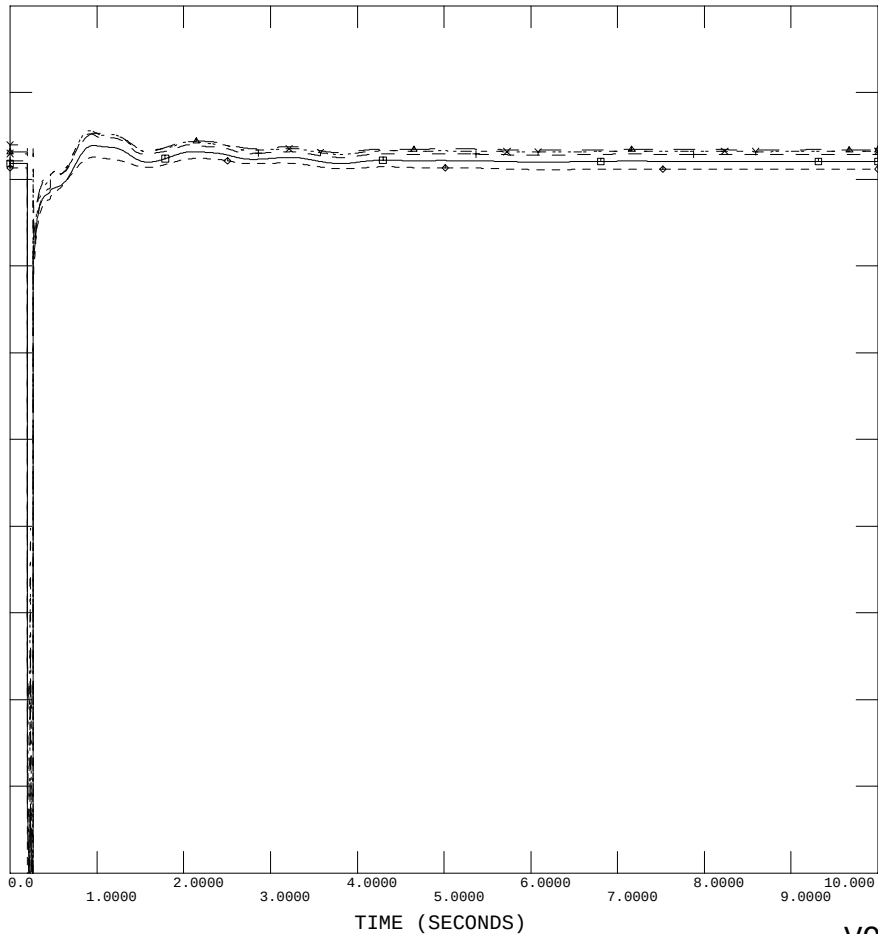
FILE: CON23-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]

FILE: CON23-ON.OUT

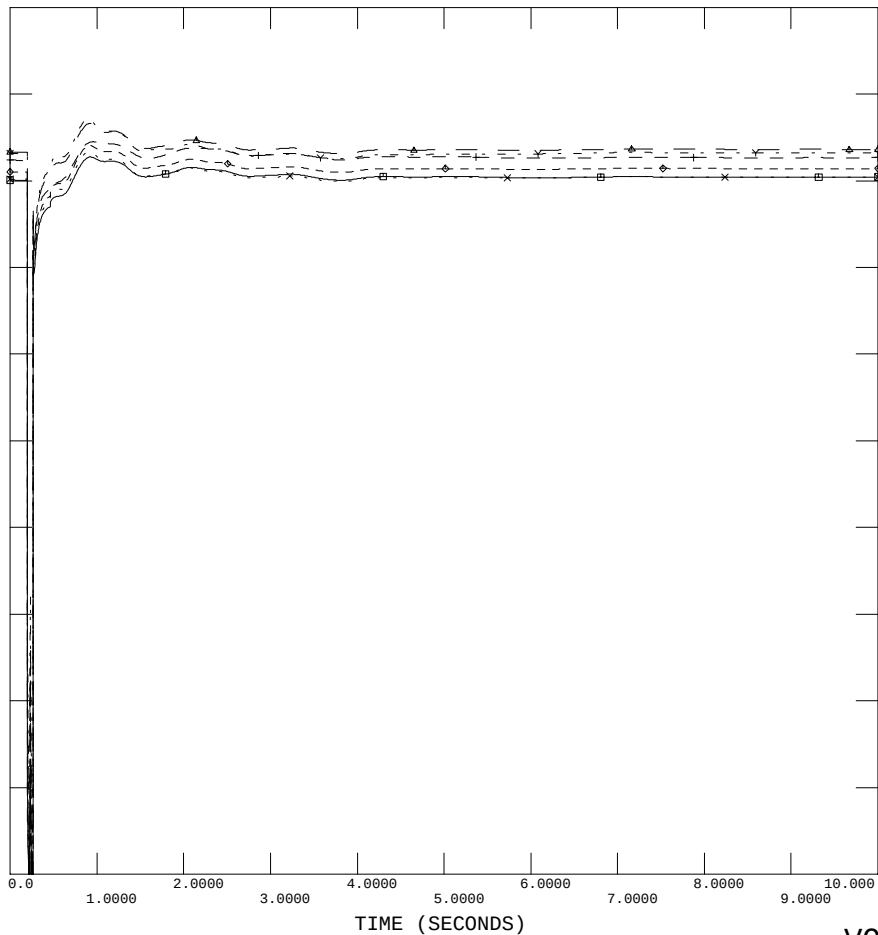
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [60B.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [60B.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR.C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]

FILE: CON23-ON.OUT

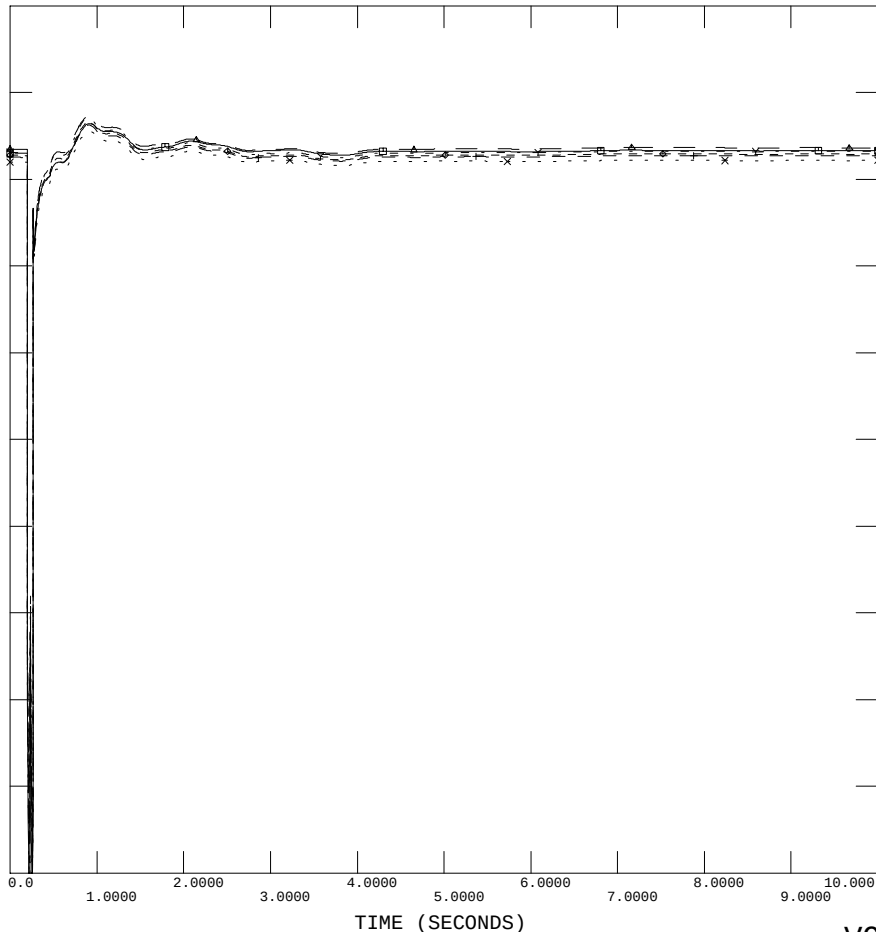
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR.C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]

FILE: CON23-ON.OUT

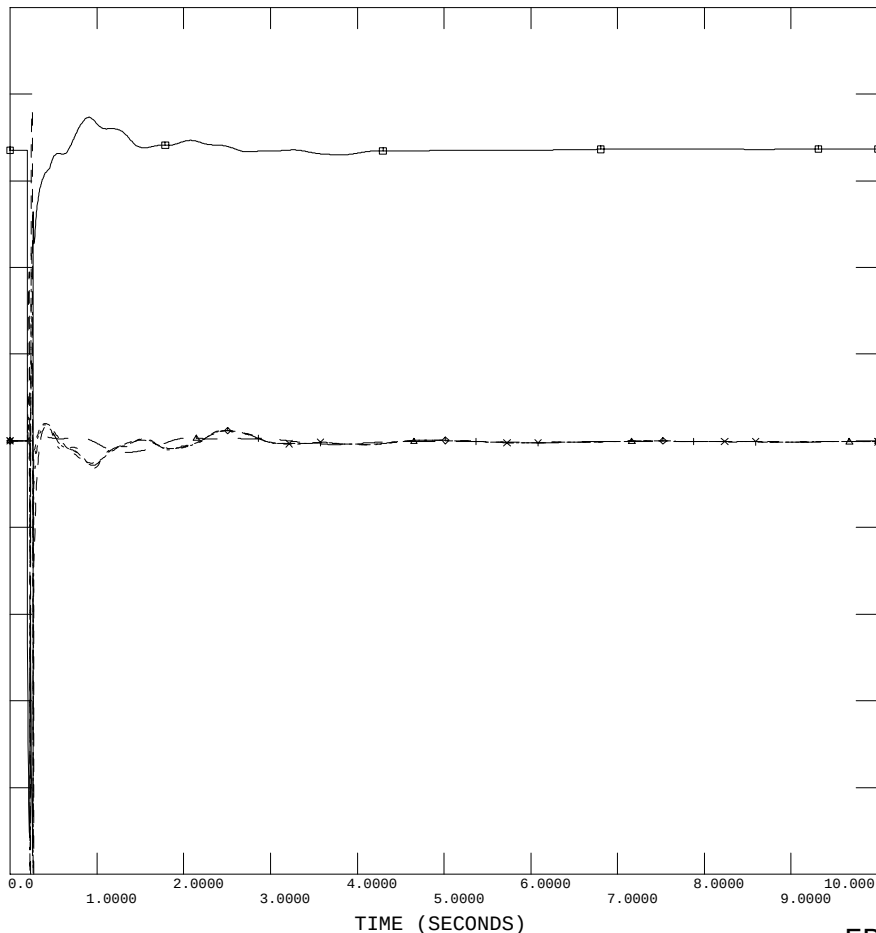
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]

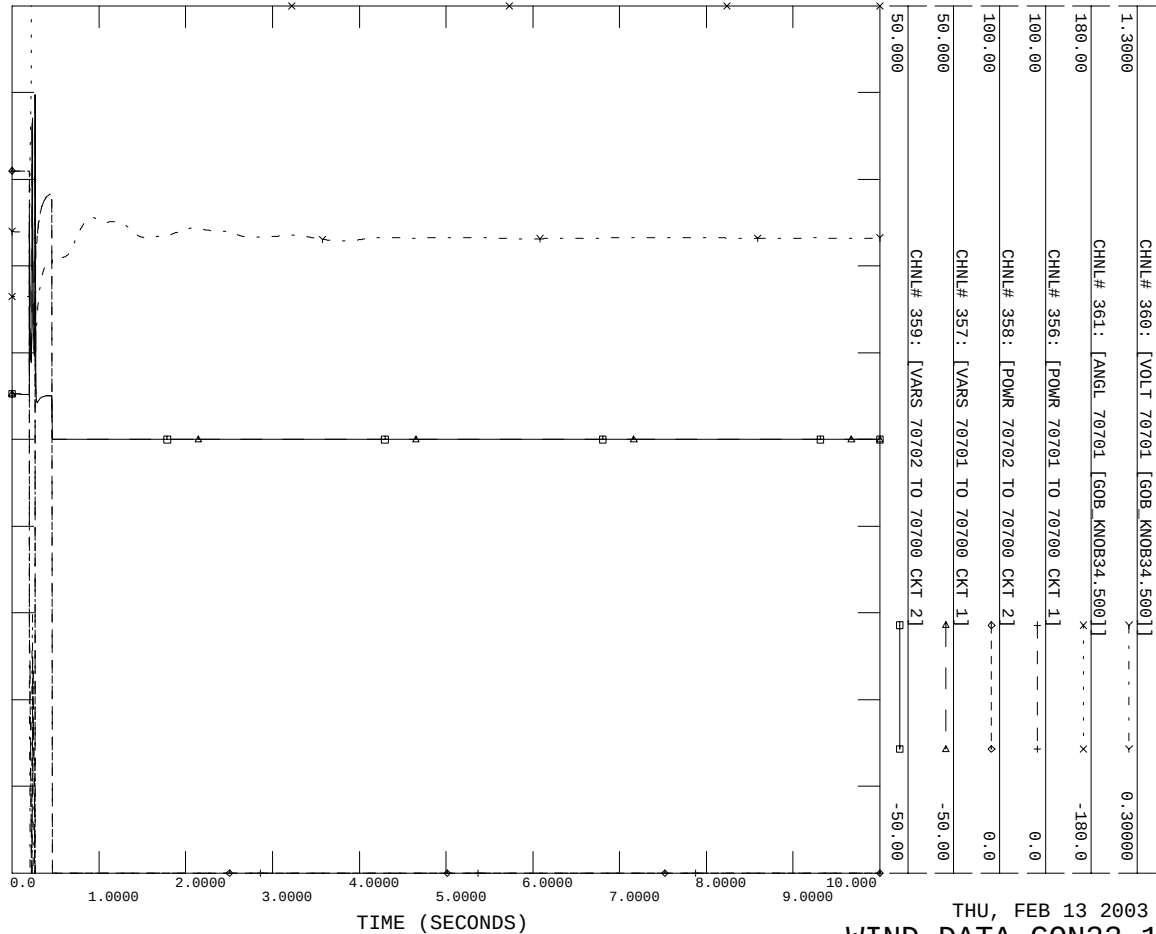
FILE: CON23-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]

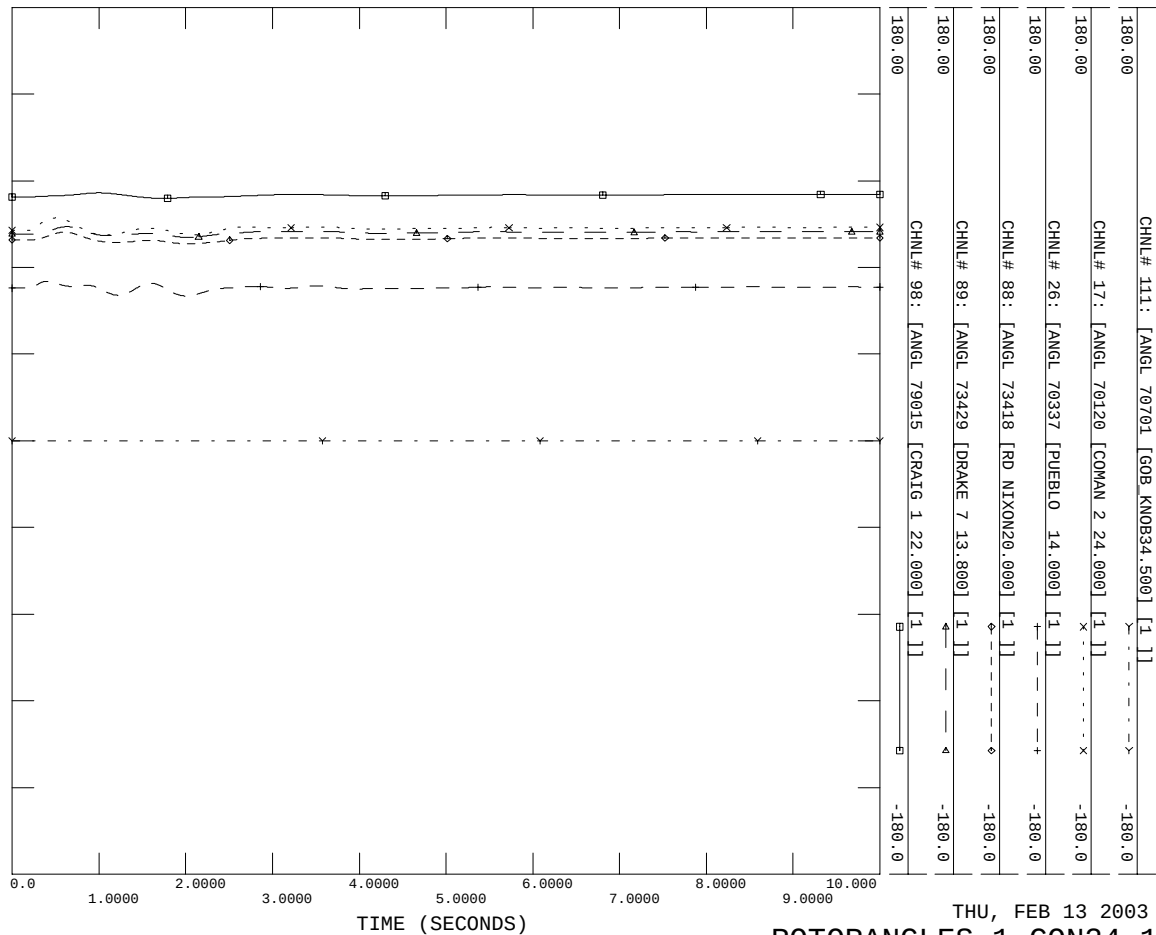
FILE: CON23-ON.OUT



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WIND DATA CON23 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]

FILE: CON24-ON.OUT



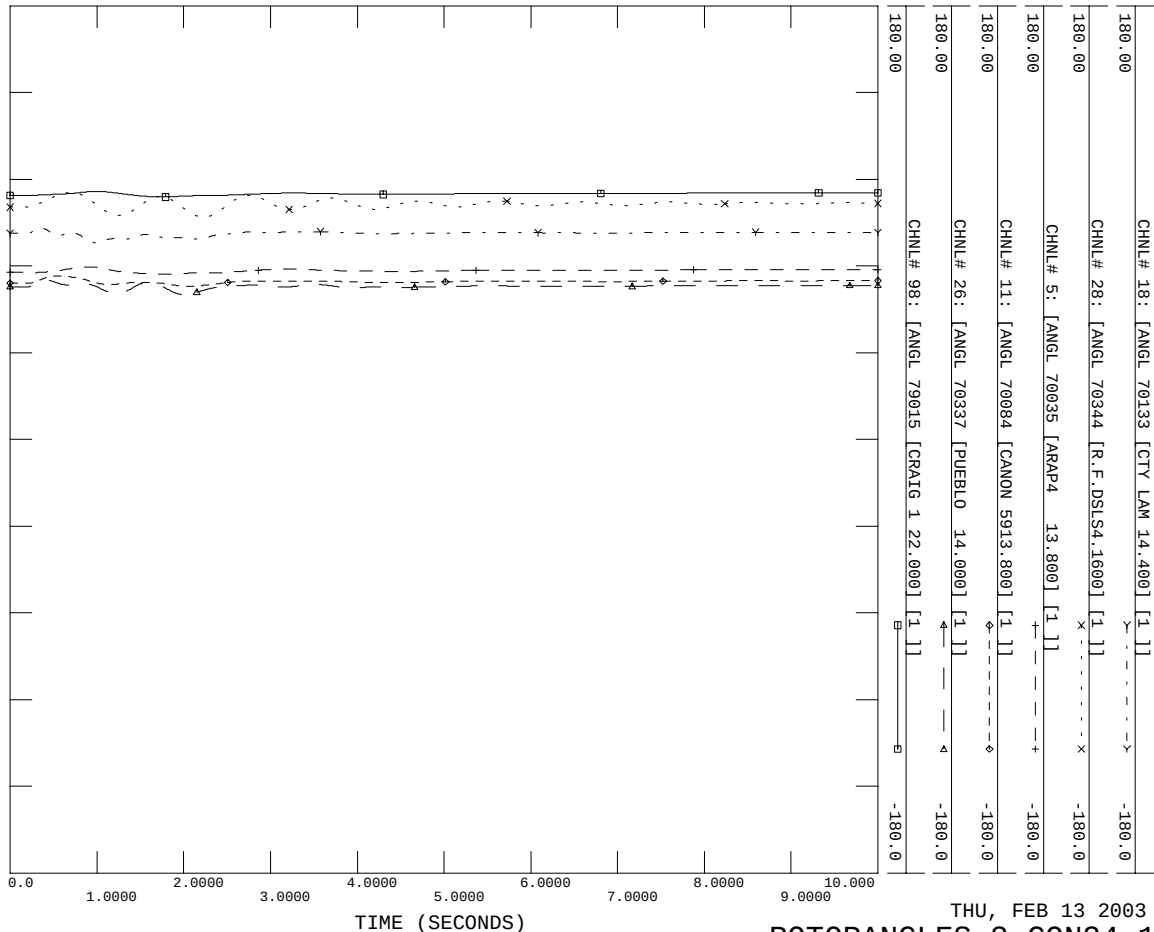
THU, FEB 13 2003 13:41  
ROTORANGLES 1 CON24 162MW





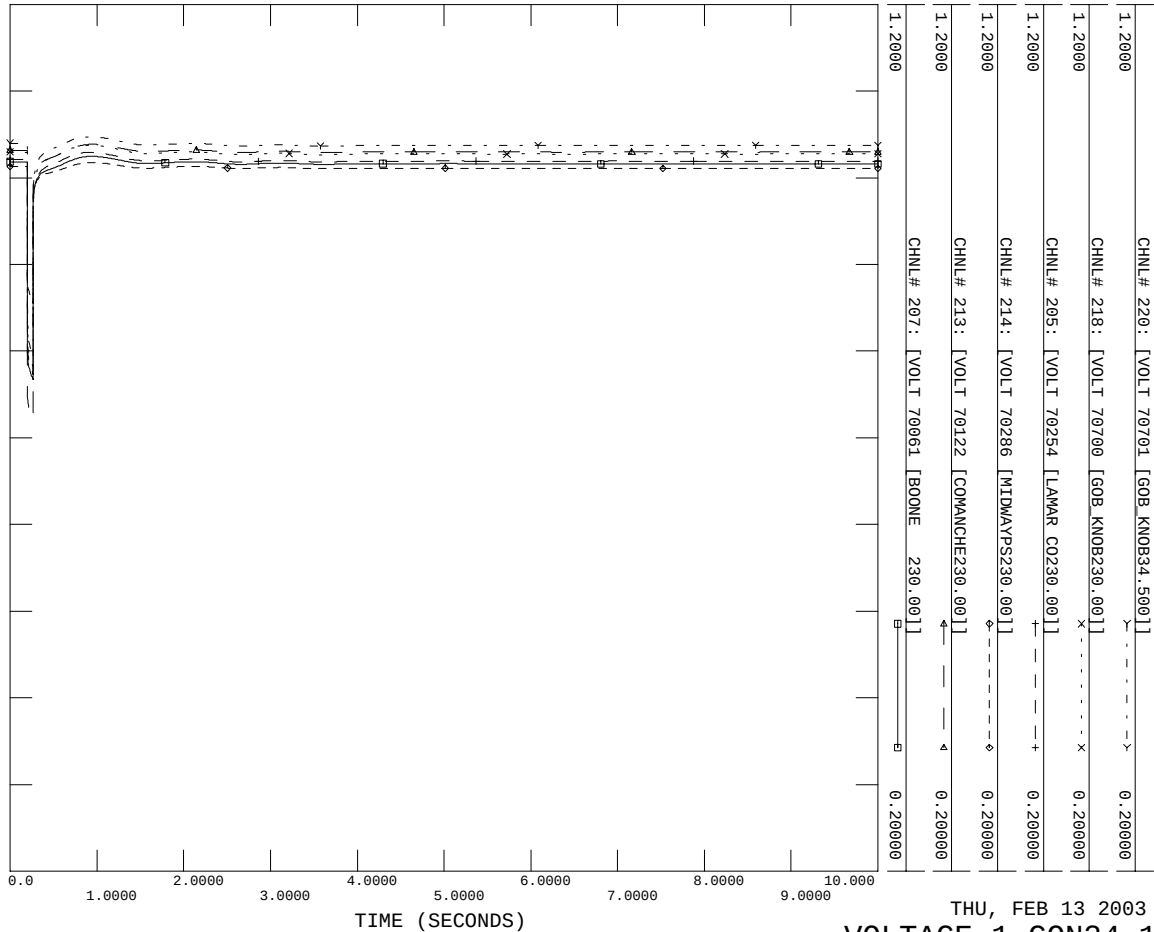
POWER  
TIC  
0.001615

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]  
FILE: CON24-ON.OUT



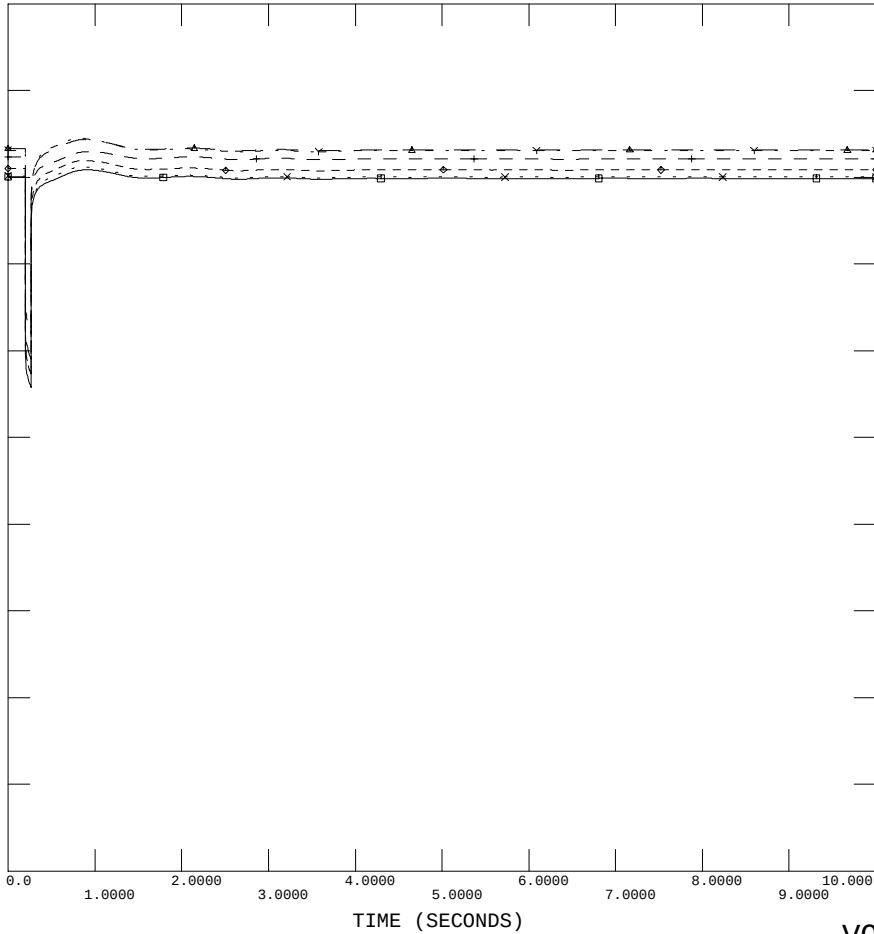
POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]  
FILE: CON24-ON.OUT



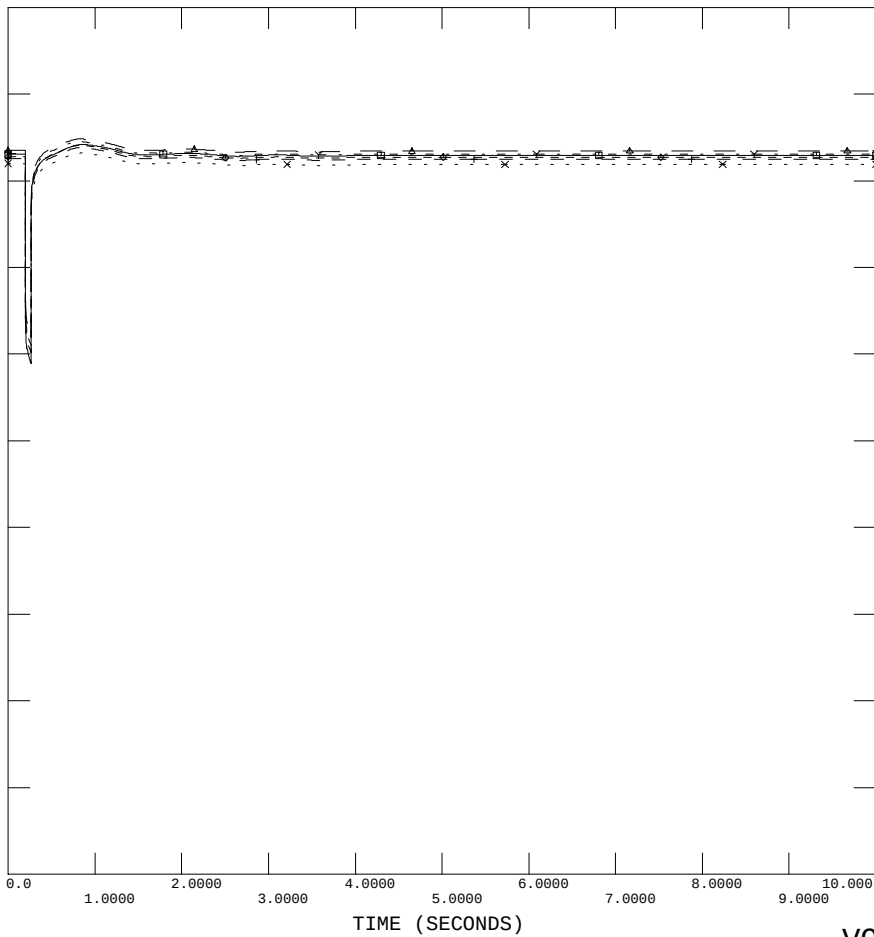
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]  
FILE: CON24-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]  
FILE: CON24-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |





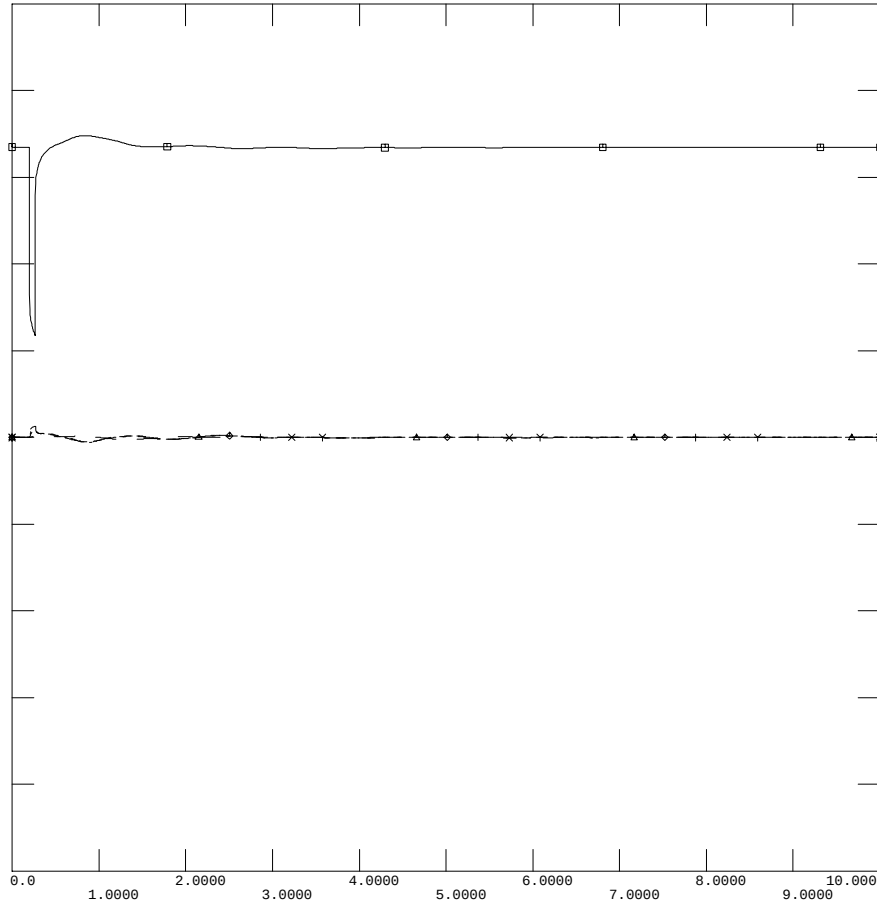
POWER  
TIC  
0.0615,  
1.0000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]

FILE: CON24-ON.OUT

|         |                                           |          |
|---------|-------------------------------------------|----------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500  |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500  |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500  |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500  |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500  |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.20000 |



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FREQUENCY CON24 162MW



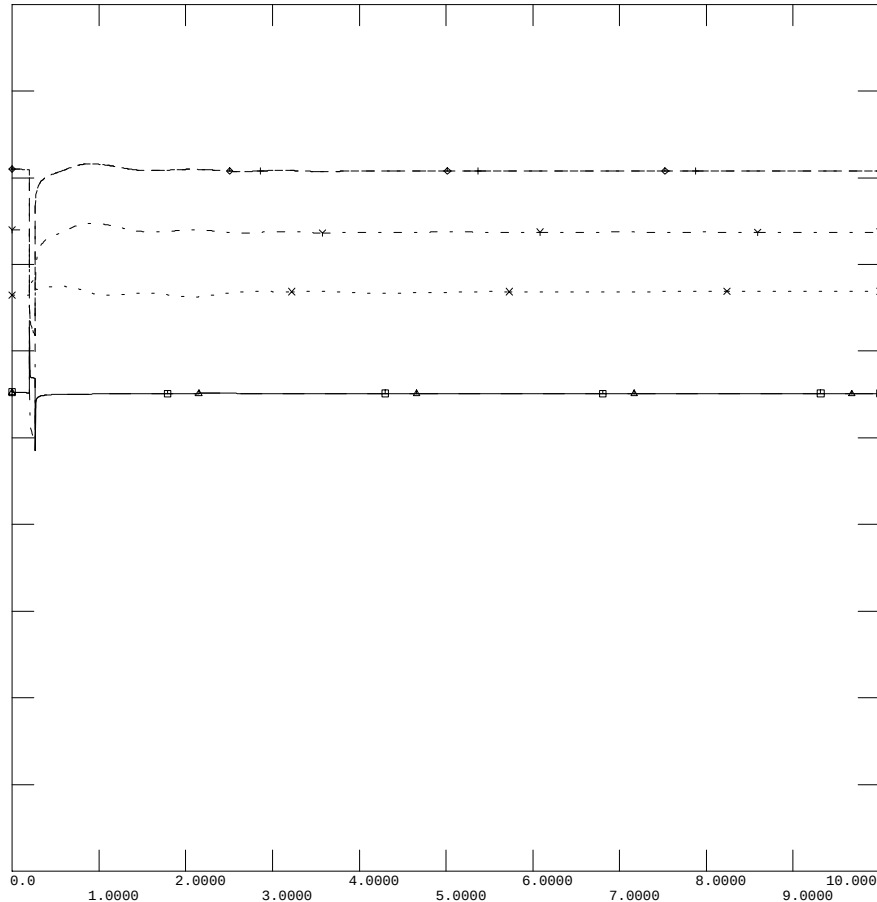
POWER  
TIC  
0.0615,  
1.0000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]

FILE: CON24-ON.OUT

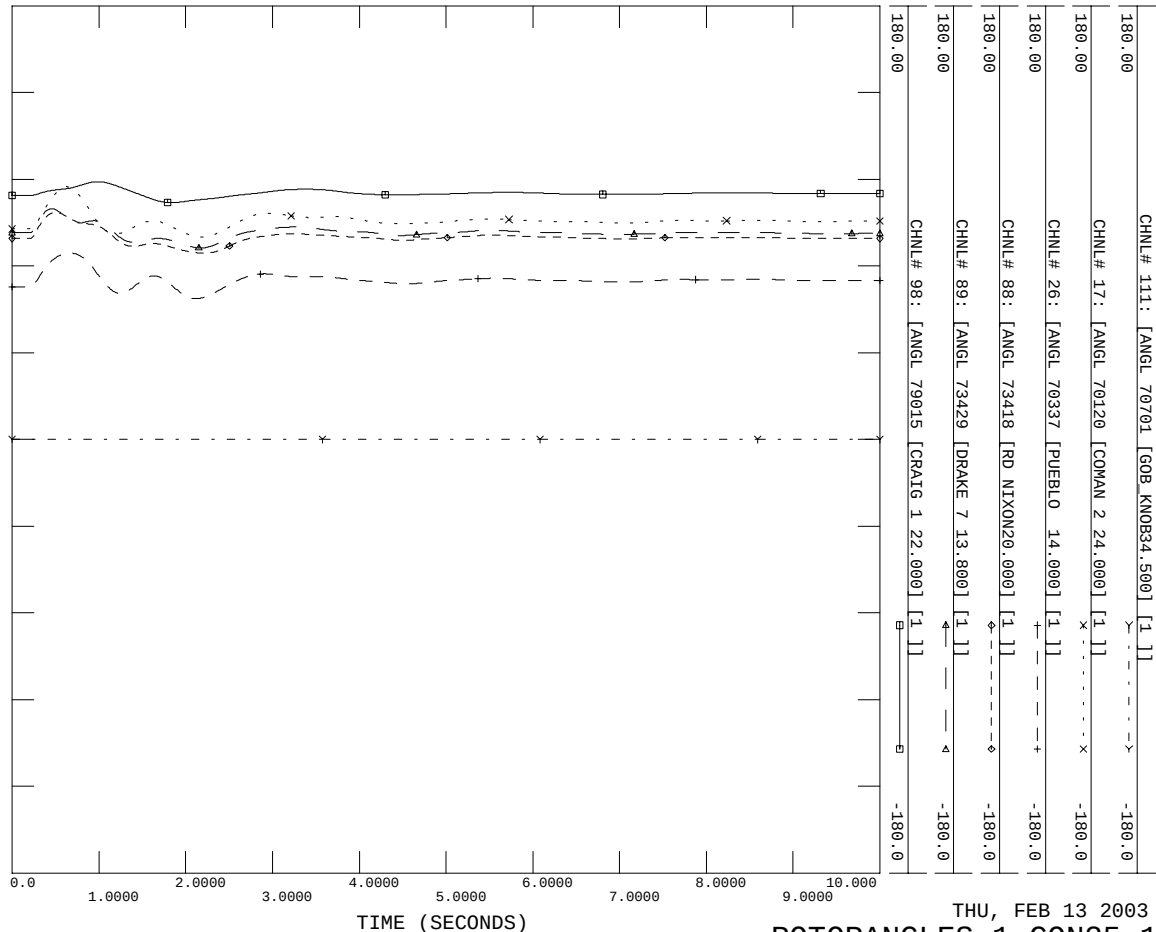
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [GOB KNOB34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON24 162MW

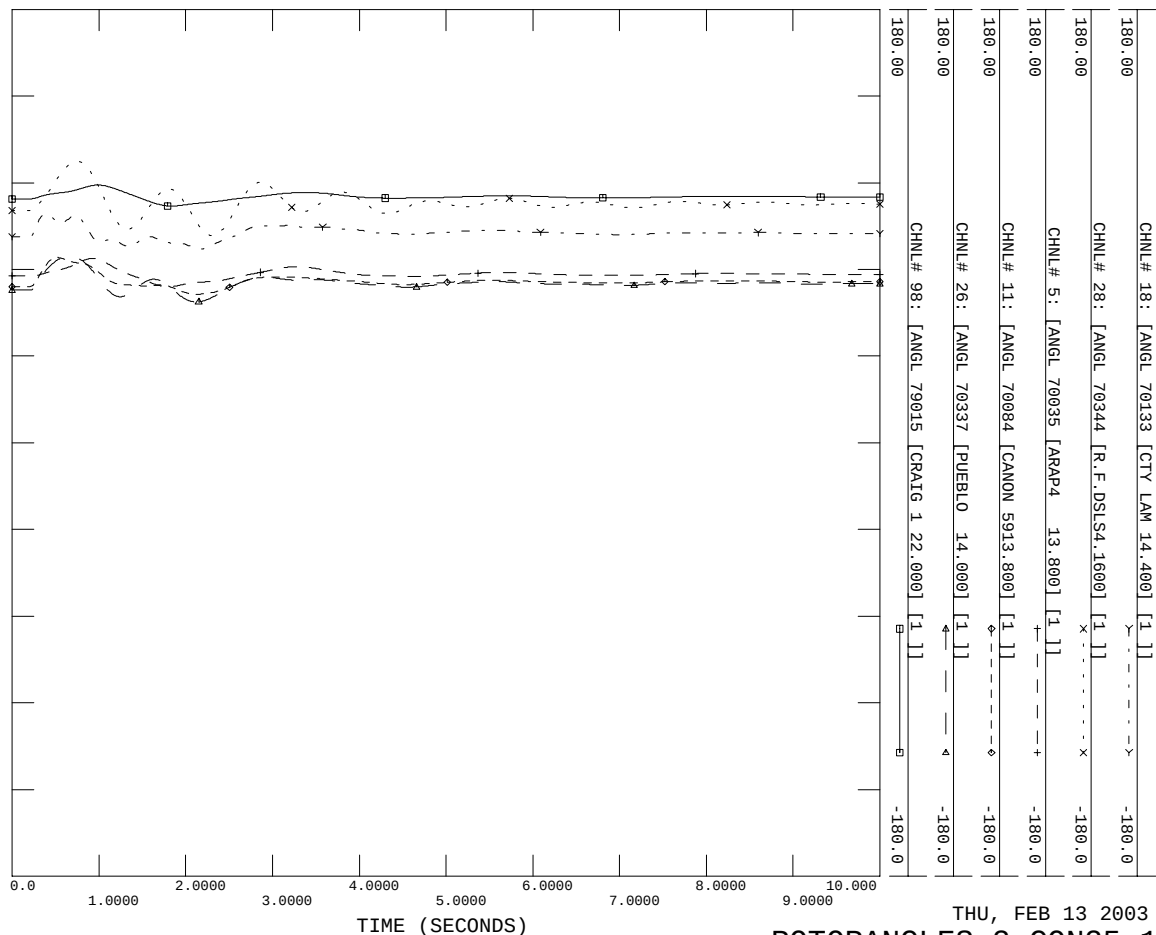
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

FILE: CON25-ON.OUT



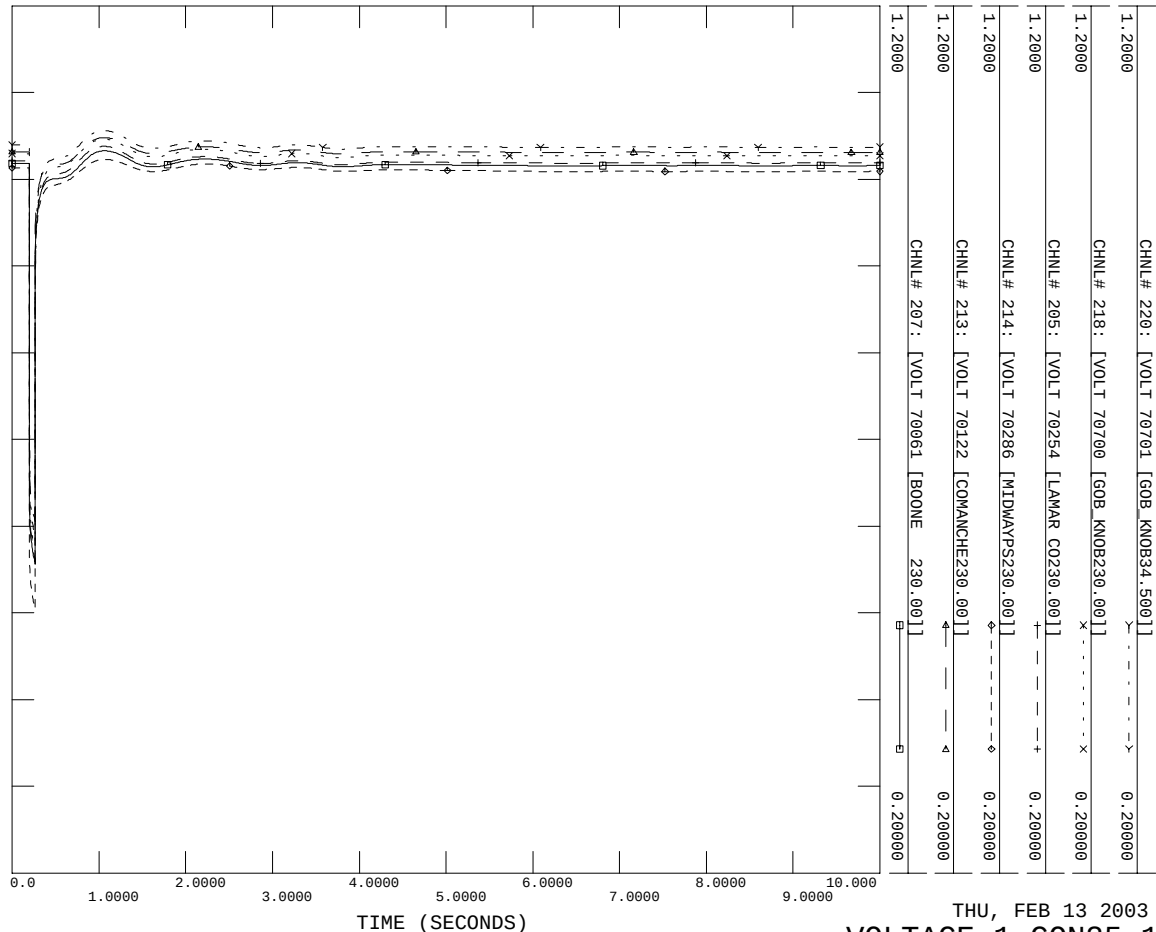
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

FILE: CON25-ON.OUT



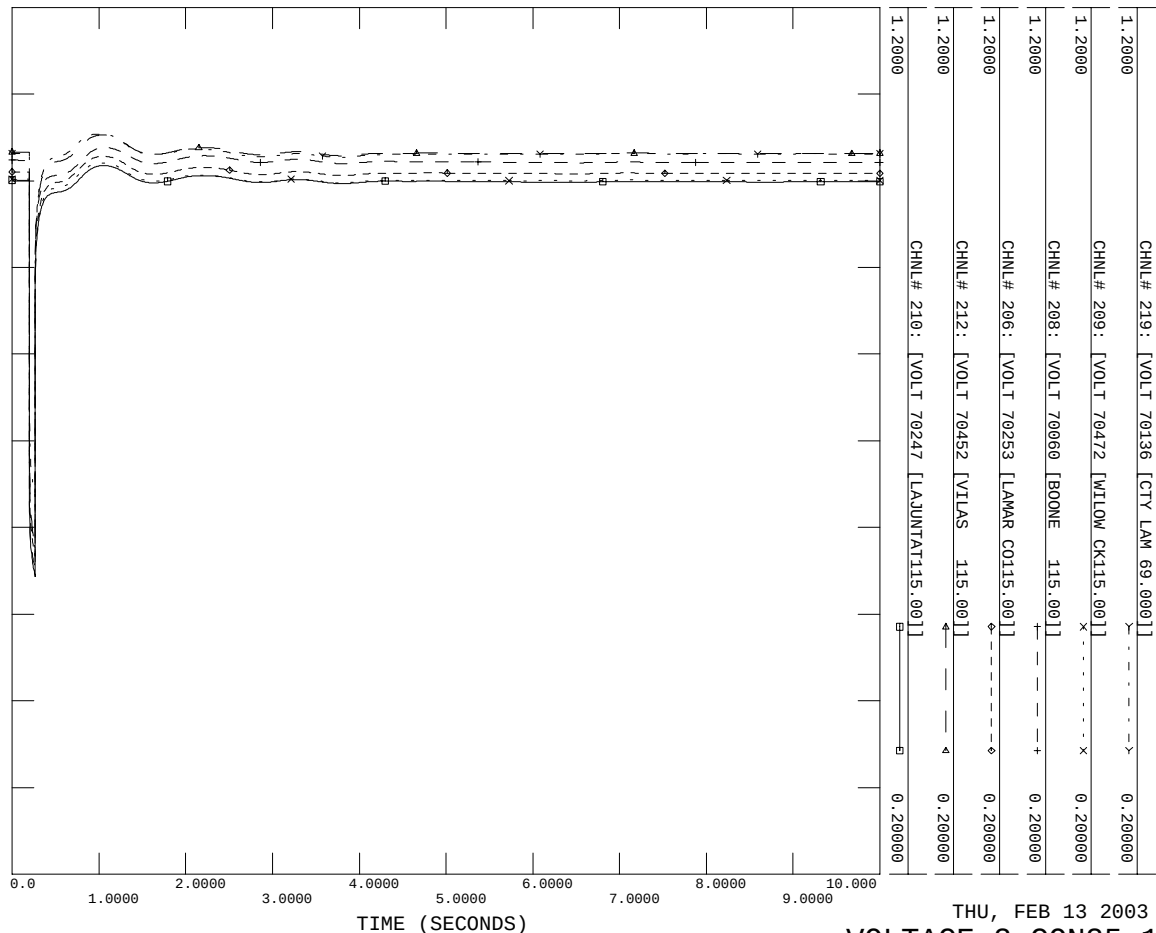
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

FILE: CON25-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

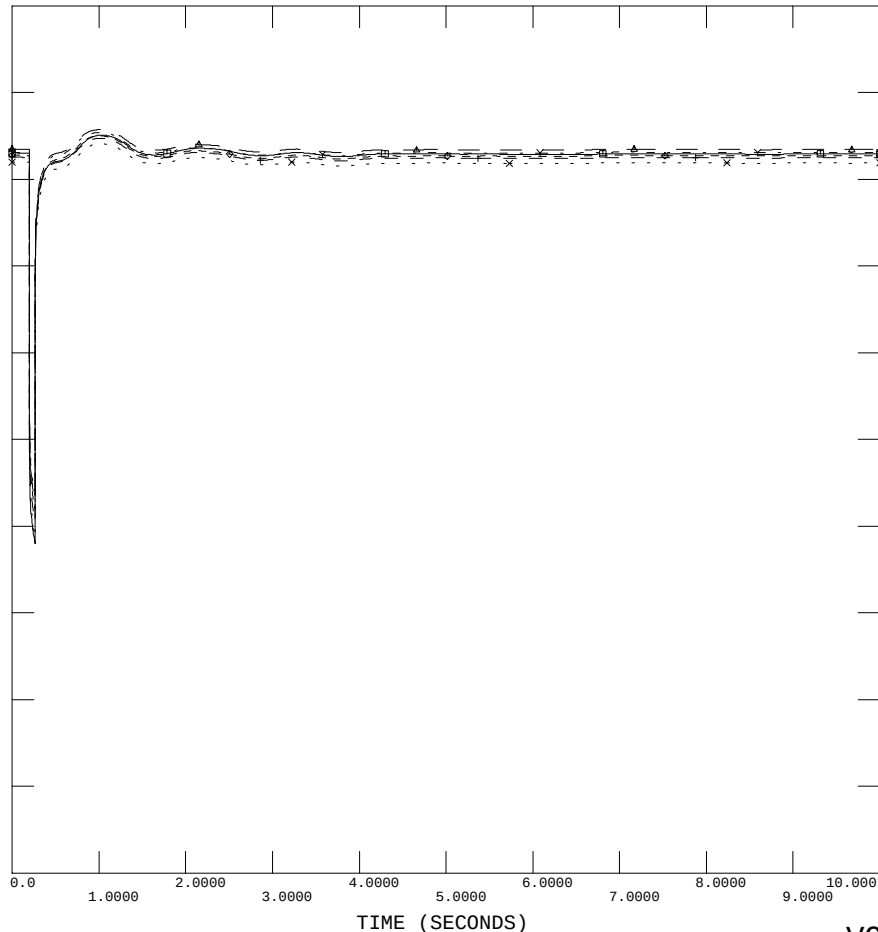
FILE: CON25-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

FILE: CON25-ON.OUT

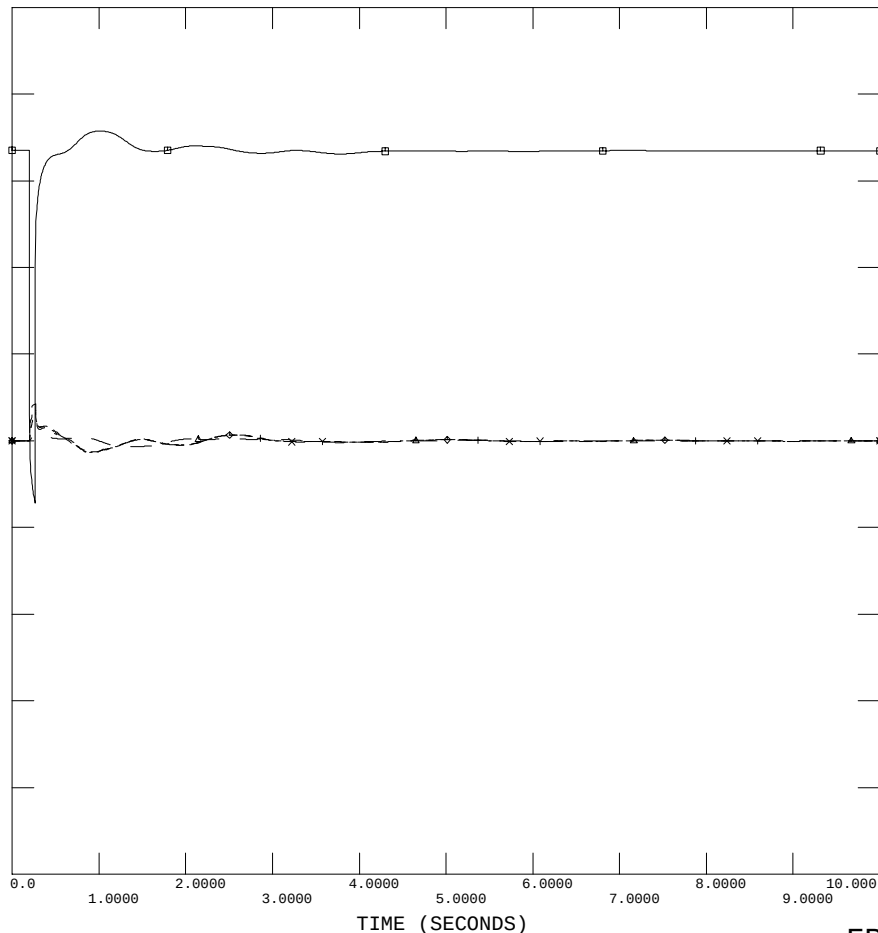
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

FILE: CON25-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |

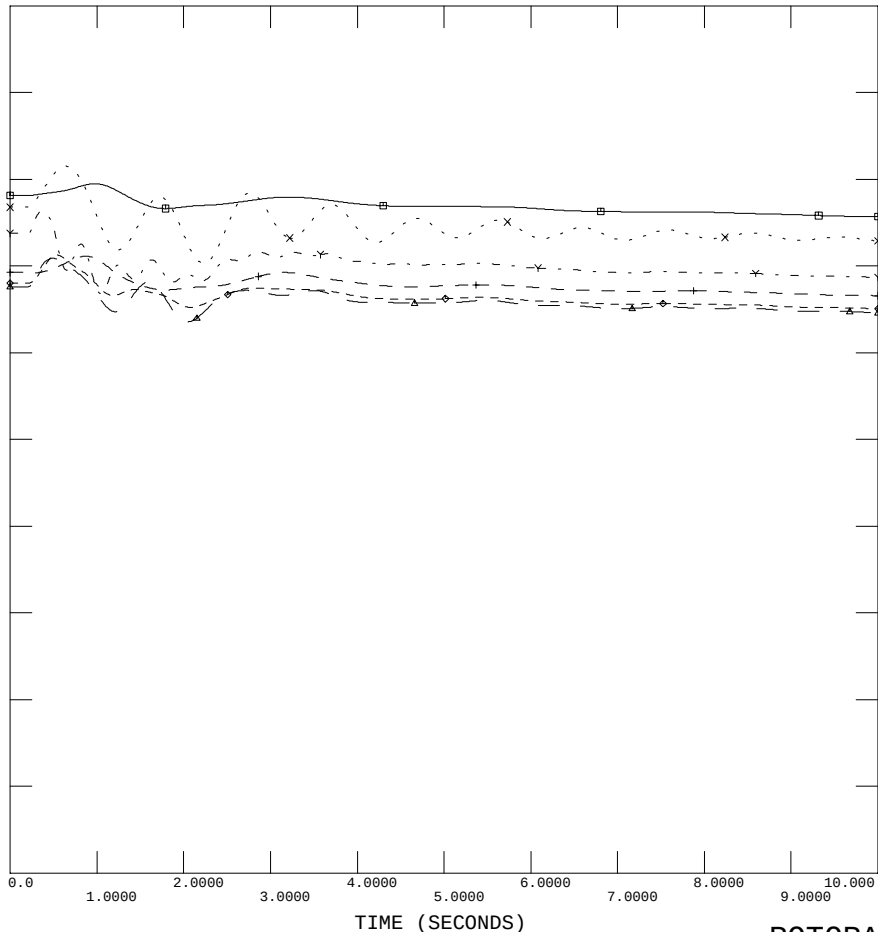




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]

FILE: CON26-ON.OUT

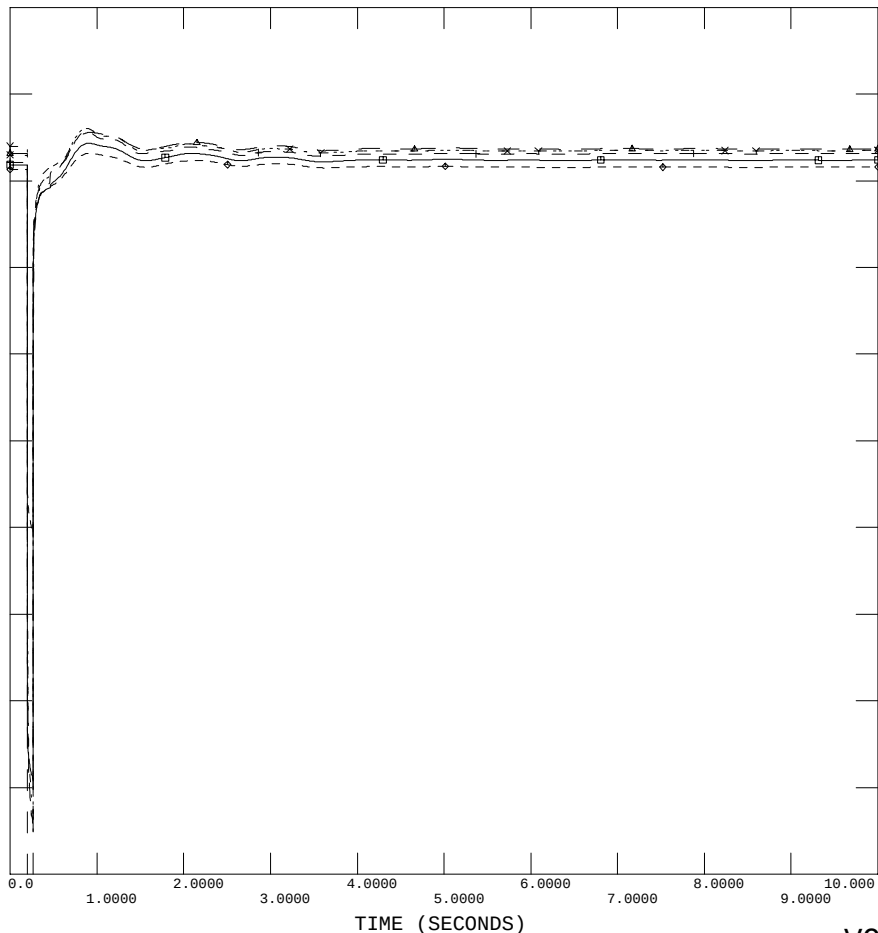
|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUERLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1.22.000] [1.]] | -180.0 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]

FILE: CON26-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

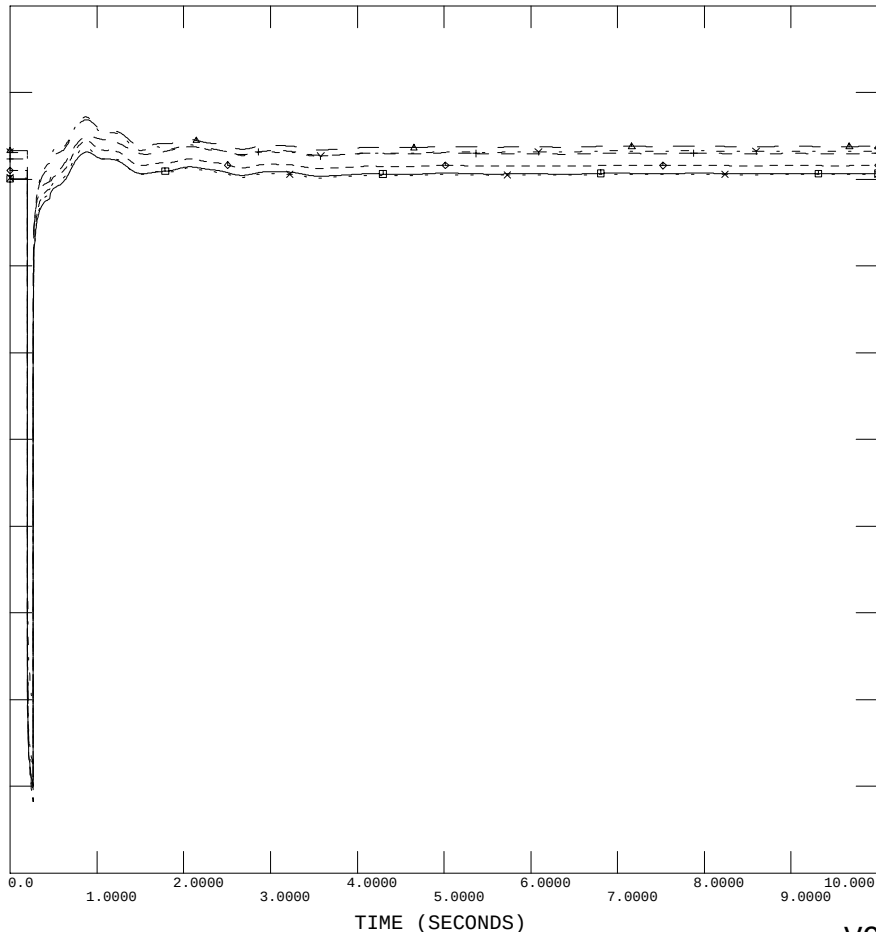




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]

FILE: CON26-ON.OUT

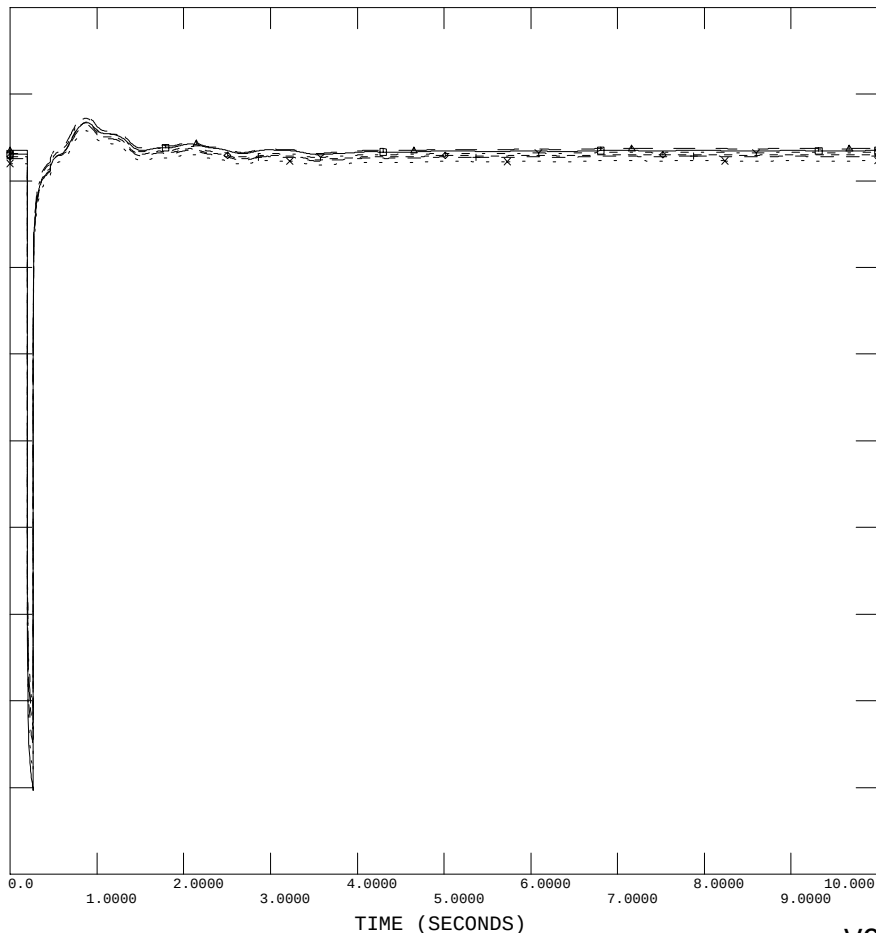
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]

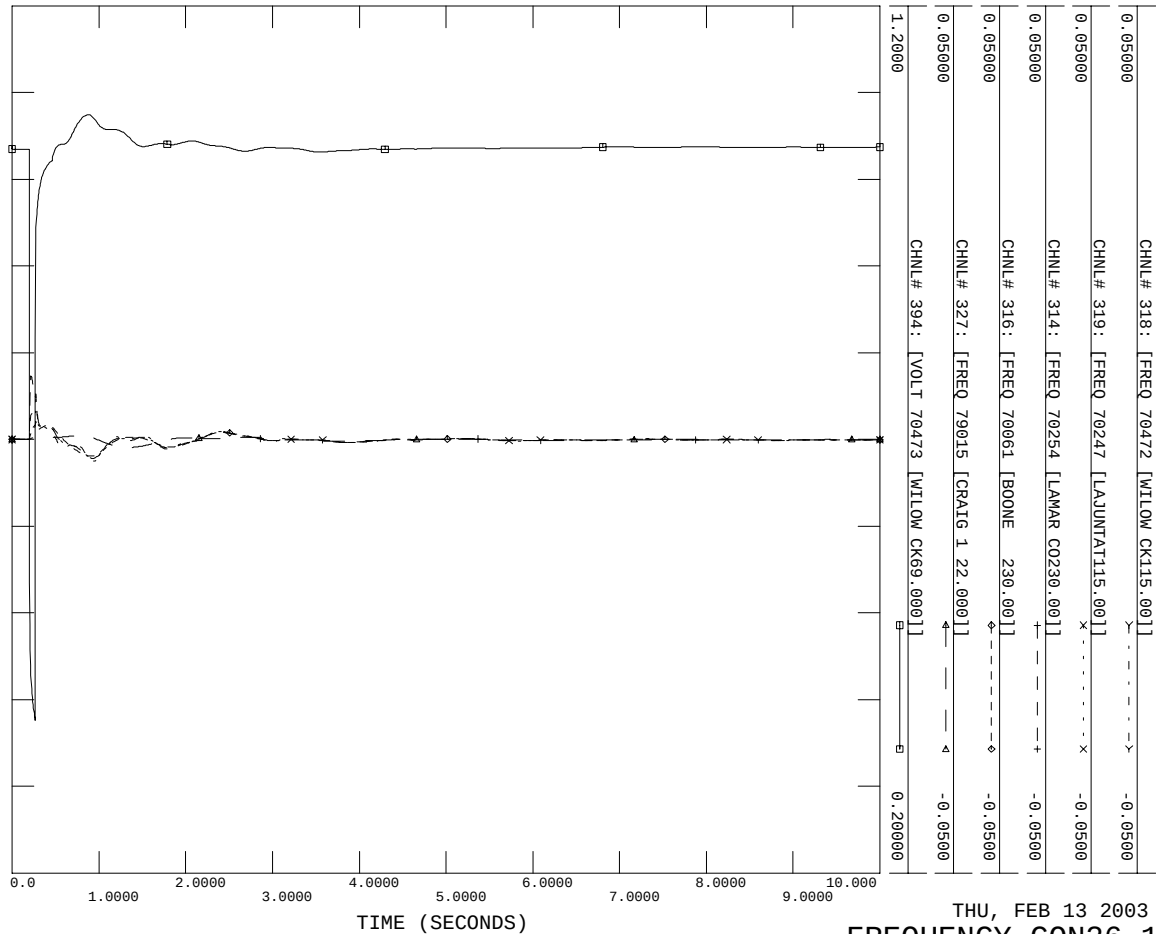
FILE: CON26-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



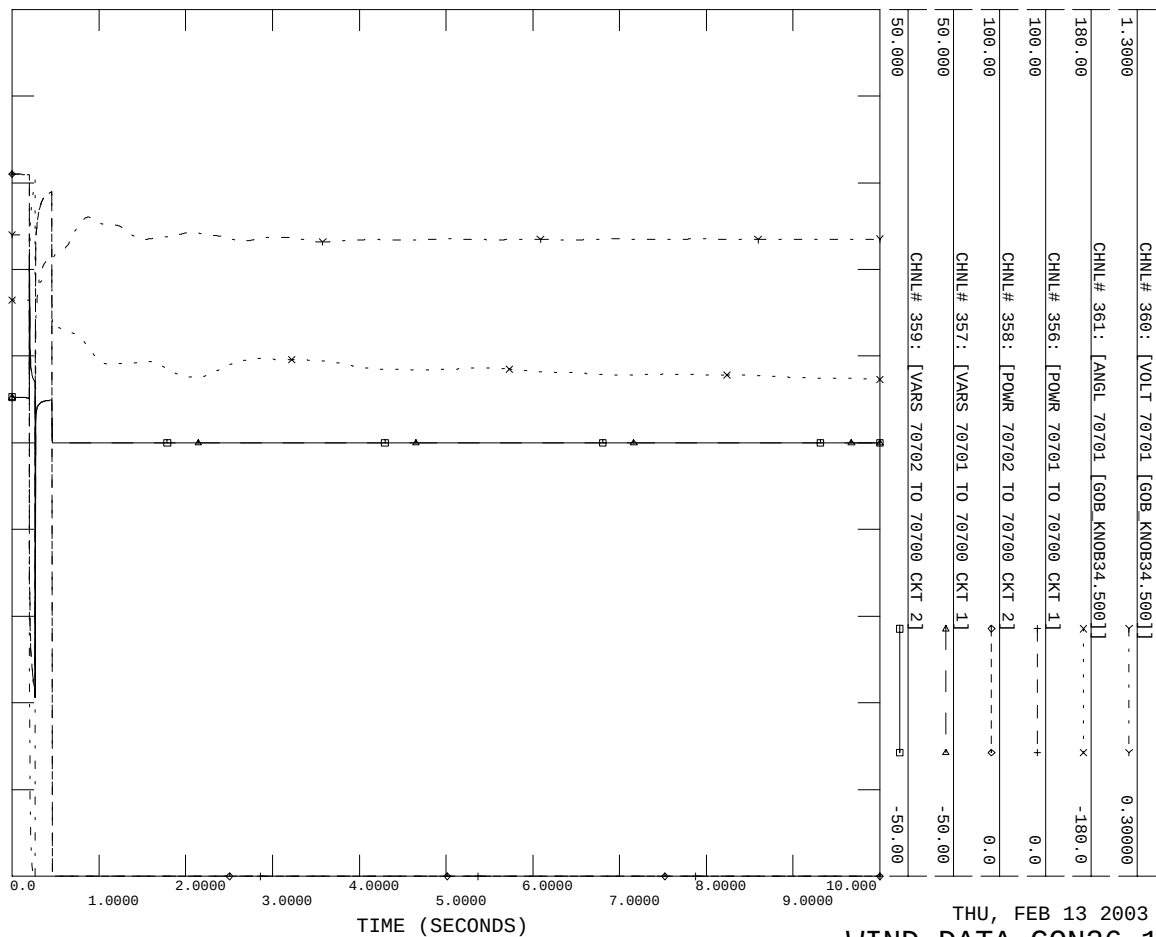
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]

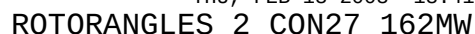
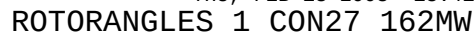
FILE: CON26-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]

FILE: CON26-ON.OUT

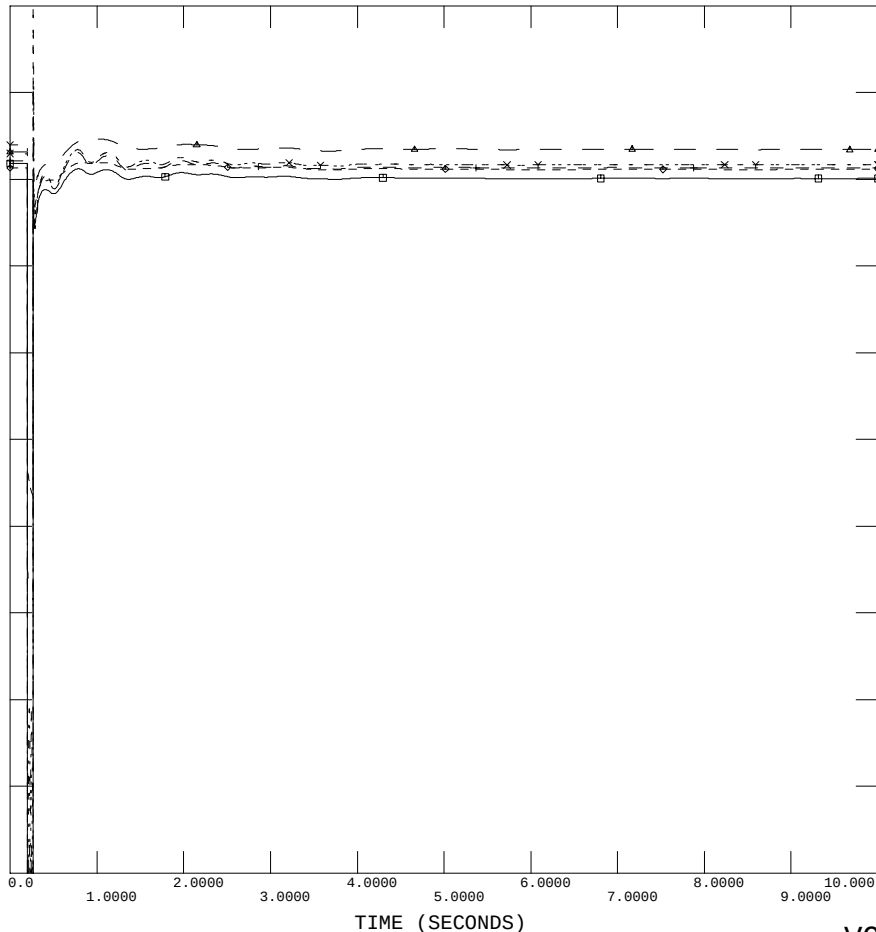




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [60B.KN0B34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [60B.KN0B230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

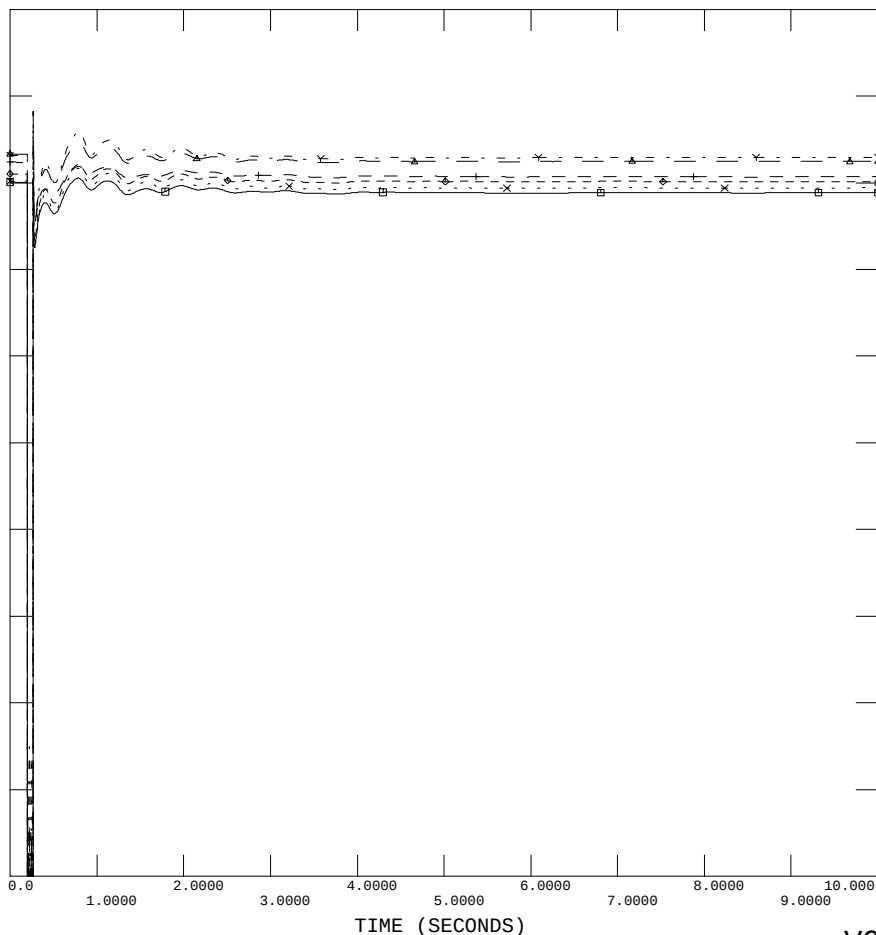


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VOLTAGE 1 CON27 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

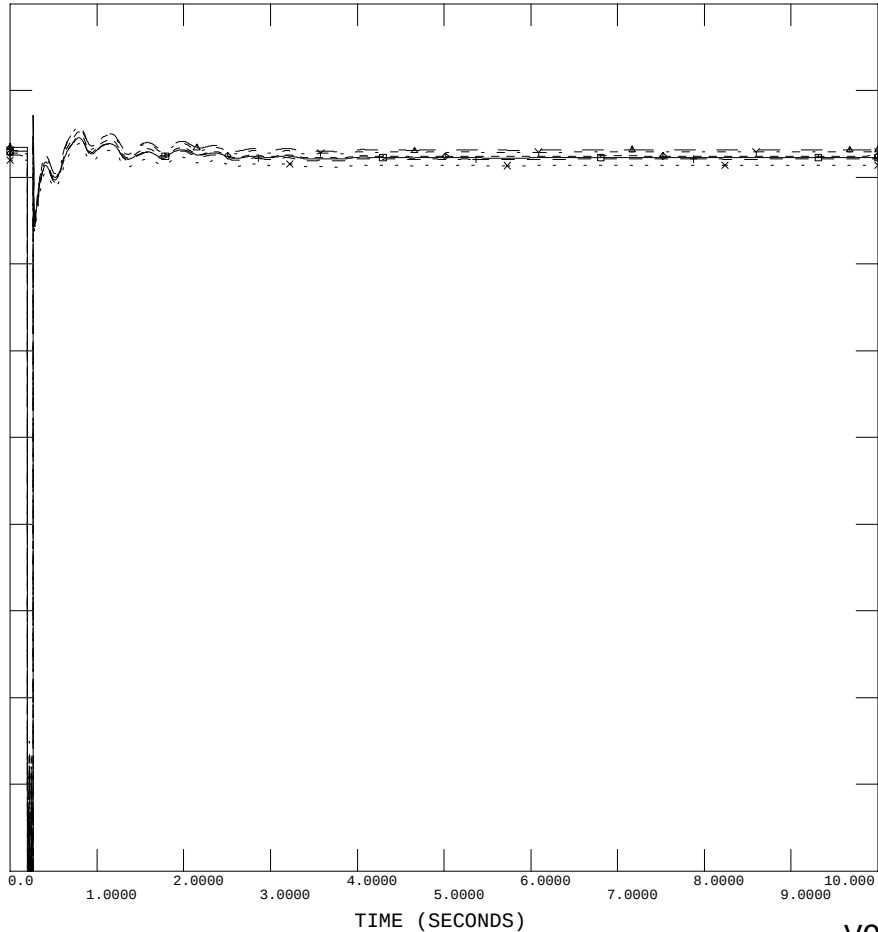


THU, FEB 13 2003 13:41  
VOLTAGE 2 CON27 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT

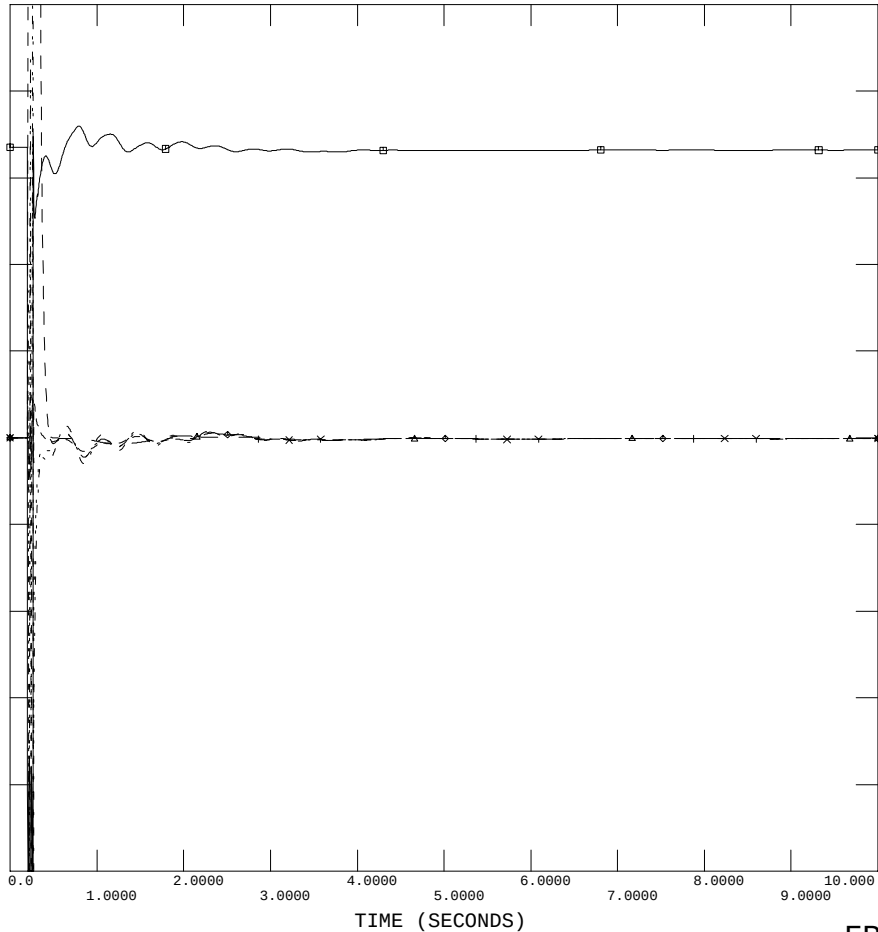
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [LEADS 69.000]]    | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

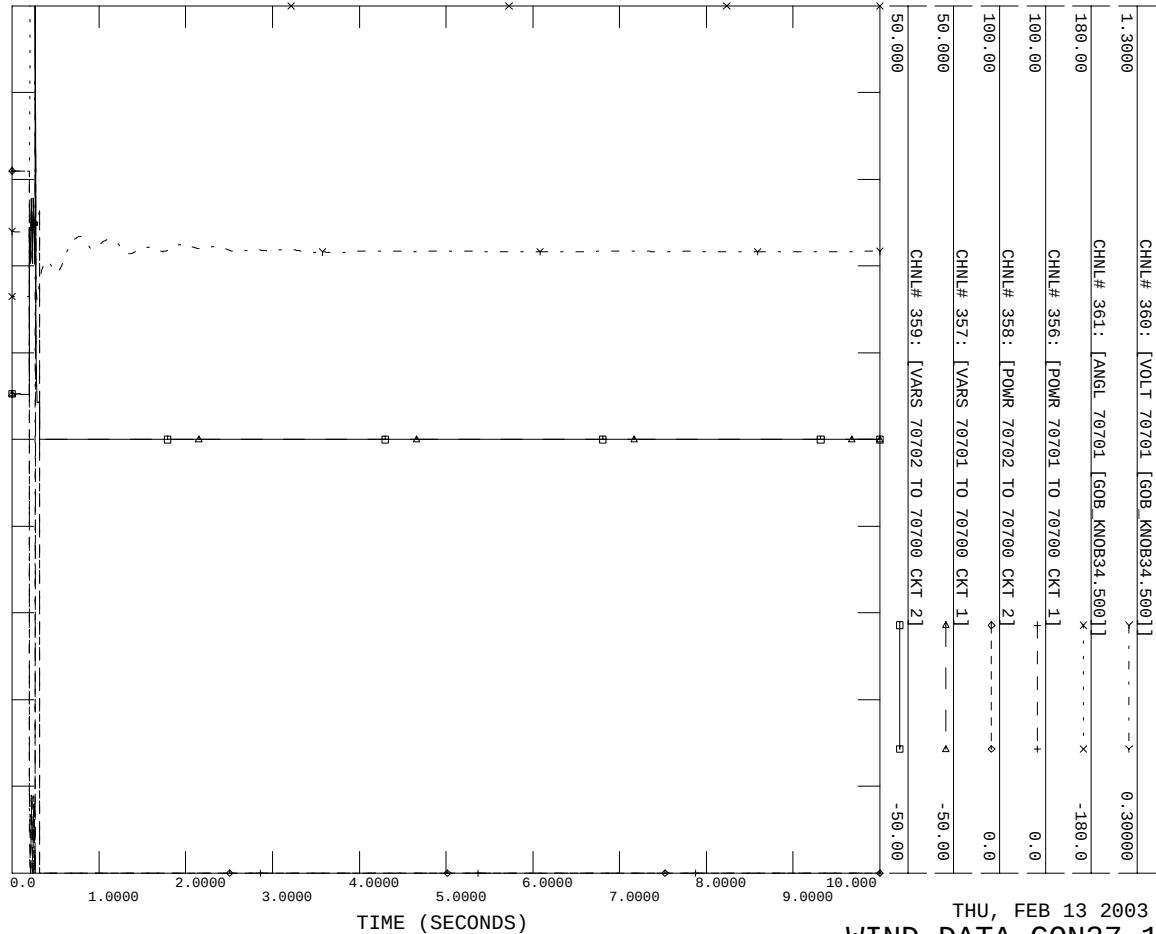
FILE: CON27-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |



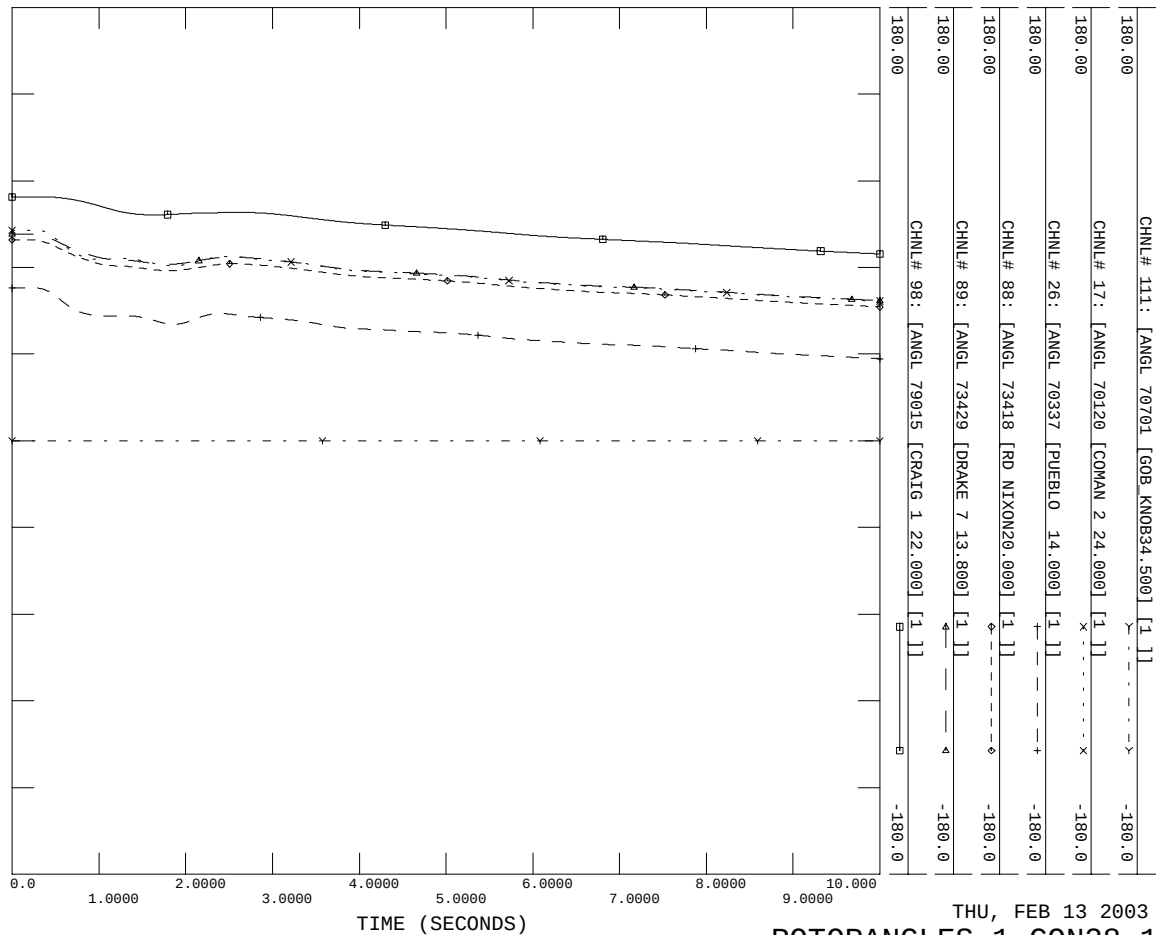
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT

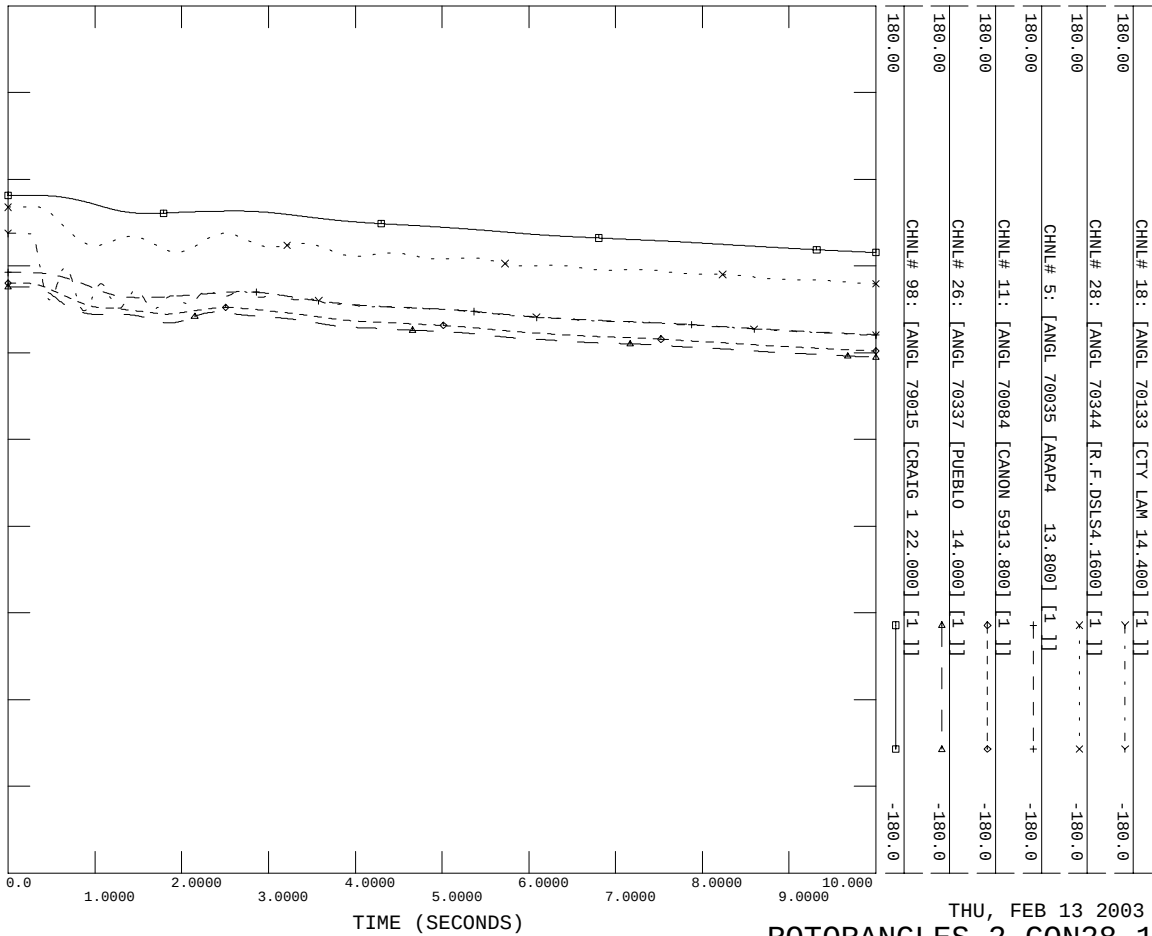


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE]

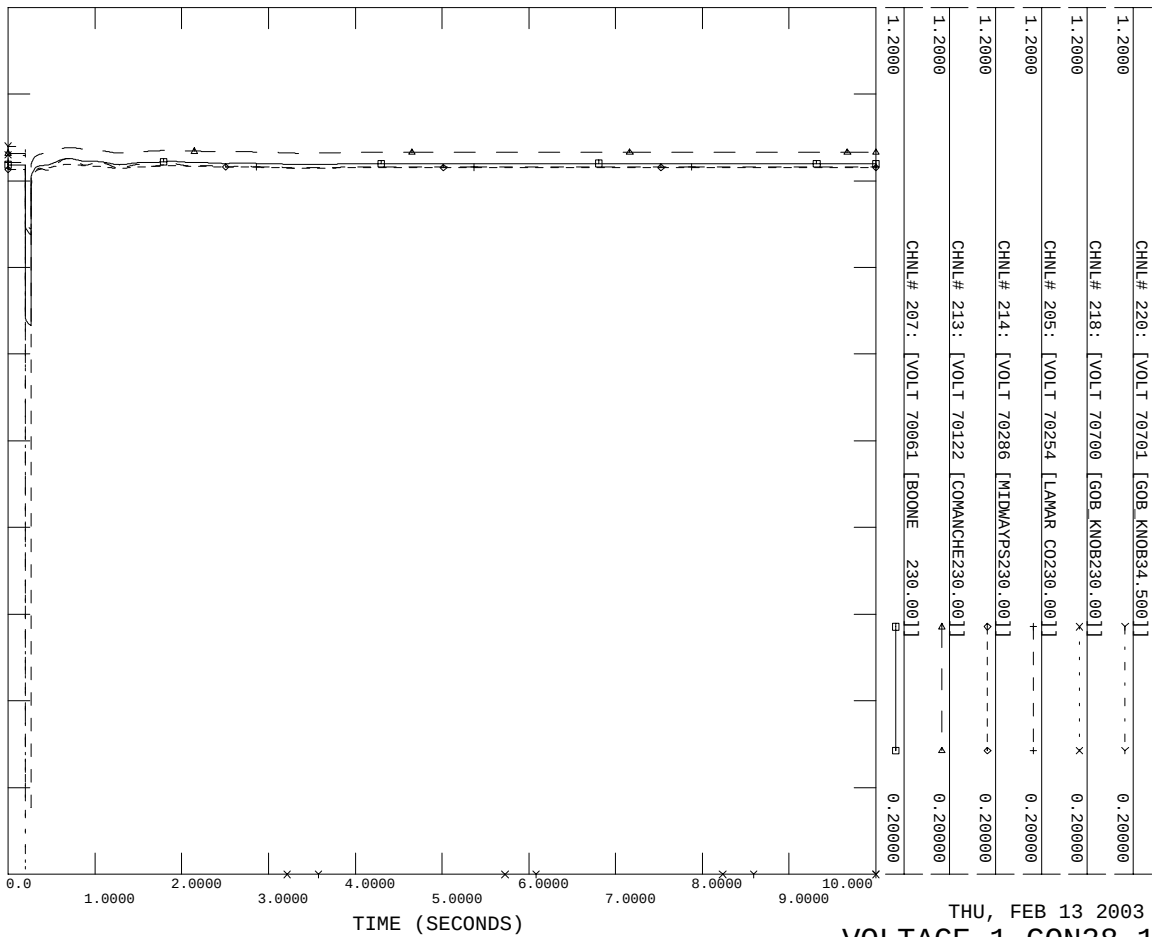
FILE: CON28-ON.OUT



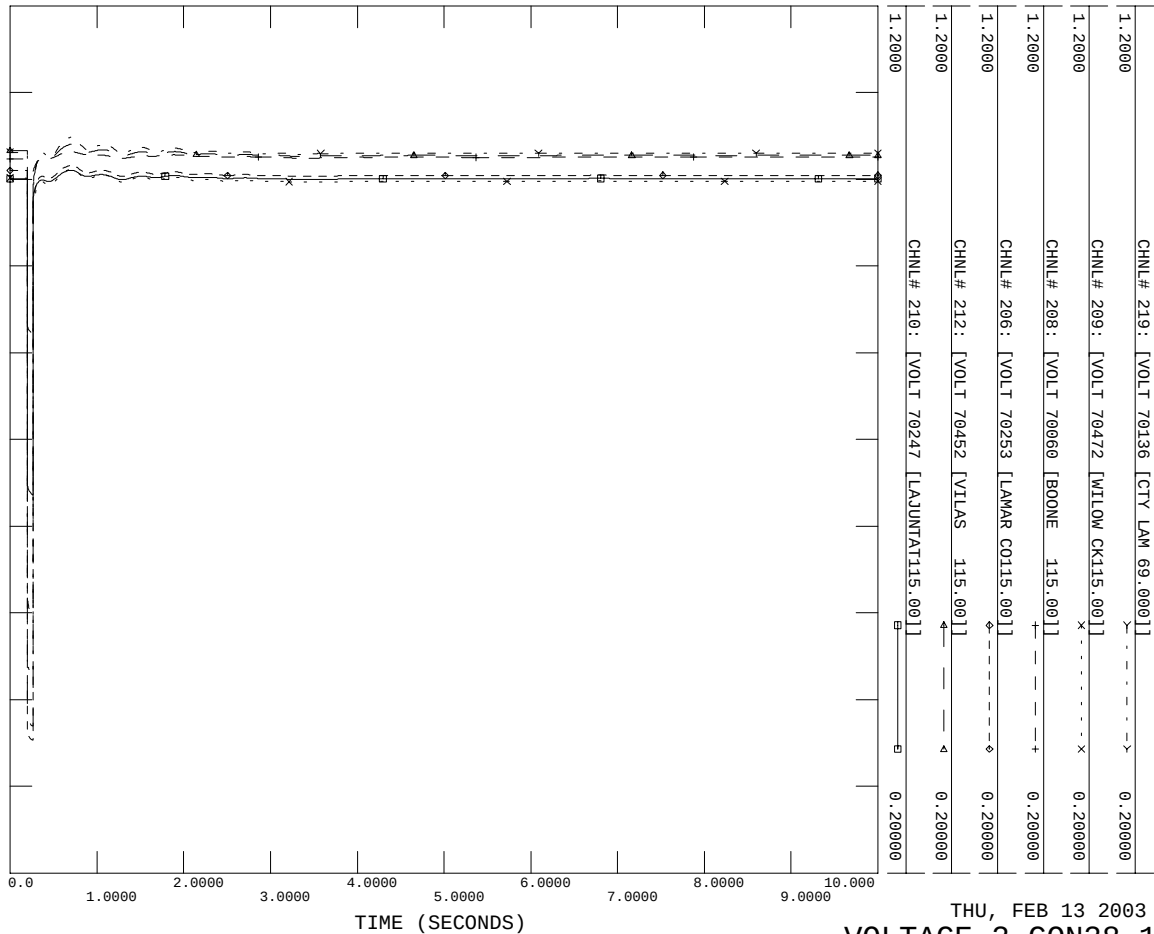
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE  
FILE: CON28-ON.OUT



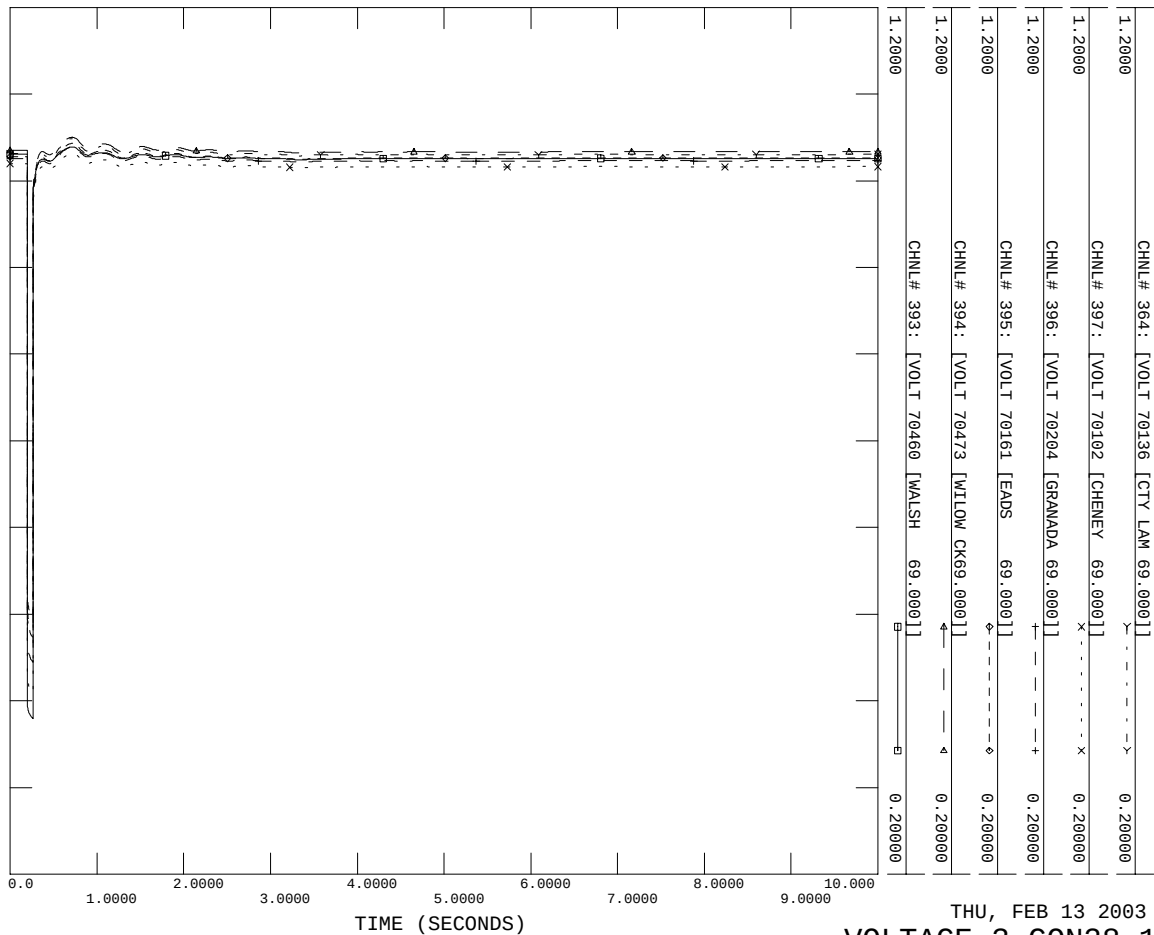
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE  
FILE: CON28-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE  
FILE: CON28-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE  
FILE: CON28-ON.OUT







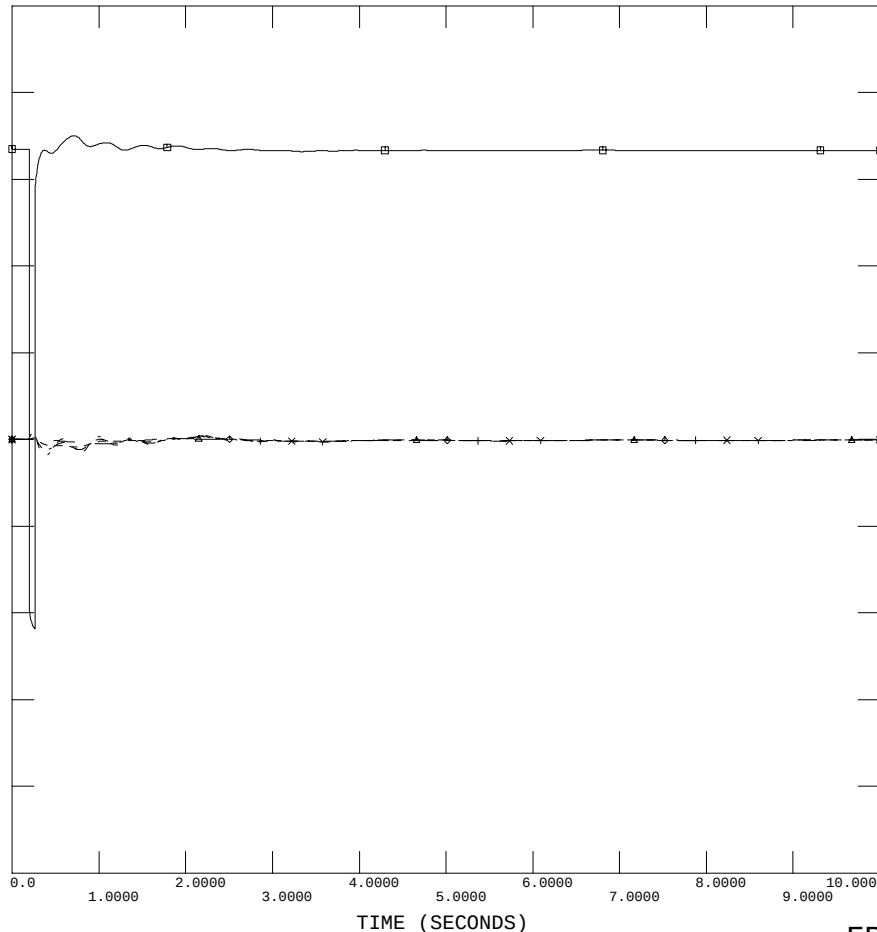
POWER  
TIC  
0.001613

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE

FILE: CON28-ON.OUT

|         |                                           |          |
|---------|-------------------------------------------|----------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500  |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500  |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500  |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500  |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500  |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.20000 |



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FREQUENCY CON28 162MW



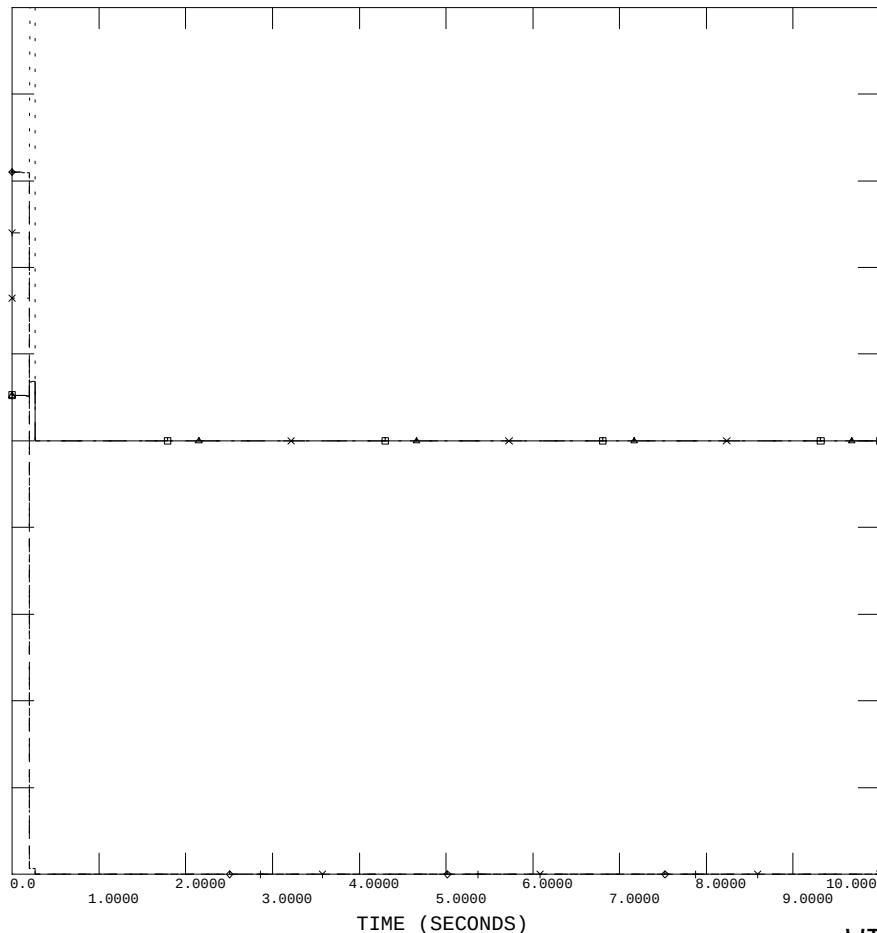
POWER  
TIC  
0.001613

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE

FILE: CON28-ON.OUT

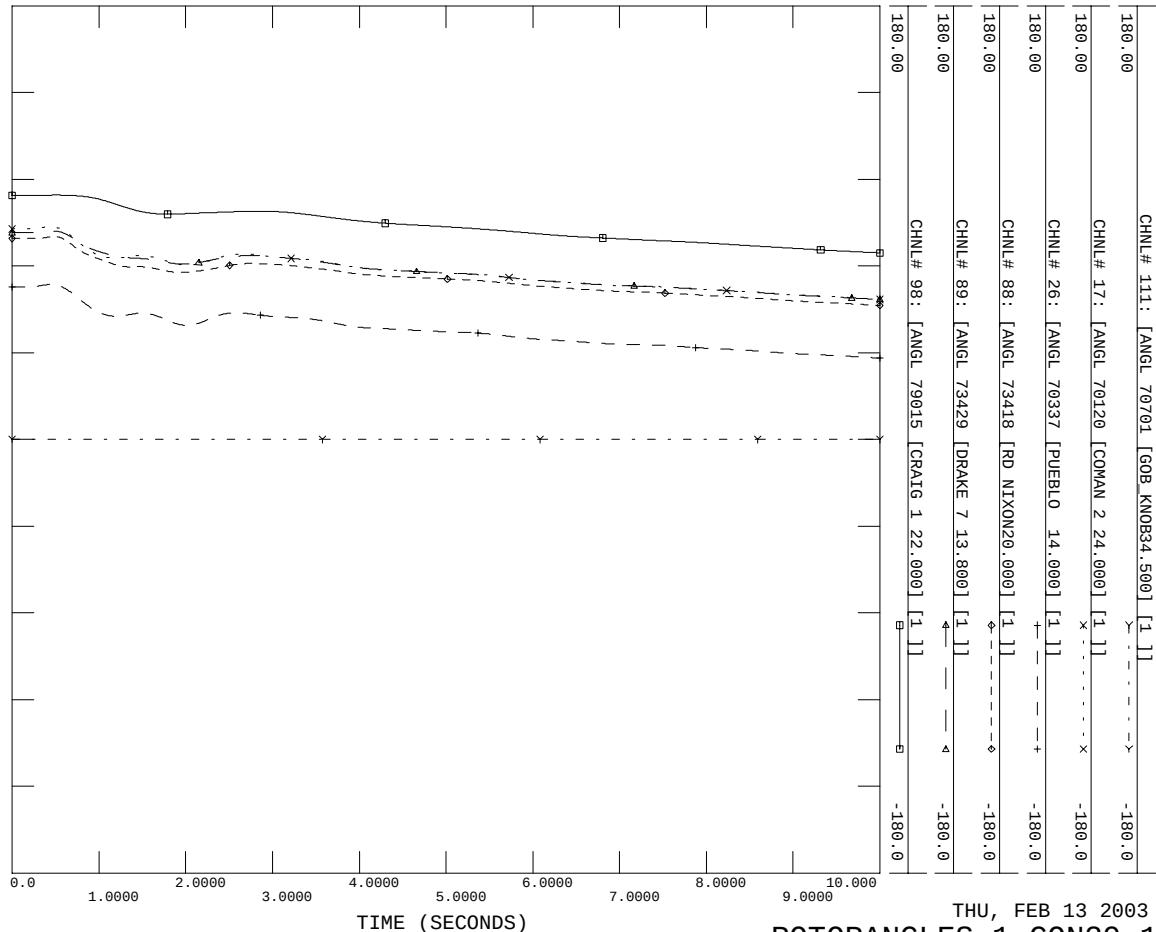
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON28 162MW

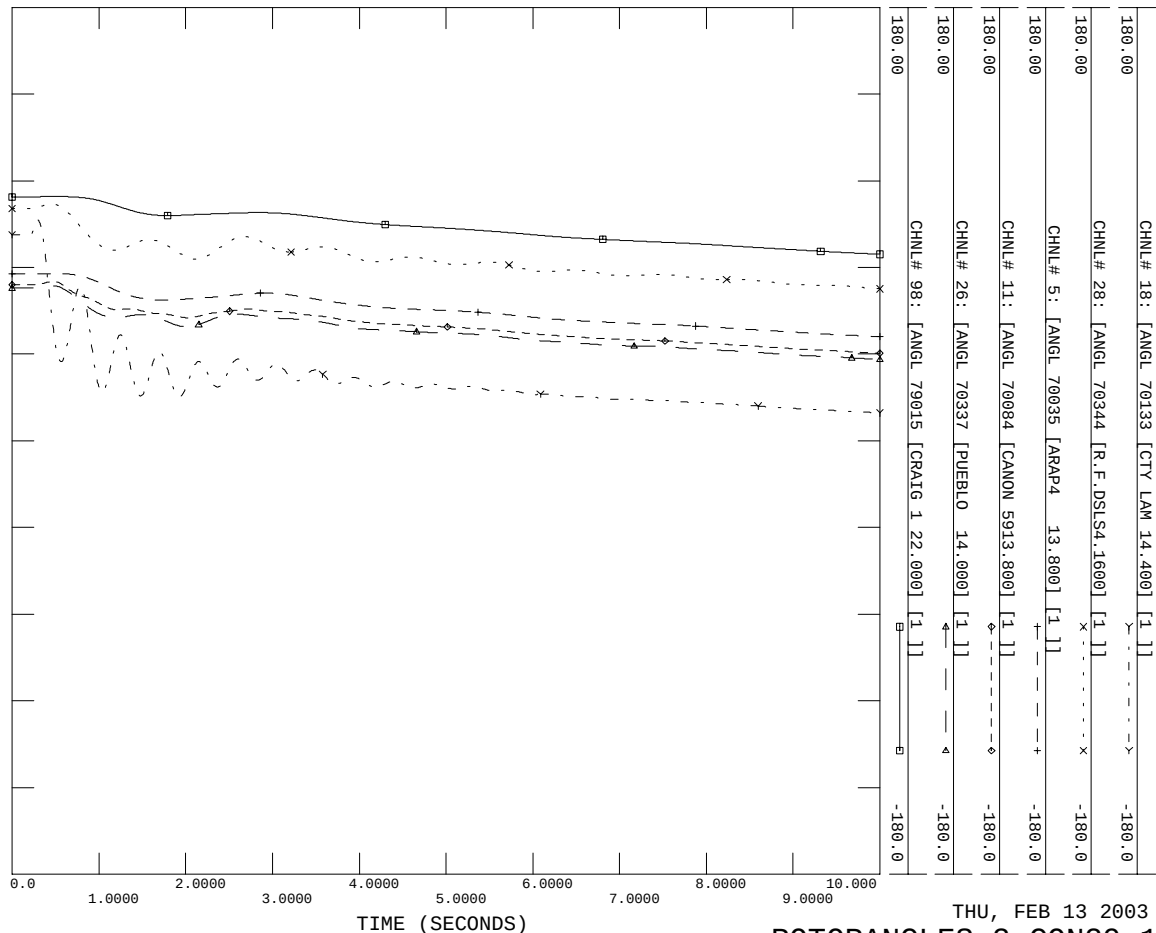
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]

FILE: CON29-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]

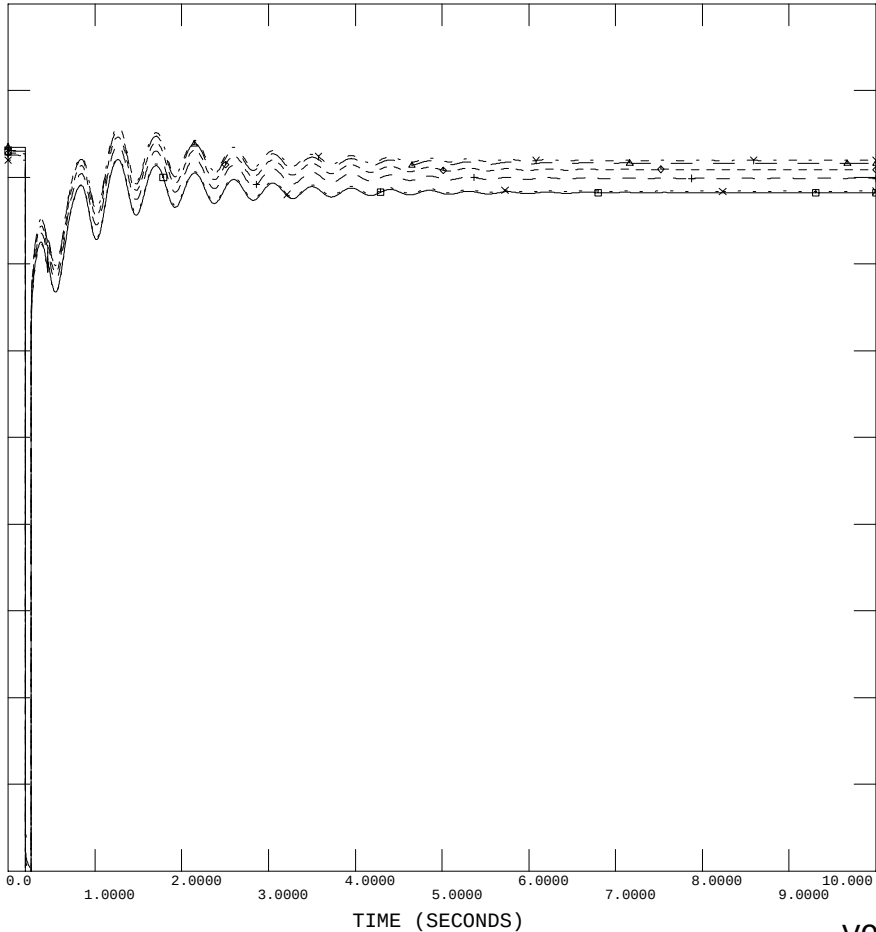
FILE: CON29-ON.OUT





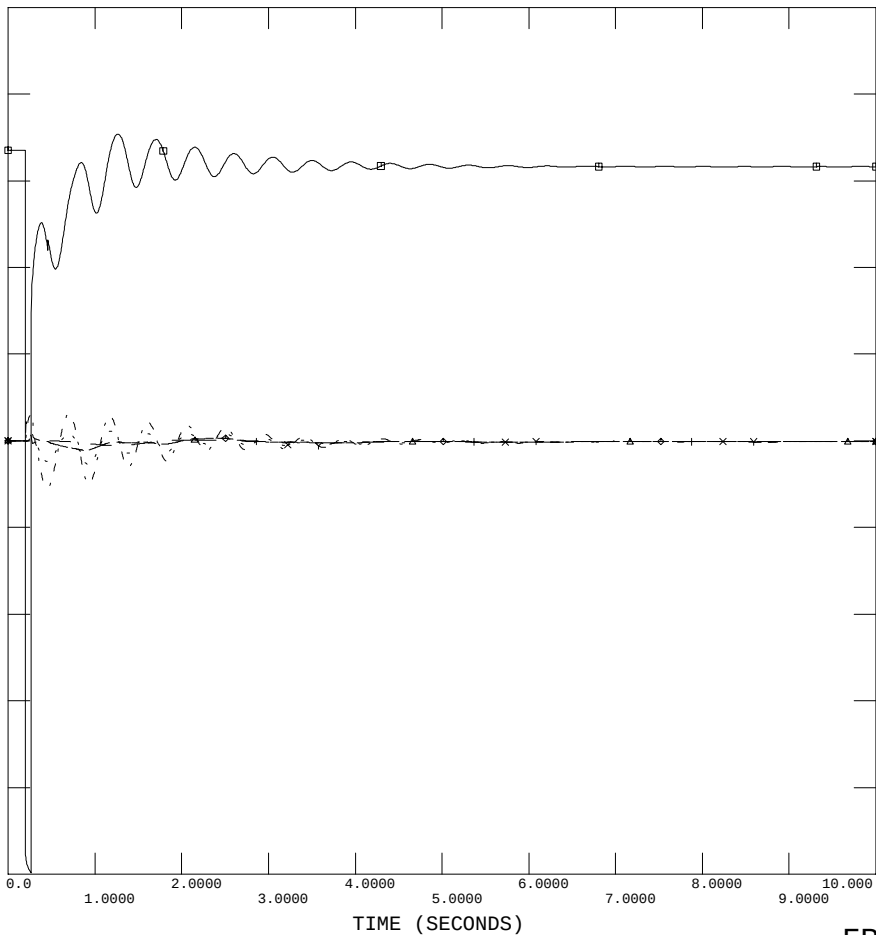
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]  
FILE: CON29-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

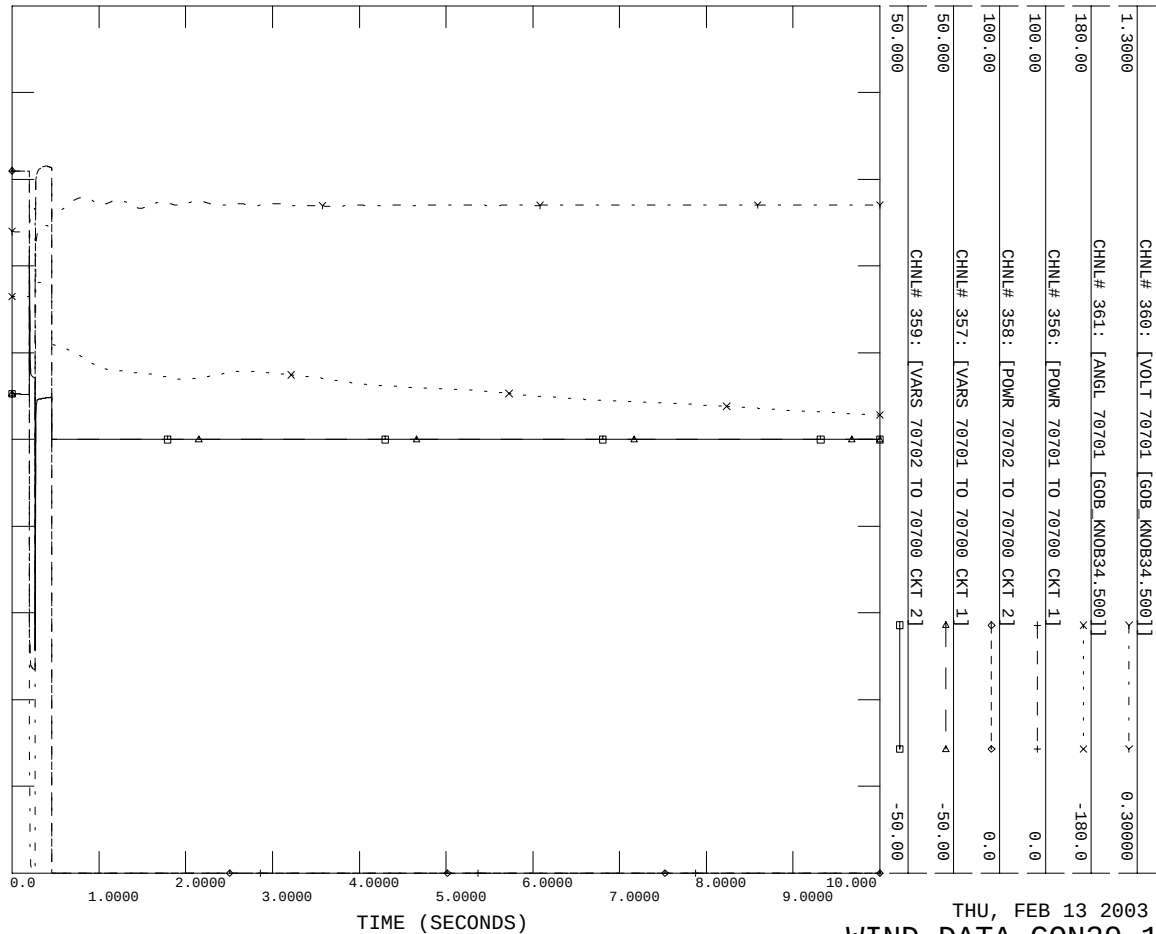


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]  
FILE: CON29-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |

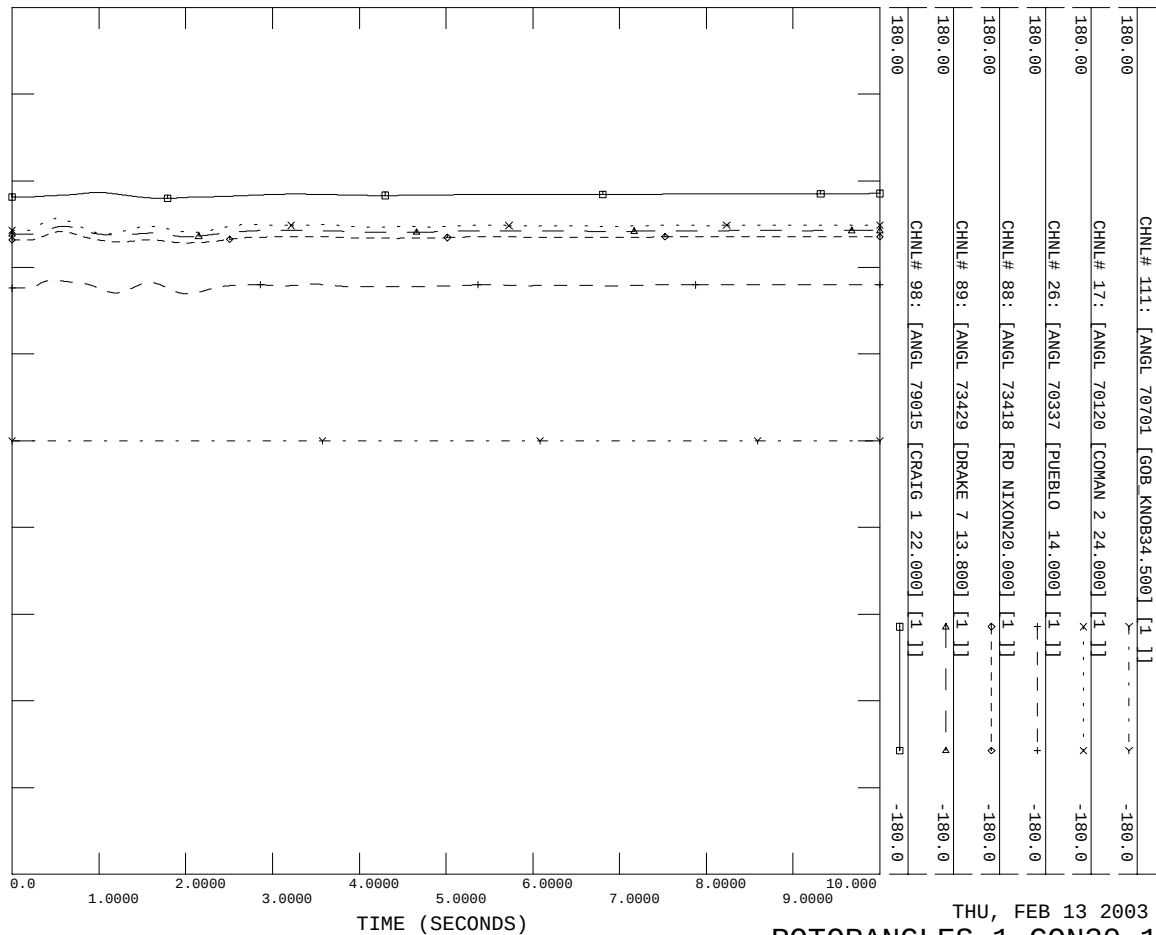


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]  
FILE: CON29-ON.OUT



THU, FEB 13 2003 13:41  
WIND DATA CON29 162MW

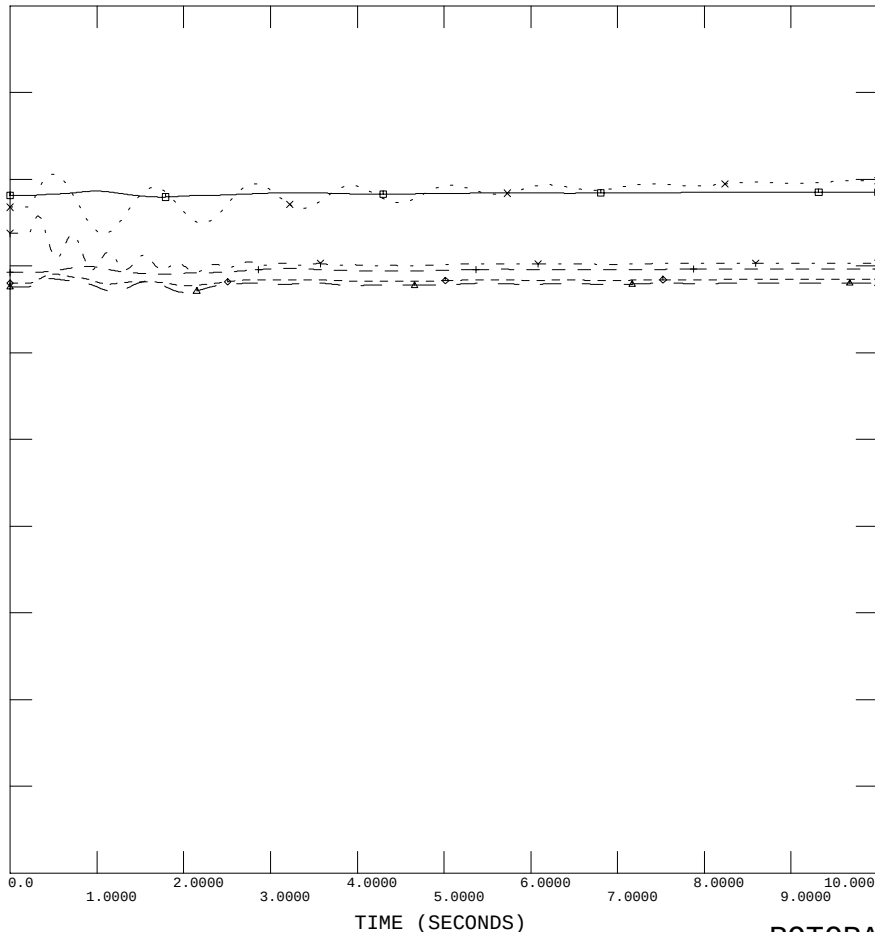
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT



THU, FEB 13 2003 13:41  
ROTORANGLES 1 CON30 162MW

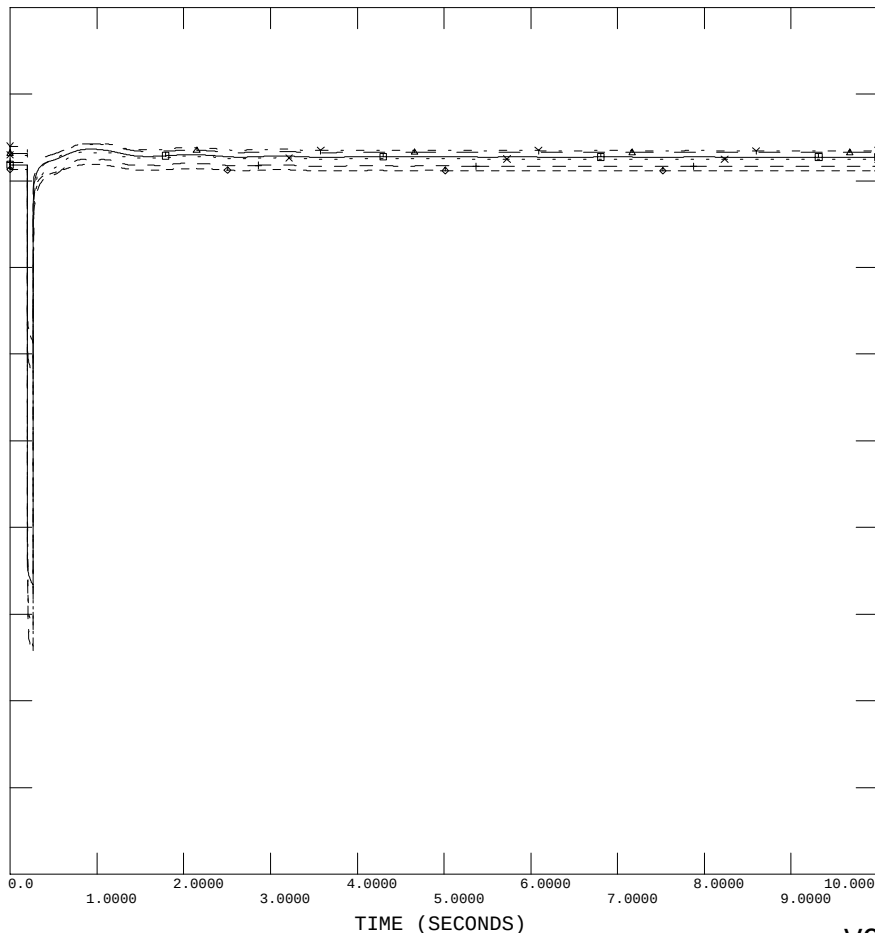
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1.22.000] [1.]] | -180.0 |

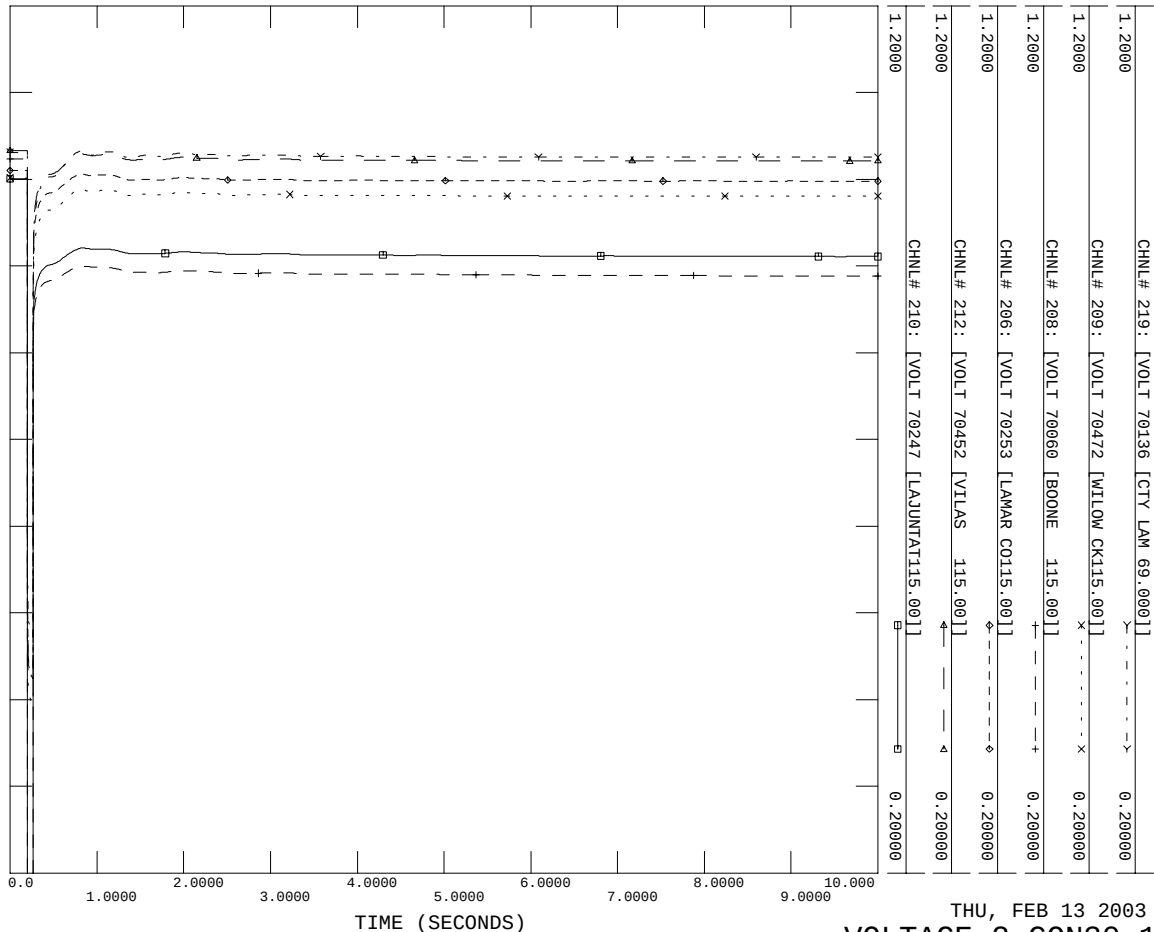


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT

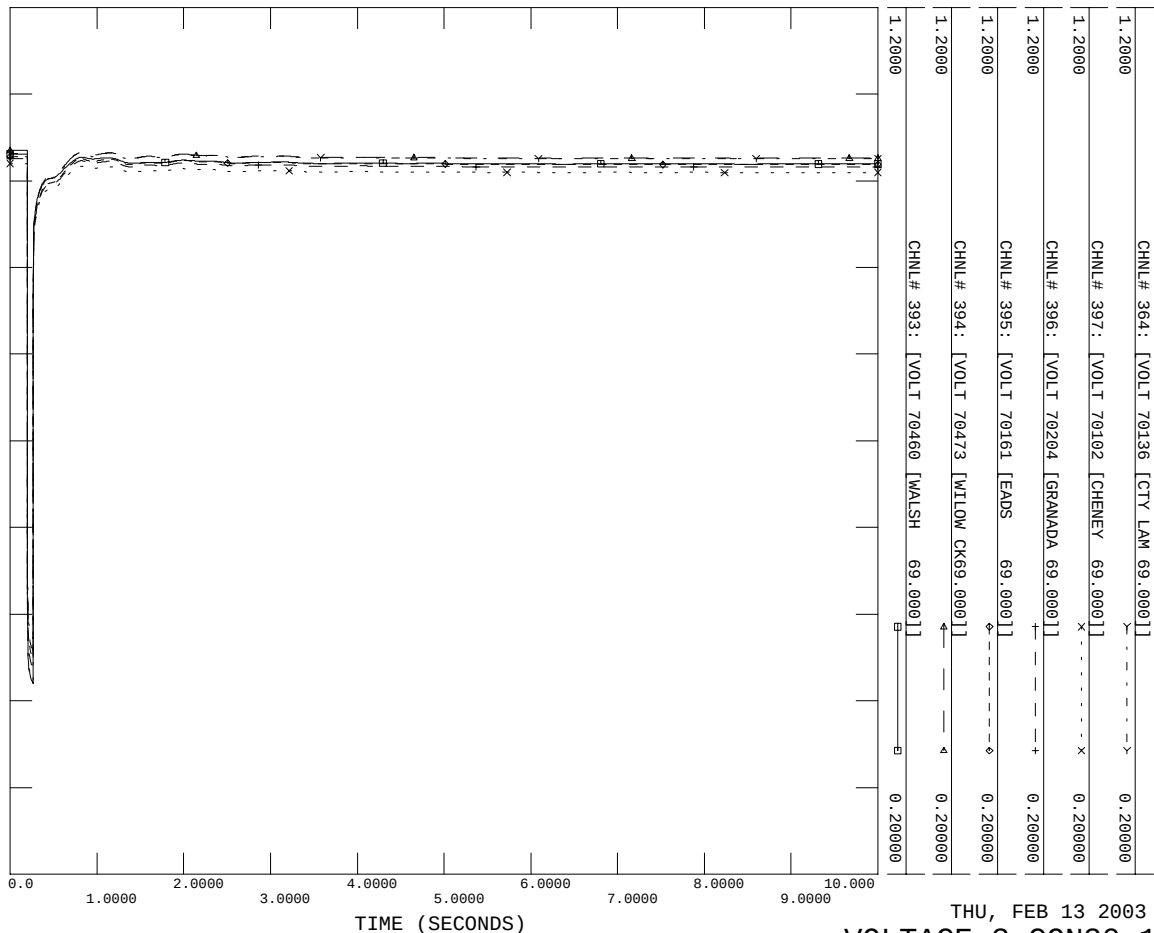
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR CO230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT

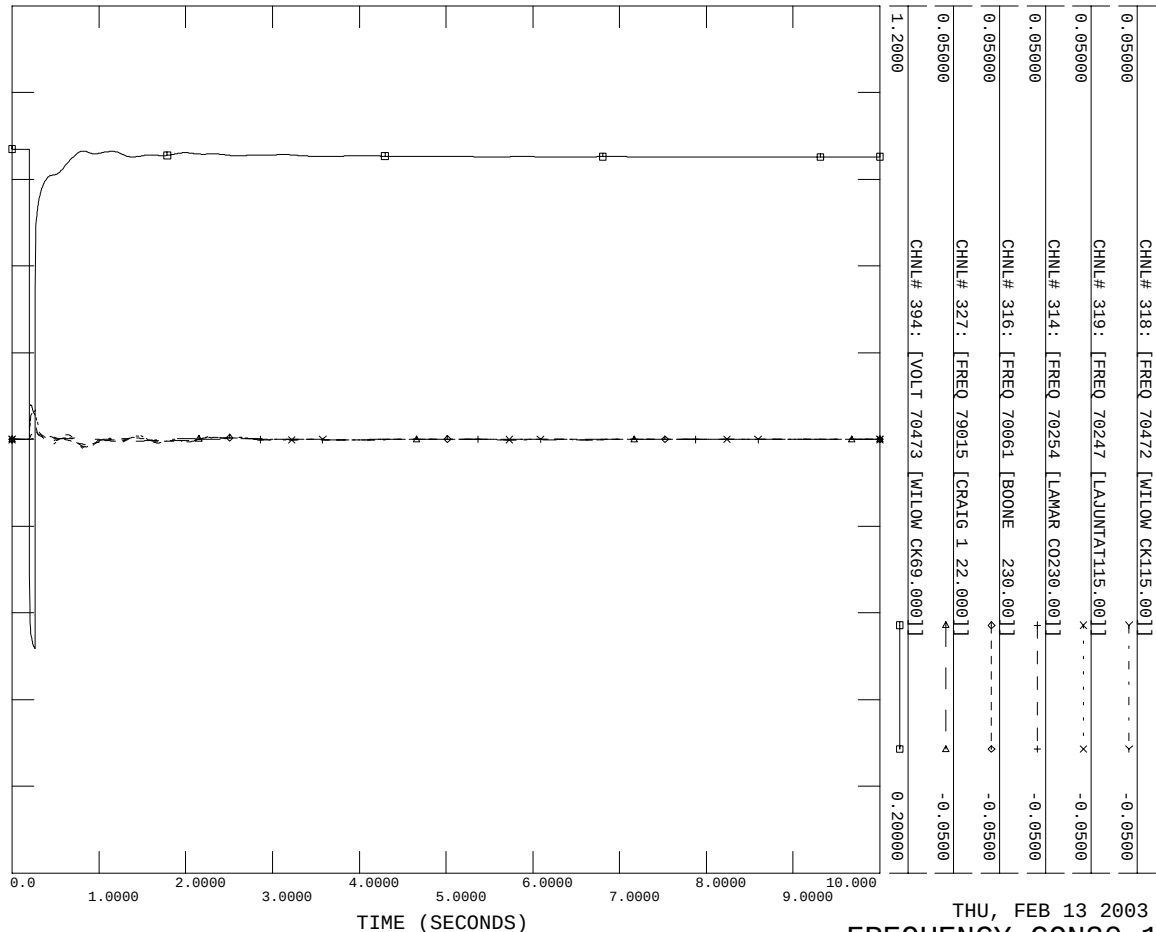


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT



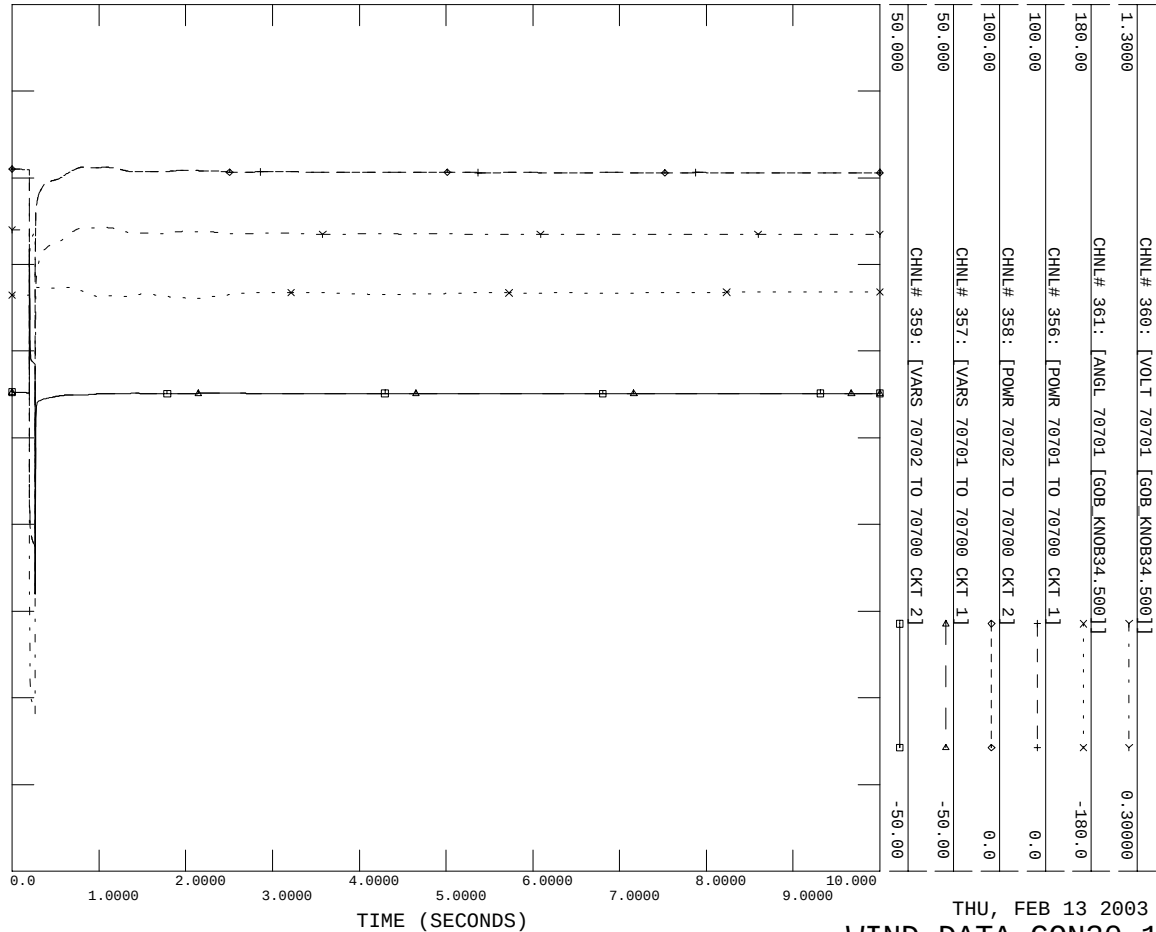
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]

FILE: CON30-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]

FILE: CON30-ON.OUT







2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]  
FILE: CON31-ON.OUT

|        |                                               |        |
|--------|-----------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [GOB KNOB34.500] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]   | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]]  | -180.0 |

TIME (SECONDS)

THU, FEB 13 2003 13:41  
ROTORANGLES 1 CON31 162MW

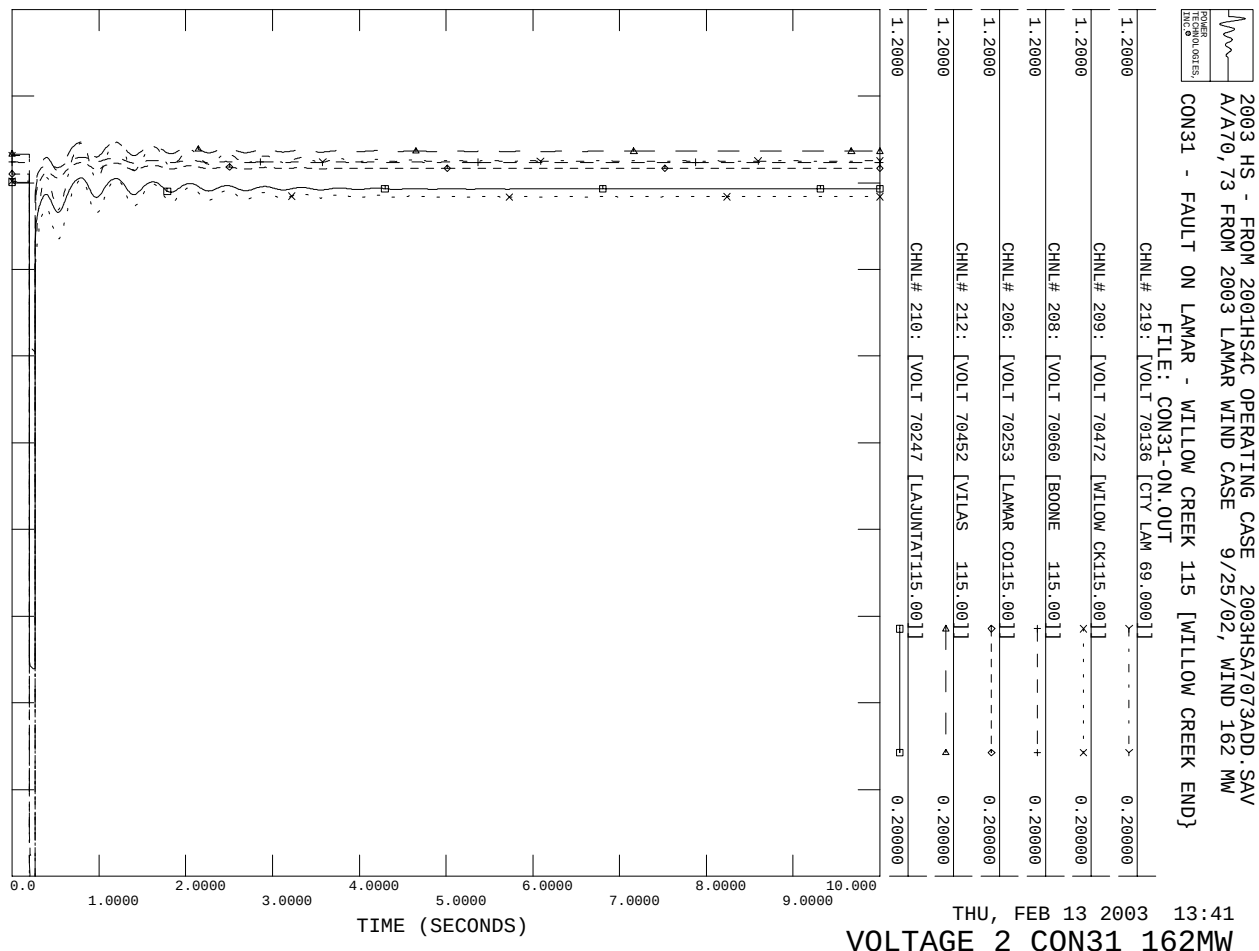
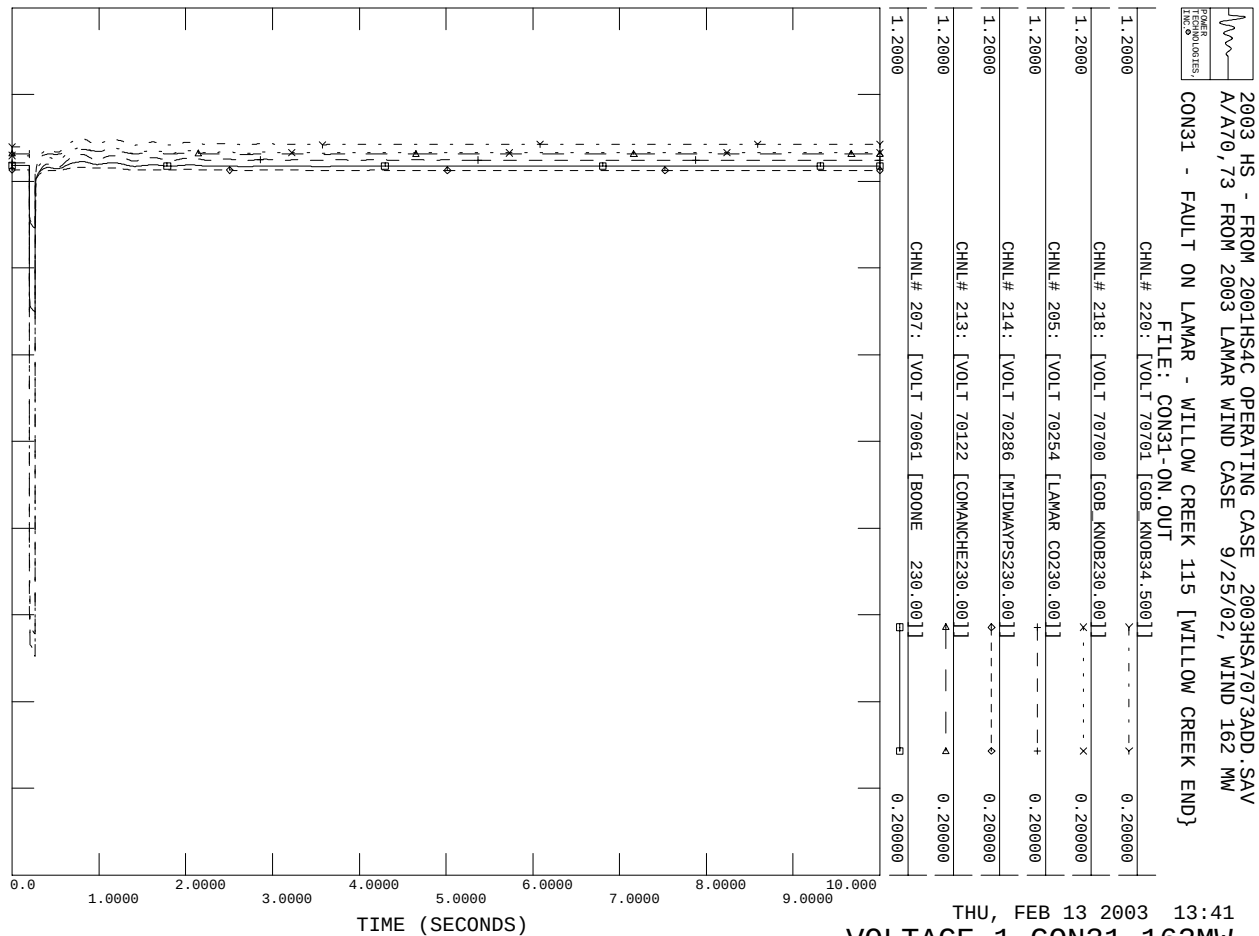


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]  
FILE: CON31-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |

TIME (SECONDS)

THU, FEB 13 2003 13:41  
ROTORANGLES 2 CON31 162MW



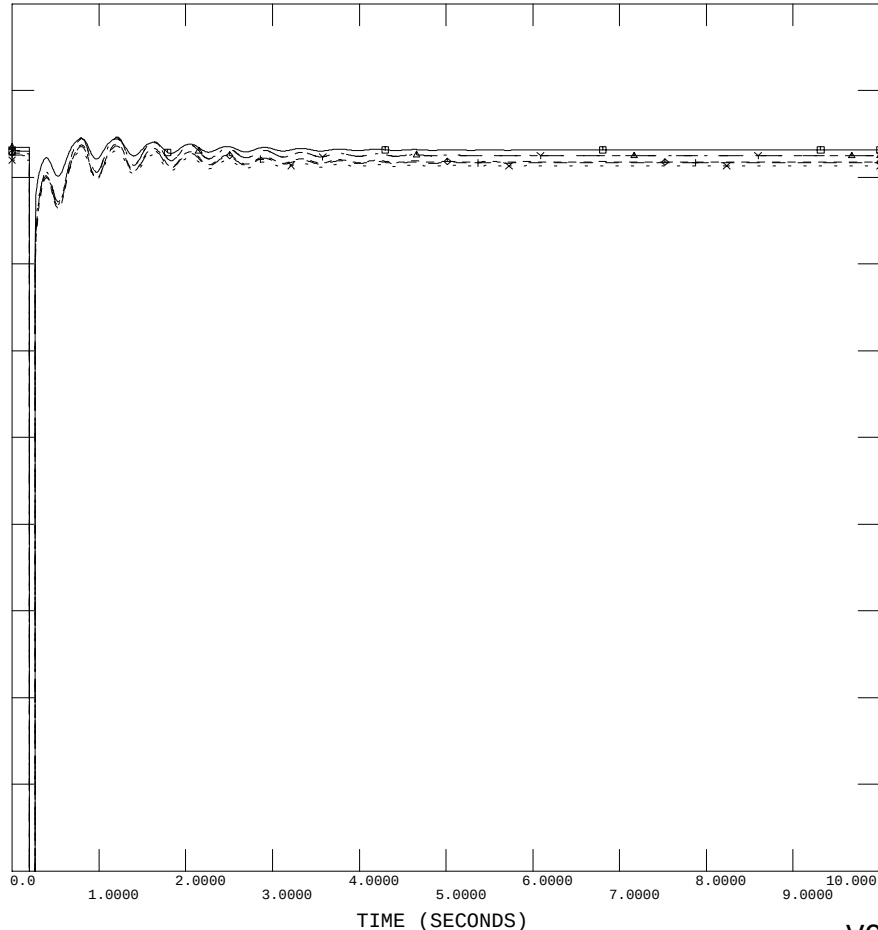


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]

FILE: CON31-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



THU, FEB 13 2003 13:41  
VOLTAGE 3 CON31 162MW

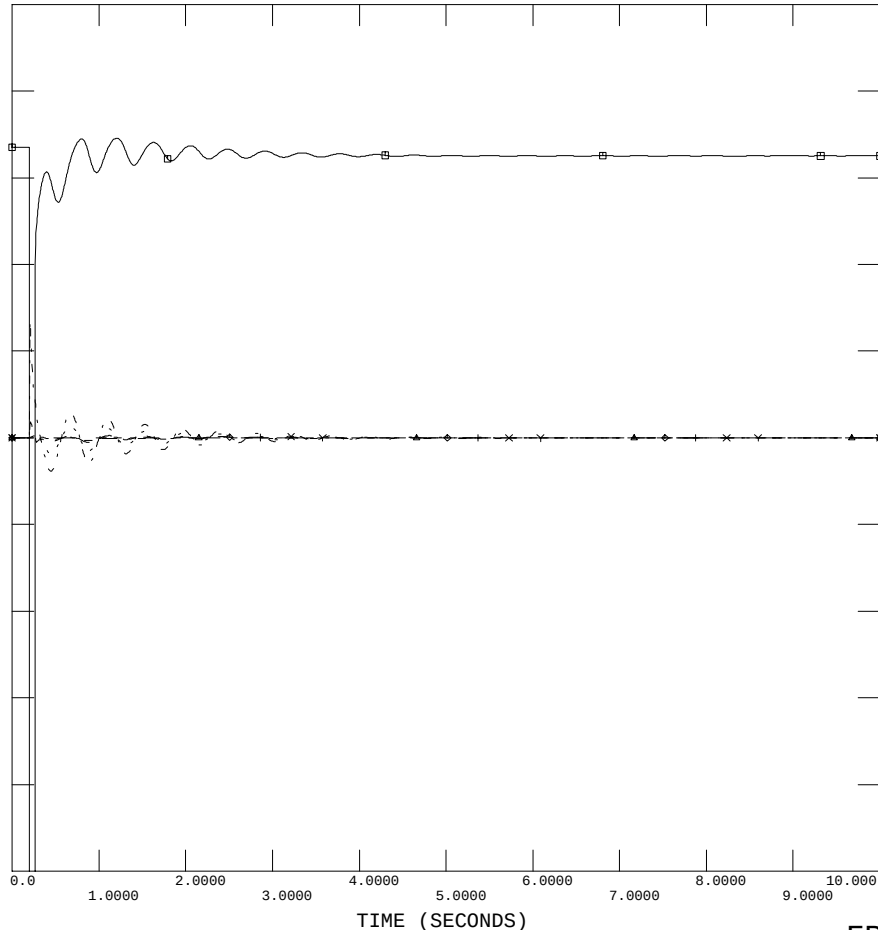


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

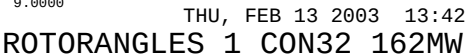
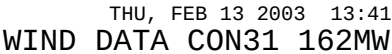
CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]

FILE: CON31-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |

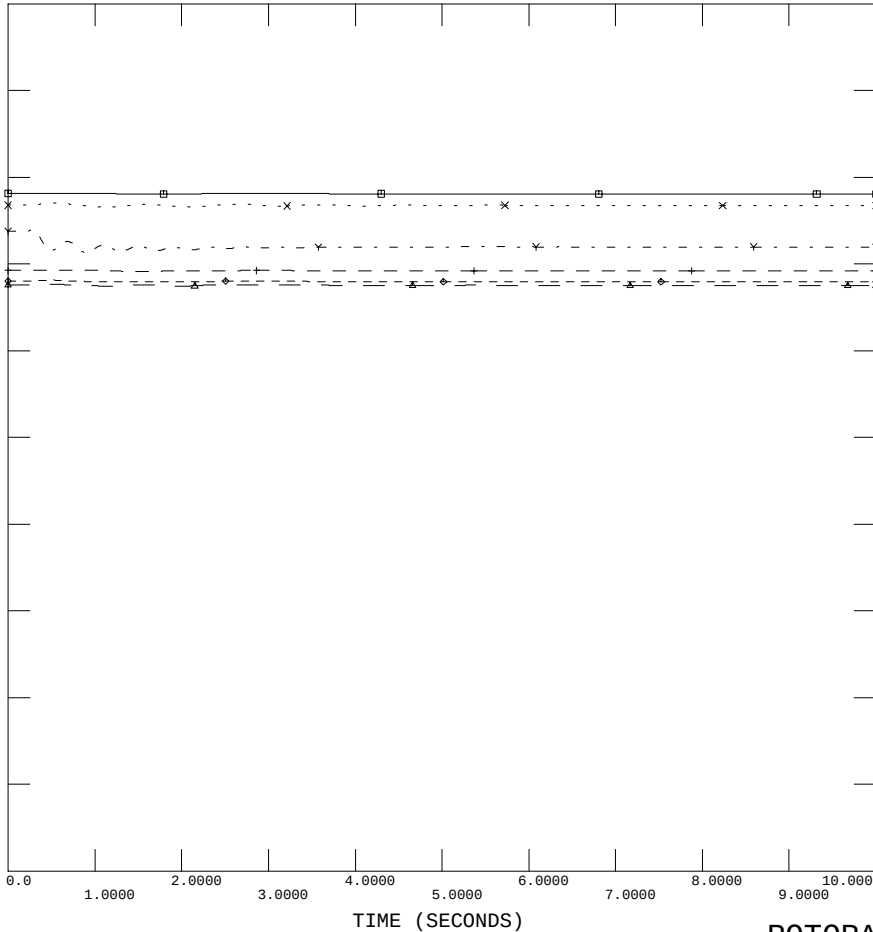


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FREQUENCY CON31 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT

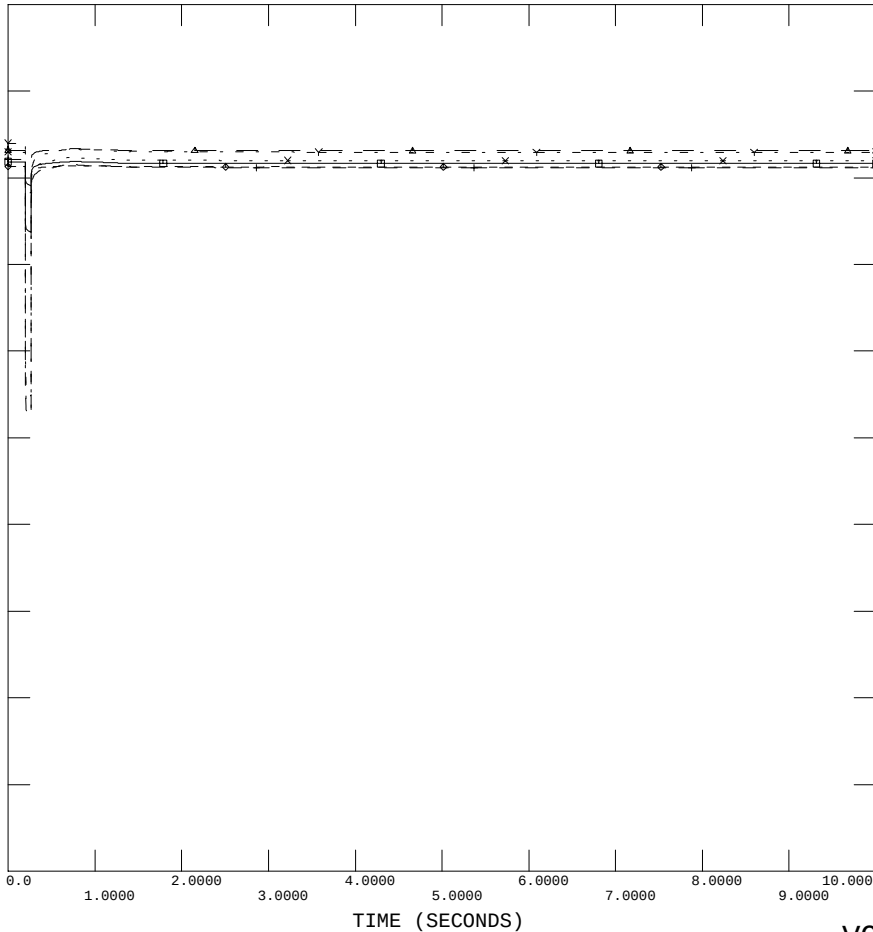
|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1.22.000] [1.]] | -180.0 |



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ROTORANGLES 2 CON32 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT

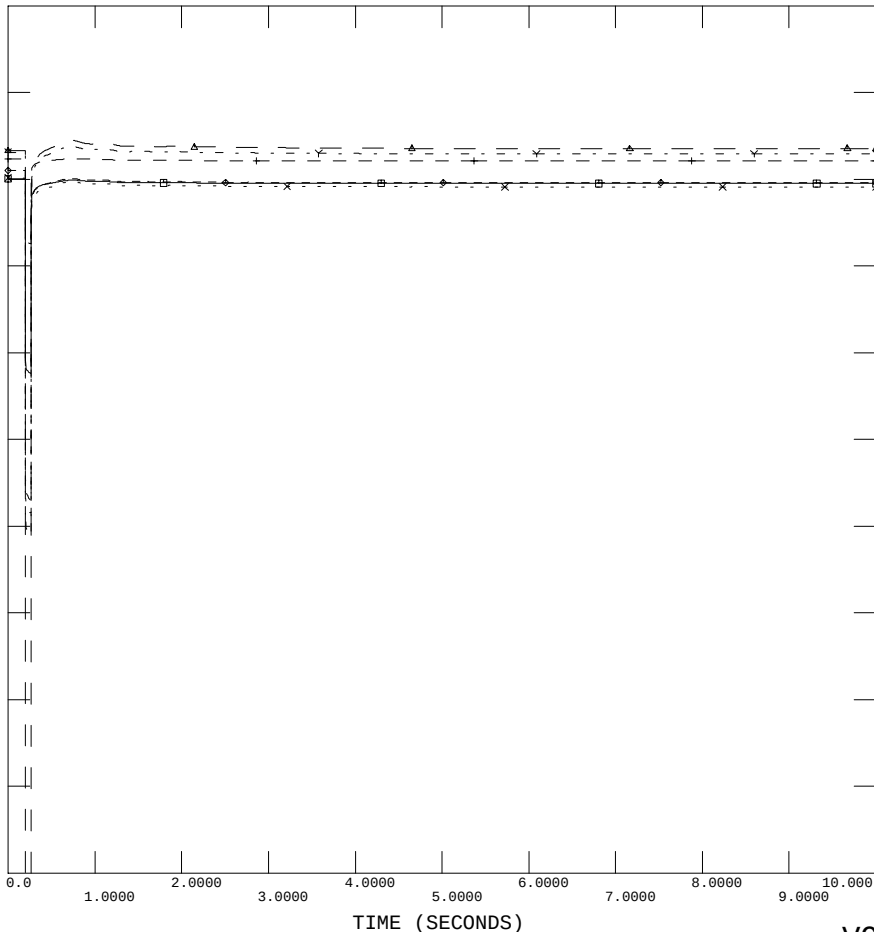
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



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VOLTAGE 1 CON32 162MW

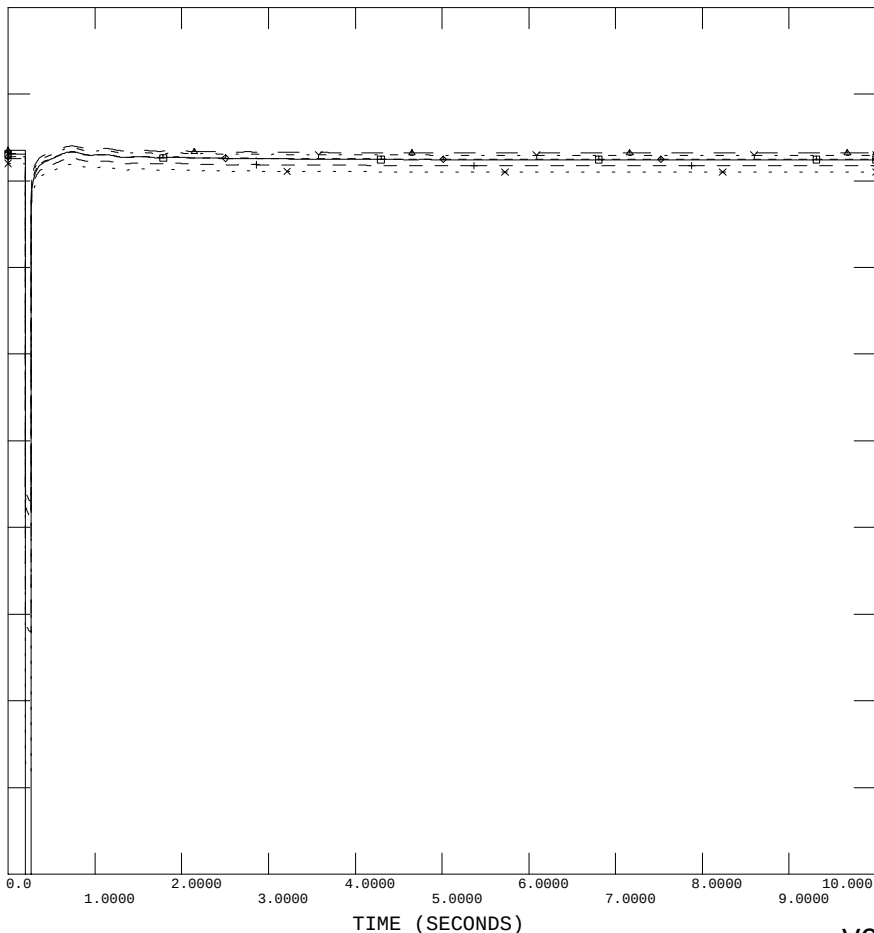
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



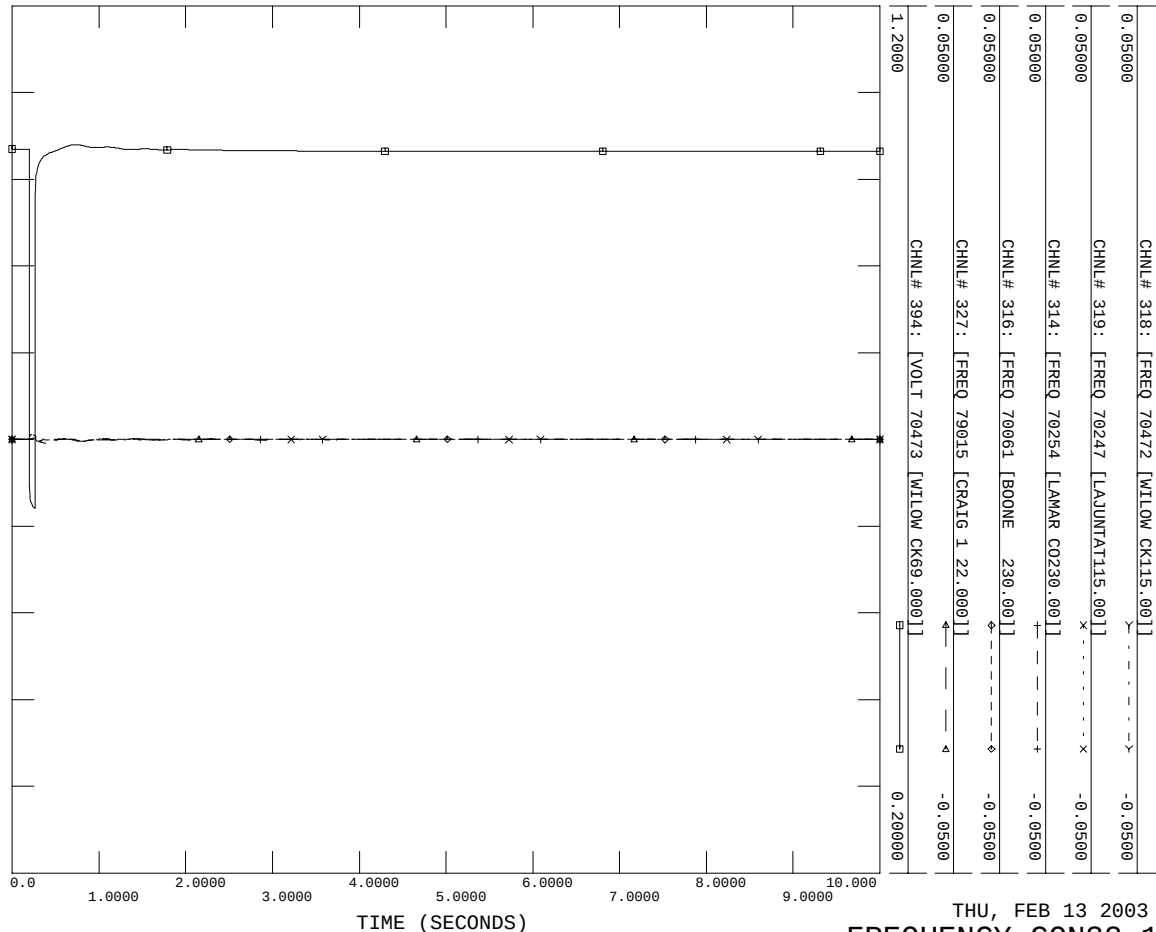
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



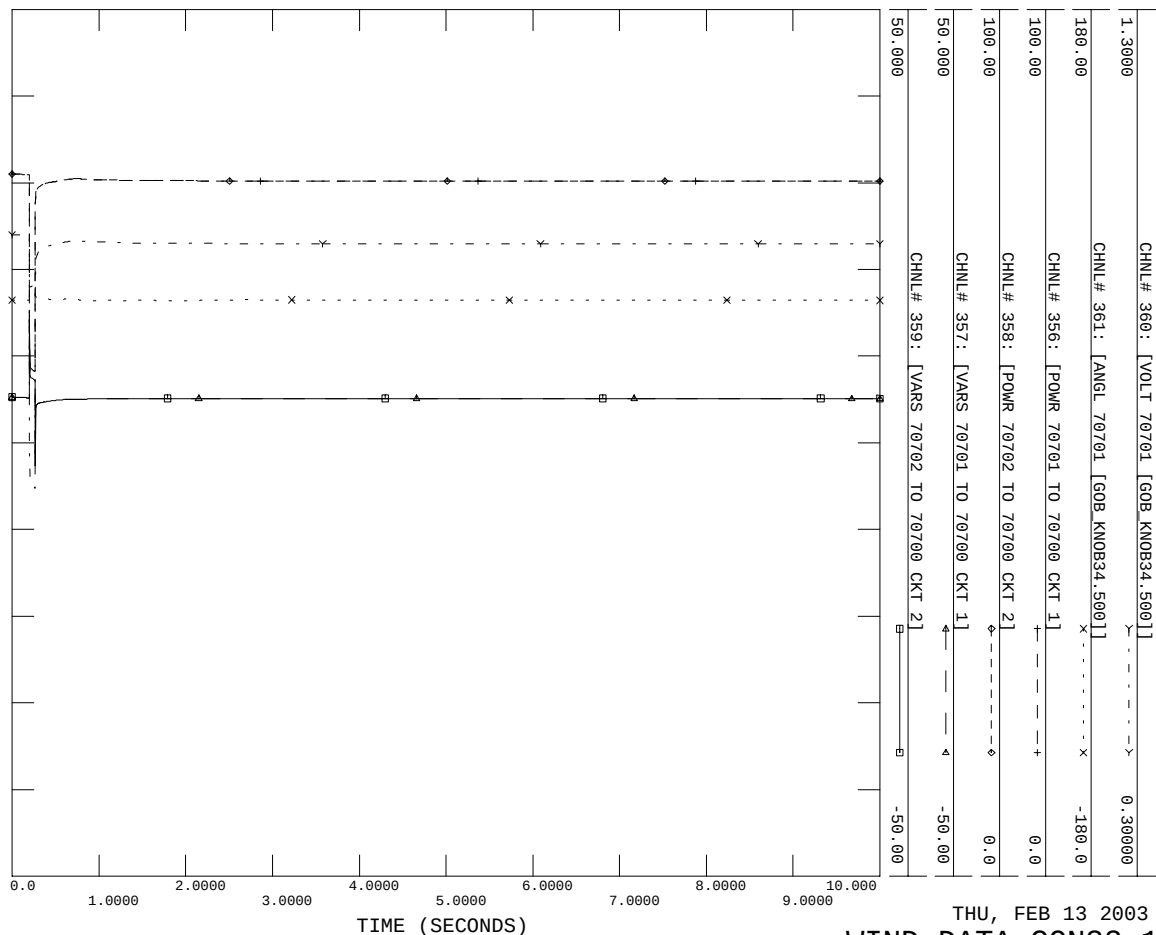
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]

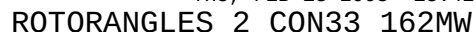
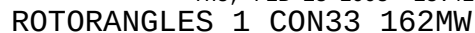
FILE: CON32-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]

FILE: CON32-ON.OUT

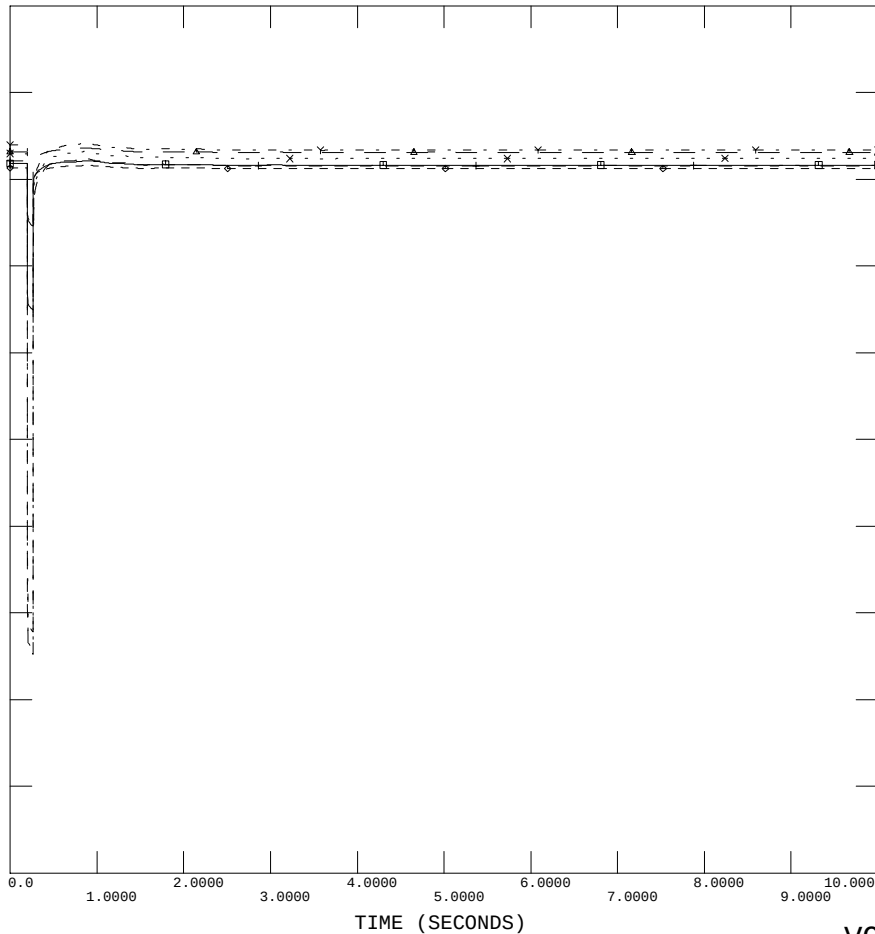






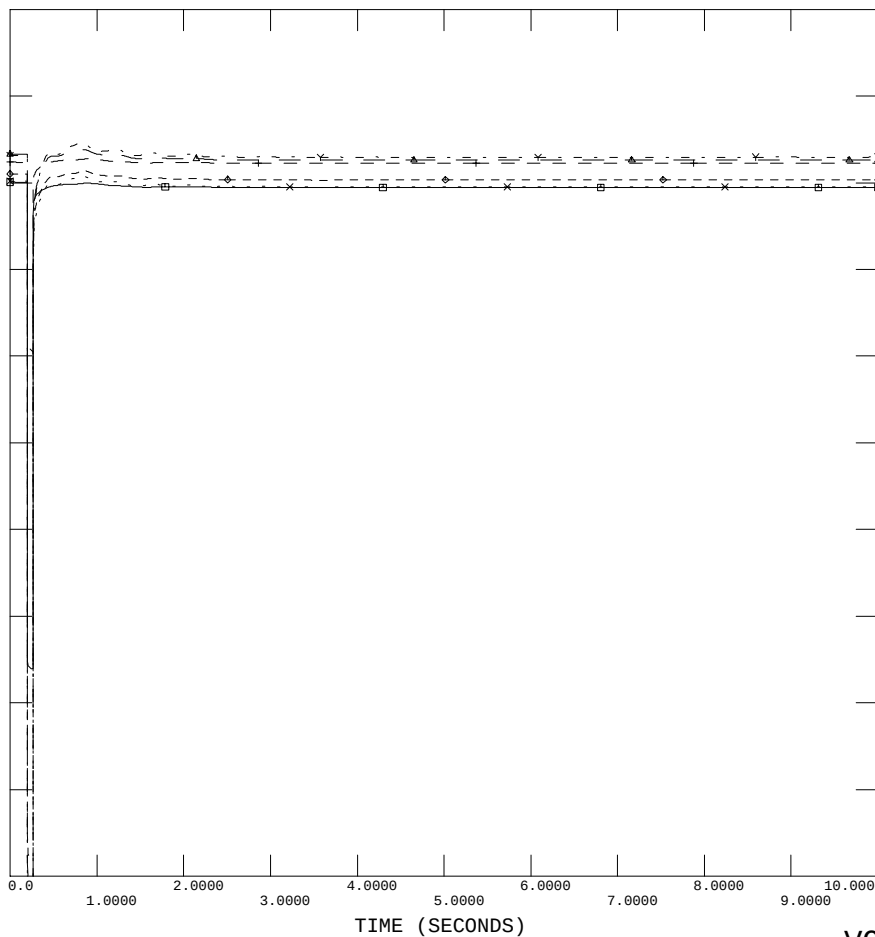
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [60B.KN0834.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [60B.KN0830.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHEZ30.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

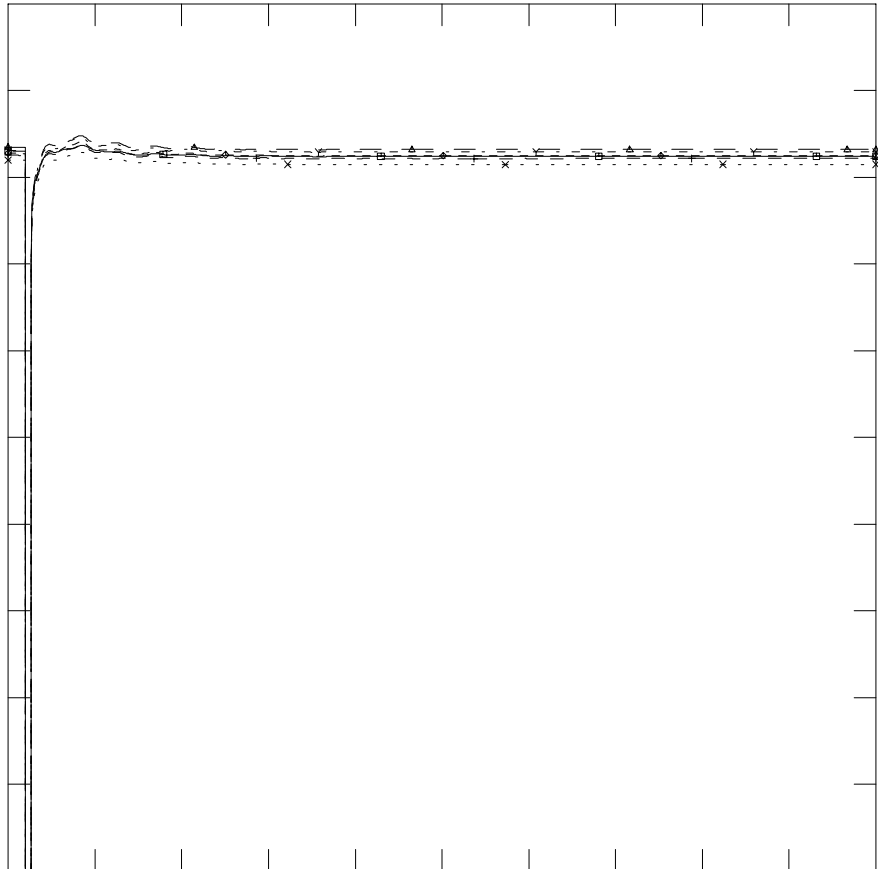
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTA115.00]]   | 0.20000 |





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

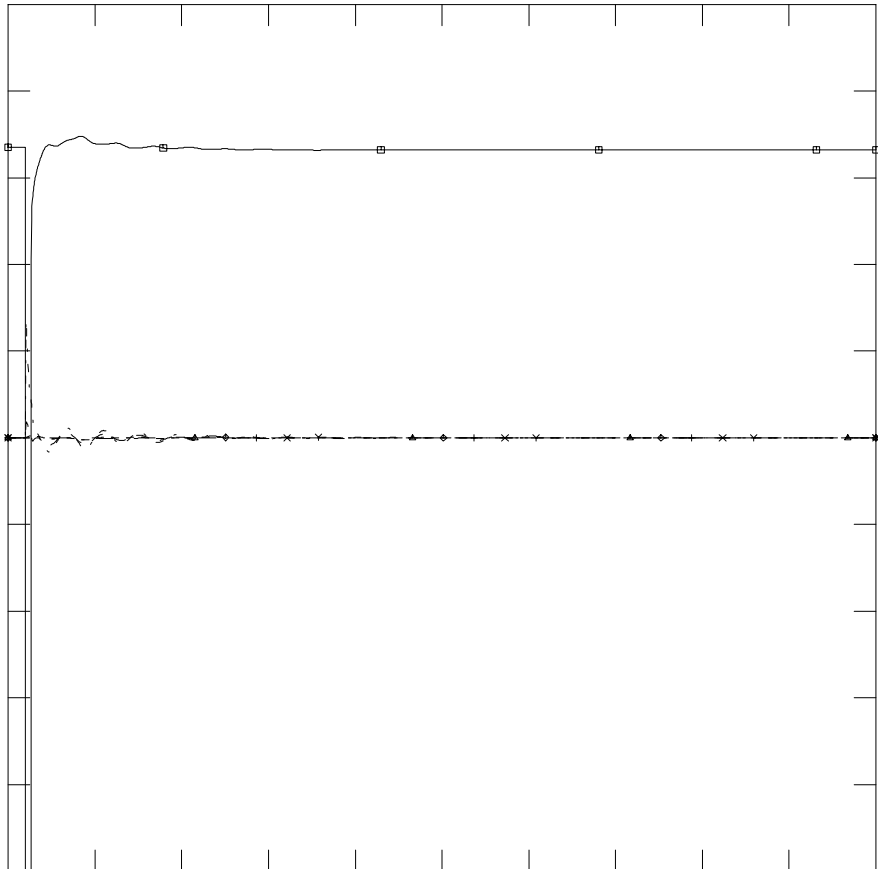


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VOLTAGE 3 CON33 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |

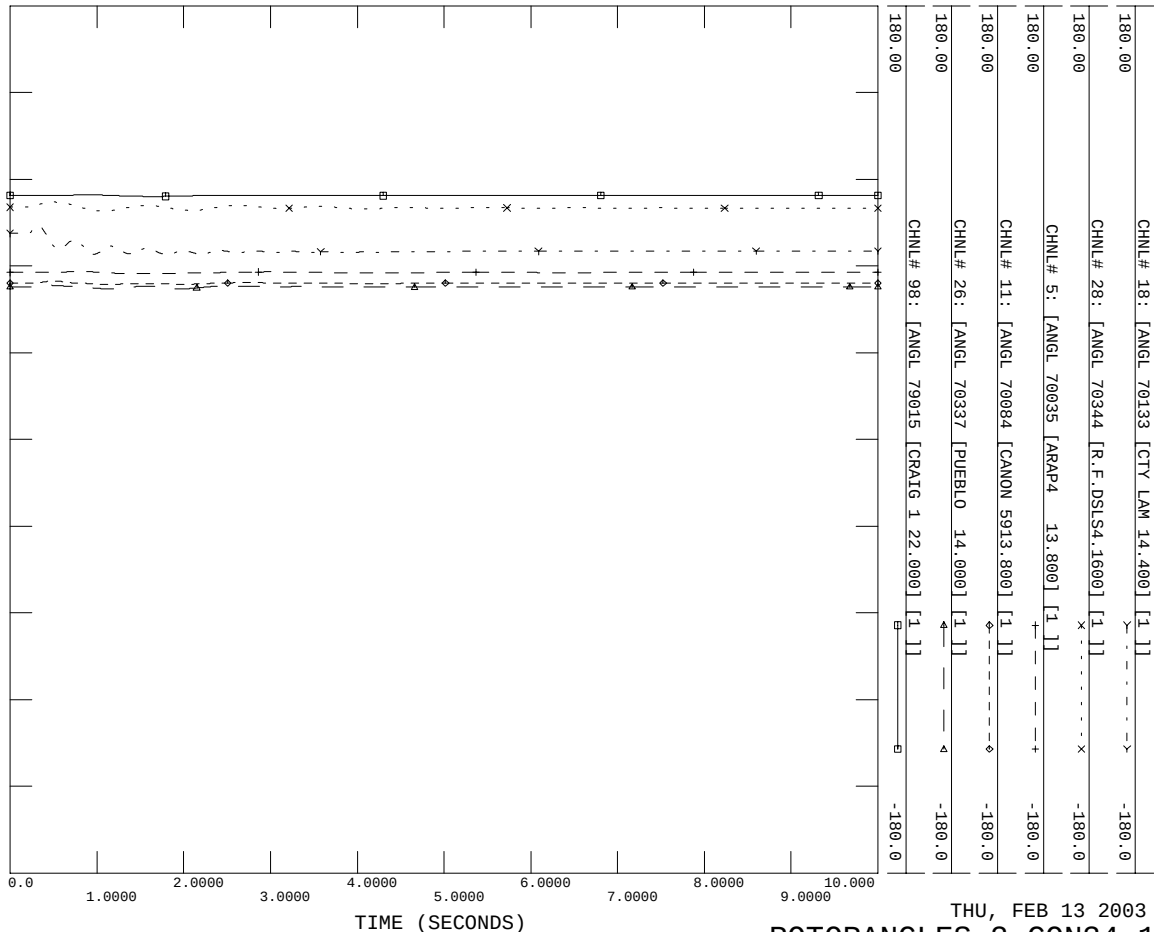


THU, FEB 13 2003 13:42  
FREQUENCY CON33 162MW



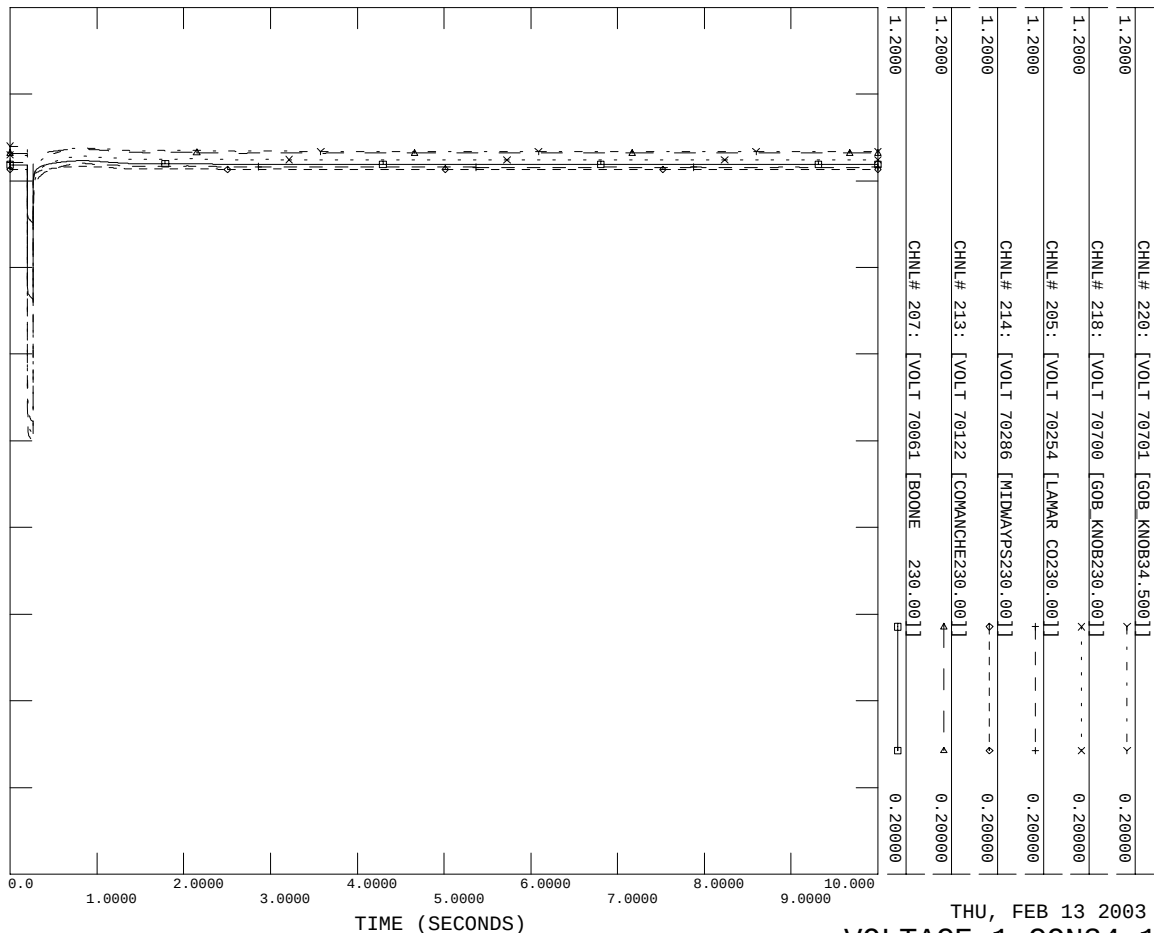
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]

FILE: CON34-ON.OUT



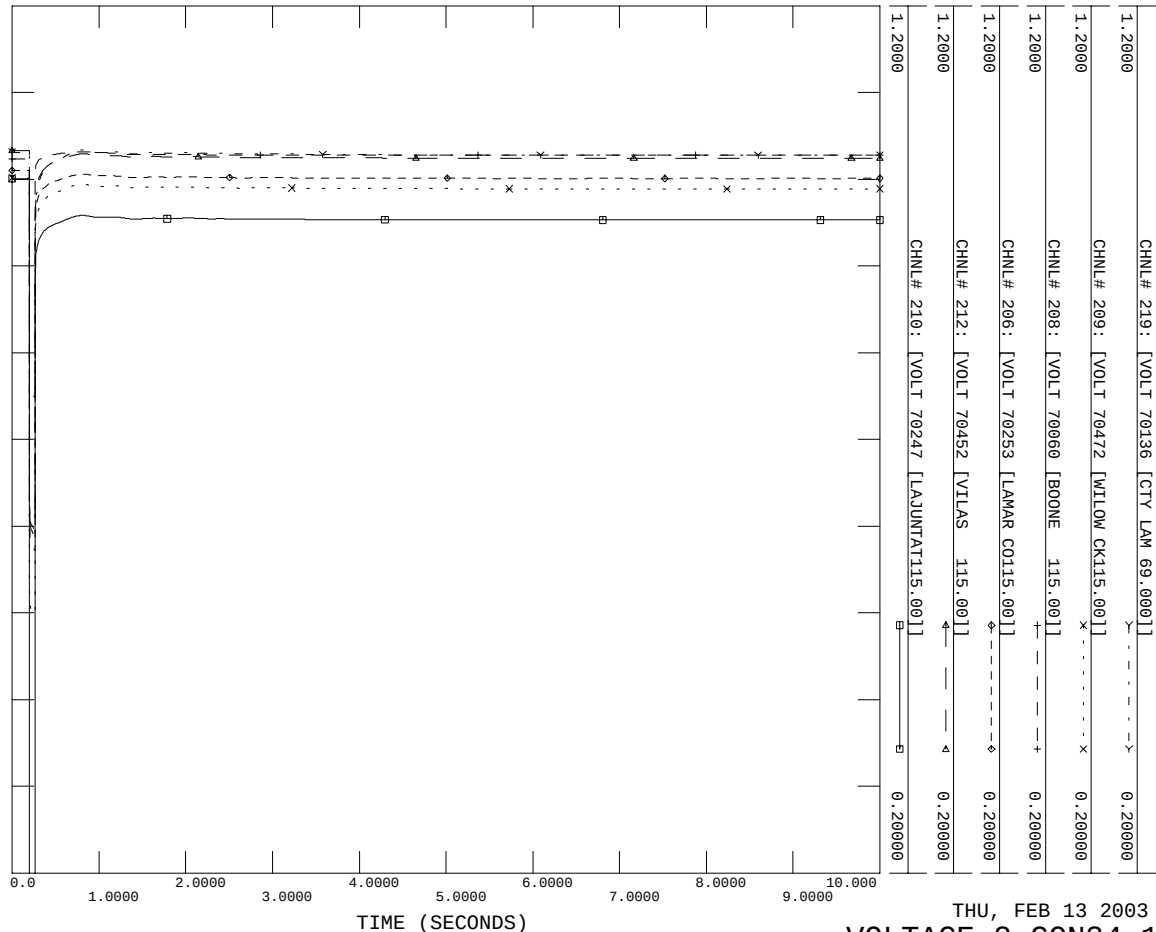
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]

FILE: CON34-ON.OUT



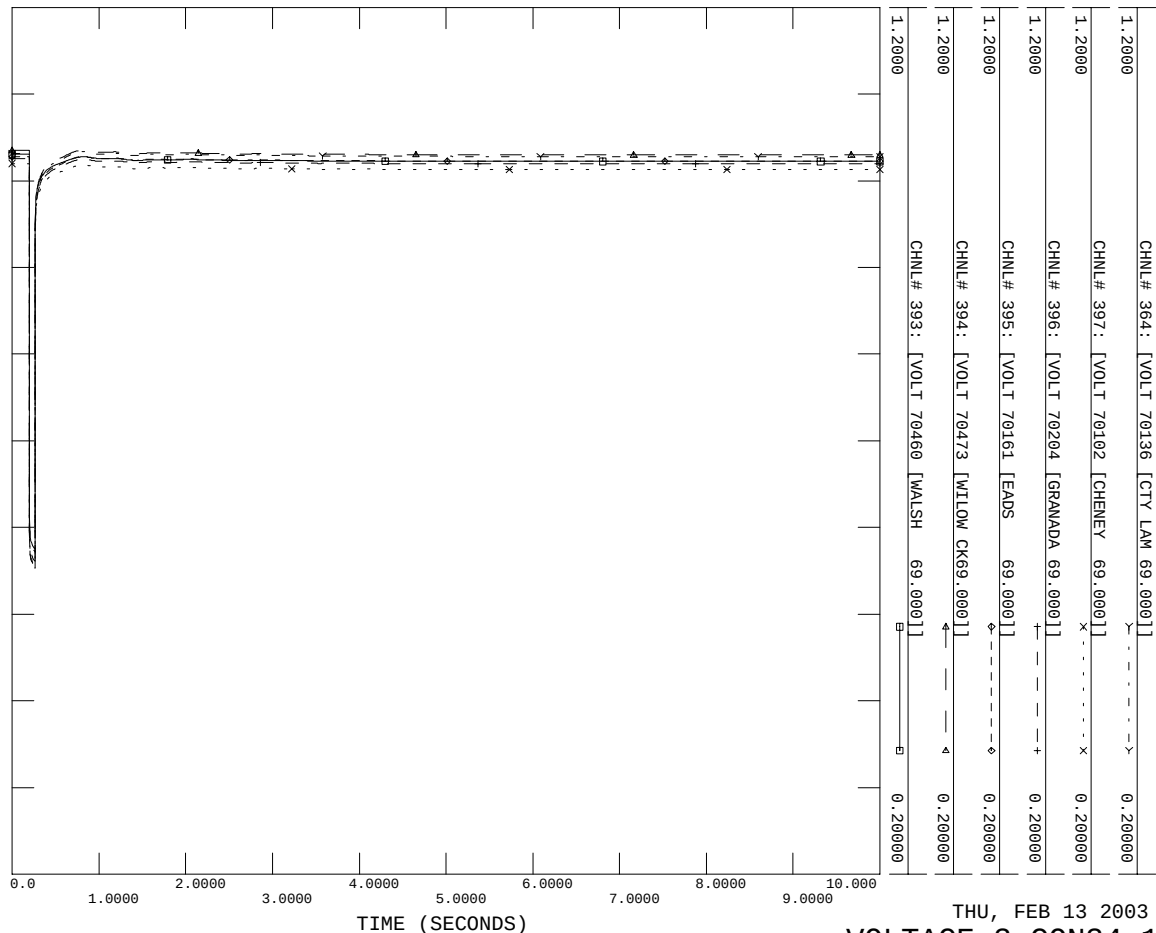
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]

FILE: CON34-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]

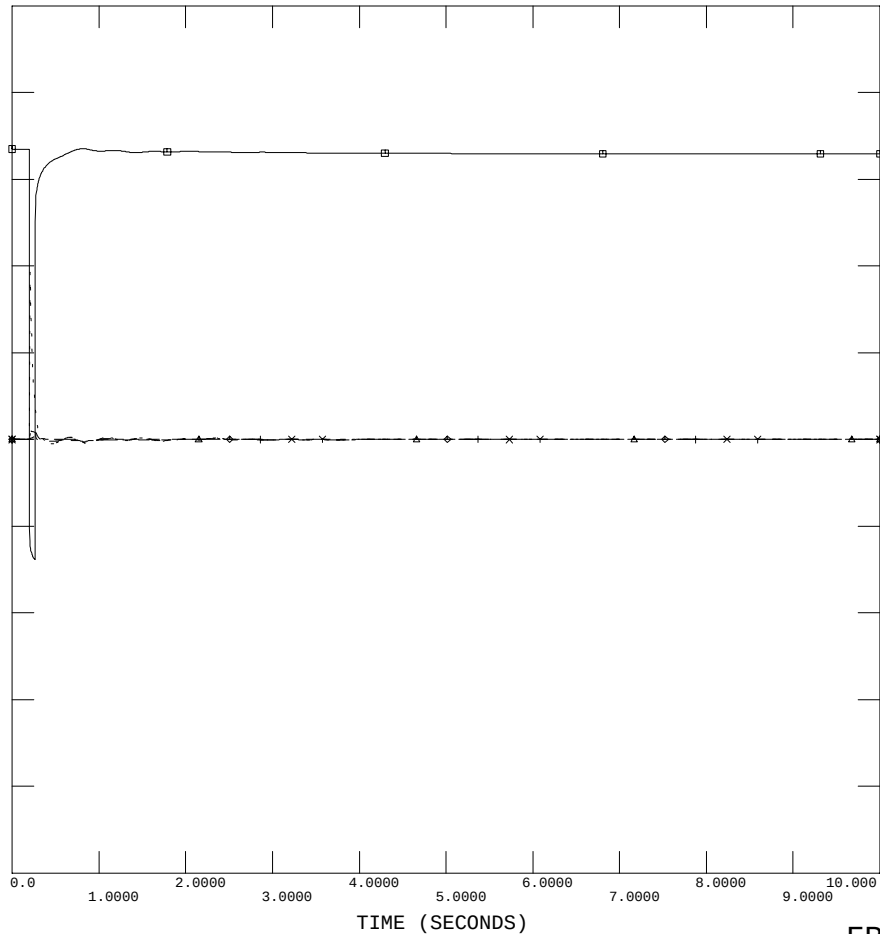
FILE: CON34-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]

FILE: CON34-ON.OUT

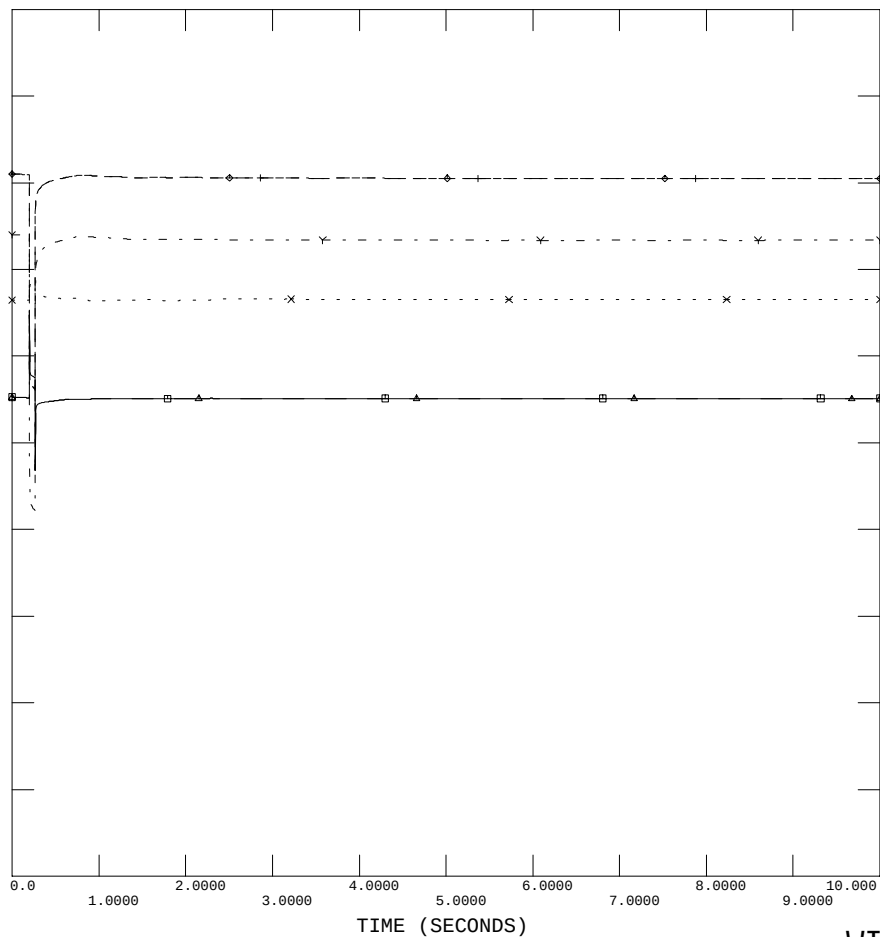
|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |
| 1.2000  |                                           | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]

FILE: CON34-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [GOB KNOB34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |
| 50.000 |                                          | -50.00  |



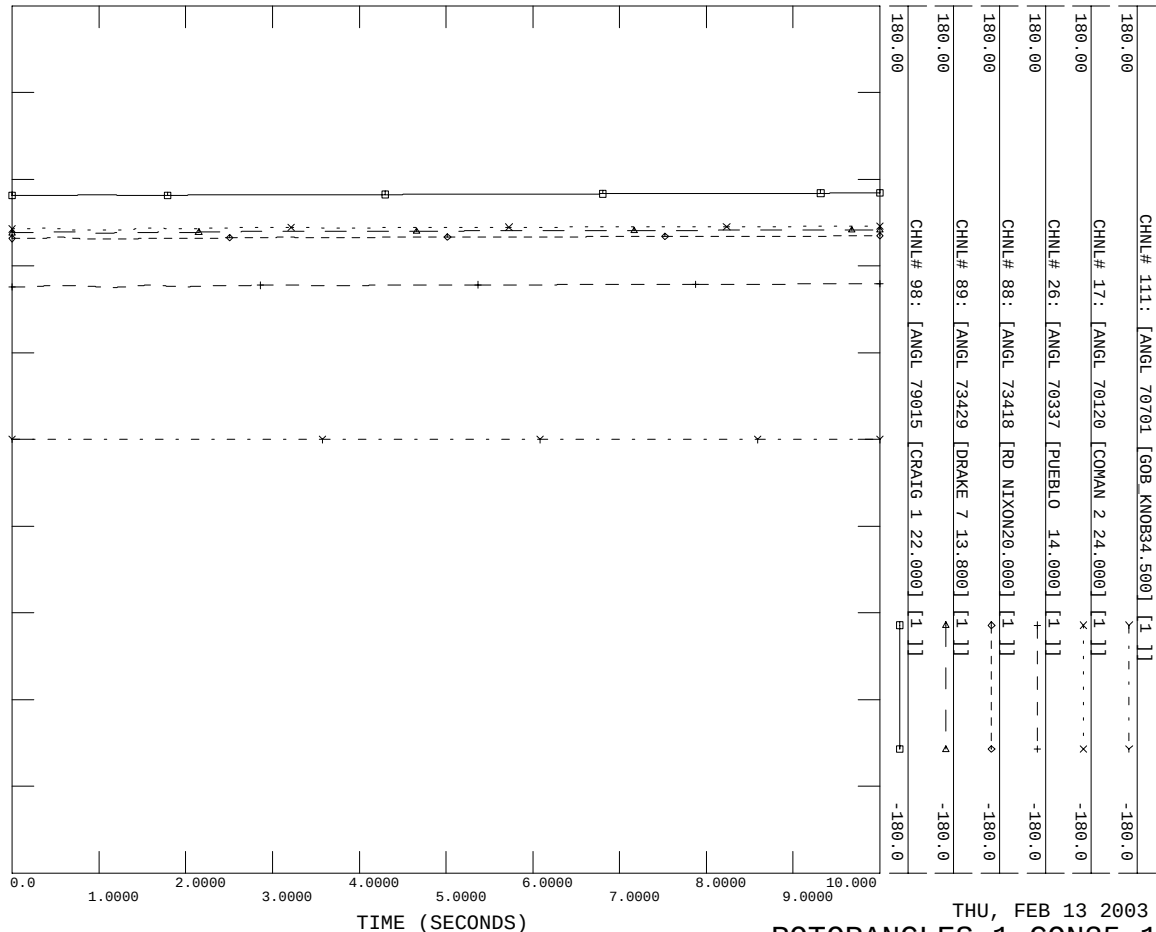


POWER  
TIC 0.0013,  
LINE 0

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]

FILE: CON35-ON.OUT



THU, FEB 13 2003 13:42

ROTORANGLES 1 CON35 162MW

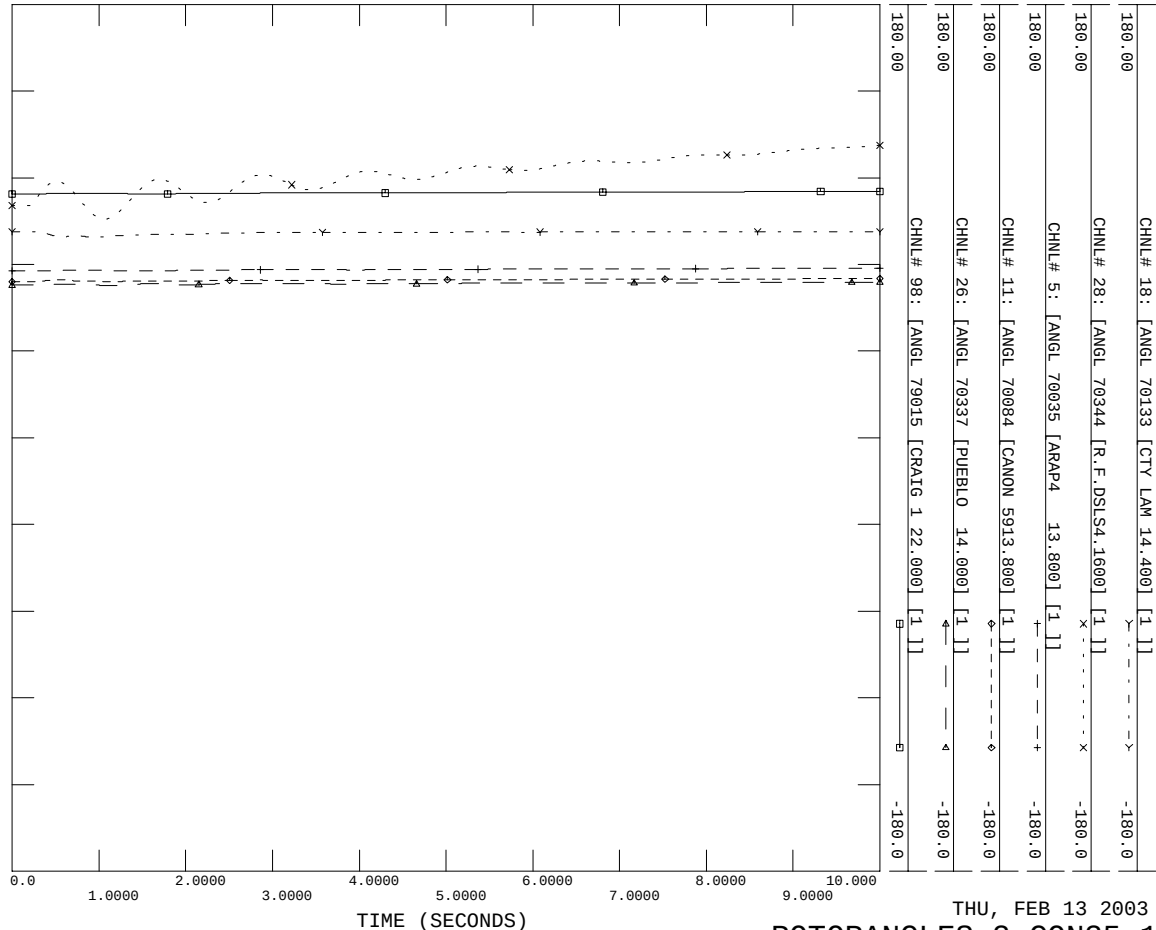


POWER  
TIC 0.0013,  
LINE 0

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]

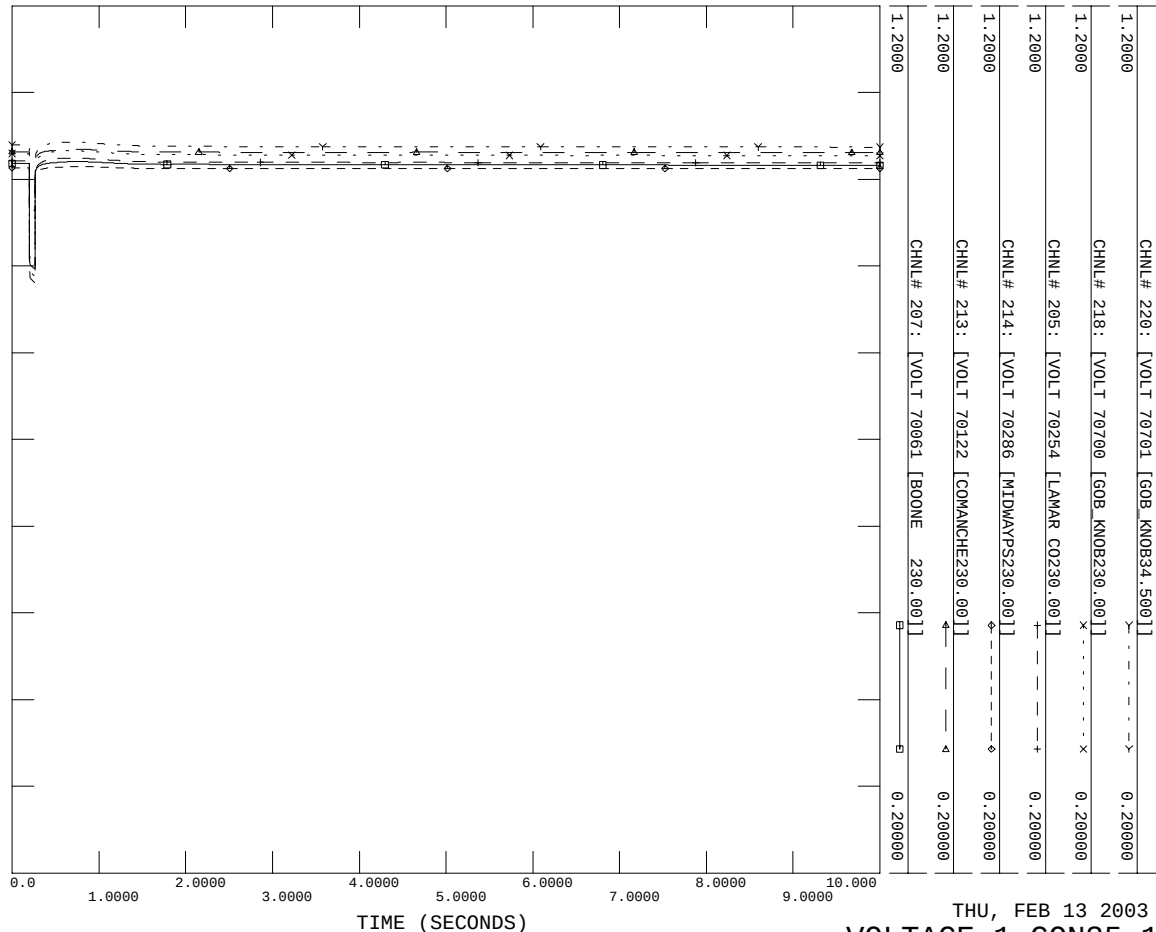
FILE: CON35-ON.OUT



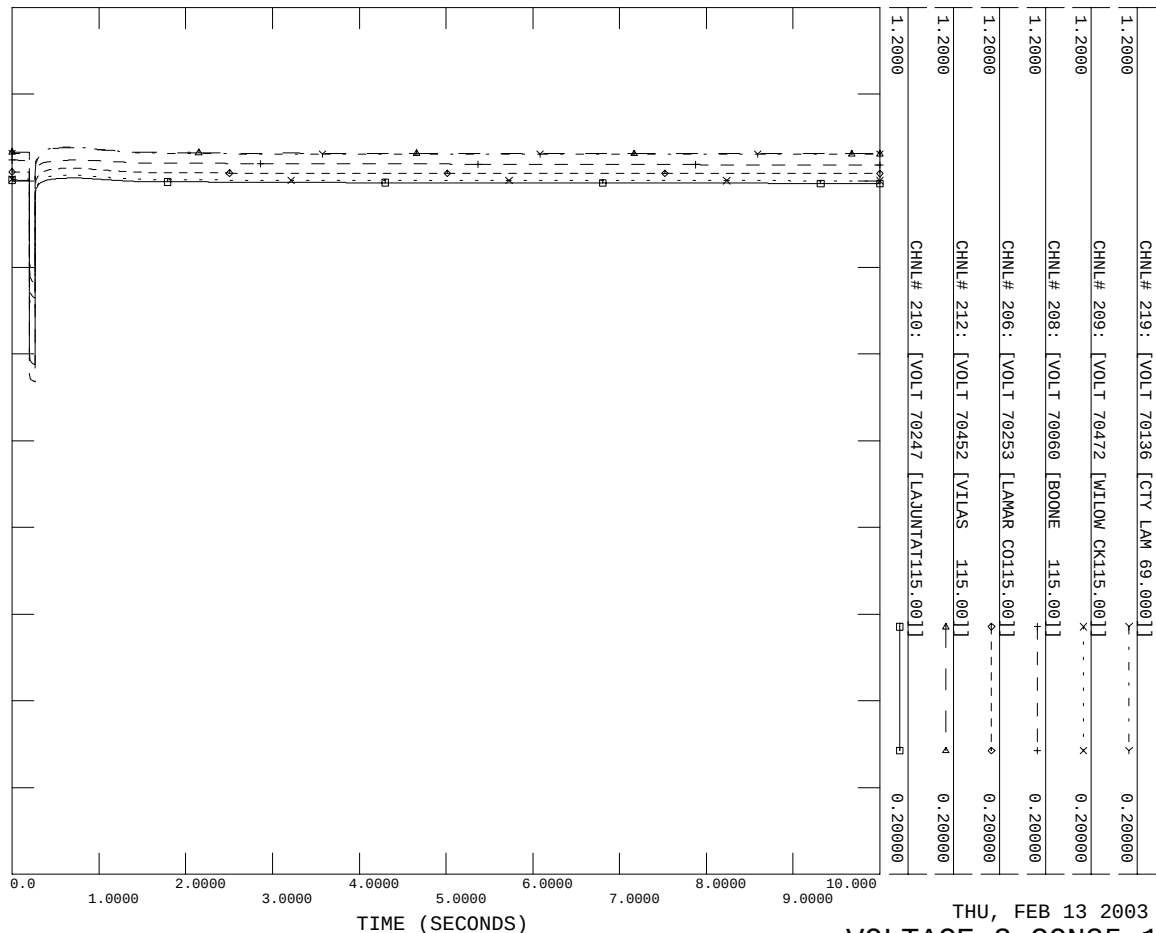
THU, FEB 13 2003 13:42

ROTORANGLES 2 CON35 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT



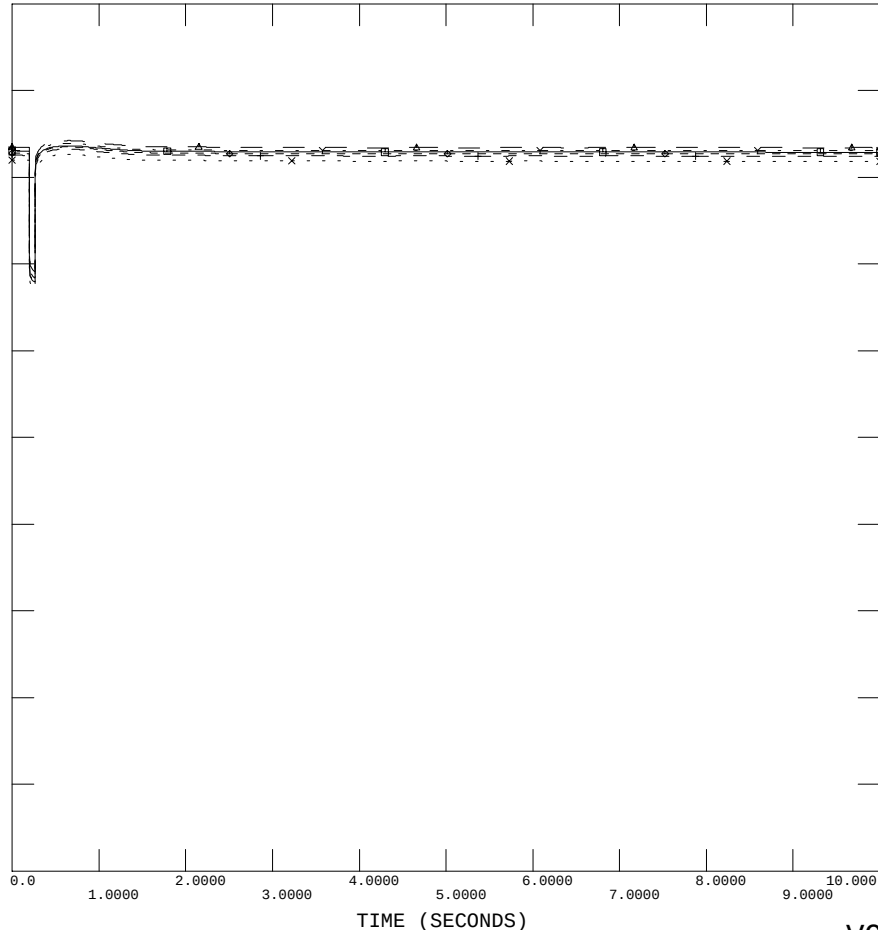
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT





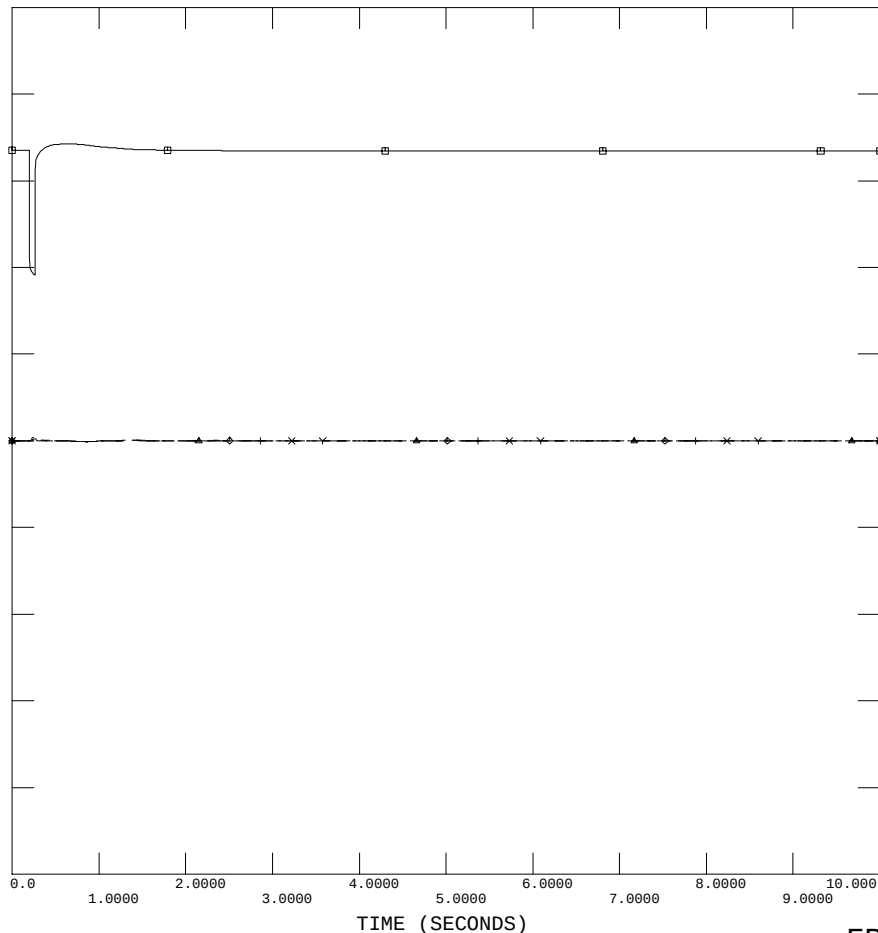
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [LEADS 69.000]]    | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |

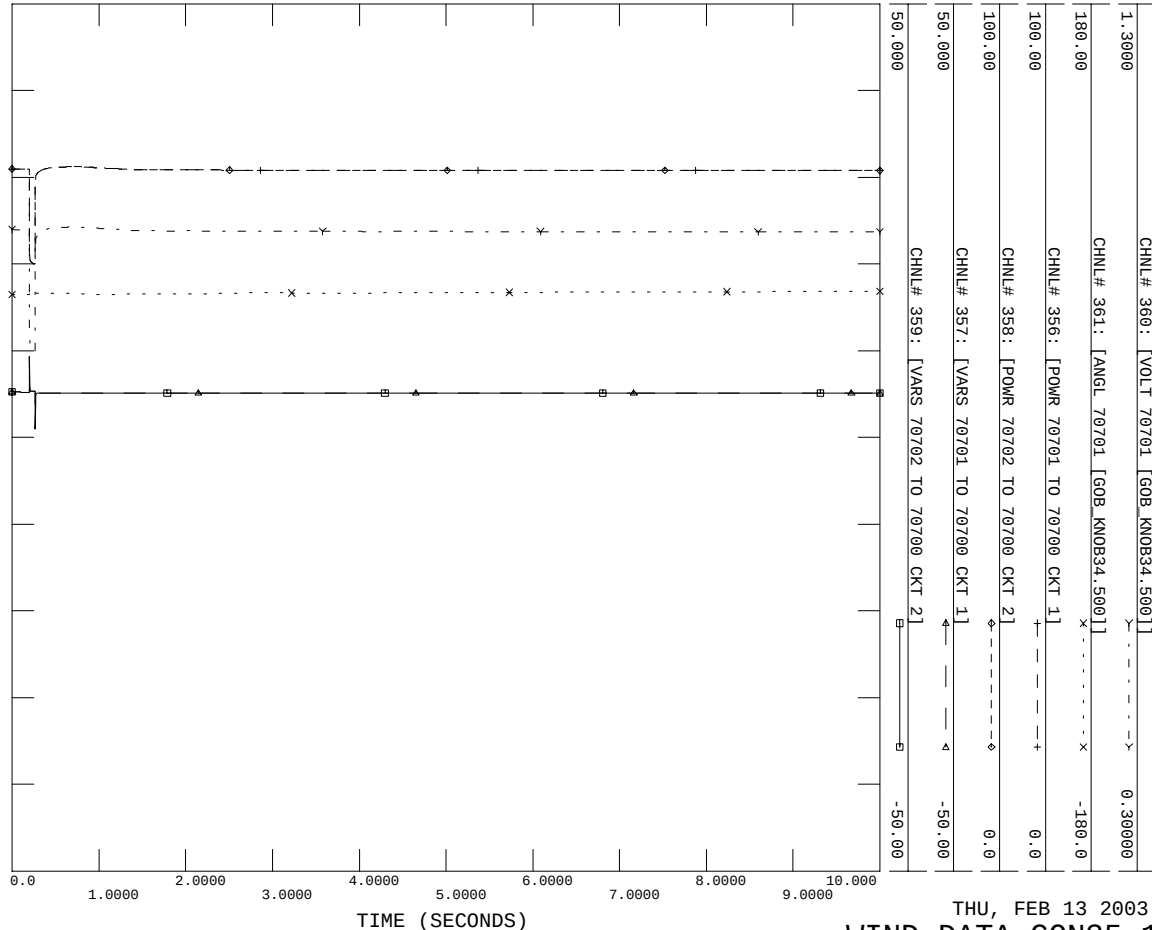




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]

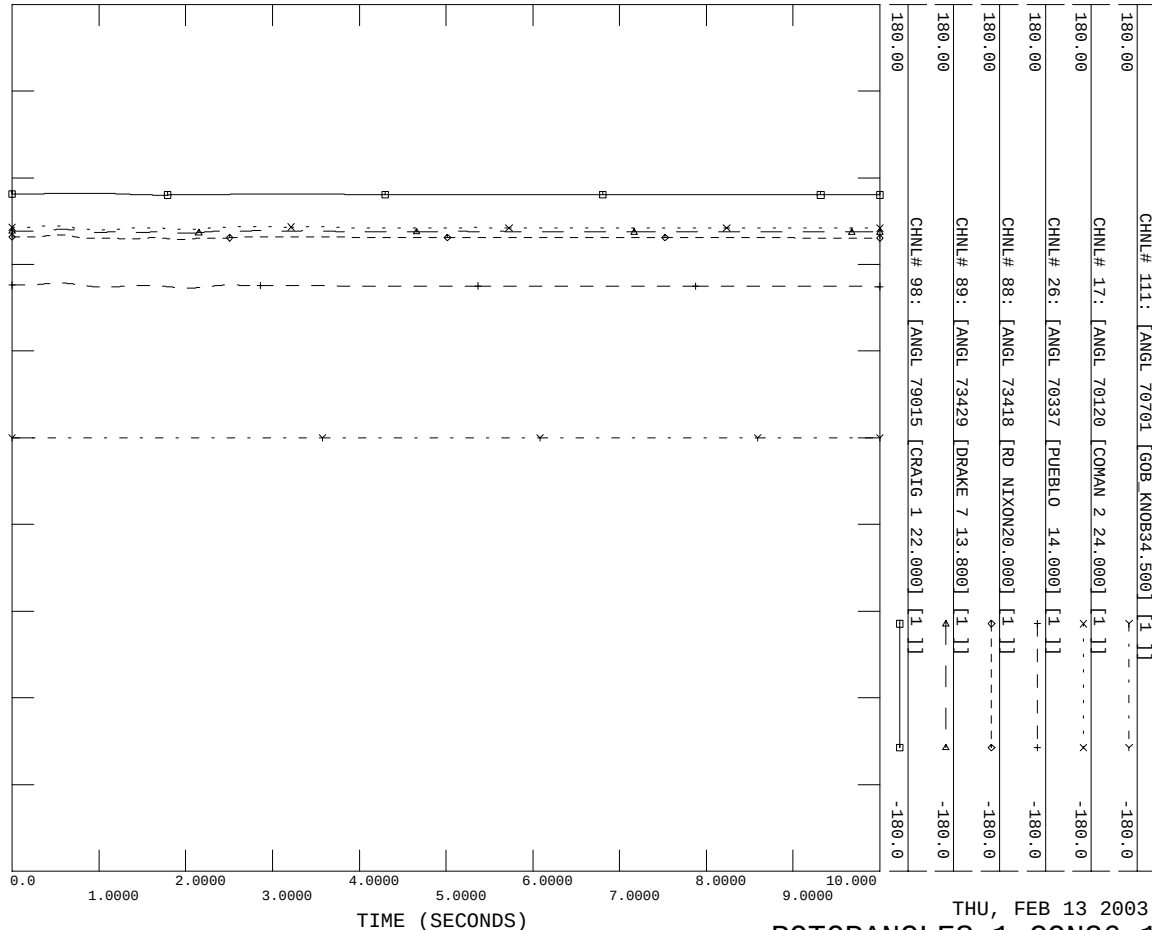
FILE: CON35-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

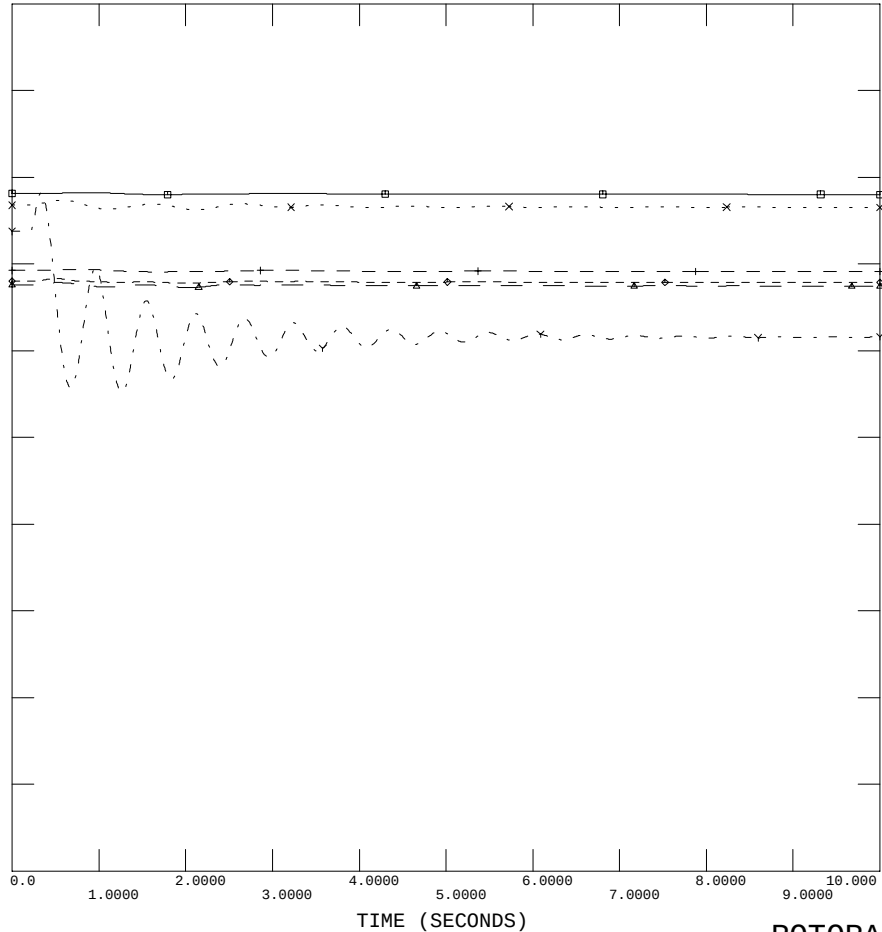
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]

FILE: CON36-ON.OUT



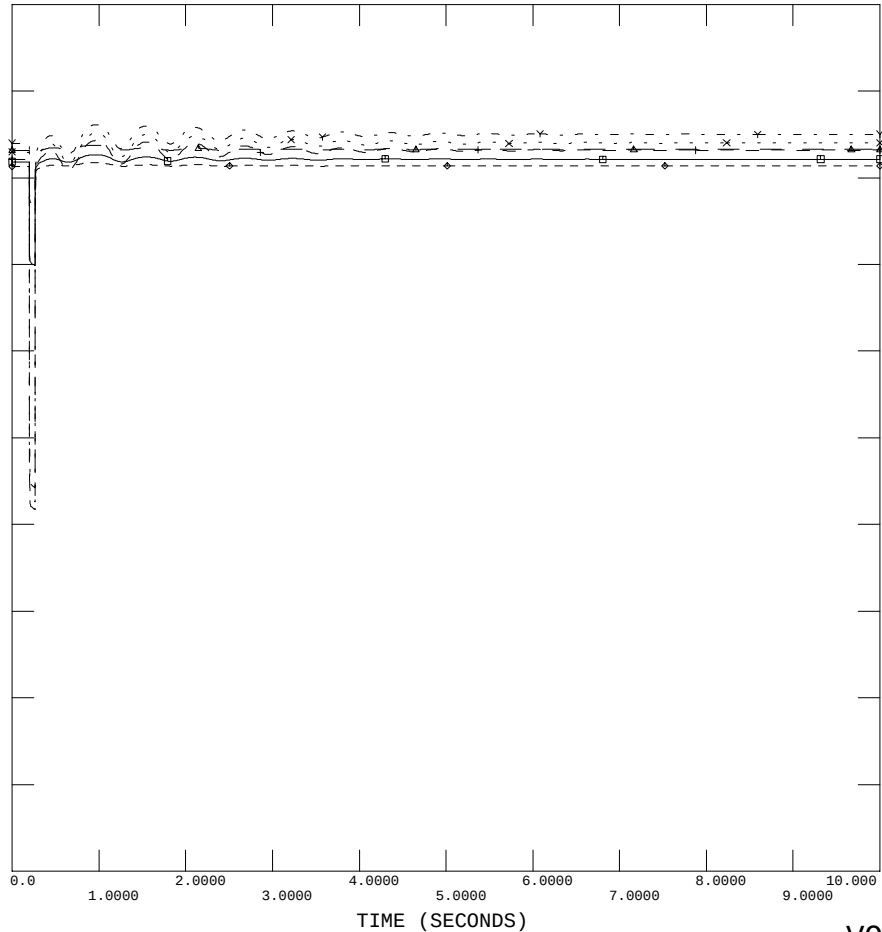
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70/73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT

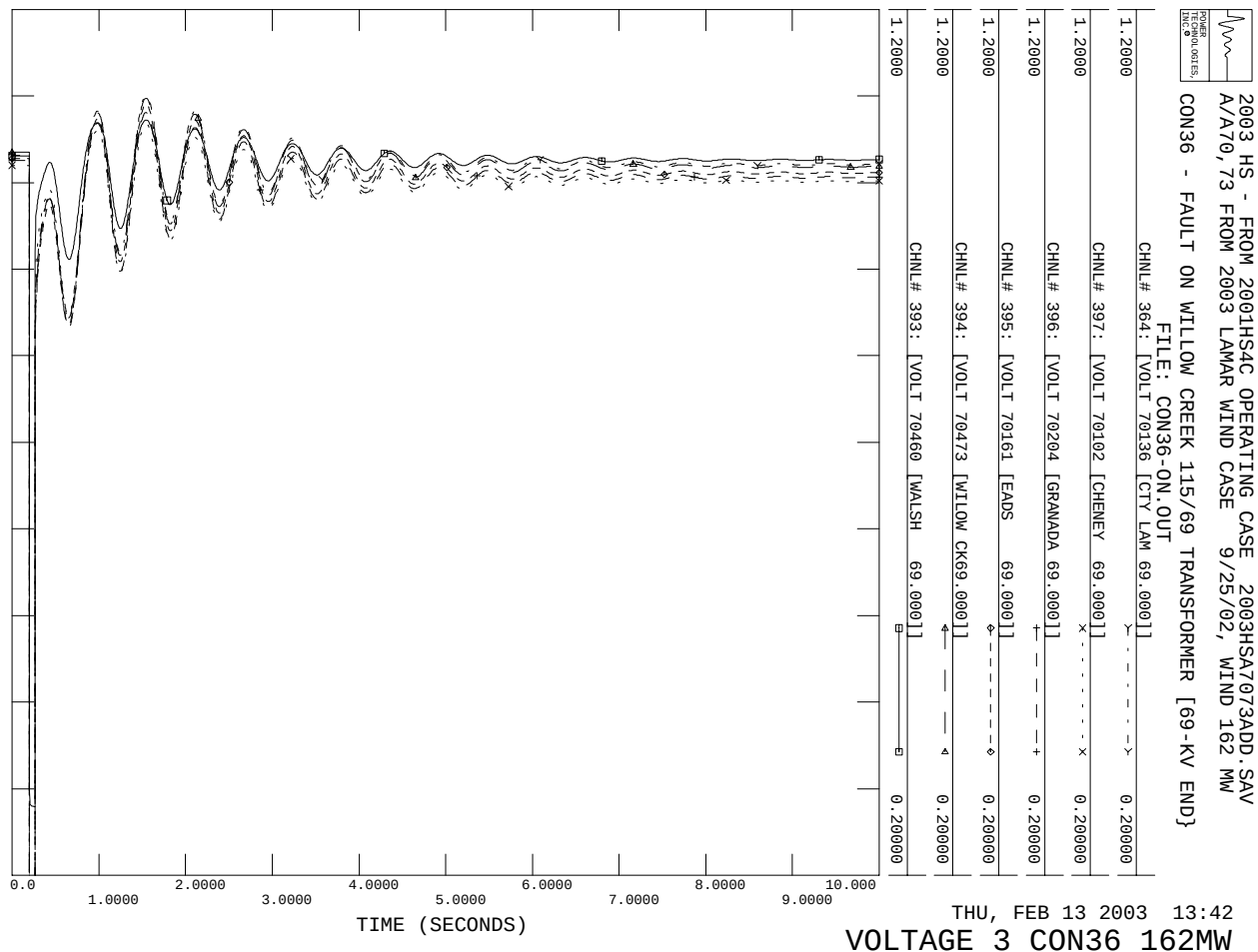
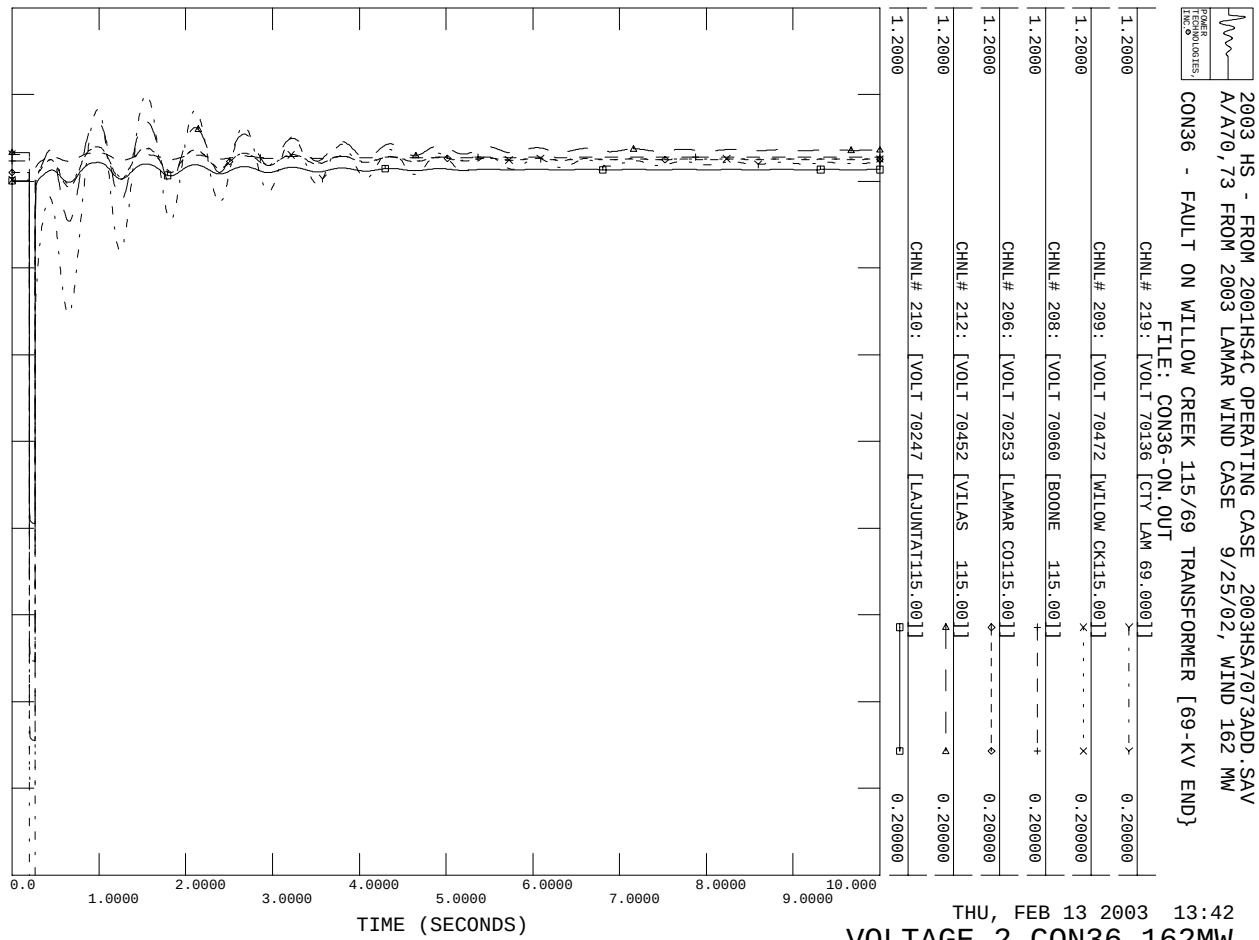
|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1.22.000] [1.]] | -180.0 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70/73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR CO230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



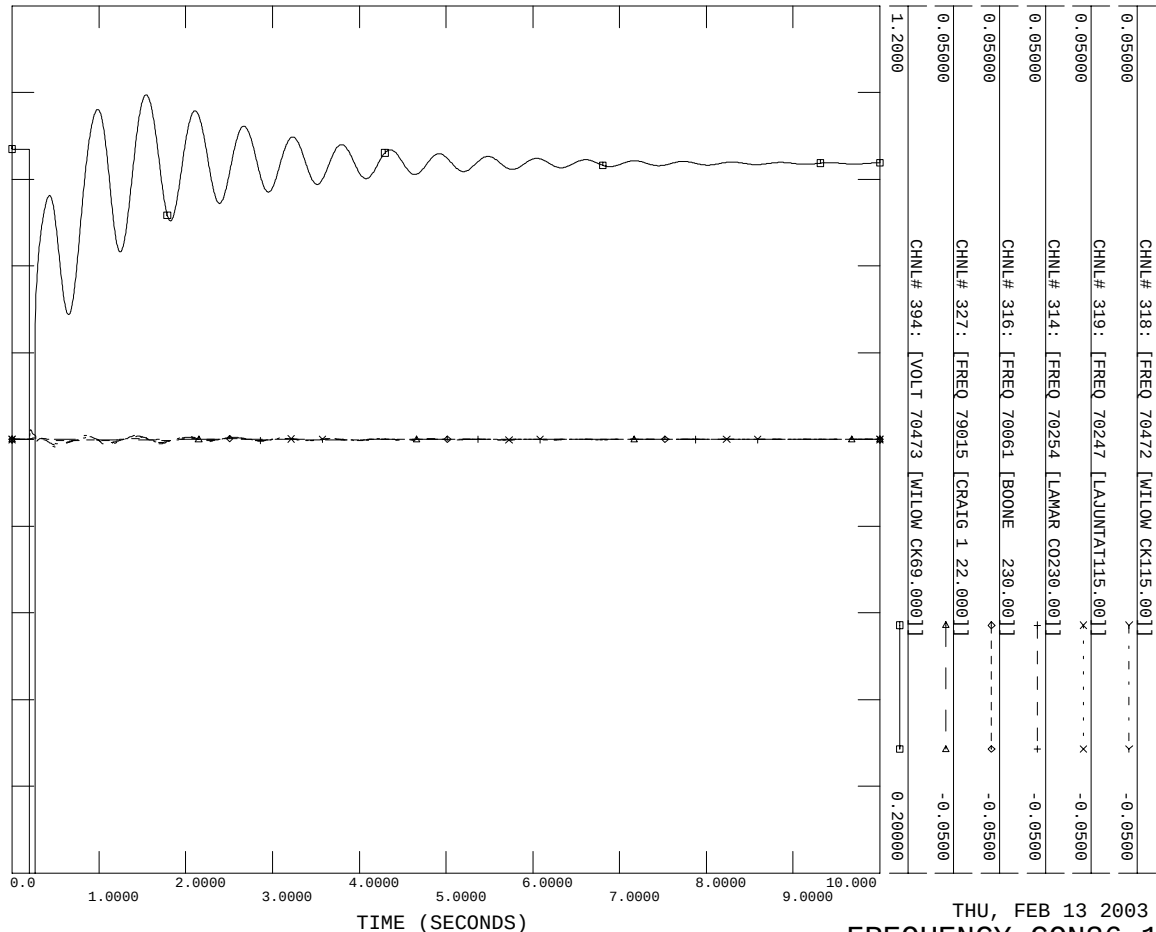




POWER  
TIC  
LINE LOGS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

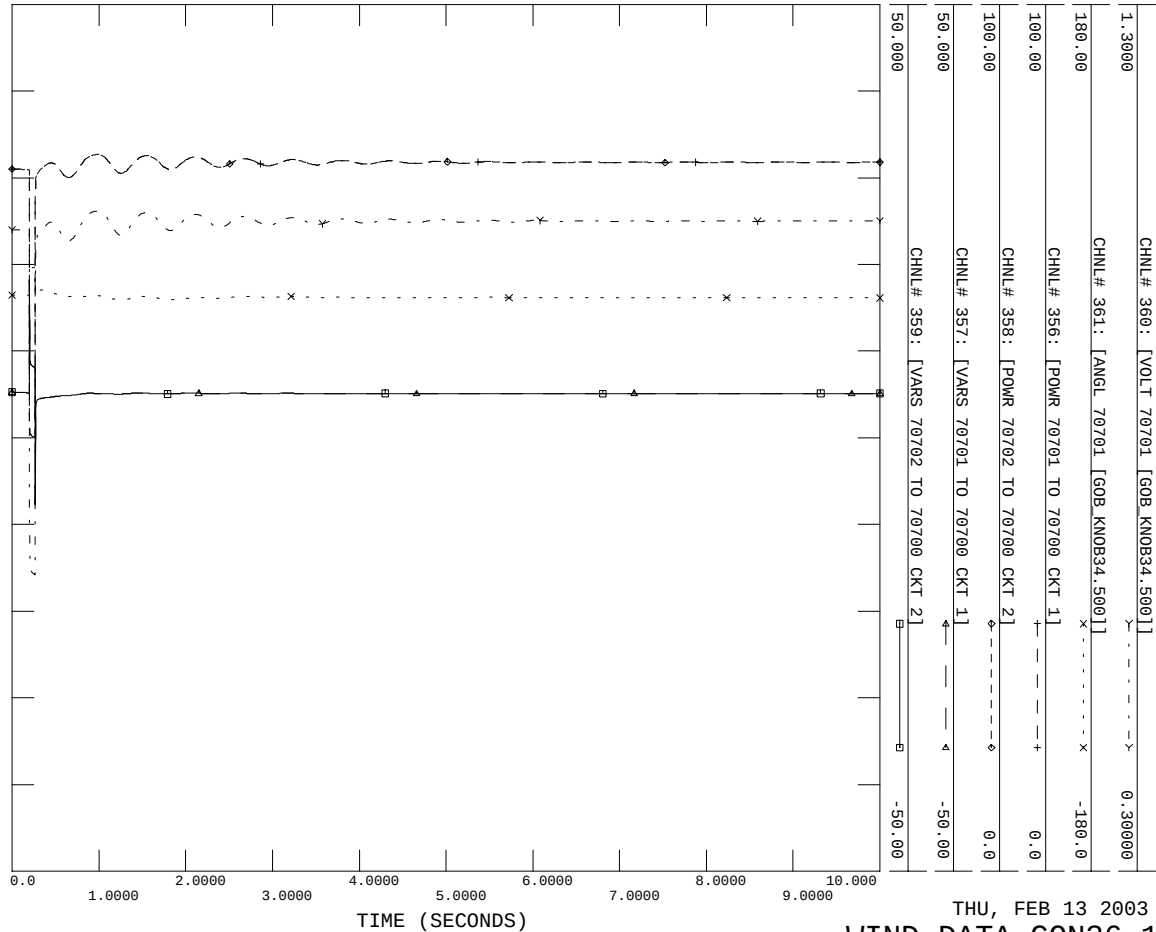
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT



POWER  
TIC  
LINE LOGS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT

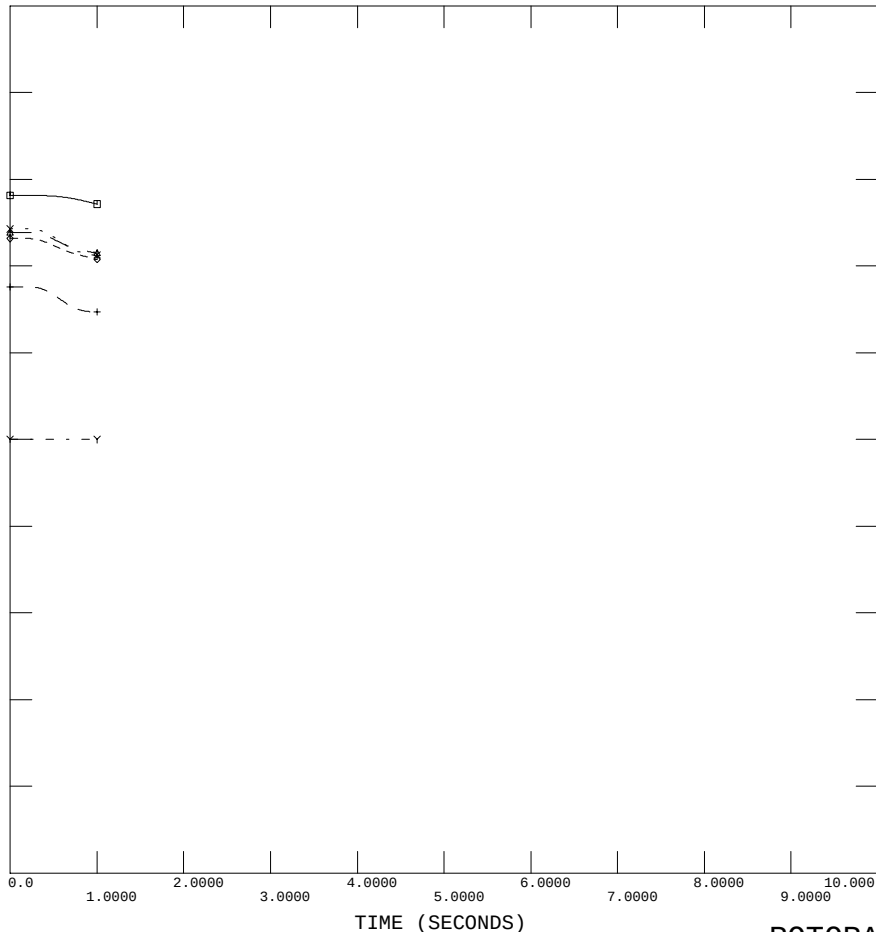


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

CON37 - OPEN BOONE - LAMAR 230-KV CIRCUIT

FILE: CON37-ON.OUT

|        |                                               |        |
|--------|-----------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [GOB KNOB34.500] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]   | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]]  | -180.0 |

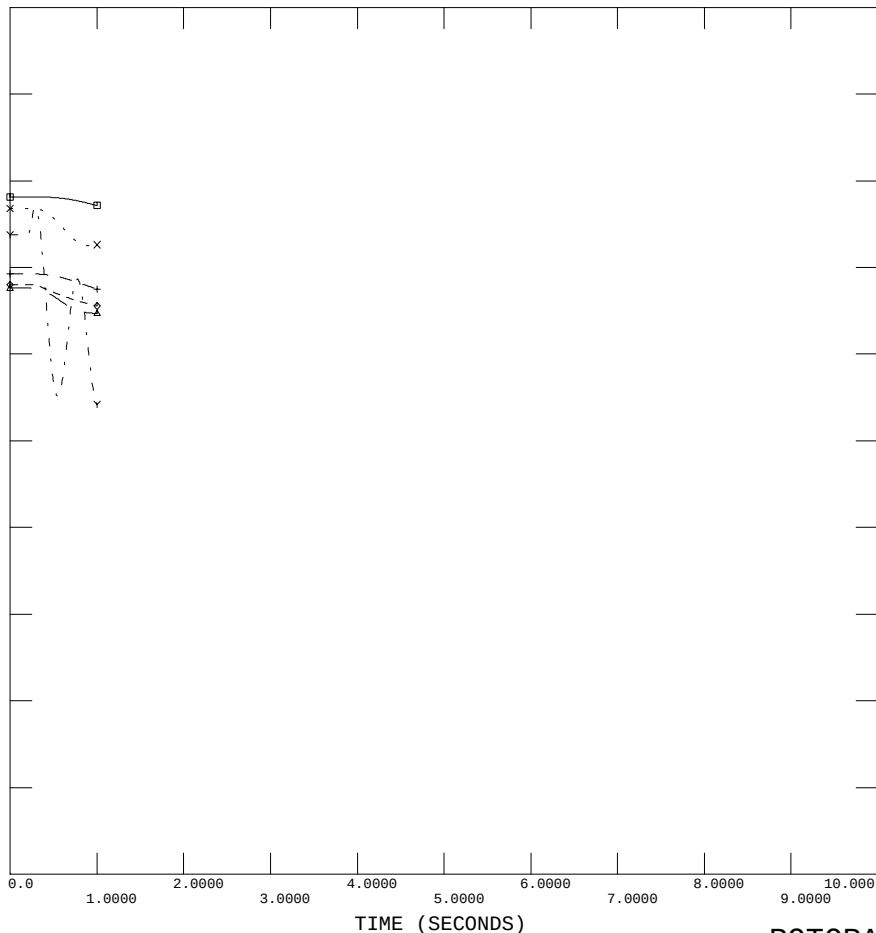


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

CON37 - OPEN BOONE - LAMAR 230-KV CIRCUIT

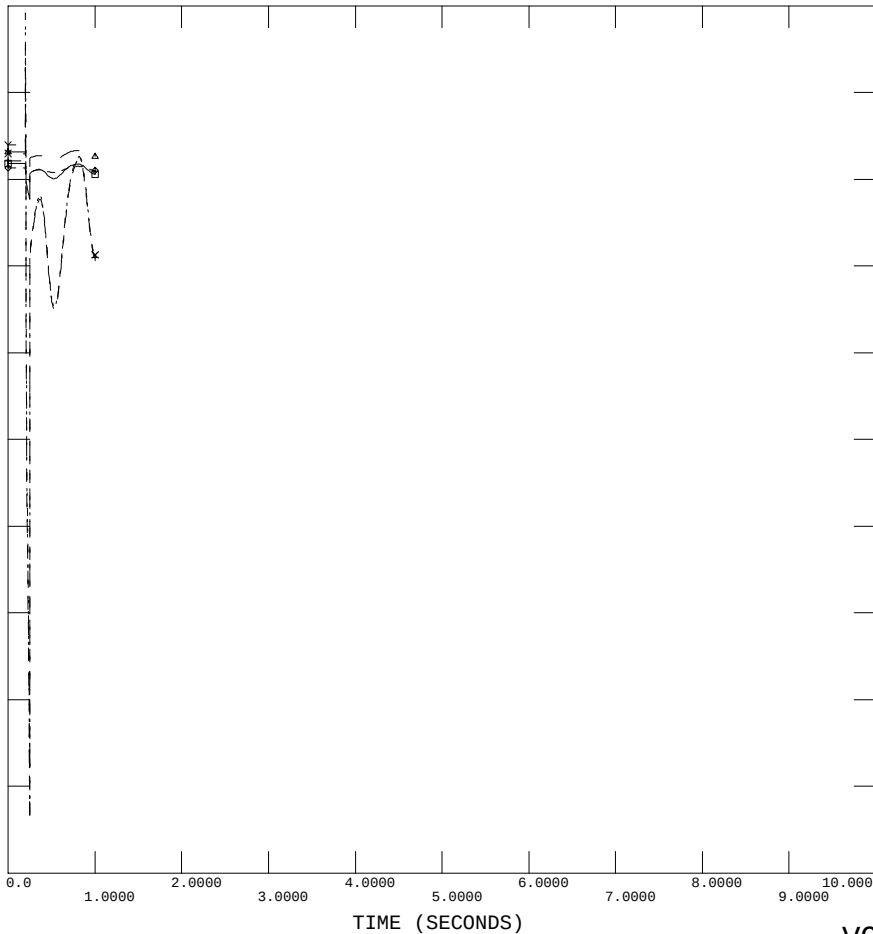
FILE: CON37-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



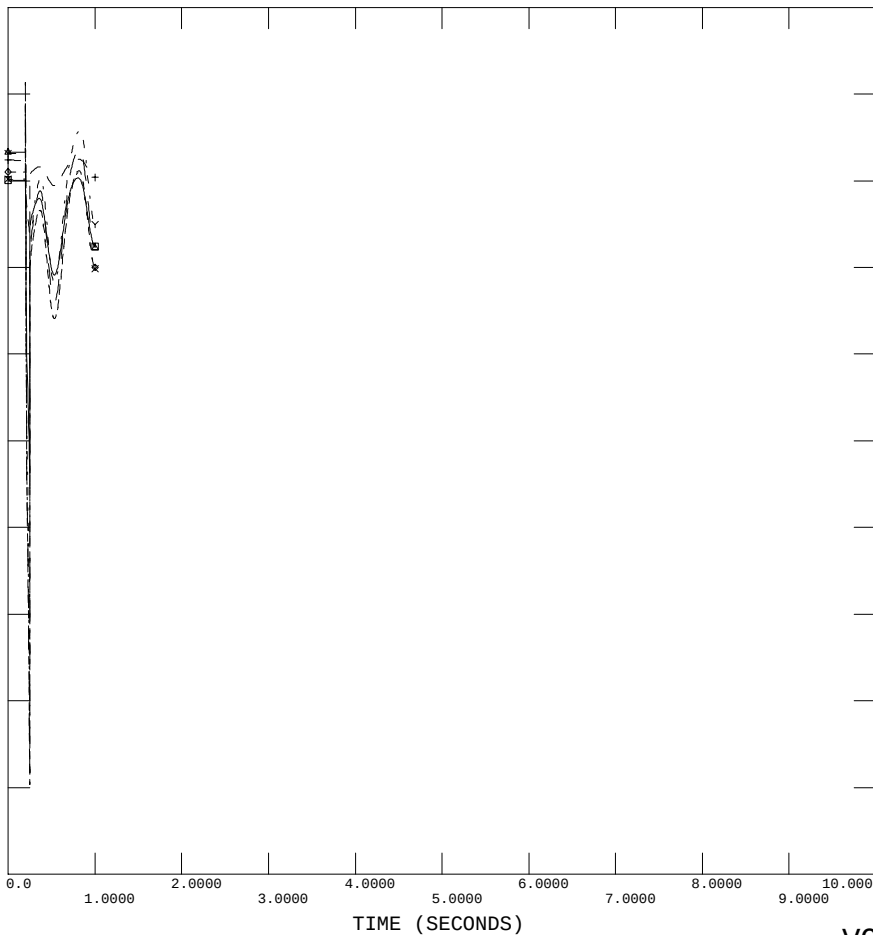
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON37 - OPEN BOONE - LAMAR 230-KV CIRCUIT  
FILE: CON37-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [60B.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [60B.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR.C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



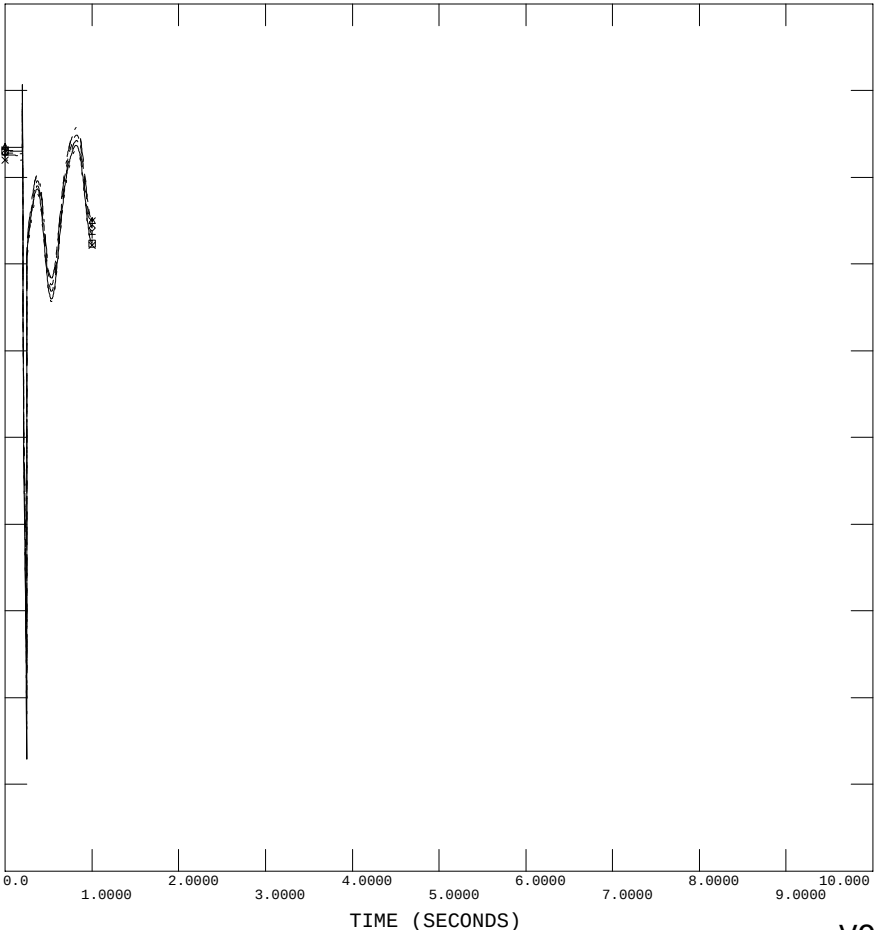
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON37 - OPEN BOONE - LAMAR 230-KV CIRCUIT  
FILE: CON37-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR.C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



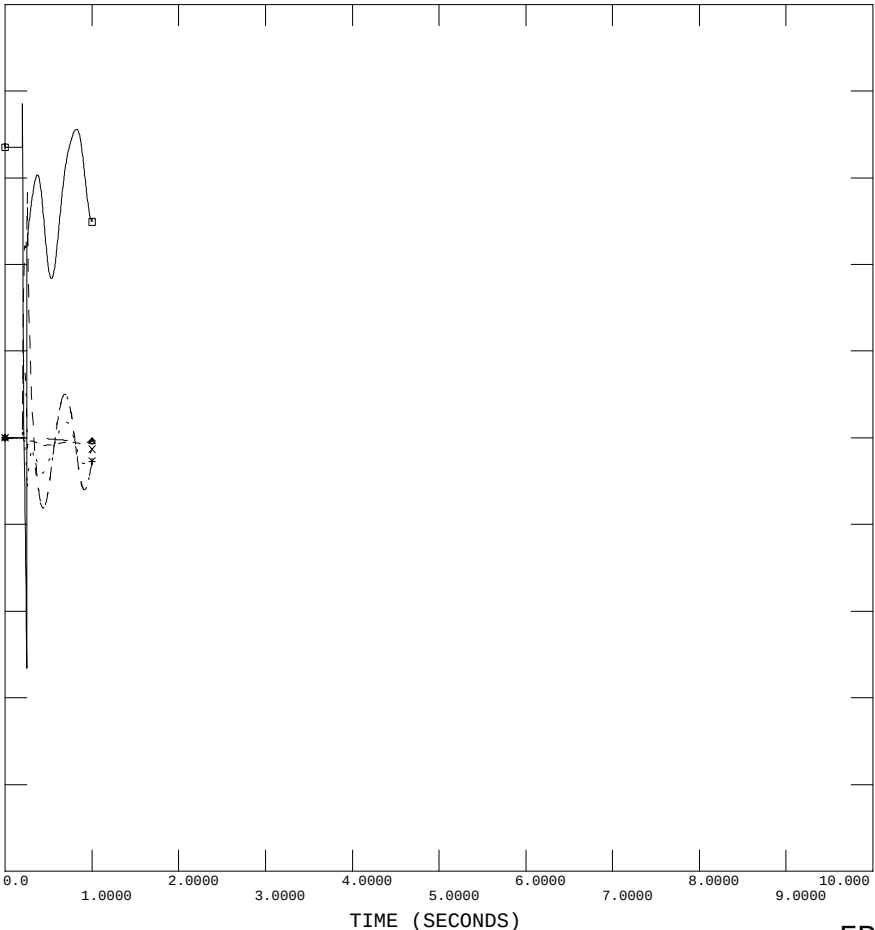
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON37 - OPEN BOONE - LAMAR 230-KV CIRCUIT  
FILE: CON37-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW  
CON37 - OPEN BOONE - LAMAR 230-KV CIRCUIT  
FILE: CON37-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |
| 0.05000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | -0.0500 |





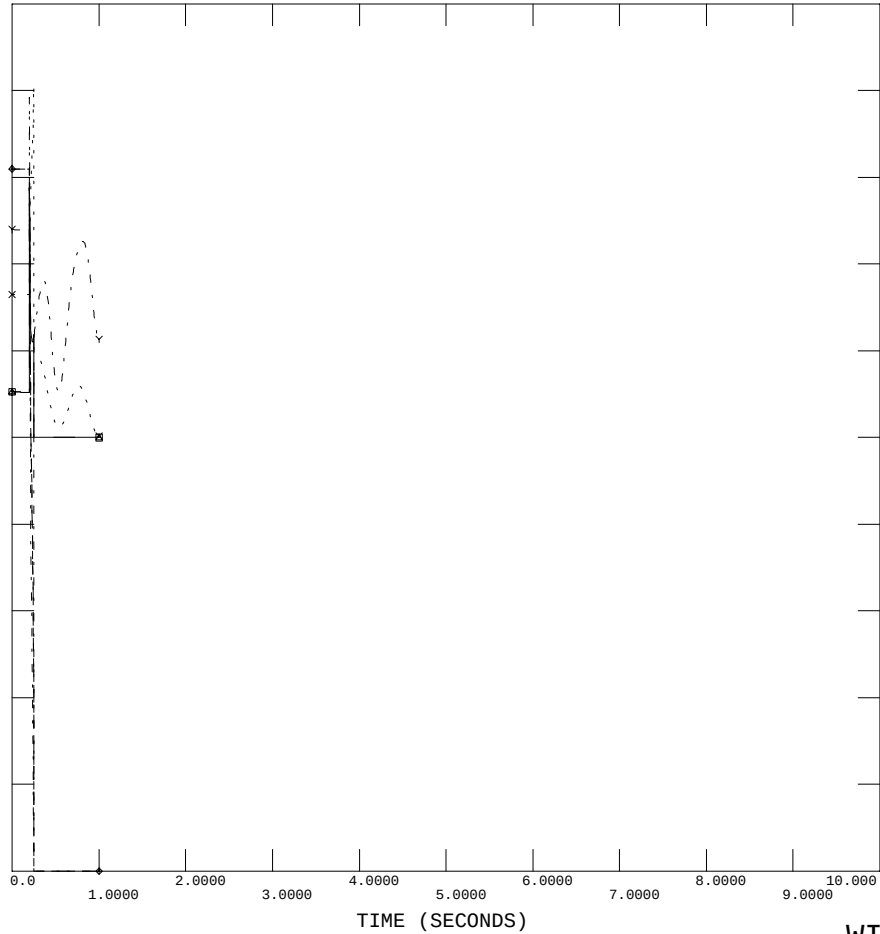
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

POWER  
[W]  
[MVA]  
[MW]

CON37 - OPEN BOONE - LAMAR 230-KV CIRCUIT

FILE: CON37-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.3000 | CHNL # 360: [VOLT 70701 [60B.KNOB34.500]] | 0.30000 |
| 180.00 | CHNL # 361: [ANGL 70701 [60B.KNOB34.500]] | -180.0  |
| 100.00 | CHNL # 356: [POMR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL # 358: [POMR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL # 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL # 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



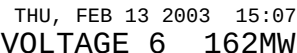
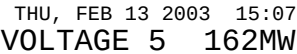
THU, FEB 13 2003 13:42  
WIND DATA CON37 162MW



**D-5 - 3-Phase Stability Analysis**

**2005 Base Case**

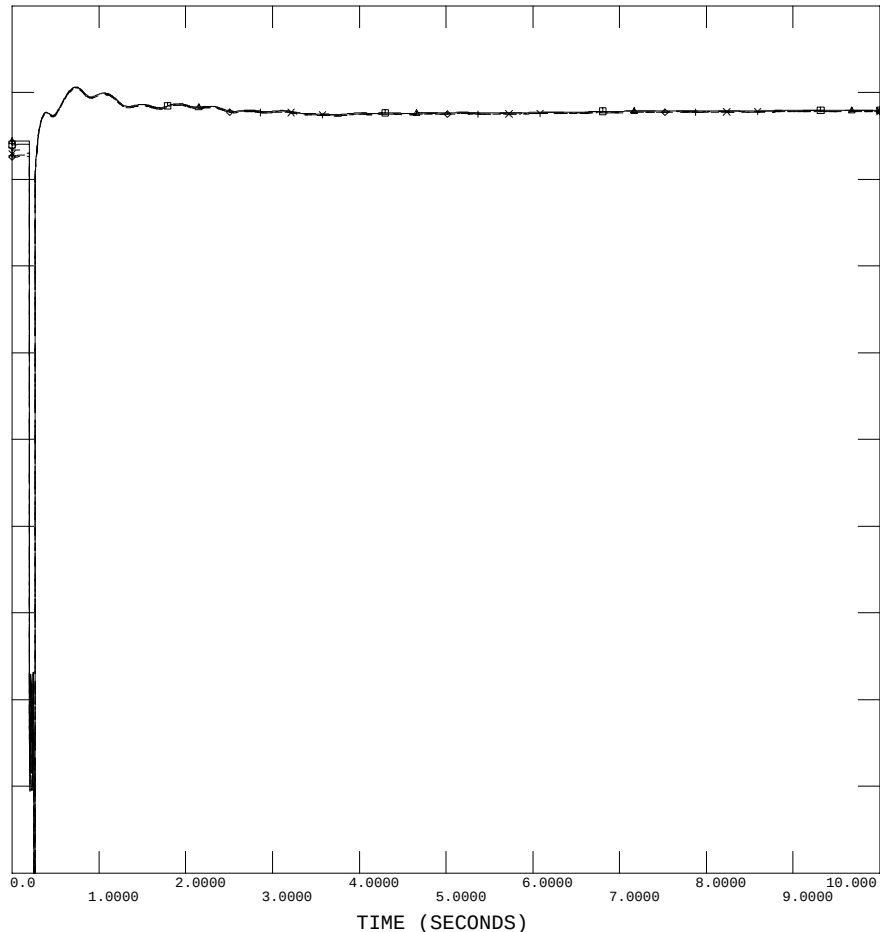
**With Golden Prairie – Lamar 230-kV Circuit, With Wind Farm Generation**



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]

FILE: CON2-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

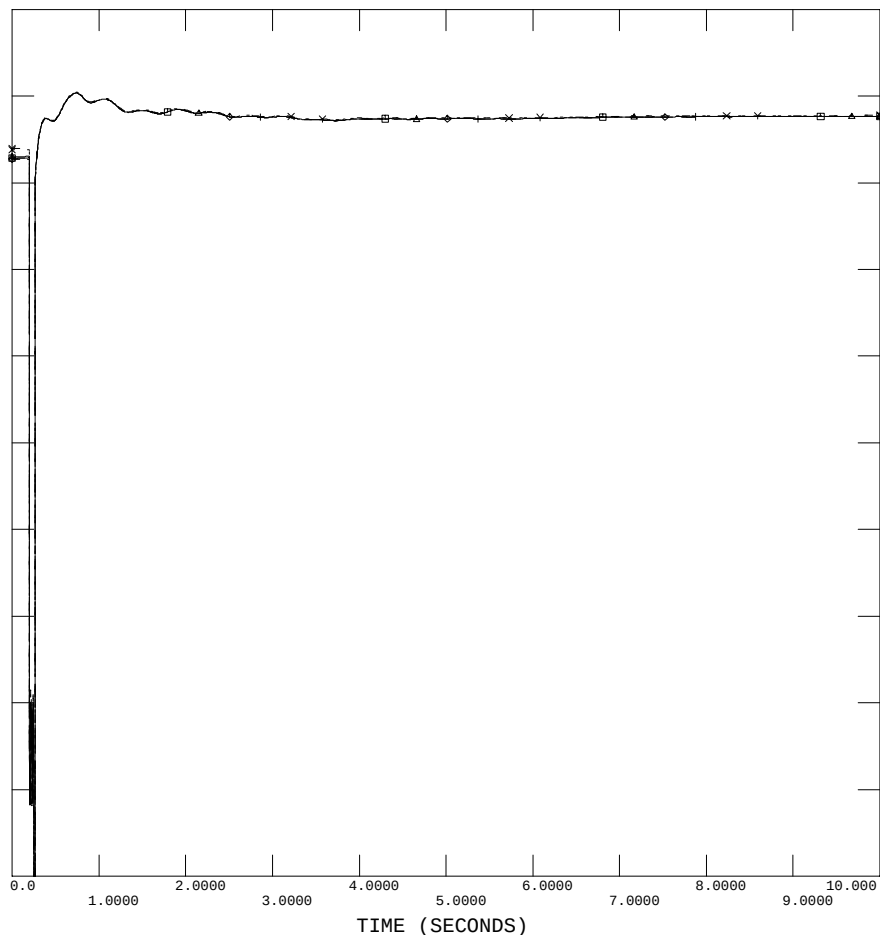


THU, FEB 13 2003 15:07  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]

FILE: CON2-ON.OUT

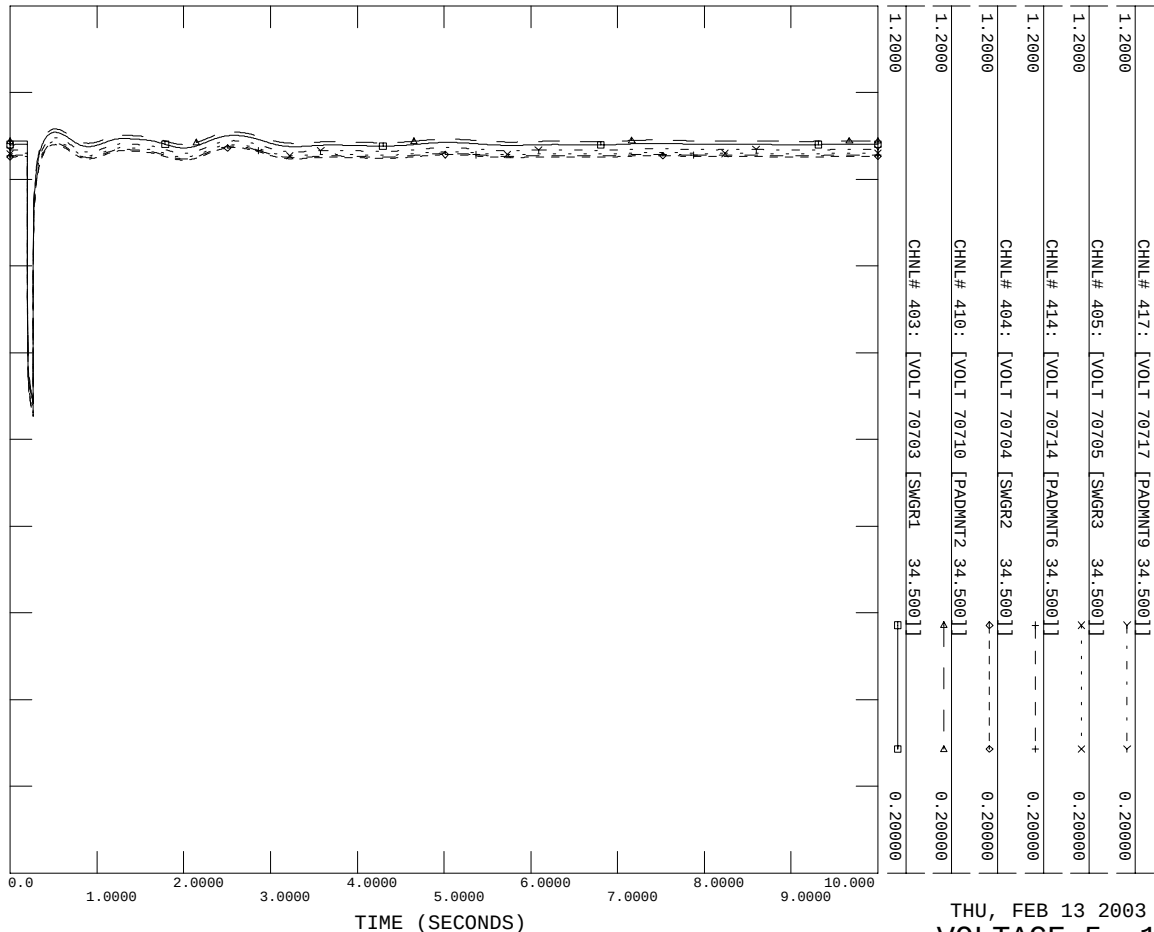
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



THU, FEB 13 2003 15:07  
VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

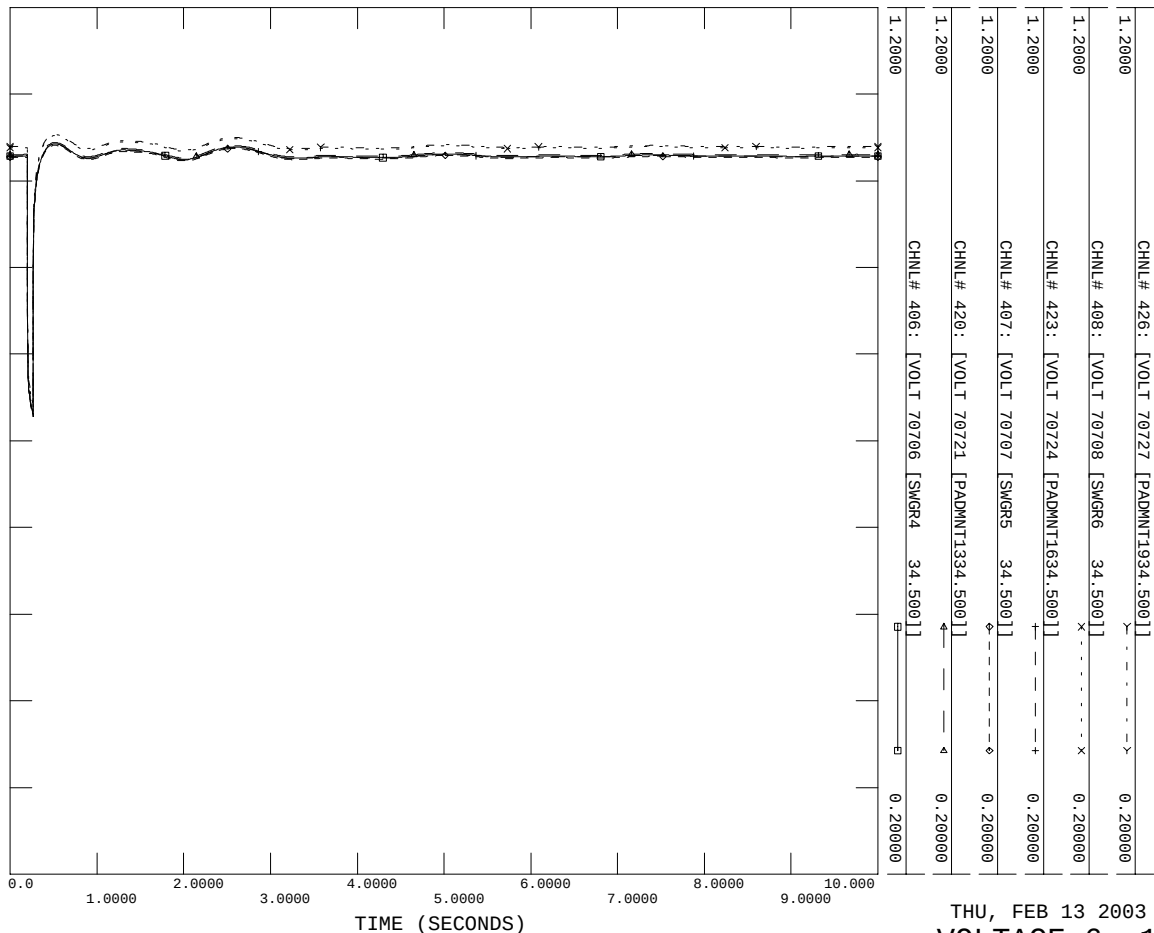
FILE: CON3-ON.OUT



THU, FEB 13 2003 15:07  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON3-ON.OUT

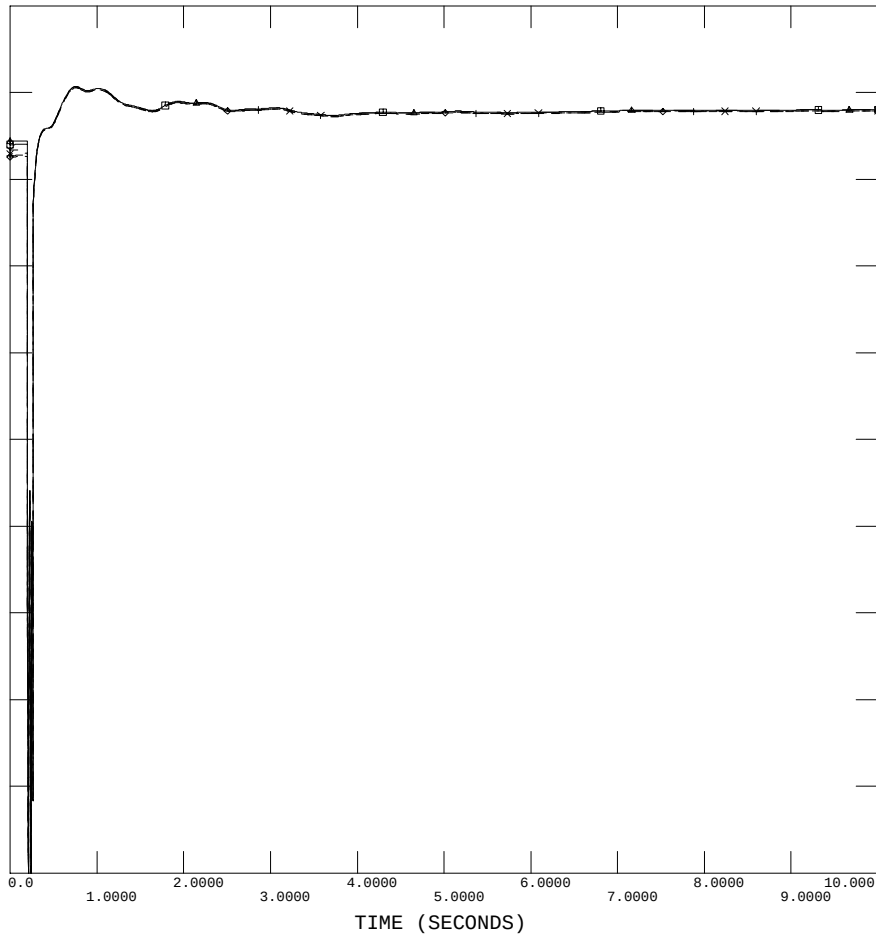


THU, FEB 13 2003 15:07  
VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

FILE: CON4-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

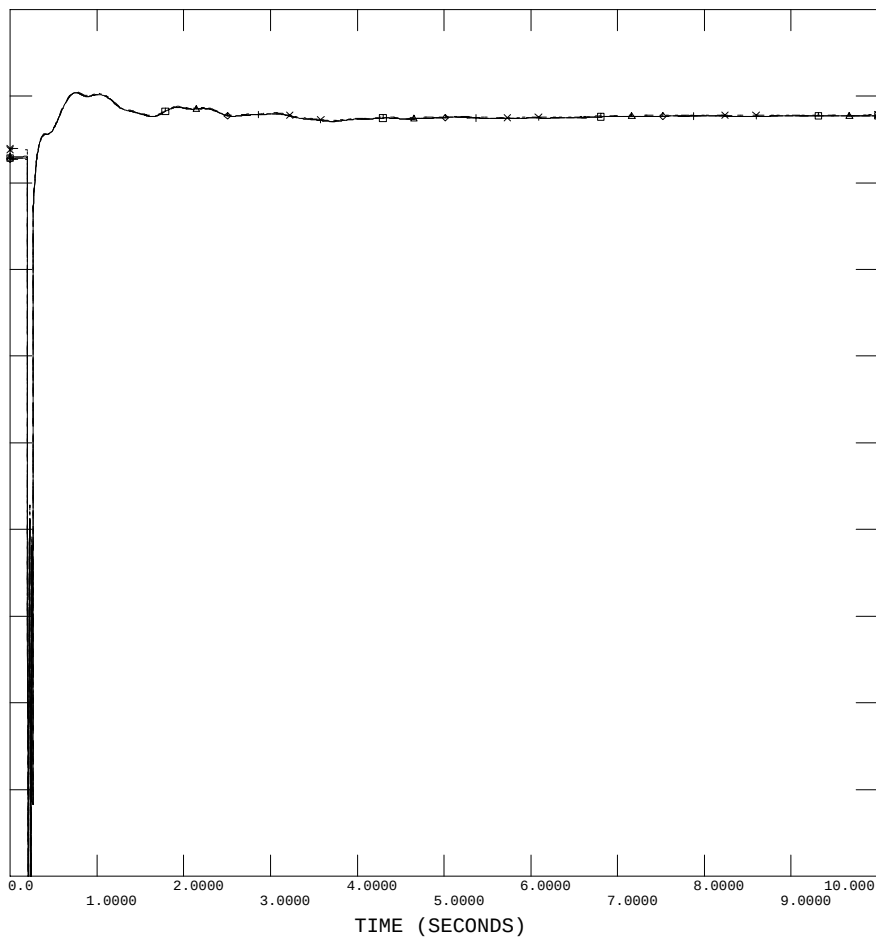


THU, FEB 13 2003 15:07  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

FILE: CON4-ON.OUT

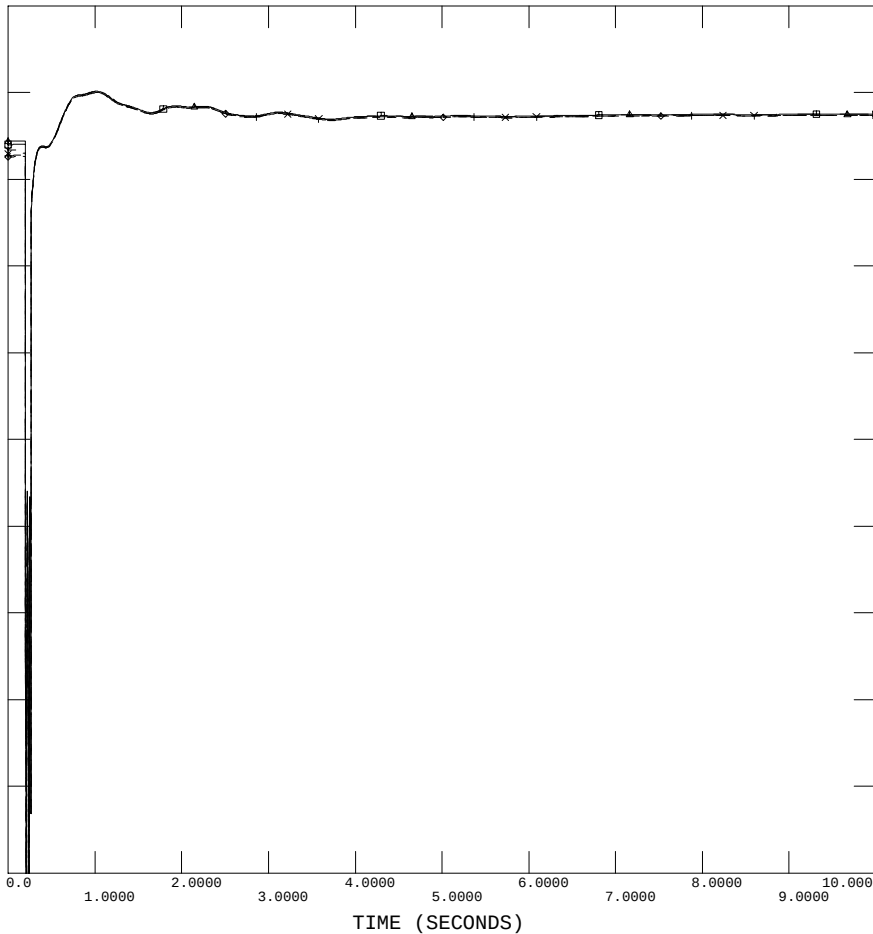
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



THU, FEB 13 2003 15:07  
VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
FILE: CONS-ON.OUT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]

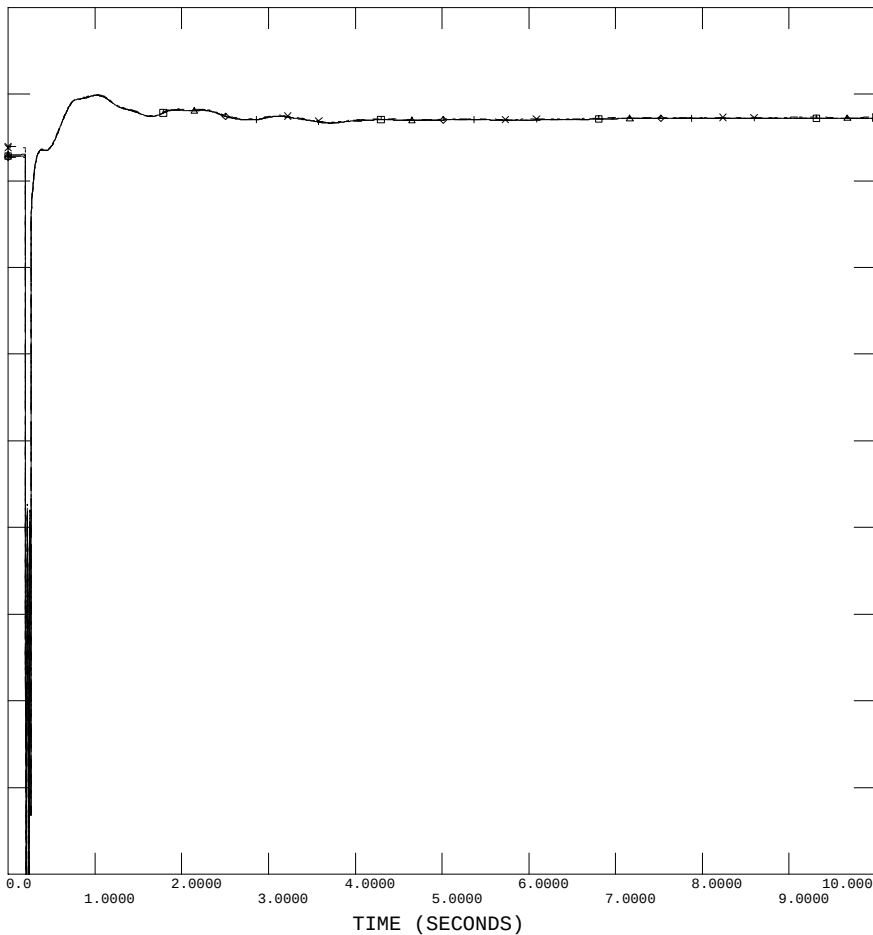
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



THU, FEB 13 2003 15:07  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
FILE: CONS-ON.OUT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



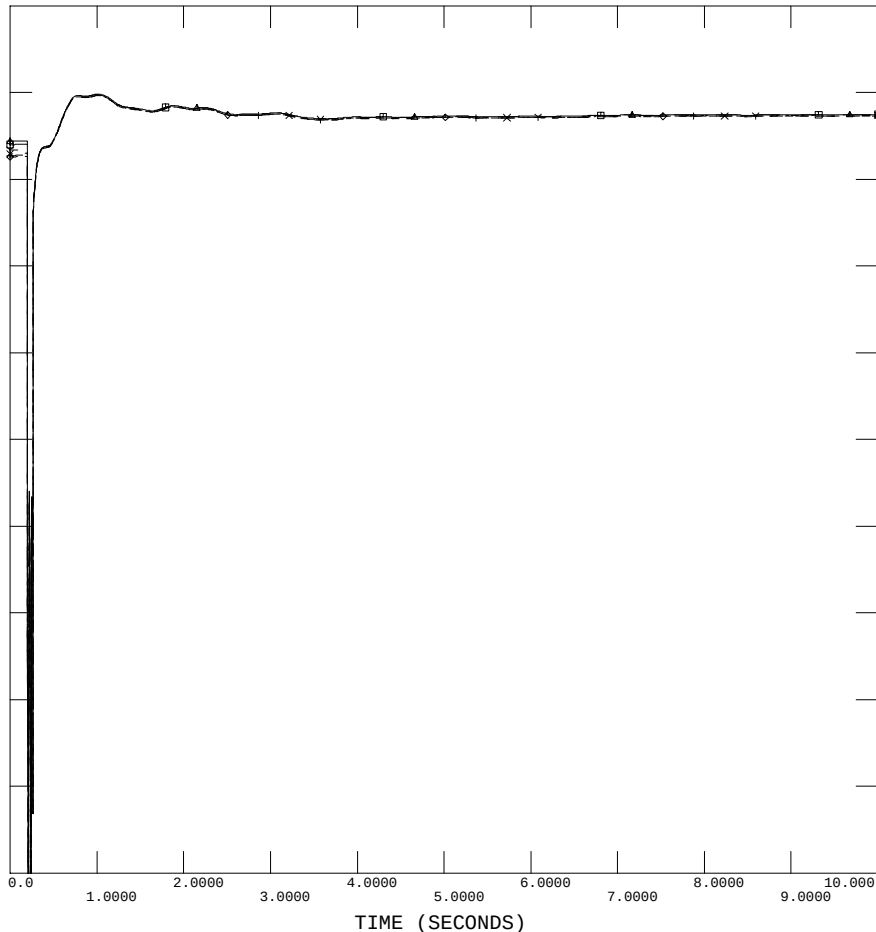
THU, FEB 13 2003 15:07  
VOLTAGE 6 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]

FILE: CON6-ON.OUT

|        |                                         |         |
|--------|-----------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]  | 0.20000 |

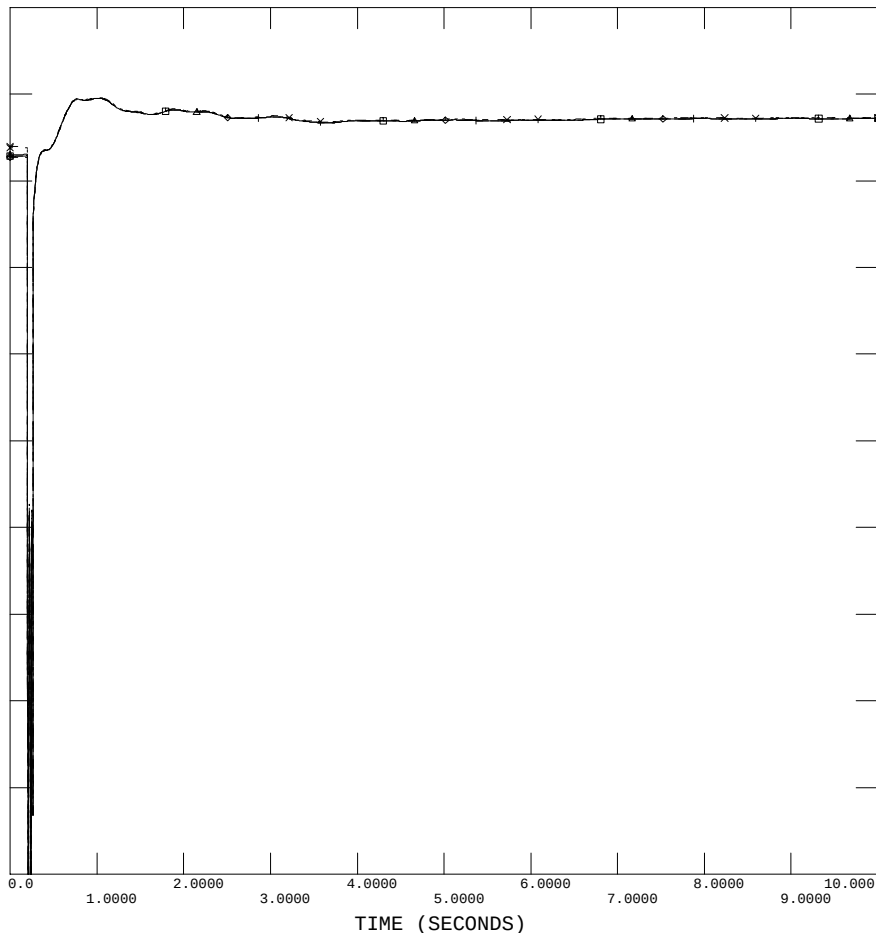


THU, FEB 13 2003 15:07  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]

FILE: CON6-ON.OUT

|        |                                         |         |
|--------|-----------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]  | 0.20000 |

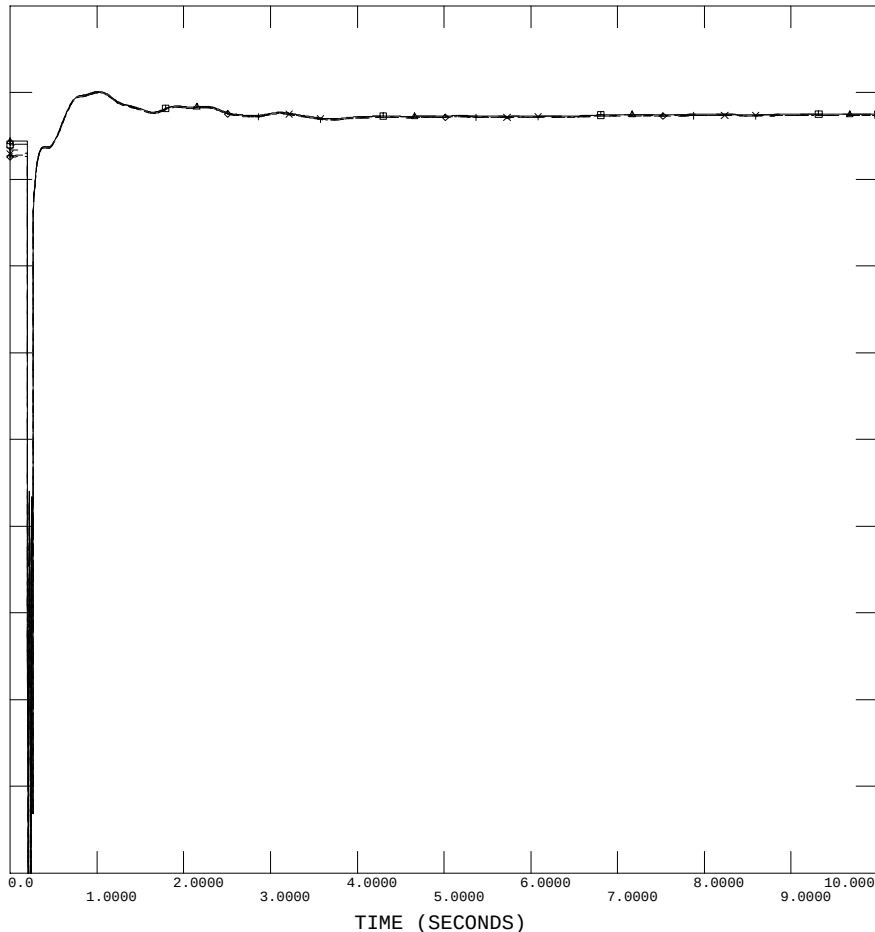


THU, FEB 13 2003 15:07  
VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CONT - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]

FILE: CON7-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

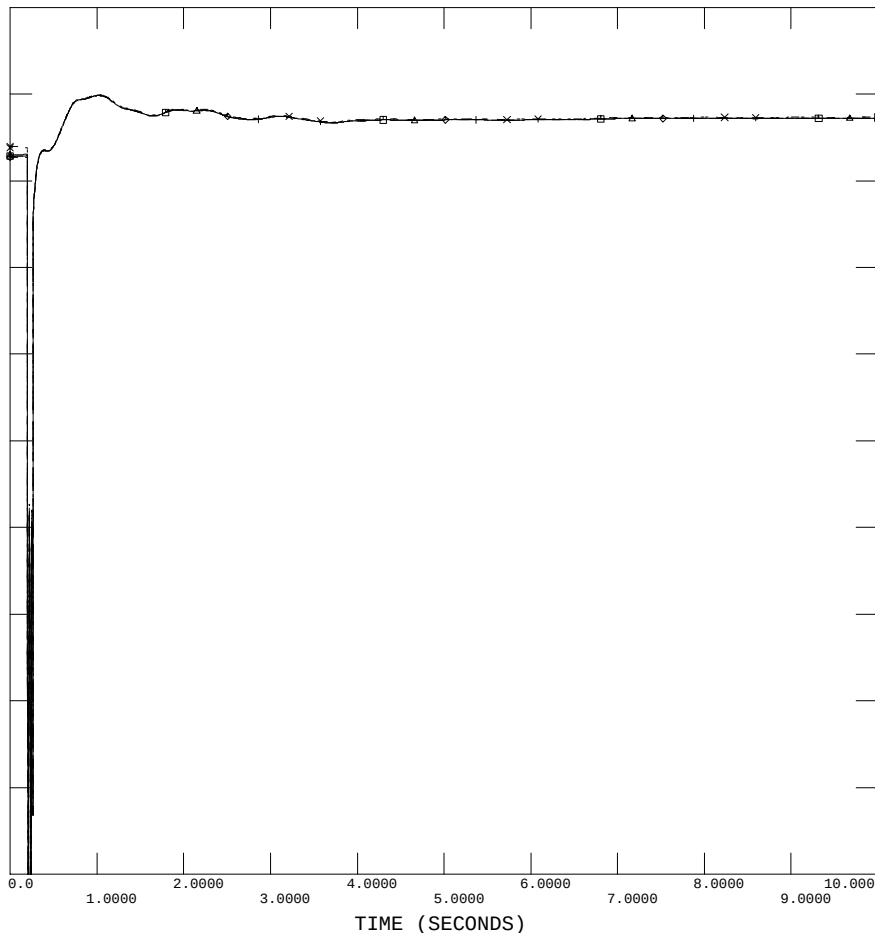


THU, FEB 13 2003 15:07  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CONT - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]

FILE: CON7-ON.OUT

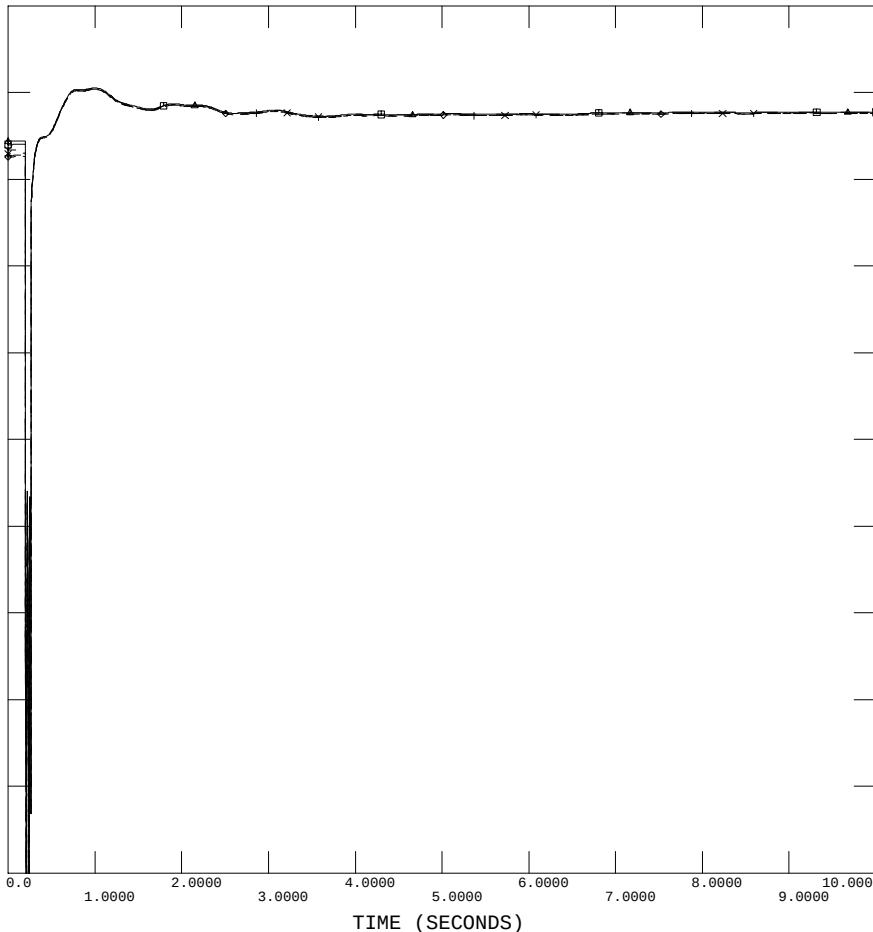
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
FILE: CON8-ON.OUT  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]

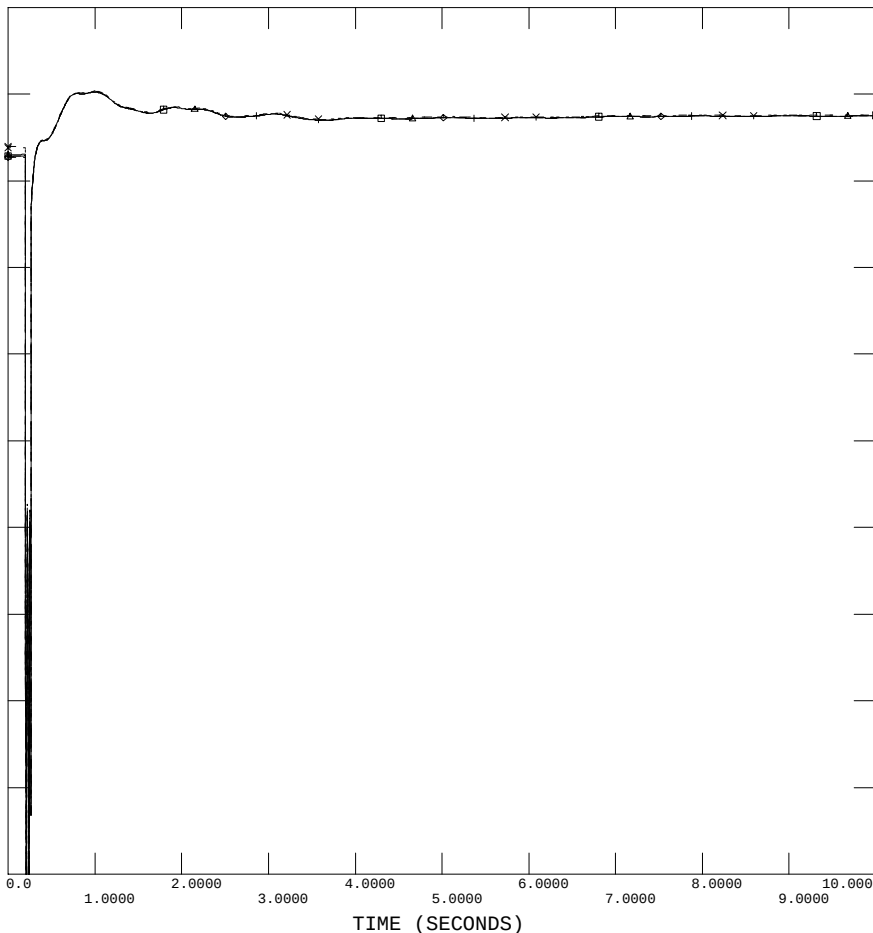
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



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VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
FILE: CON8-ON.OUT  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]

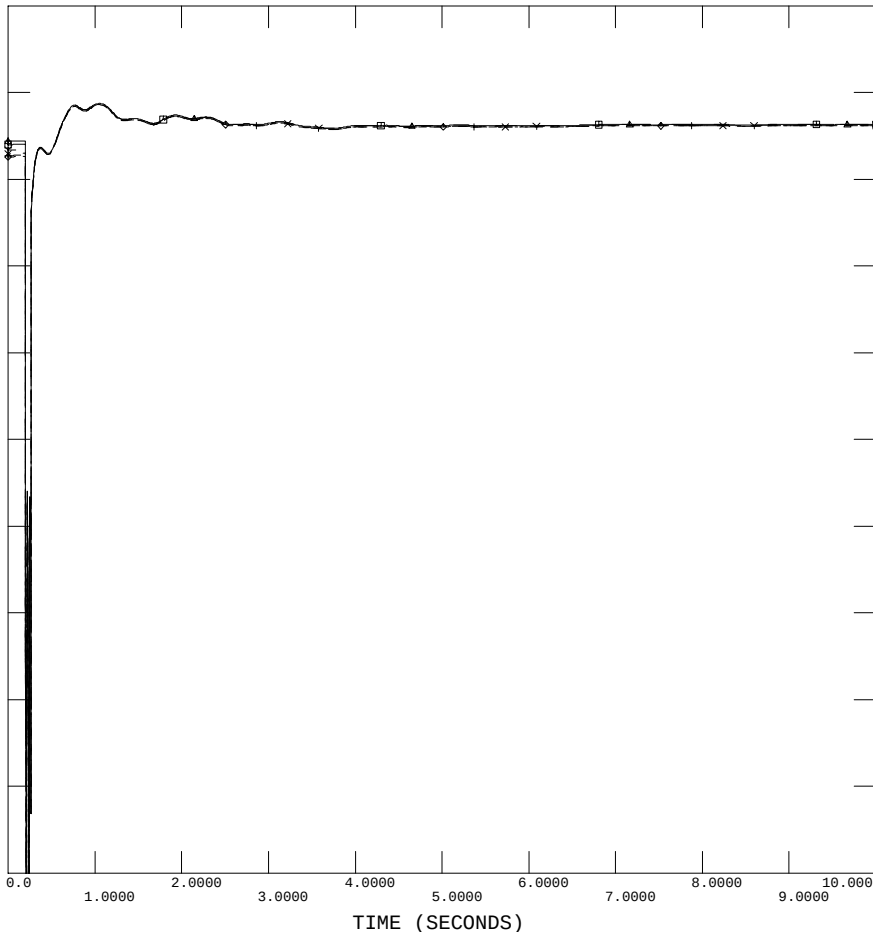
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
FILE: CON9-ON.OUT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

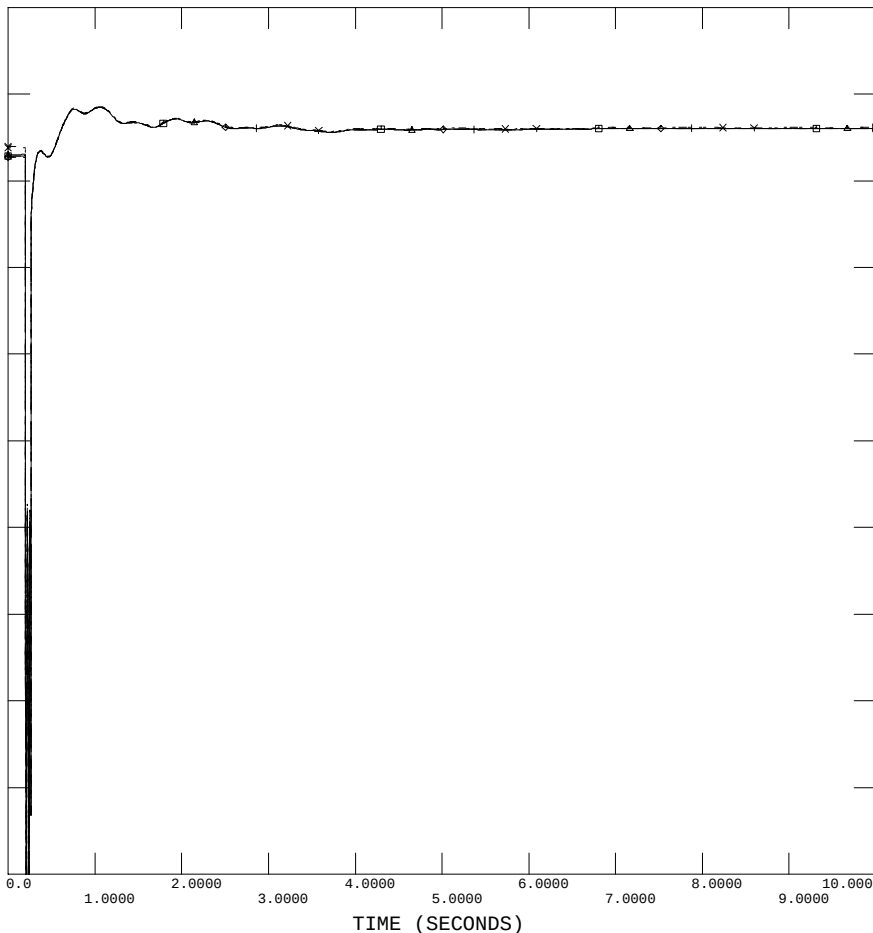
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



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VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
FILE: CON9-ON.OUT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



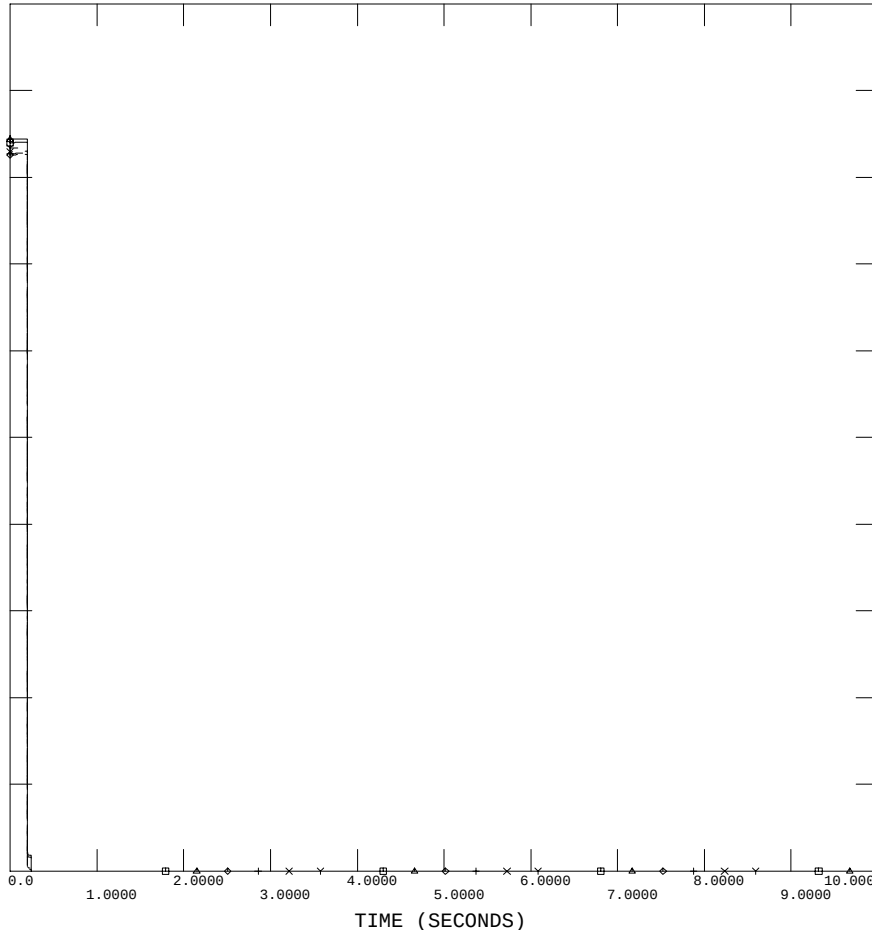
THU, FEB 13 2003 15:08  
VOLTAGE 6 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



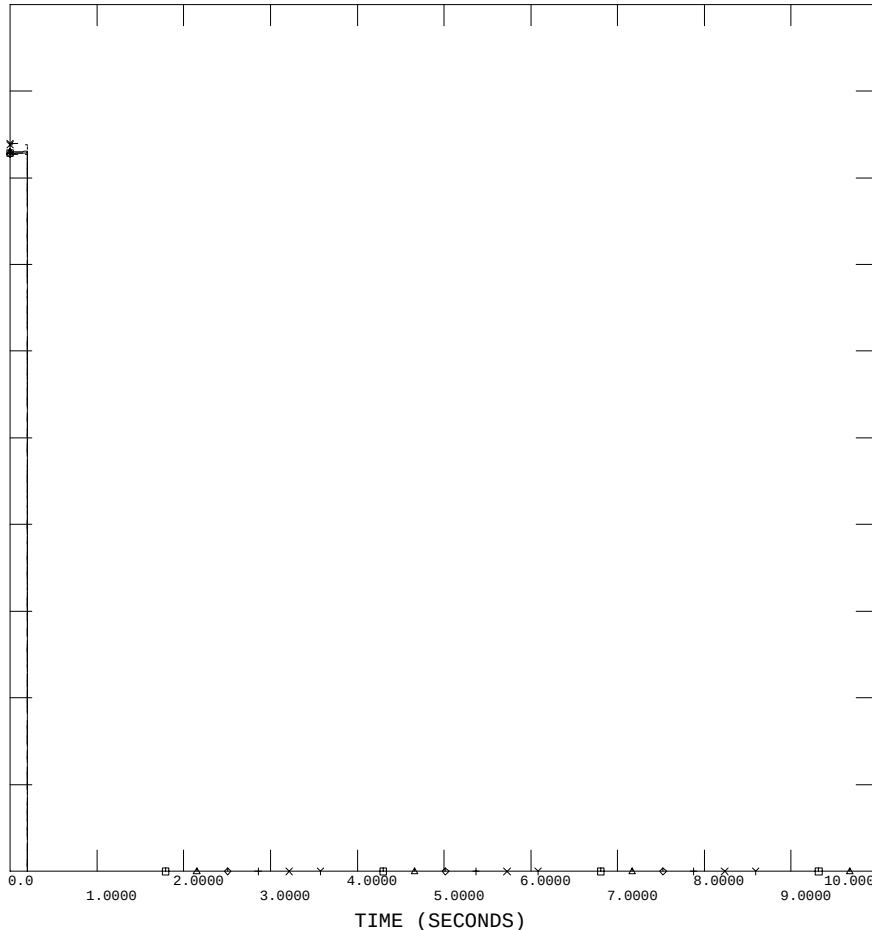
THU, FEB 13 2003 15:08  
VOLTAGE 5 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW

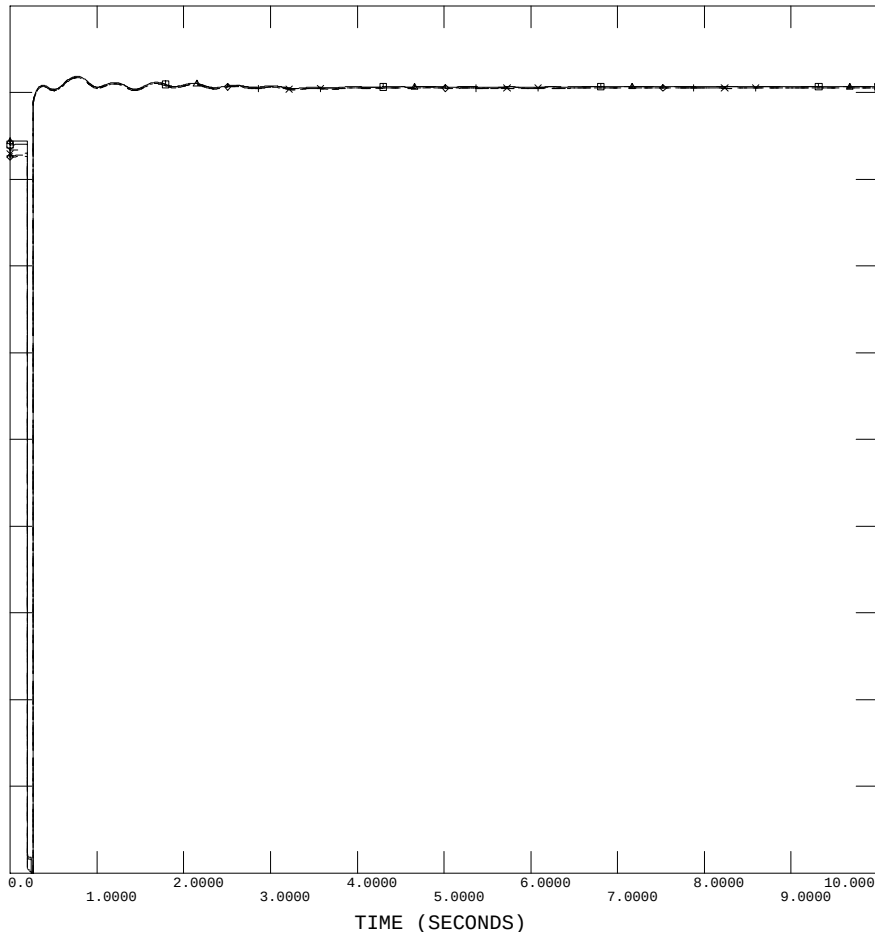


POWER  
TIC  
0.000015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW

CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



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VOLTAGE 5 162MW

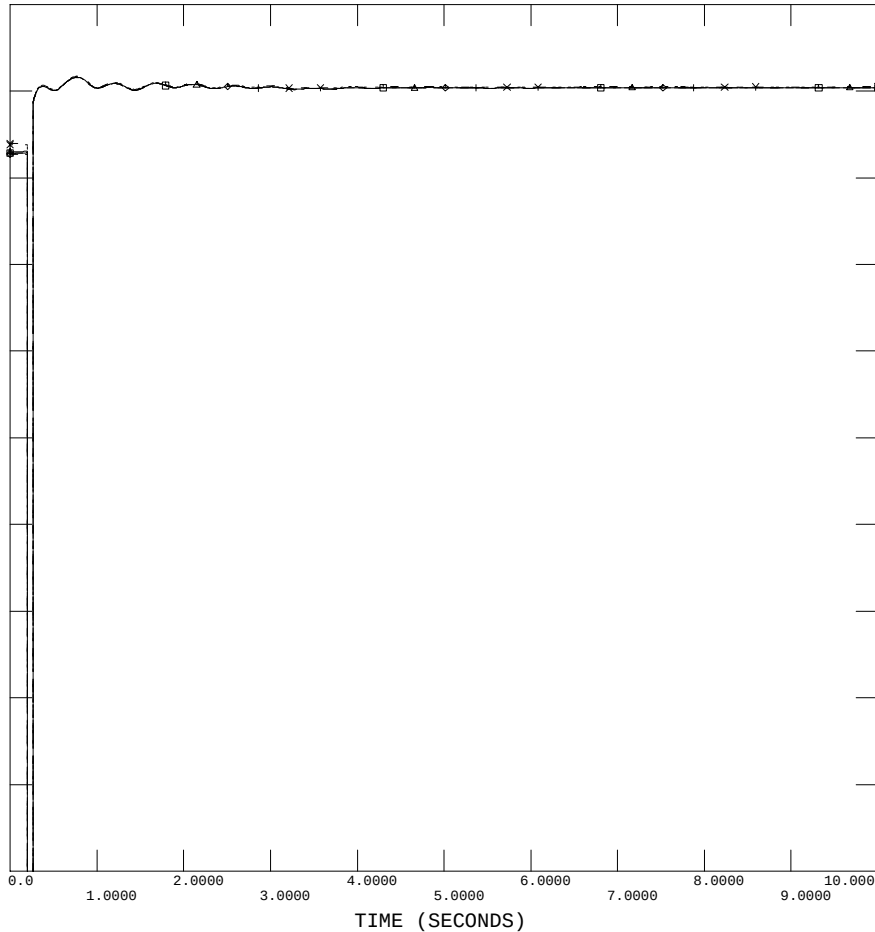


POWER  
TIC  
0.000015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW

CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT

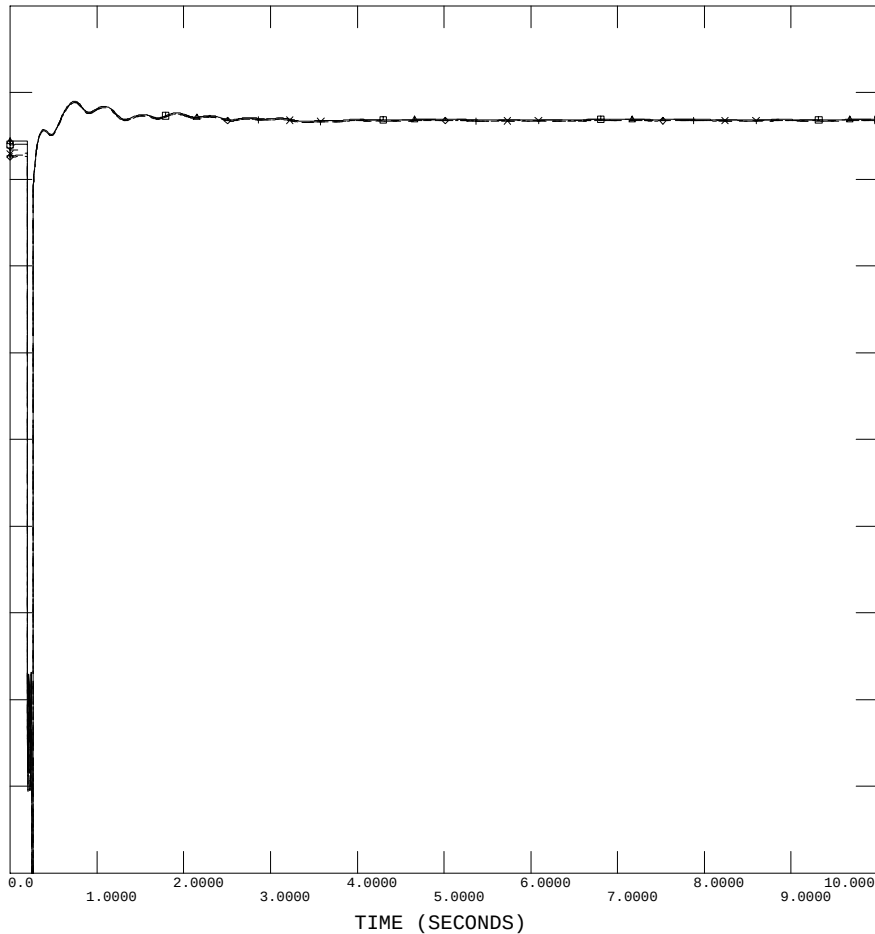
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT

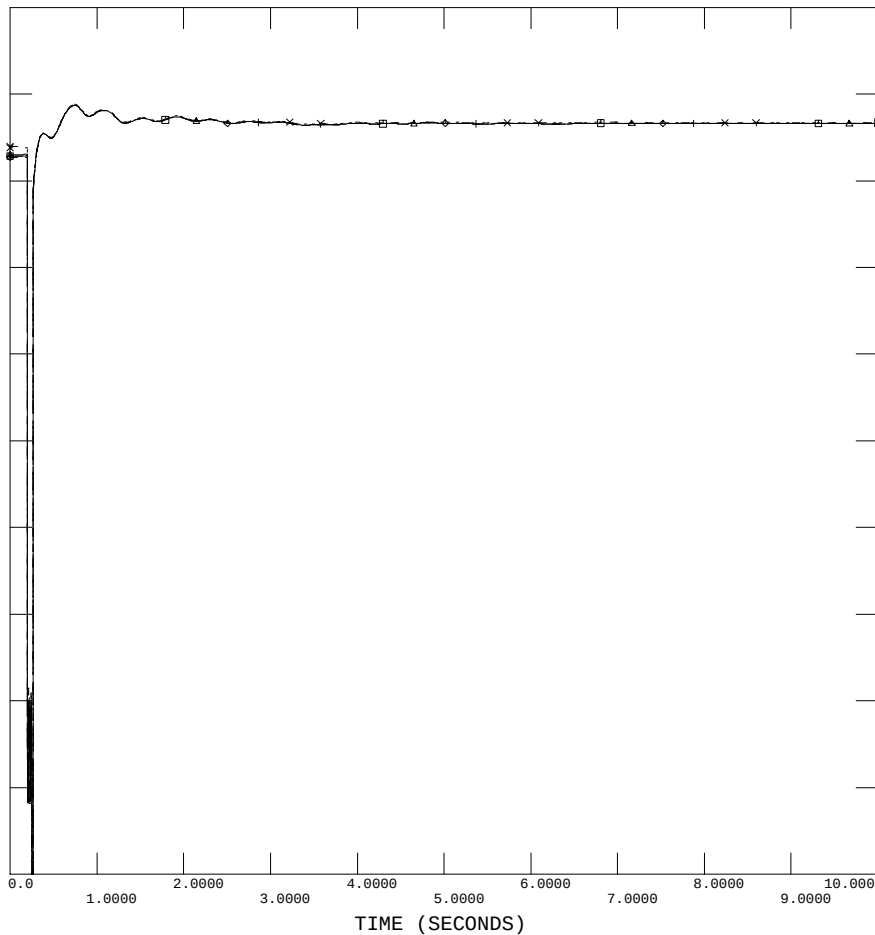
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



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VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW



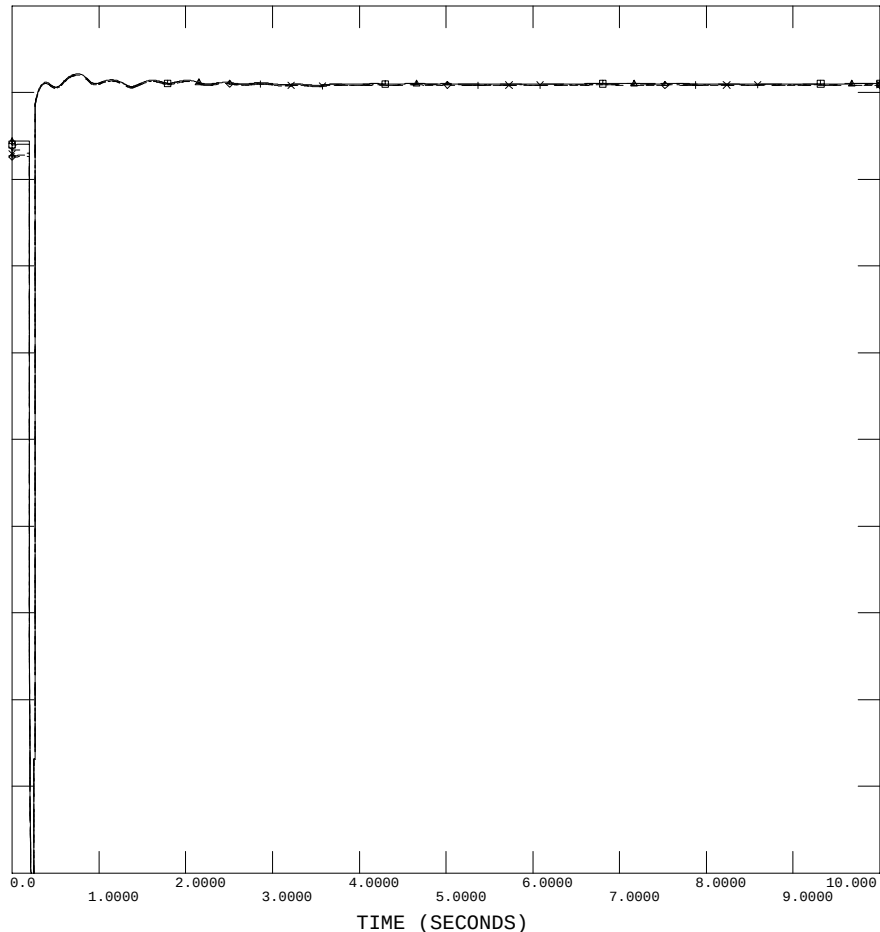
POWER  
TIC  
LINE  
0.000000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW

CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]

FILE: CON13-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



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VOLTAGE 5 162MW



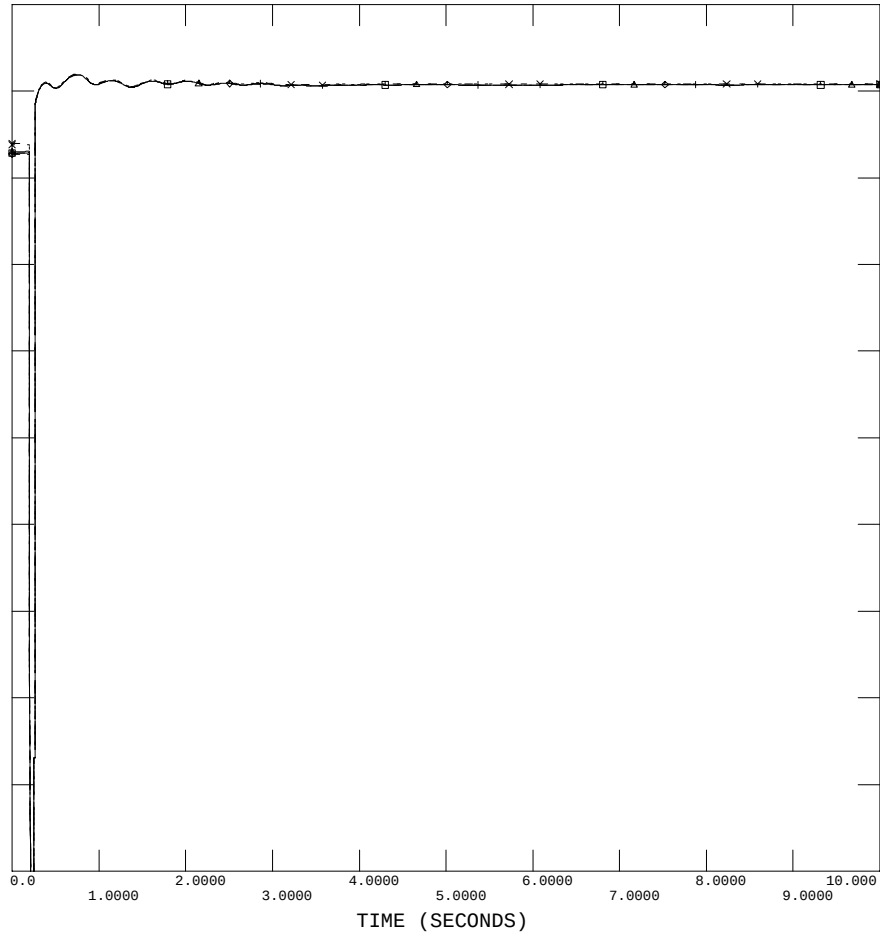
POWER  
TIC  
LINE  
0.000000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW

CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]

FILE: CON13-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



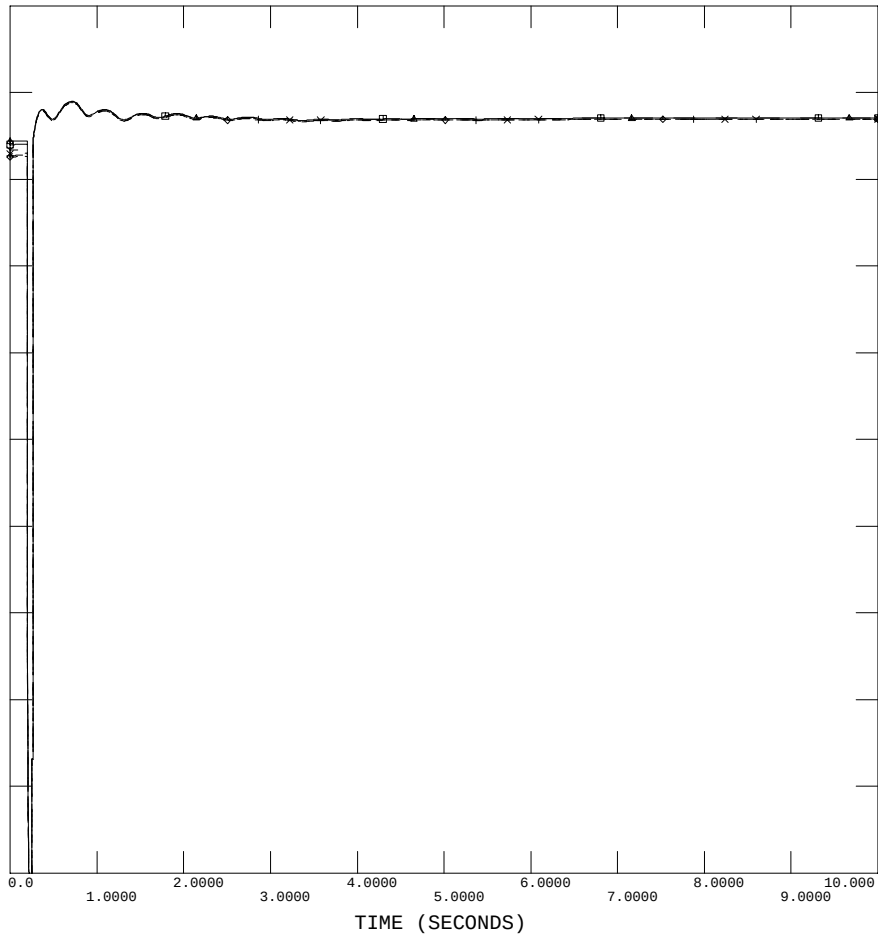
THU, FEB 13 2003 15:08  
VOLTAGE 6 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON14 - FAULT ON LAMAR - VIAS 115 [LAMAR END]

FILE: CON14-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

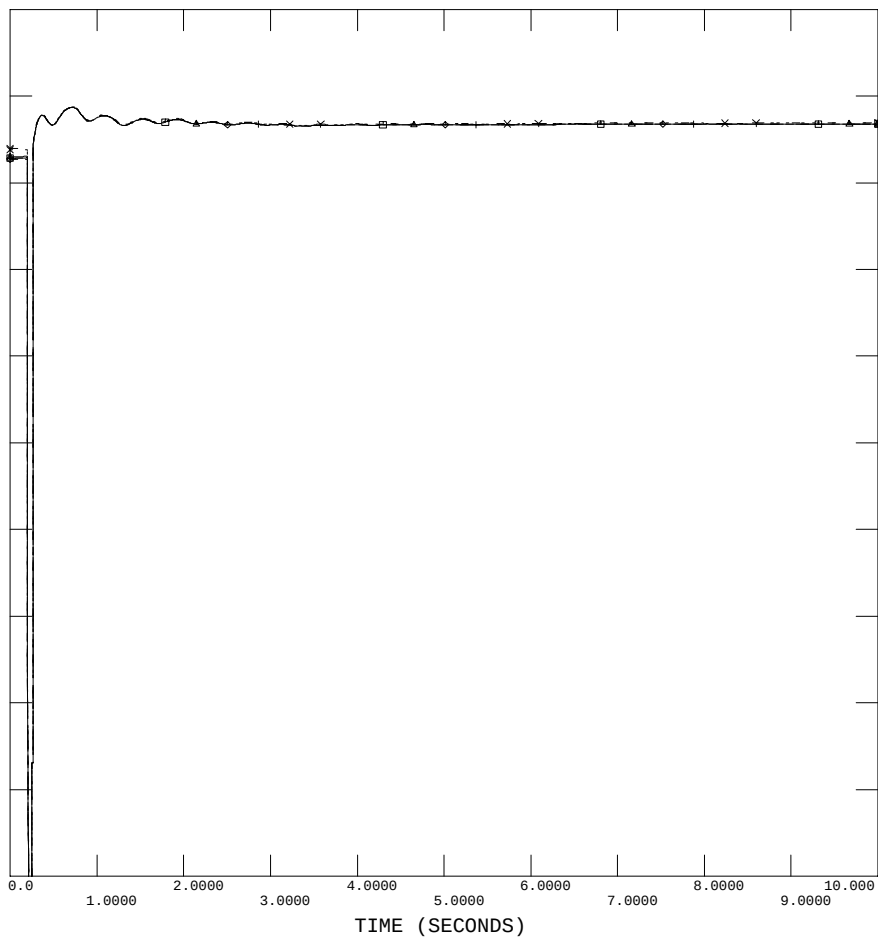


THU, FEB 13 2003 15:08  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON14 - FAULT ON LAMAR - VIAS 115 [LAMAR END]

FILE: CON14-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |

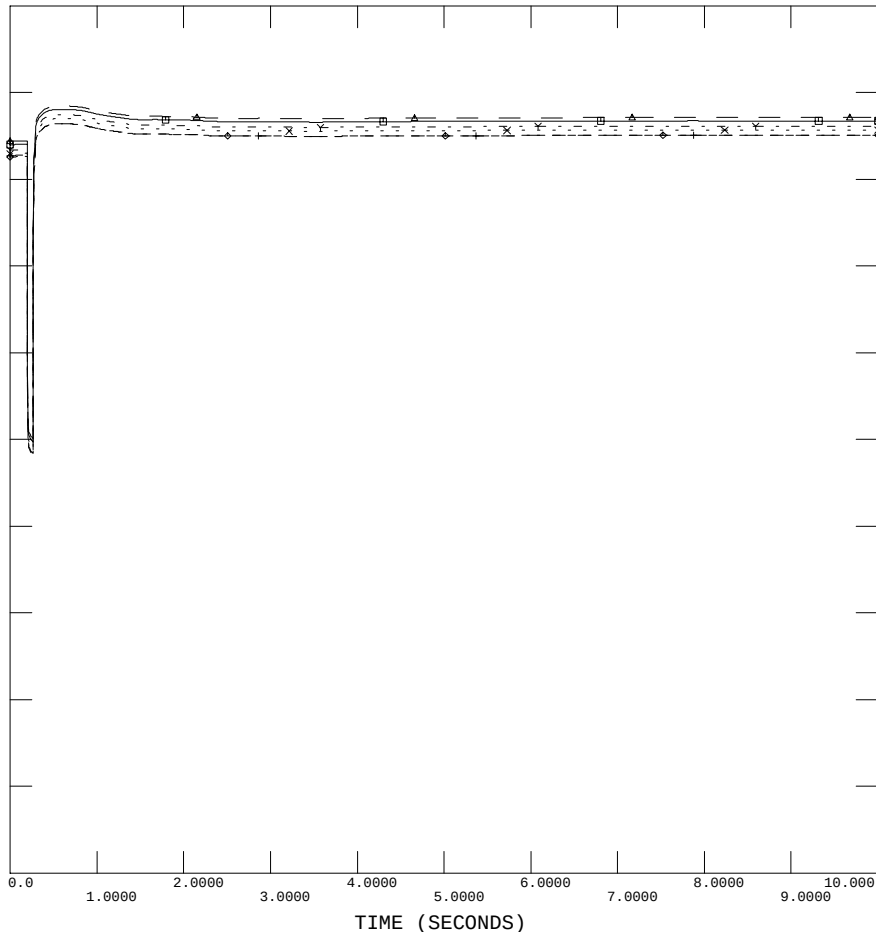


THU, FEB 13 2003 15:08  
VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]

FILE: CON15-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

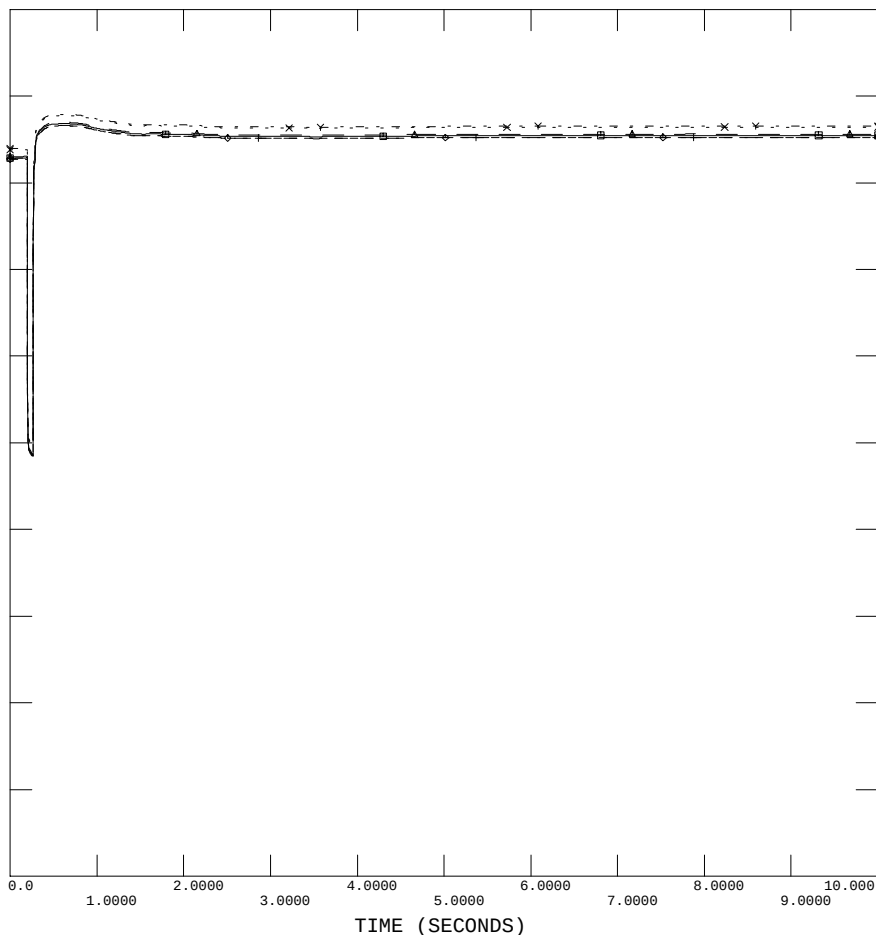


THU, FEB 13 2003 15:08  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]

FILE: CON15-ON.OUT

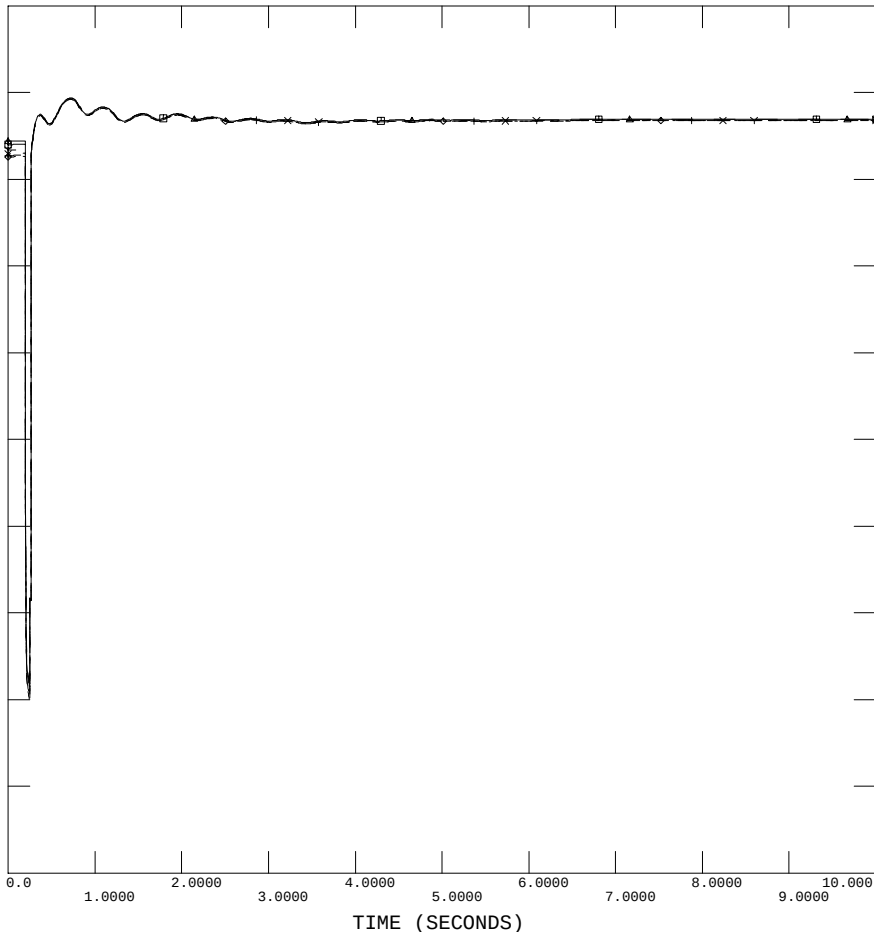
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]  
FILE: CON16-ON.OUT

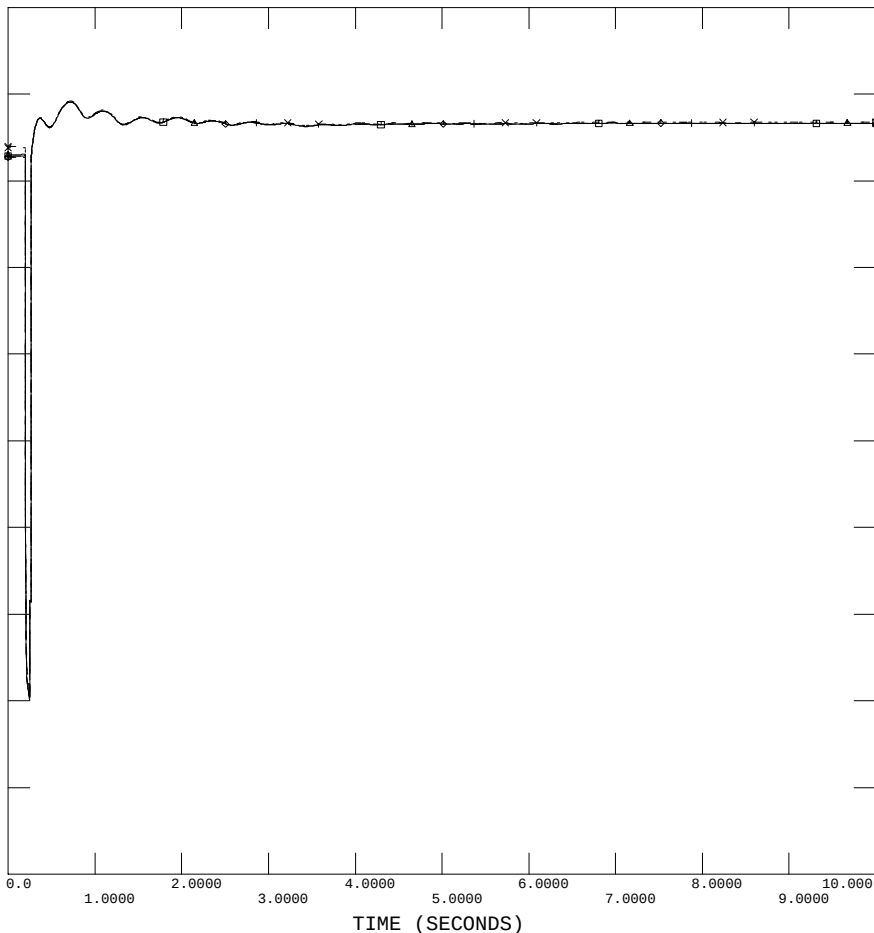
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



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VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]  
FILE: CON16-ON.OUT

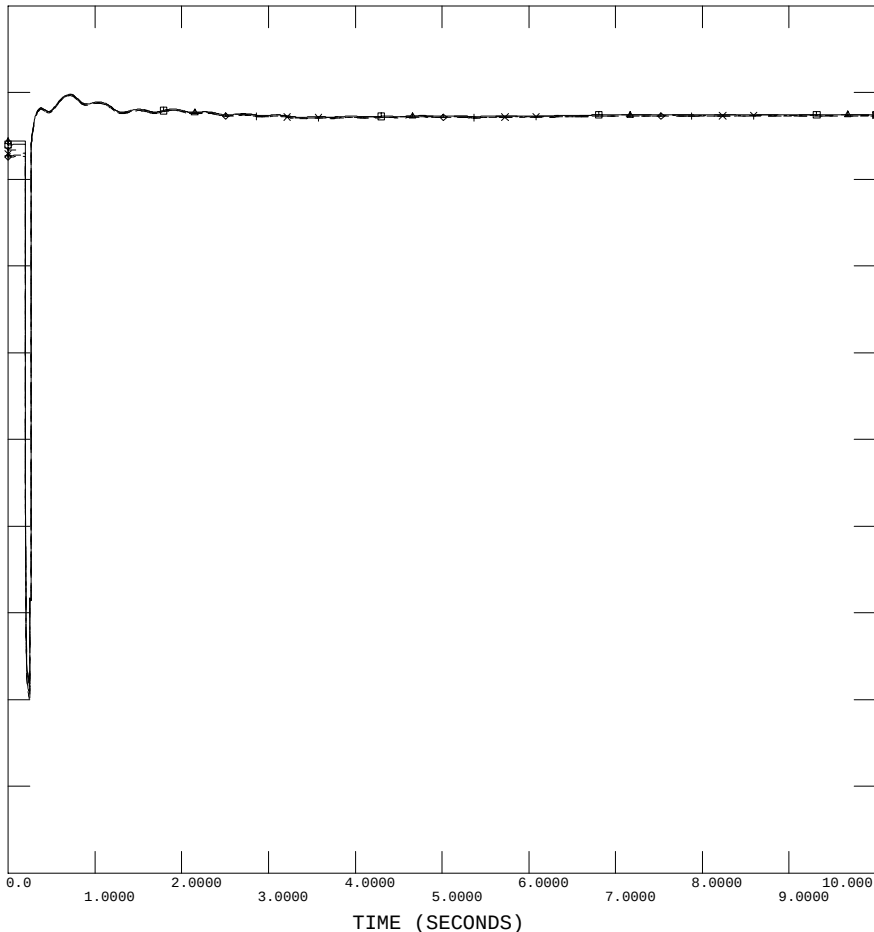
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT

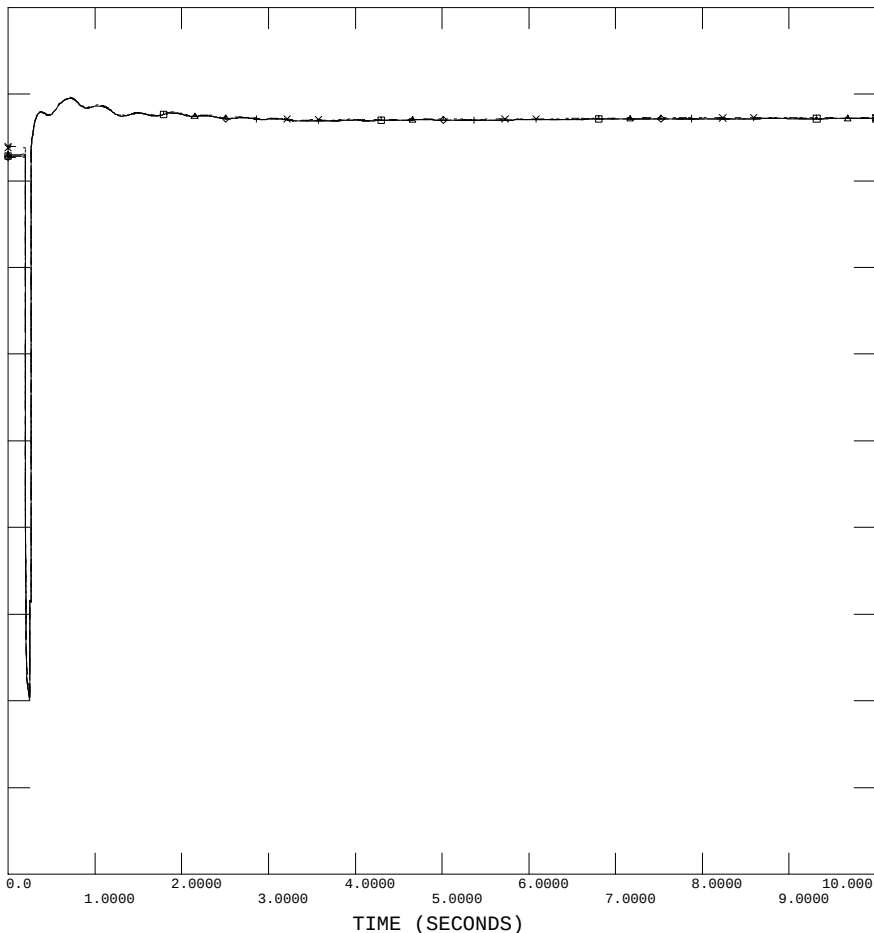
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



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VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



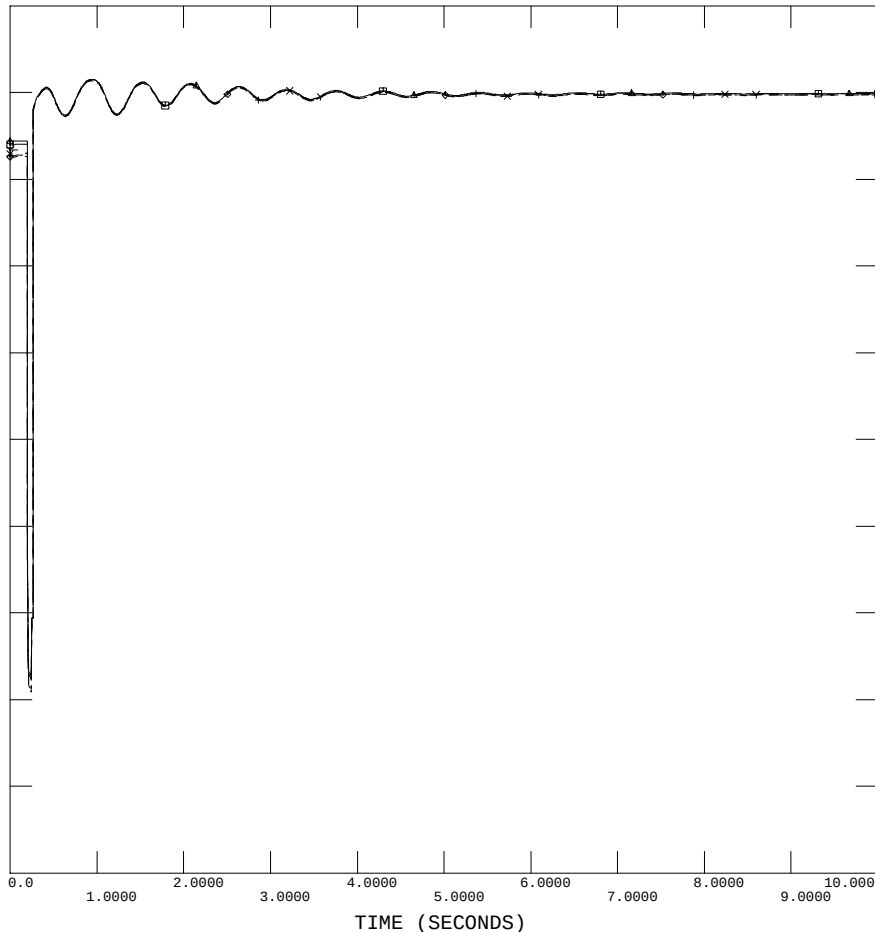
THU, FEB 13 2003 15:08  
VOLTAGE 6 162MW



POWER  
TIC  
0.000013

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



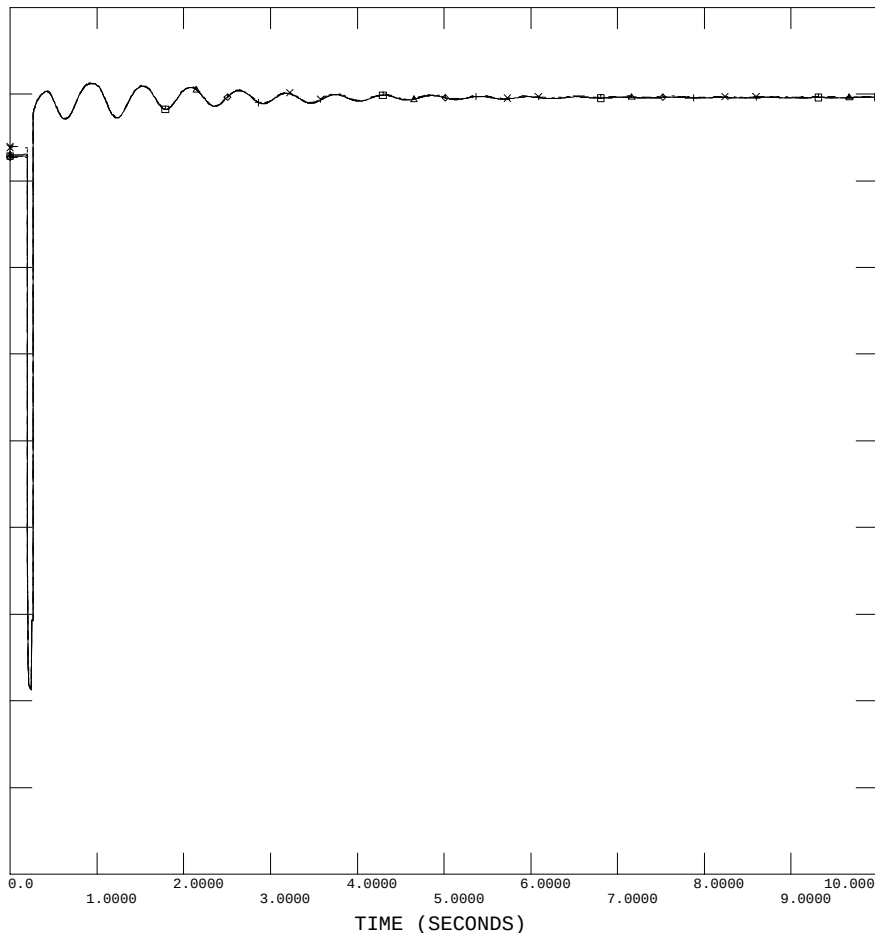
THU, FEB 13 2003 15:08  
VOLTAGE 5 162MW



POWER  
TIC  
0.000013

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |

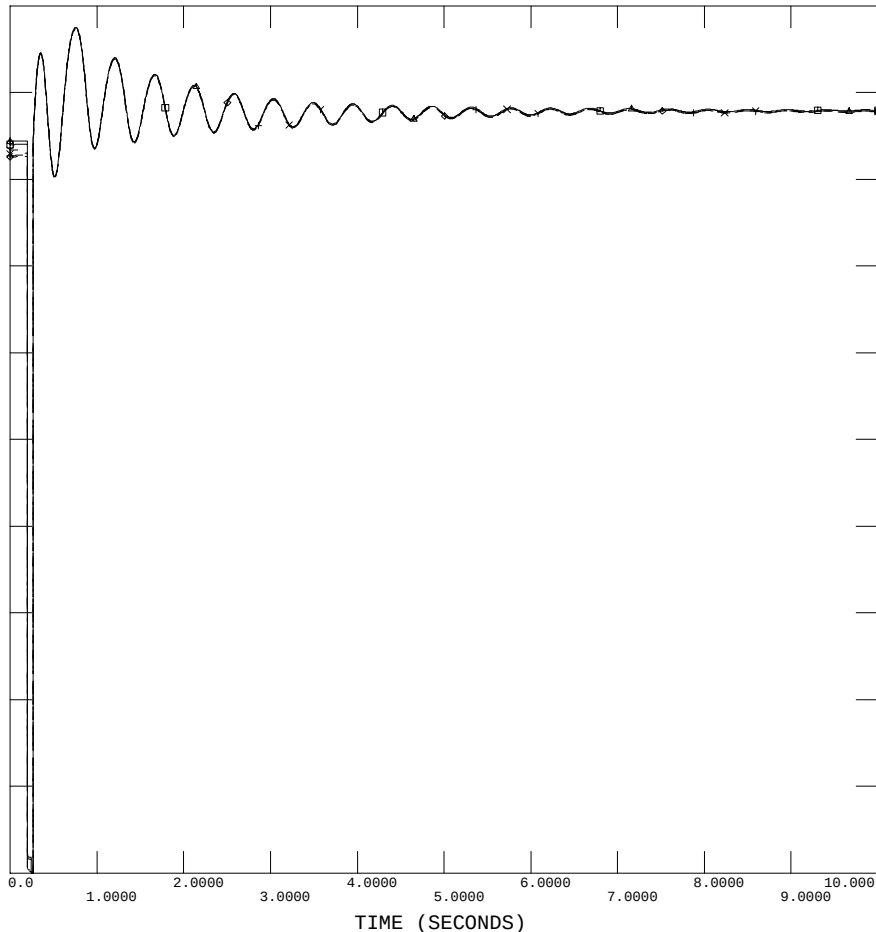


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VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]

FILE: CON19-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

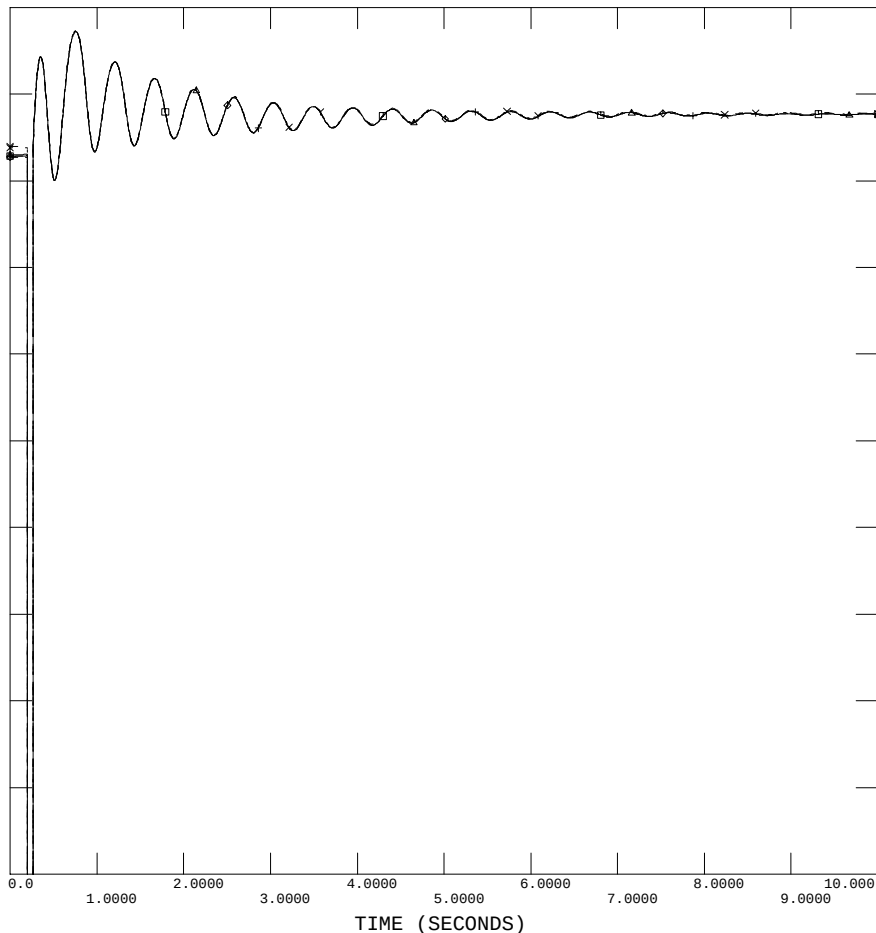


THU, FEB 13 2003 15:08  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]

FILE: CON19-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |

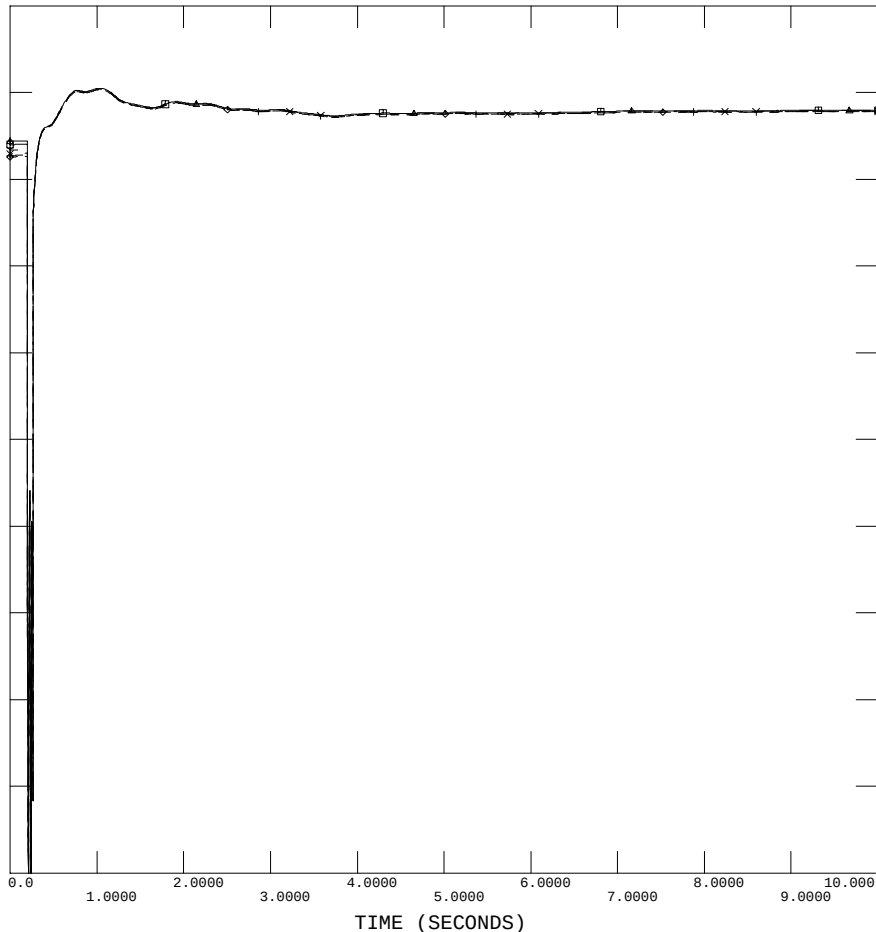


THU, FEB 13 2003 15:08  
VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]

FILE: CON20-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

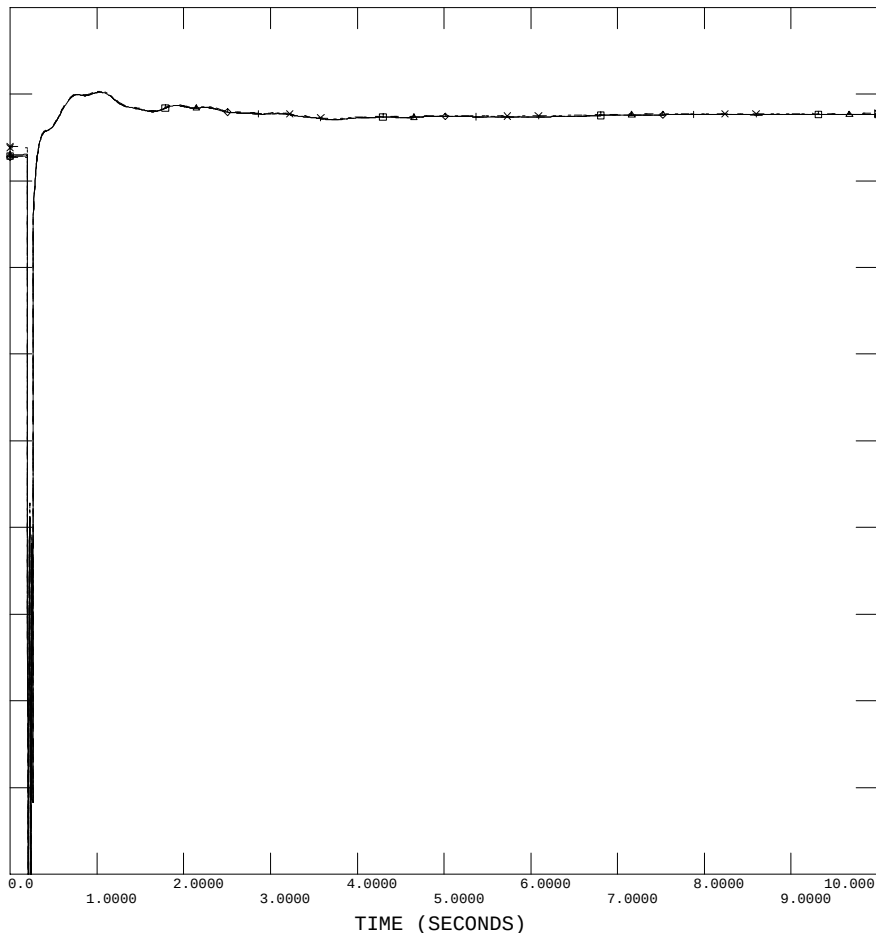


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VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]

FILE: CON20-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW



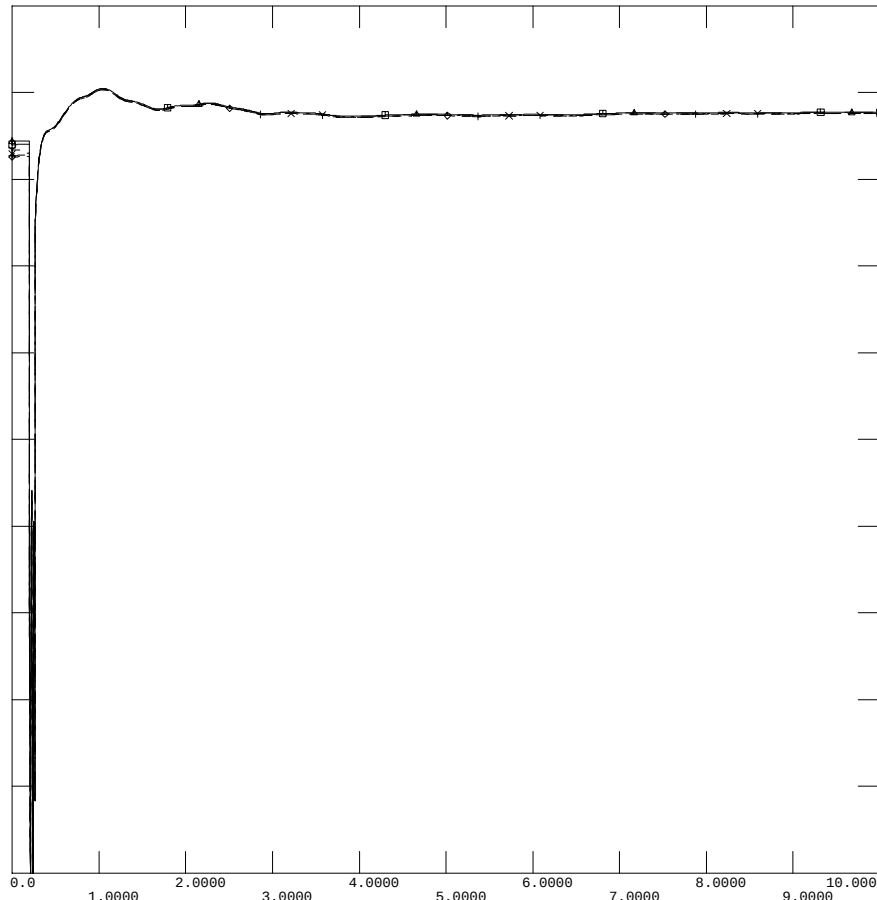
POWER  
TIC  
LOGS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW

CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON21-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



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VOLTAGE 5 162MW



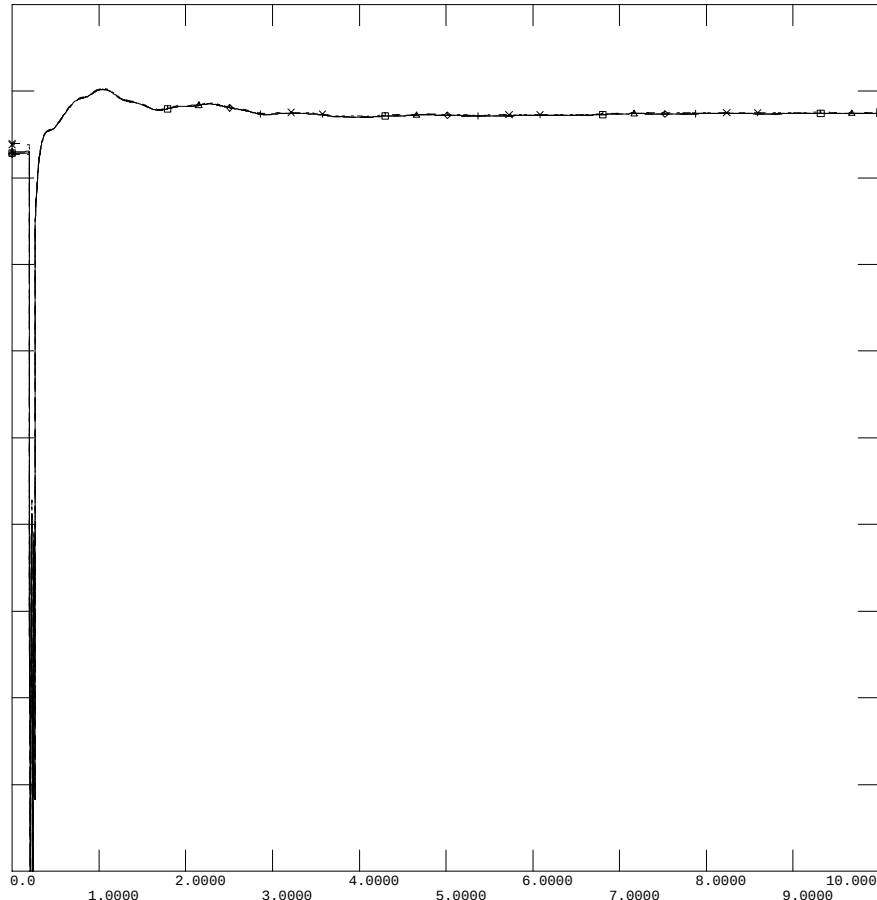
POWER  
TIC  
LOGS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW

CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON21-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



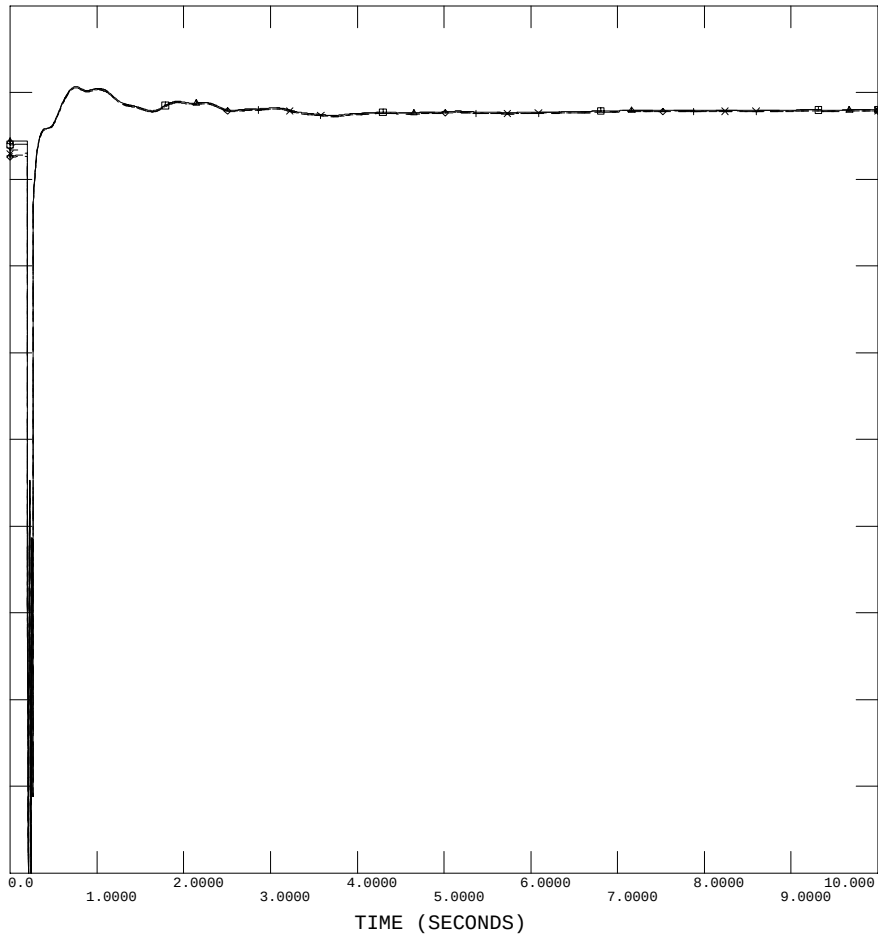
THU, FEB 13 2003 15:08  
VOLTAGE 6 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]

FILE: CON22-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

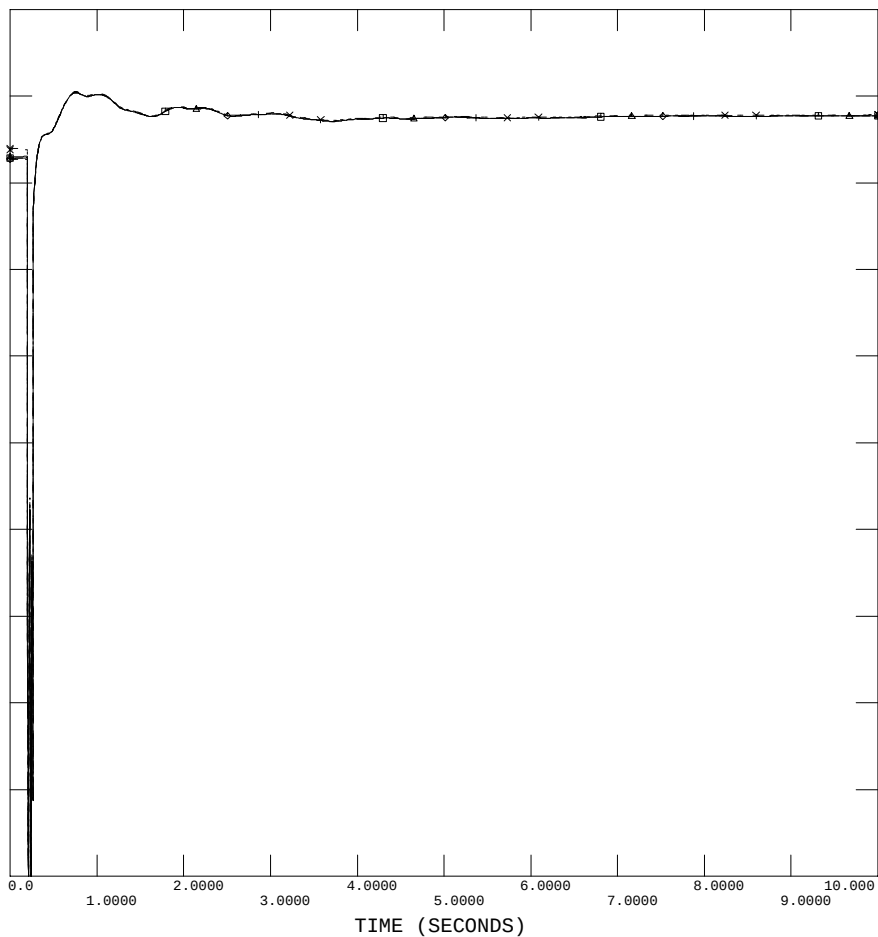


THU, FEB 13 2003 15:08  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]

FILE: CON22-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |

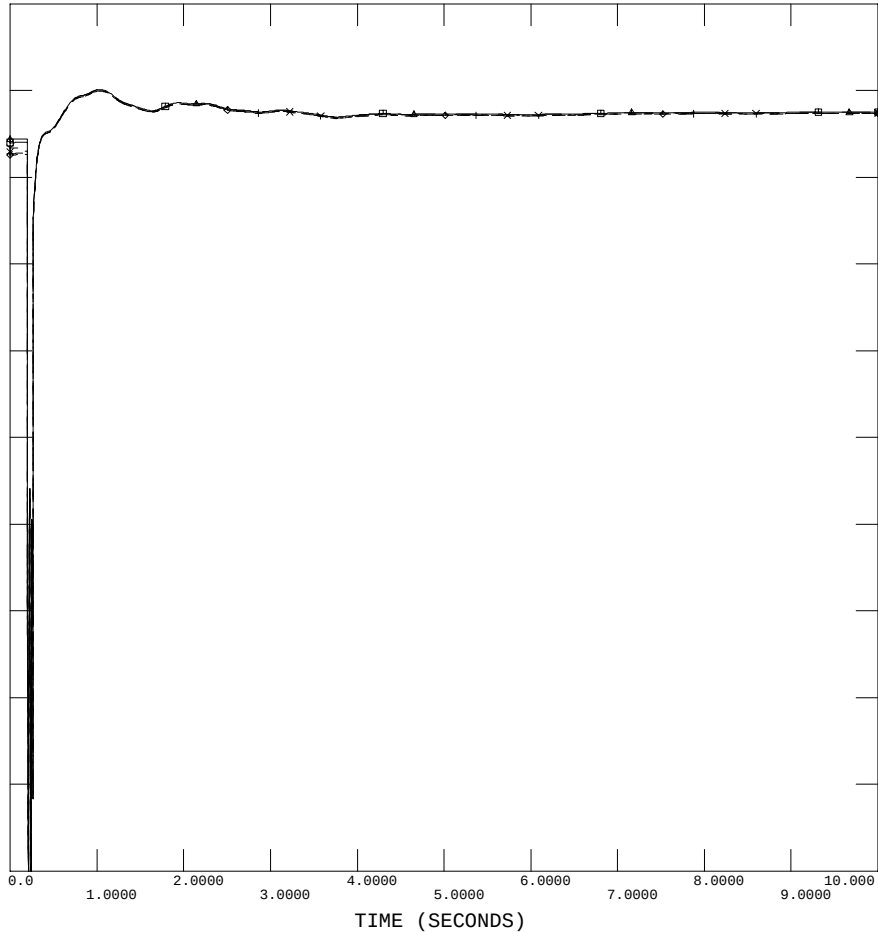


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VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]

FILE: CON23-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

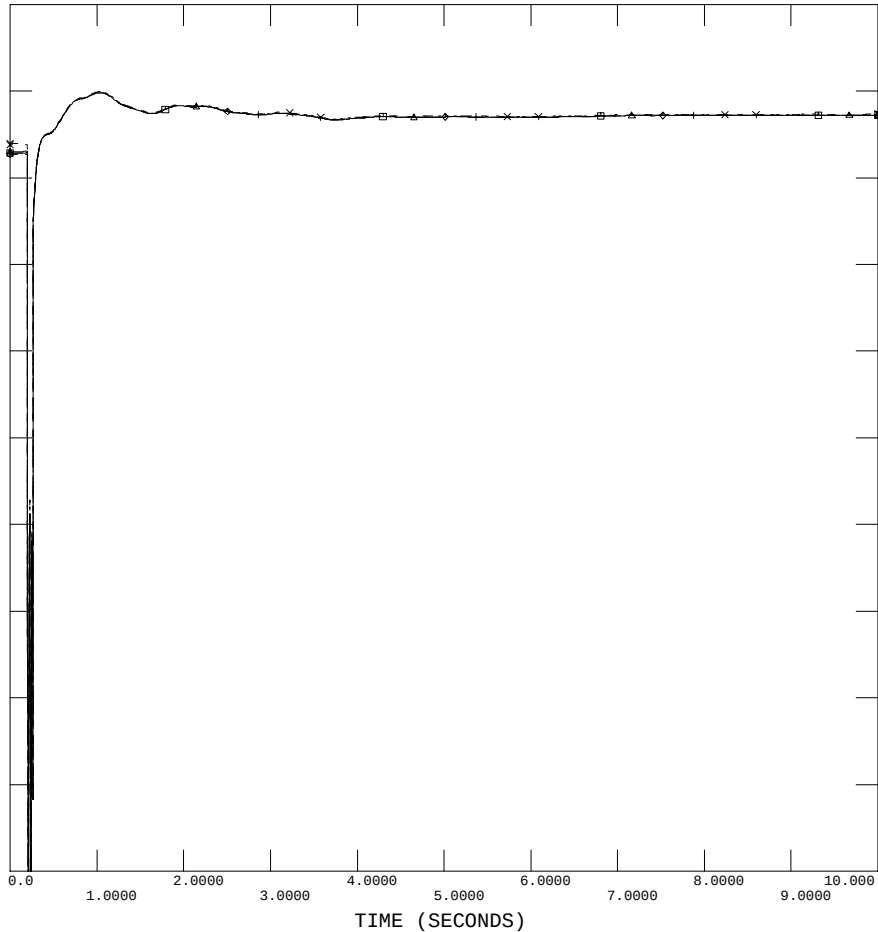


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VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]

FILE: CON23-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW

|                                                                                     |                                                                                                                            |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
|  | 2003 HS - FROM 2001HS4C OPERATING CASE 2003HS4A7073ADD.SAV<br>A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW |
| CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]                         |                                                                                                                            |

FILE: CON24-ON.OUT

CHNL# 417: [VOLT 70717 [PADMNT9 34.500]]

Y

CHNL# 414: [VOLT 70714 [PADMNT6 34.500]]

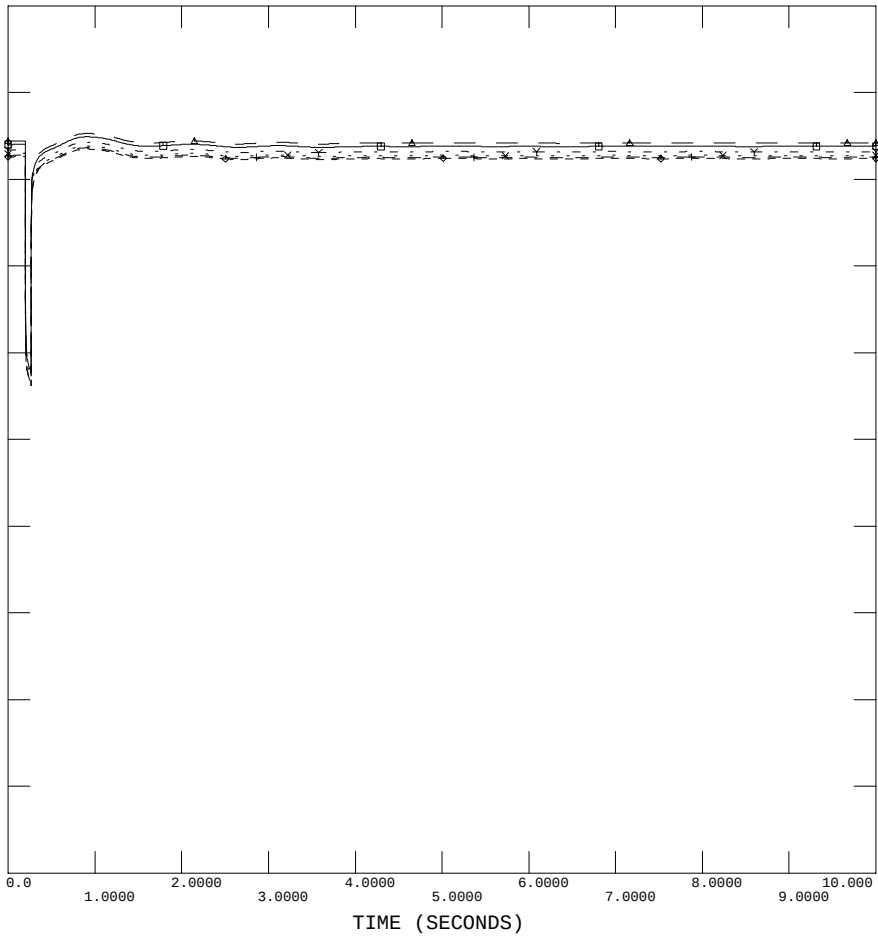
CHNL# 404: [VOLT 70704 [SWGR2 34.500]]

◆

CHNL# 410: [VOLT 70710 [PADMNT2 34.500]]

CHN1 # 103: FYVIT 70703 [SUCBP1 31 E0017

|            |            |              |
|------------|------------|--------------|
| CHNL# 403: | VOLT 70703 | SWGRI 34.500 |
|------------|------------|--------------|



THU, FEB 13 2003 15:09  
VOLTAGE 5 162MW

|                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|

FILE: CON24-ON.OUT

CHNL# 426: [VOLT 70727 [PADMNT1934.500]]

Y

CHNL# 423: [VOLT 70724 [PADMNT1634.500]]

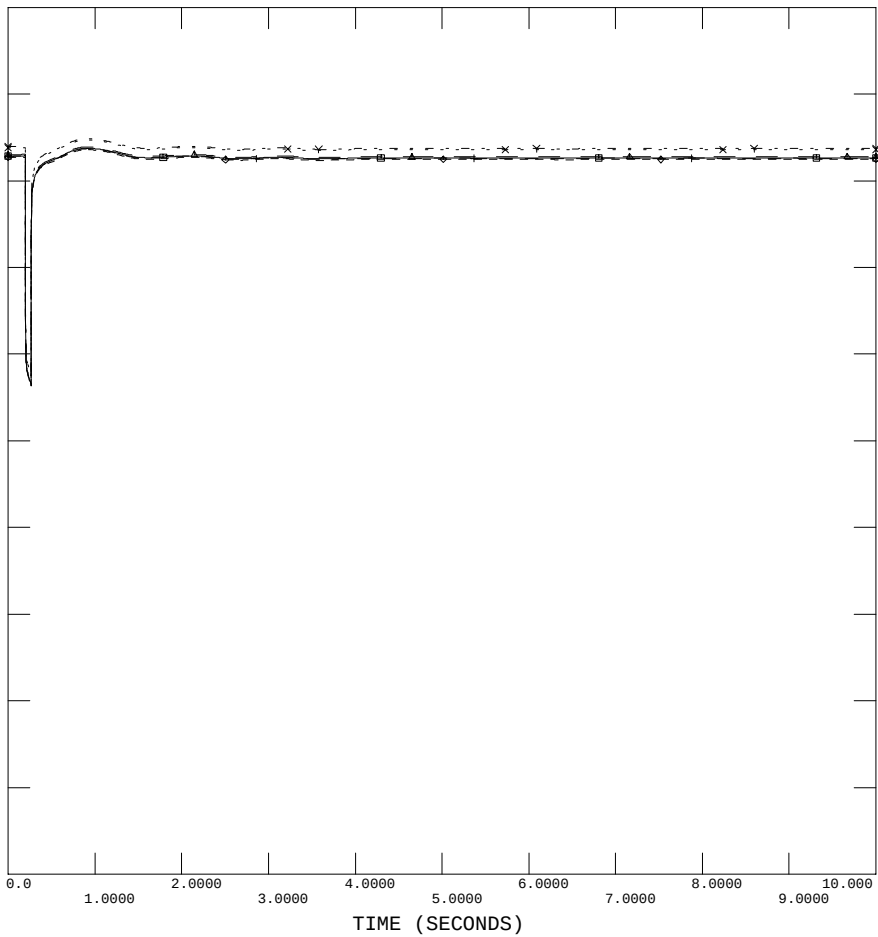
CHNL# 407: [VOLT 70707 [SWGR5 34.500]]

◆

CHNL# 420: [VOLT 70721 [PADMNT1334.500]]

CHNI # 406: FY01 T 70706 FSIJCB4 34 ENOT

|            |            |       |        |
|------------|------------|-------|--------|
| CHNL# 406: | VOLT 70706 | SWGR4 | 34.500 |
|------------|------------|-------|--------|

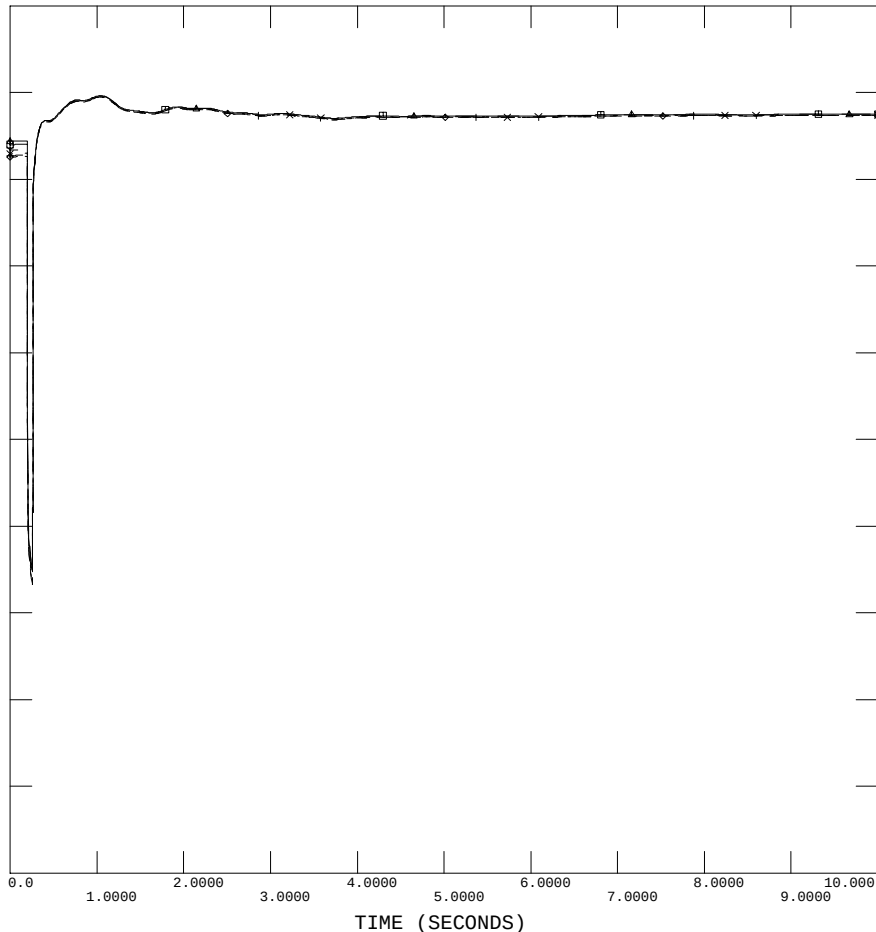


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VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

FILE: CON25-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

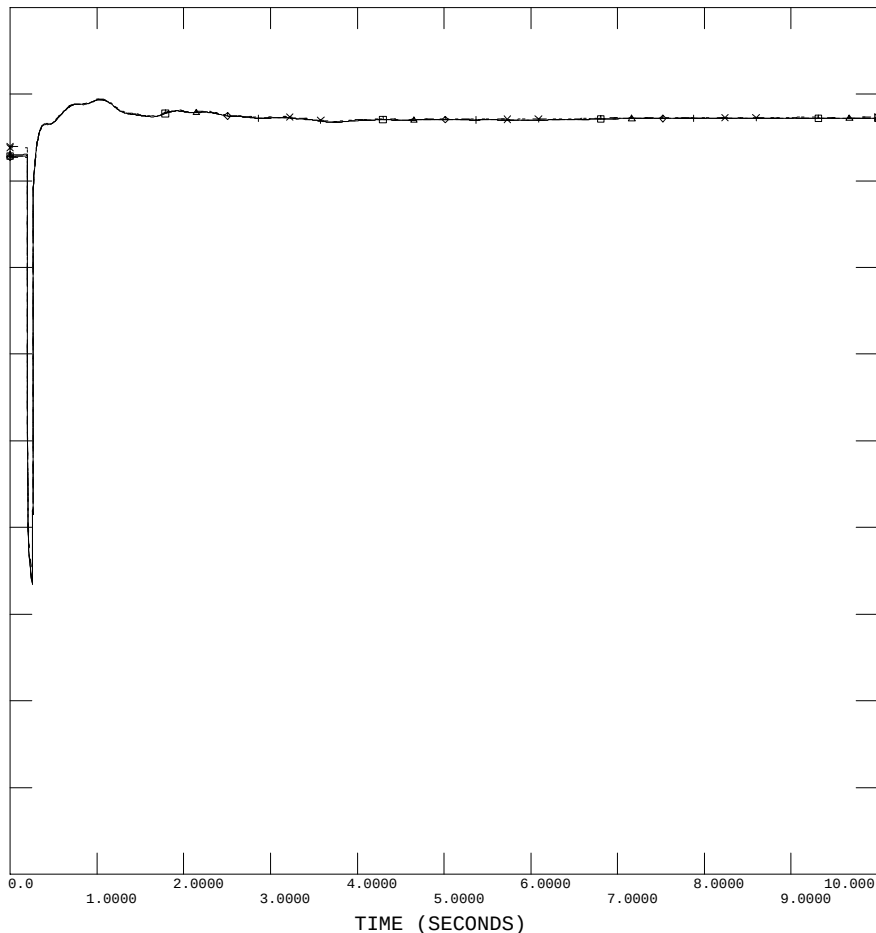


THU, FEB 13 2003 15:09  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

FILE: CON25-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |

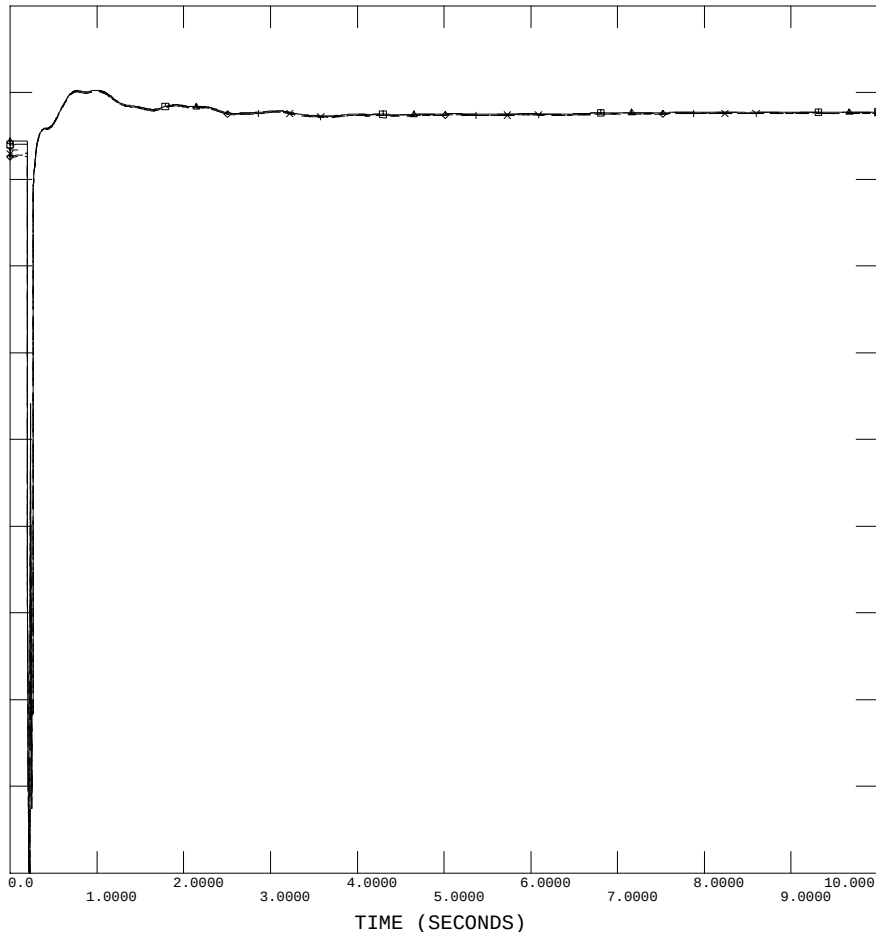


THU, FEB 13 2003 15:09  
VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]

FILE: CON26-ON.OUT

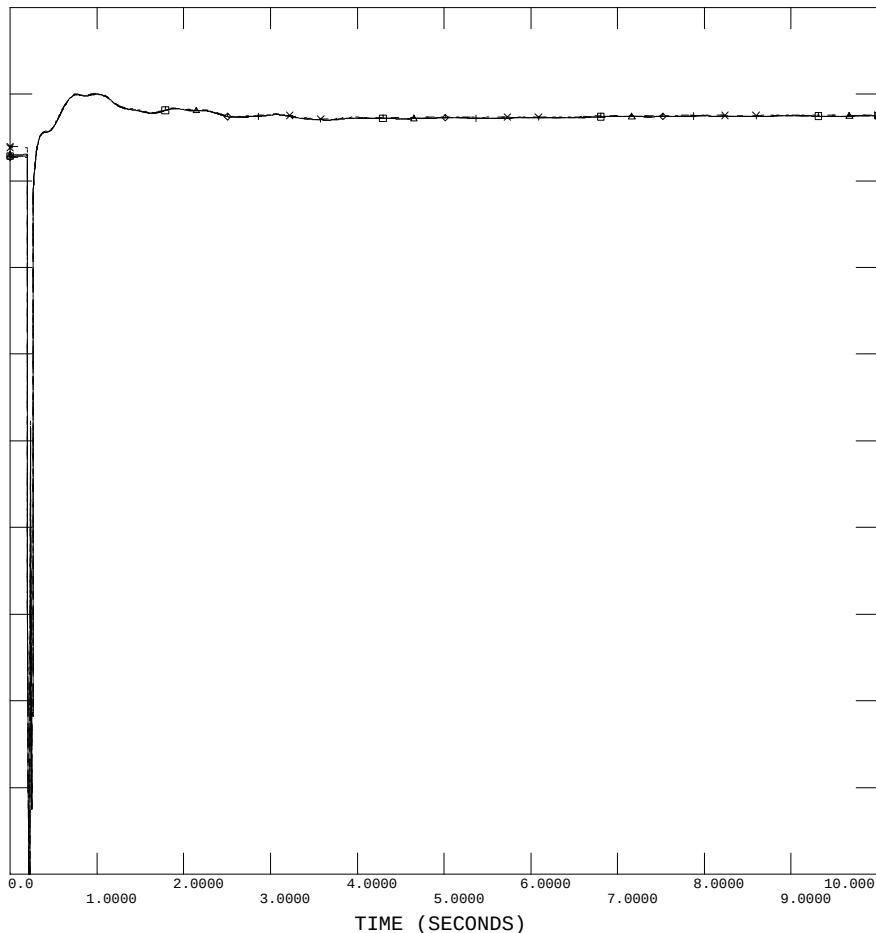
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]

FILE: CON26-ON.OUT

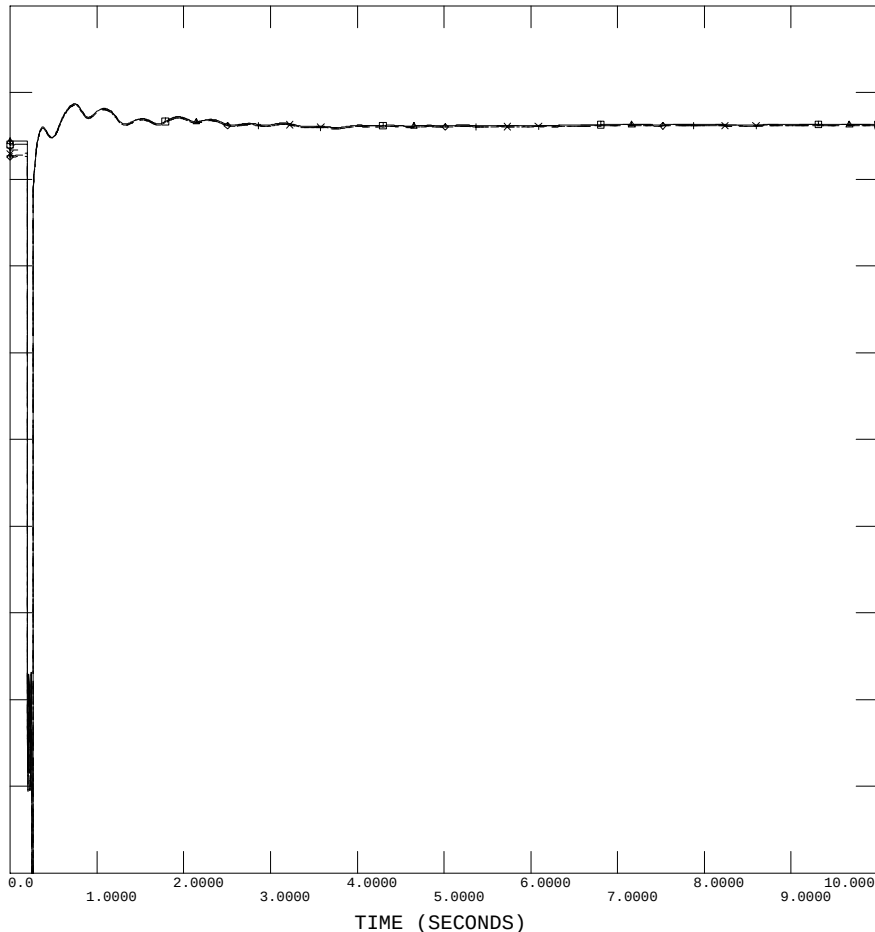
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

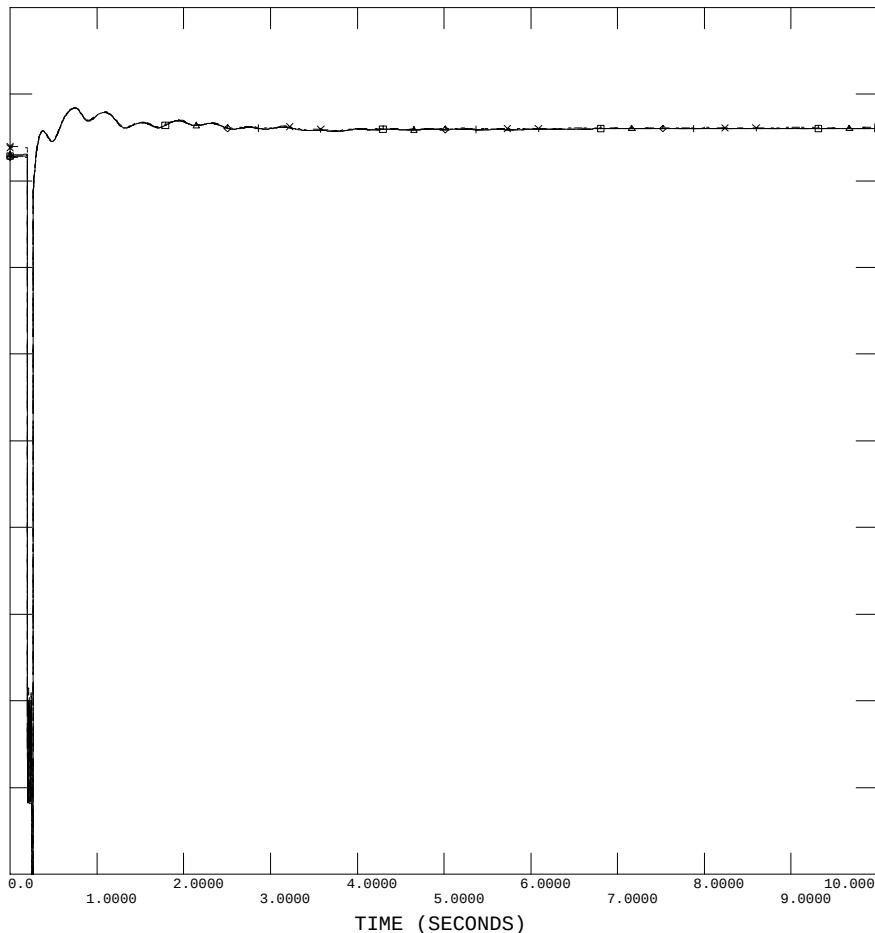


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VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW

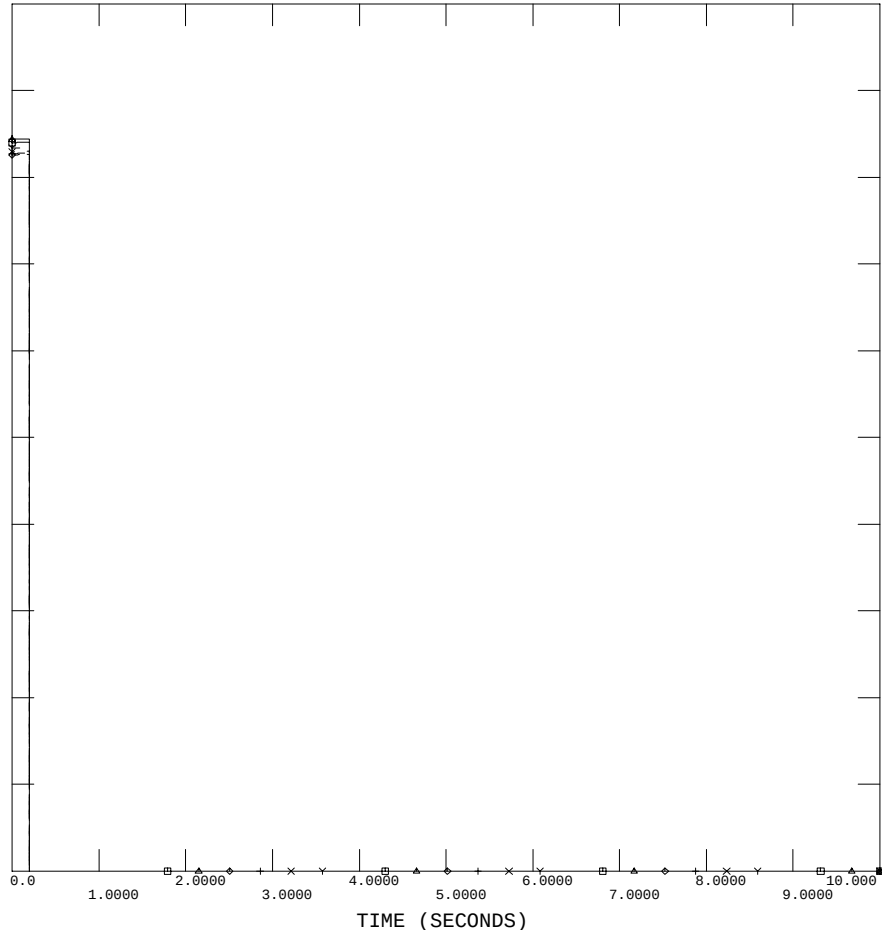


POWER  
TIC  
0.00001625

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW

CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE  
FILE: CON28-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



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VOLTAGE 5 162MW

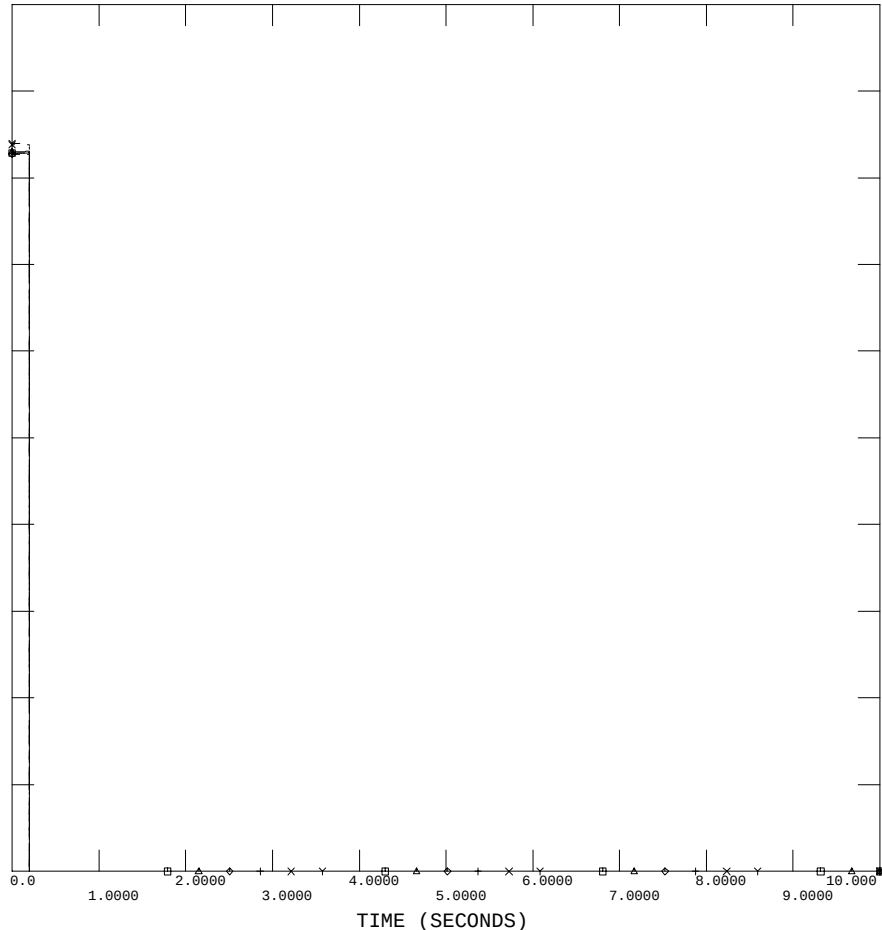


POWER  
TIC  
0.00001625

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW

CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE  
FILE: CON28-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW



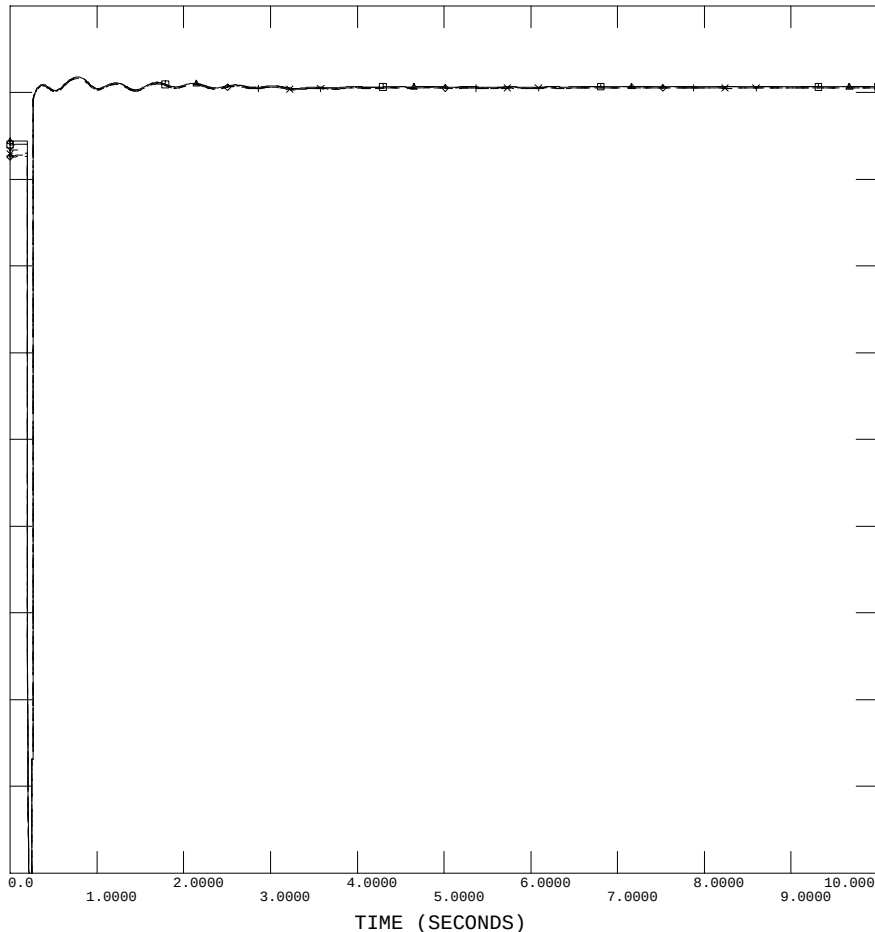
POWER  
LINE  
TIC 0.000015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW

CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]

FILE: CON29-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



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VOLTAGE 5 162MW



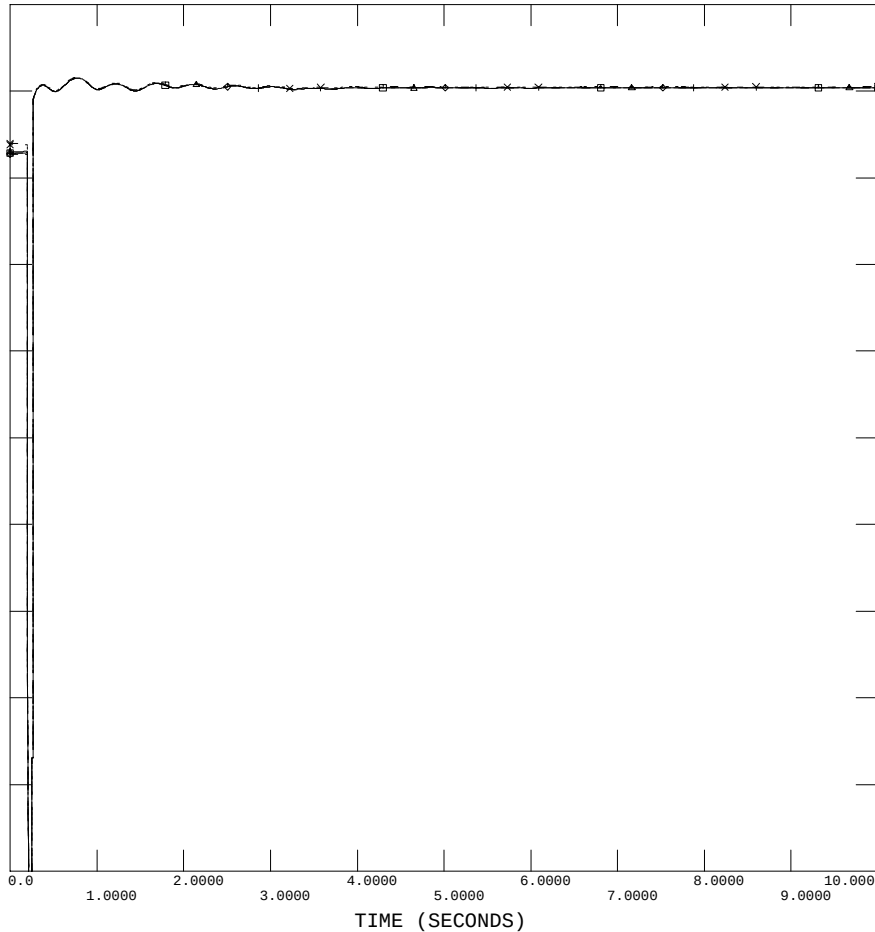
POWER  
LINE  
TIC 0.000015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW

CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]

FILE: CON29-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



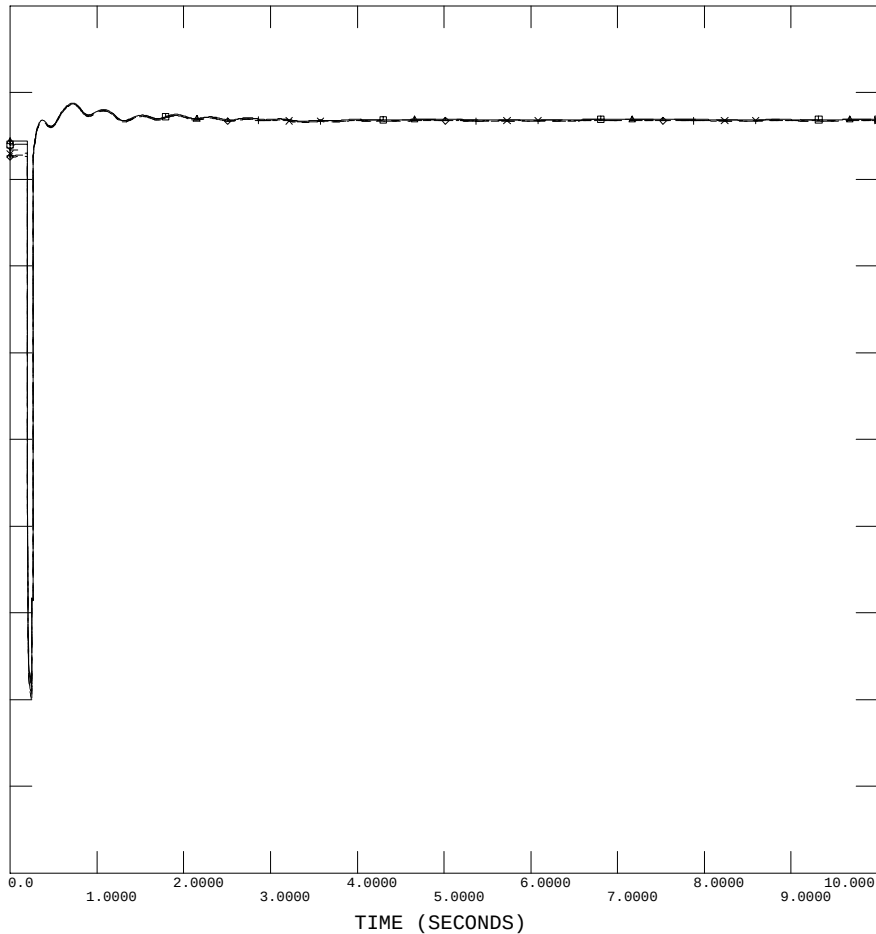
THU, FEB 13 2003 15:09  
VOLTAGE 6 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]

FILE: CON30-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

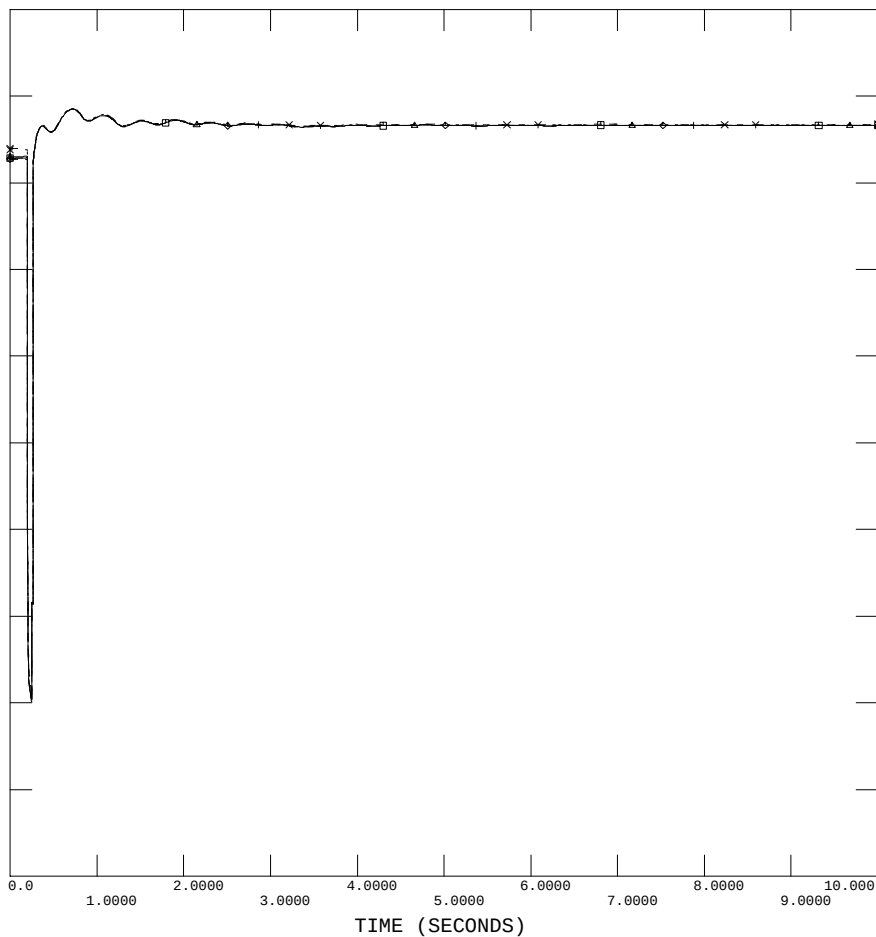


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VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]

FILE: CON30-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



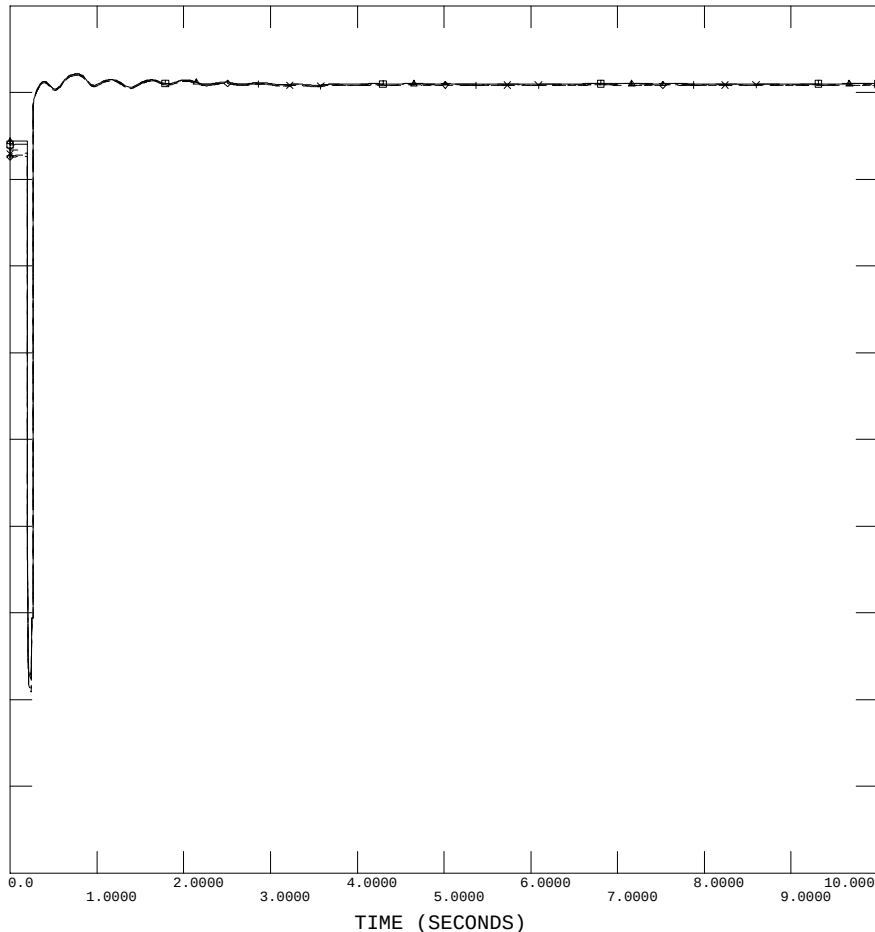
THU, FEB 13 2003 15:09  
VOLTAGE 6 162MW



POWER  
TIC  
0.00013

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]  
FILE: CON31-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



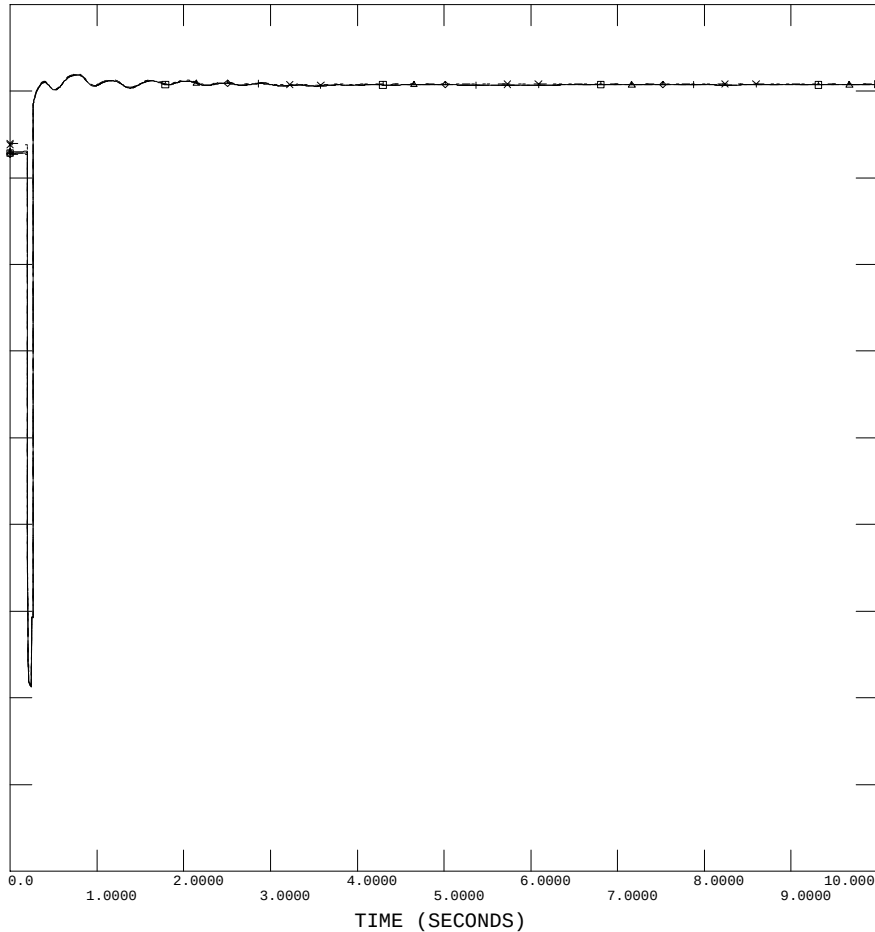
THU, FEB 13 2003 15:09  
VOLTAGE 5 162MW



POWER  
TIC  
0.00013

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]  
FILE: CON31-ON.OUT

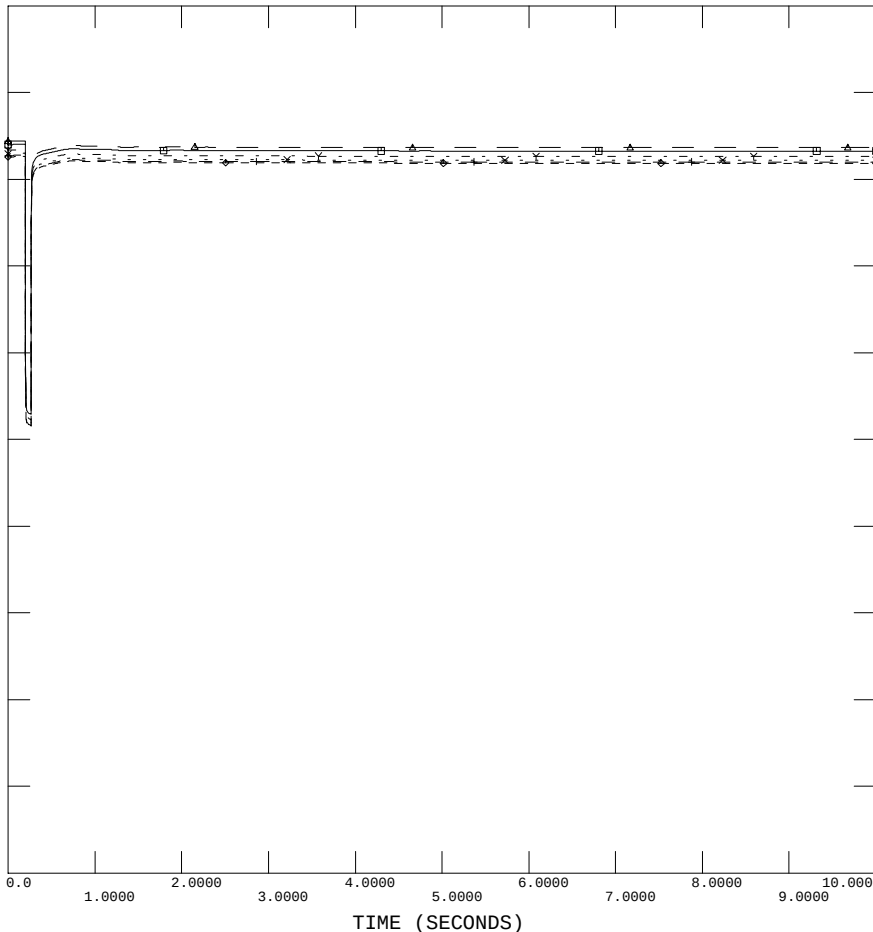
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



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VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT

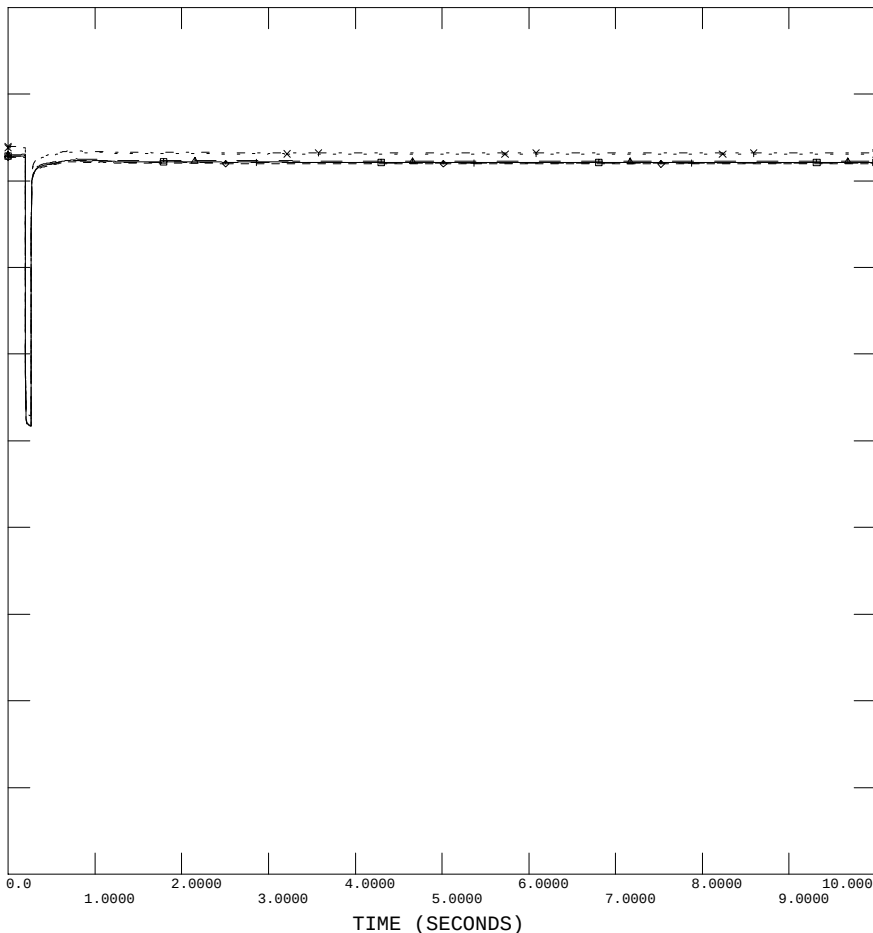
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



THU, FEB 13 2003 15:09  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



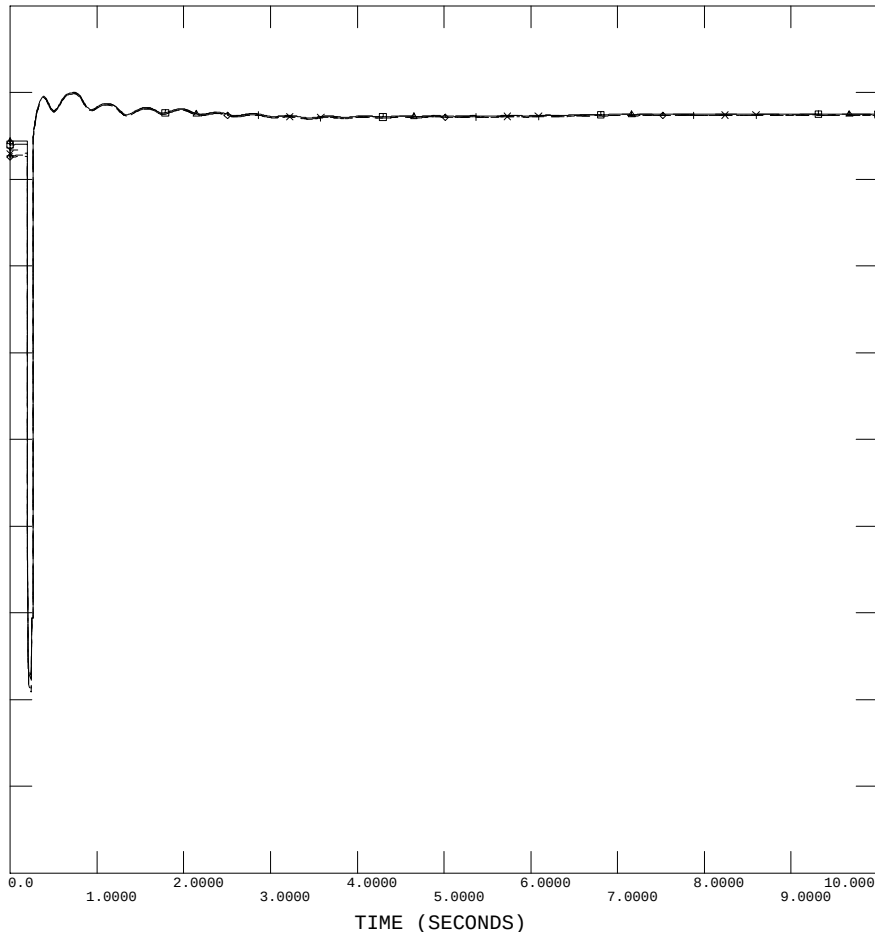
THU, FEB 13 2003 15:09  
VOLTAGE 6 162MW



POWER  
TIC  
LOGS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



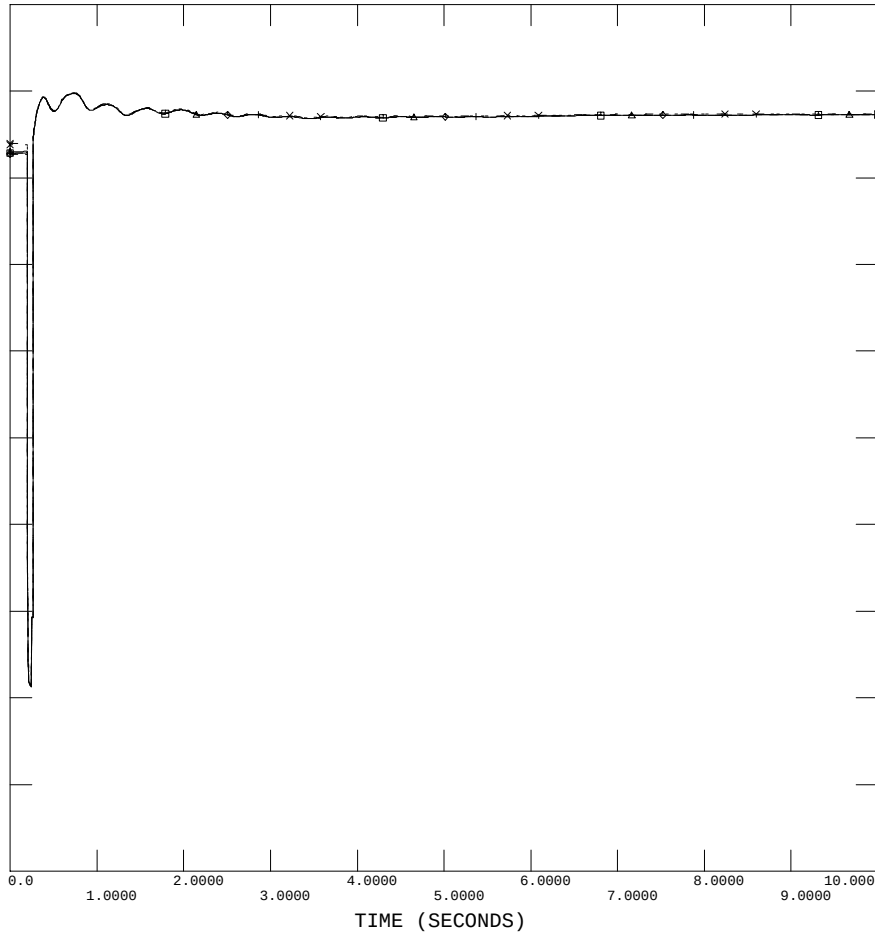
THU, FEB 13 2003 15:09  
VOLTAGE 5 162MW



POWER  
TIC  
LOGS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |

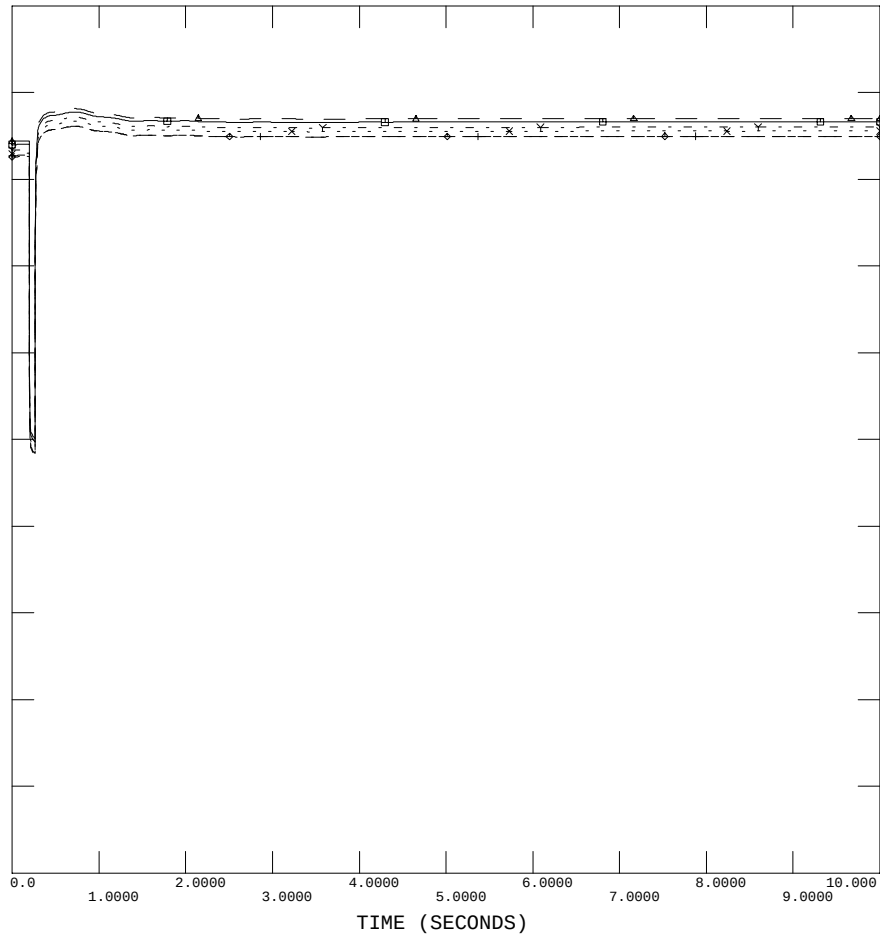


THU, FEB 13 2003 15:09  
VOLTAGE 6 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]

FILE: CON34-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

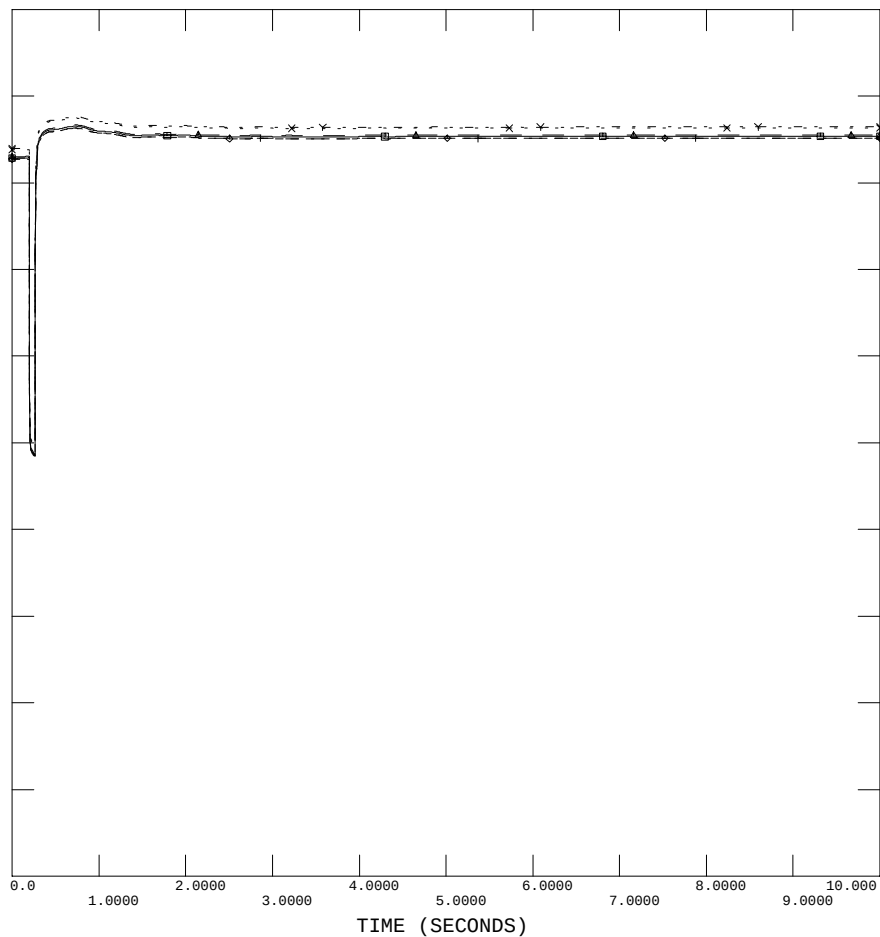


THU, FEB 13 2003 15:09  
VOLTAGE 5 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]

FILE: CON34-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



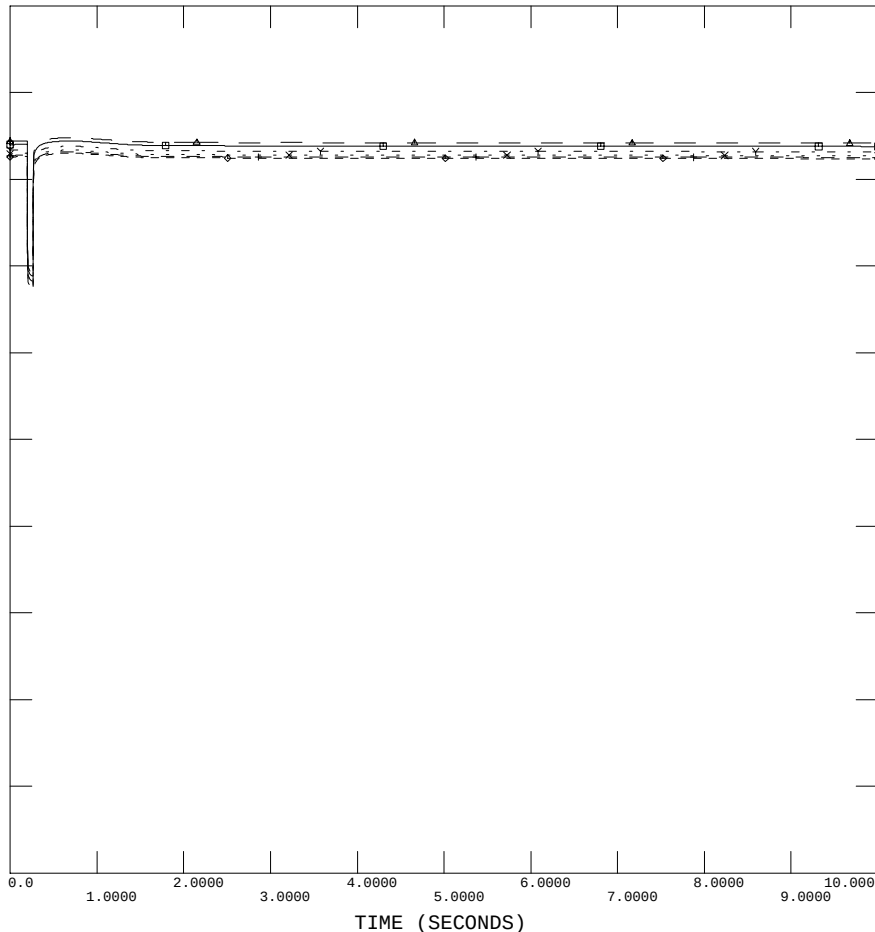
THU, FEB 13 2003 15:09  
VOLTAGE 6 162MW



POWER  
TIC  
0.00013

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



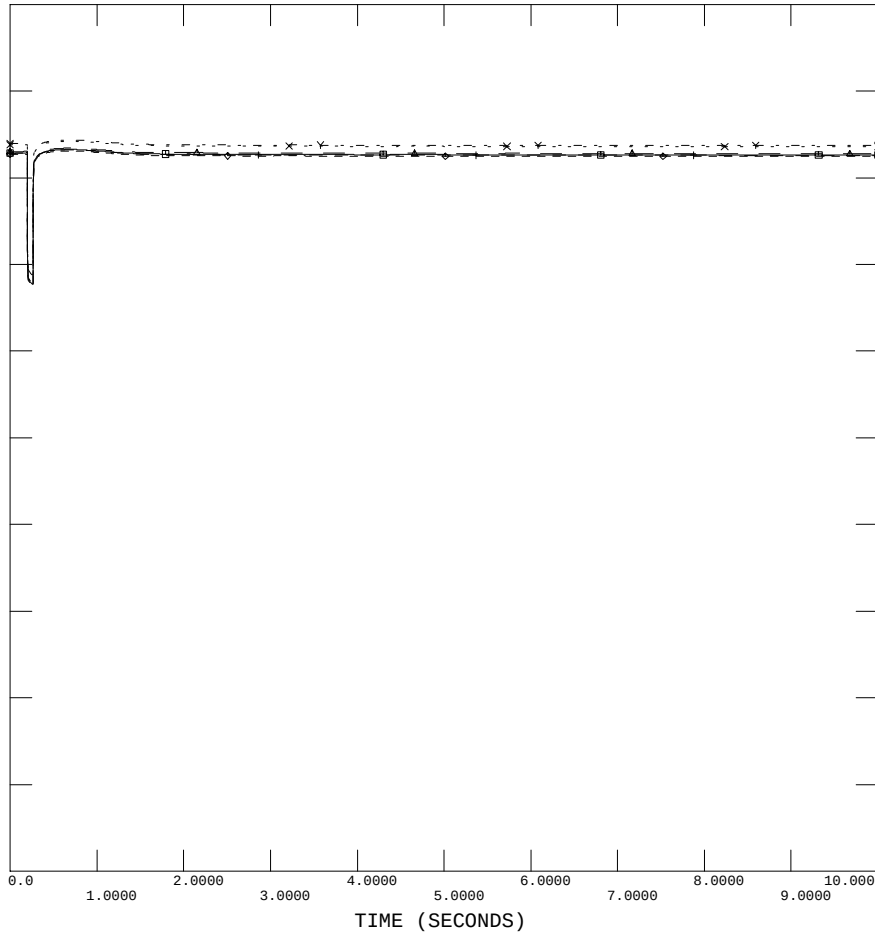
THU, FEB 13 2003 15:09  
VOLTAGE 5 162MW



POWER  
TIC  
0.00013

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



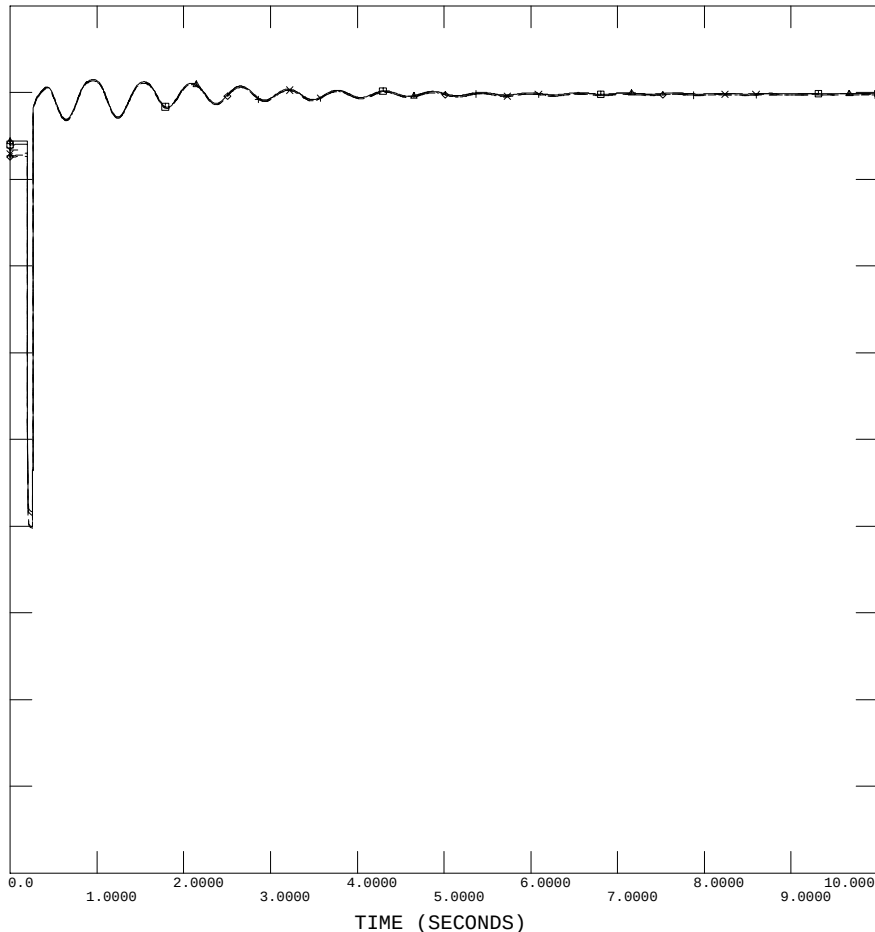
THU, FEB 13 2003 15:09  
VOLTAGE 6 162MW



POWER  
TIC  
0.000013

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



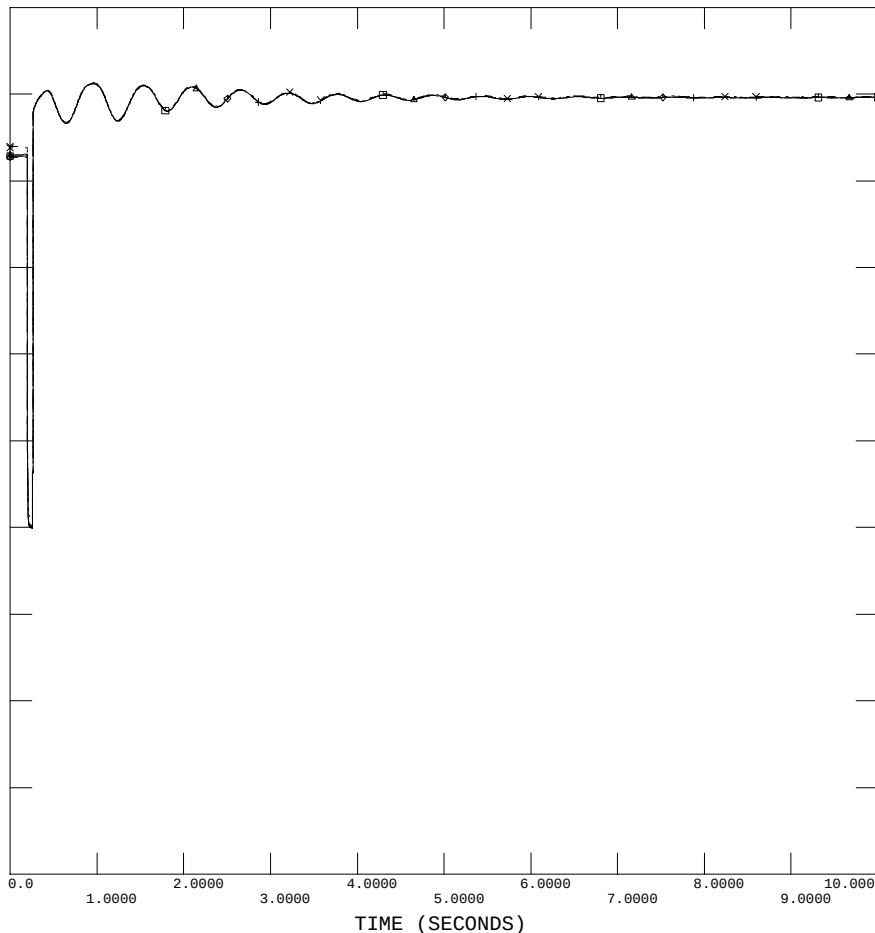
THU, FEB 13 2003 15:09  
VOLTAGE 5 162MW



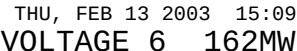
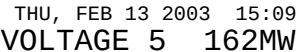
POWER  
TIC  
0.000013

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |



THU, FEB 13 2003 15:09  
VOLTAGE 6 162MW





**D-6 - Single-Phase Stability Analysis**

**2003 Base Case**

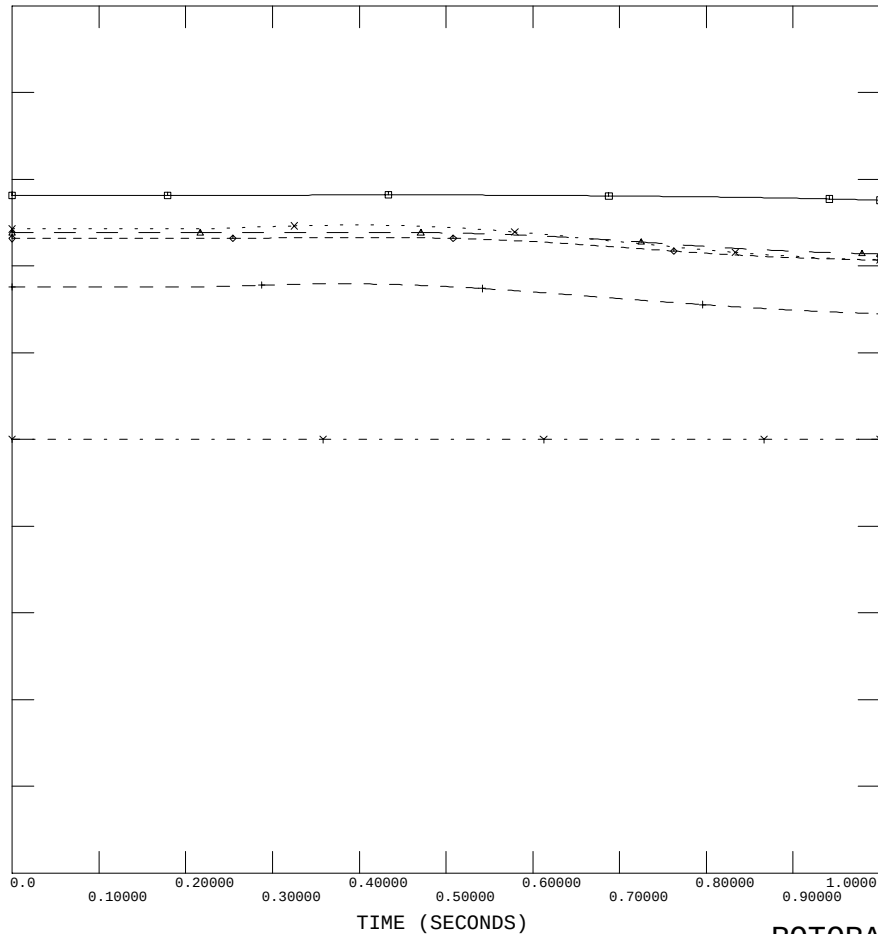
**With Golden Prairie – Lamar 230-kV Circuit, With Wind Farm Generation**



POWER  
TECHNOLOGIES,  
INC. 

|        |  |            |                                     |   |             |        |
|--------|--|------------|-------------------------------------|---|-------------|--------|
| 180.00 |  | CHNL# 111: | [ANGL 70701 [GDB_KNOB34.500] [1.1]] | Y | - - - - ->  | -180.0 |
| 180.00 |  | CHNL# 17:  | [ANGL 70120 [COMAN 2 24.000] [1.1]] | X | . . . . . X | -180.0 |
| 180.00 |  | CHNL# 26:  | [ANGL 70337 [PUEBLO 14.000] [1.1]]  | + | - - - - +   | -180.0 |
| 180.00 |  | CHNL# 88:  | [ANGL 73418 [RD_NIXONZ0.000] [1.1]] | ◇ | - - - - -◇  | -180.0 |
| 180.00 |  | CHNL# 89:  | [ANGL 73429 [DRAKE 7 13.800] [1.1]] | ↑ | - - - - ↑   | -180.0 |
| 180.00 |  | CHNL# 98:  | [ANGL 79015 [CRAIG 1 22.000] [1.1]] | ⊖ | - - - - ⊖   | -180.0 |

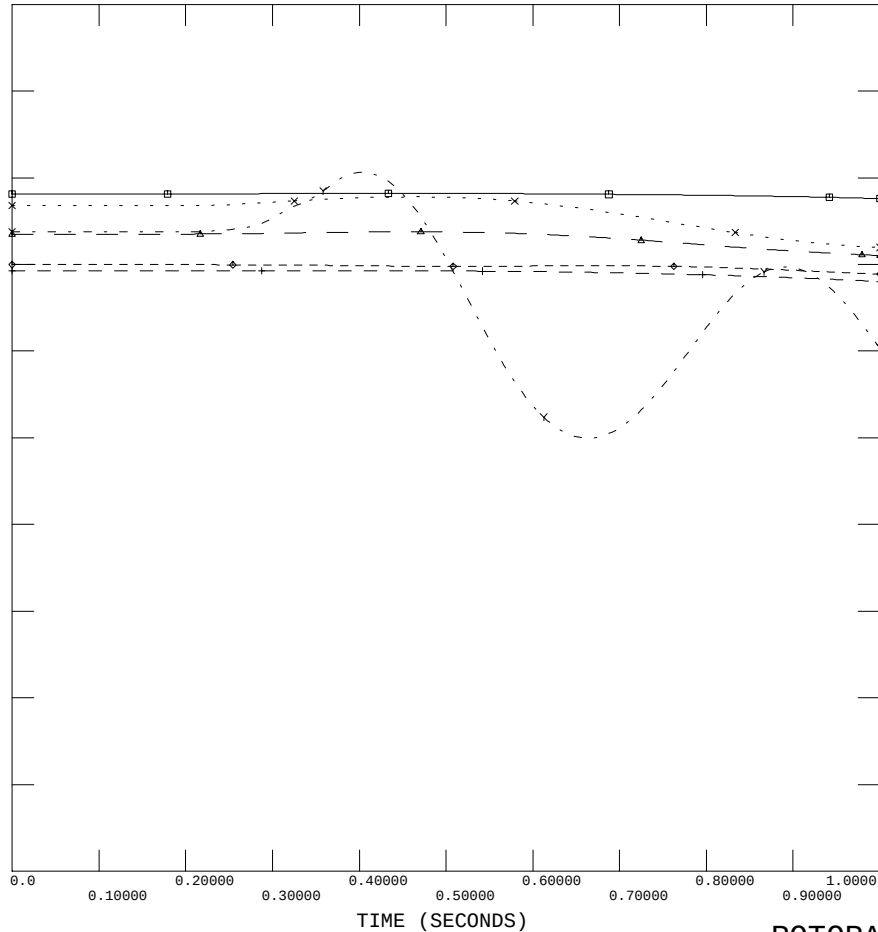
ROTORANGLES 1 CON1 1PH 16



POWER  
TECHNOLOGIES,  
INC. ●

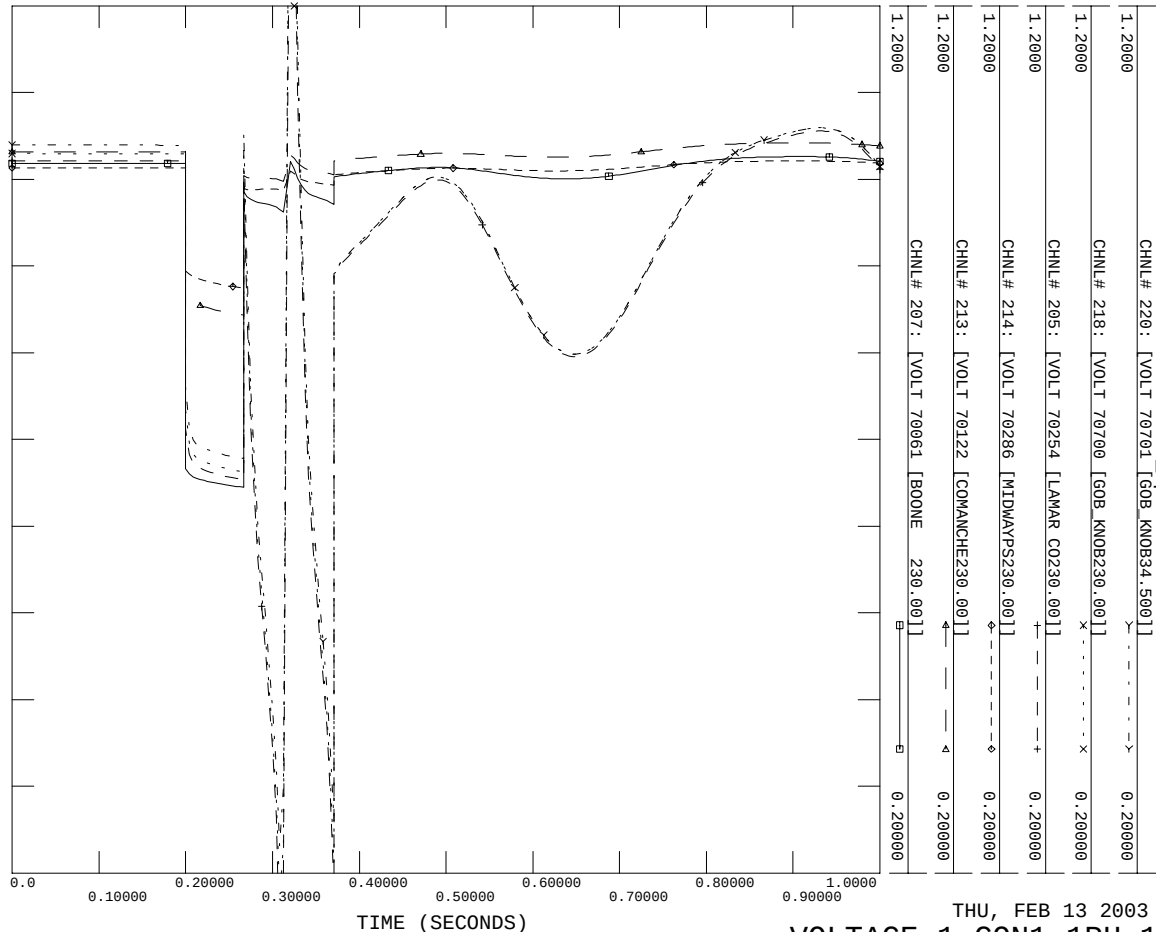
|        |           |             |                  |         |       |        |
|--------|-----------|-------------|------------------|---------|-------|--------|
| 180.00 | CHNL# 18: | [ANGL 70133 | [CTY LAM 14.400] | [1.1]   | 1     | -180.0 |
| 180.00 | CHNL# 28: | [ANGL 70344 | [R.F.DSL54.1600] | [1.1]   | x     | -180.0 |
| 180.00 | CHNL# 5:  | [ANGL 70035 | [ARAP4           | 13.800] | [1.1] | -180.0 |
| 180.00 | CHNL# 15: | [ANGL 70106 | [CHEROK4 22.000] | [1.1]   | +     | -180.0 |
| 180.00 | CHNL# 96: | [ANGL 73532 | [LINCOLN13.800]  | [1.1]   | +     | -180.0 |
| 180.00 | CHNL# 98: | [ANGL 79015 | [CRAIG 1 22.000] | [1.1]   | +     | -180.0 |

ROTORANGLES 2 CON1 1PH 16



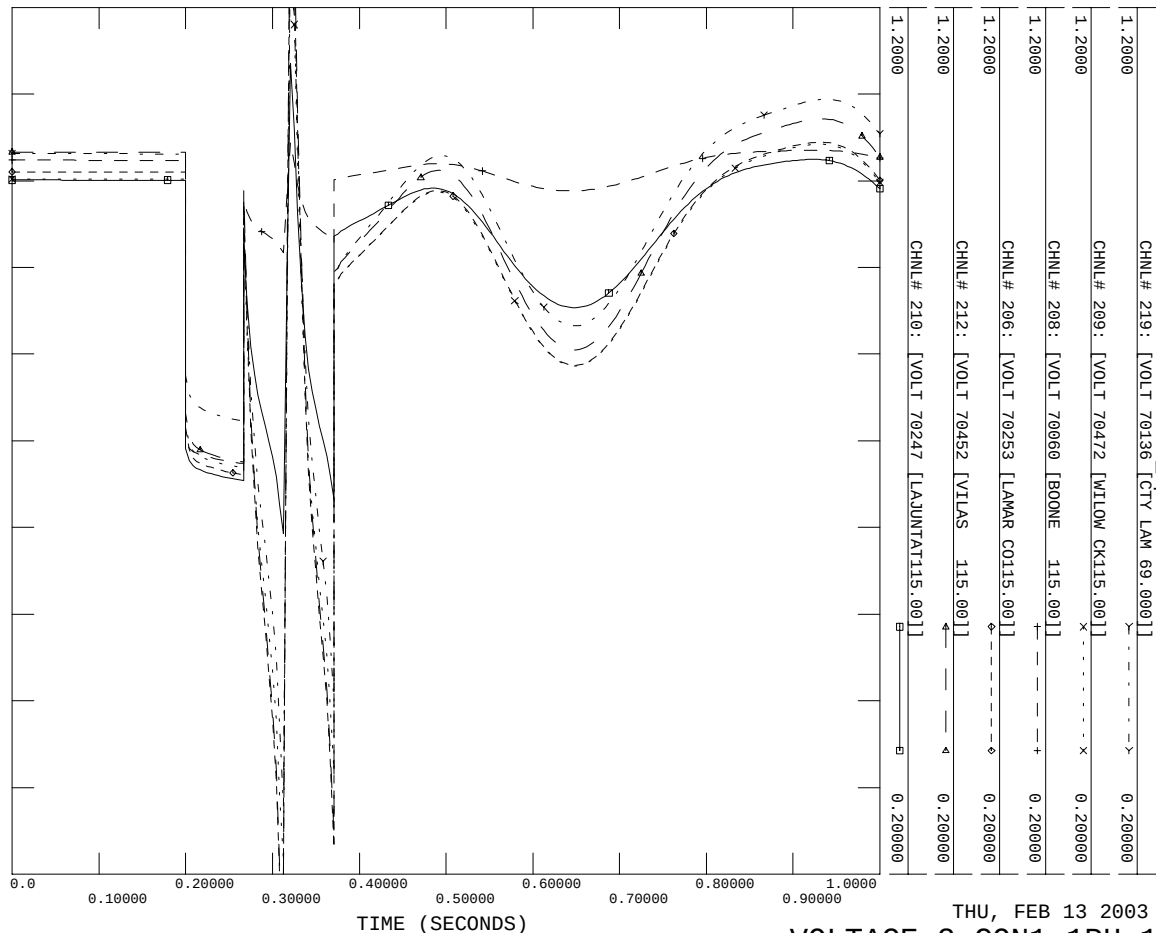
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON1-ON 1ph. OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

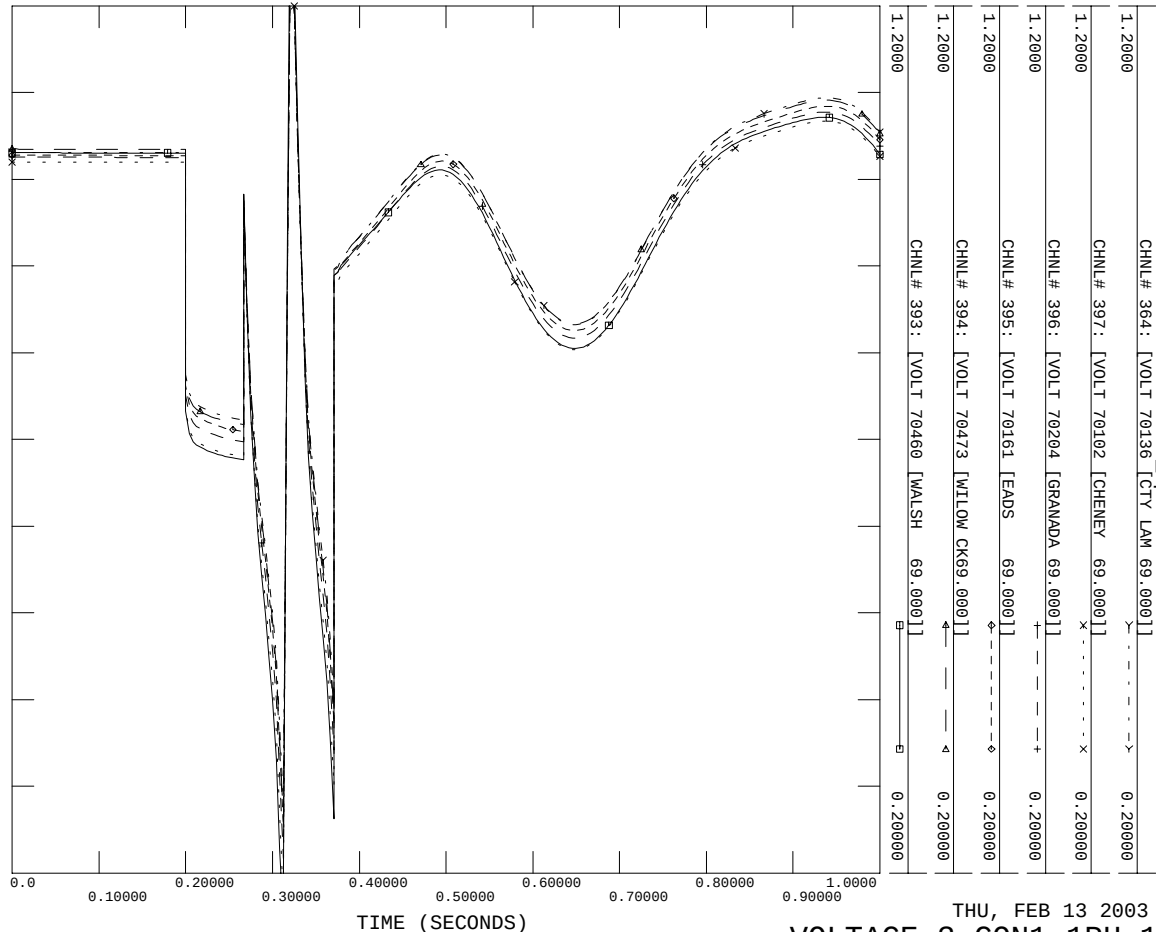
FILE: CON1-ON 1ph. OUT





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON1-ON 1ph. OUT



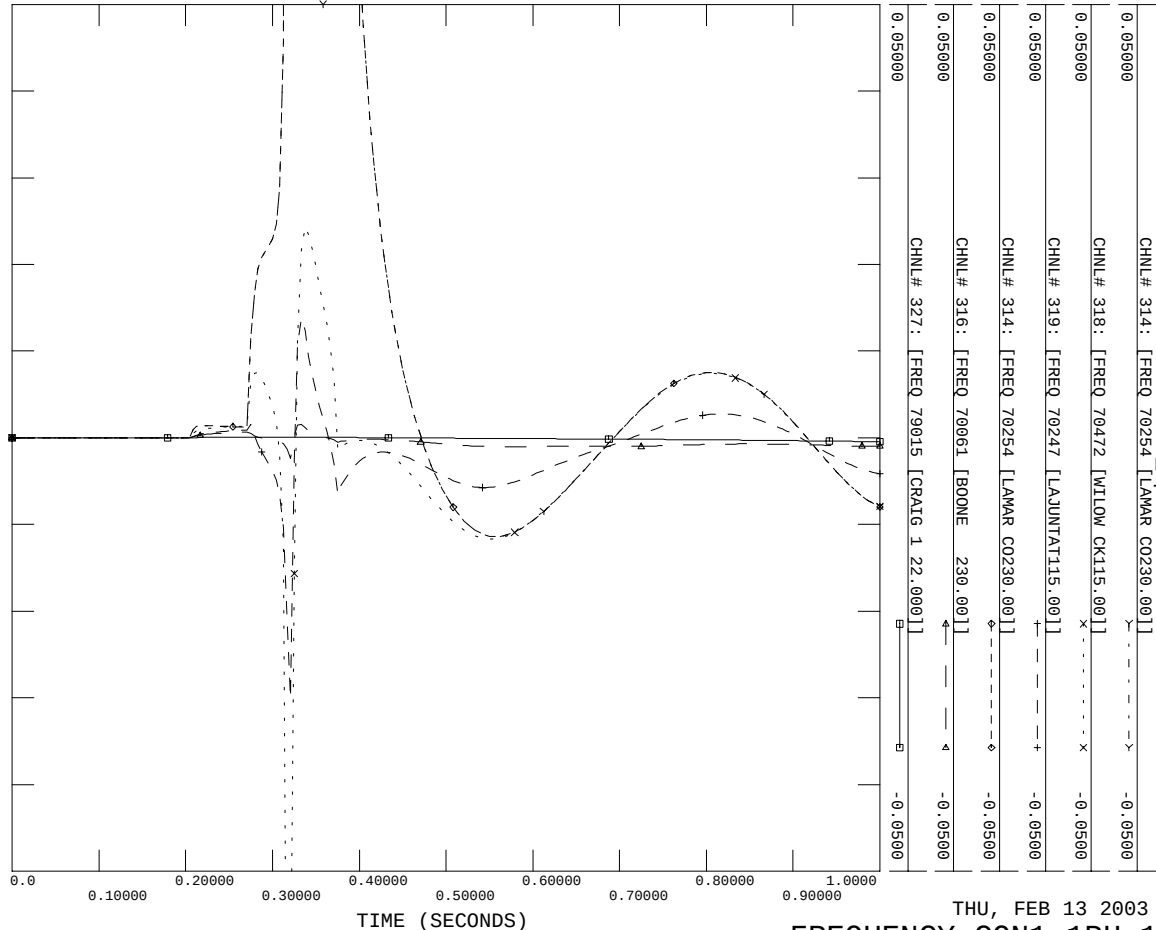
THU, FEB 13 2003 14:47

VOLTAGE 3 CON1 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON1-ON 1ph. OUT



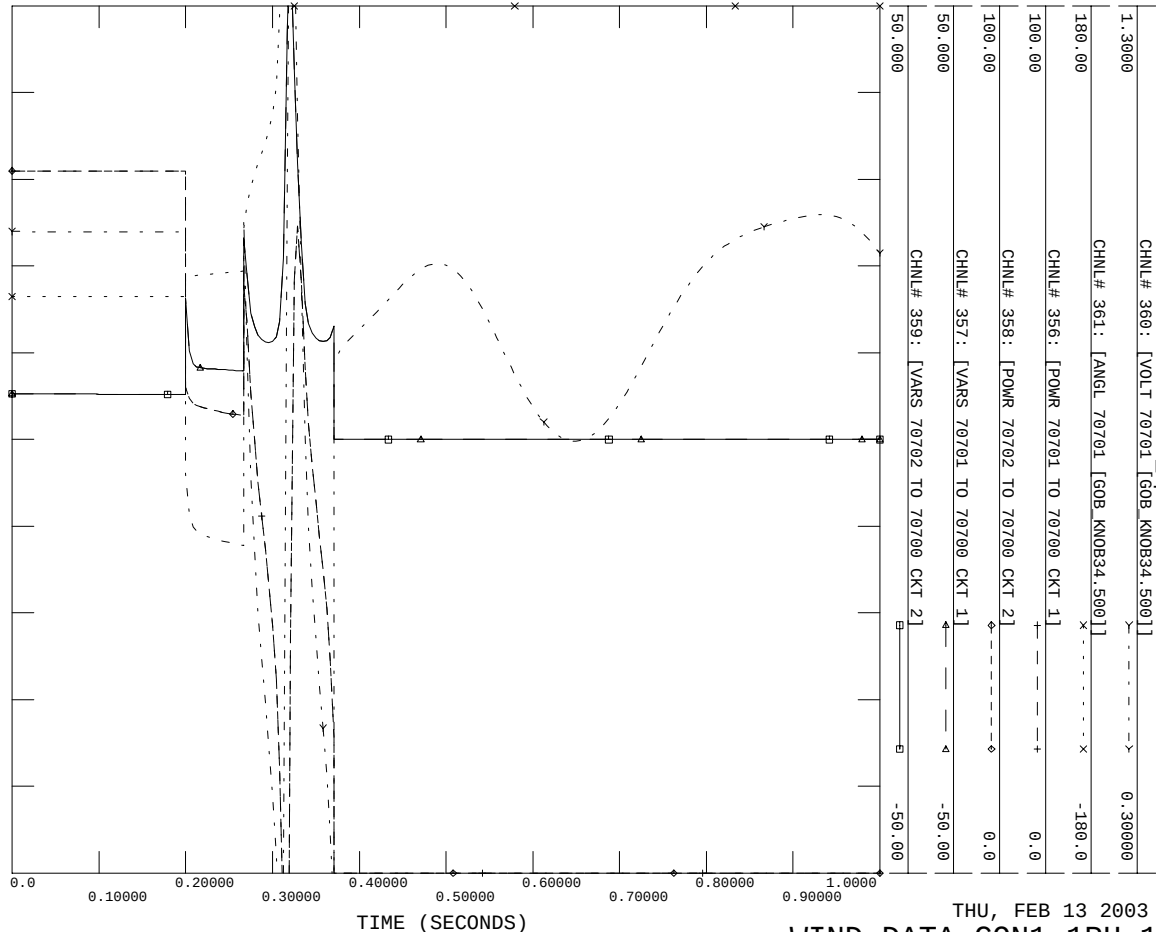
THU, FEB 13 2003 14:47

FREQUENCY CON1 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON1-ON 1ph. OUT



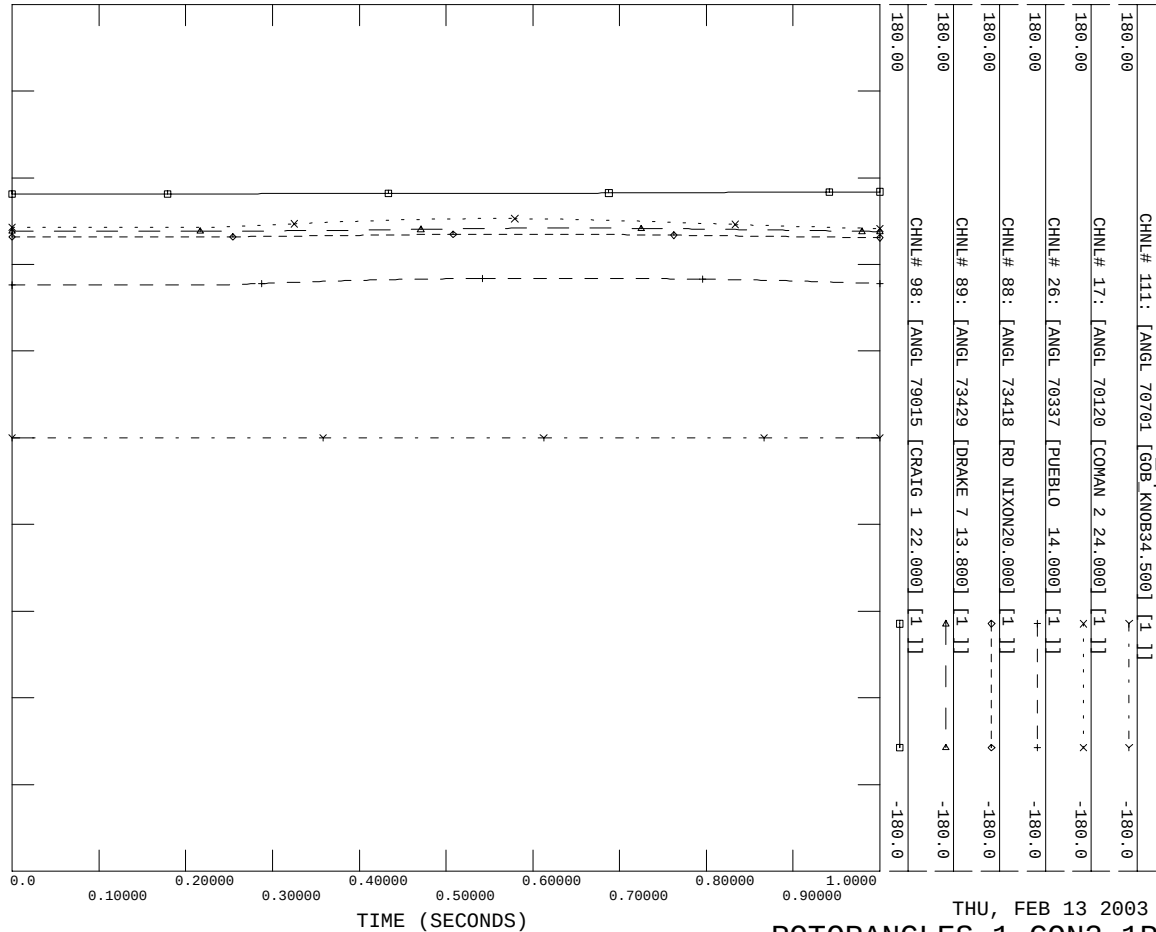
THU, FEB 13 2003 14:47

WIND DATA CON1 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON2-ON 1ph. OUT



THU, FEB 13 2003 14:47

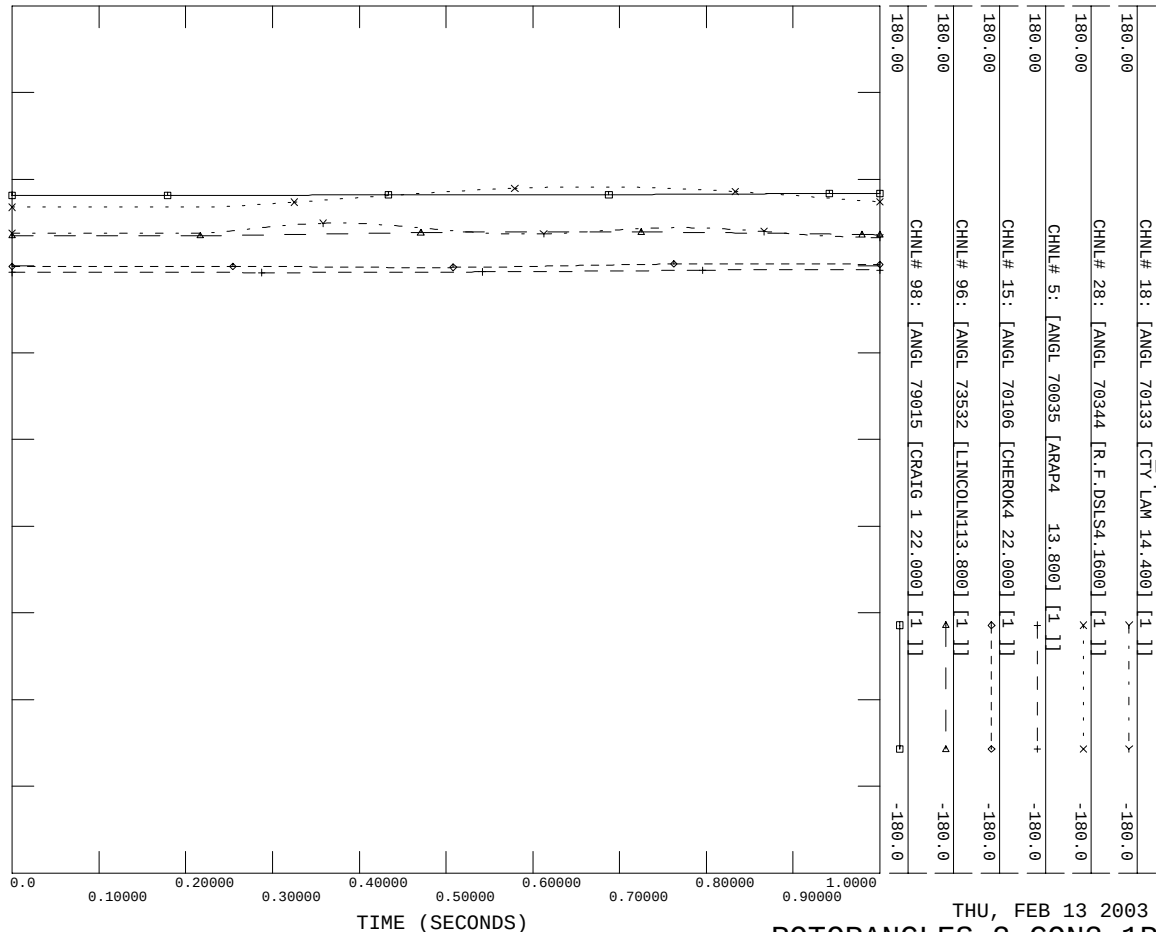
ROTORANGLES 1 CON2 1PH 16



POWER  
TIC  
WIND LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

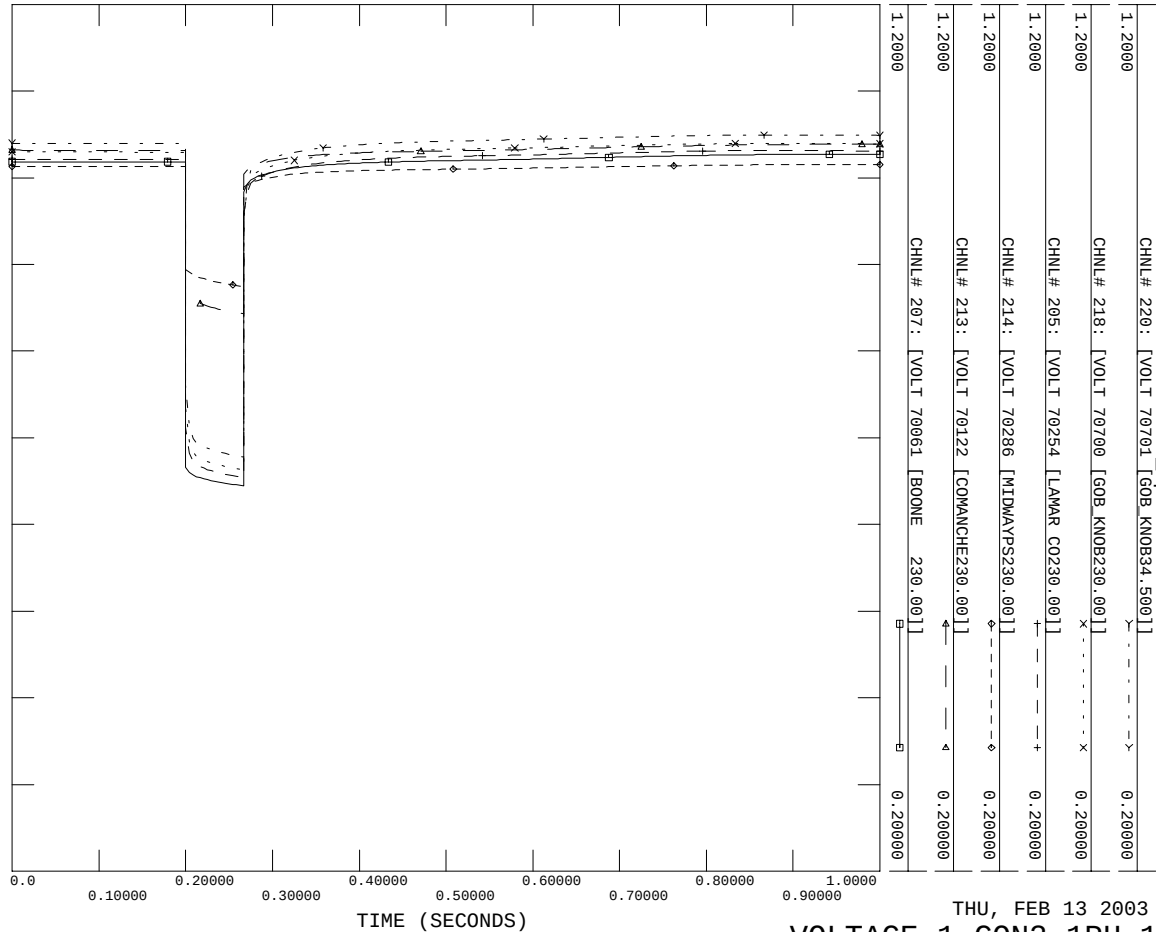
FILE: CON2-ON\_1ph.0UT



POWER  
TIC  
WIND LOADS

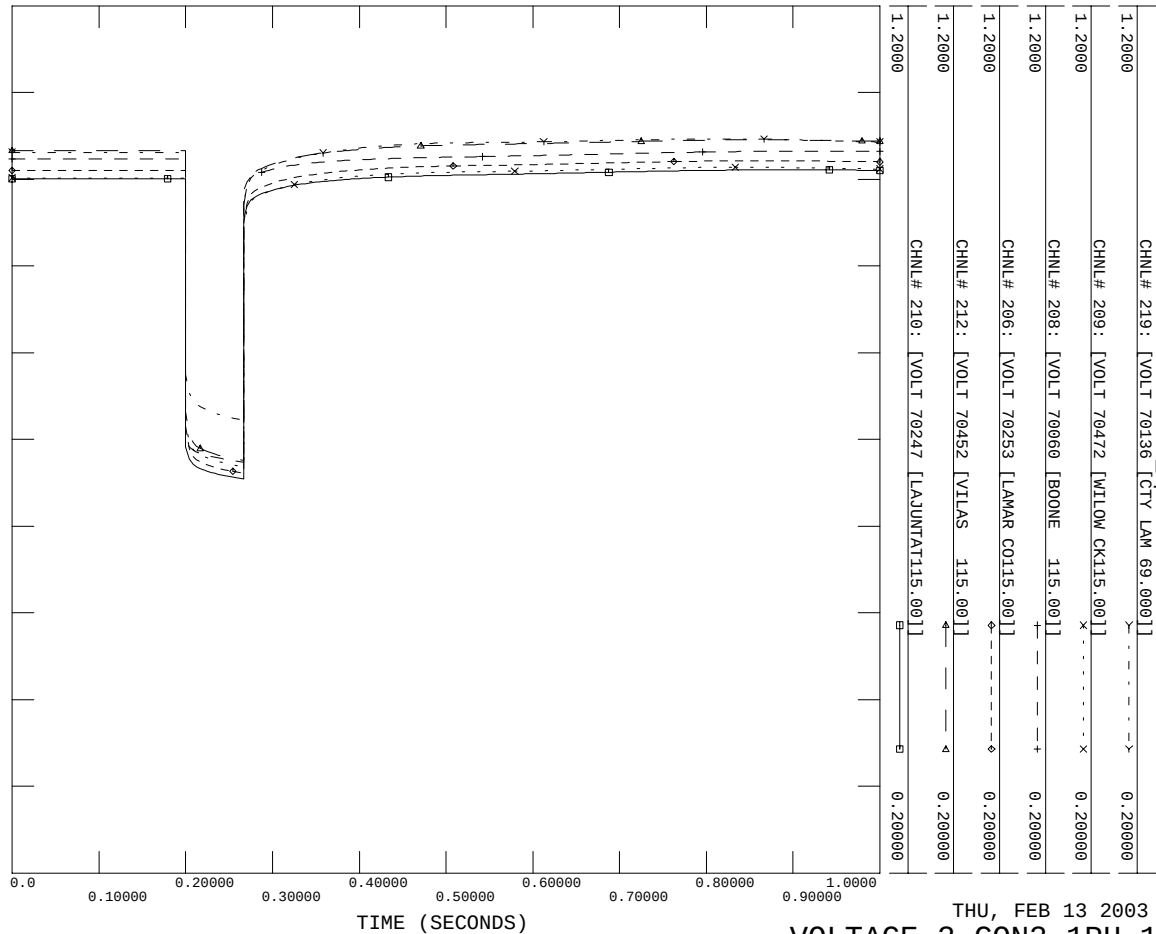
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON2-ON\_1ph.0UT



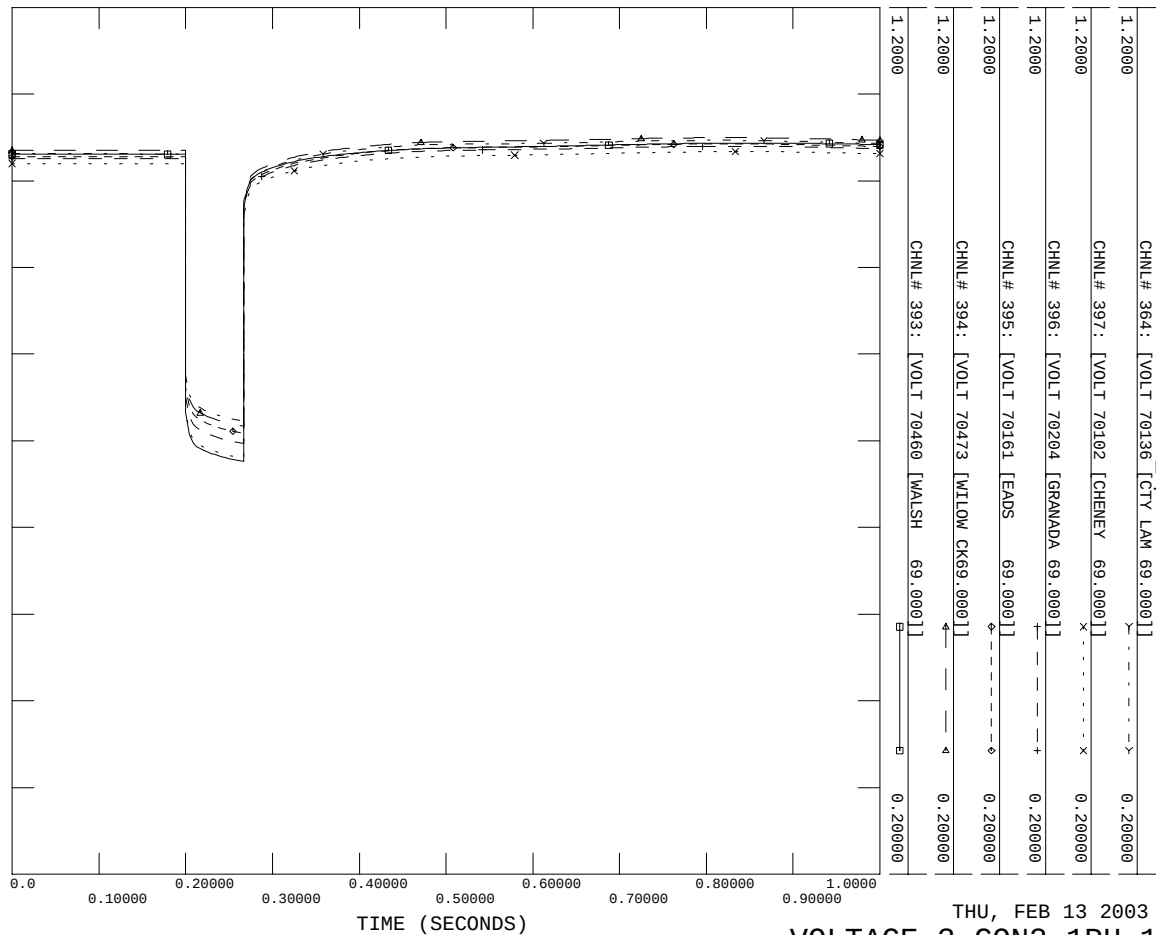
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON2-ON 1ph. OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON2-ON 1ph. OUT

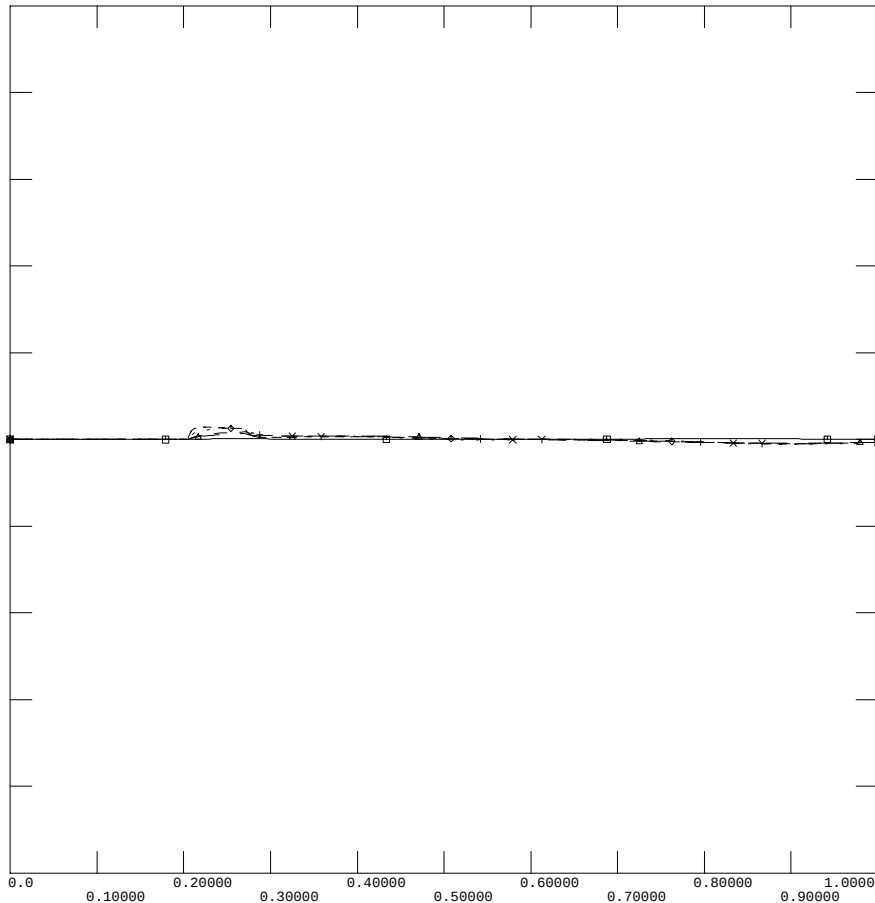




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON2-ON 1ph. OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



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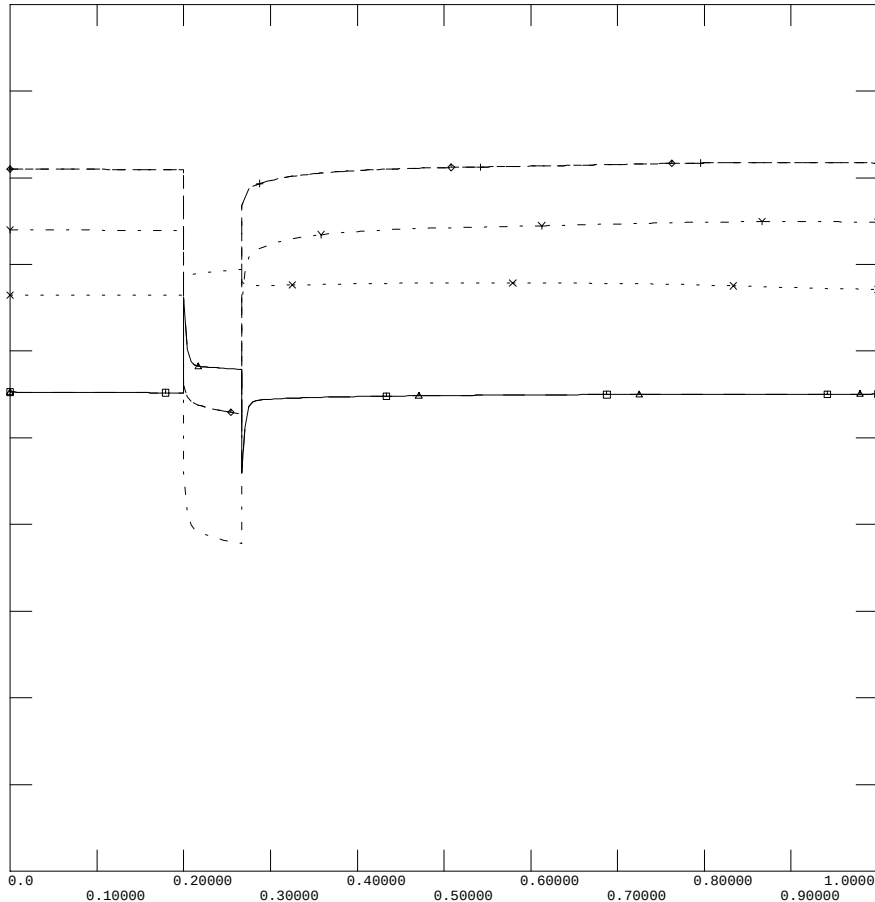
FREQUENCY CON2 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON2-ON 1ph. OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON2 1PH 162MW



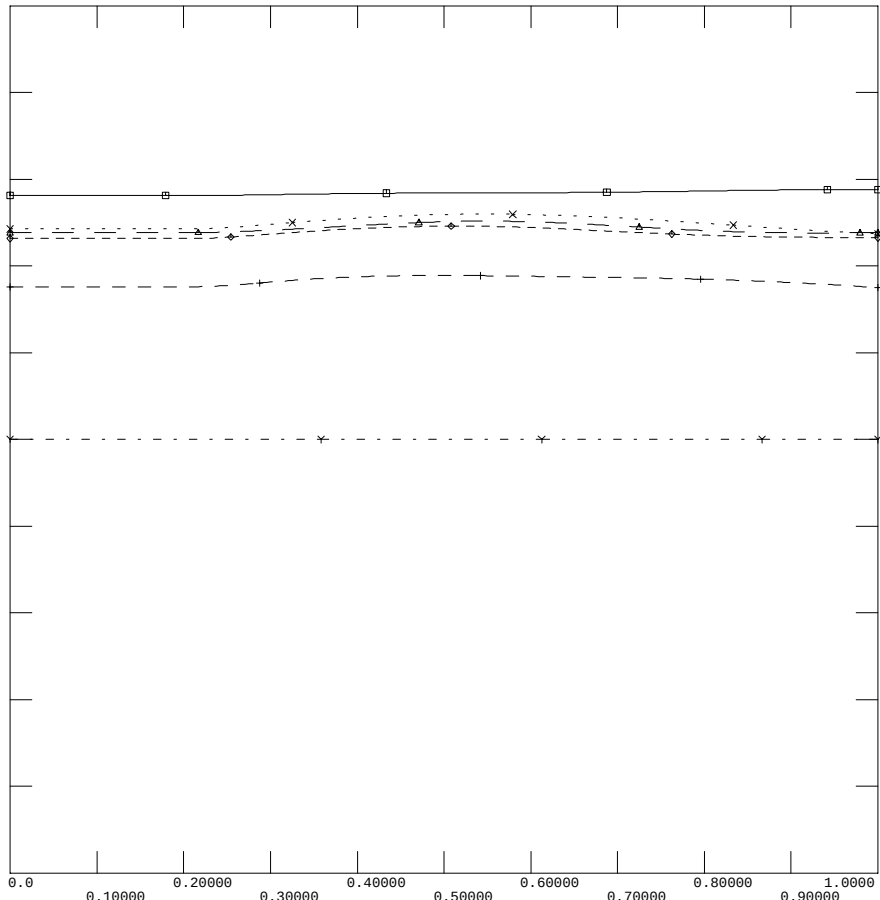


POWER  
TIC  
0.00015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON4-ON 1ph. OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON4 1PH 16

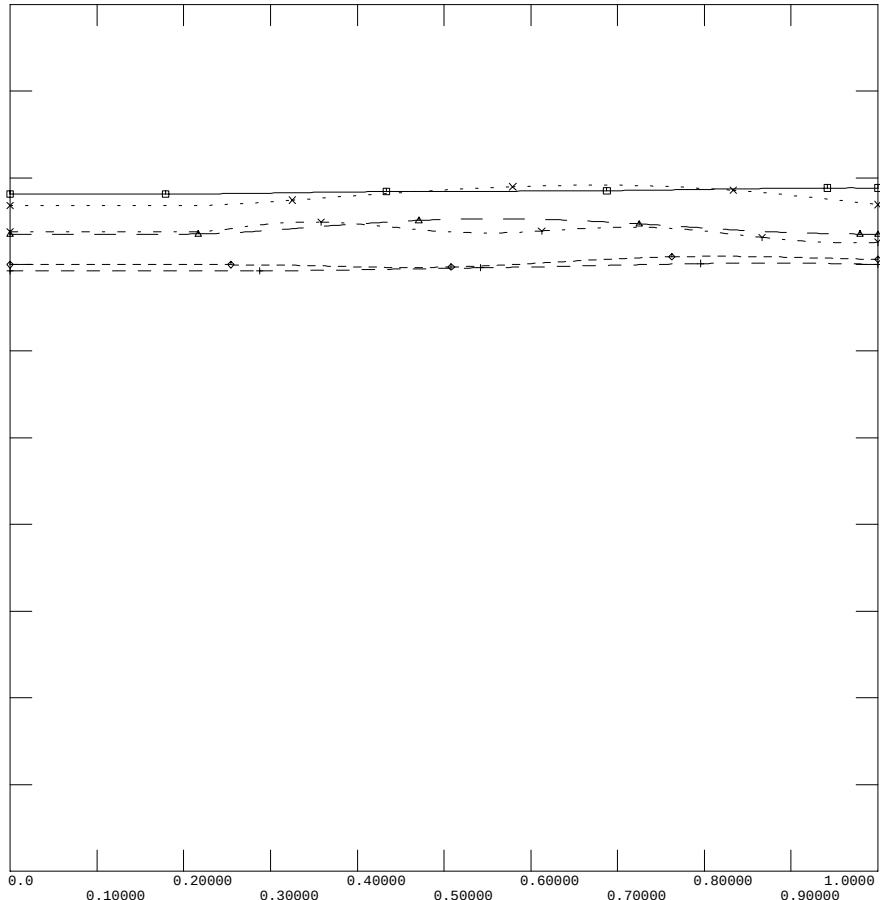


POWER  
TIC  
0.00015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON4-ON 1ph. OUT

|        |                                               |        |
|--------|-----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]]  | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]]  | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]     | -180.0 |
| 180.00 | CHNL# 15: [ANGL 70106 [CHEROKEE 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: [ANGL 73532 [LINCOLN113.800] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]]  | -180.0 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON4 1PH 16

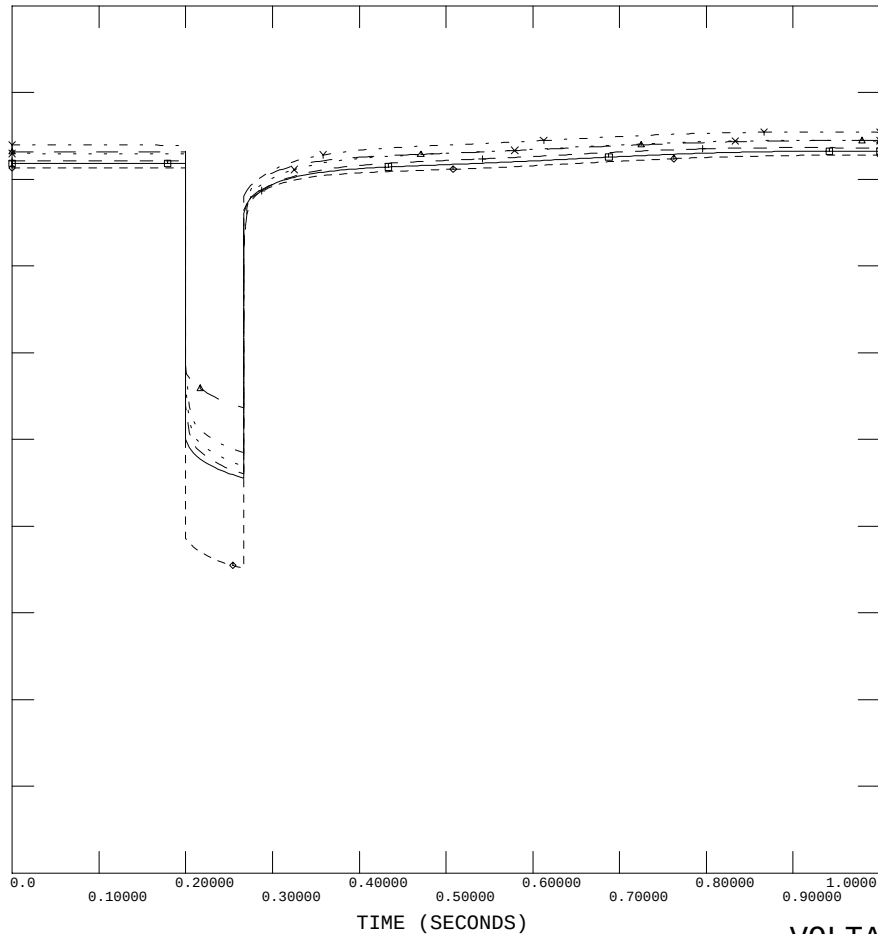
2003 HS - FROM 2003HS4C OPERATING CASE 2003HSA7073AD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON4-ON\_1ph.0UT

|        |                                           |   |         |
|--------|-------------------------------------------|---|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB_KNOB34.5001]] | Y | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB_KNOB230.001]] | X | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR_C0230.001]] | + | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.001]] | + | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.001]] | + | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70001 [BOONE 230.001]]   | + | 0.20000 |

THU, FEB 13 2003 14:48

VOLTAGE 1 CON4 1PH 162MW



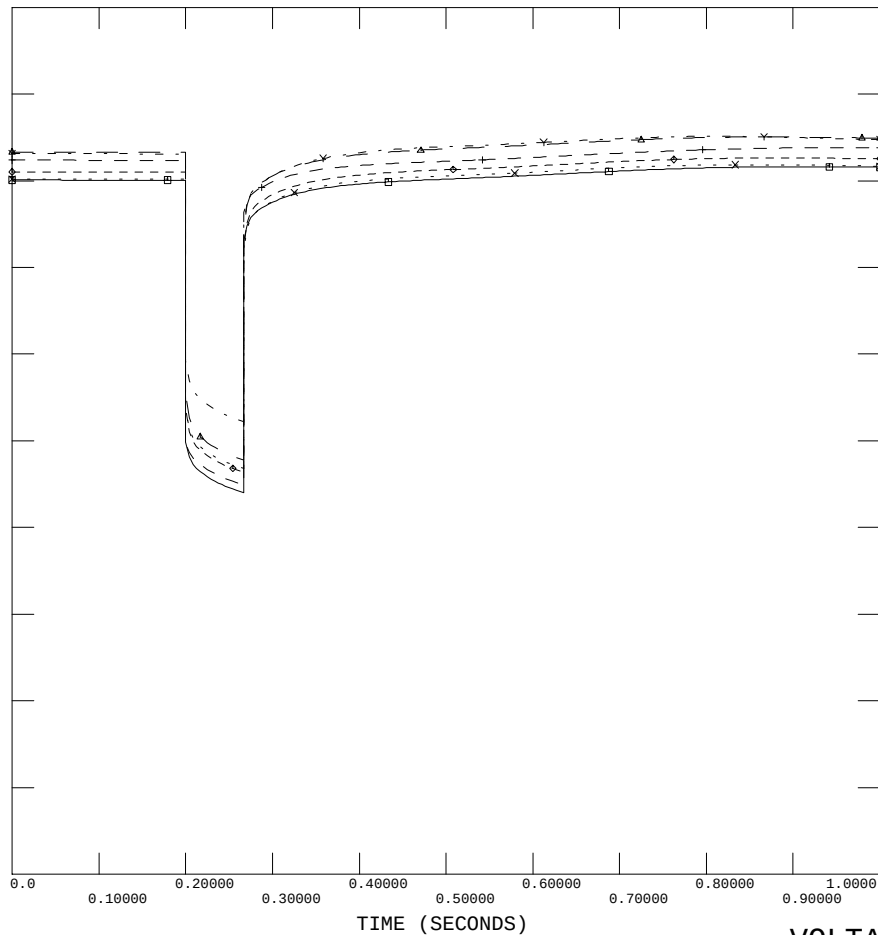
2003 HS - FROM 2003HSAC OPERATING CASE 2003HSAT073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON4-ON\_1ph.OUT

|        |                                            |   |         |
|--------|--------------------------------------------|---|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]   | Y | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.001]] | X | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.001]]    | + | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR CO115.001]]  | + | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.001]]    | + | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTA115.001]]   | + | 0.20000 |
| 1.2000 |                                            |   |         |

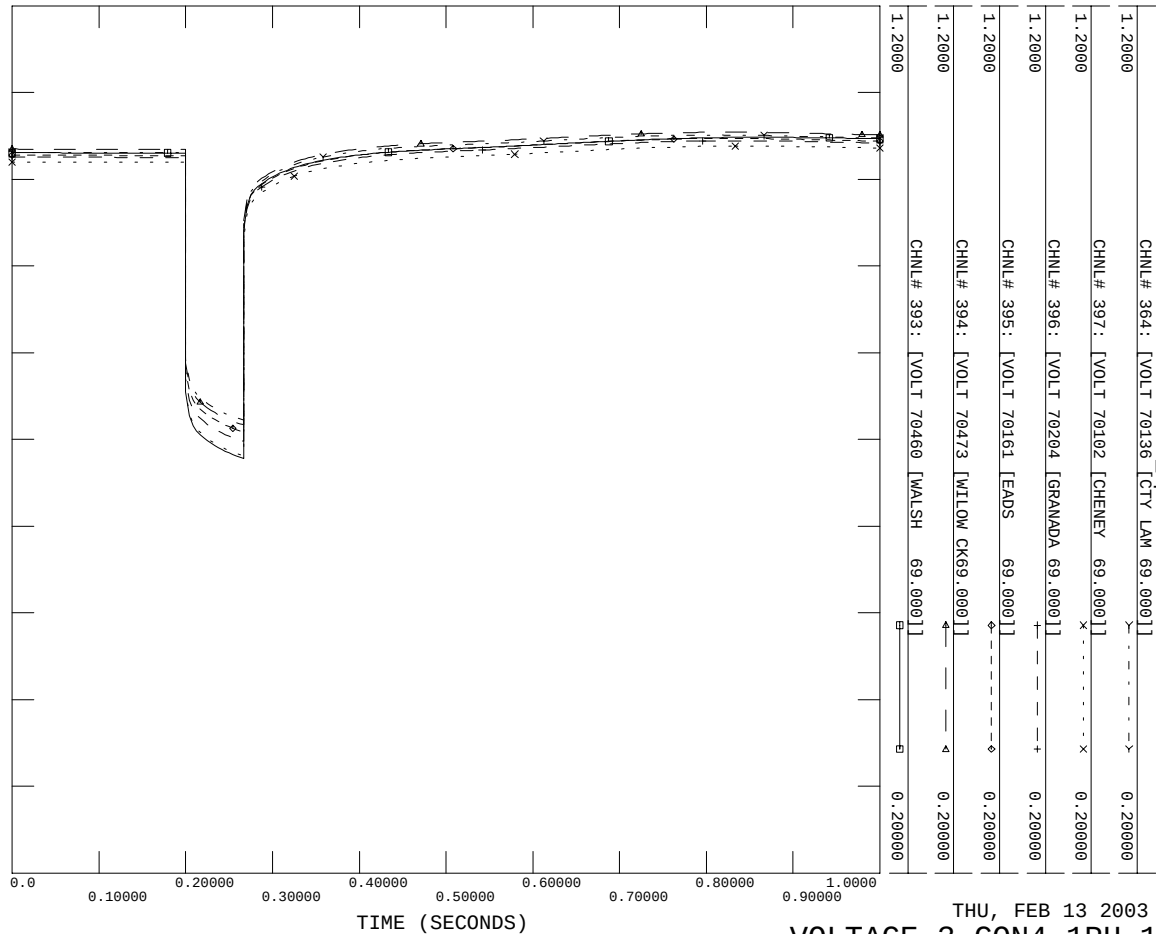
THU, FEB 13 2003 14:48

VOLTAGE 2 CON4 1PH 162MW



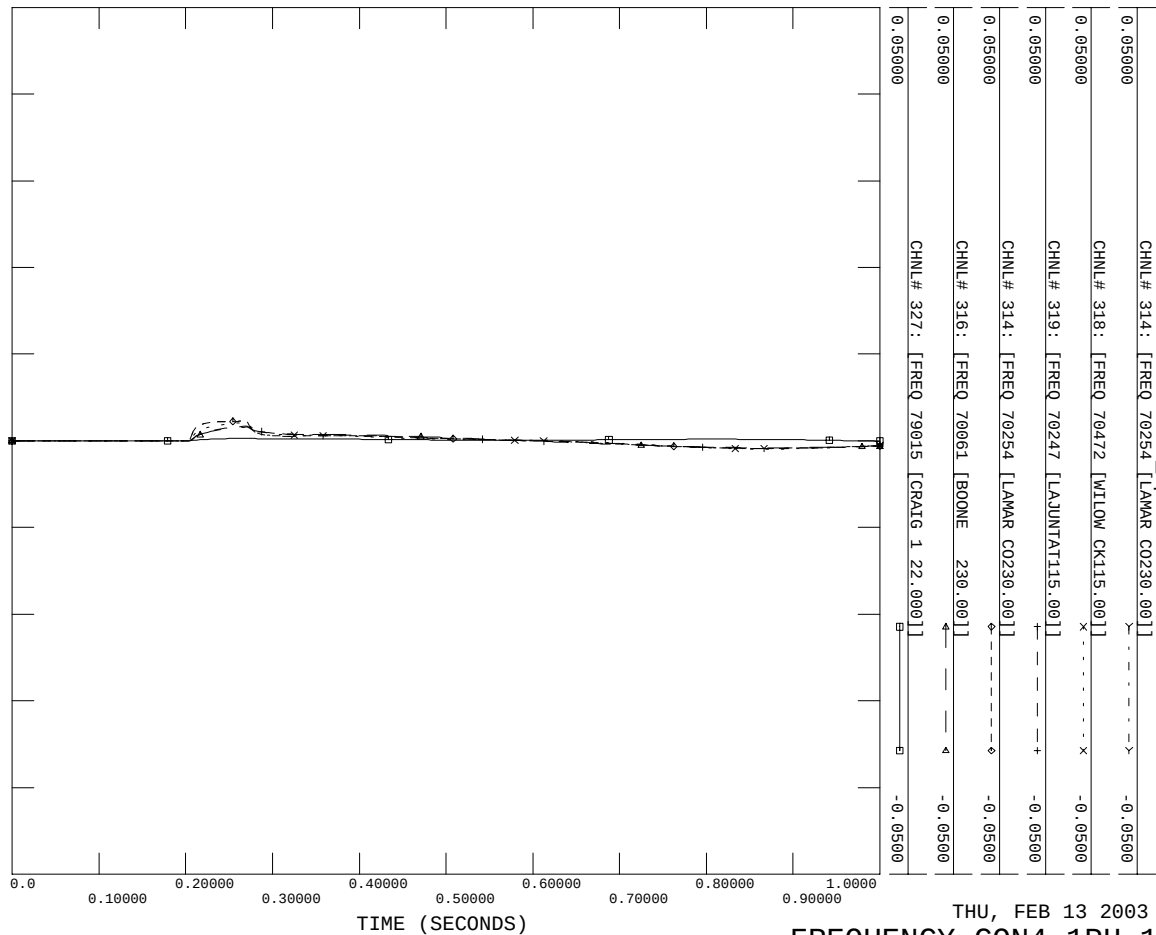
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON4-ON 1ph. OUT



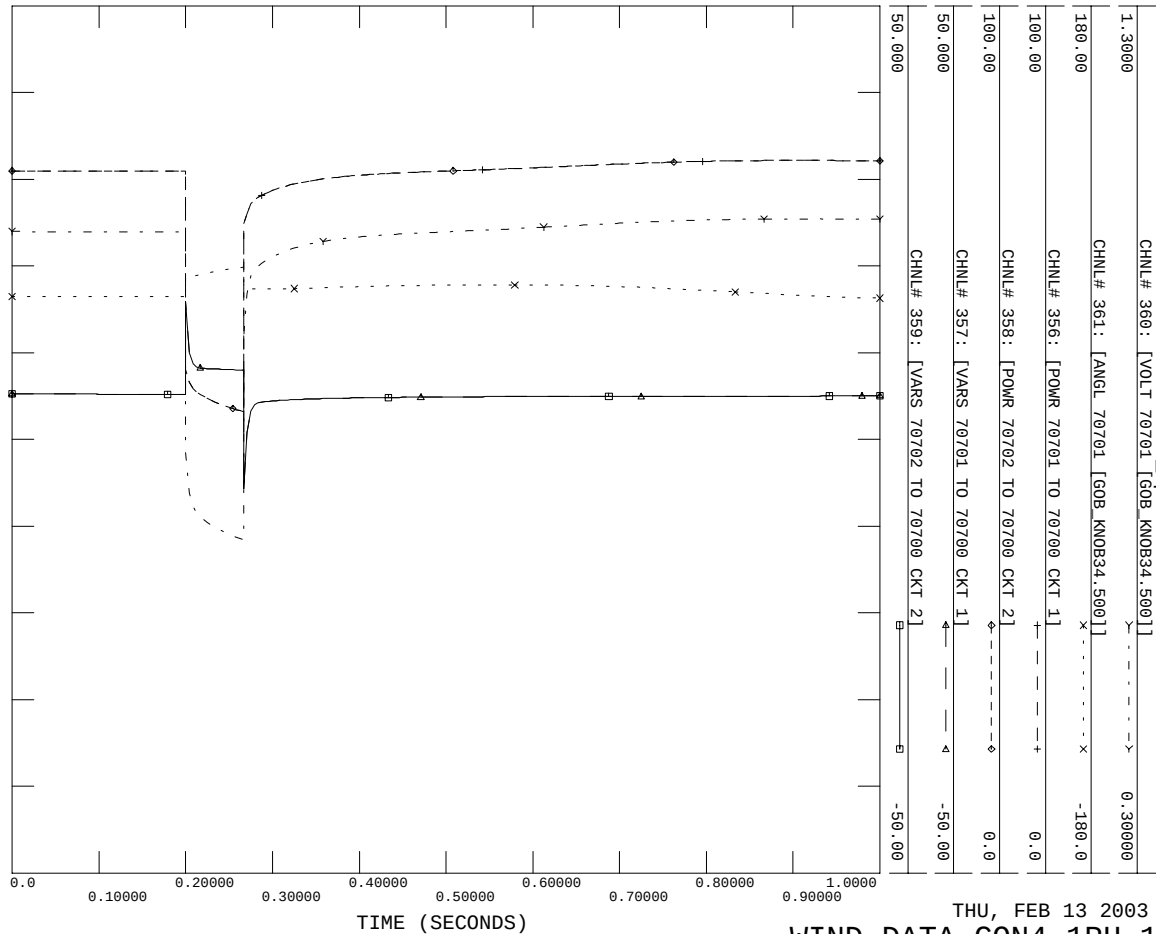
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON4-ON 1ph. OUT



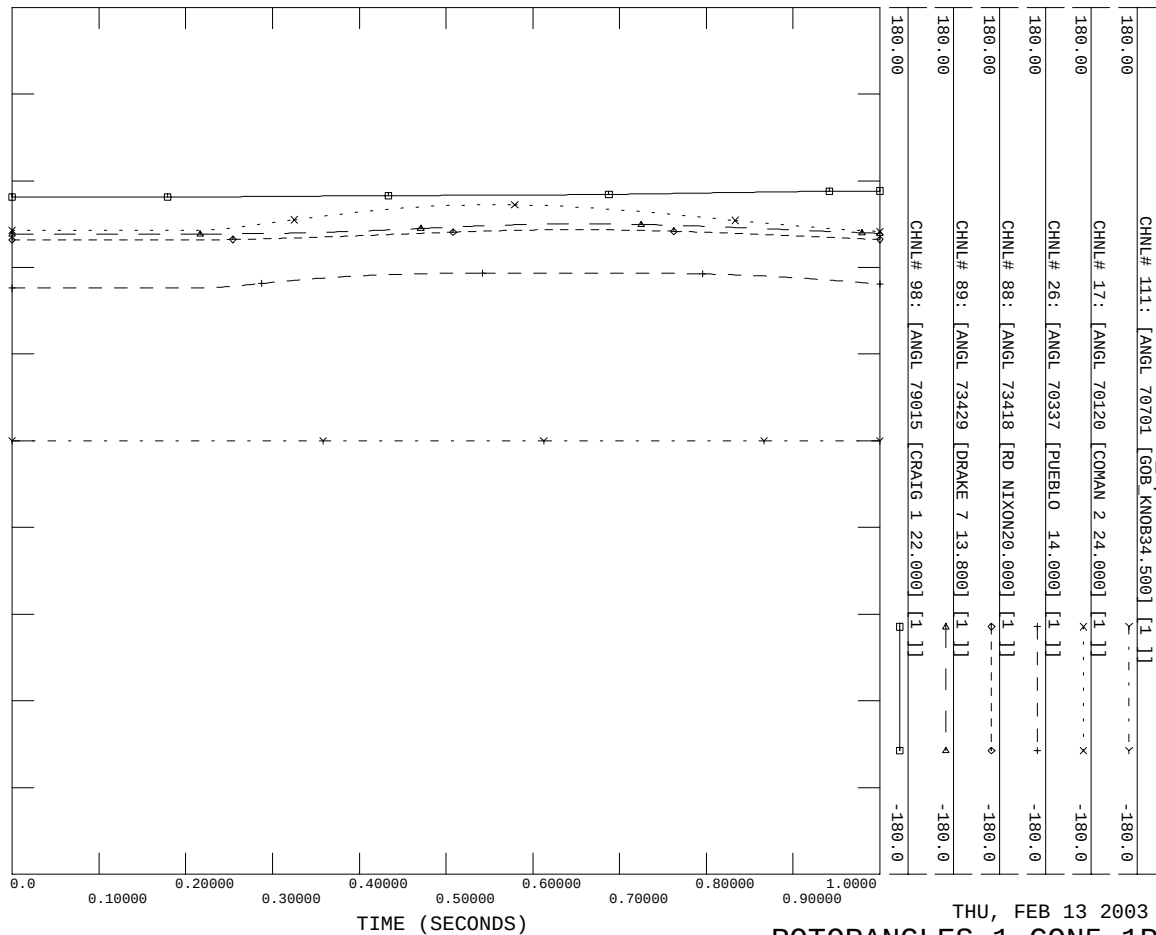
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON4-ON\_1ph\_OUT



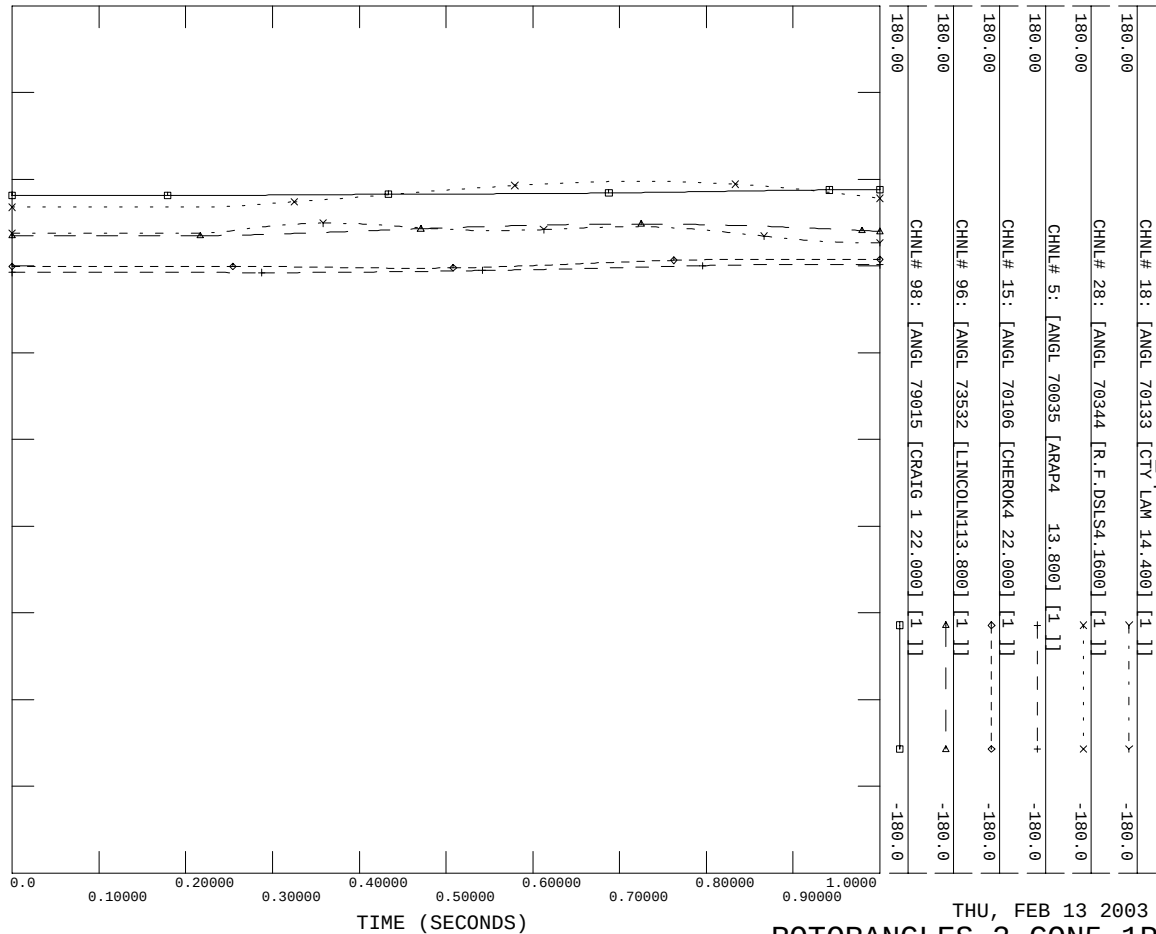
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON5-ON\_1ph\_OUT



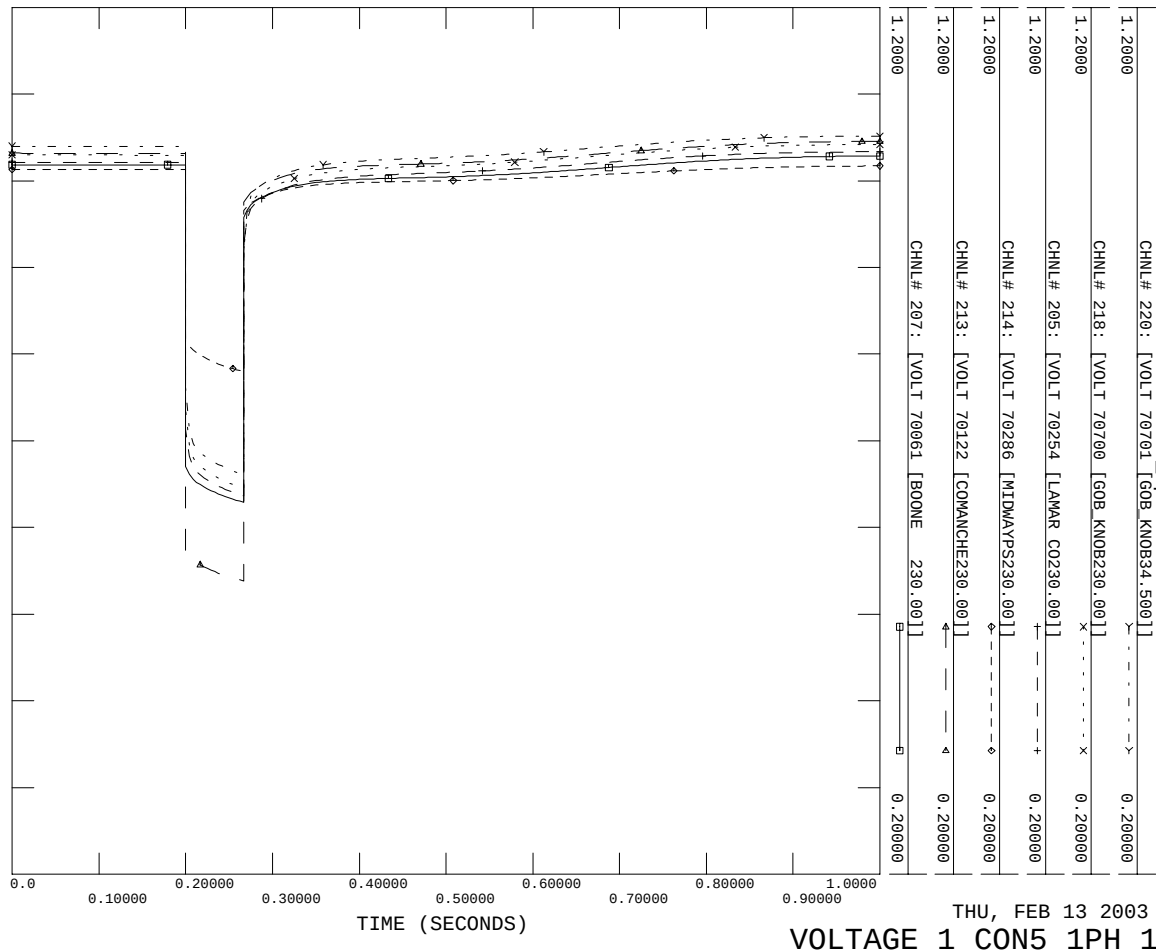
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON5-ON\_1ph.0UT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON5-ON\_1ph.0UT



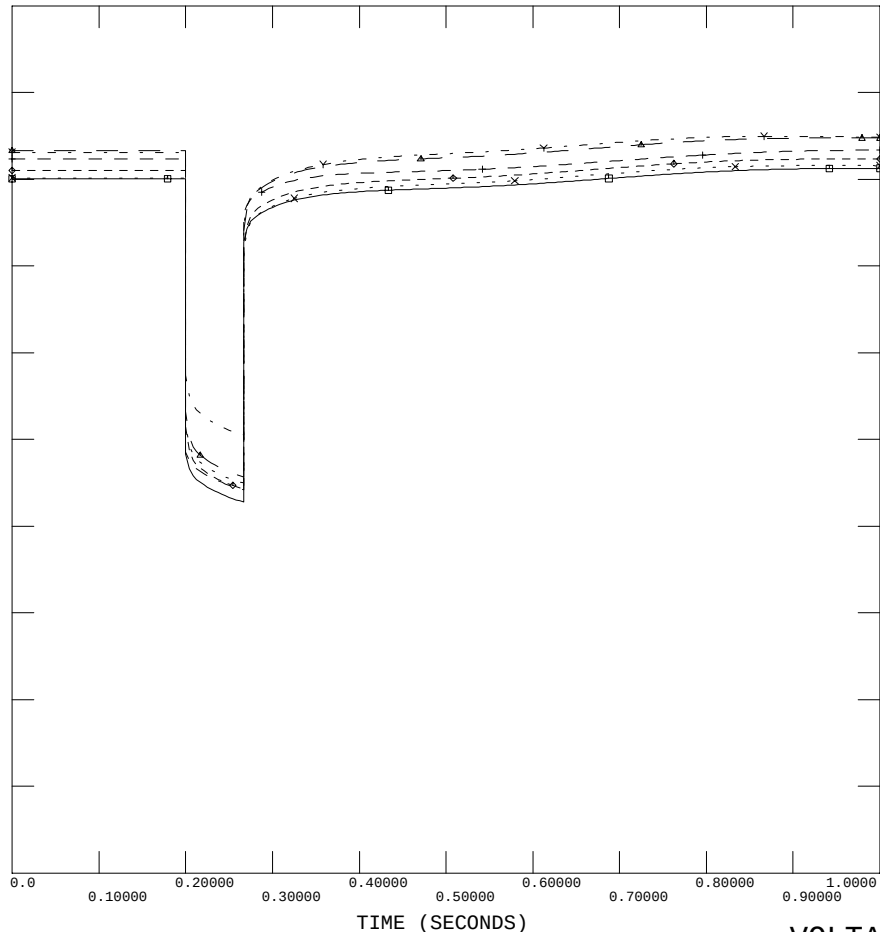


POWER  
TIC  
WIND  
LOGS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON5-ON 1ph. OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



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VOLTAGE 2 CON5 1PH 162MW

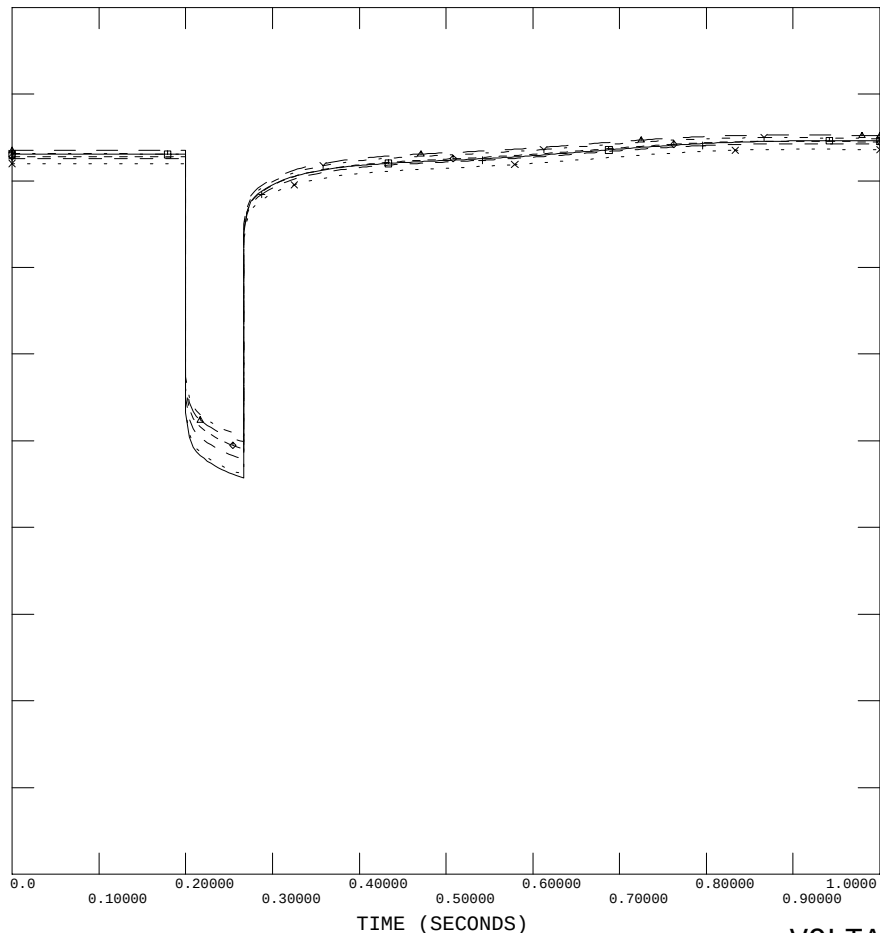


POWER  
TIC  
WIND  
LOGS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON5-ON 1ph. OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



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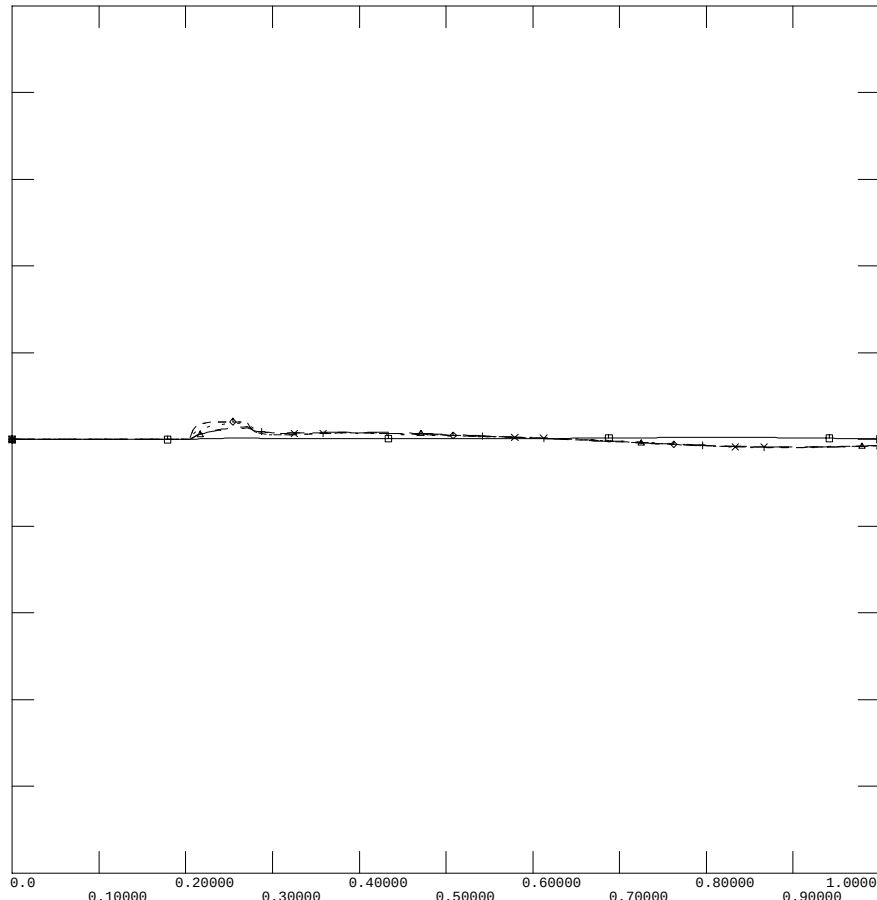
VOLTAGE 3 CON5 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CONS-ON 1ph. OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



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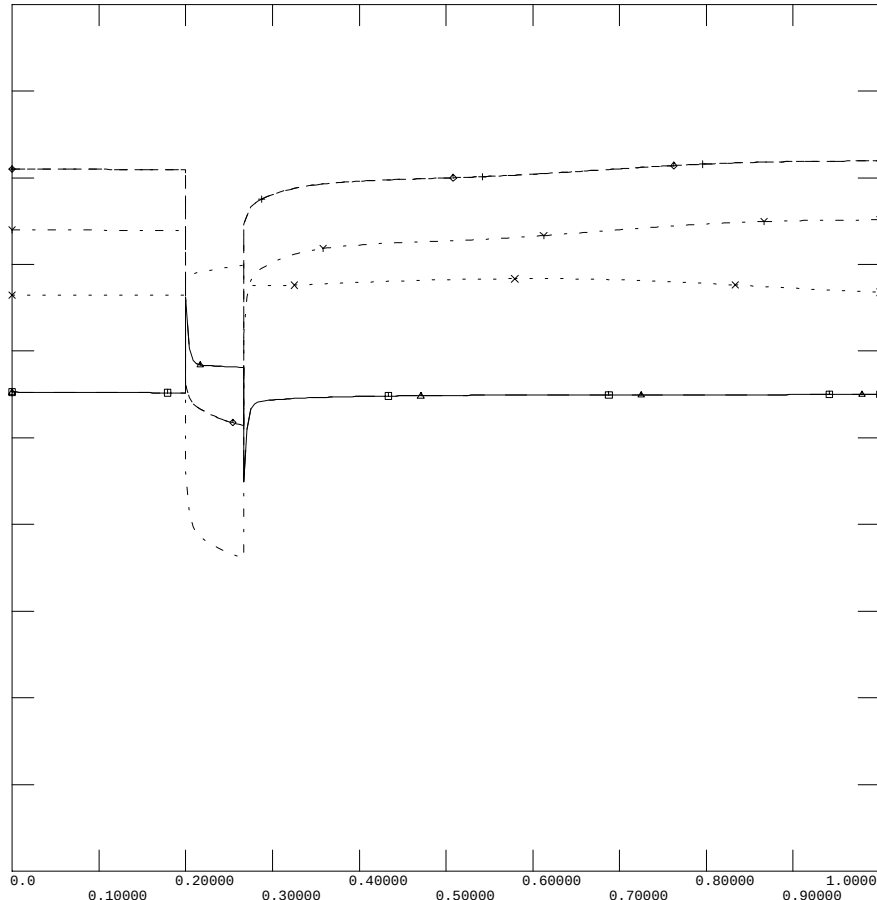
FREQUENCY CON5 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CONS-ON 1ph. OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON5 1PH 162MW

2003 HS - FROM 2003HS4C OPERATING CASE 2003HSA7073AD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON6-ON\_1ph.0UT

CHNL# 111: [ANGL 70701 [GOB\_KNOB34.500] [1]]

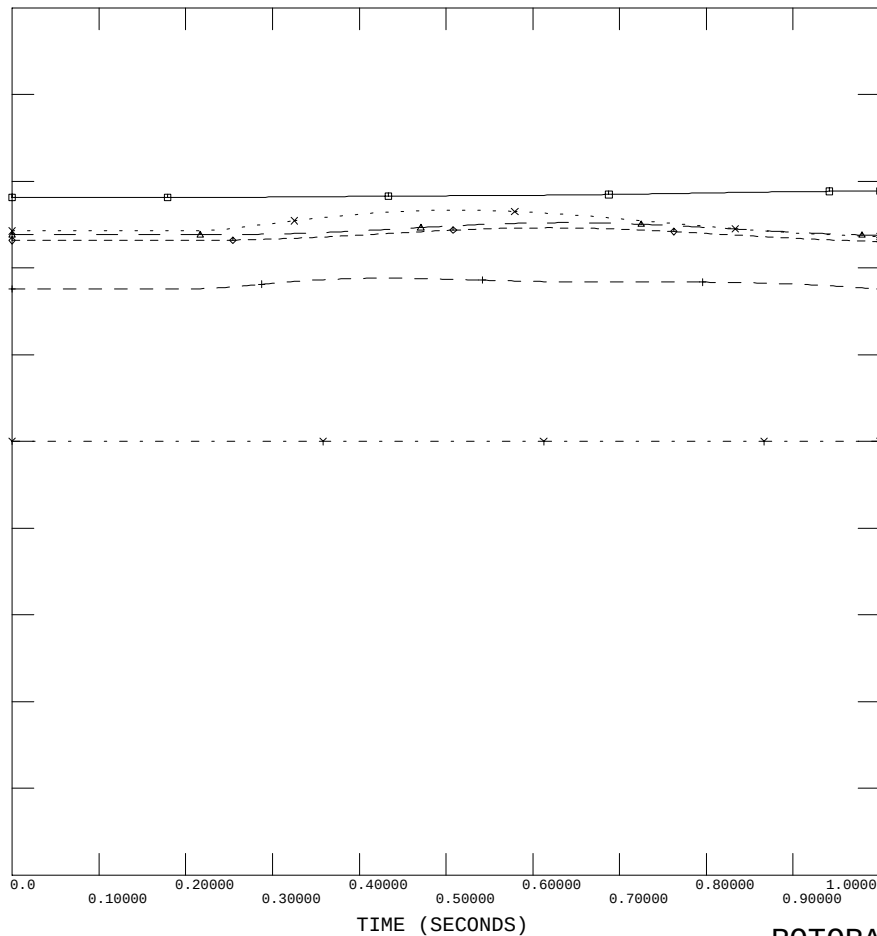
|                                              |               |        |
|----------------------------------------------|---------------|--------|
| 180.00                                       | Y - - - - ->  | -180.0 |
| CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1 ]] |               |        |
| 180.00                                       | X - - - - - X | -180.0 |

CHNL # 26: [ANGL 70337 [PUEBLO 14.000] [1 ]]

[illegible]

|                                              |        |        |
|----------------------------------------------|--------|--------|
| 180.00                                       | -----◇ | -180.0 |
| CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1 ]] |        |        |

|                                              |   |        |
|----------------------------------------------|---|--------|
| 180.00                                       | 4 | -180.0 |
| CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1 ]] |   |        |



0.90000 THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON6 1PH 16

2003 HS - FROM 2003HS4C OPERATING CASE 2003HSA6734DD.SAV  
A/A70, 73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON6-ON\_1ph.OUT

CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1]]

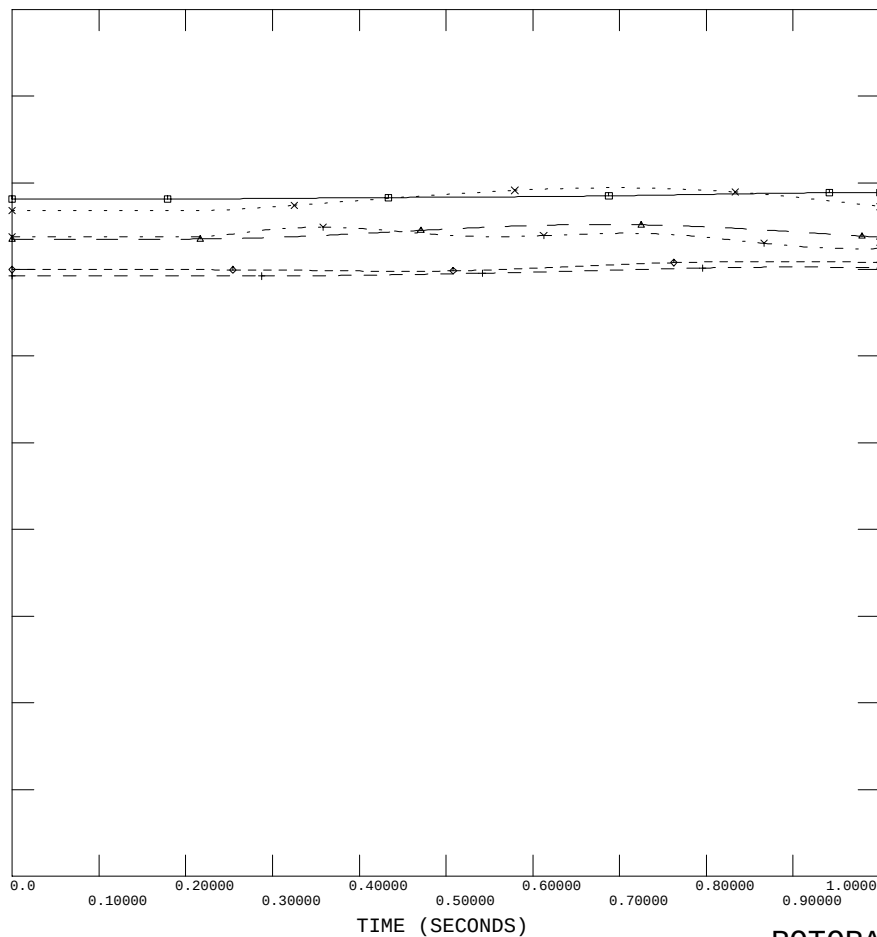
|                                               |               |        |
|-----------------------------------------------|---------------|--------|
| 180.00                                        | Y - - - - ->  | -180.0 |
| CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.1]] |               |        |
| 180.00                                        | X - - - - - X | -180.0 |

|                                           |
|-------------------------------------------|
| CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1 ]] |
|-------------------------------------------|

|                                              |   |   |   |   |        |
|----------------------------------------------|---|---|---|---|--------|
| 180.00                                       | - | - | - | - | -180.0 |
| CHNL# 15: [ANGL 70106 [CHEROKA 22.000] [1 ]] |   |   |   |   |        |

|                                             |        |        |
|---------------------------------------------|--------|--------|
| 180.00                                      | -----> | -180.0 |
| CHNL# 96: [ANGL 73532 [LINCOLN13.800] [1 ]] |        |        |

|                                              |   |        |
|----------------------------------------------|---|--------|
| 180.00                                       | 4 | -180.0 |
| CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1 ]] |   |        |



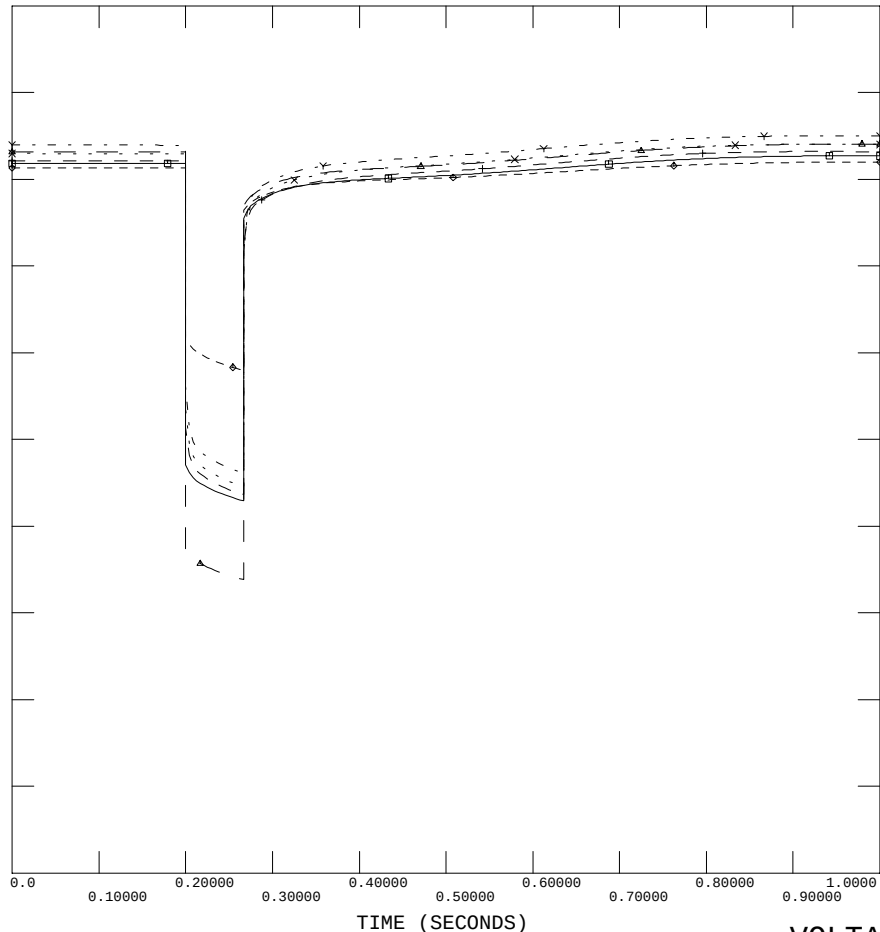
0.90000 THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON6 1PH 16



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON6-ON 1ph. OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [60B.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [60B.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

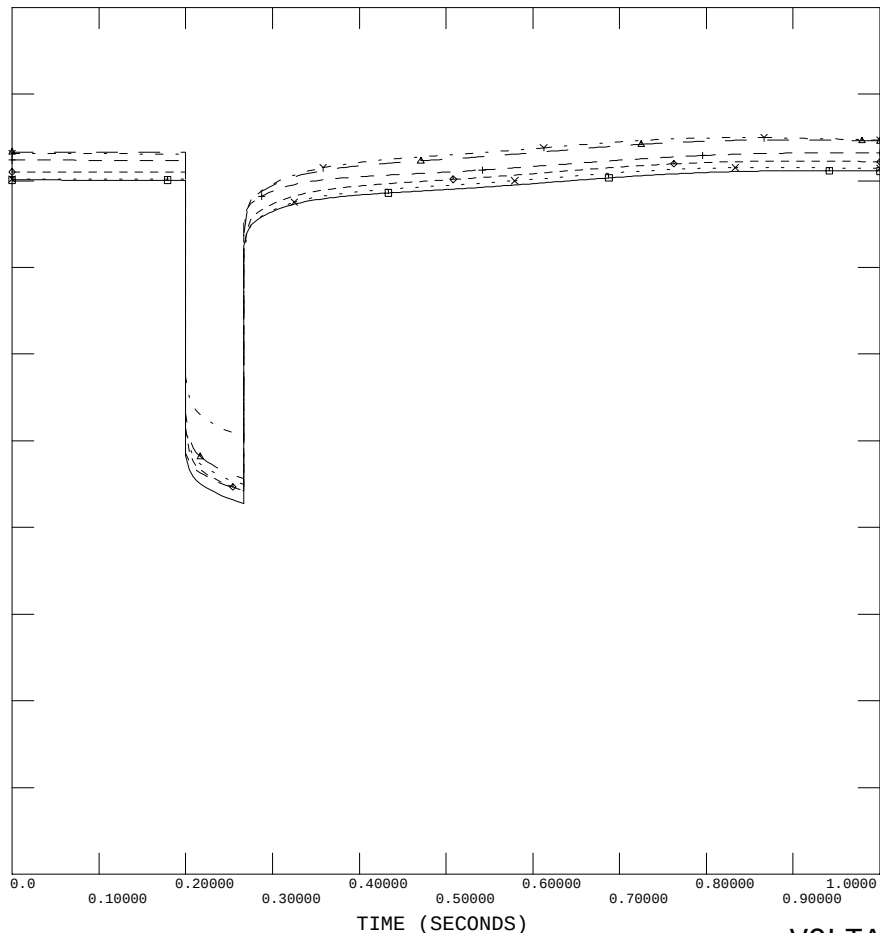


THU, FEB 13 2003 14:48  
VOLTAGE 1 CON6 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON6-ON 1ph. OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

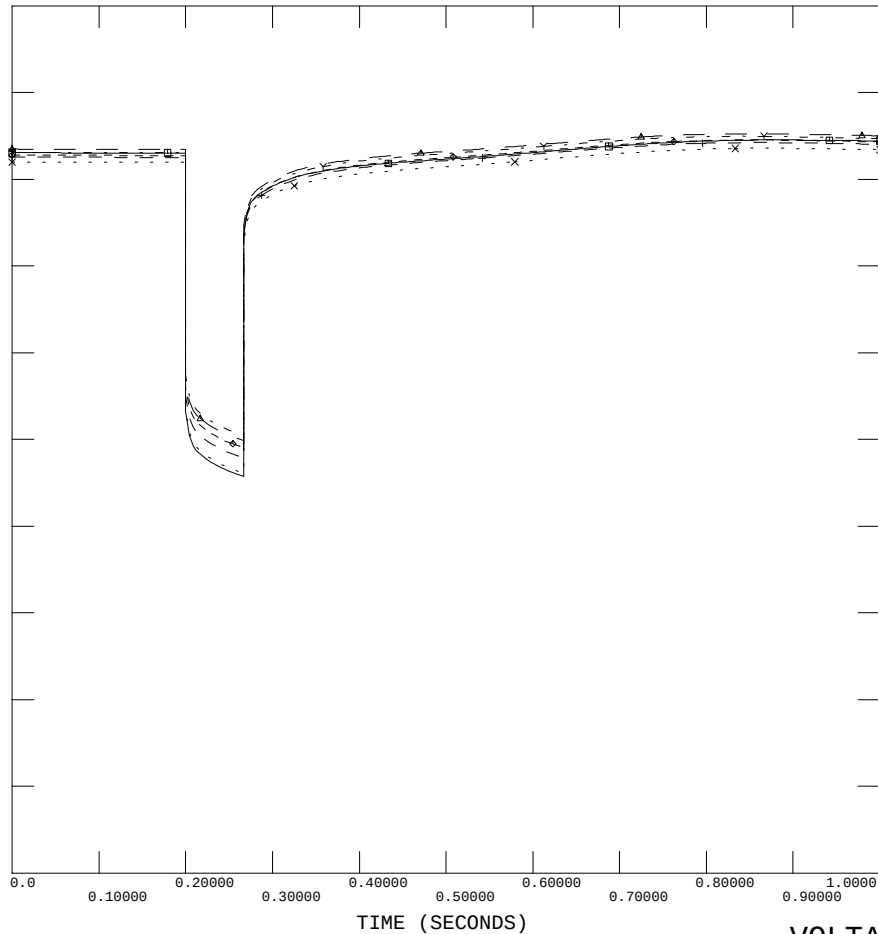


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VOLTAGE 2 CON6 1PH 162MW

2003 HS - FROM 2003HS4C OPERATING CASE 2003HSA7073AD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON6-ON\_1ph.0UT

|        |                                          |   |         |
|--------|------------------------------------------|---|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]] | Y | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]  | X | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]] | + | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]    | + | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [MILOW CK69.000]] | + | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [MALSH 69.000]]   | + | 0.20000 |

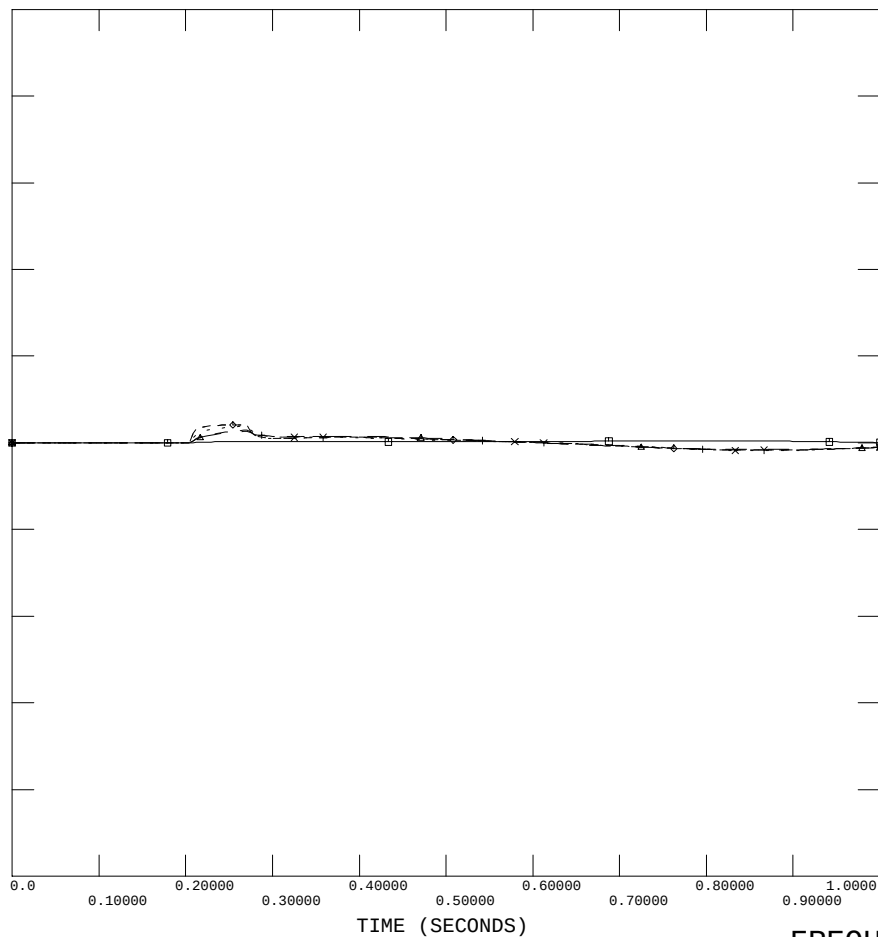


0.90000 THU, FEB 13 2003 14:48  
VOLTAGE 3 CON6 1PH 162MW

2003 HS - FROM 2003HS4C OPERATING CASE 2003HSAT073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON6-ON\_1ph.OUT

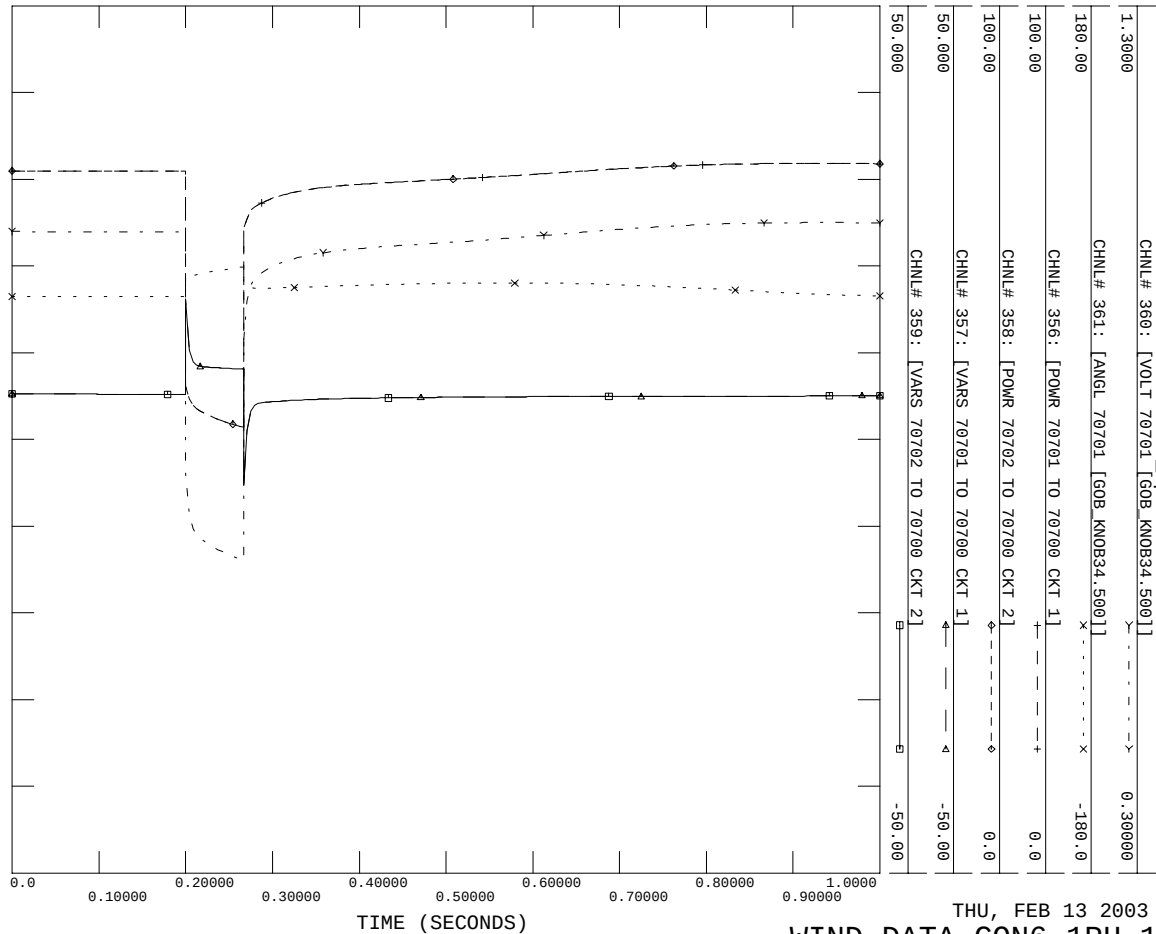
|         |                                           |   |           |         |
|---------|-------------------------------------------|---|-----------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | Y | - - - - - | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | X | - - - - - | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA7115.00]]  | + | - - - - - | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | + | - - - - - | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | + | - - - - - | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | + | - - - - - | -0.0500 |



0.90000 THU, FEB 13 2003 14:48  
FREQUENCY CON6 1PH 162MW

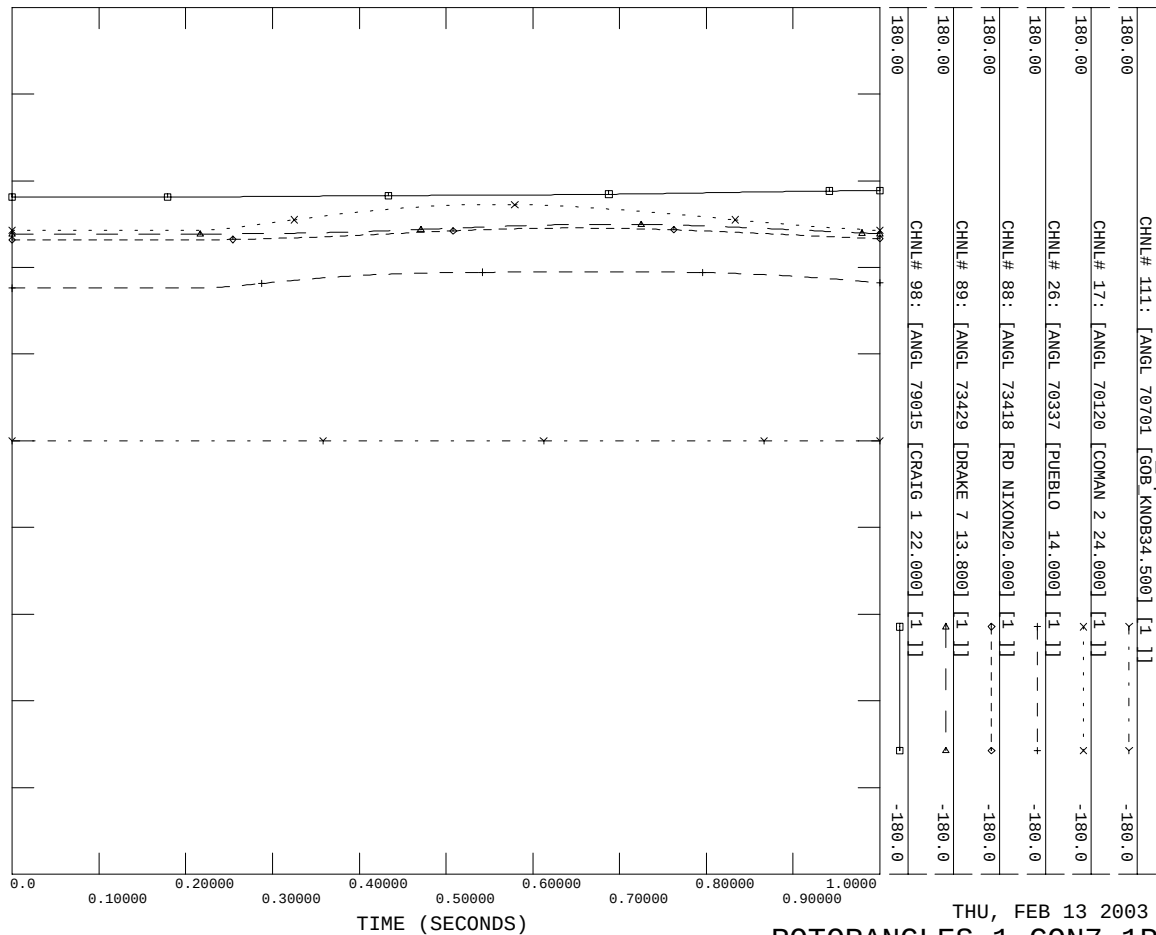
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON6-ON\_1ph\_OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON7-ON\_1ph\_OUT

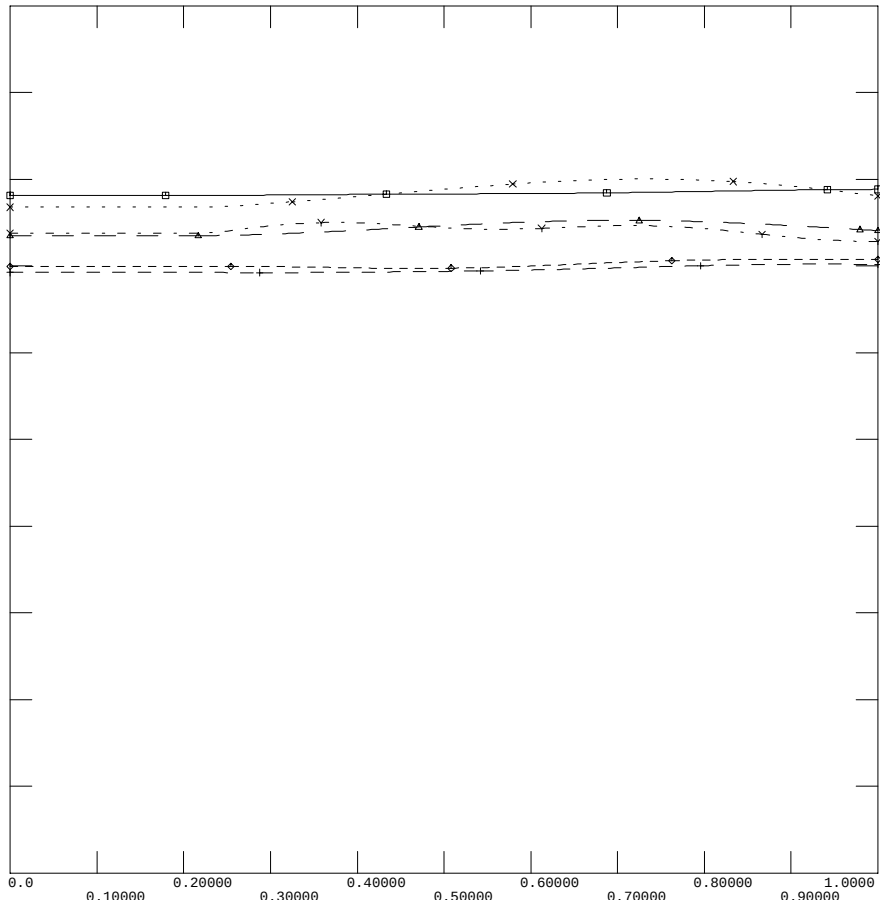




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON7-ON\_1ph\_OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 15: [ANGL 70106 [CHEROK4 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: [ANGL 73532 [LINCOLN113.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1.22.000] [1.]] | -180.0 |



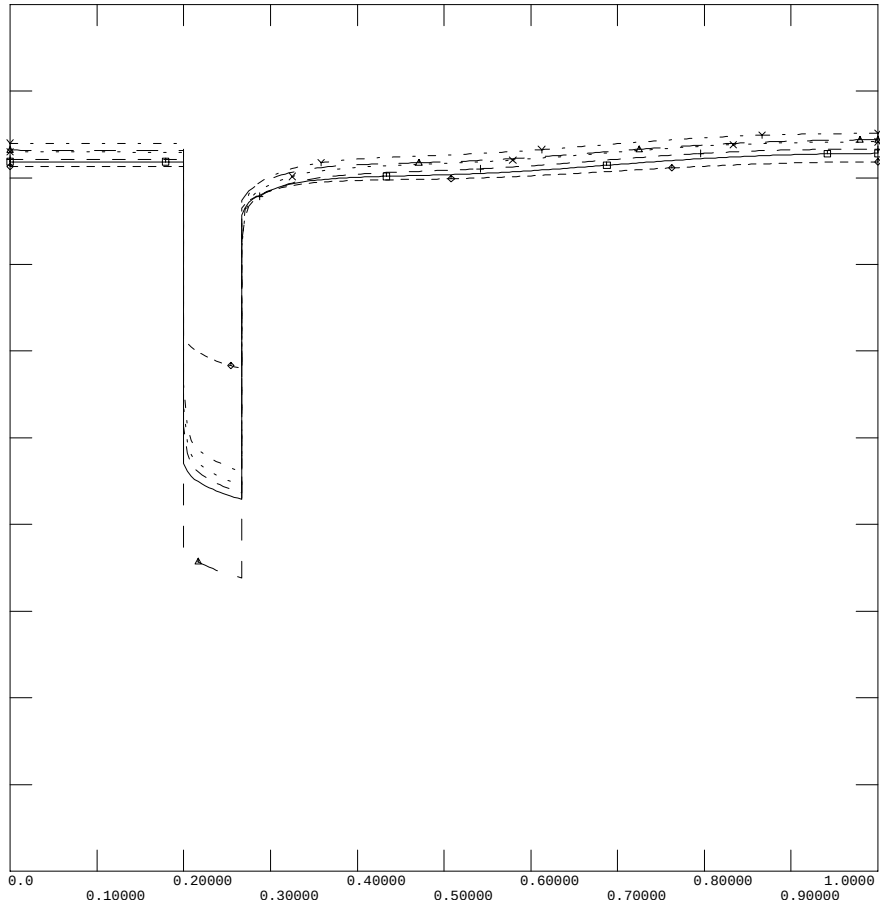
THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON7 1PH 16



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON7-ON\_1ph\_OUT

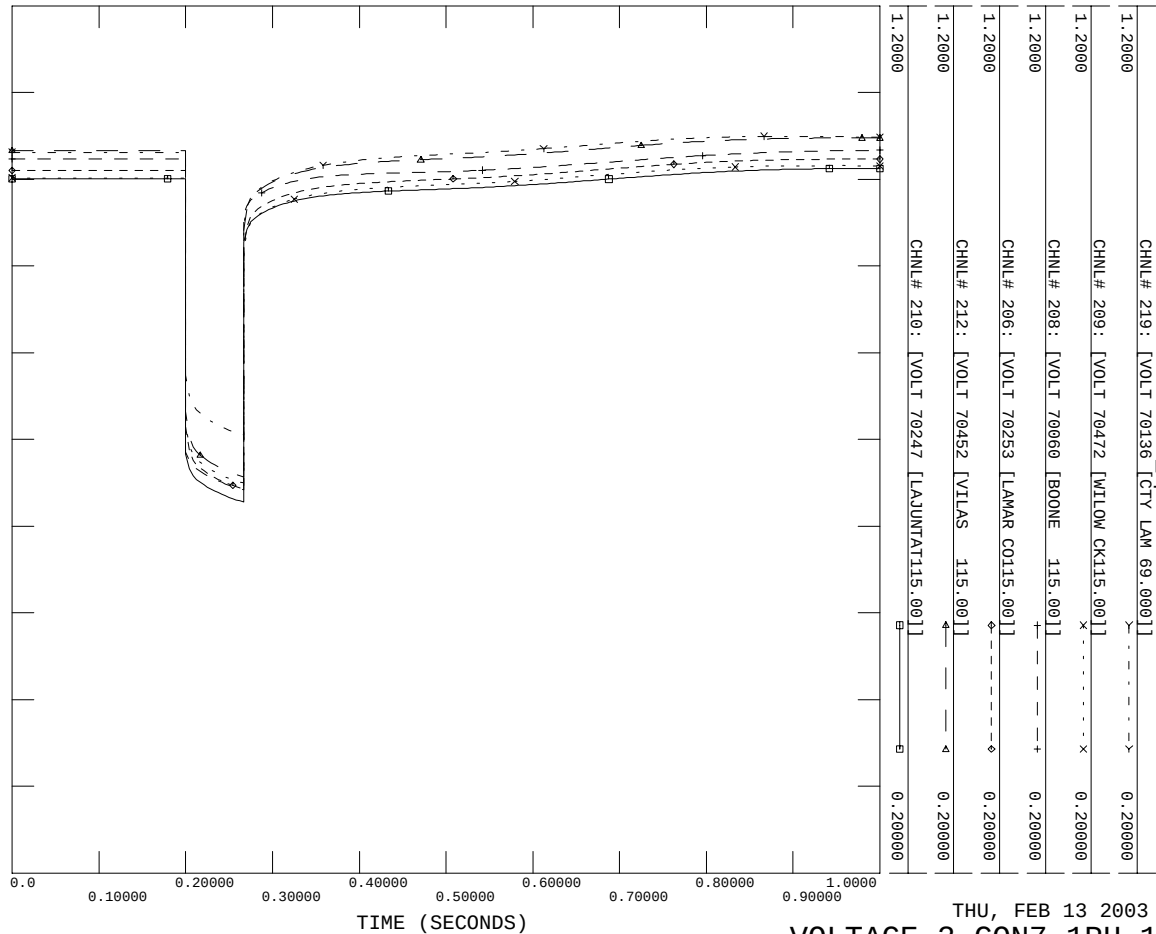
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



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VOLTAGE 1 CON7 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

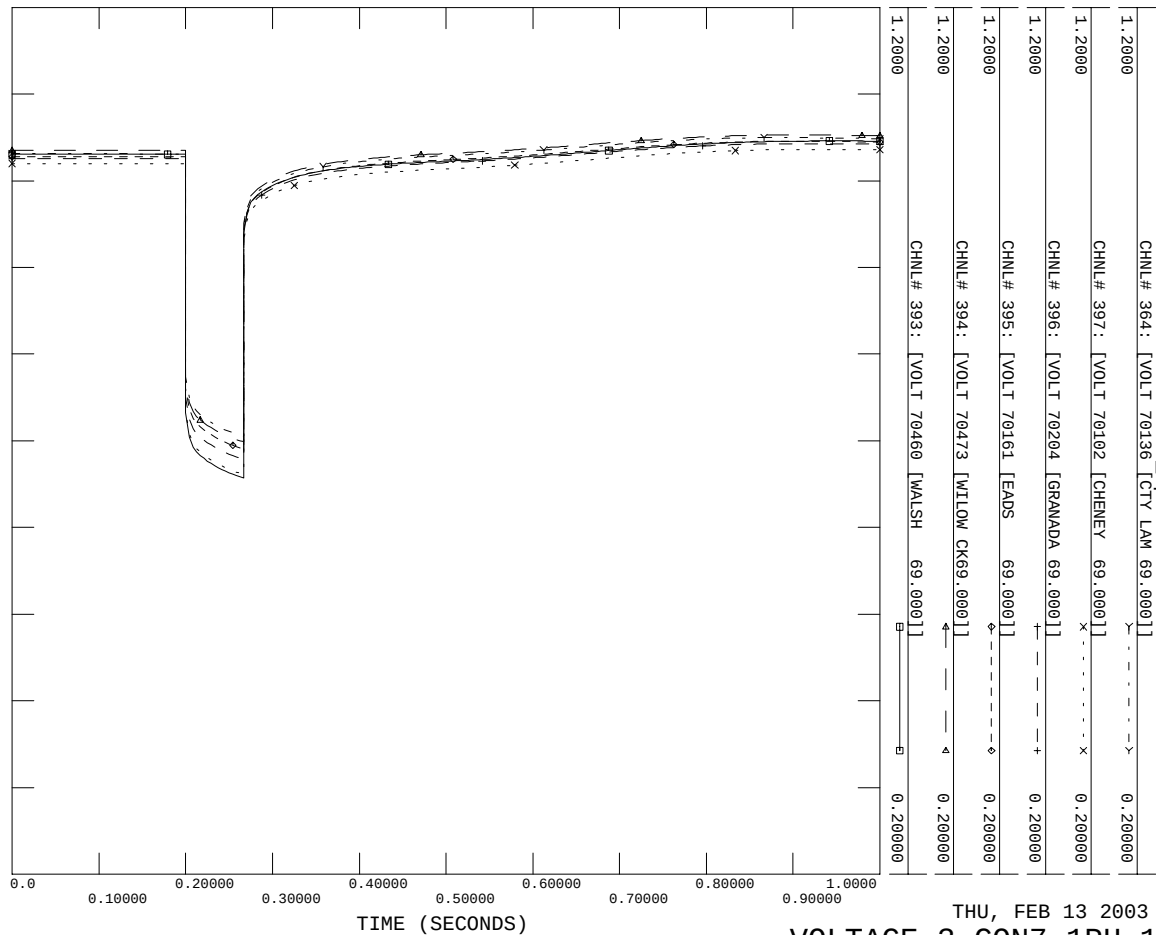
FILE: CON7-ON 1ph. OUT



THU, FEB 13 2003 14:48  
VOLTAGE 2 CON7 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON7-ON 1ph. OUT



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VOLTAGE 3 CON7 1PH 162MW

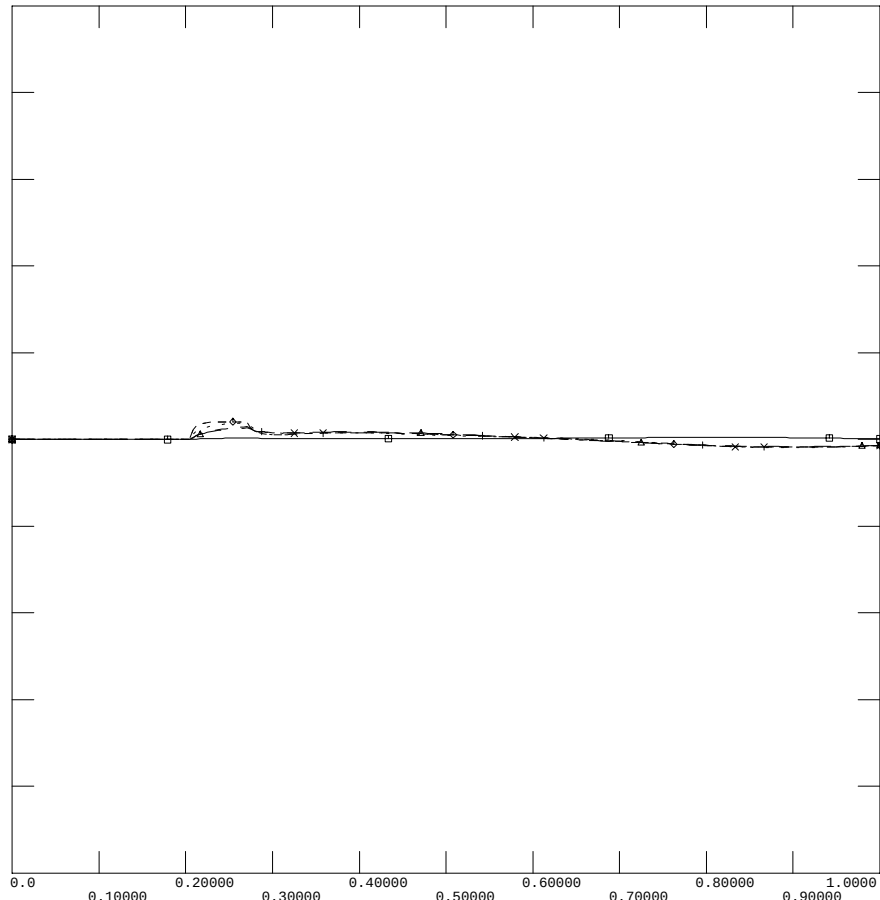


POWER  
TIC  
0.001615

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON7-ON 1ph. OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



TIME (SECONDS)

THU, FEB 13 2003 14:48

FREQUENCY CON7 1PH 162MW

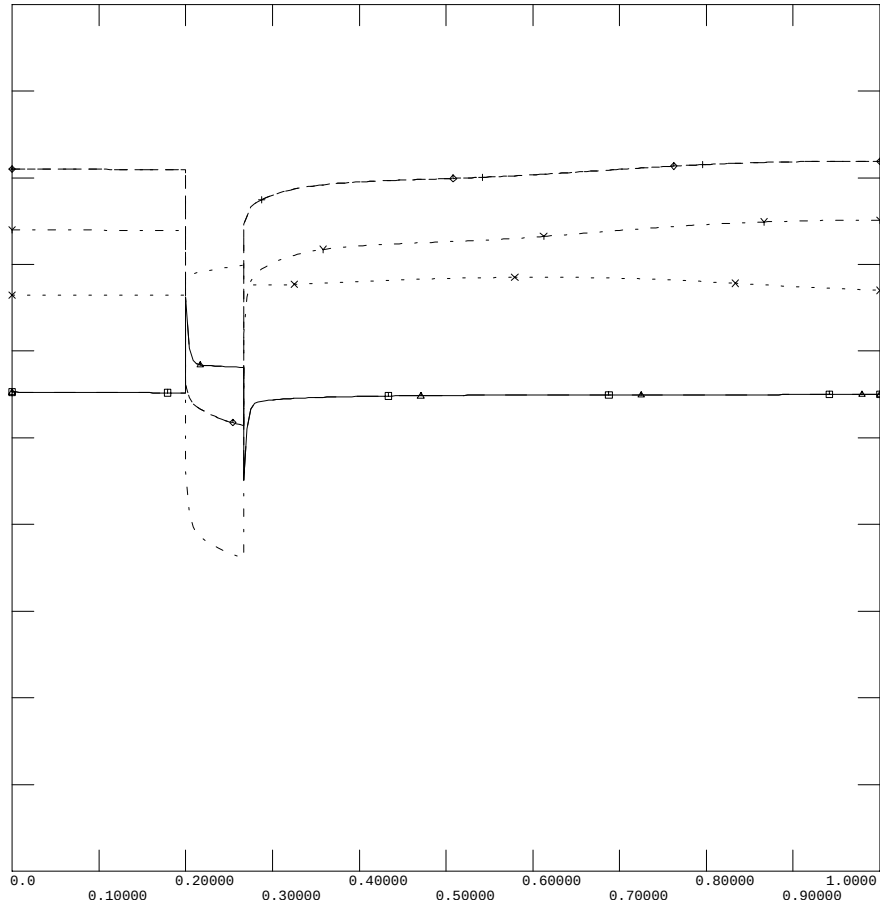


POWER  
TIC  
0.001615

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON7-ON 1ph. OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



TIME (SECONDS)

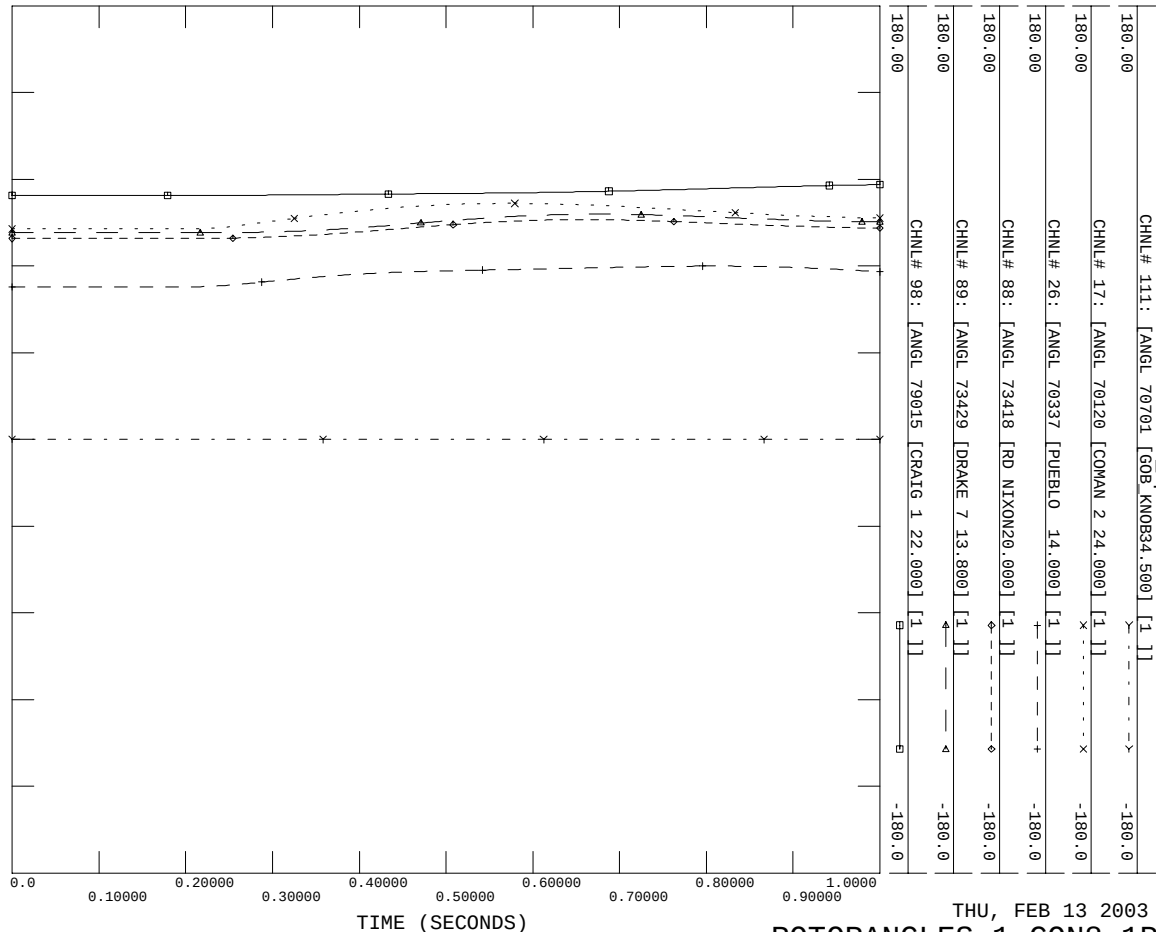
THU, FEB 13 2003 14:48

WIND DATA CON7 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON8-ON\_1ph\_OUT



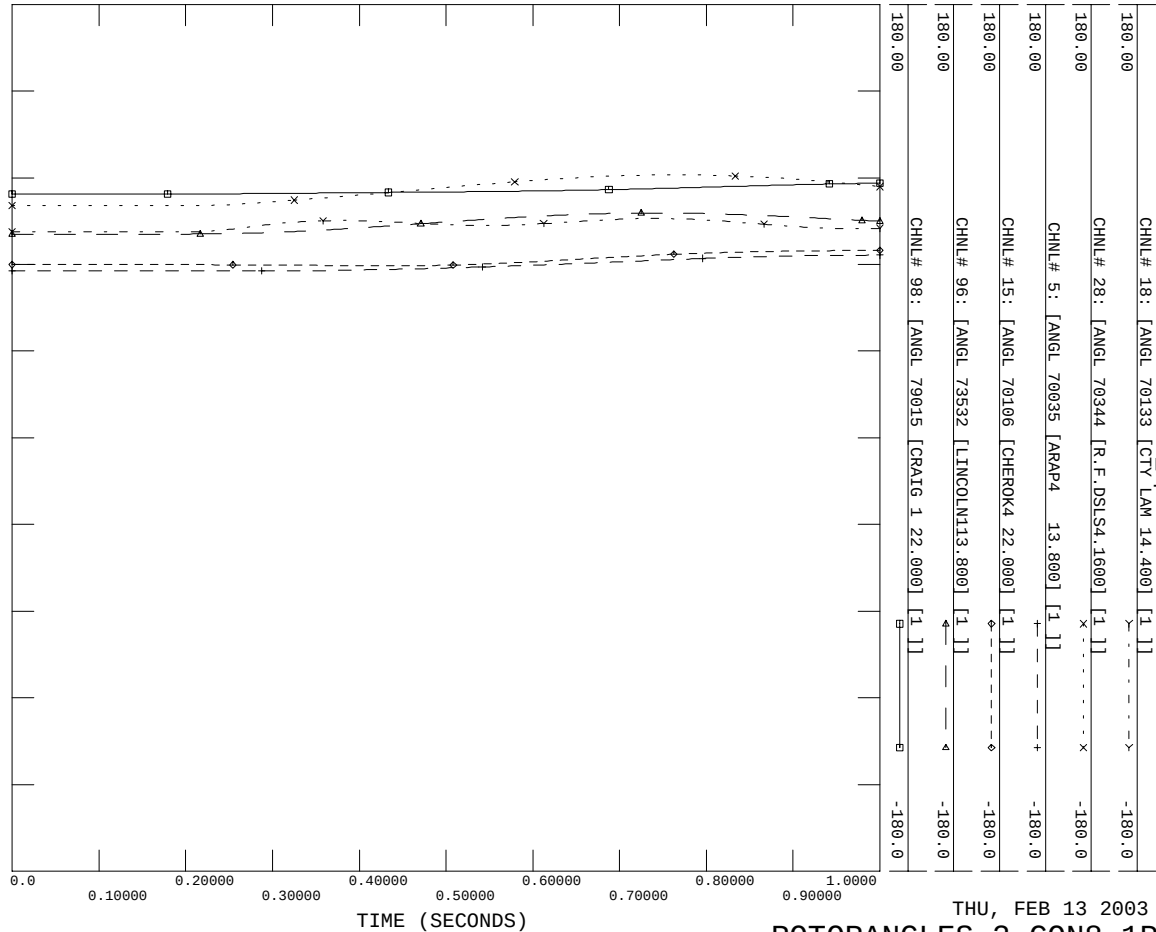
THU, FEB 13 2003 14:48

ROTORANGLES 1 CON8 1PH 16



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON8-ON\_1ph\_OUT

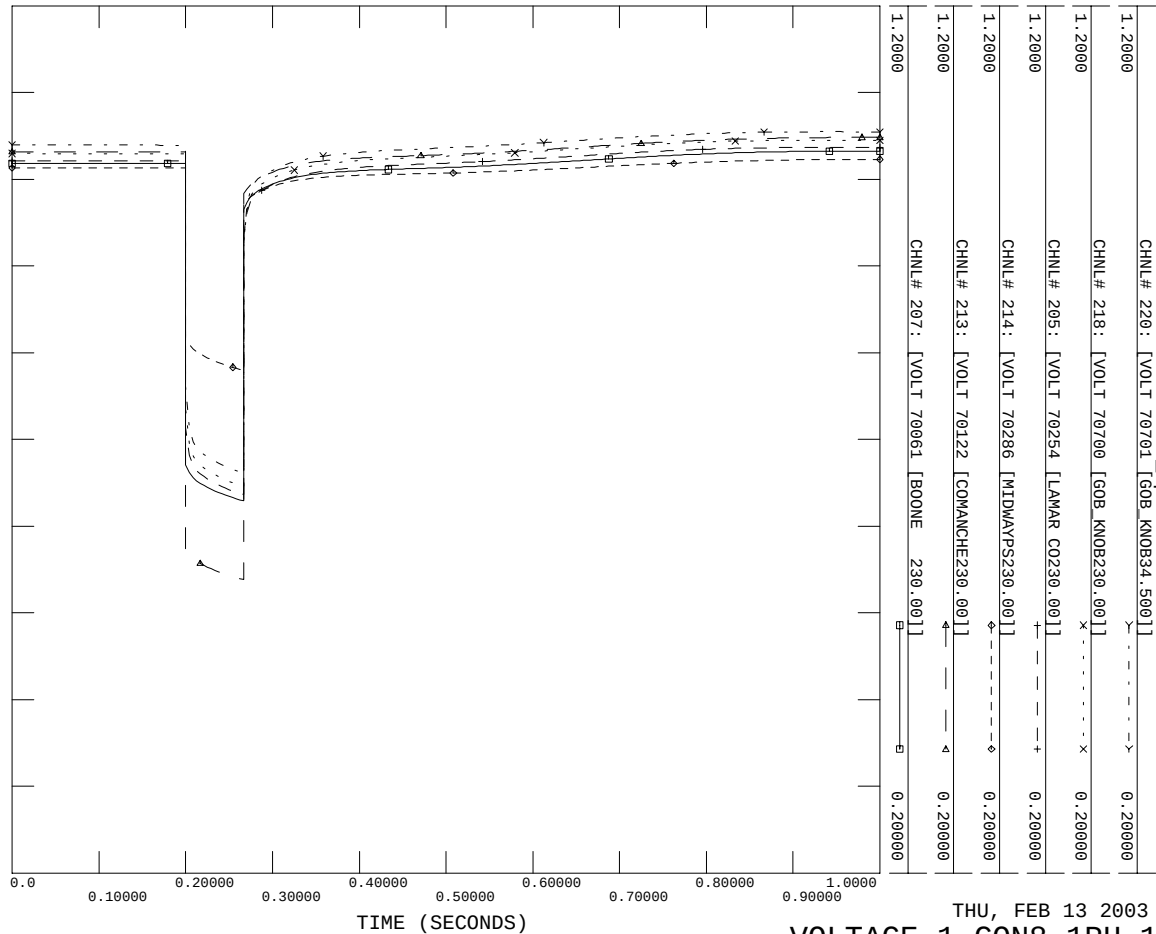


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ROTORANGLES 2 CON8 1PH 16

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

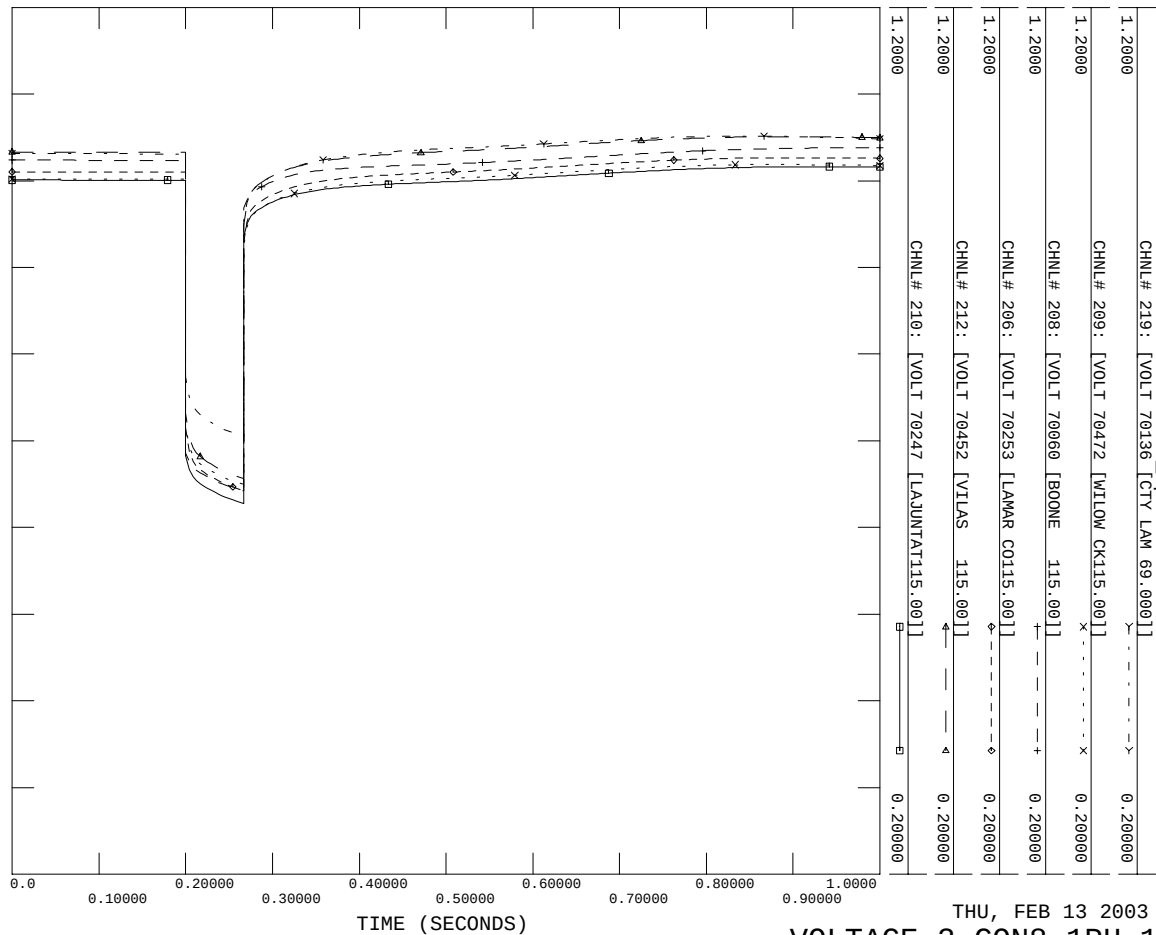
FILE: CON8-ON 1ph. OUT



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VOLTAGE 1 CON8 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON8-ON 1ph. OUT

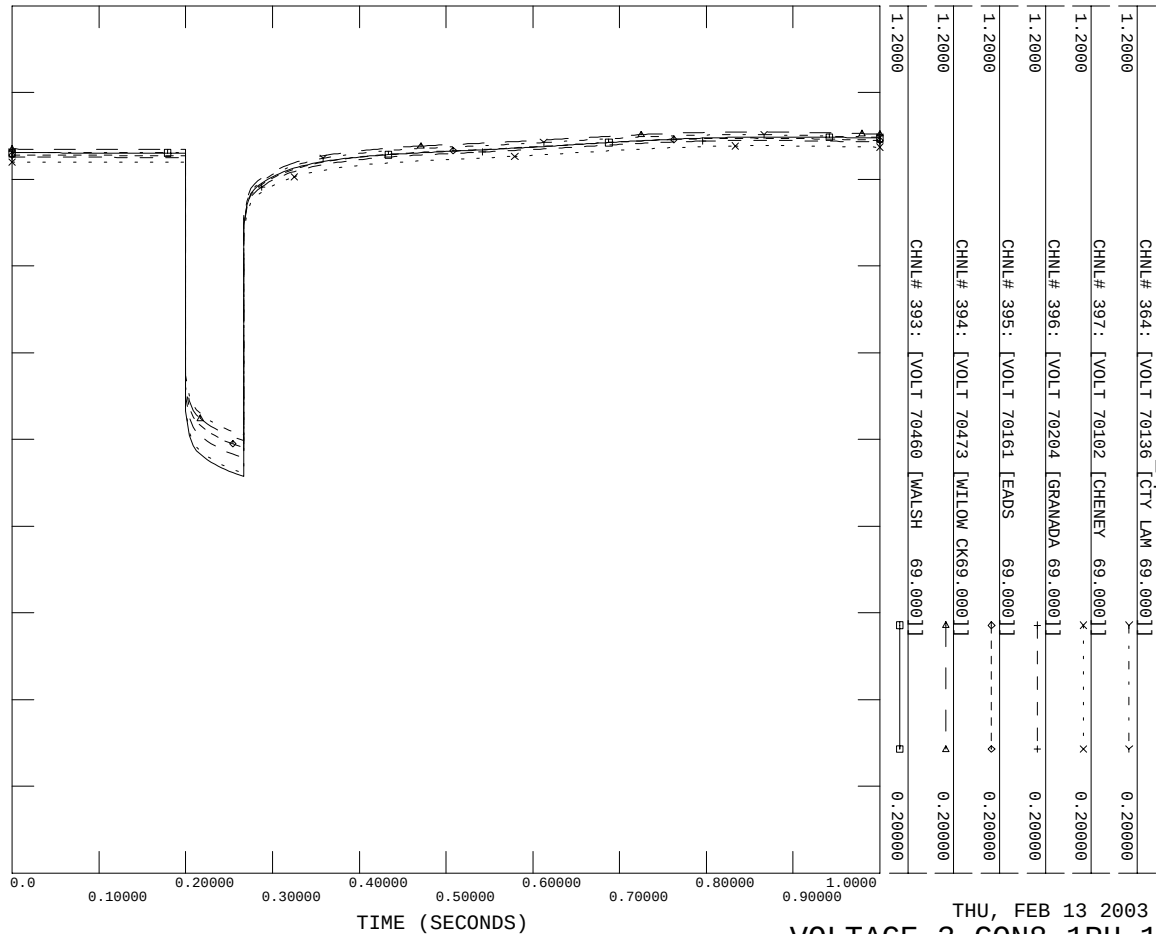


THU, FEB 13 2003 14:48  
VOLTAGE 2 CON8 1PH 162MW



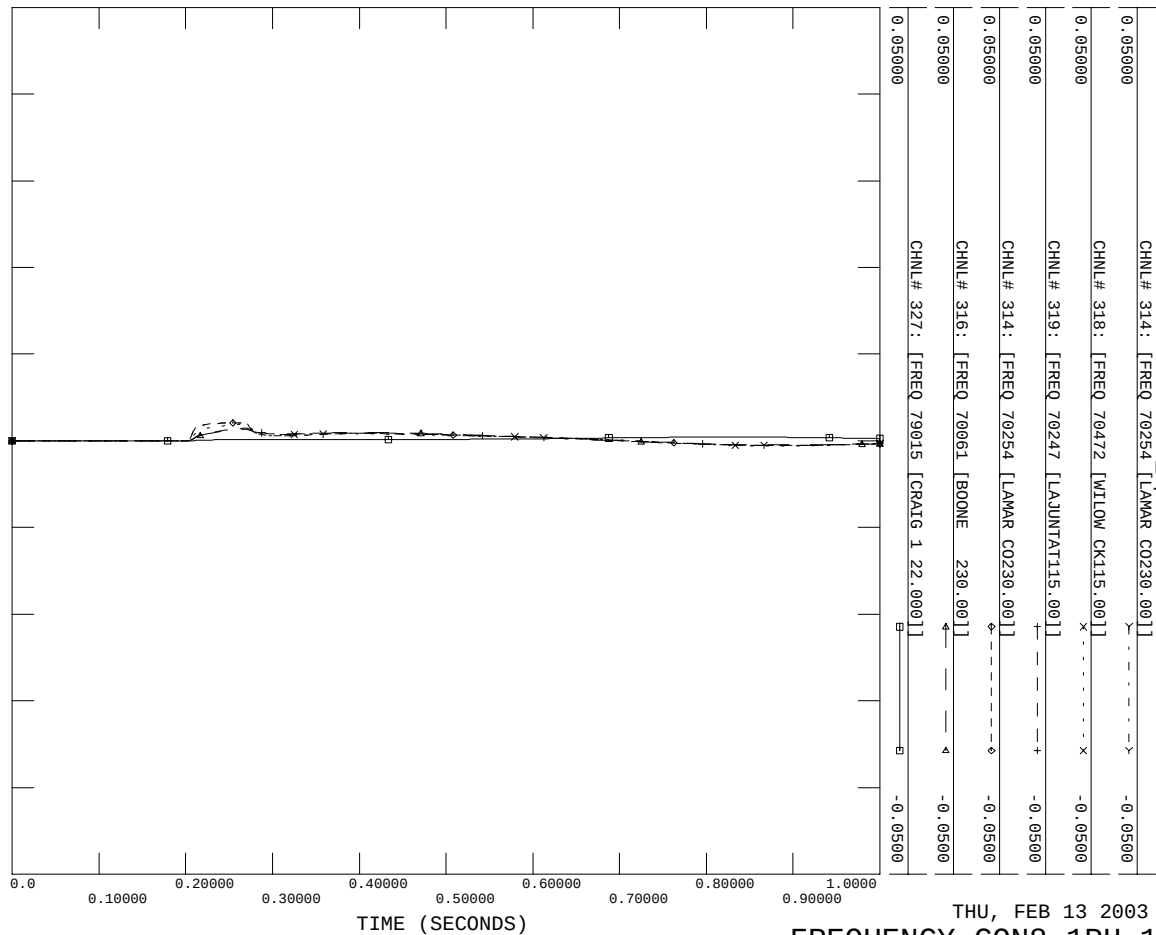
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON8-ON 1ph. OUT



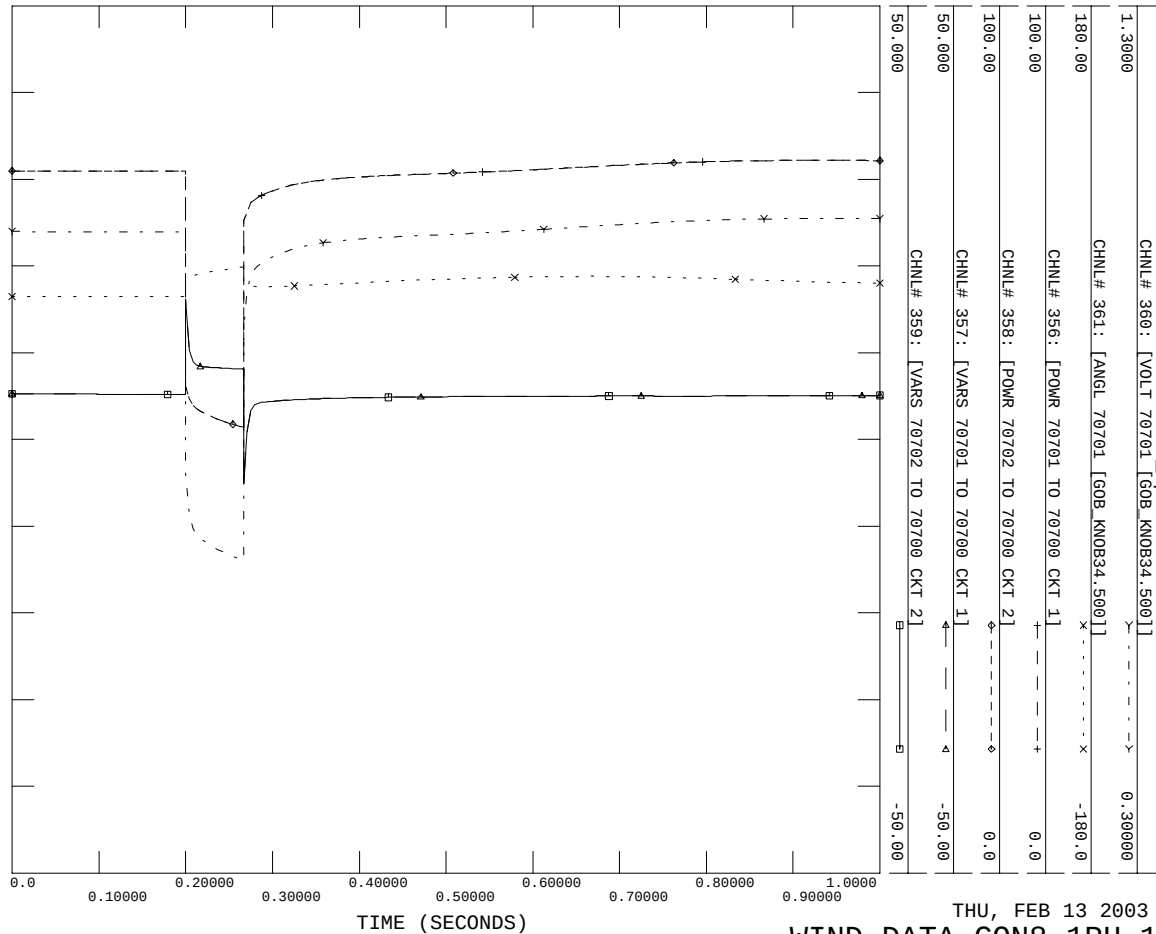
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON8-ON 1ph. OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

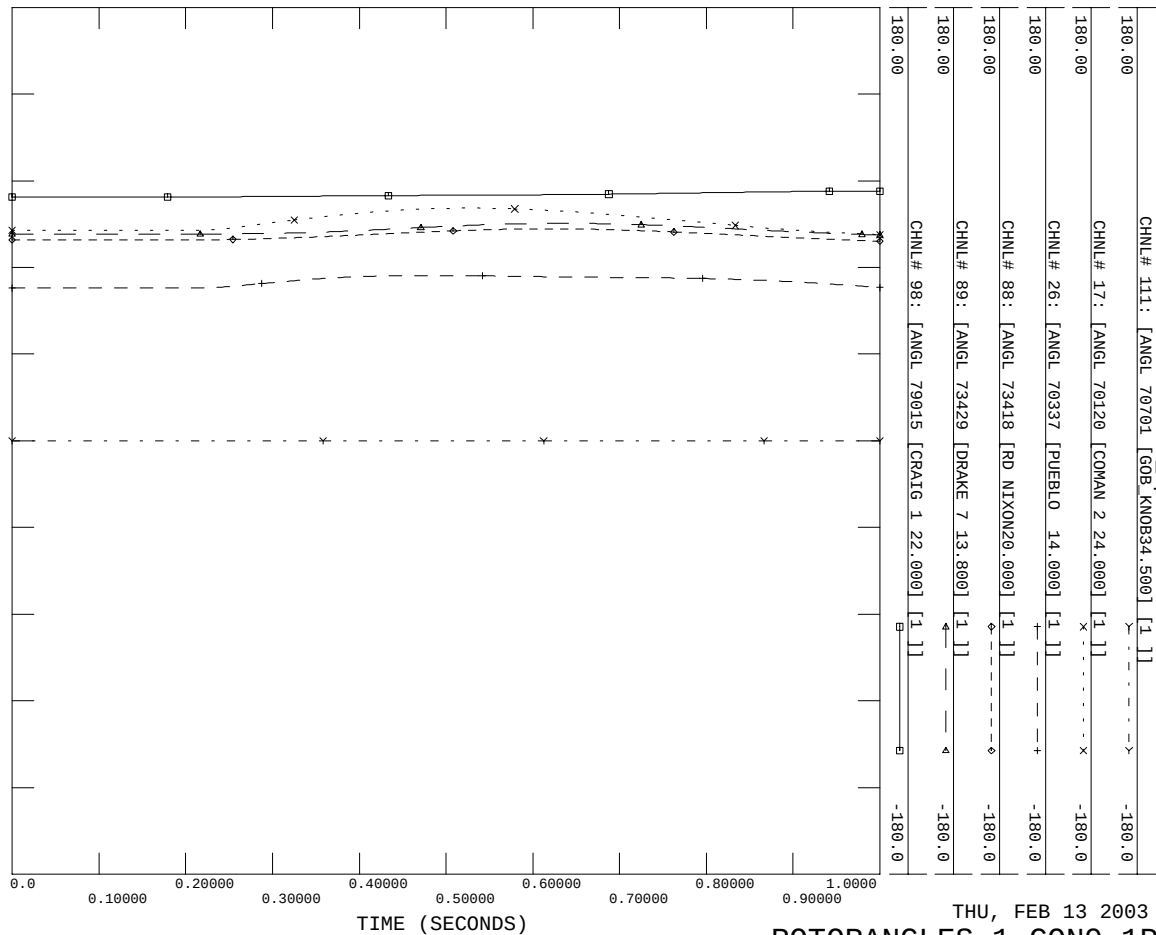
FILE: CON8-ON\_1ph\_OUT



THU, FEB 13 2003 14:48  
WIND DATA CON8 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

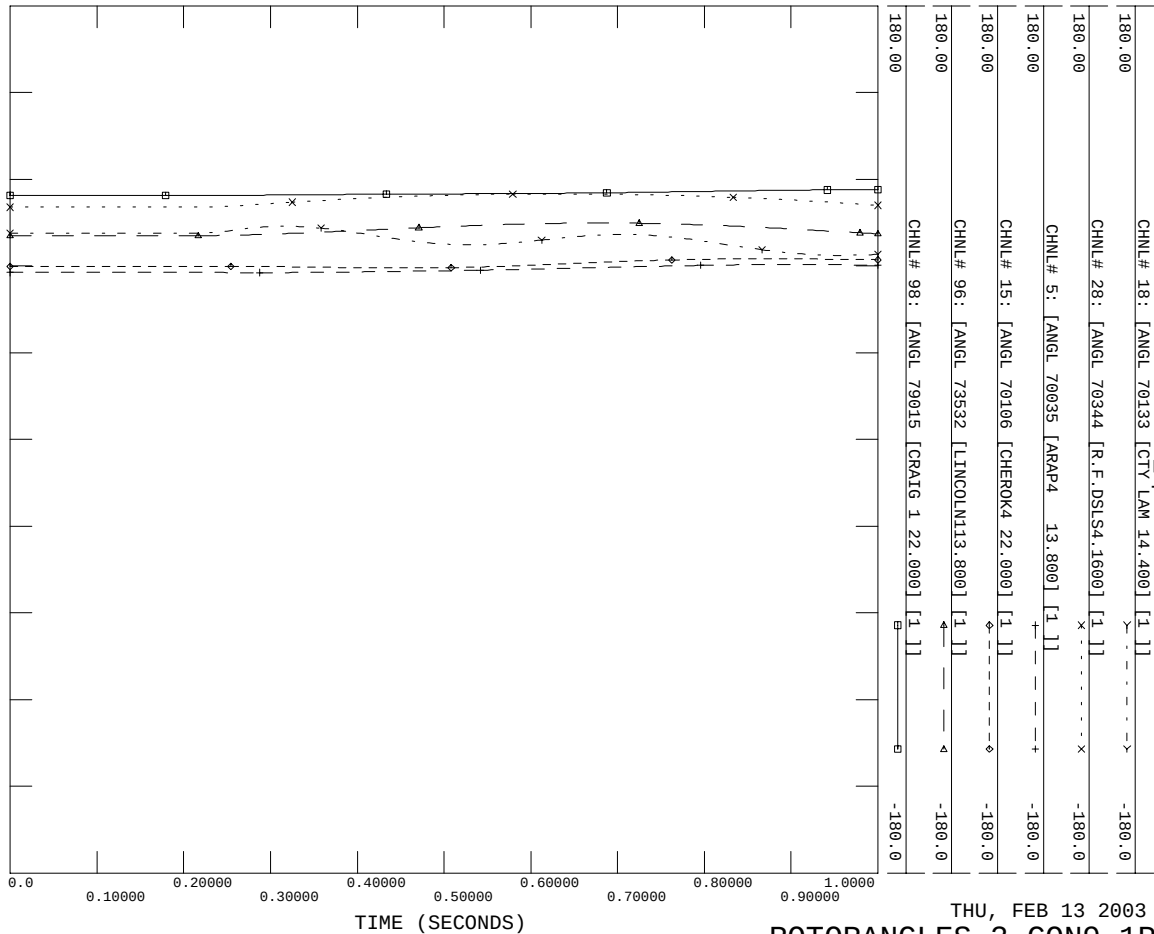
FILE: CON9-ON\_1ph\_OUT



THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON9 1PH 16

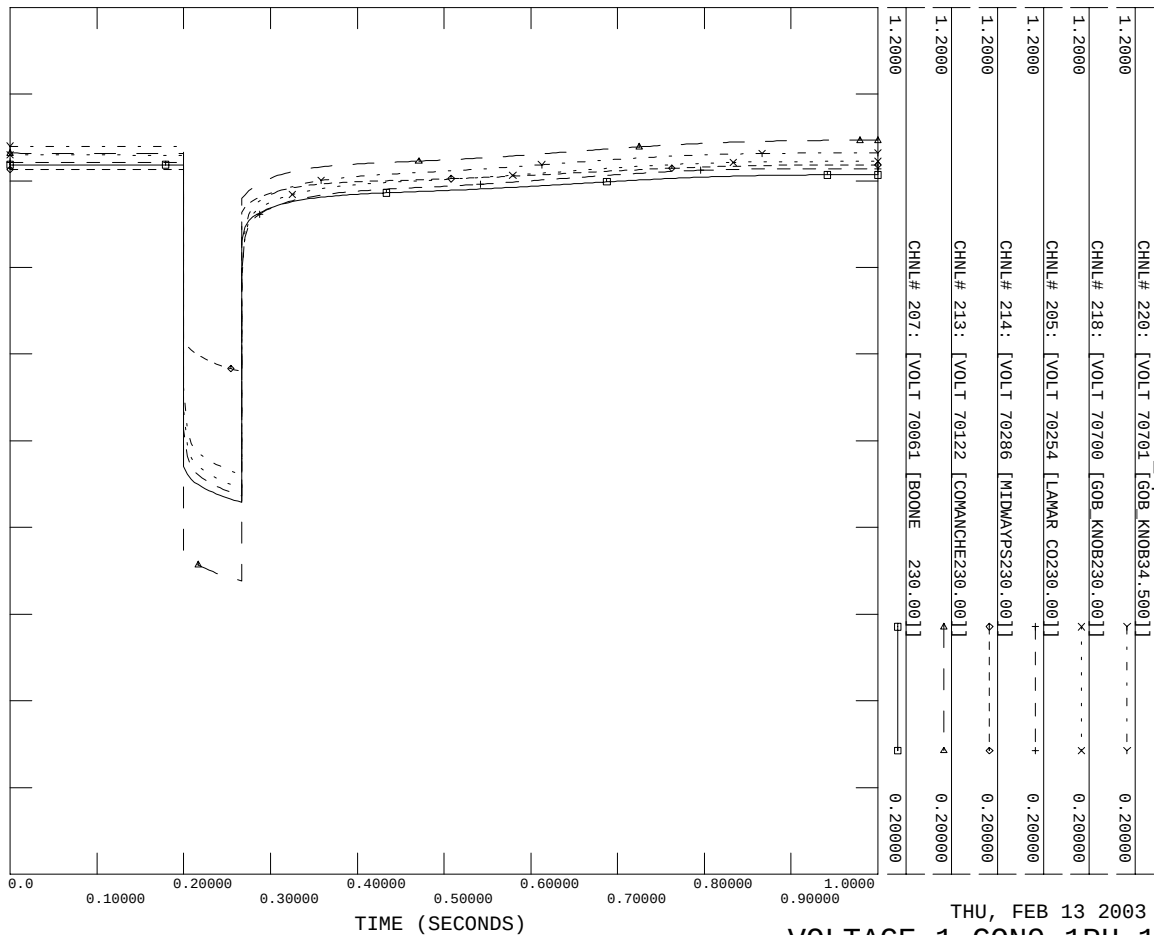
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON9-ON 1ph. OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

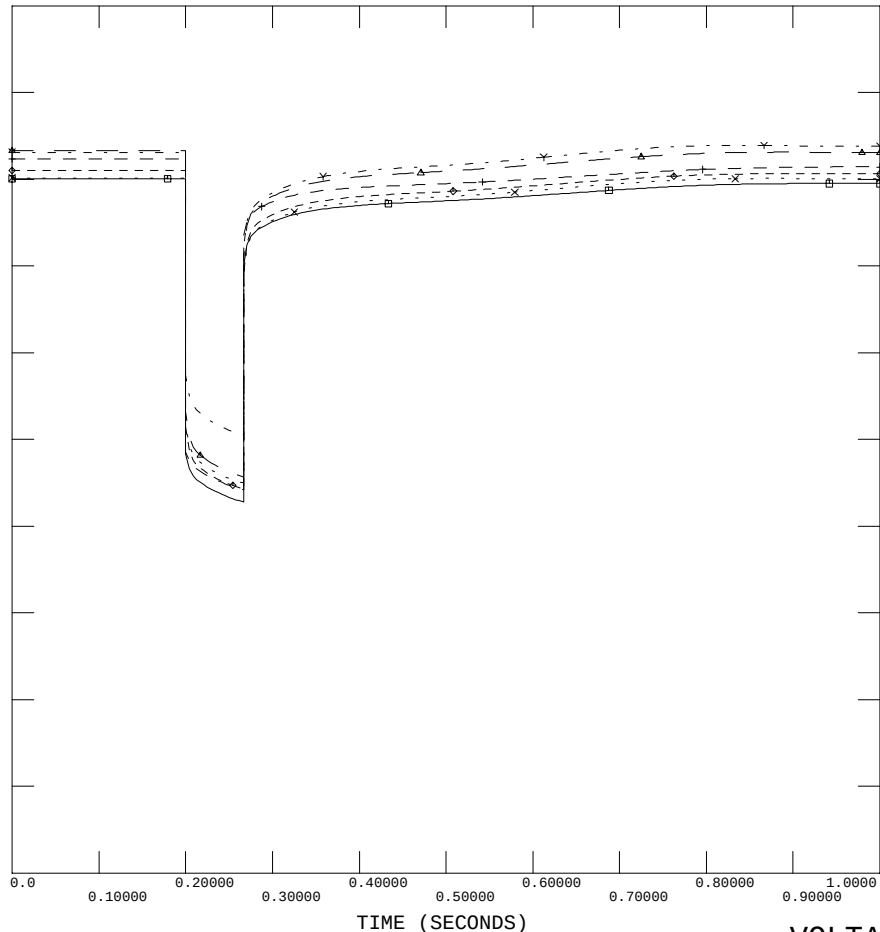
FILE: CON9-ON 1ph. OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON9-ON 1ph. OUT

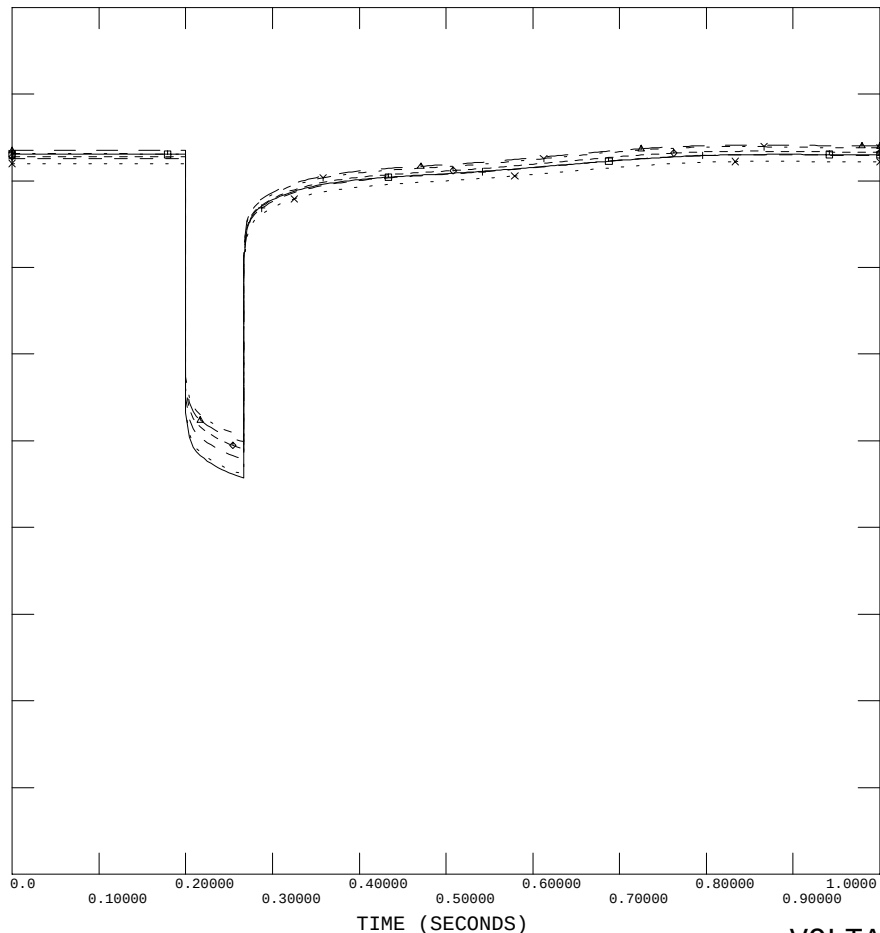
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON9-ON 1ph. OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



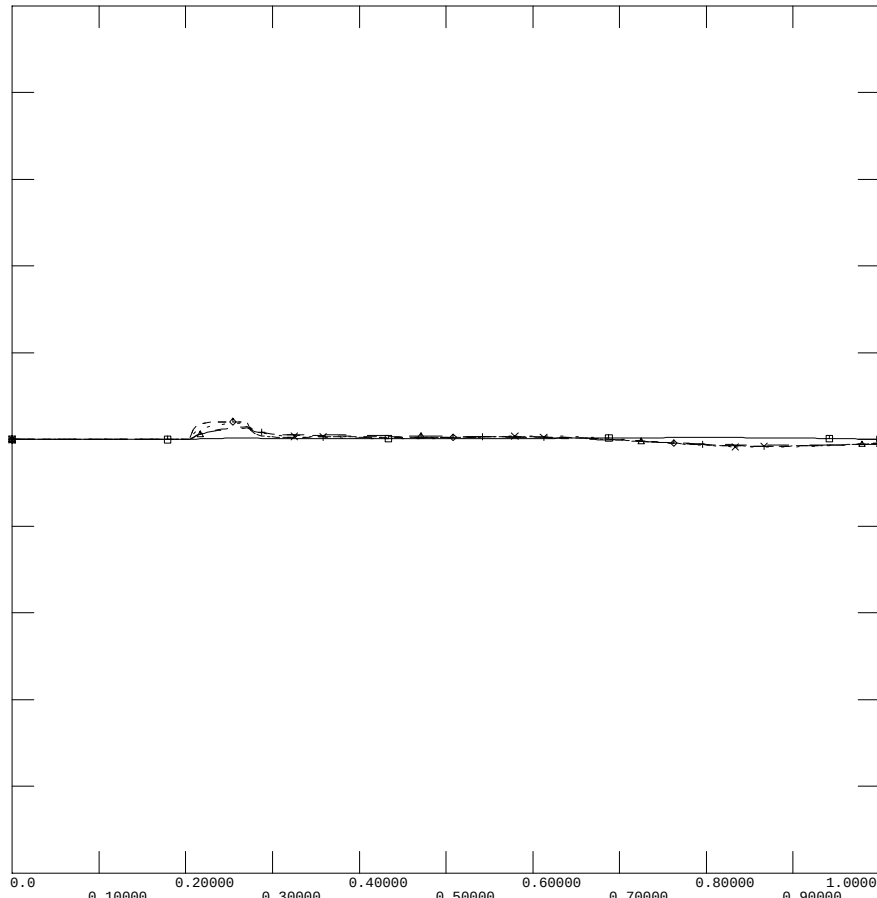


POWER  
TIC  
0.001615

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON9-ON 1ph. OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 70015 [CRAIG 1 22.000]]  | -0.0500 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
FREQUENCY CON9 1PH 162MW

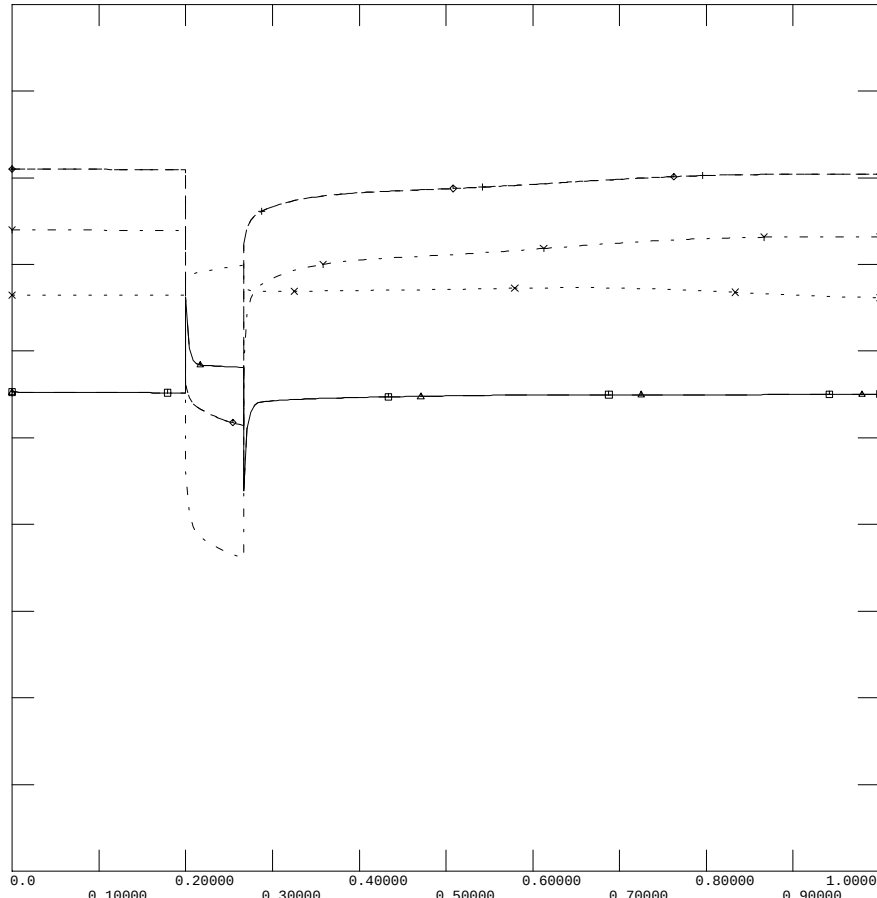


POWER  
TIC  
0.001615

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON9-ON 1ph. OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

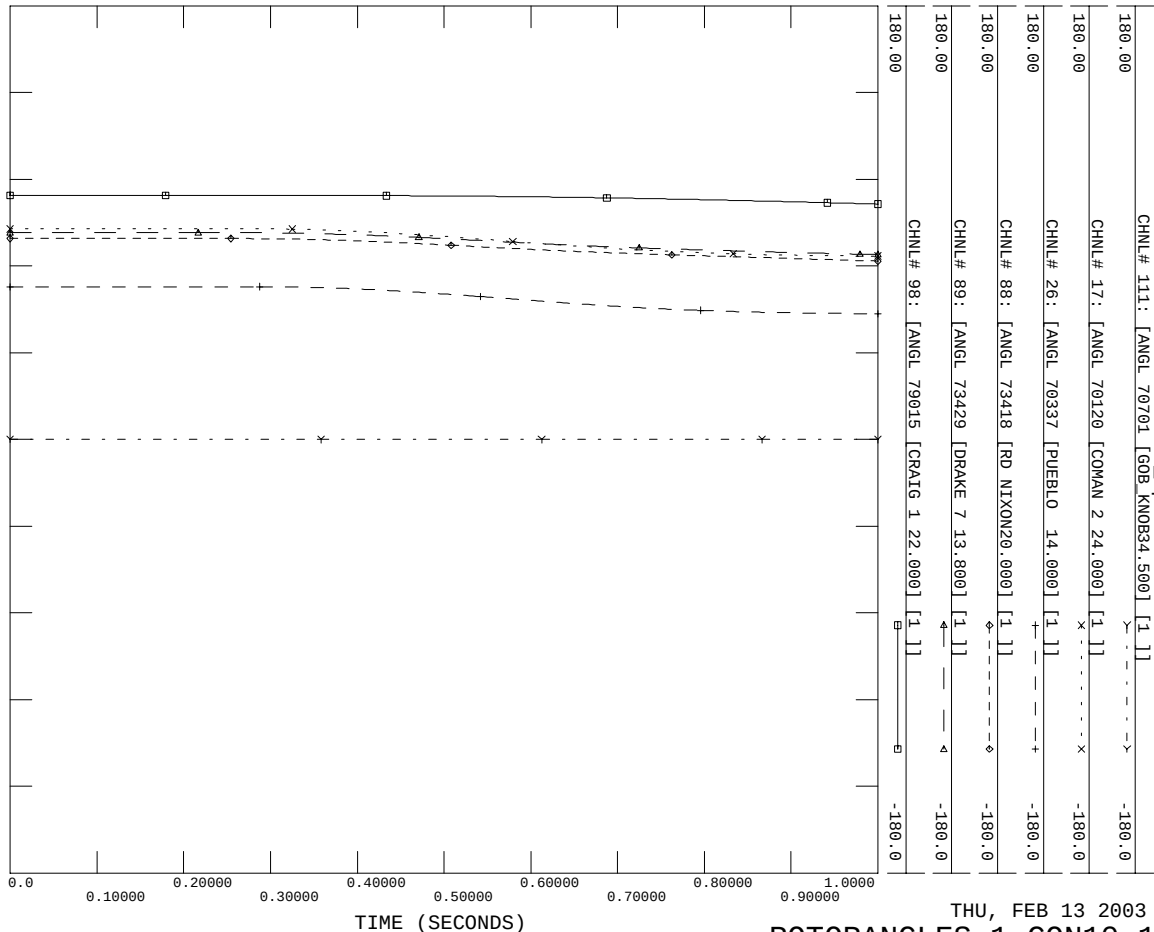


TIME (SECONDS)

THU, FEB 13 2003 14:48  
WIND DATA CON9 1PH 162MW

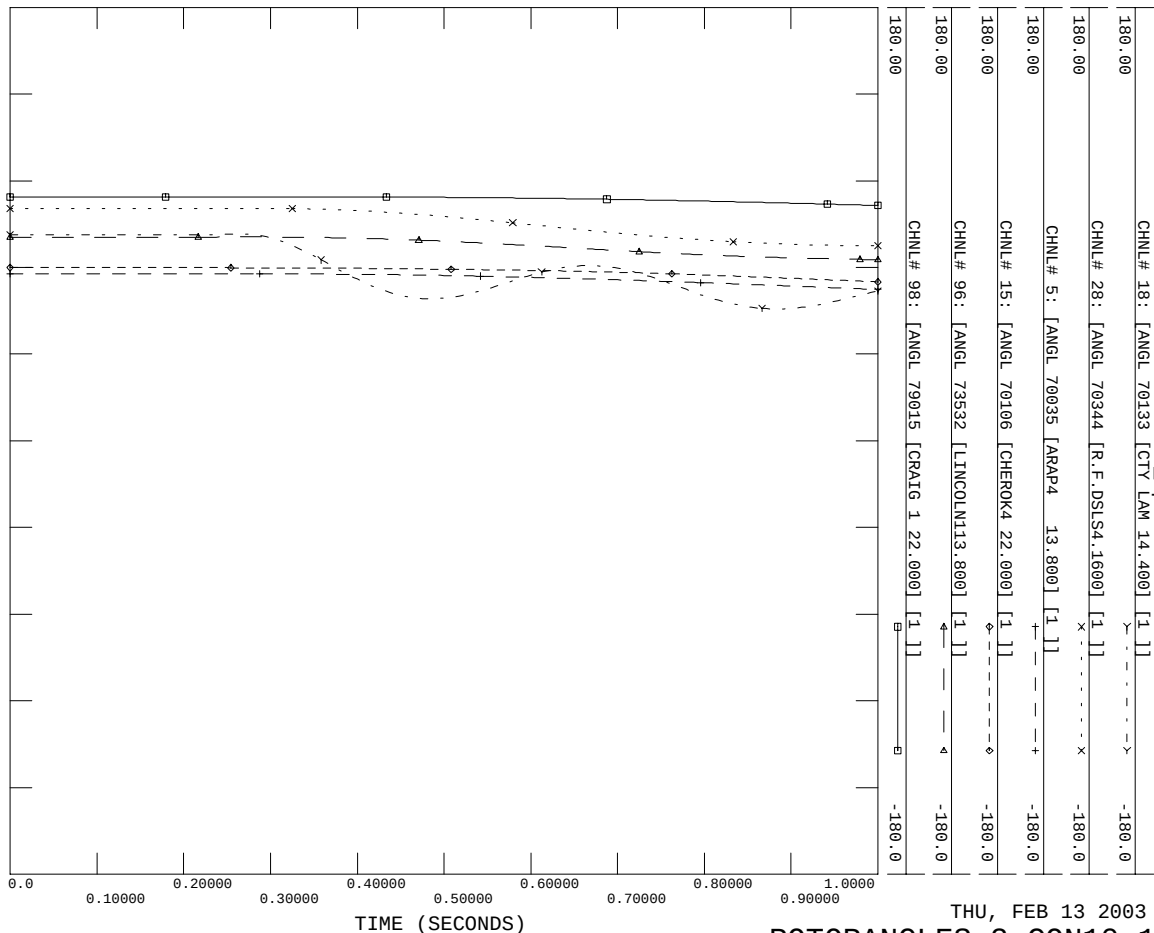
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON10-ON\_1ph\_OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

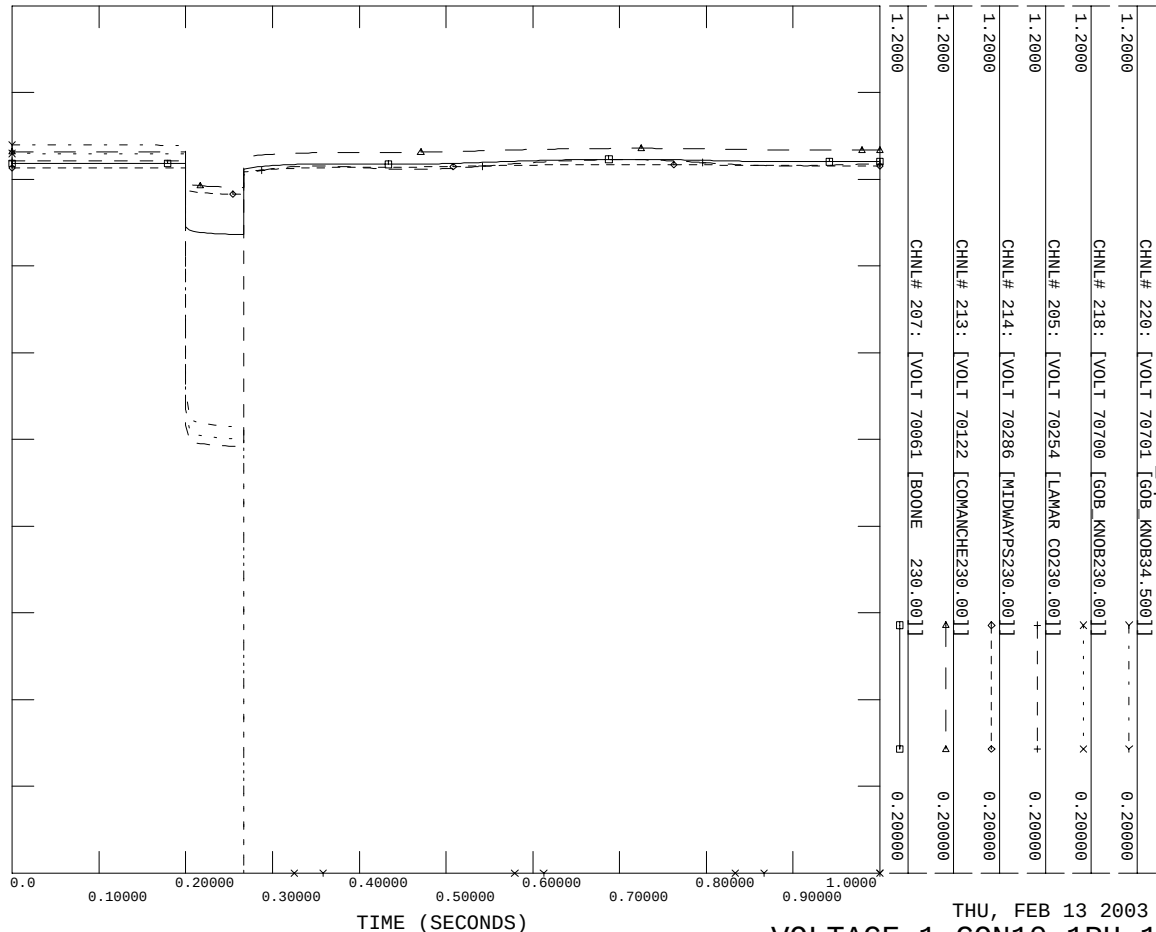
FILE: CON10-ON\_1ph\_OUT





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON10-ON\_1ph.0UT



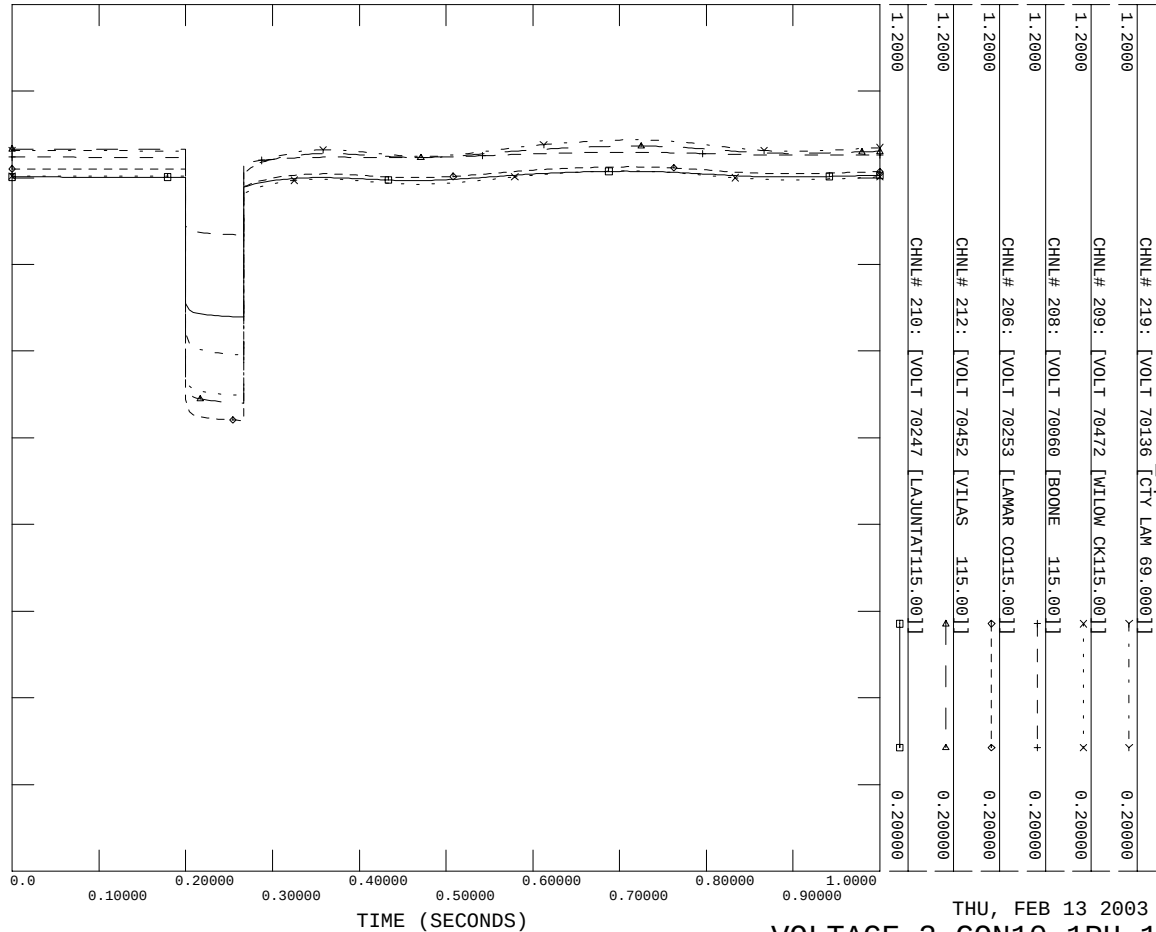
THU, FEB 13 2003 14:48

VOLTAGE 1 CON10 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON10-ON\_1ph.0UT



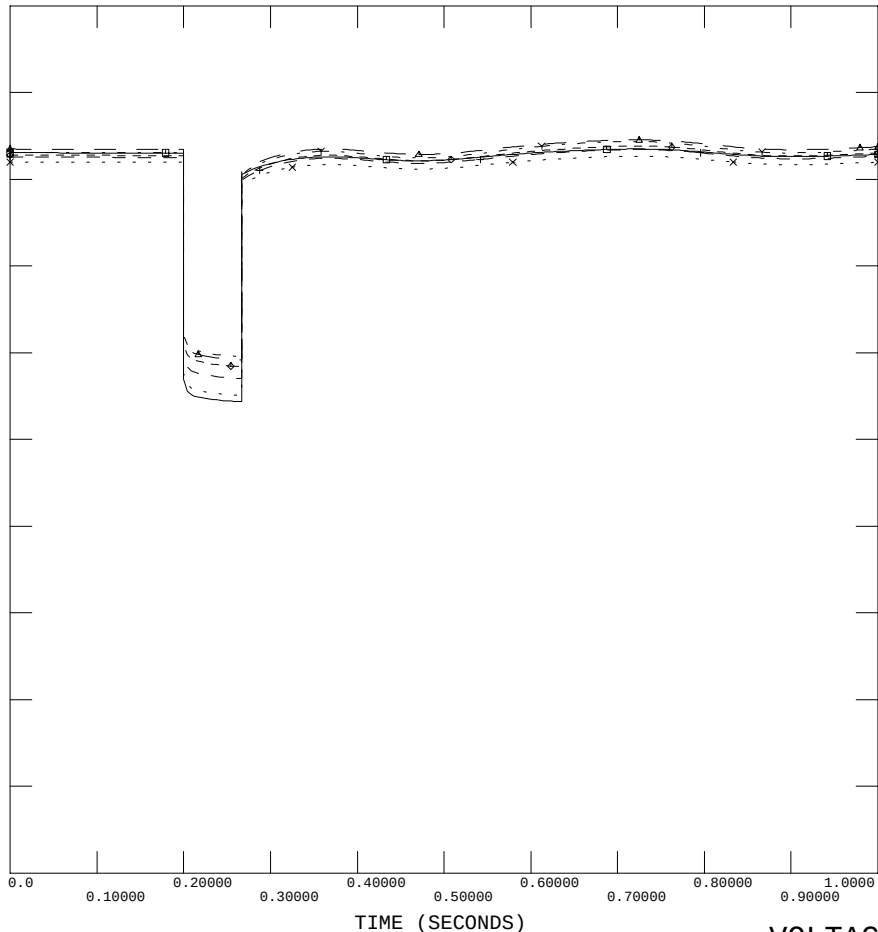
THU, FEB 13 2003 14:48

VOLTAGE 2 CON10 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON10-ON\_1ph.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

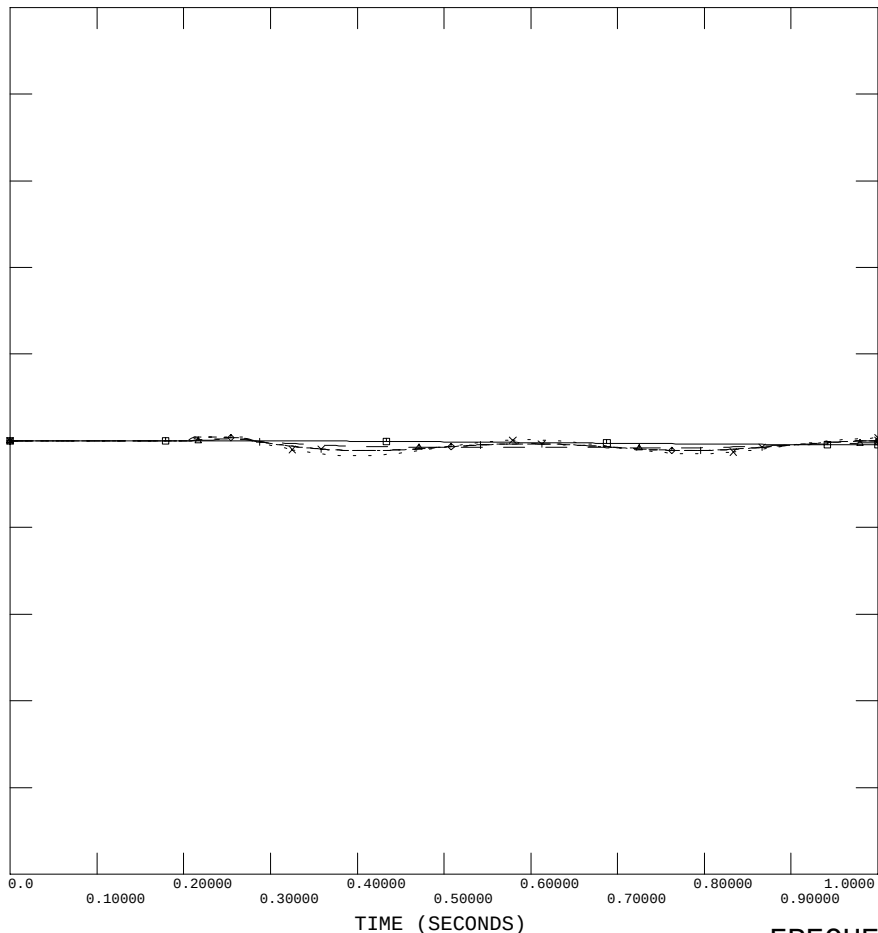


THU, FEB 13 2003 14:48  
VOLTAGE 3 CON10 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON10-ON\_1ph.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |



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FREQUENCY CON10 1PH 162MW

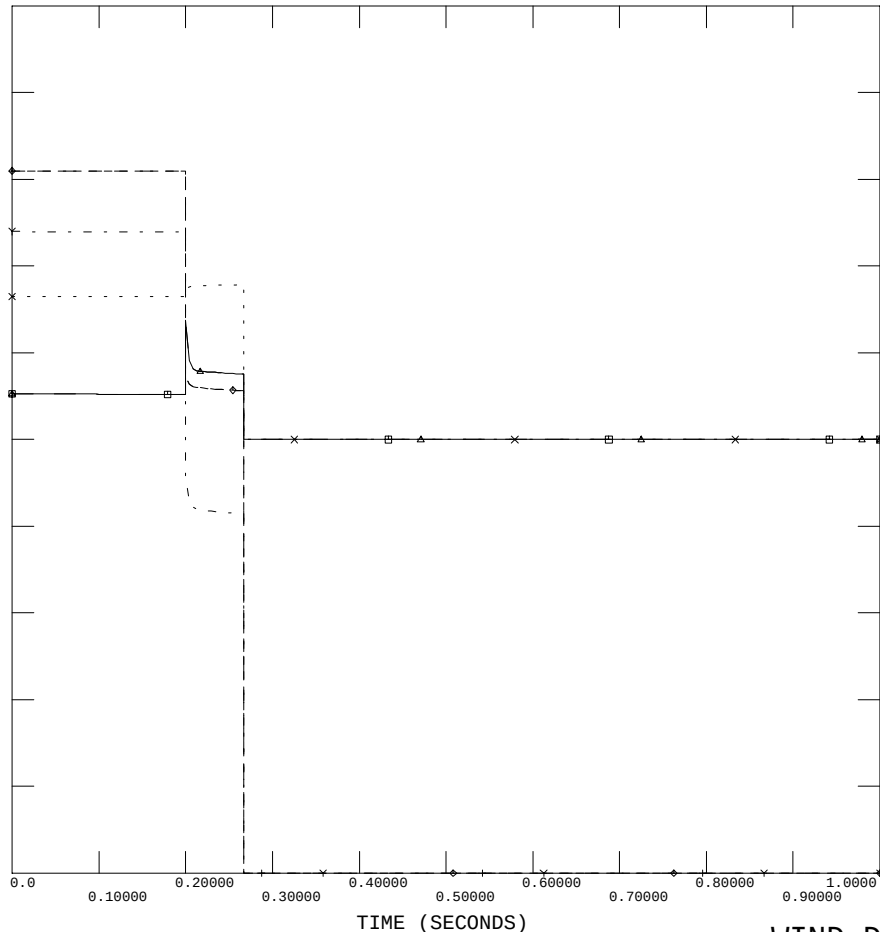




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON10-ON\_1ph\_OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [60B.KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [60B.KNOB34.500]] | -180.0  |
| 180.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 180.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 100.00 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |
| 50.000 |                                          | -50.00  |



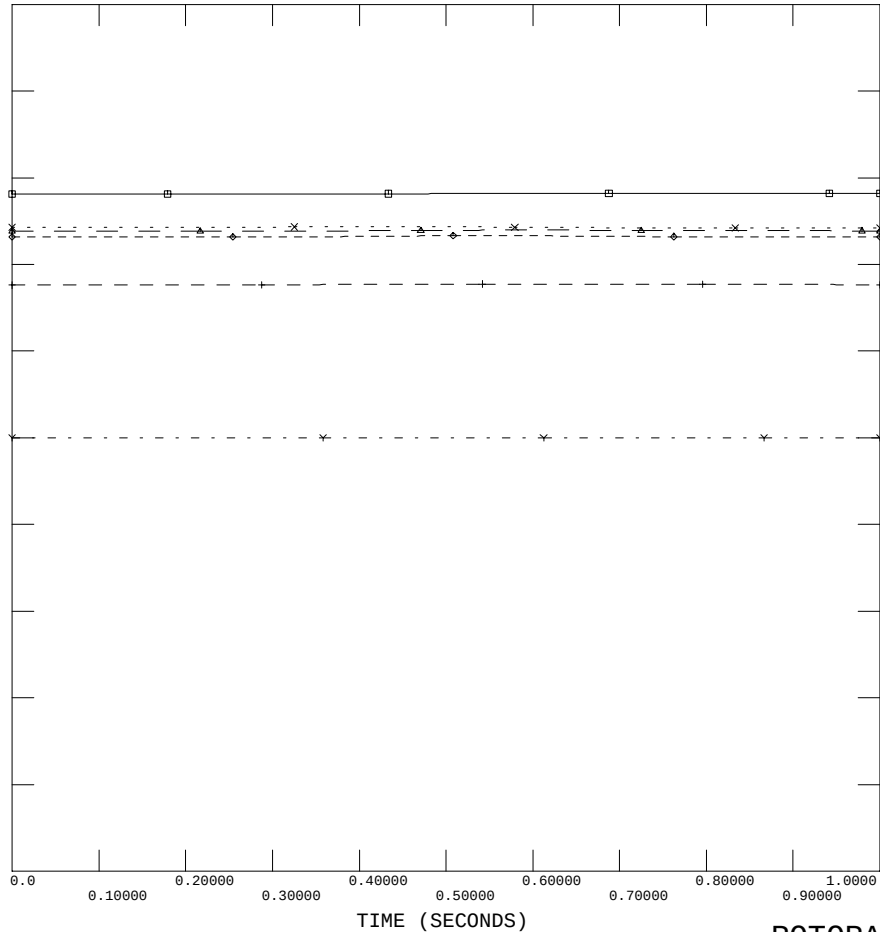
THU, FEB 13 2003 14:48  
WIND DATA CON10 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON11-ON\_1ph\_OUT

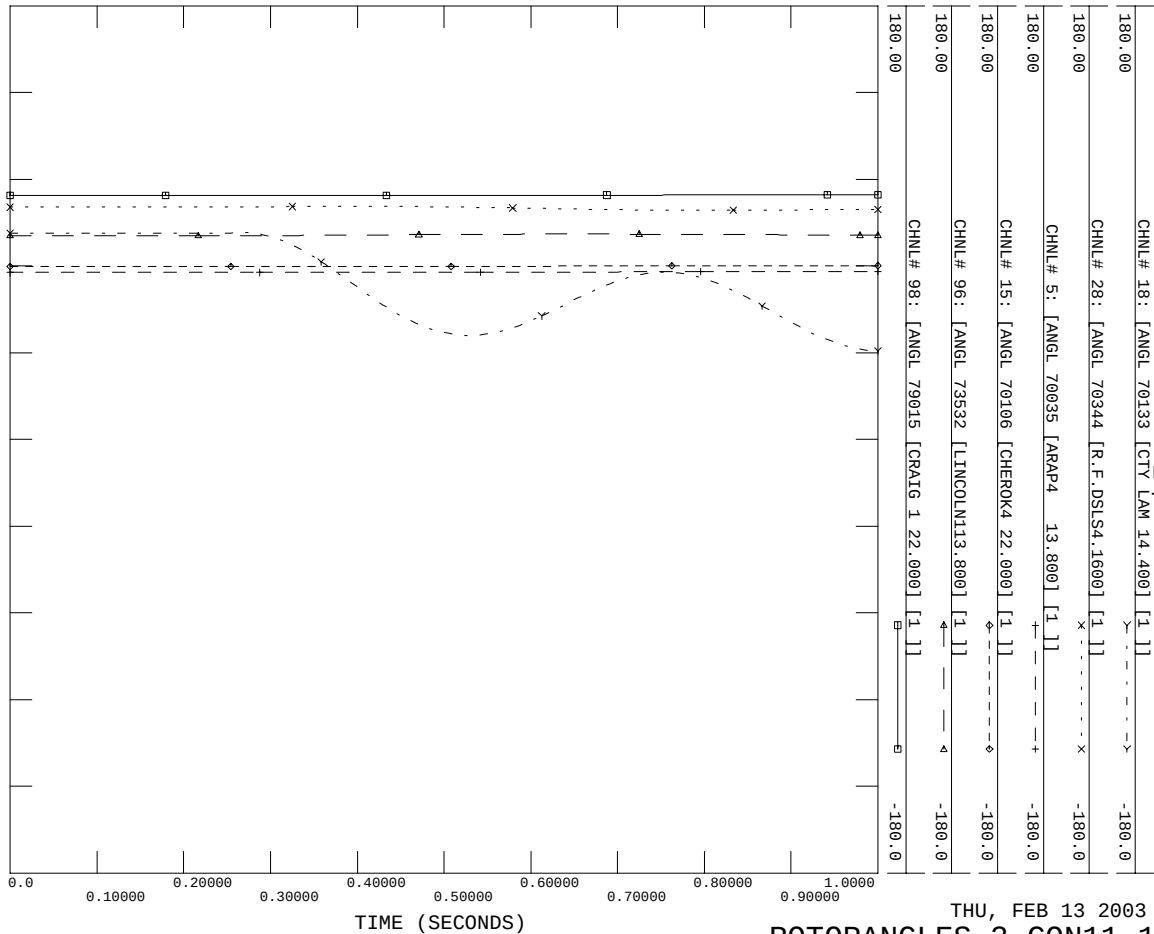
|        |                                                |        |
|--------|------------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [60B.KNOB34.500]] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000]] [1.]]  | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000]] [1.]]   | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000]] [1.]]  | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800]] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000]] [1.]]  | -180.0 |
| 180.00 |                                                | -180.0 |



THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON11 1PH 1

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

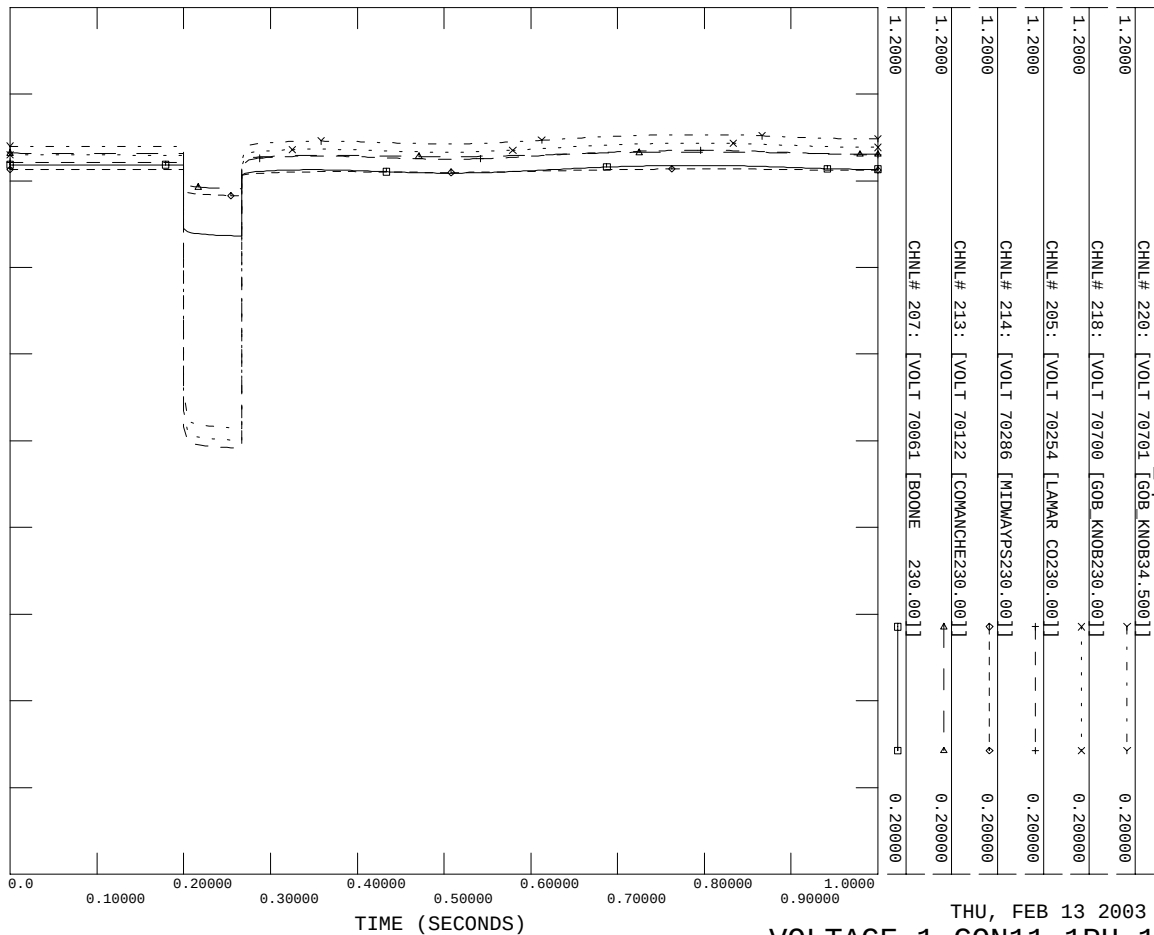
FILE: CON11-ON\_1ph\_OUT



THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON11 1PH 1

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON11-ON\_1ph\_OUT



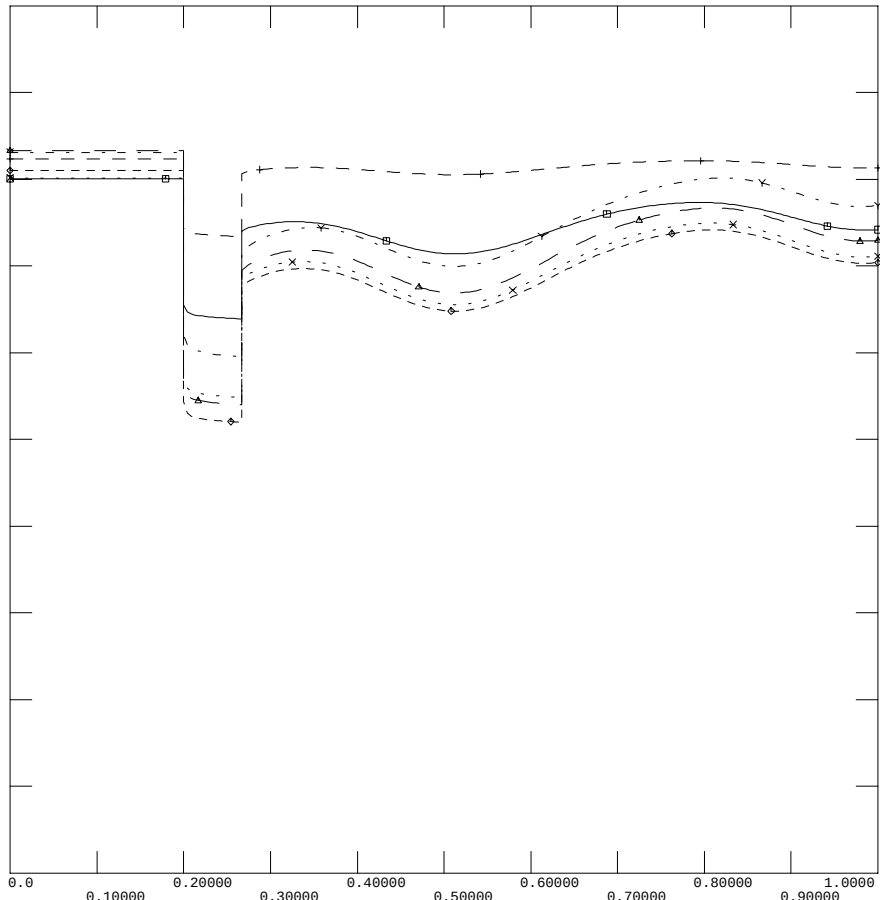
THU, FEB 13 2003 14:48  
VOLTAGE 1 CON11 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON11-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



TIME (SECONDS)

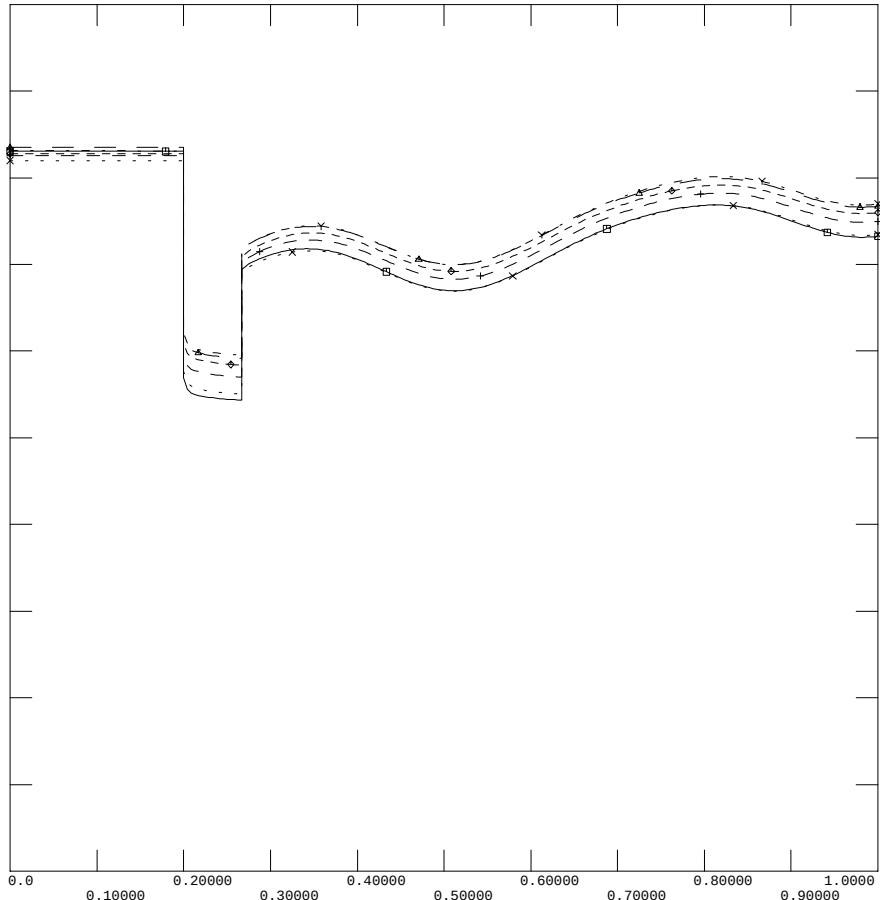
THU, FEB 13 2003 14:48  
VOLTAGE 2 CON11 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON11-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



TIME (SECONDS)

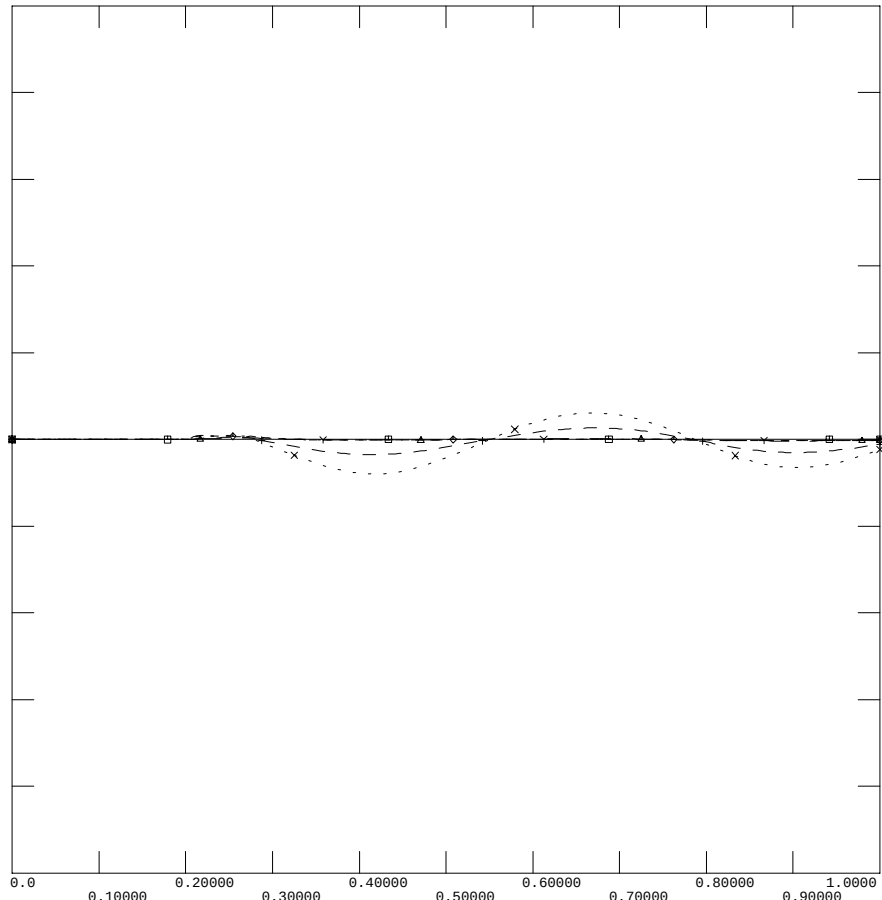
THU, FEB 13 2003 14:48  
VOLTAGE 3 CON11 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON11-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



THU, FEB 13 2003 14:48

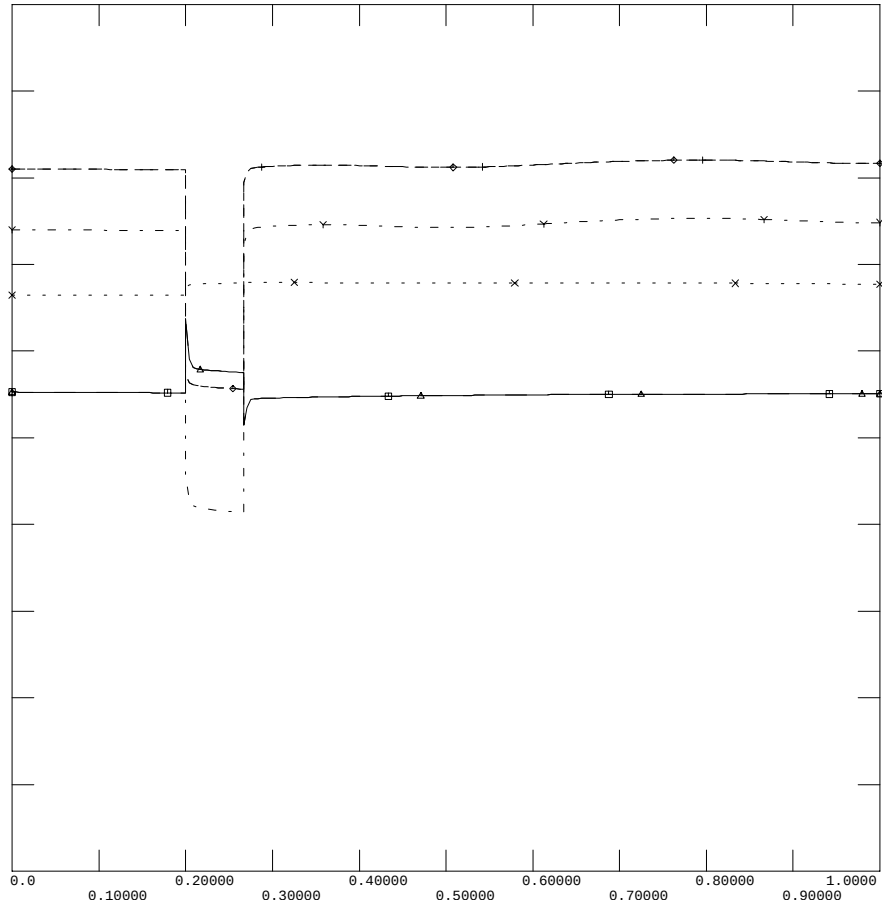
FREQUENCY CON11 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON11-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



THU, FEB 13 2003 14:48

WIND DATA CON11 1PH 162MW

2003 HS - FROM 2003HS4C OPERATING CASE 2003HSA7073AD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON12-ON\_1ph.0UT

CHNL# 111: [ANGL 70701 [GOB\_KNOB34.500] [1 ]]

[illegible]

CHNL# 26: [ANGL 70337 PUEBLO 14.000] [1 ]

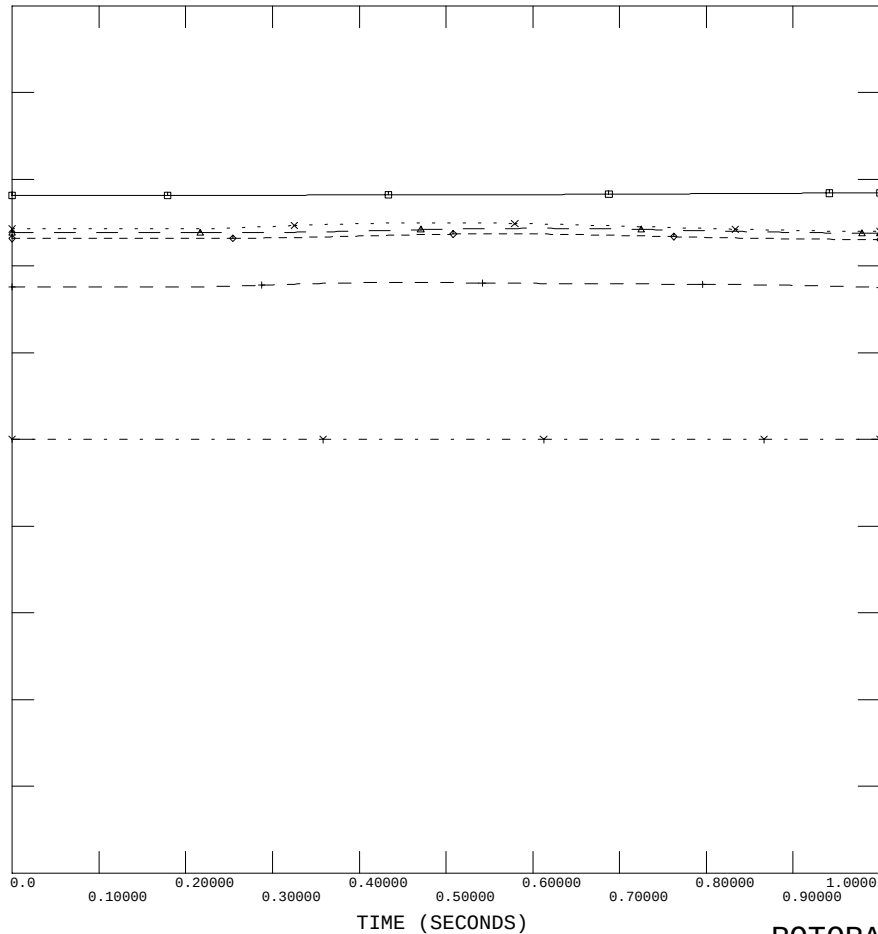
+ - - - +

-18.0 0

CHNL # 88: [ANGL 73418 [RD NIXON20.000] [1. ]]

CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1]]

CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1 ]]



0.90000 THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON12 1PH 1

2003 HS - FROM 2003HS4C OPERATING CASE 2003HSA0734DD.SAV  
A/A70, 73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON12-ON\_1ph.OUT

CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1 ]]

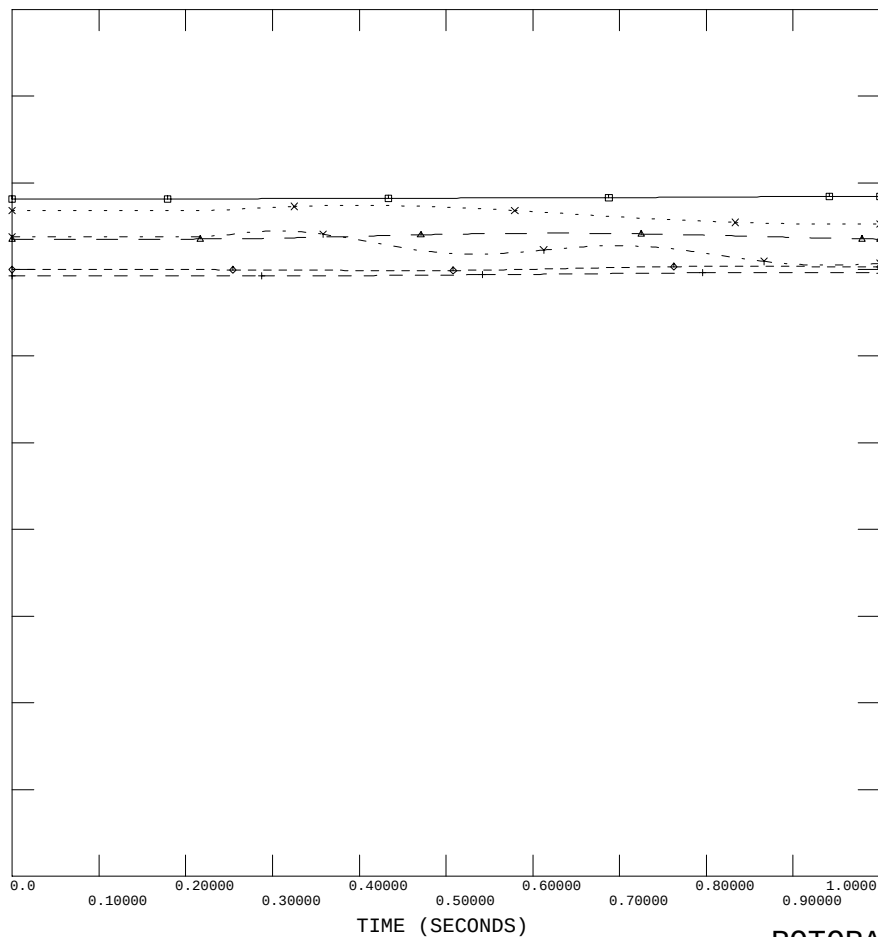
|                                            |               |        |
|--------------------------------------------|---------------|--------|
| 180.00                                     | Y - - - - - Y | -180.0 |
| CHNL# 28: [ANGL 70344 [R.F.DLS4.1600] [1]] |               |        |
| 180.00                                     | Y - - - - - Y | 180.0  |

|                                           |   |   |   |   |   |        |
|-------------------------------------------|---|---|---|---|---|--------|
| CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1 ]] | + | - | - | - | - | +      |
| 180.00                                    |   |   |   |   |   | -180.0 |

CHNL# 15: [ANGL 70106 [CHEROK4 22.000] [1]]

CHNL# 96: [ANGL 73532 [LINCOLN13.800] [1]] ← — — — — -180.0

CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1 ]]

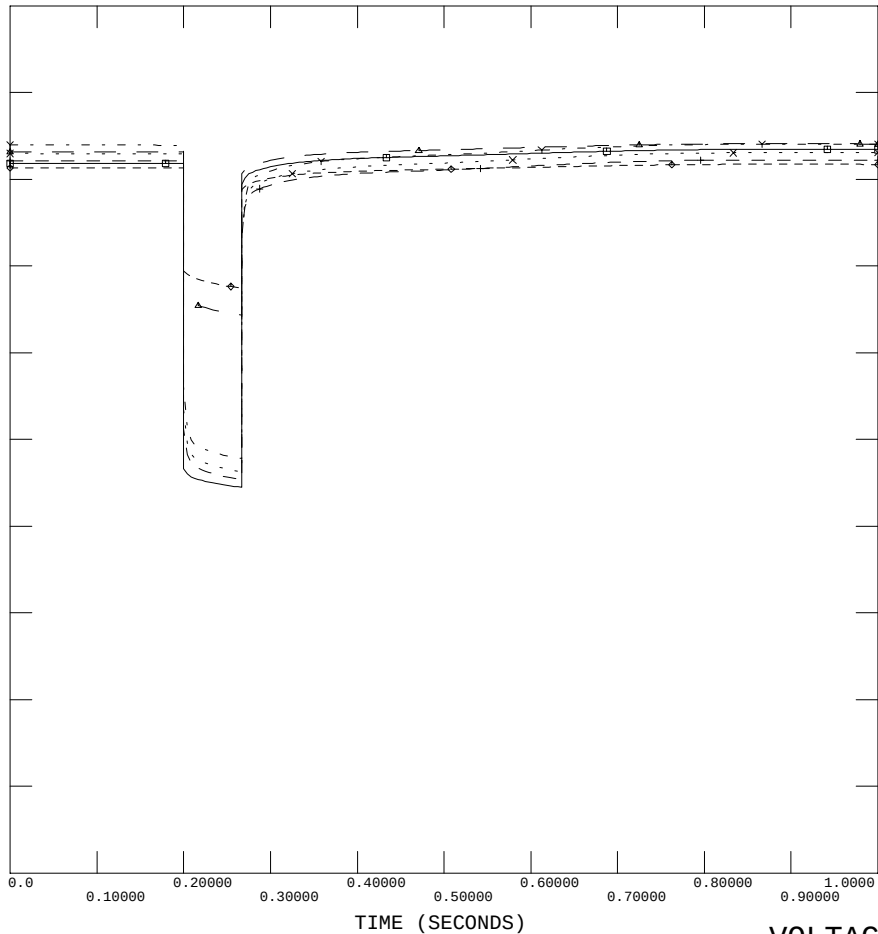


0.90000 THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON12 1PH 1

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON12-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

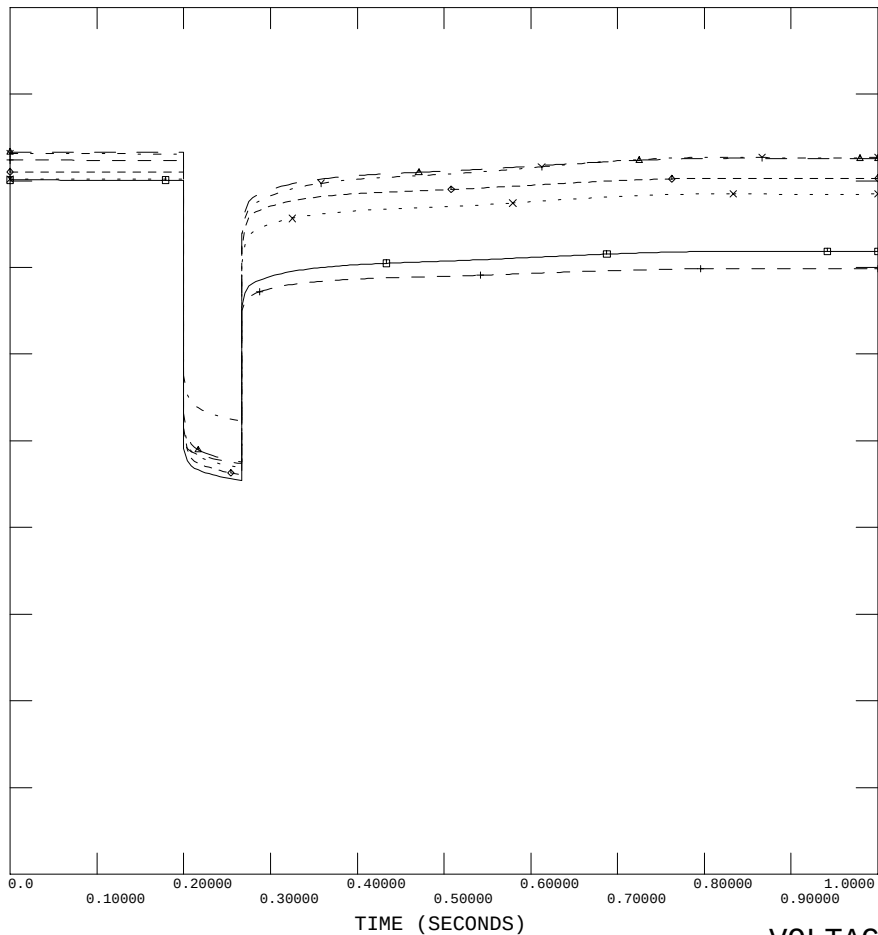


THU, FEB 13 2003 14:48  
VOLTAGE 1 CON12 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON12-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



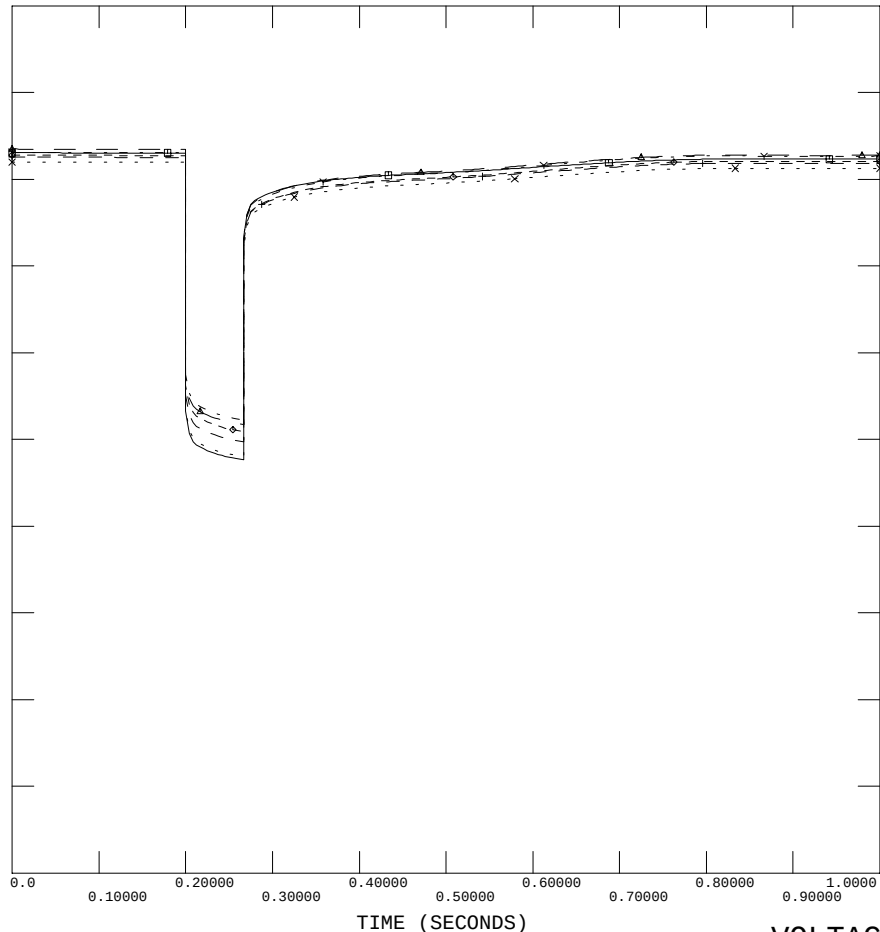
THU, FEB 13 2003 14:48  
VOLTAGE 2 CON12 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON12-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [LEADS 69.000]]    | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



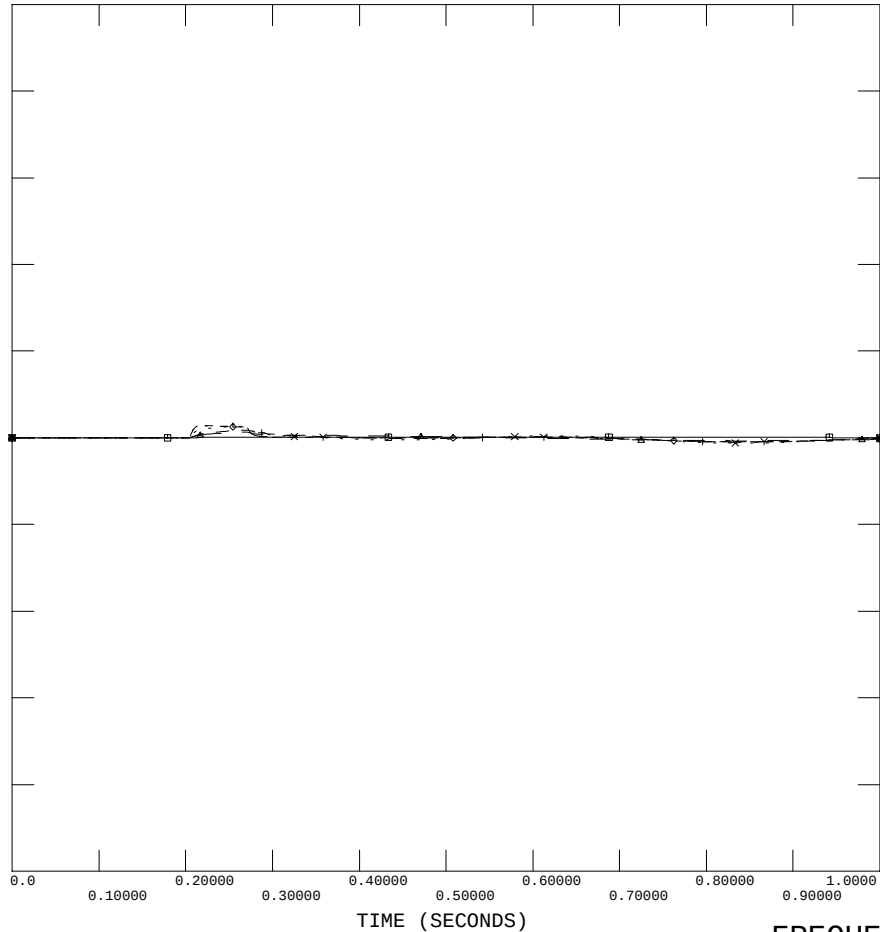
THU, FEB 13 2003 14:48  
VOLTAGE 3 CON12 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON12-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



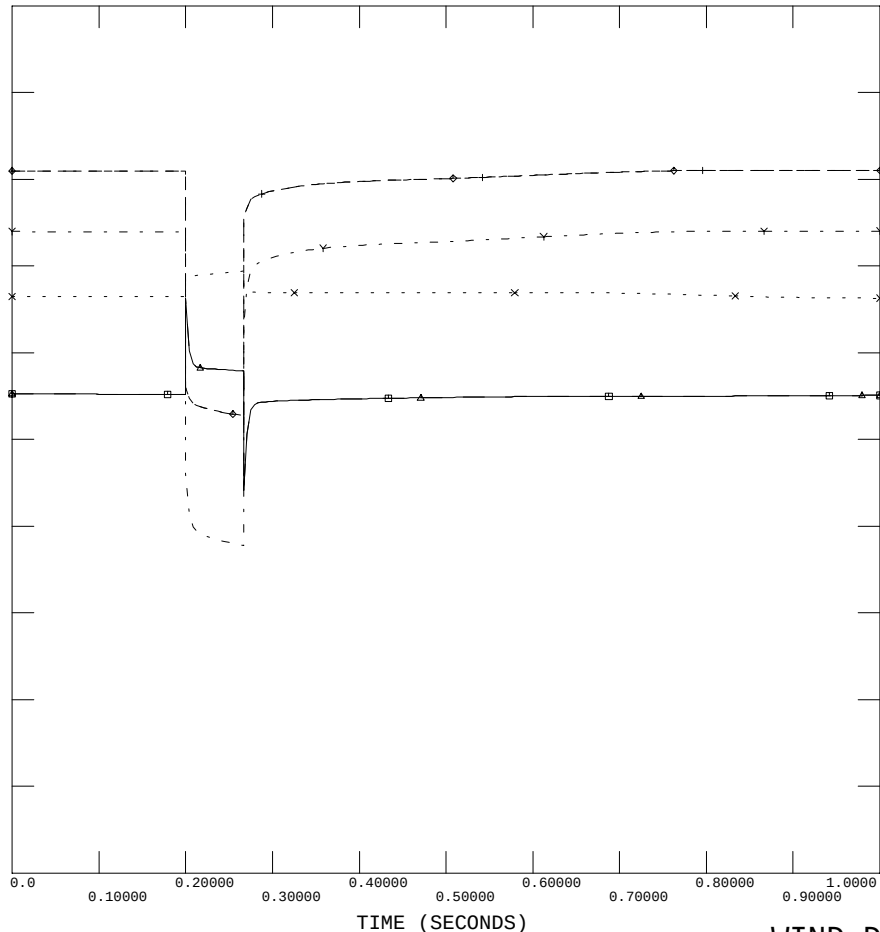
THU, FEB 13 2003 14:48  
FREQUENCY CON12 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON12-ON\_1ph.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB.KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB.KNOB34.500]] | -180.0  |
| 180.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



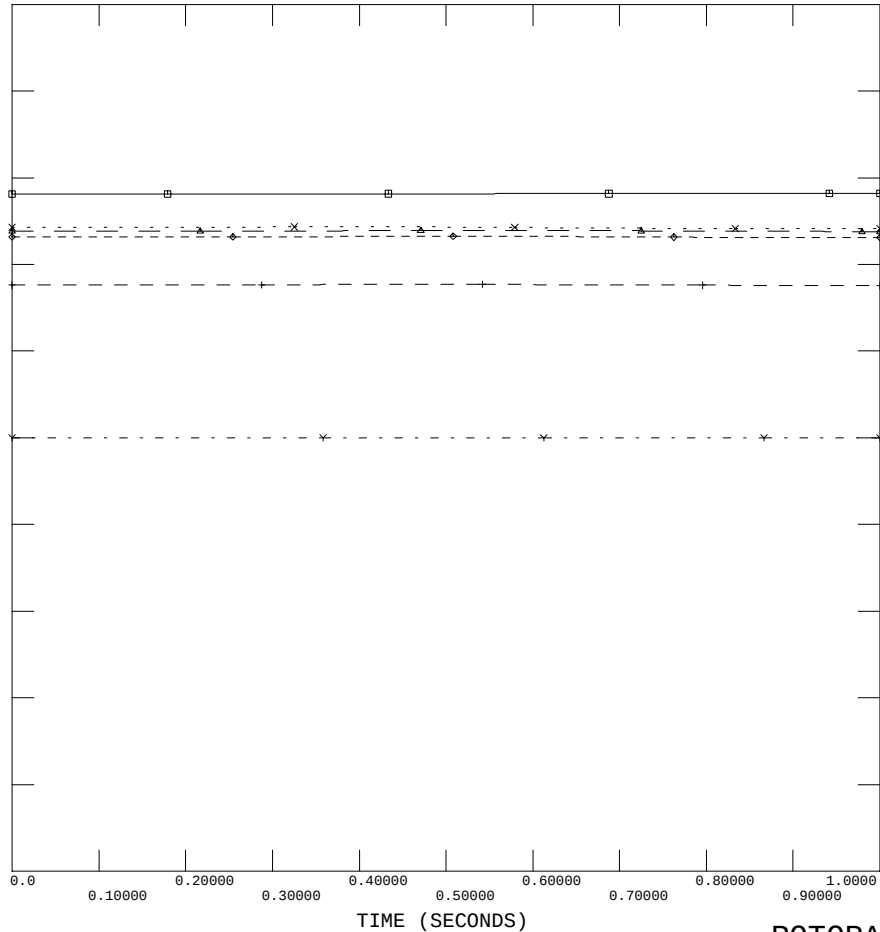
THU, FEB 13 2003 14:48  
WIND DATA CON12 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON13-ON\_1ph.OUT

|        |                                                |        |
|--------|------------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [GOB.KNOB34.500]] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000]] [1.]]  | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000]] [1.]]   | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000]] [1.]]  | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800]] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000]] [1.]]  | -180.0 |



THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON13 1PH 1



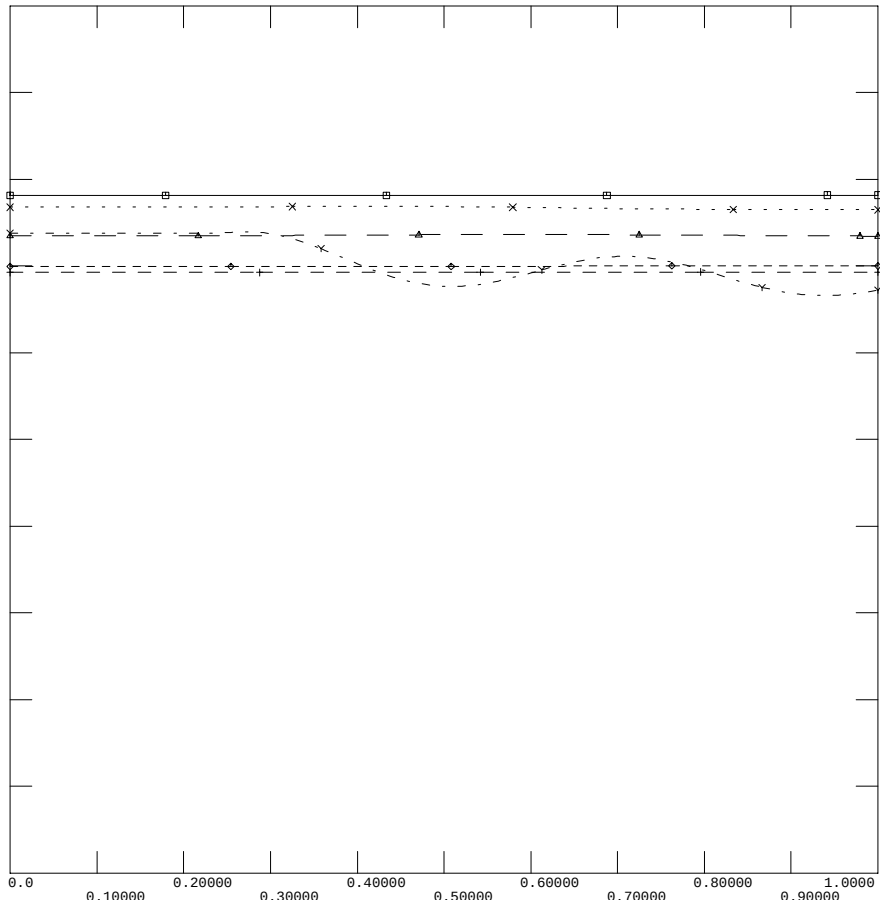


POWER  
TIC  
WIND LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON13-ON\_1ph.0UT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 15: [ANGL 70106 [CHEROK4 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: [ANGL 73532 [LINCOLN113.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



THU, FEB 13 2003 14:48

ROTORANGLES 2 CON13 1PH 1

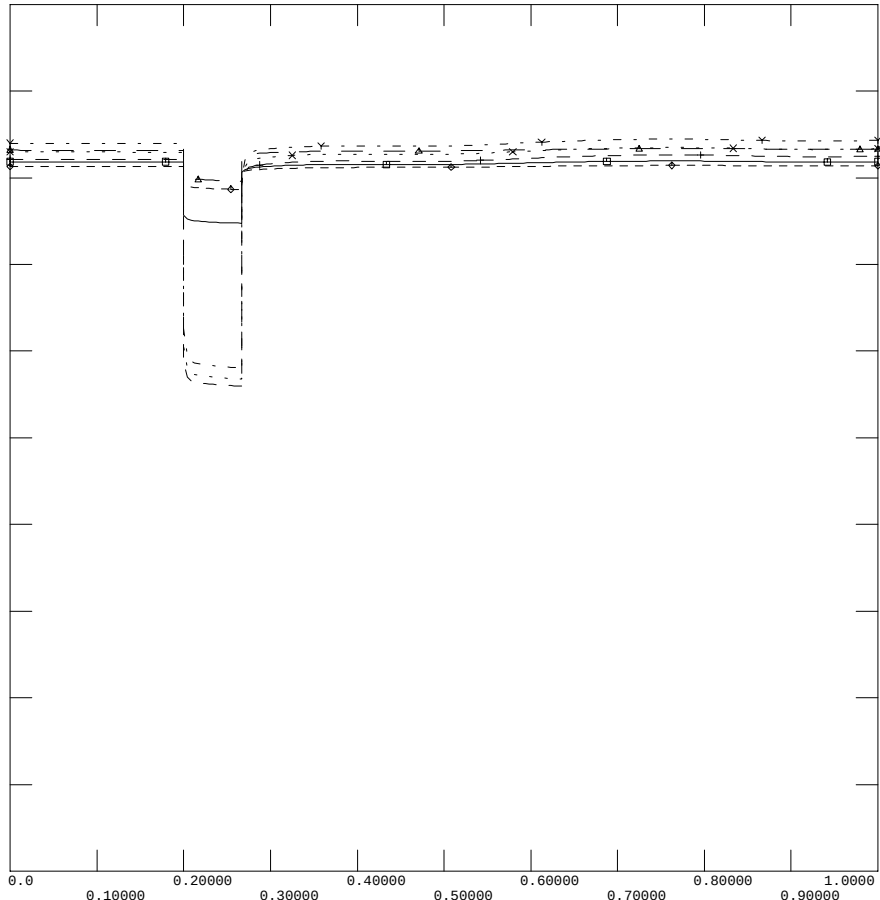


POWER  
TIC  
WIND LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON13-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



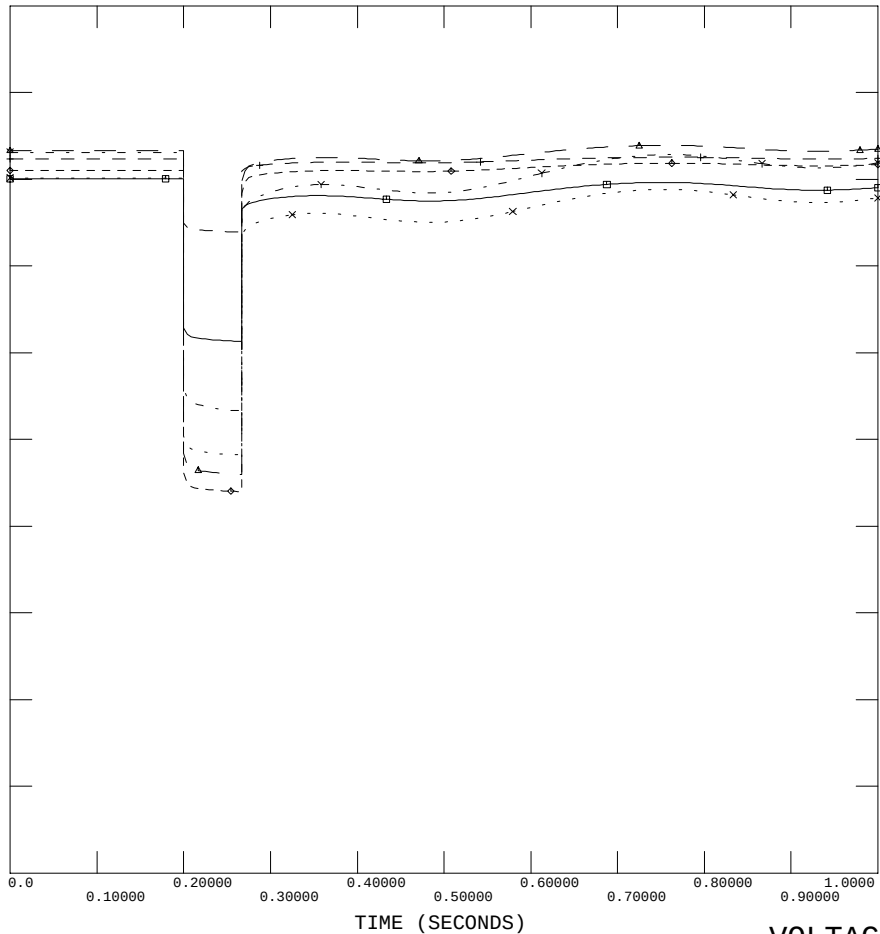
THU, FEB 13 2003 14:48

VOLTAGE 1 CON13 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON13-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



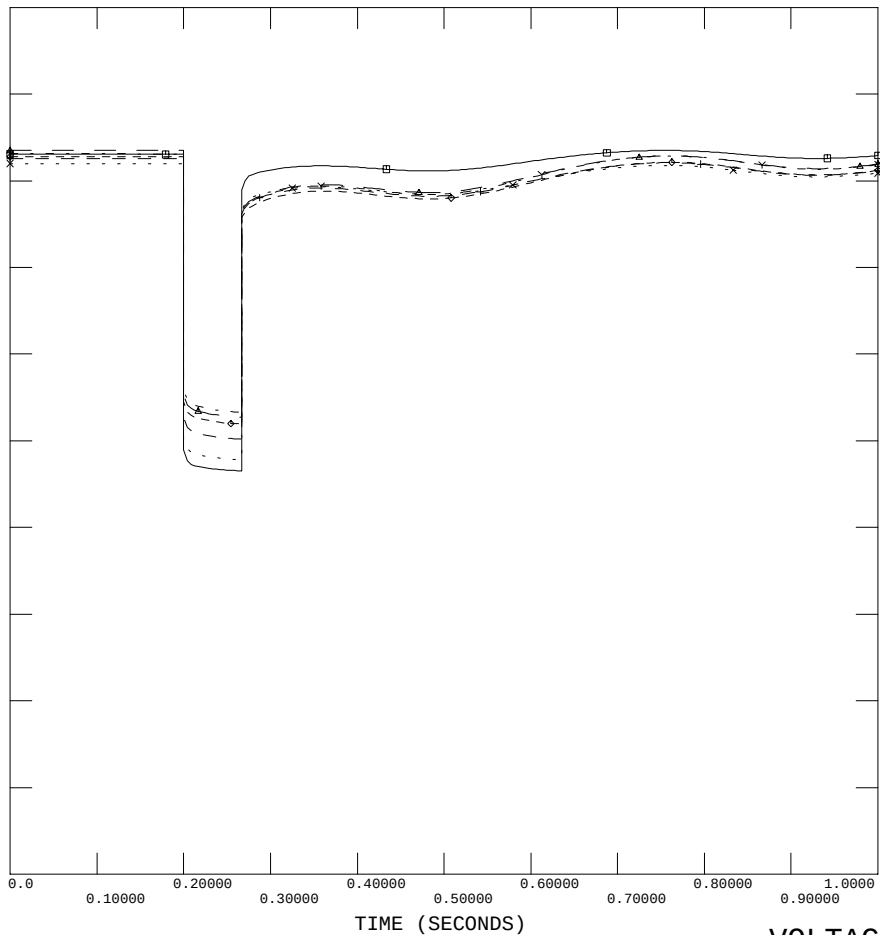
THU, FEB 13 2003 14:48

VOLTAGE 2 CON13 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON13-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



THU, FEB 13 2003 14:48

VOLTAGE 3 CON13 1PH 162MW

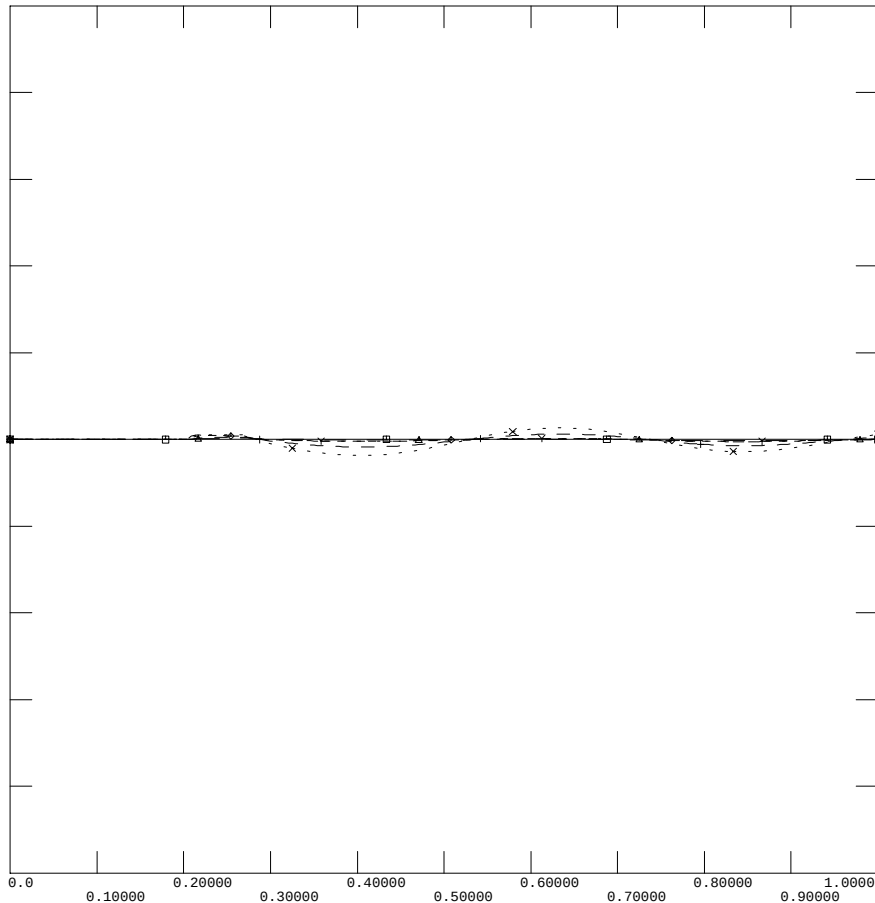


POWER  
TIC  
0.0615

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON13-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



THU, FEB 13 2003 14:48

FREQUENCY CON13 1PH 162MW

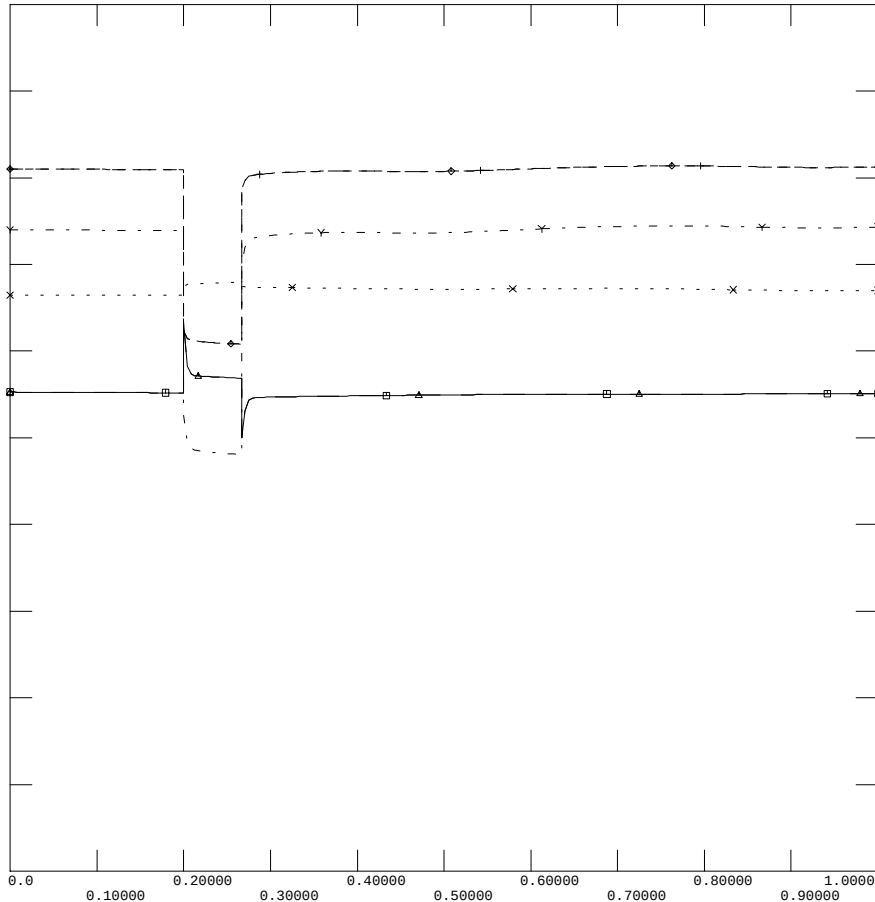


POWER  
TIC  
0.0615

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON13-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [GOB KNOB34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



THU, FEB 13 2003 14:48

WIND DATA CON13 1PH 162MW

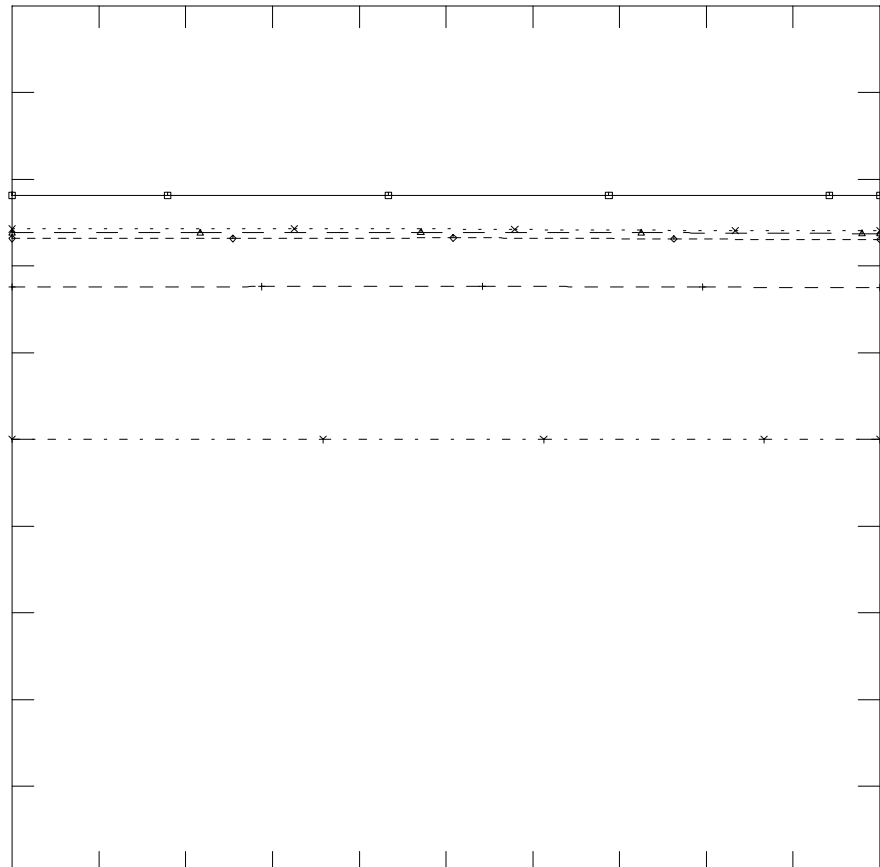


POWER  
LINE  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON14-ON\_1ph\_OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON14 1PH 1

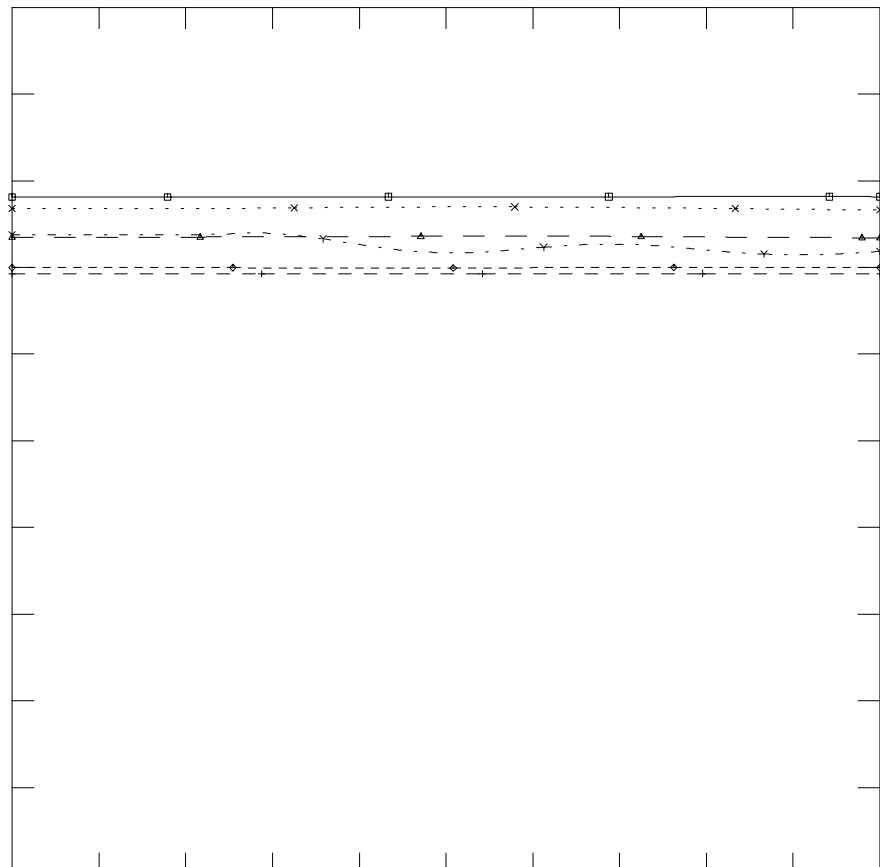


POWER  
LINE  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON14-ON\_1ph\_OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 15: [ANGL 70106 [CHEROK4 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: [ANGL 73532 [LINCOLN113.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



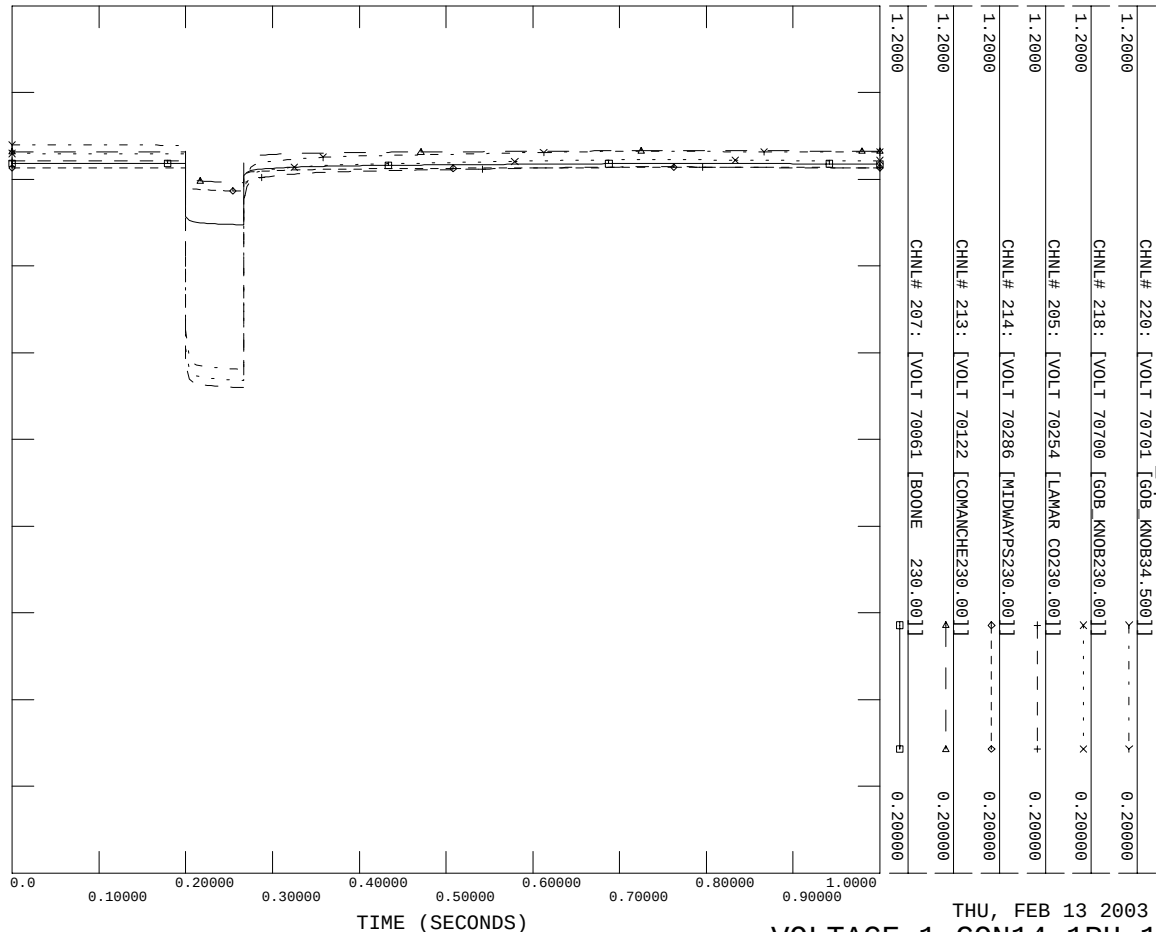
TIME (SECONDS)

THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON14 1PH 1



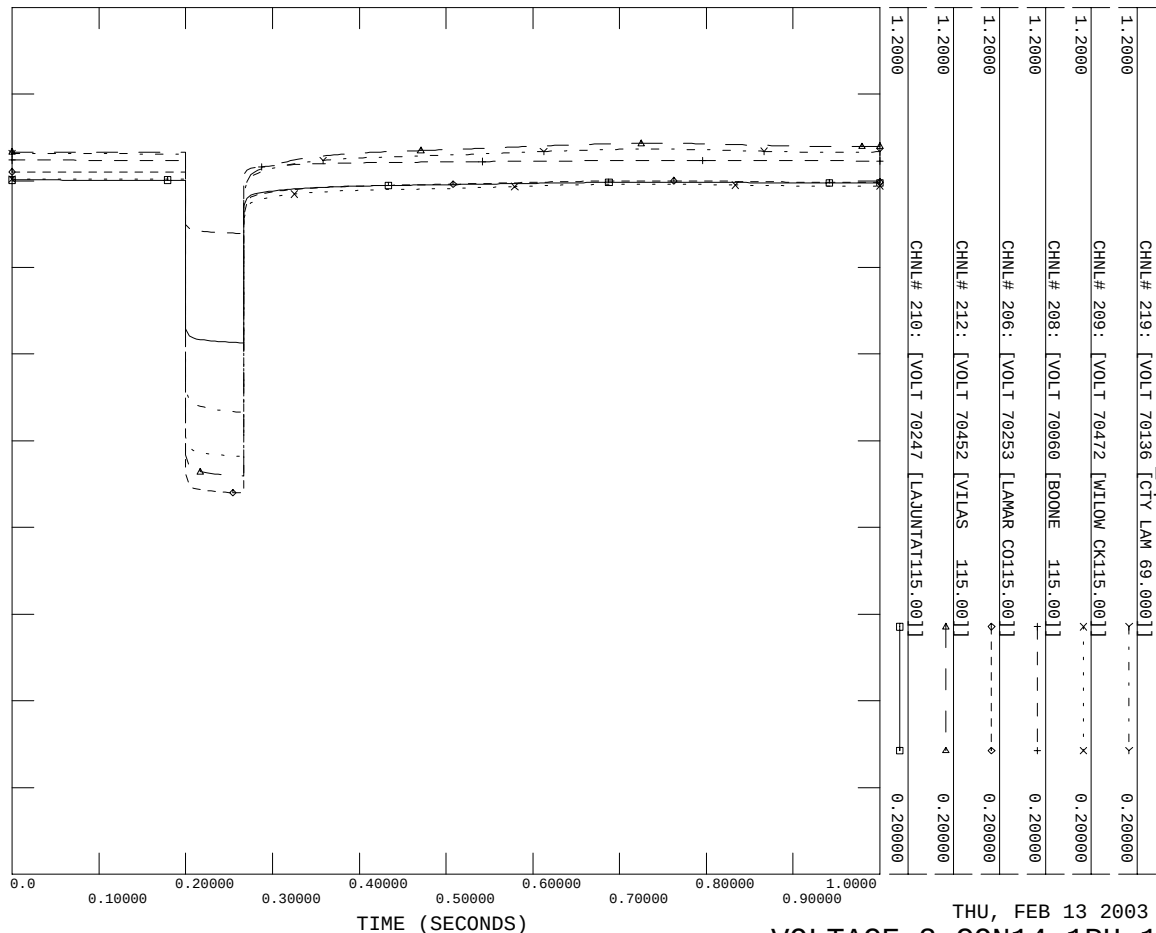
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON14-ON\_1ph.0UT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

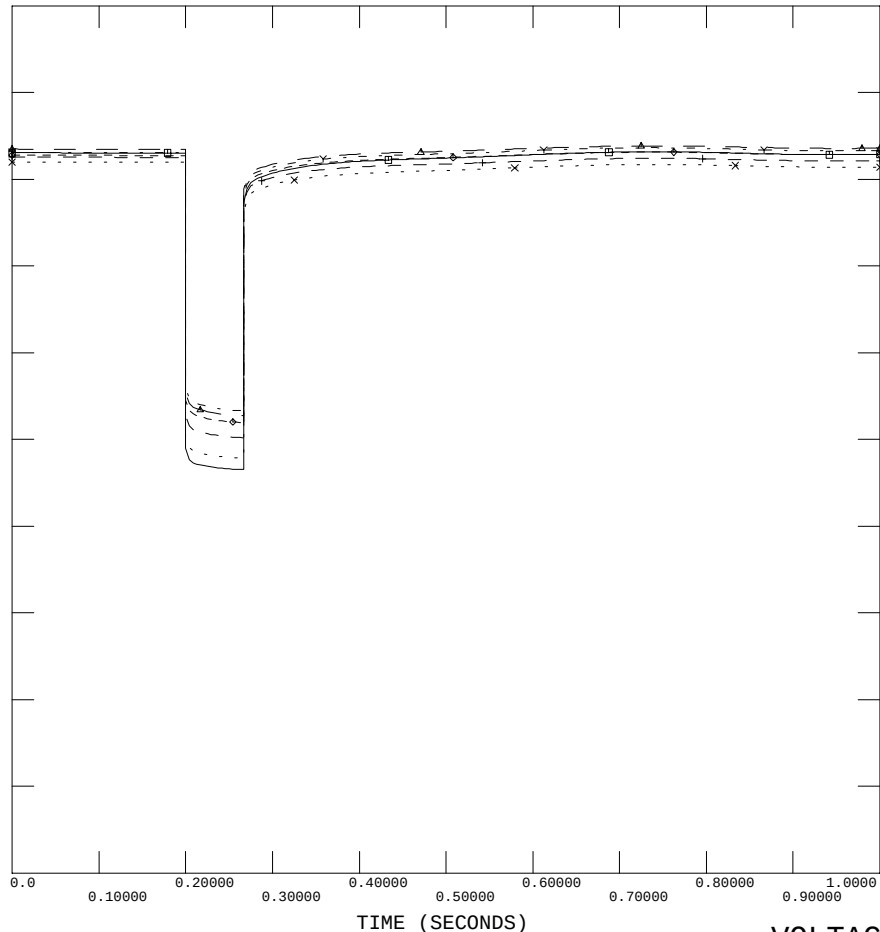
FILE: CON14-ON\_1ph.0UT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON14-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [LEADS 69.000]]    | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

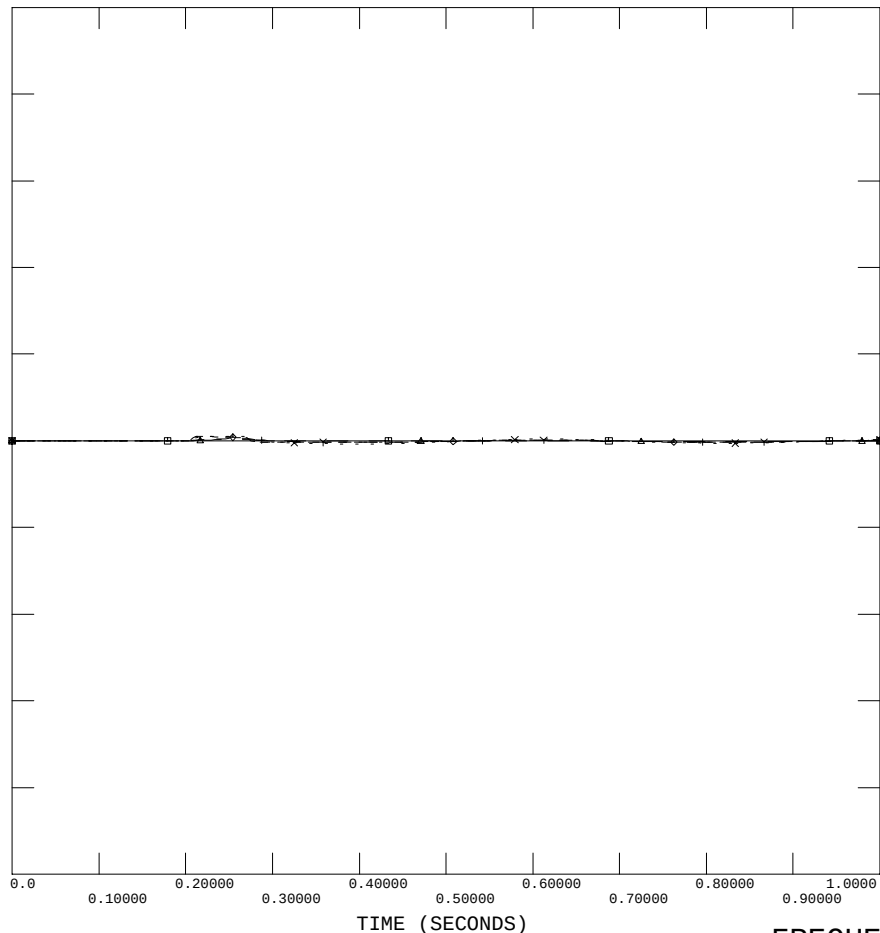


THU, FEB 13 2003 14:48  
VOLTAGE 3 CON14 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON14-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



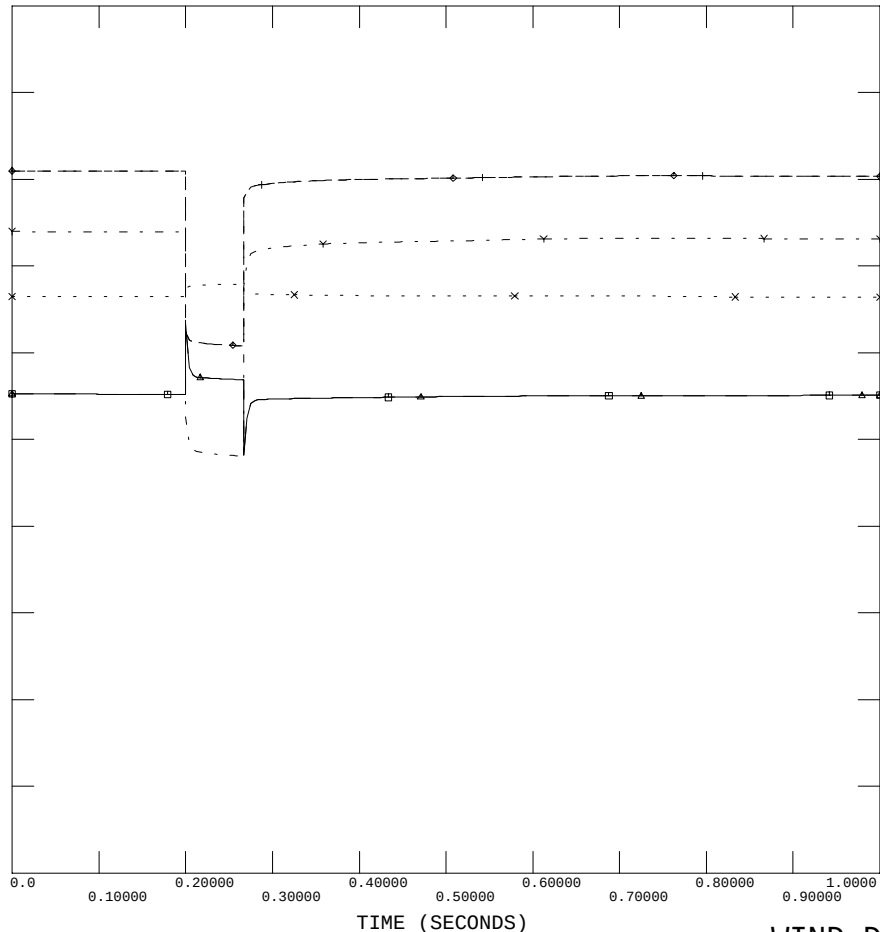
THU, FEB 13 2003 14:48  
FREQUENCY CON14 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON14-ON\_1ph.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB.KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB.KNOB34.500]] | -180.0  |
| 180.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



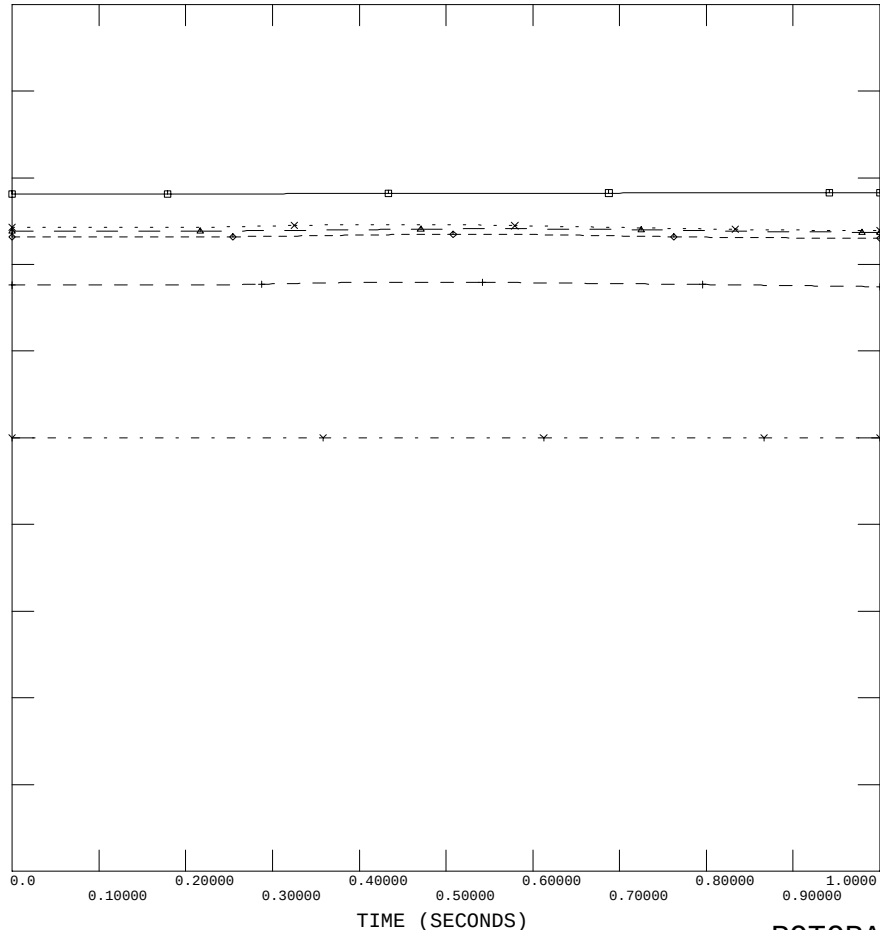
THU, FEB 13 2003 14:48  
WIND DATA CON14 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON16-ON\_1ph.OUT

|        |                                                |        |
|--------|------------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [GOB.KNOB34.500]] [1.1] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000]] [1.1]  | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000]] [1.1]   | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000]] [1.1]  | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800]] [1.1]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000]] [1.1]  | -180.0 |



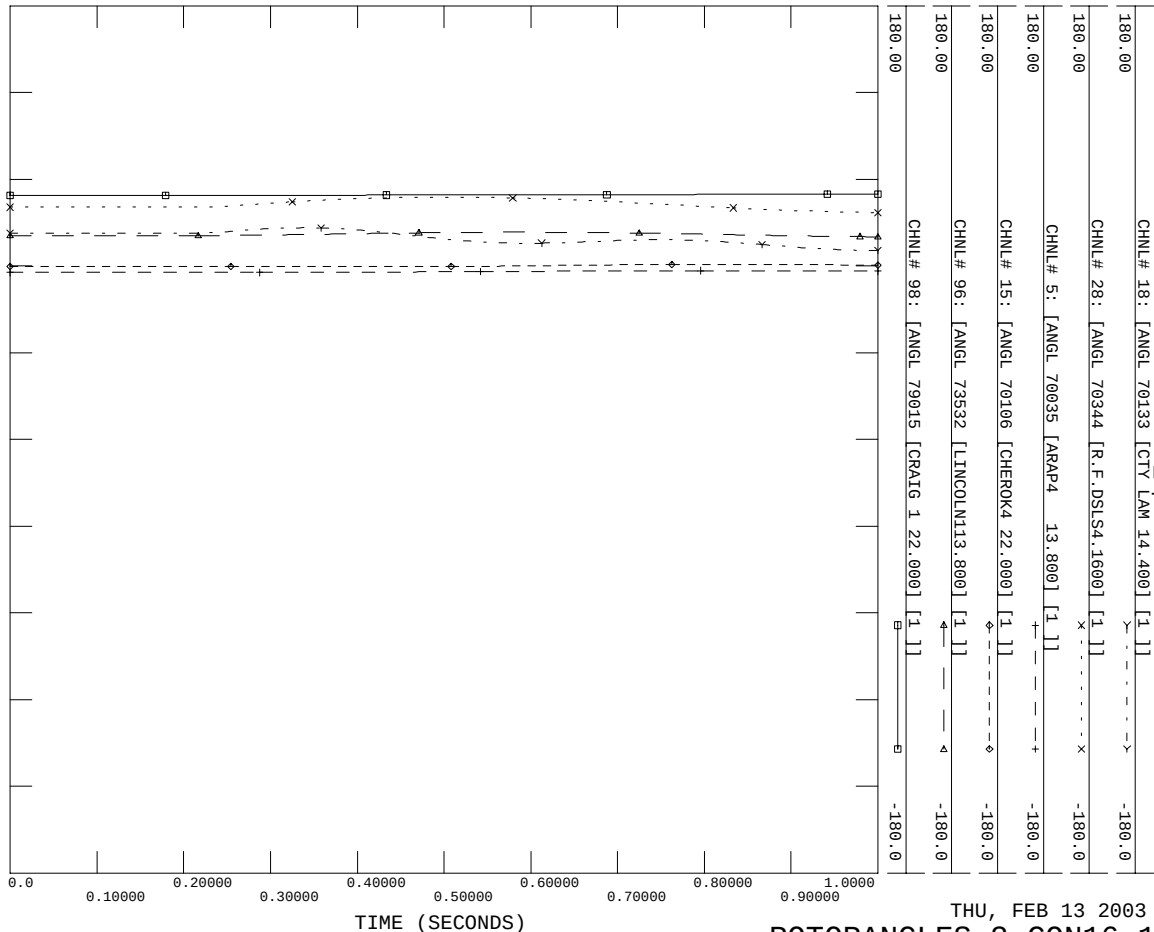
THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON16 1PH 1



POWER  
TIC  
WIND  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

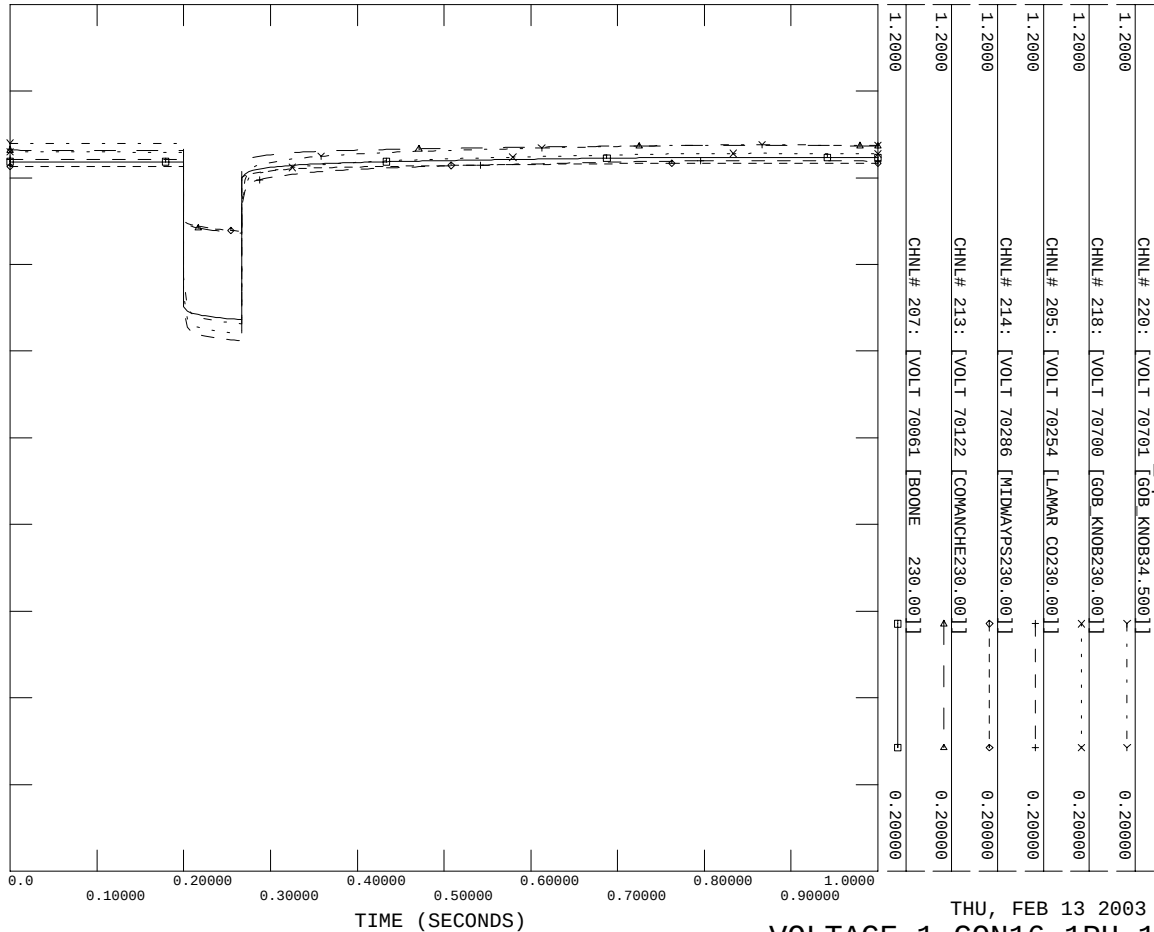
FILE: CON16-ON\_1ph.0UT



POWER  
TIC  
WIND  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON16-ON\_1ph.0UT

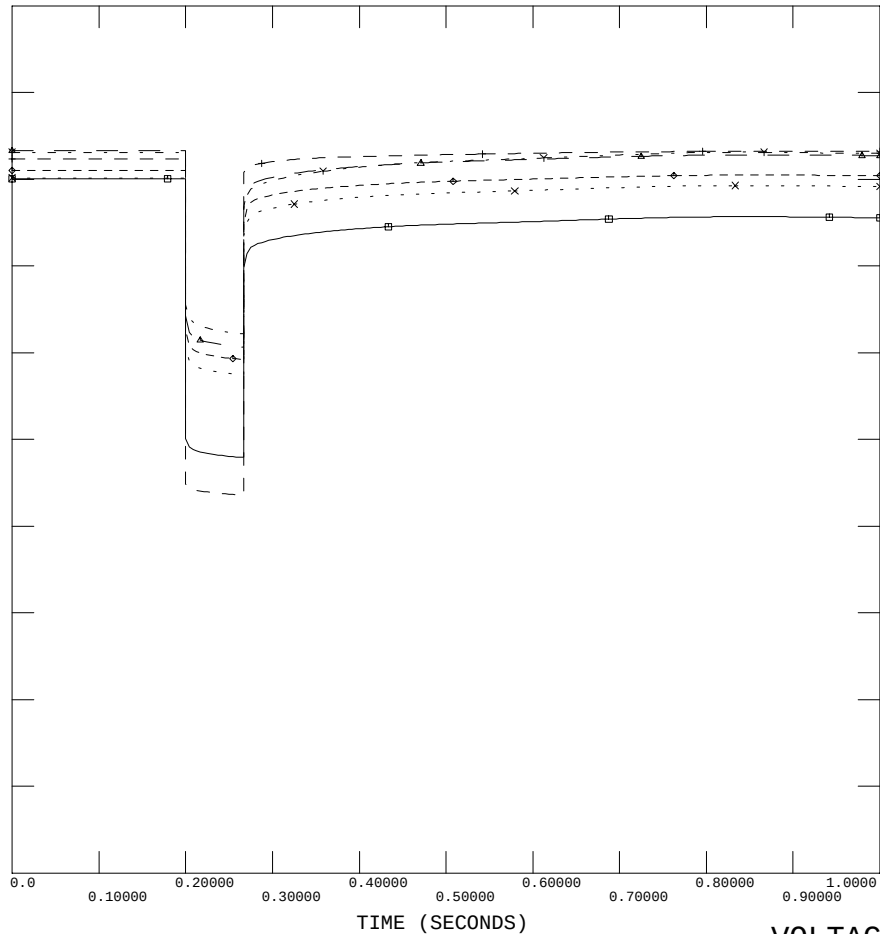




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON16-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

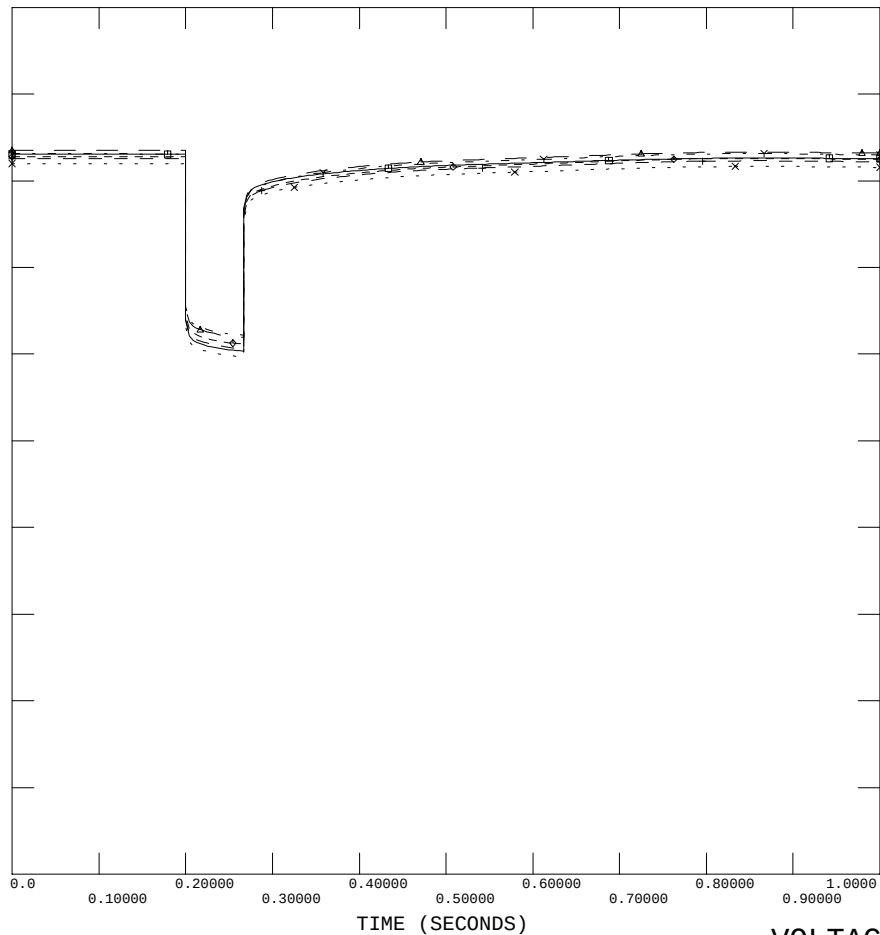


THU, FEB 13 2003 14:48  
VOLTAGE 2 CON16 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON16-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



THU, FEB 13 2003 14:48  
VOLTAGE 3 CON16 1PH 162MW

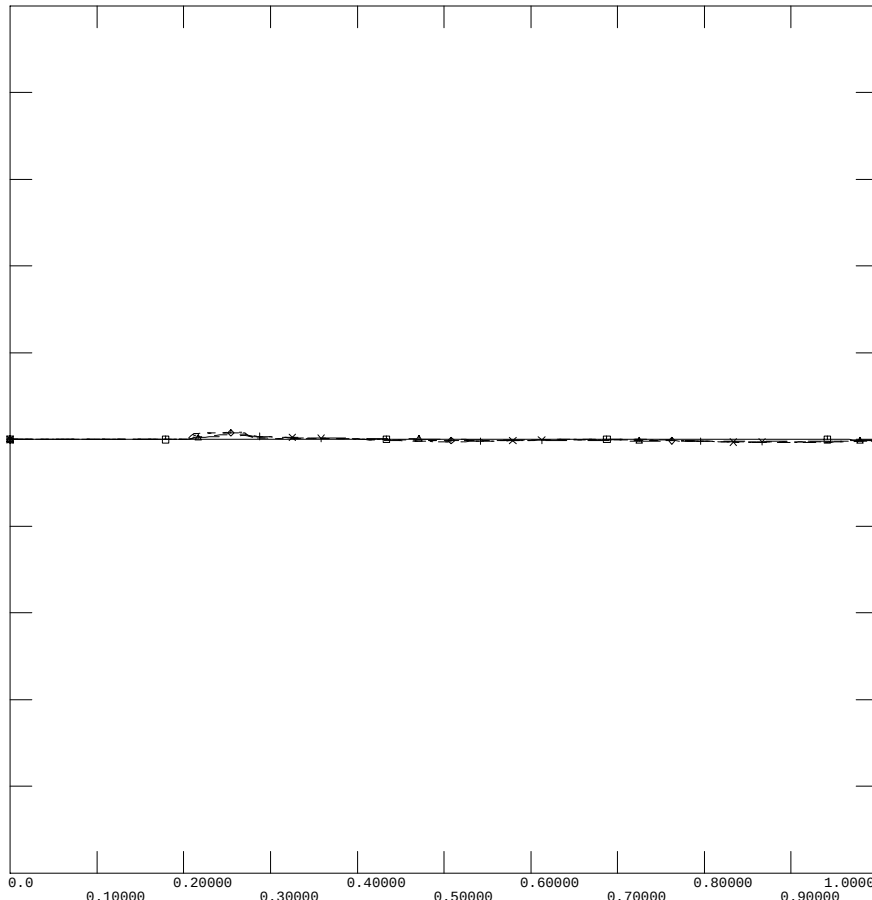


POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON16-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



THU, FEB 13 2003 14:48

FREQUENCY CON16 1PH 162MW

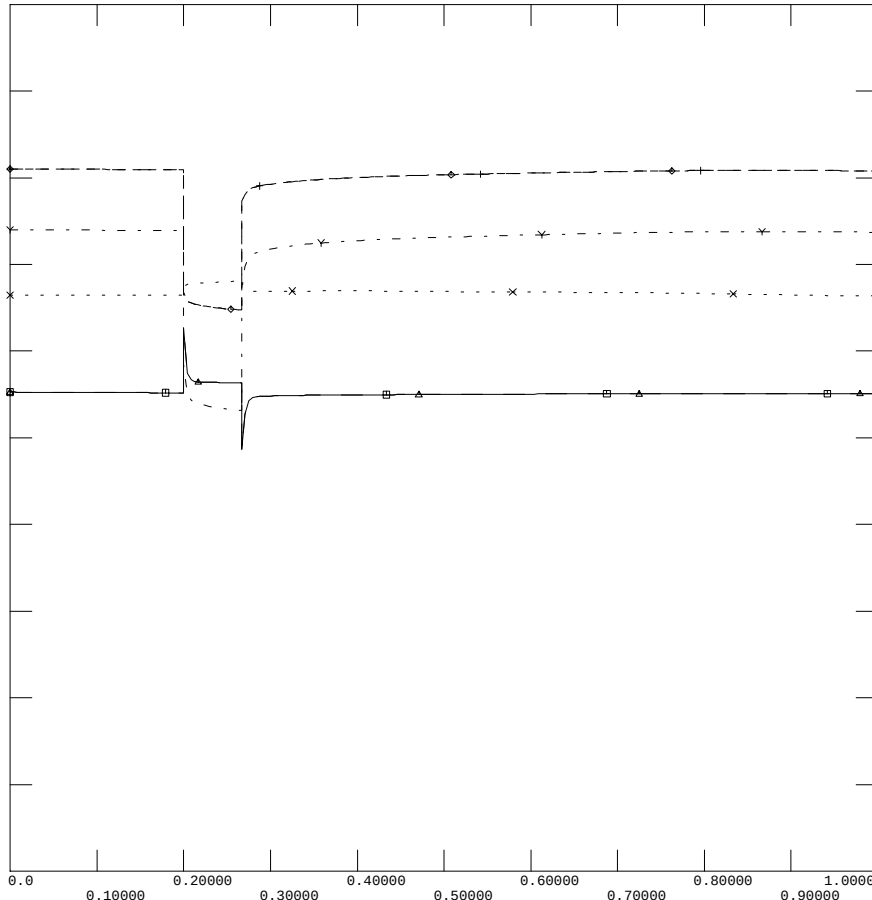


POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON16-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGI 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



THU, FEB 13 2003 14:48

WIND DATA CON16 1PH 162MW

2003 HS - FROM 2003HS4C OPERATING CASE 2003HSA7073AD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON17-ON\_1ph.0UT

CHNL# 111: [ANGL 70701 [GOB\_KNOB34.500] [1]]

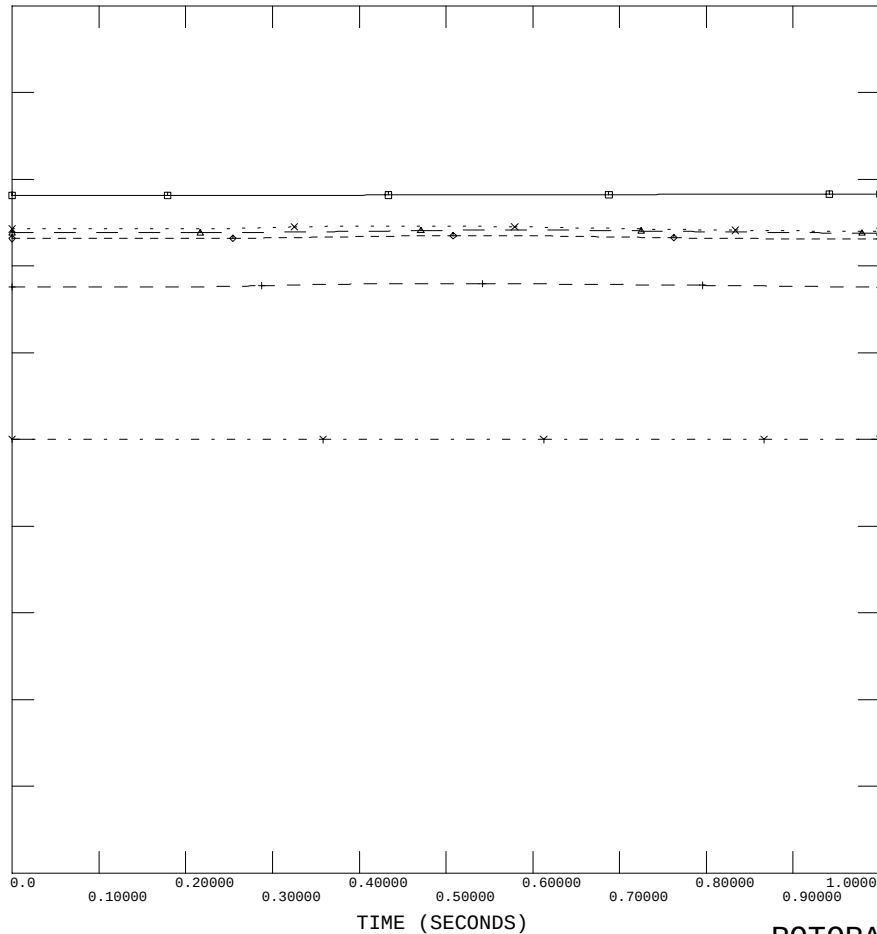
[illegible]

|                                             |
|---------------------------------------------|
| CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1 ]] |
|---------------------------------------------|

|           |             |                  |       |
|-----------|-------------|------------------|-------|
| CHNL# 88: | [ANGL 73418 | [RD NIXON20.000] | [1 ]] |
|-----------|-------------|------------------|-------|

|           |             |                  |       |
|-----------|-------------|------------------|-------|
| CHNL# 89: | [ANGL 73429 | [DRAKE 7 13.800] | [1 ]] |
|-----------|-------------|------------------|-------|

|                                              |
|----------------------------------------------|
| CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1 ]] |
|----------------------------------------------|



0.90000 THU, FEB 13 2003 14:48  
 ROTORANGLES 1 CON17 1PH 1

2003 HS - FROM 2003HS4C OPERATING CASE 2003HSA0734DD.SAV  
A/A70, 73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON17-ON\_1ph.OUT

CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1 ]]

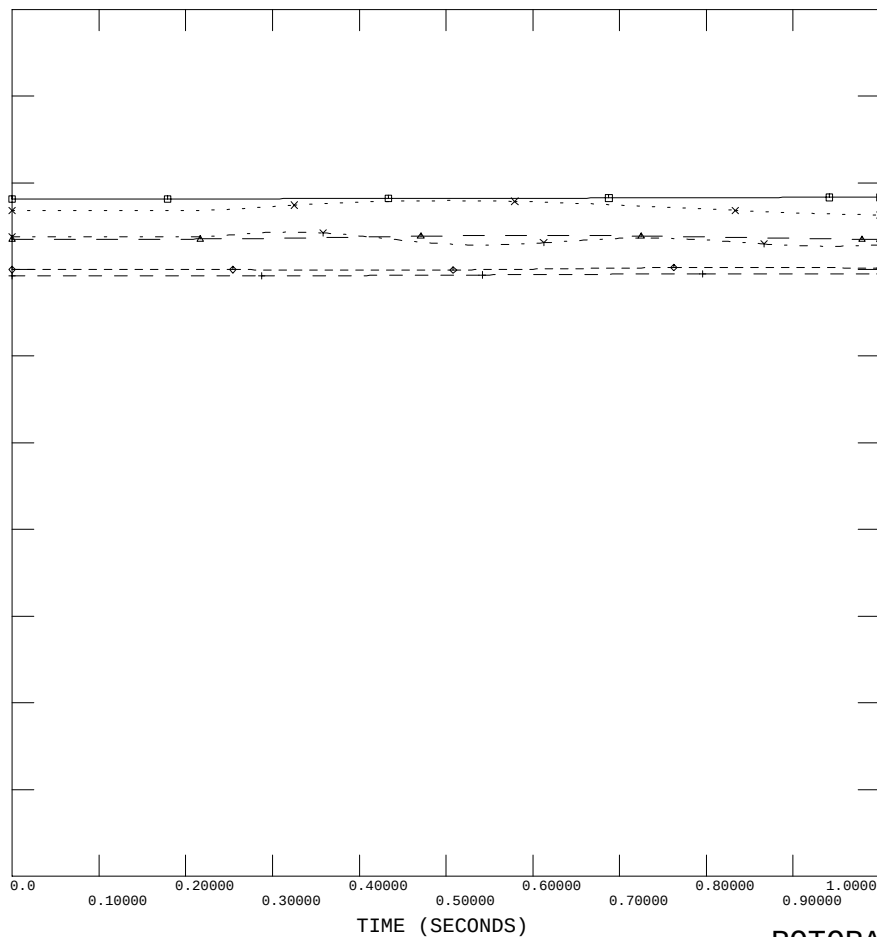
|                                            |               |        |
|--------------------------------------------|---------------|--------|
| 180.00                                     | Y - - - - - Y | -180.0 |
| CHNL# 28: [ANGL 70344 [R.F.DLS4.1600] [1]] |               |        |
| 180.00                                     | Y - - - - - Y | 180.0  |

|          |              |         |          |         |
|----------|--------------|---------|----------|---------|
| CHNL# 5: | [ ANGL 70035 | [ ARAP4 | 13.800 ] | [ 1 ] ] |
|----------|--------------|---------|----------|---------|

|                                              |
|----------------------------------------------|
| CHNL# 15: [ANGL 70106 [CHEROK4 22.000] [1 ]] |
|----------------------------------------------|

|                                             |
|---------------------------------------------|
| CHNL# 96: [ANGL 73532 [LINCOLN13.800] [1 ]] |
|---------------------------------------------|

|                                              |
|----------------------------------------------|
| CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1 ]] |
|----------------------------------------------|

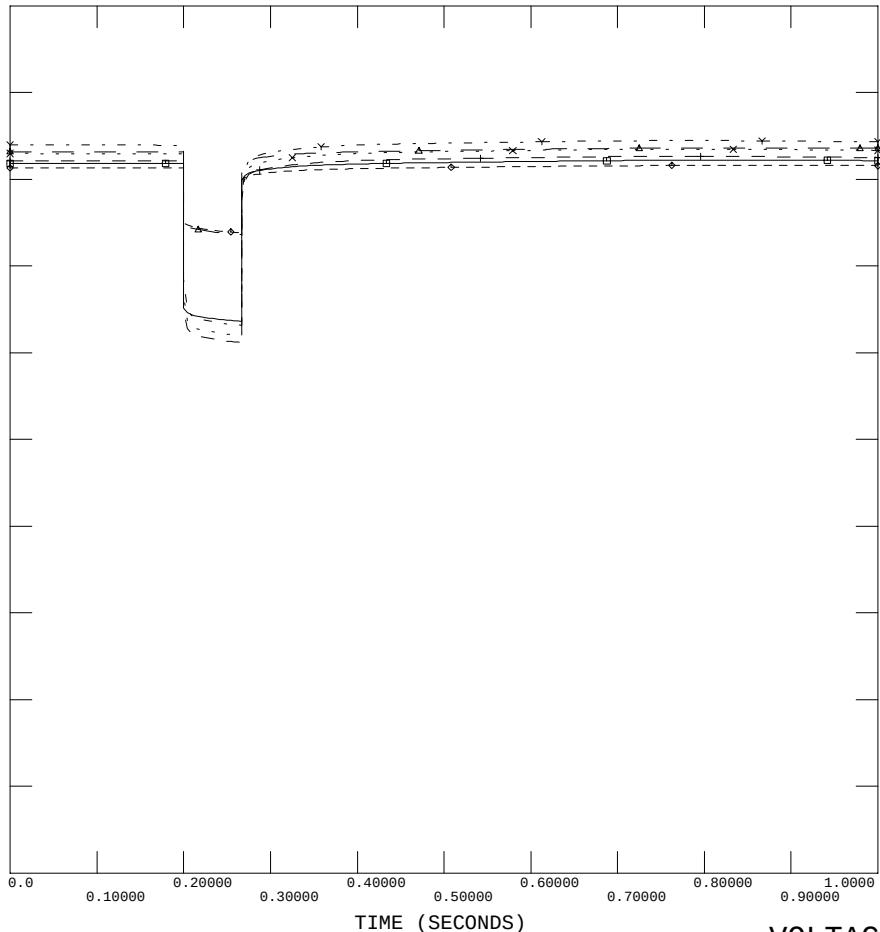


0.90000 THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON17 1PH 1

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON17-ON\_1ph.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR.C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



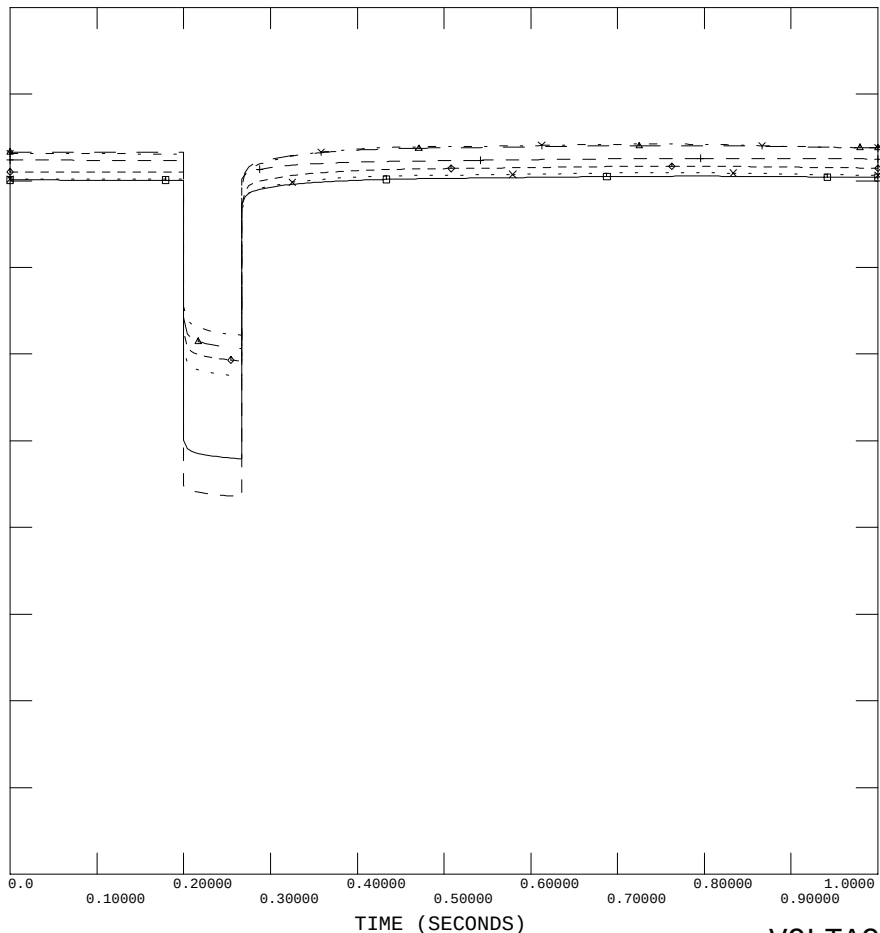
THU, FEB 13 2003 14:48

VOLTAGE 1 CON17 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON17-ON\_1ph.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY.LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW.CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR.C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



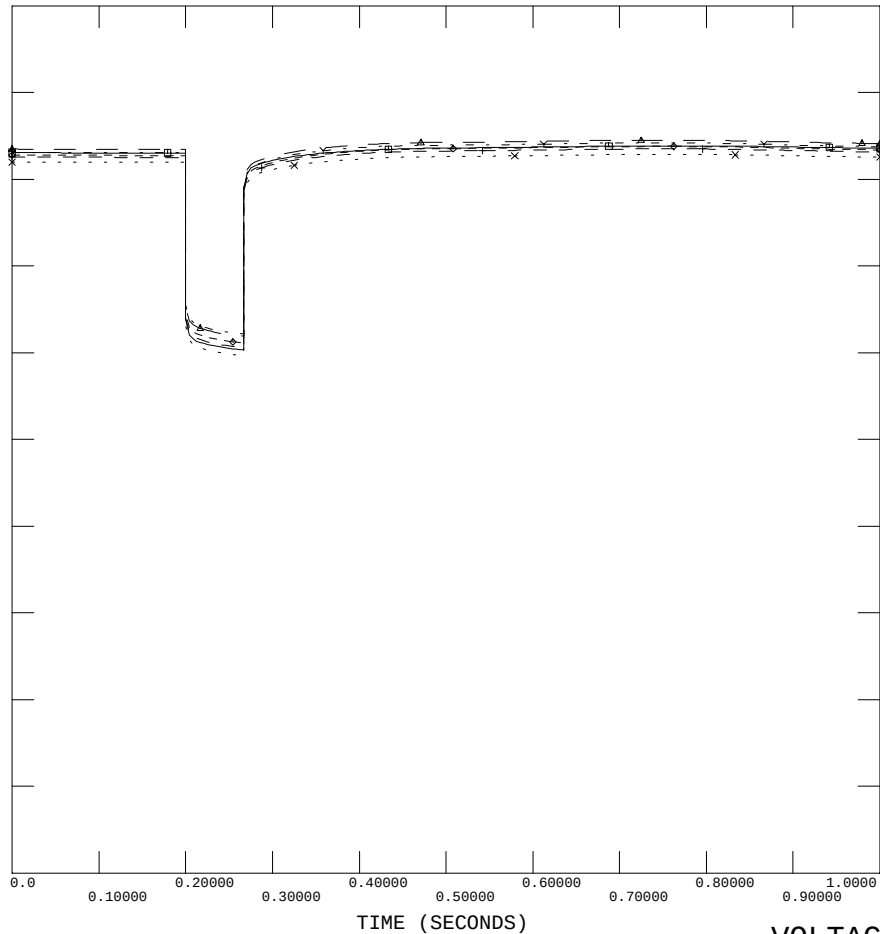
THU, FEB 13 2003 14:48

VOLTAGE 2 CON17 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON17-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



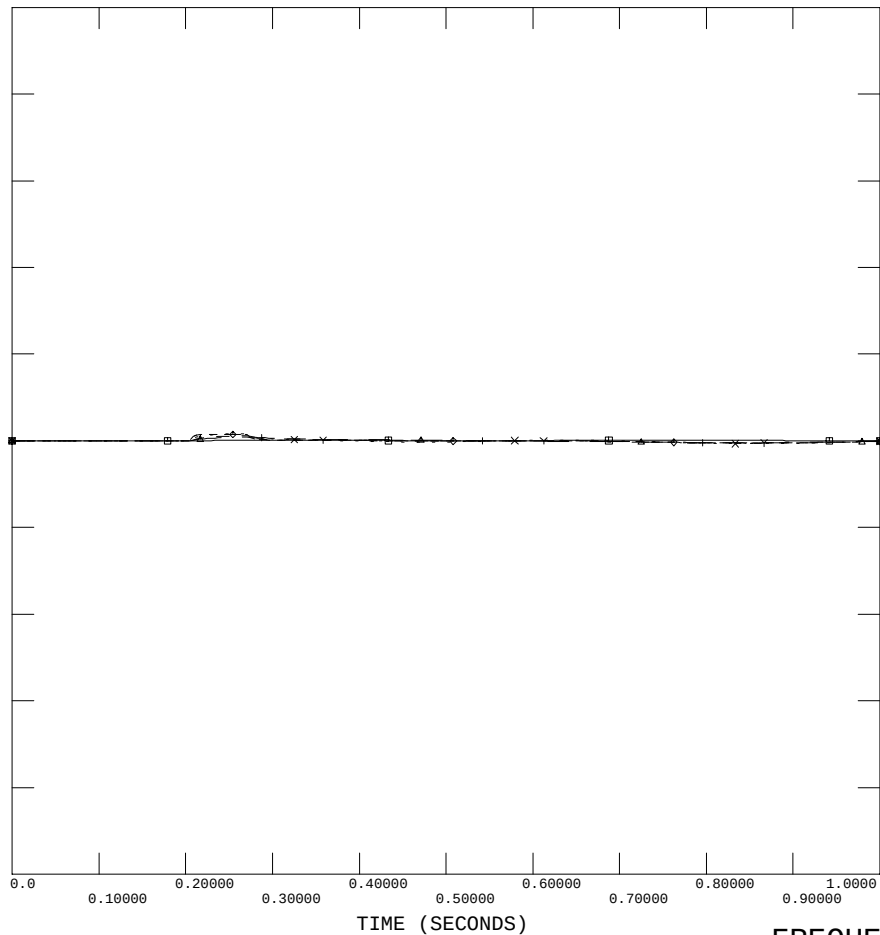
THU, FEB 13 2003 14:48

VOLTAGE 3 CON17 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON17-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |



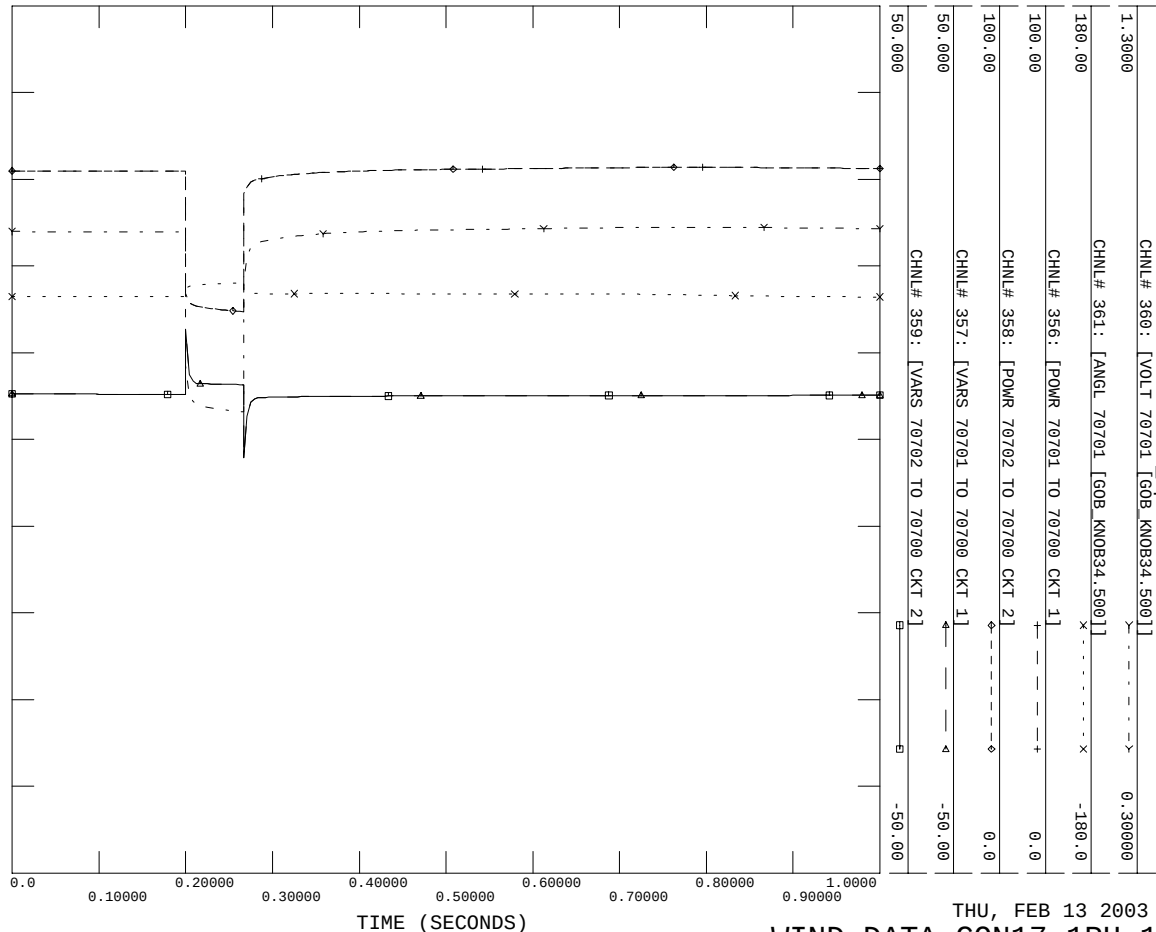
THU, FEB 13 2003 14:48

FREQUENCY CON17 1PH 162MW



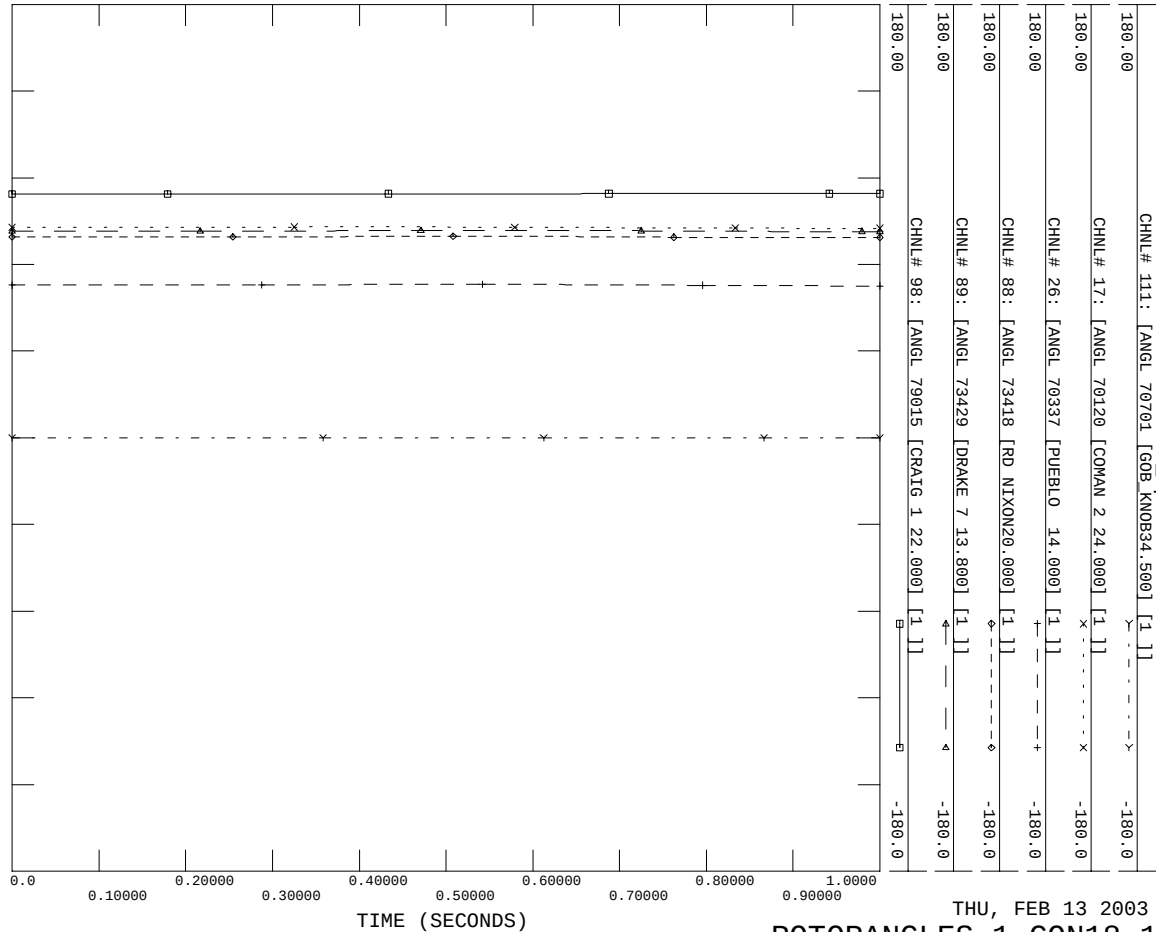
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON17-ON\_1ph\_OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON18-ON\_1ph\_OUT



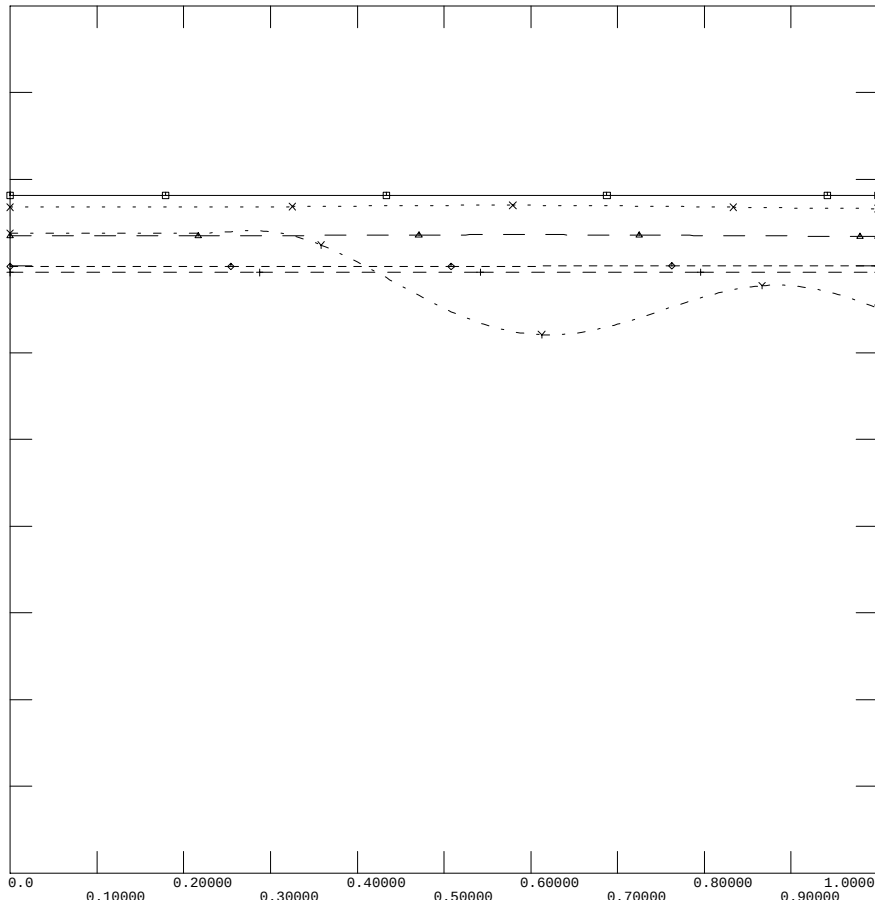


POWER  
TIC  
WIND  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON18-ON\_1ph\_OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 15: [ANGL 70106 [CHEROK4 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: [ANGL 73532 [LINCOLN113.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON18 1PH 1

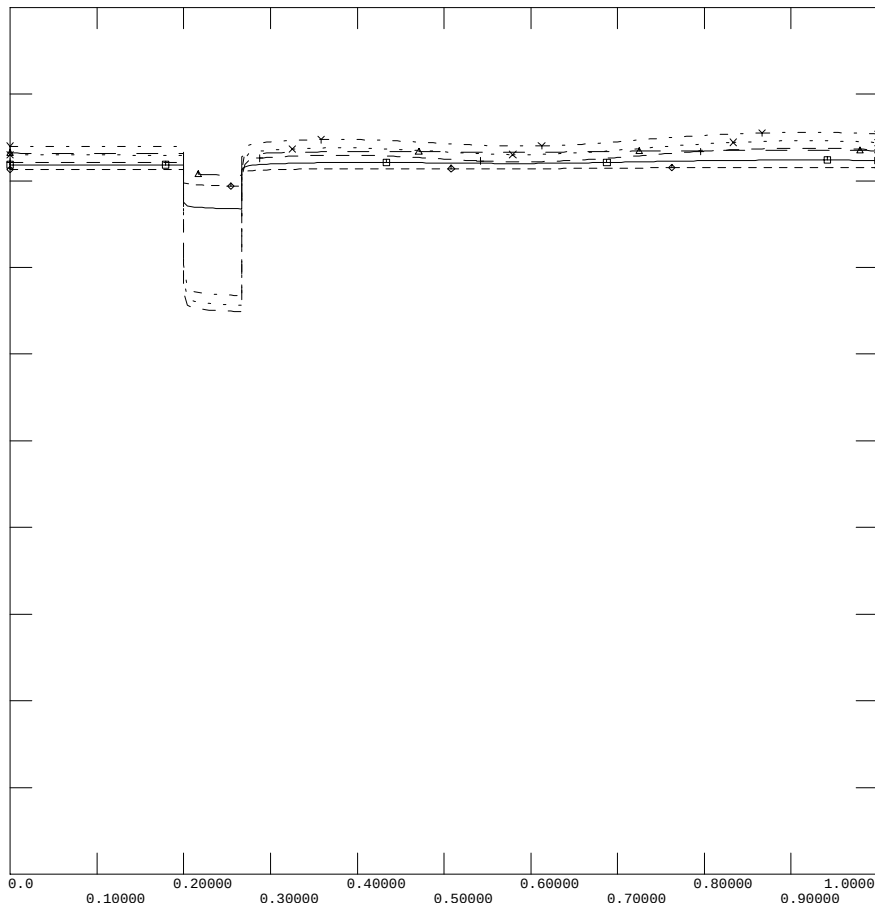


POWER  
TIC  
WIND  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

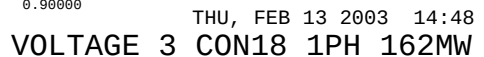
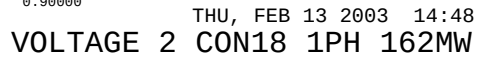
FILE: CON18-ON\_1ph\_OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
VOLTAGE 1 CON18 1PH 162MW





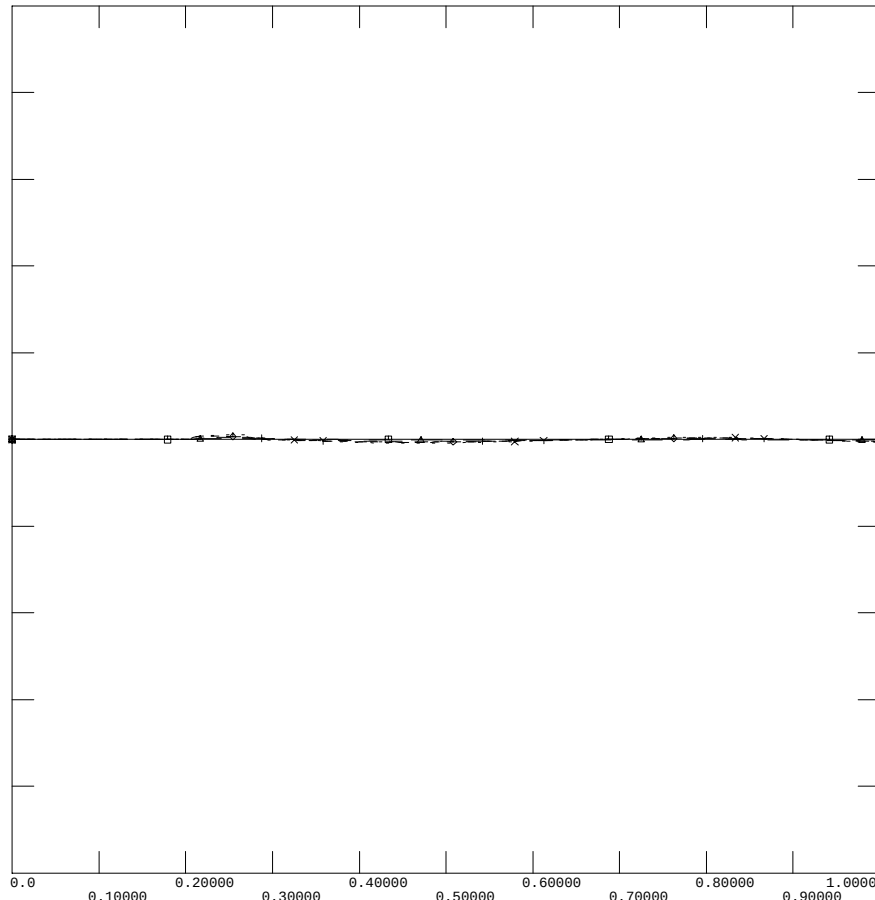


POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON18-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



THU, FEB 13 2003 14:48

FREQUENCY CON18 1PH 162MW

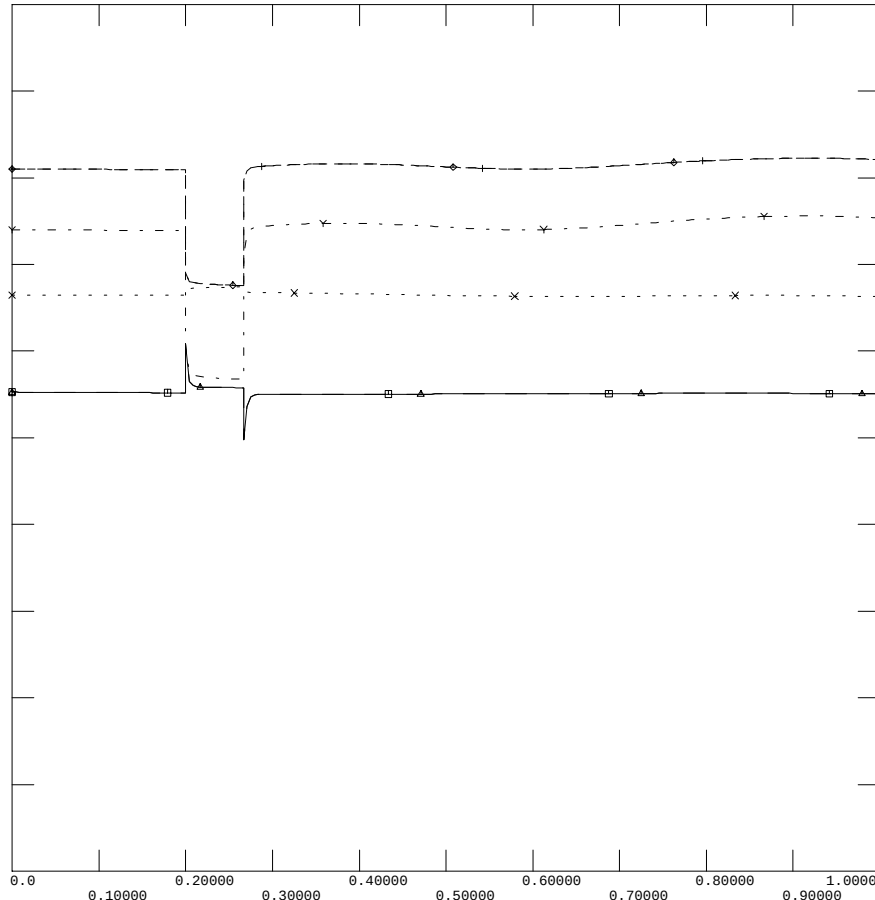


POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON18-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

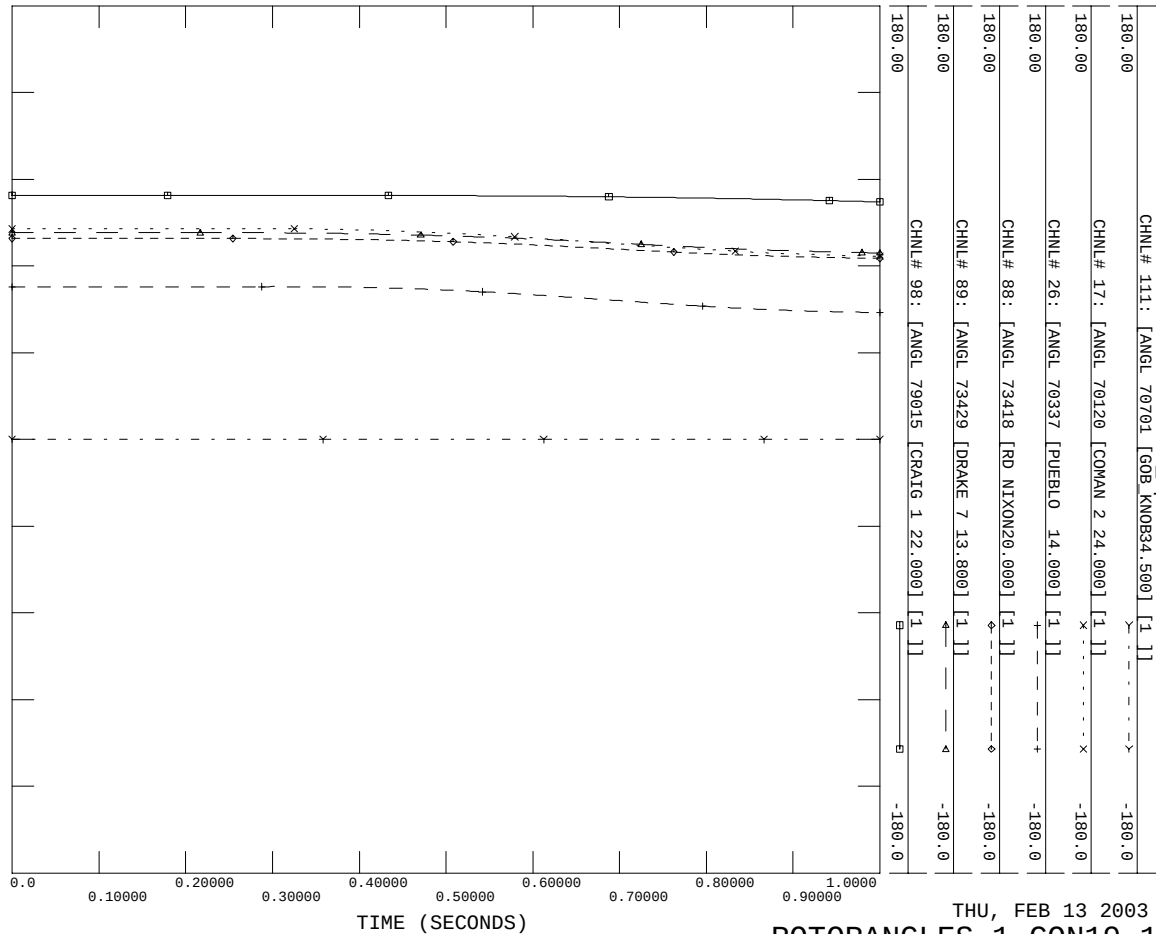


THU, FEB 13 2003 14:48

WIND DATA CON18 1PH 162MW

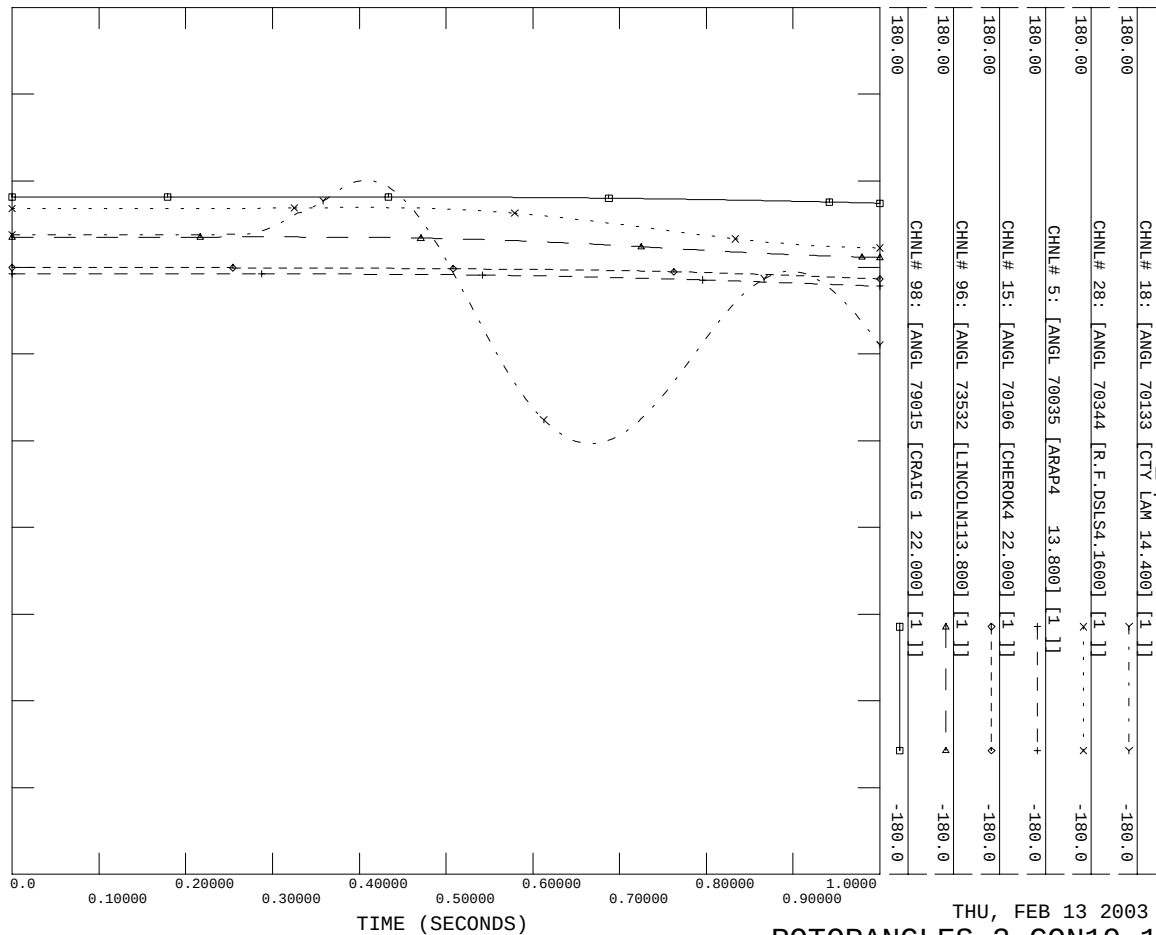
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON19-ON\_1ph\_OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON19-ON\_1ph\_OUT

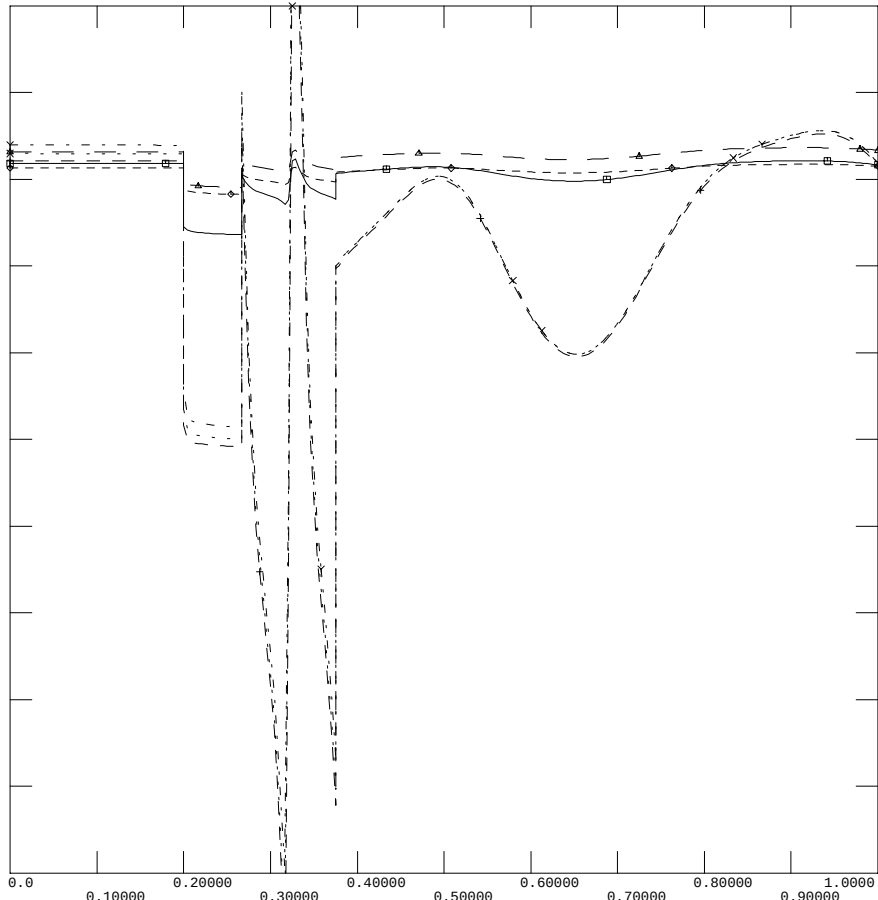




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON19-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



TIME (SECONDS)

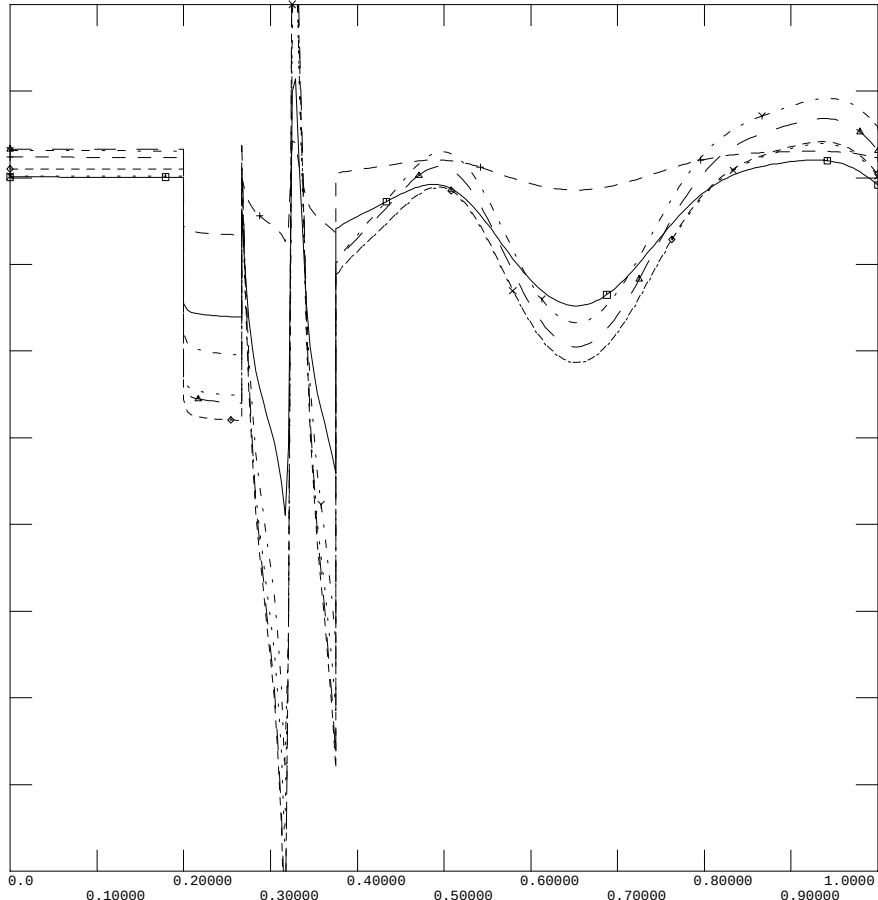
THU, FEB 13 2003 14:48  
VOLTAGE 1 CON19 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON19-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



TIME (SECONDS)

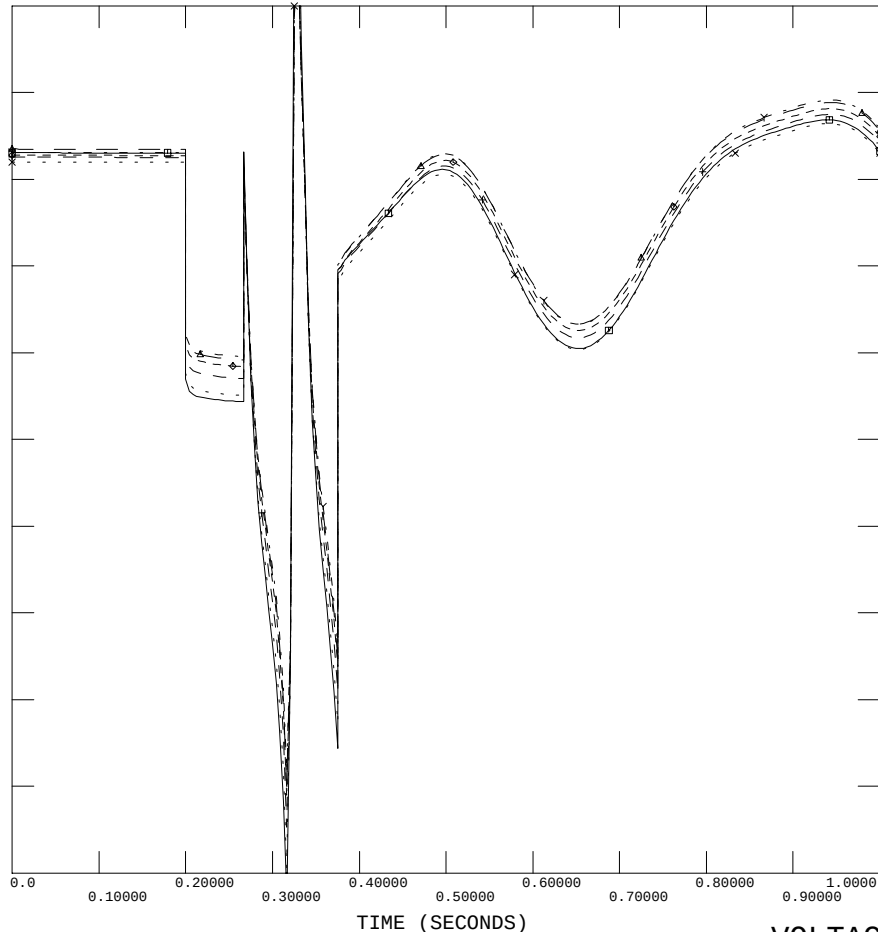
THU, FEB 13 2003 14:48  
VOLTAGE 2 CON19 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON19-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [LEADS 69.000]]    | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



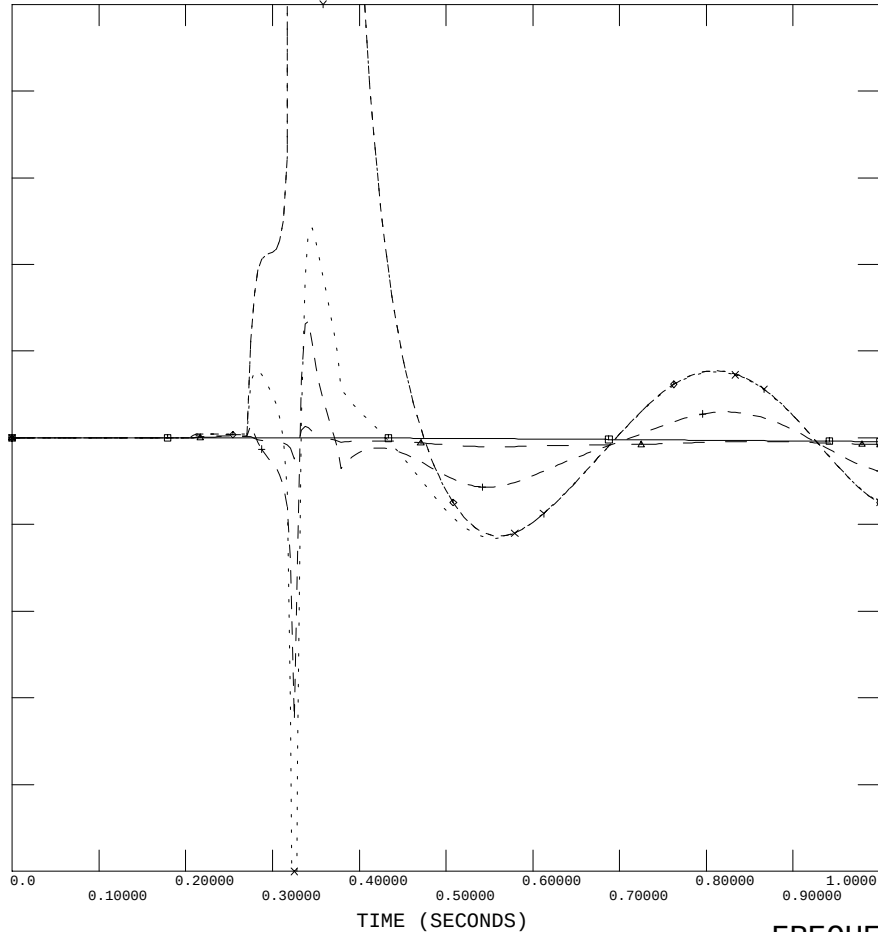
THU, FEB 13 2003 14:48  
VOLTAGE 3 CON19 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON19-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNITA115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |

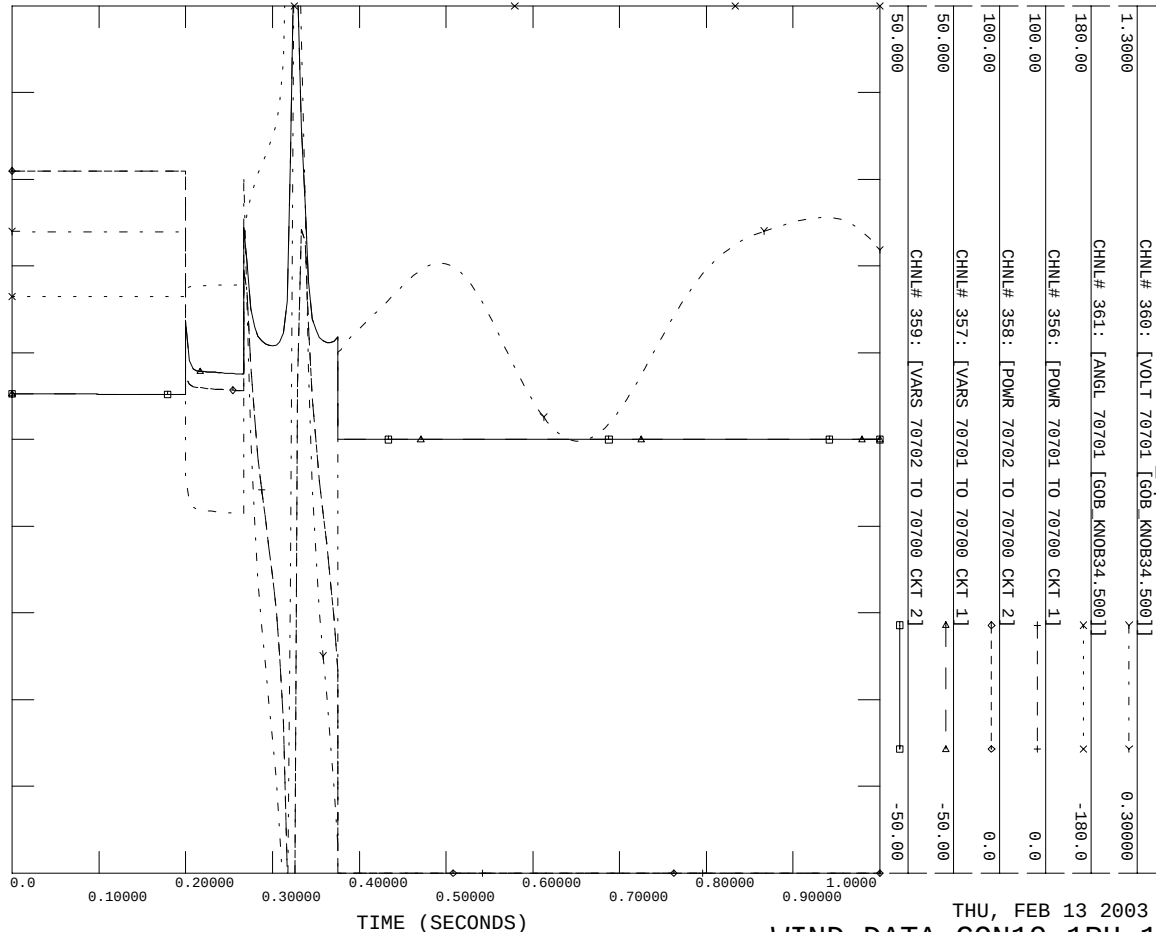


THU, FEB 13 2003 14:48  
FREQUENCY CON19 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON19-ON 1ph. OUT



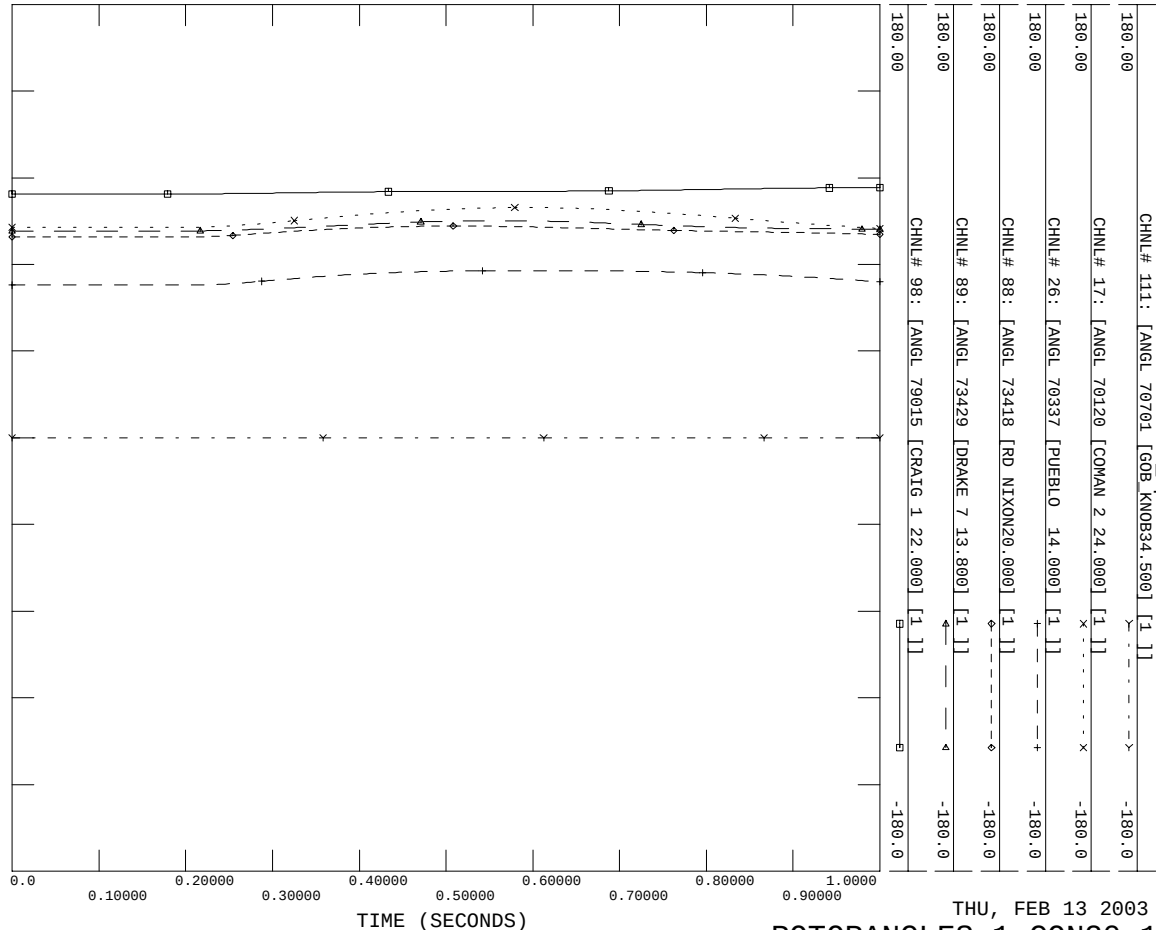
THU, FEB 13 2003 14:48

WIND DATA CON19 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON20-ON 1ph. OUT



THU, FEB 13 2003 14:48

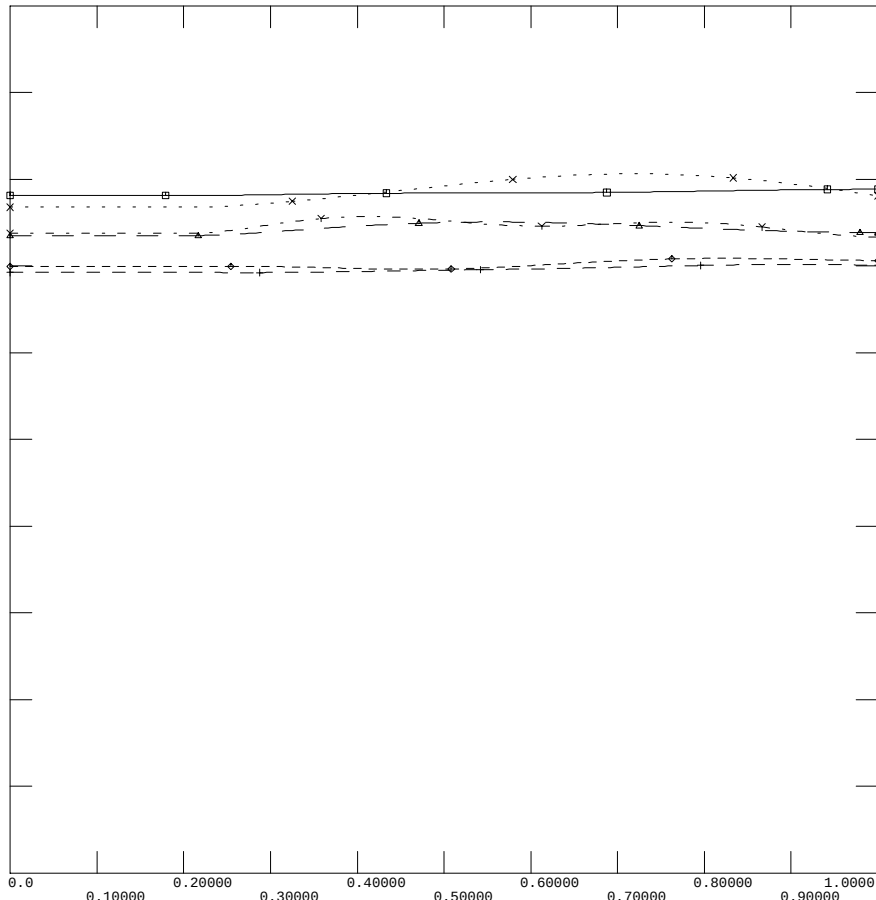
ROTORANGLES 1 CON20 1PH 1



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON20-ON\_1ph.0UT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 15: [ANGL 70106 [CHEROK4 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: [ANGL 73532 [LINCOLN113.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



THU, FEB 13 2003 14:48

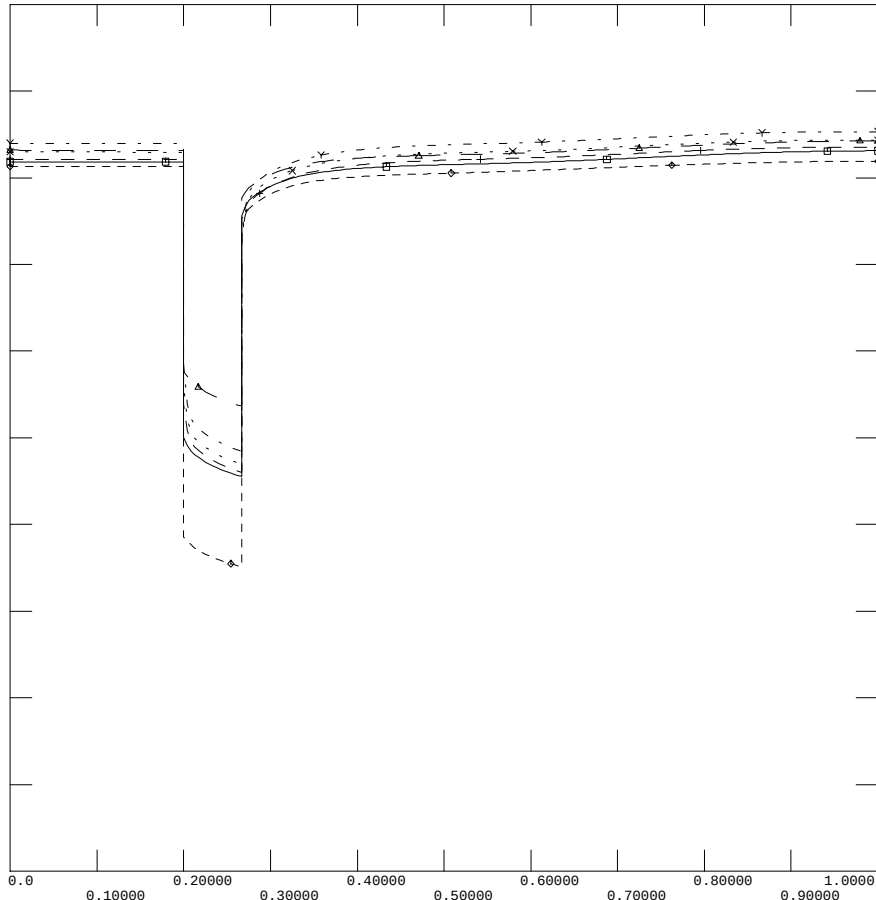
ROTORANGLES 2 CON20 1PH 1



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON20-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



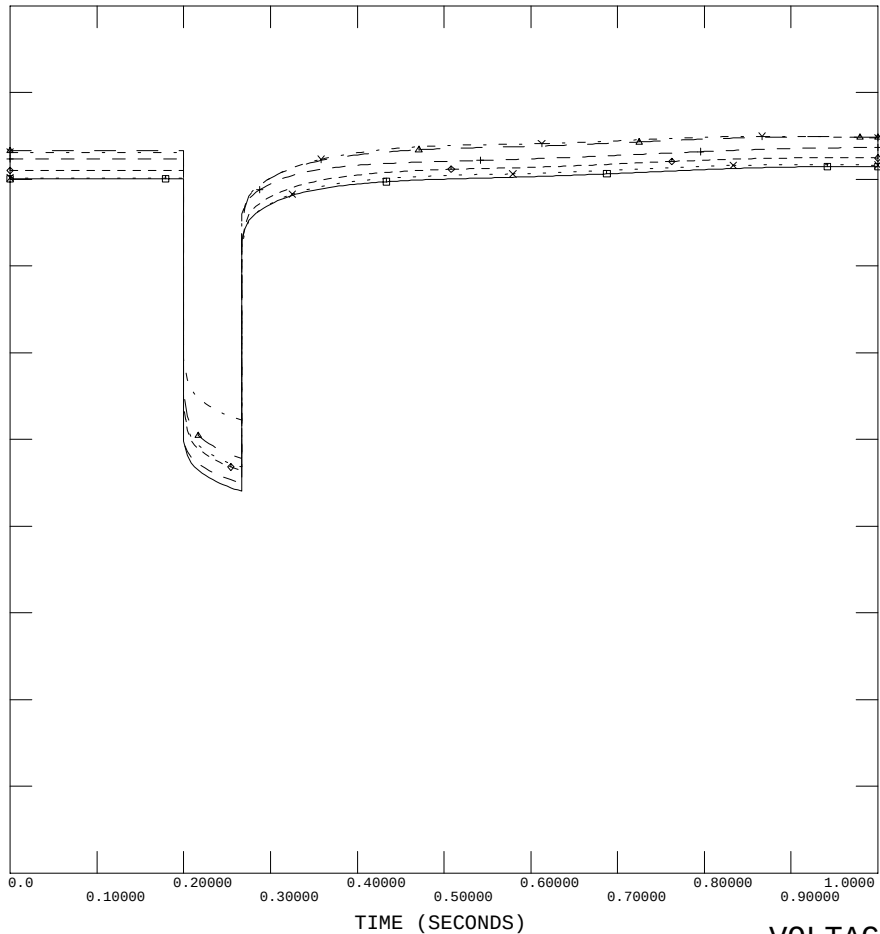
THU, FEB 13 2003 14:48

VOLTAGE 1 CON20 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON20-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

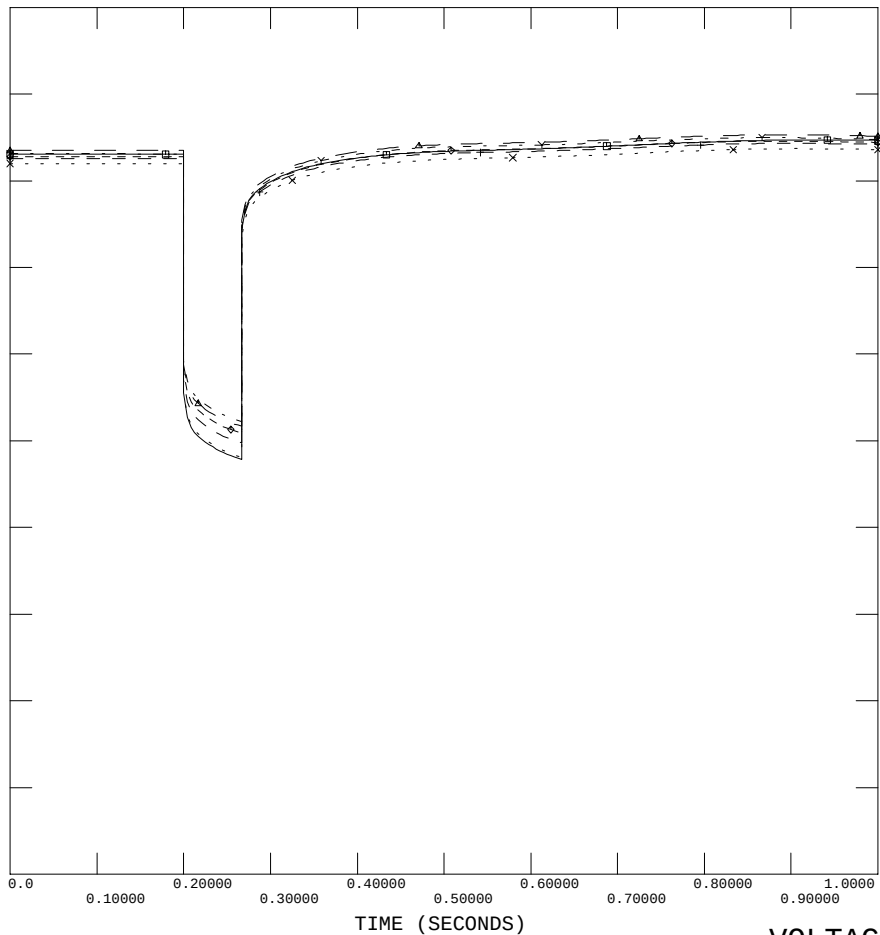


THU, FEB 13 2003 14:48  
VOLTAGE 2 CON20 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON20-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



THU, FEB 13 2003 14:48  
VOLTAGE 3 CON20 1PH 162MW

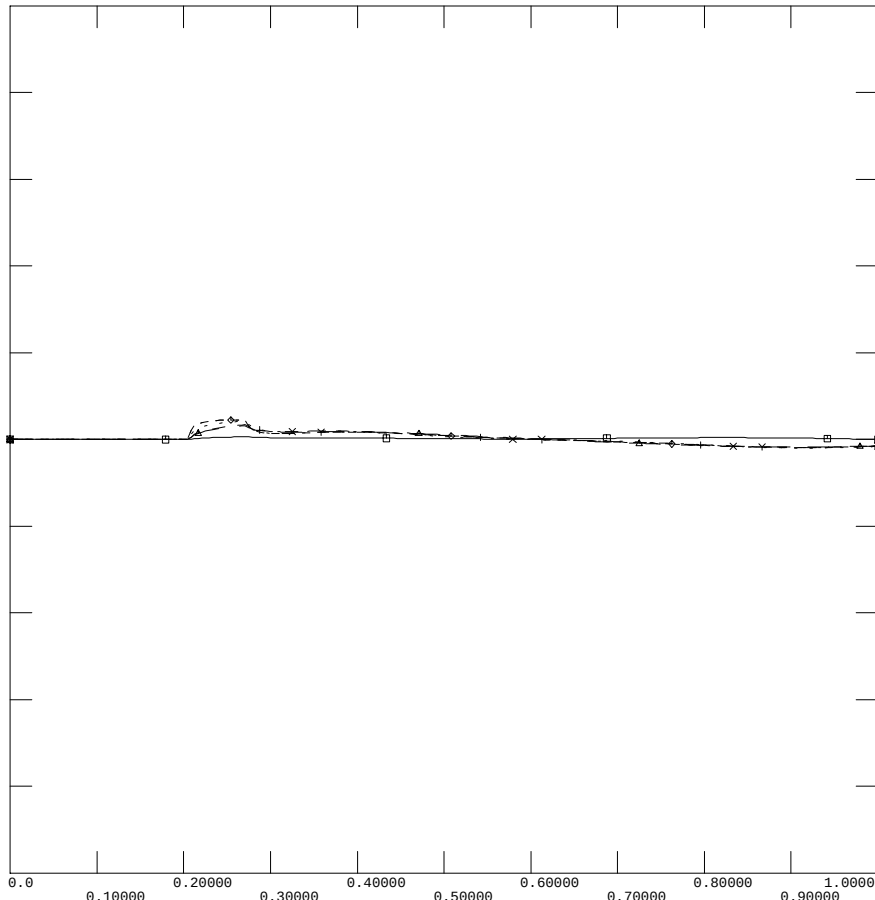


POWER  
TIC 0.0015,  
100.0000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON20-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 70015 [CRAIG 1 22.000]]  | -0.0500 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
FREQUENCY CON20 1PH 162MW

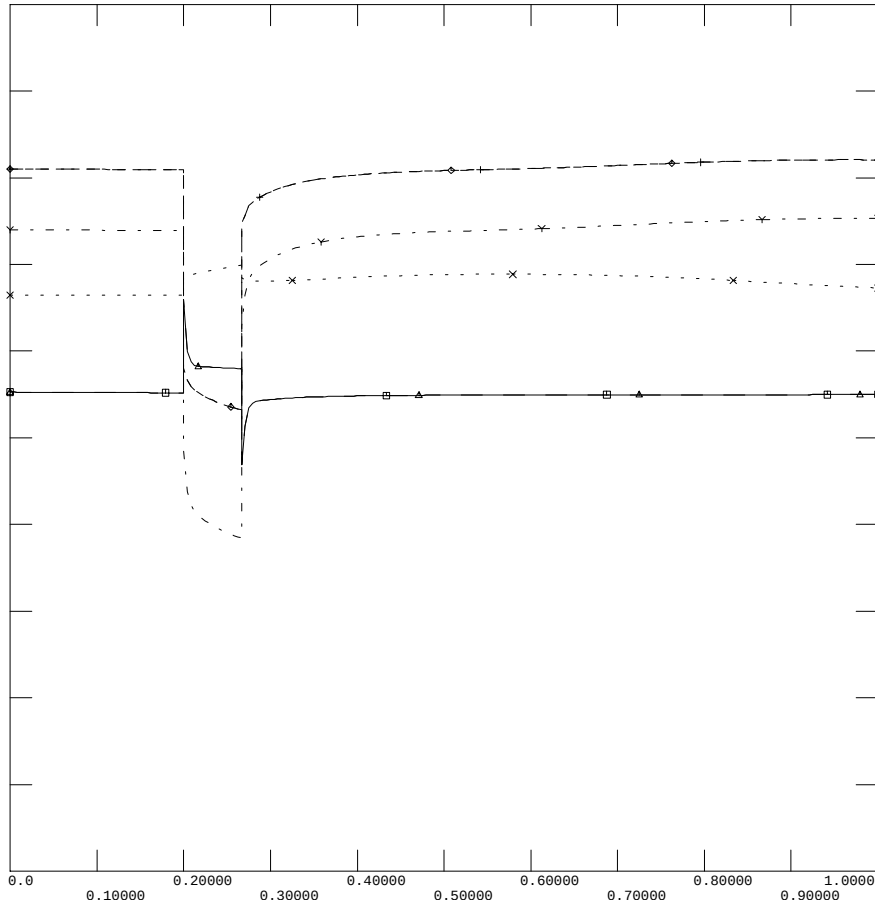


POWER  
TIC 0.0015,  
100.0000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON20-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [GOB KNOB34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
WIND DATA CON20 1PH 162MW



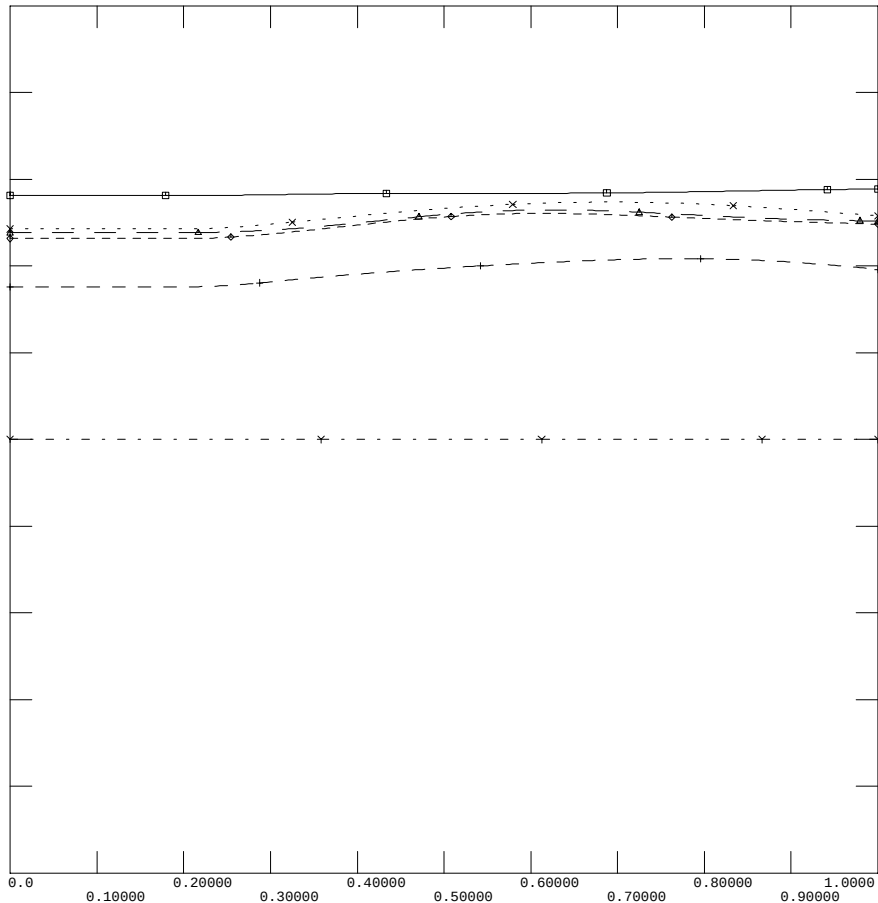


POWER  
LINE  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON21-ON\_1ph\_OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



THU, FEB 13 2003 14:48

ROTORANGLES 1 CON21 1PH 1

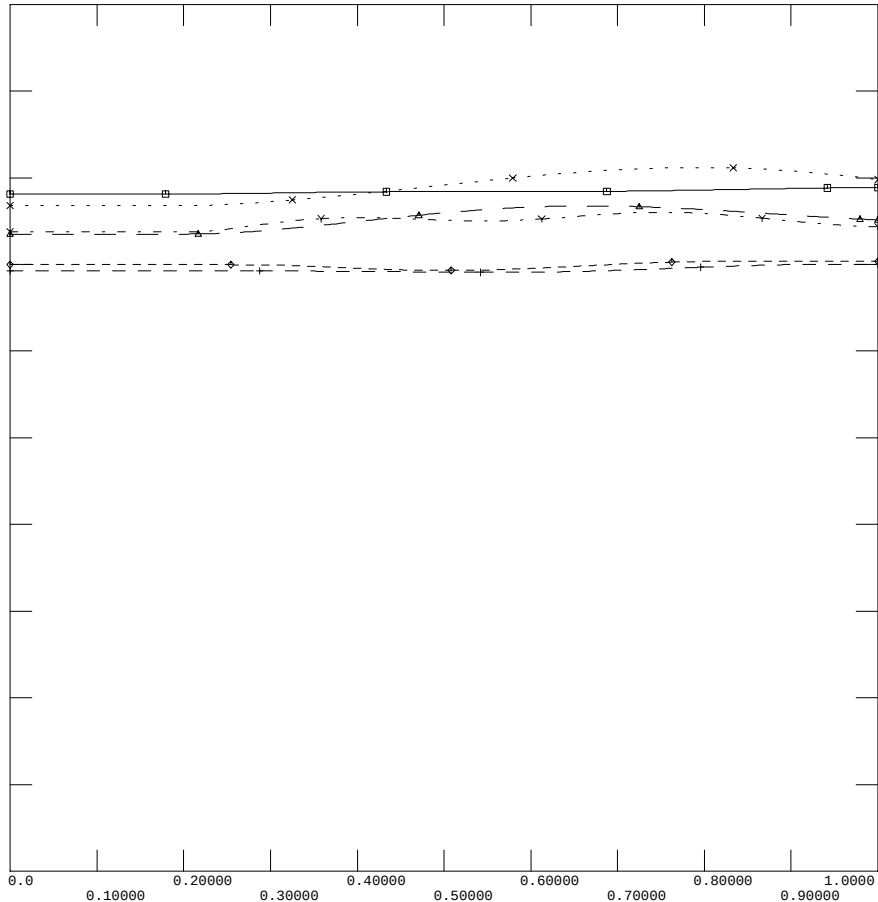


POWER  
LINE  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON21-ON\_1ph\_OUT

|        |                                               |        |
|--------|-----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]]  | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]]  | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]     | -180.0 |
| 180.00 | CHNL# 15: [ANGL 70106 [CHEROKEE 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: [ANGL 73532 [LINCOLN113.800] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]]  | -180.0 |



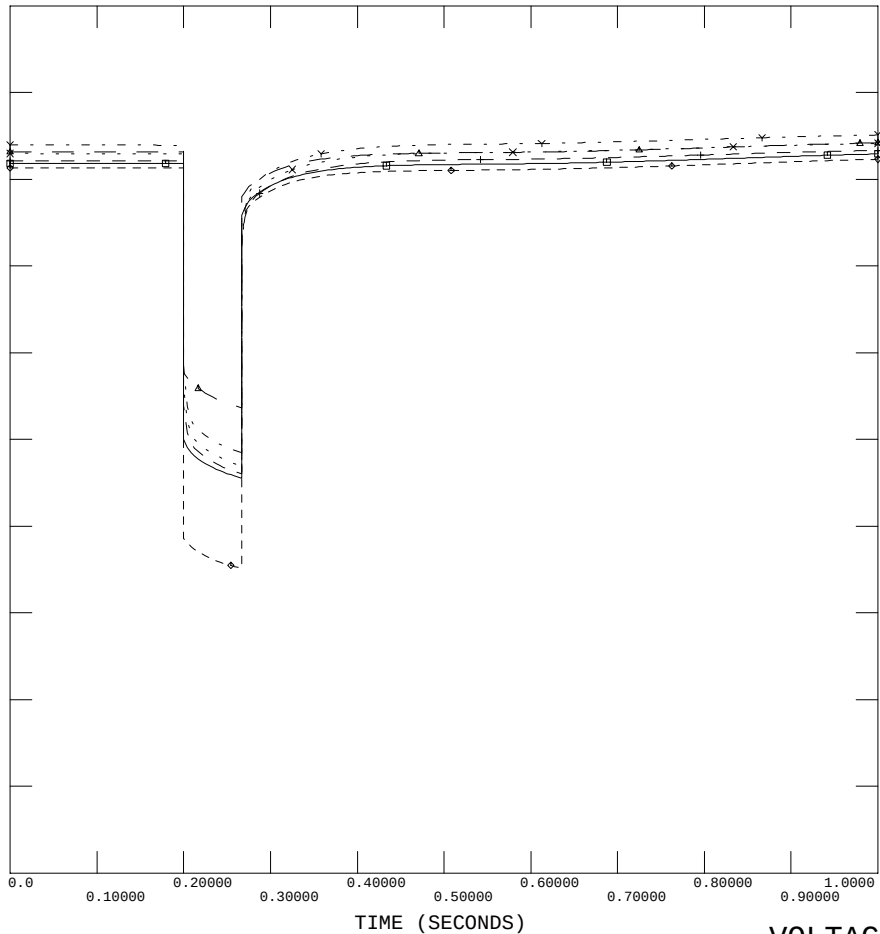
THU, FEB 13 2003 14:48

ROTORANGLES 2 CON21 1PH 1

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON21-ON\_1ph.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR.C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

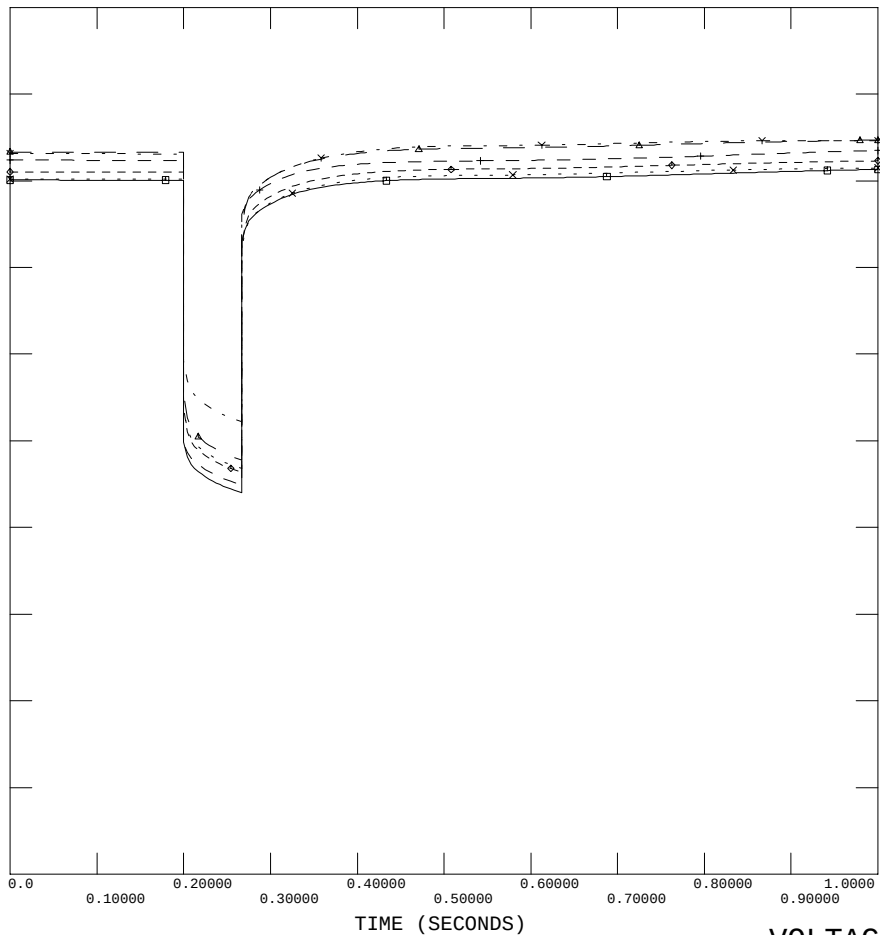


THU, FEB 13 2003 14:48  
VOLTAGE 1 CON21 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON21-ON\_1ph.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY.LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW.CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR.C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



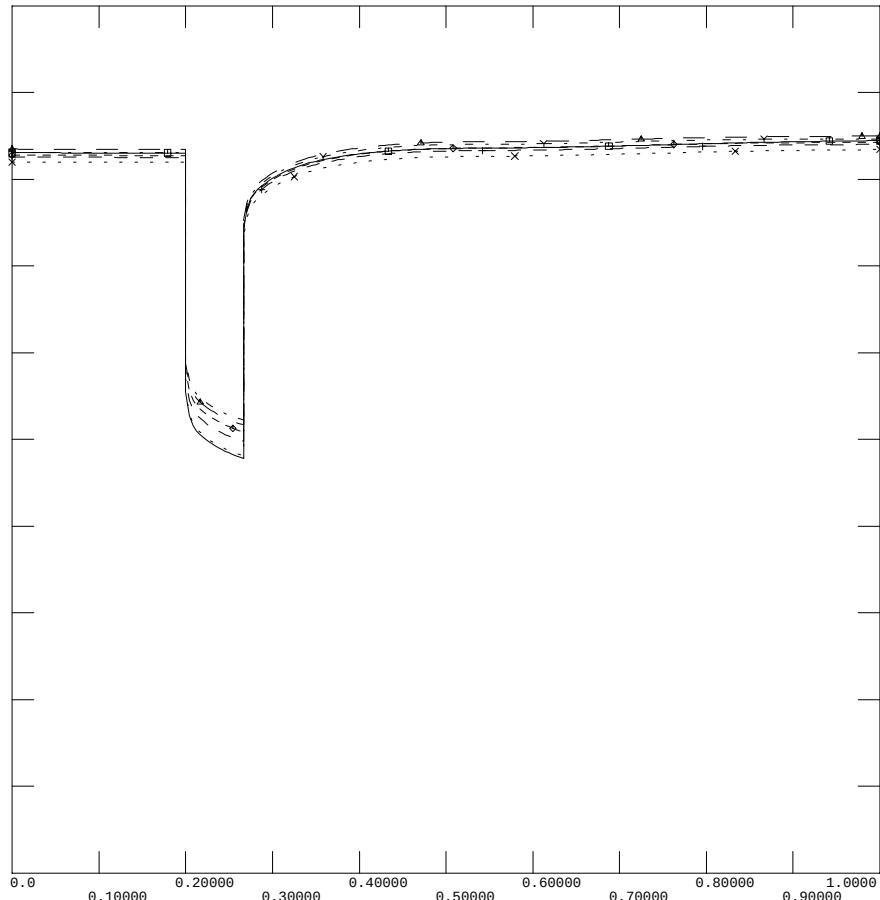
THU, FEB 13 2003 14:48  
VOLTAGE 2 CON21 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON21-ON\_1ph\_OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [LEADS 69.000]]    | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



TIME (SECONDS)

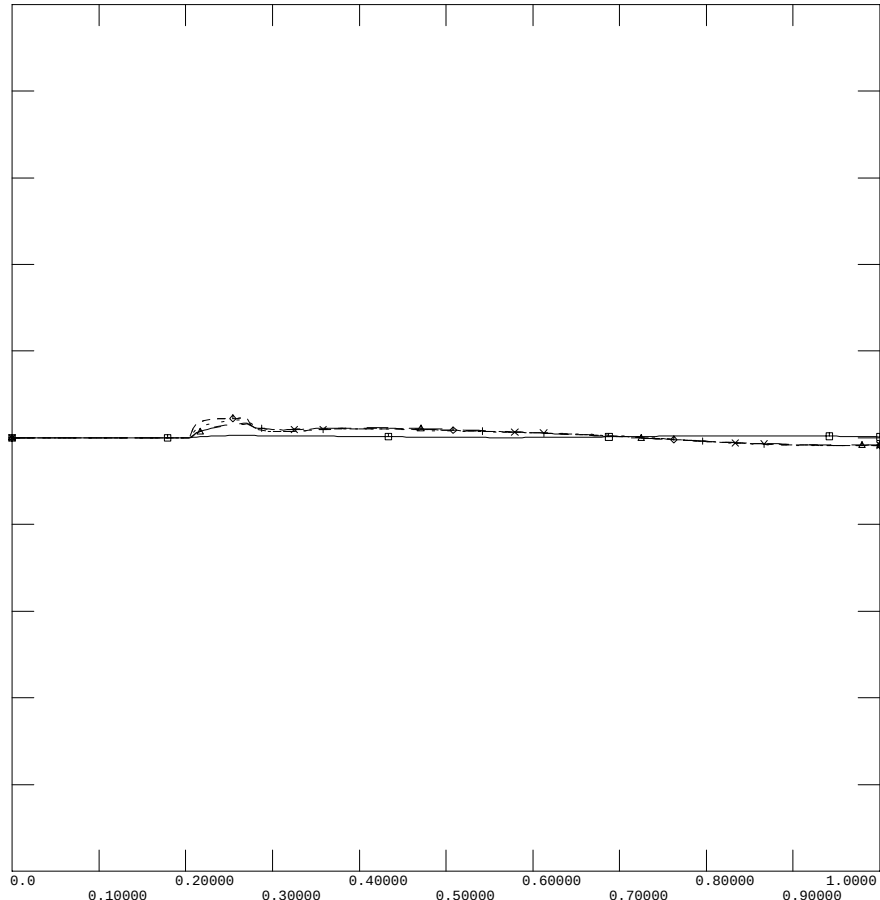
THU, FEB 13 2003 14:48  
VOLTAGE 3 CON21 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON21-ON\_1ph\_OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |



TIME (SECONDS)

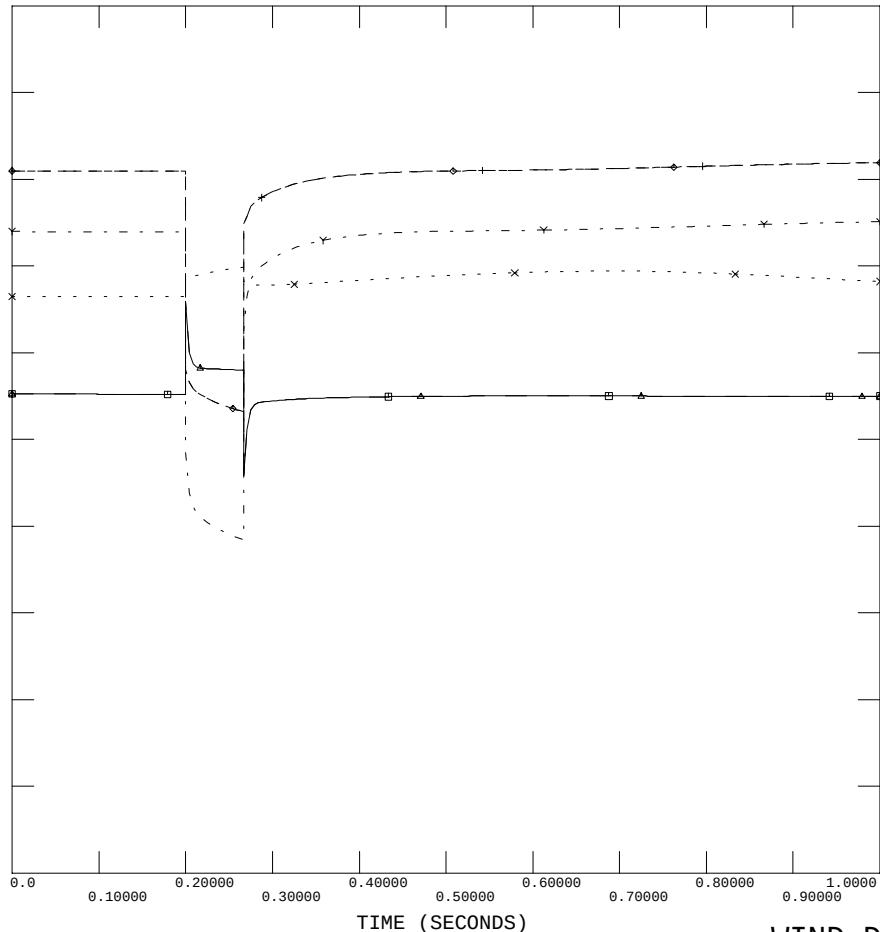
THU, FEB 13 2003 14:48  
FREQUENCY CON21 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON21-ON\_1ph\_OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB.KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB.KNOB34.500]] | -180.0  |
| 180.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



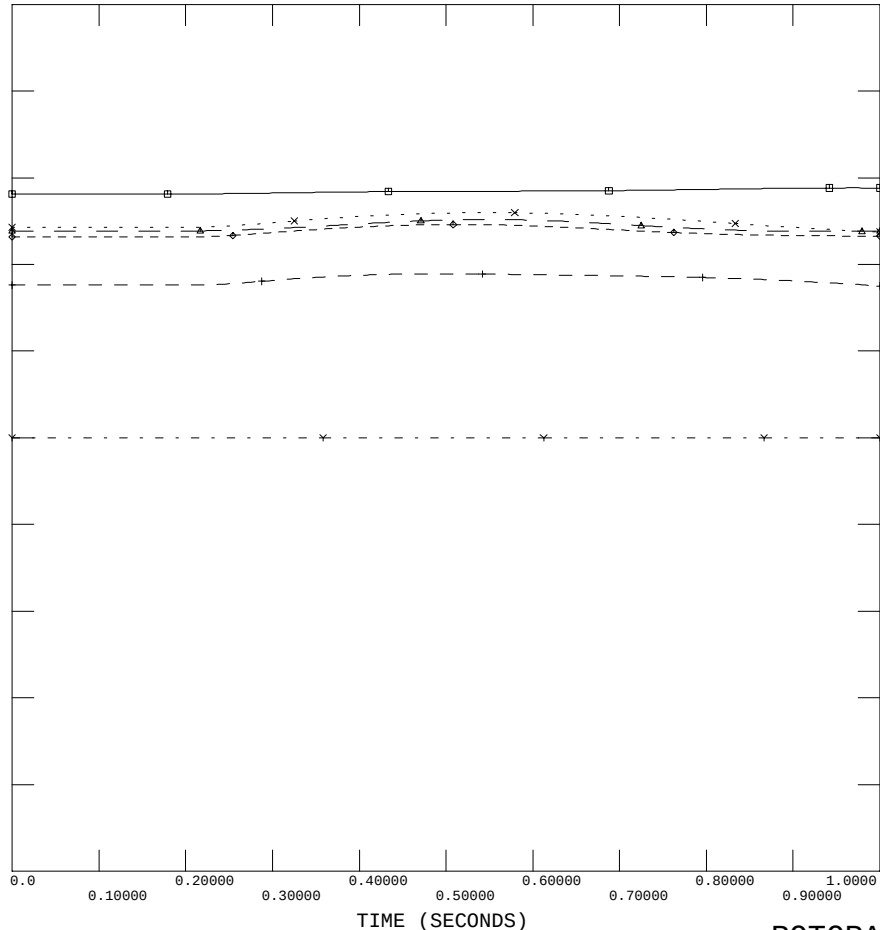
THU, FEB 13 2003 14:48  
WIND DATA CON21 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON22-ON\_1ph\_OUT

|        |                                                |        |
|--------|------------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [GOB.KNOB34.500]] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000]] [1.]]  | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000]] [1.]]   | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000]] [1.]]  | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800]] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000]] [1.]]  | -180.0 |



THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON22 1PH 1

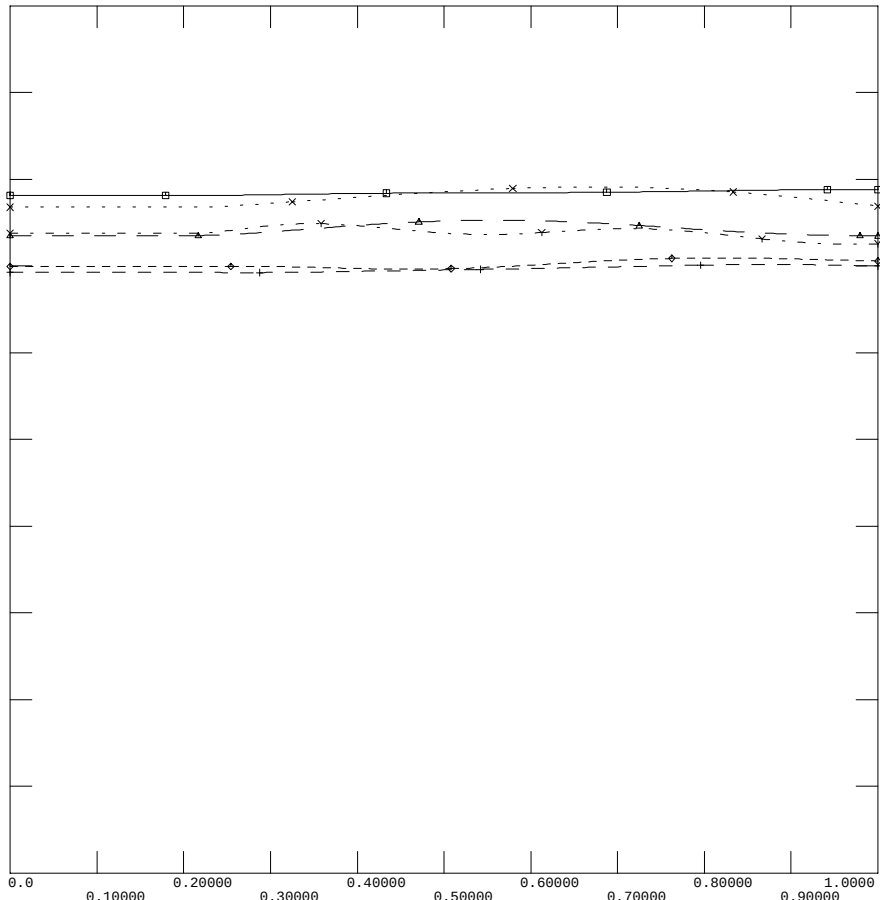


POWER  
LINE  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON22-ON\_1ph.0UT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 15: [ANGL 70106 [CHEROK4 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: [ANGL 73532 [LINCOLN113.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1.22.000] [1.]] | -180.0 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON22 1PH 1

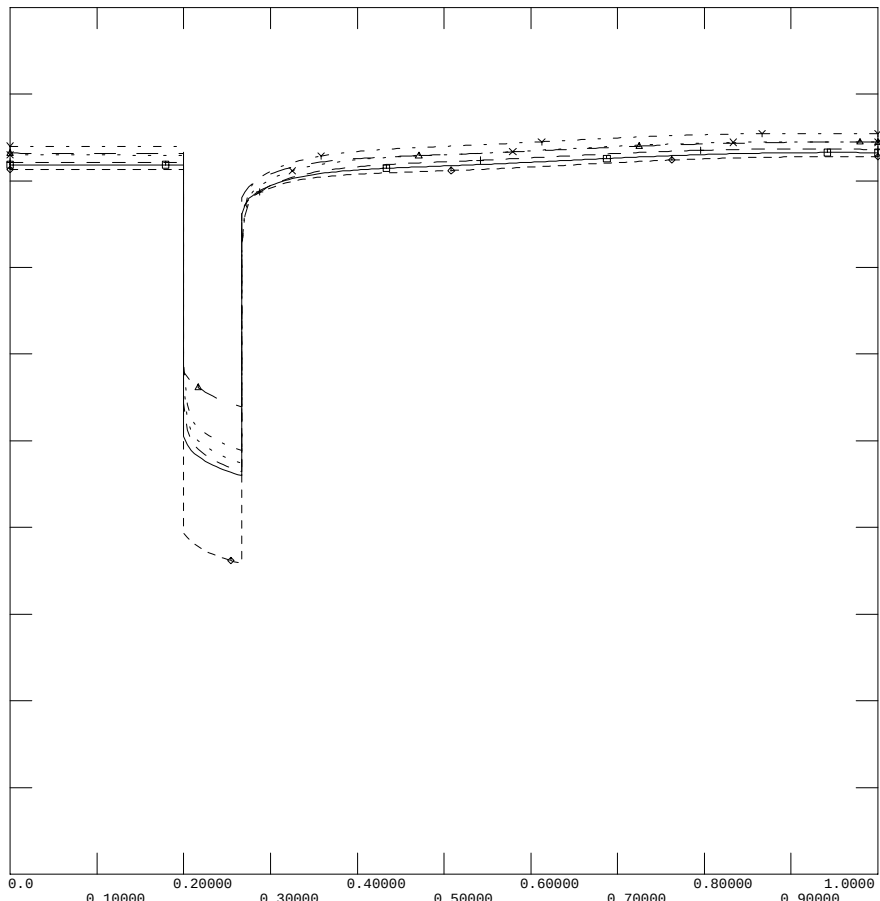


POWER  
LINE  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON22-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



TIME (SECONDS)

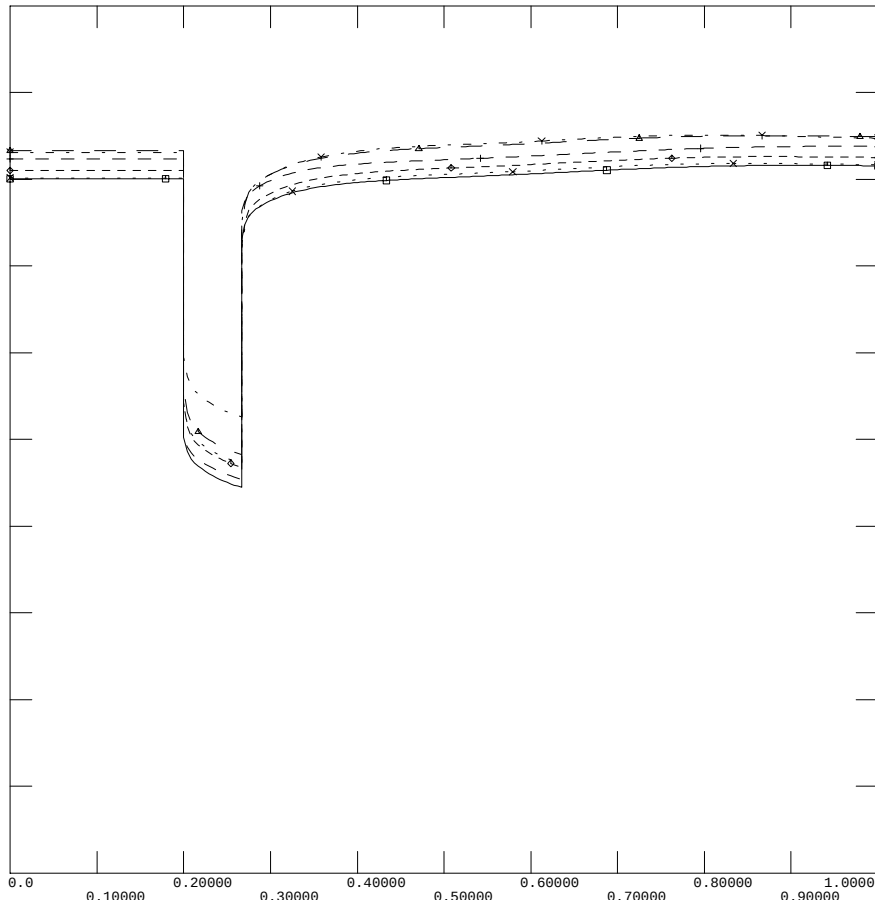
THU, FEB 13 2003 14:48  
VOLTAGE 1 CON22 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON22-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



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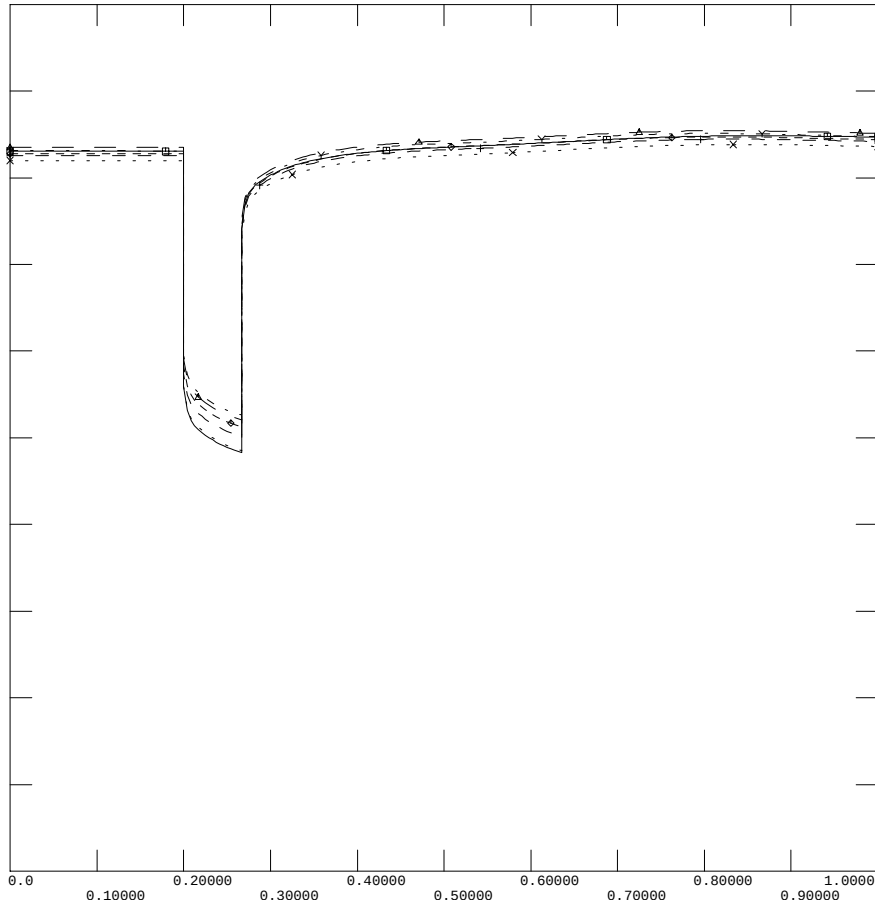
VOLTAGE 2 CON22 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON22-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



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VOLTAGE 3 CON22 1PH 162MW

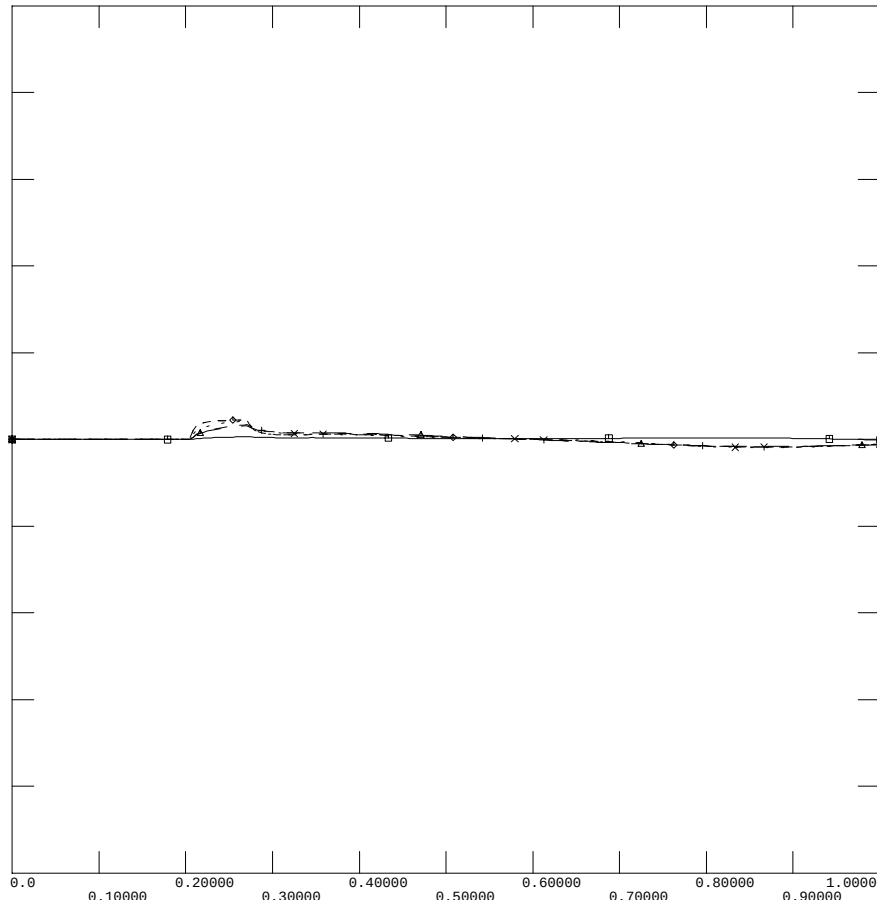


POWER  
TIC  
0.0615

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON22-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



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FREQUENCY CON22 1PH 162MW

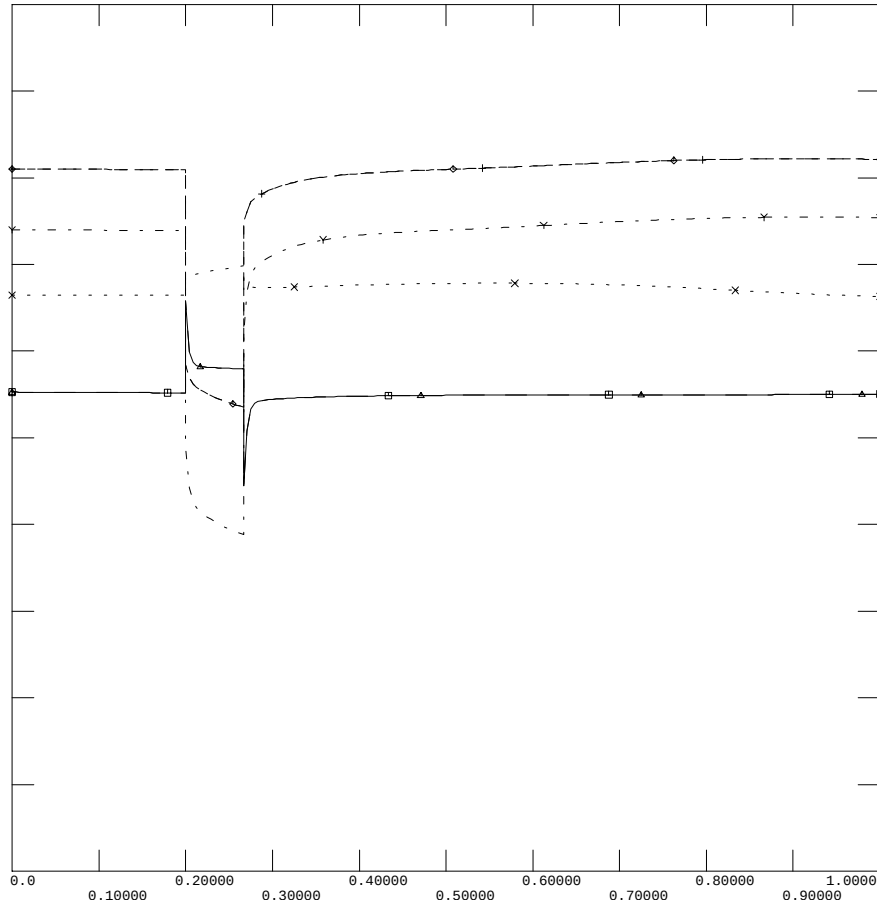


POWER  
TIC  
0.0615

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON22-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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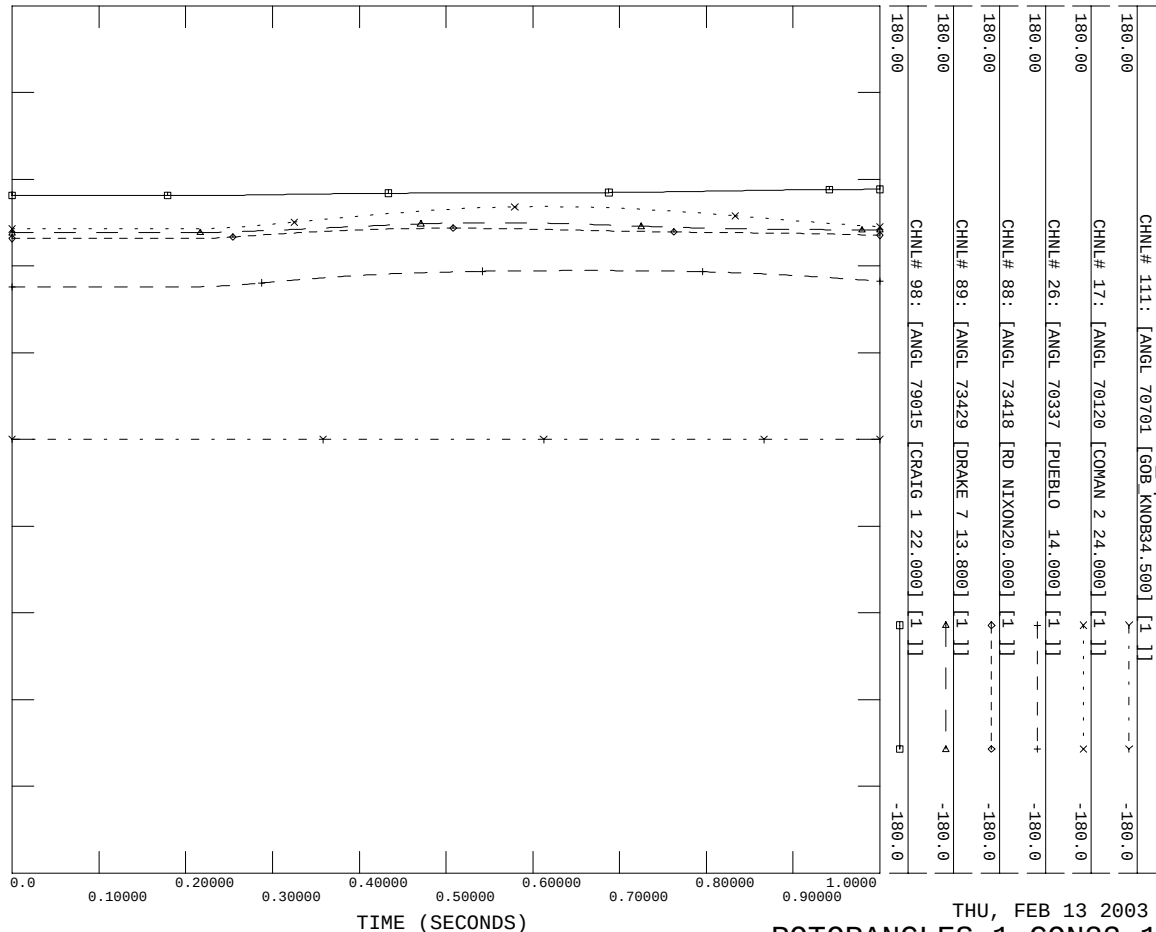
WIND DATA CON22 1PH 162MW



POWER  
TIC  
0.00015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

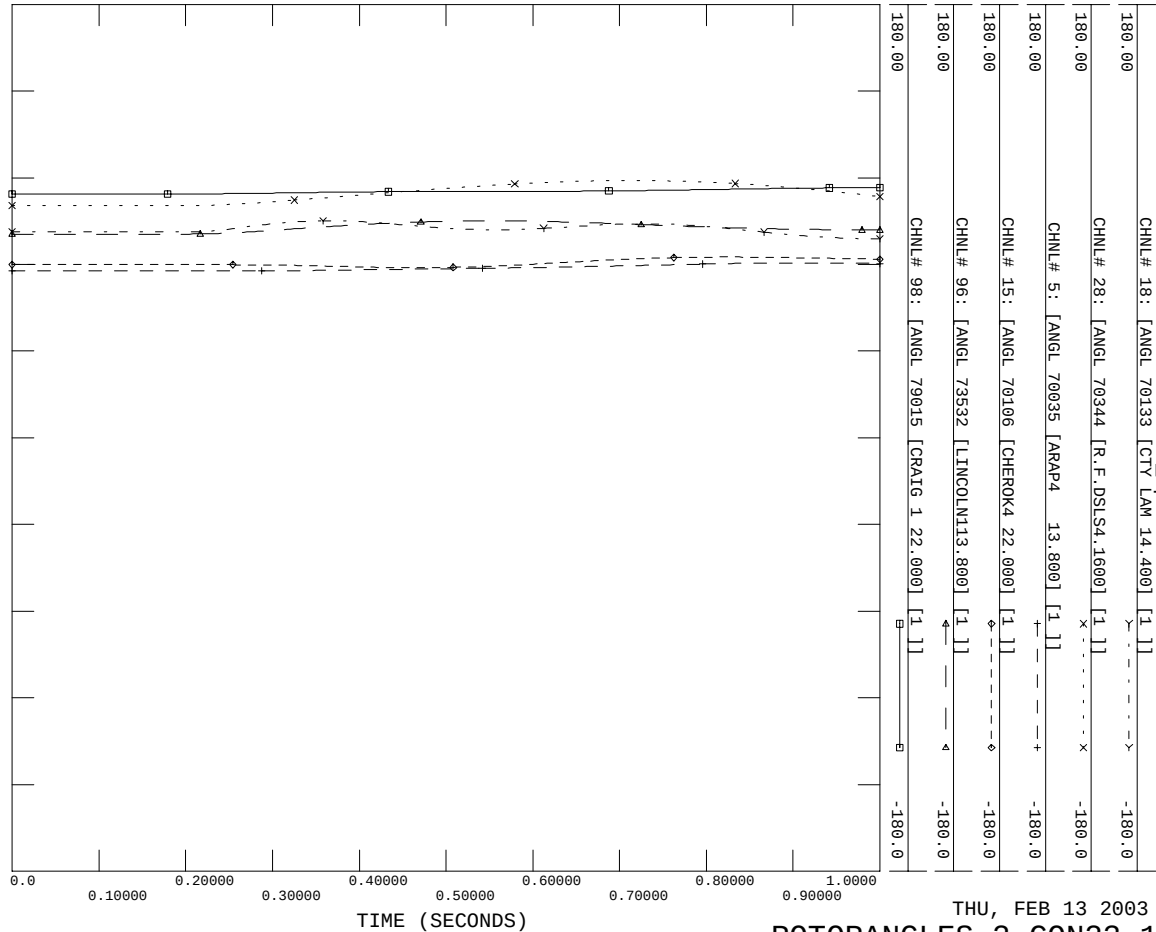
FILE: CON23-ON\_1ph.0UT



POWER  
TIC  
0.00015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON23-ON\_1ph.0UT





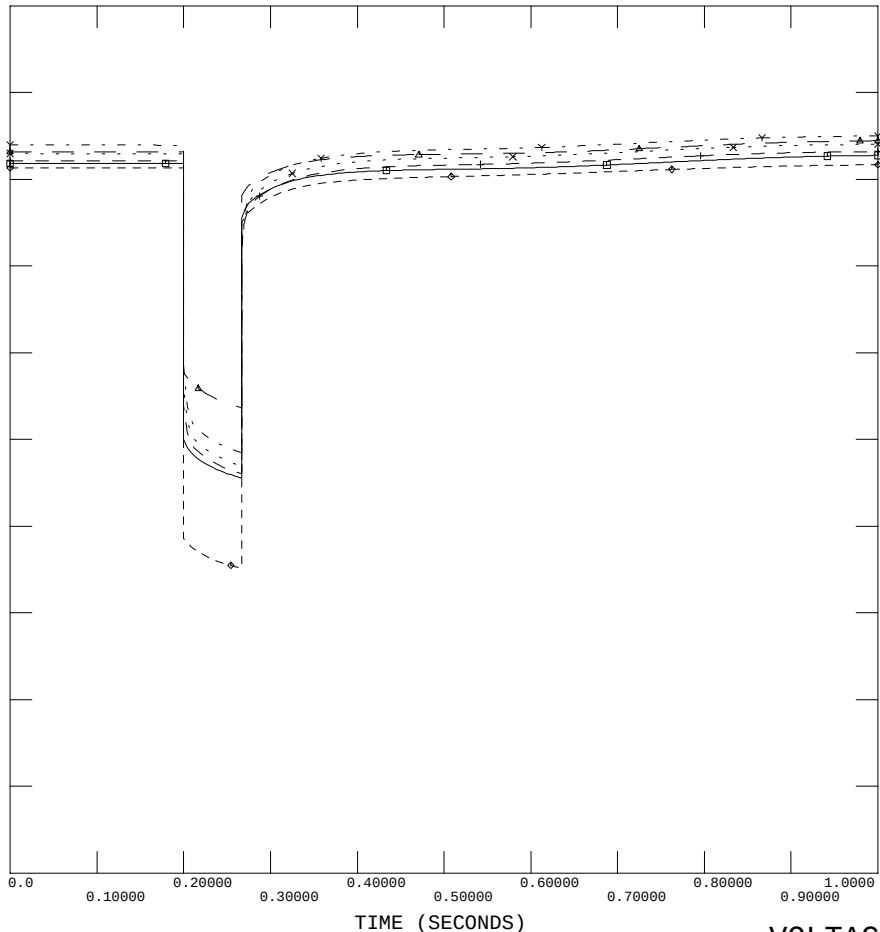


POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON23-ON\_1ph.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



THU, FEB 13 2003 14:48  
VOLTAGE 1 CON23 1PH 162MW

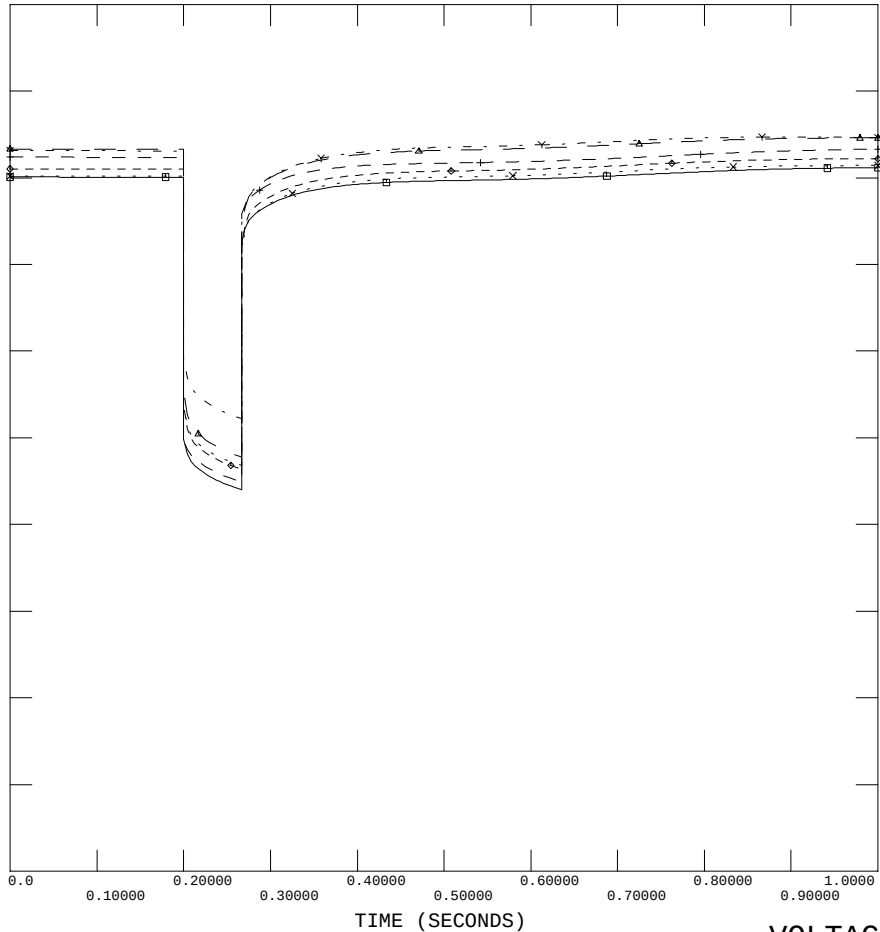


POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A/0,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON23-ON\_1ph.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



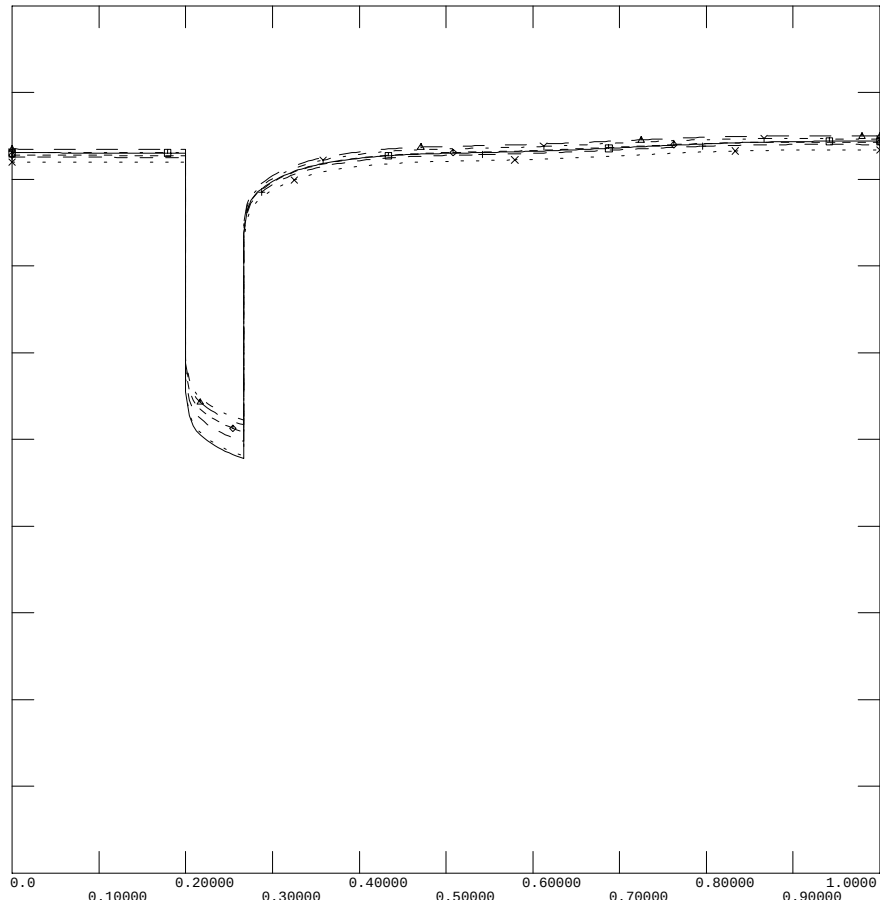
THU, FEB 13 2003 14:48  
VOLTAGE 2 CON23 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON23-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [LEADS 69.000]]    | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



TIME (SECONDS)

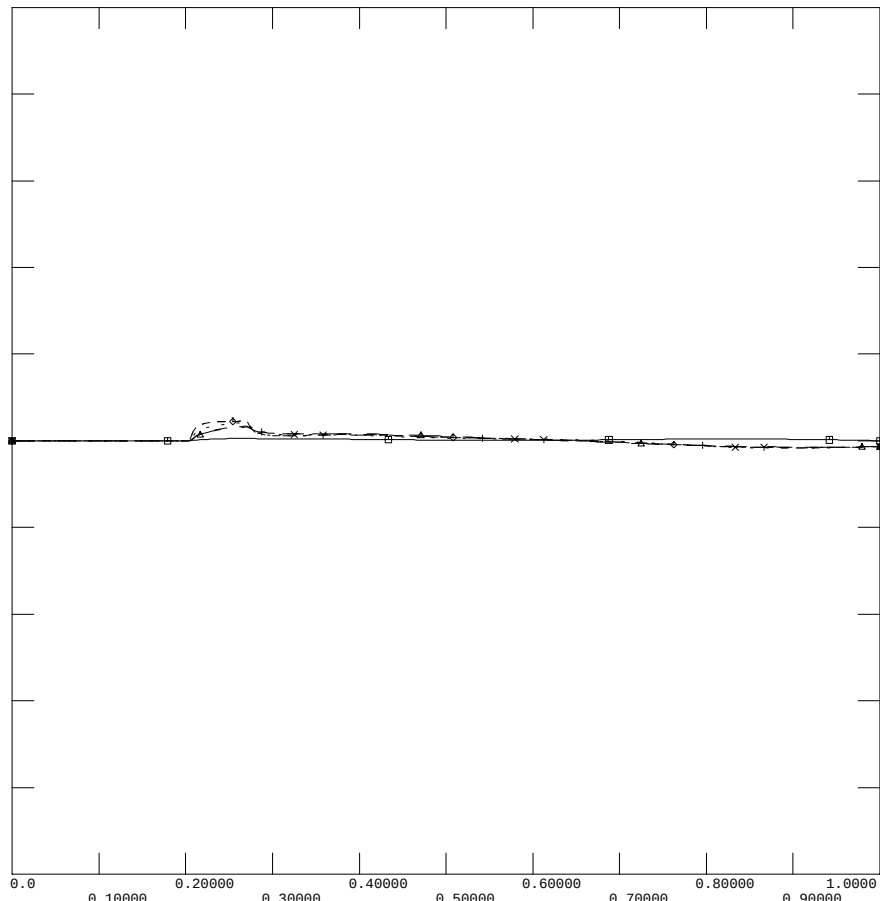
THU, FEB 13 2003 14:48  
VOLTAGE 3 CON23 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON23-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |



TIME (SECONDS)

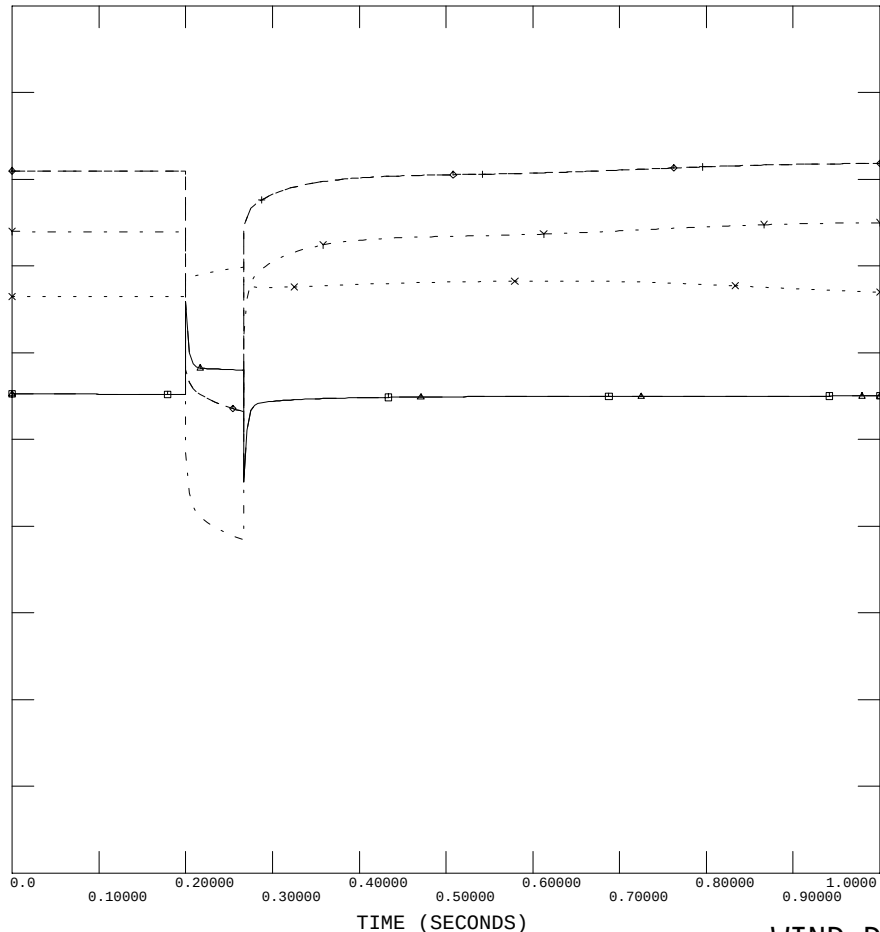
THU, FEB 13 2003 14:48  
FREQUENCY CON23 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON23-ON\_1ph\_OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB.KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB.KNOB34.500]] | -180.0  |
| 180.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



THU, FEB 13 2003 14:48

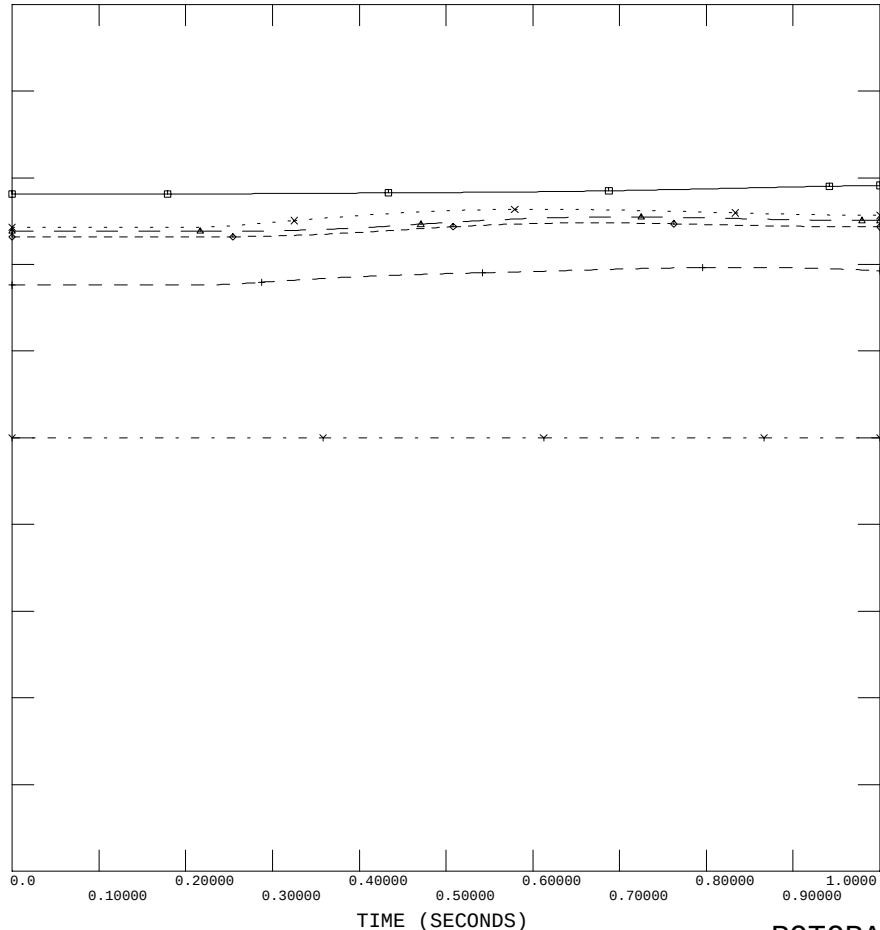
WIND DATA CON23 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON26-ON\_1ph\_OUT

|        |                                                |        |
|--------|------------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [GOB.KNOB34.500]] [1.1] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000]] [1.1]  | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000]] [1.1]   | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000]] [1.1]  | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800]] [1.1]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000]] [1.1]  | -180.0 |



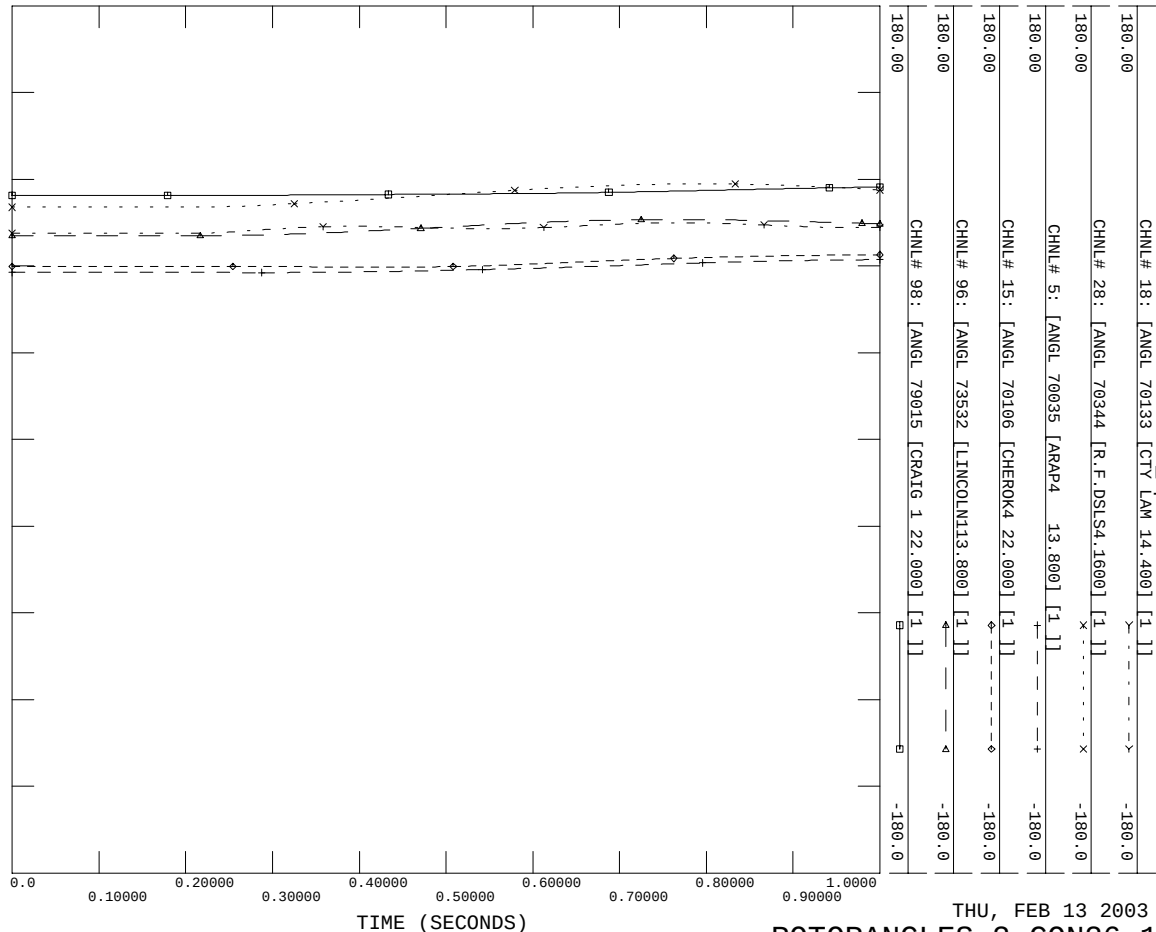
THU, FEB 13 2003 14:48

ROTORANGLES 1 CON26 1PH 1



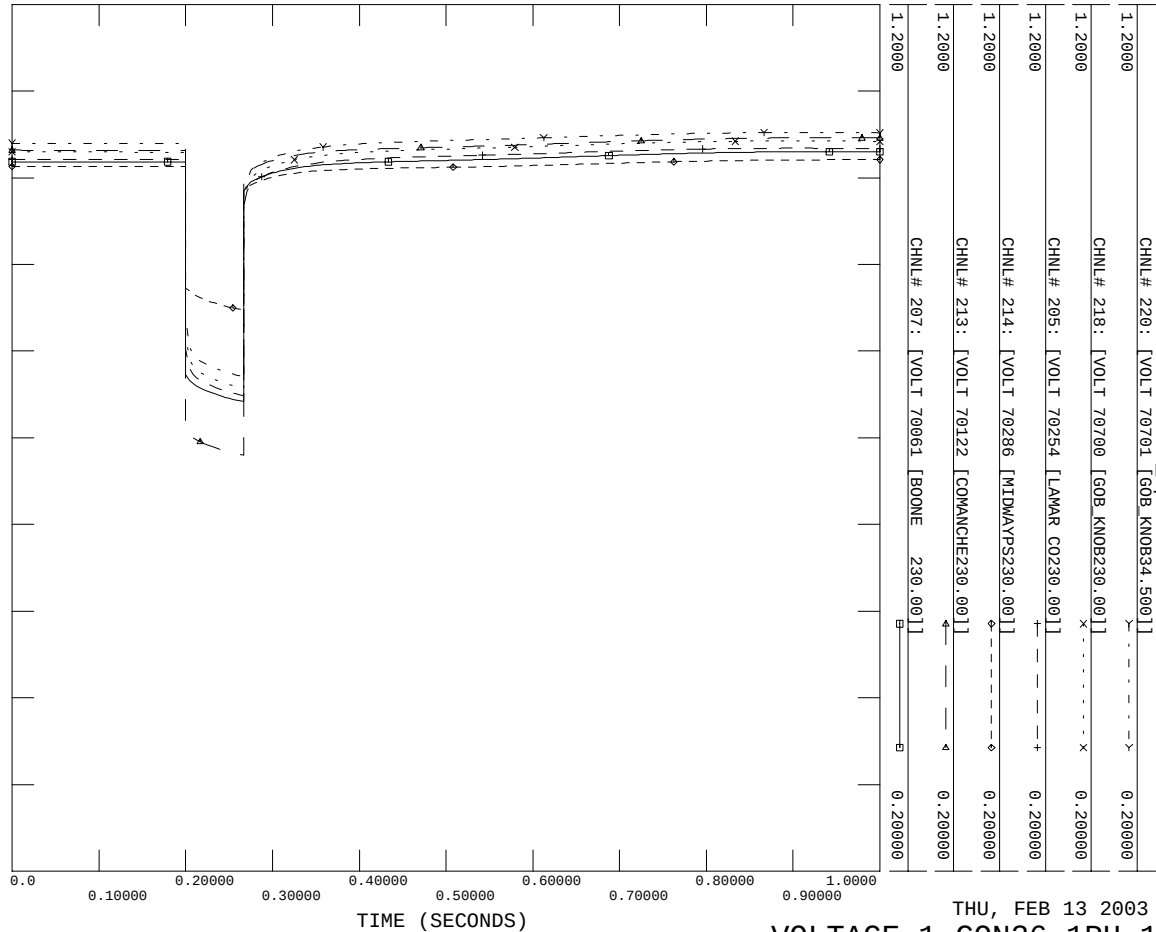
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON26-ON\_1ph.0UT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON26-ON\_1ph.0UT



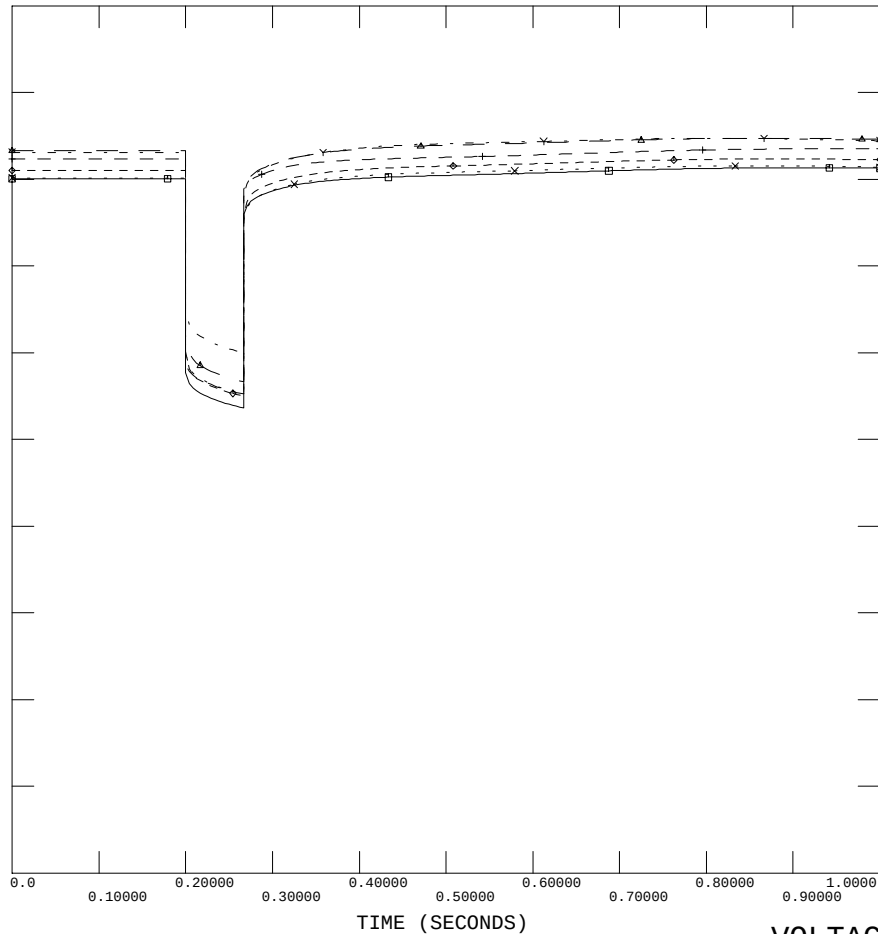
2003 HS - FROM 2003HS4C OPERATING CASE 2003HSA7073AD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON26-ON\_1ph.0UT

|        |                                           |         |         |
|--------|-------------------------------------------|---------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CITY LAM 69.000]] | Y-----Y | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | X-----X | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | +-----+ | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR CO115.00]]  | -----   | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | -----   | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTA115.00]]   | -----   | 0.20000 |
| 1.2000 |                                           | -----   | 0.20000 |

THU, FEB 13 2003 14:48

VOLTAGE 2 CON26 1PH 162MW



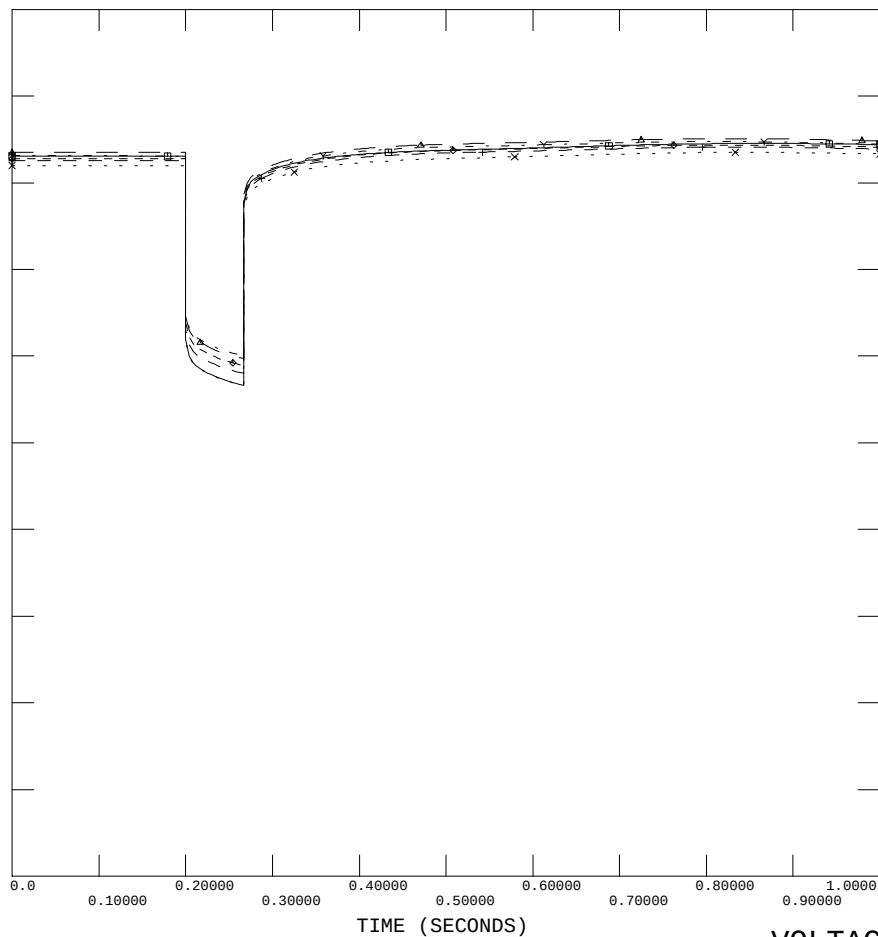
2003 HS - FROM 2003HS4C OPERATING CASE 2003HSAT073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON26-0N\_1ph.0UT

|        |                                            |   |         |
|--------|--------------------------------------------|---|---------|
| 1.2000 | CHNL# 364: [VOL.T 70136 [CTY LAM 69.000]]  | Y | 0.20000 |
| 1.2000 | CHNL# 397: [VOL.T 70102 [CHENEY 69.000]]   | X | 0.20000 |
| 1.2000 | CHNL# 396: [VOL.T 70204 [GRANADA 69.000]]  | + | 0.20000 |
| 1.2000 | CHNL# 395: [VOL.T 70161 [EADS 69.000]]     | + | 0.20000 |
| 1.2000 | CHNL# 394: [VOL.T 70473 [WILLOW CK69.000]] | + | 0.20000 |
| 1.2000 | CHNL# 393: [VOL.T 70460 [WALSH 69.000]]    | + | 0.20000 |

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VOLTAGE 3 CON26 1PH 162MW



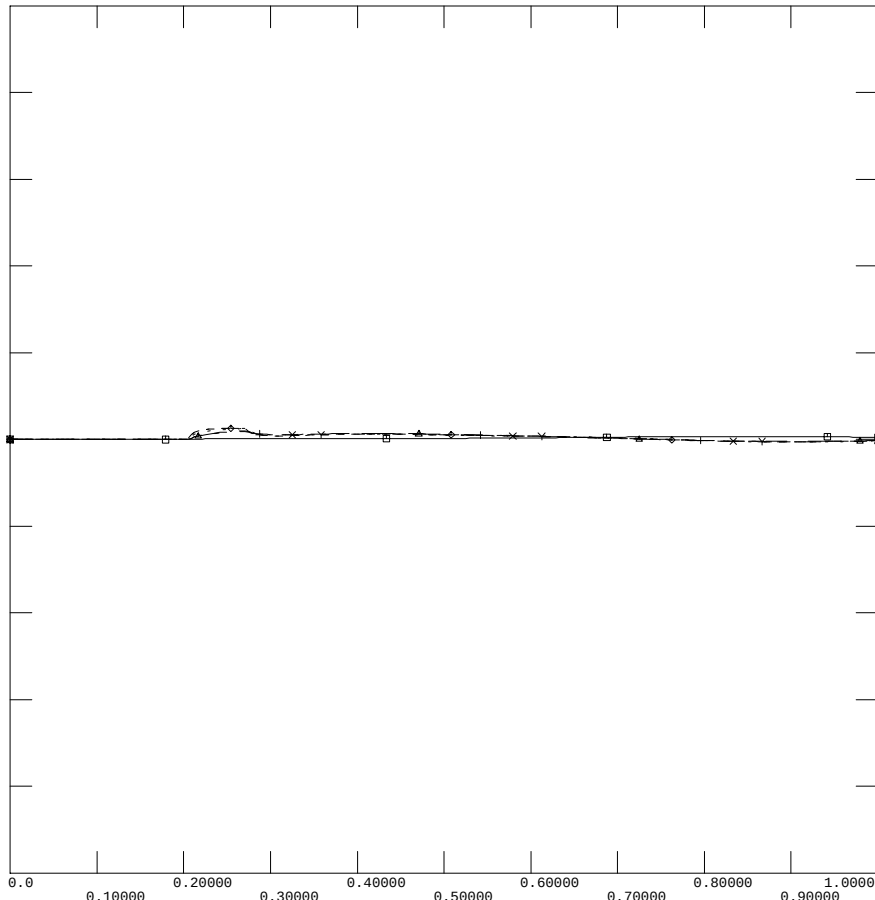


POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON26-ON\_1ph\_OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
FREQUENCY CON26 1PH 162MW

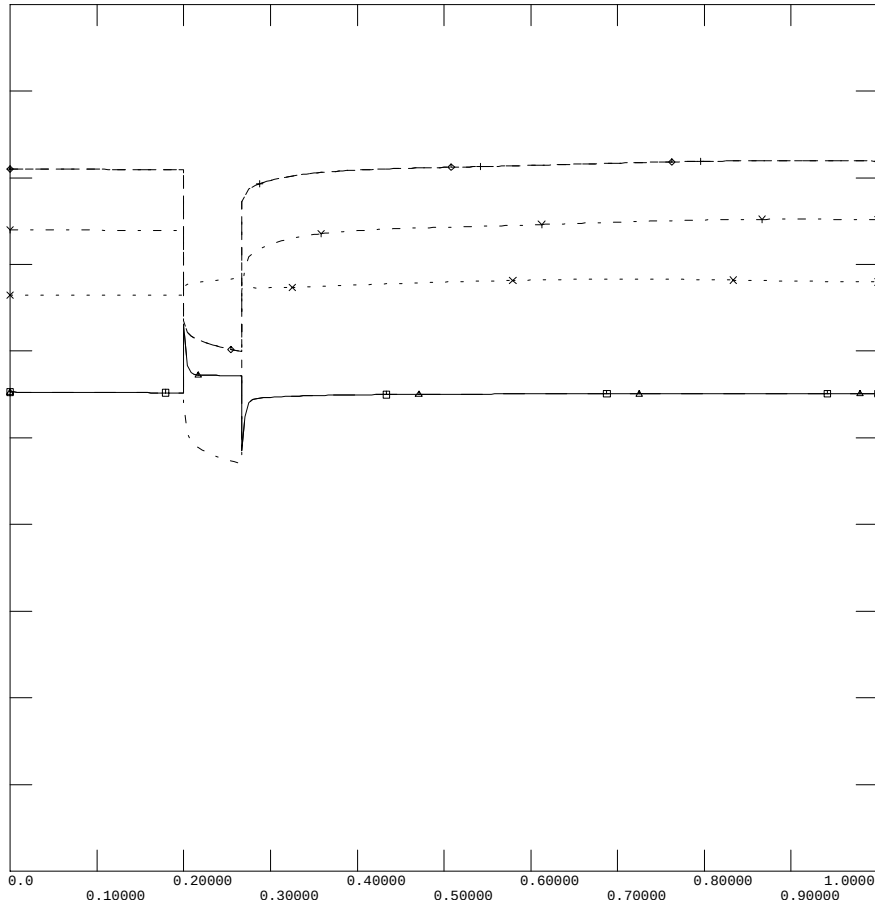


POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON26-ON\_1ph\_OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [GOB KNOB34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
WIND DATA CON26 1PH 162MW

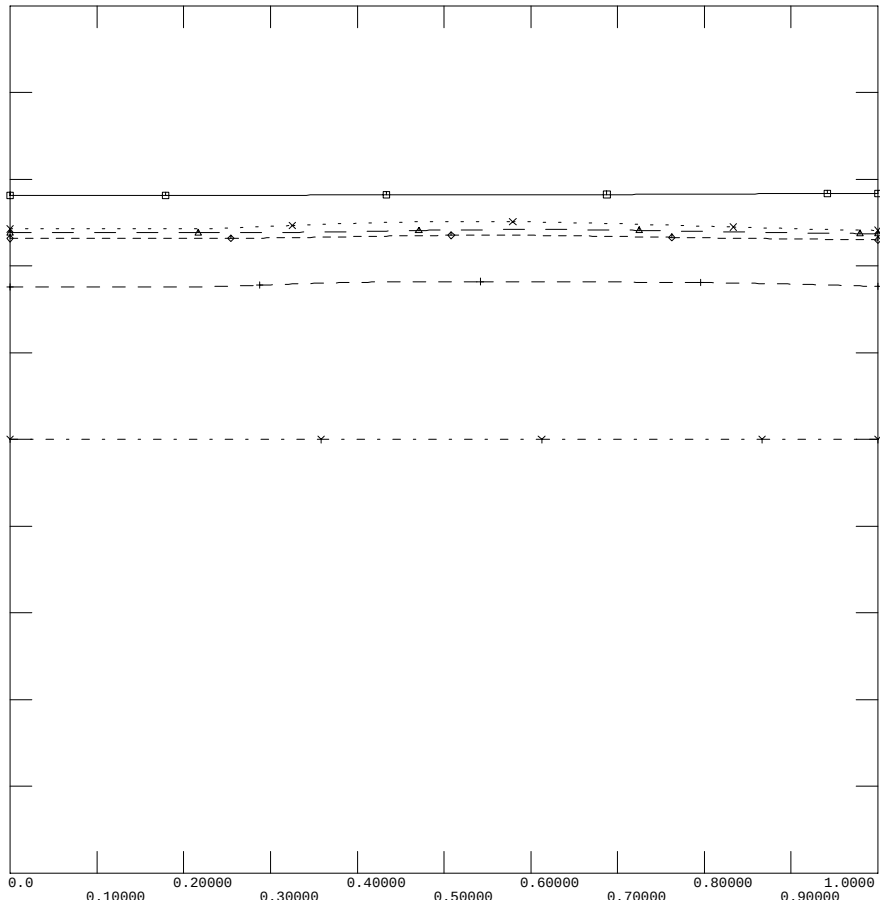


POWER  
LINE  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON27-ON\_1ph\_OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON27 1PH 1

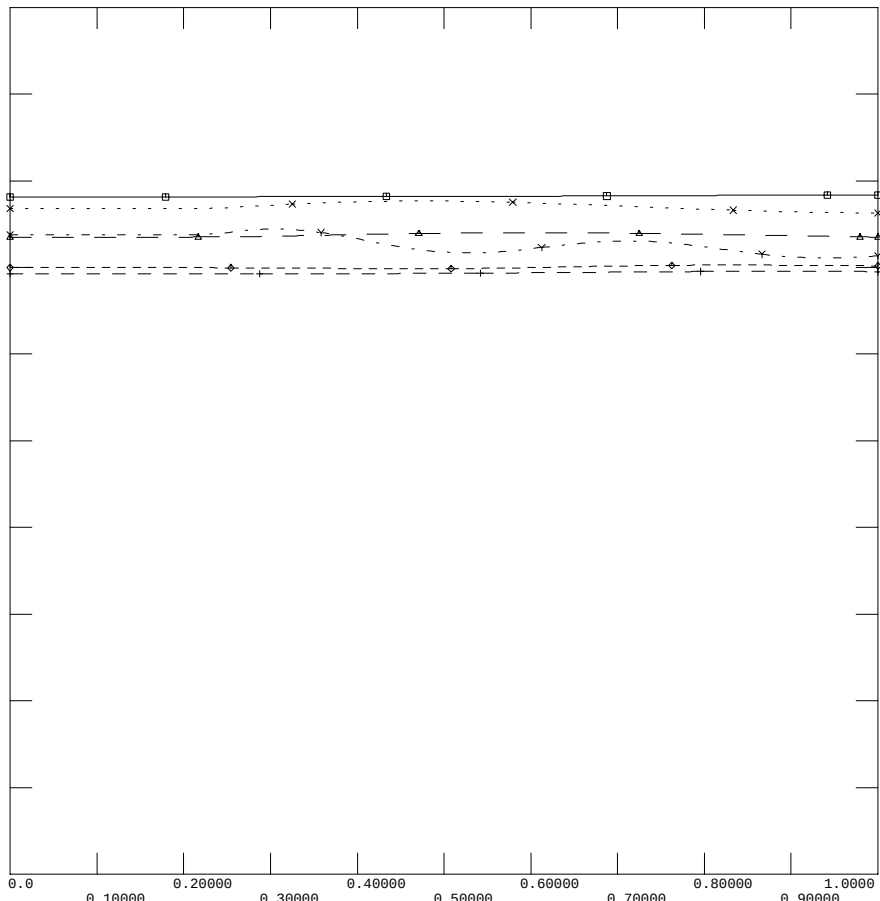


POWER  
LINE  
LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON27-ON\_1ph\_OUT

|        |                                               |        |
|--------|-----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]]  | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]]  | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]     | -180.0 |
| 180.00 | CHNL# 15: [ANGL 70106 [CHEROKEE 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: [ANGL 73532 [LINCOLN113.800] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]]  | -180.0 |



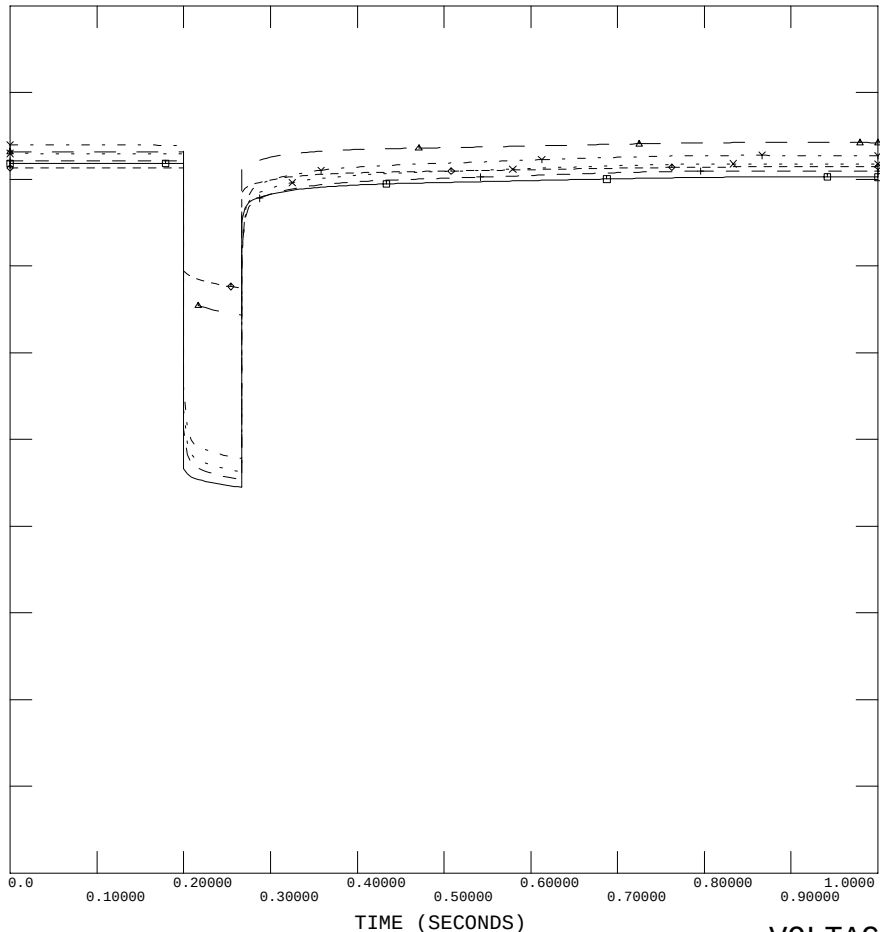
TIME (SECONDS)

THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON27 1PH 1

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON27-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR.C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

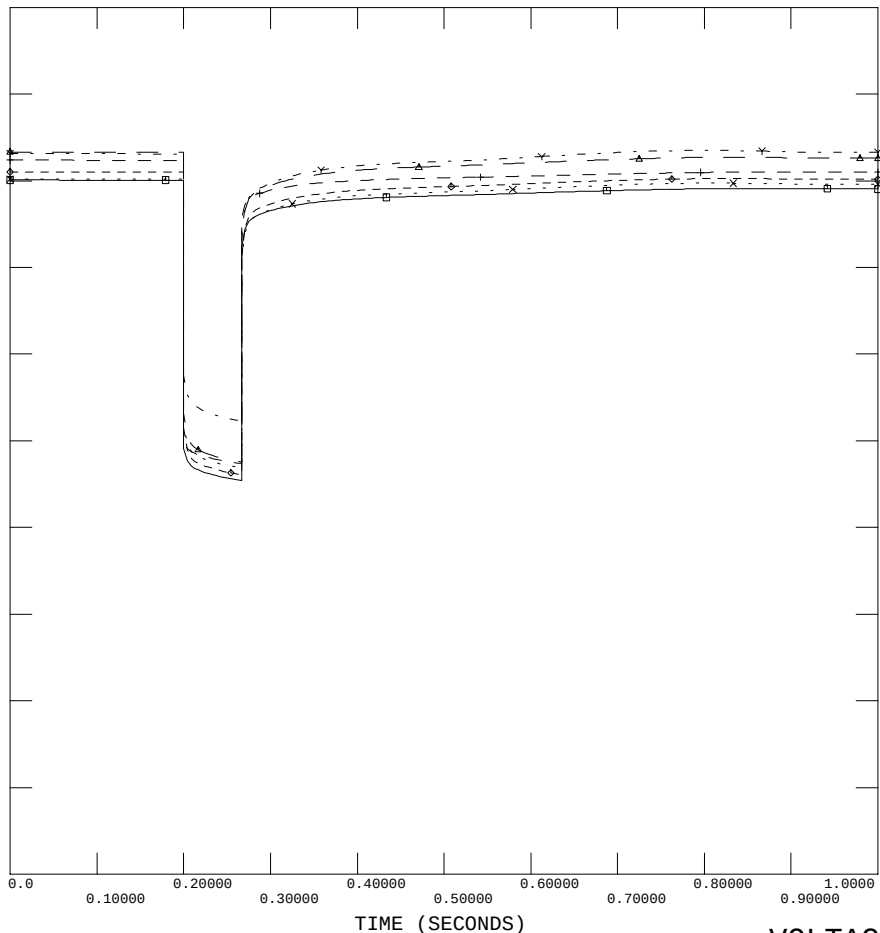


THU, FEB 13 2003 14:48  
VOLTAGE 1 CON27 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON27-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY.LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW.CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR.C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



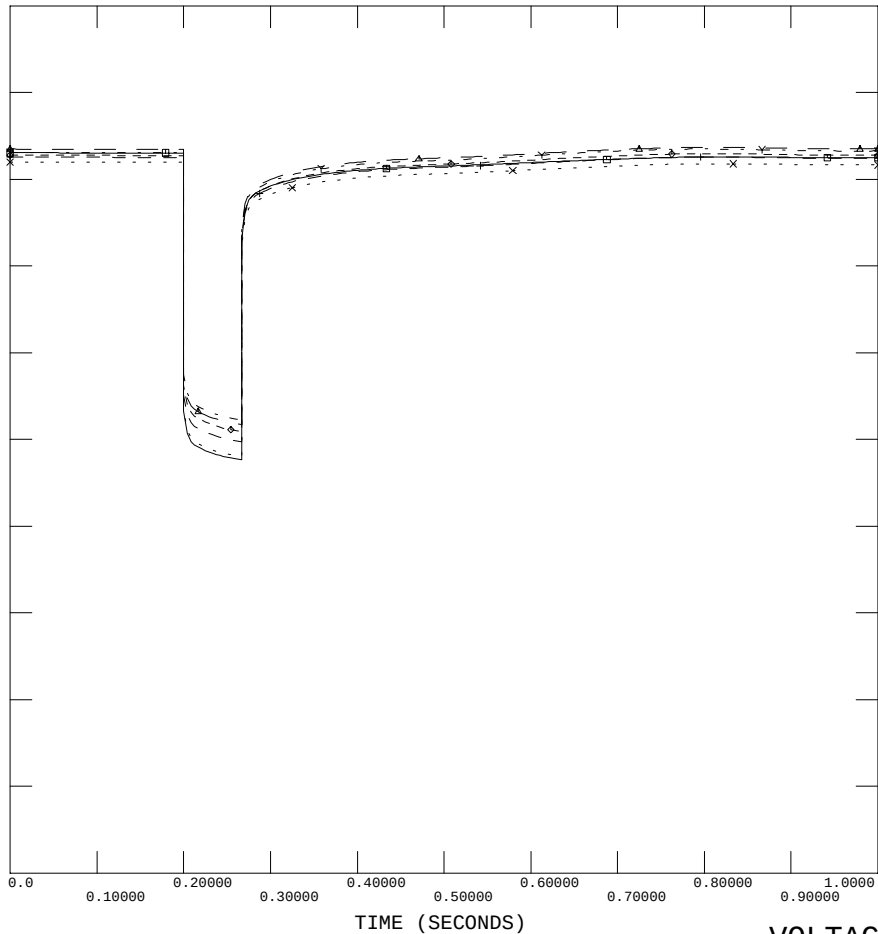
THU, FEB 13 2003 14:48  
VOLTAGE 2 CON27 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON27-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [LEADS 69.000]]    | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



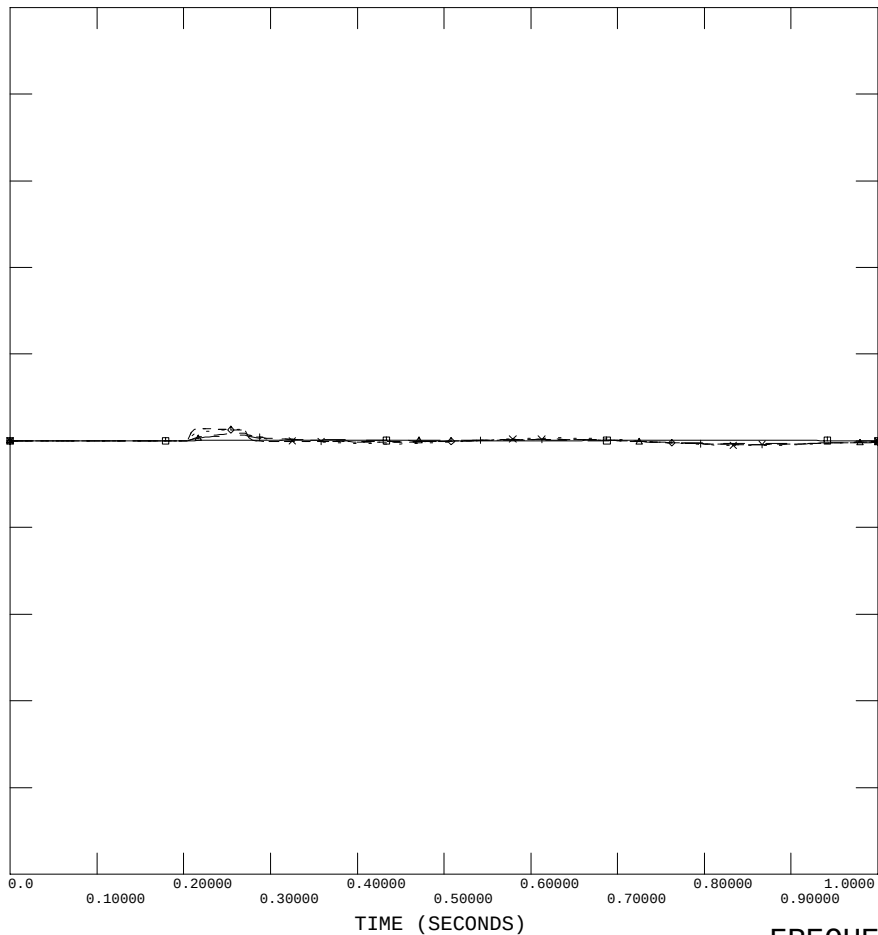
THU, FEB 13 2003 14:48

FREQUENCY CON27 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON27-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |



THU, FEB 13 2003 14:48

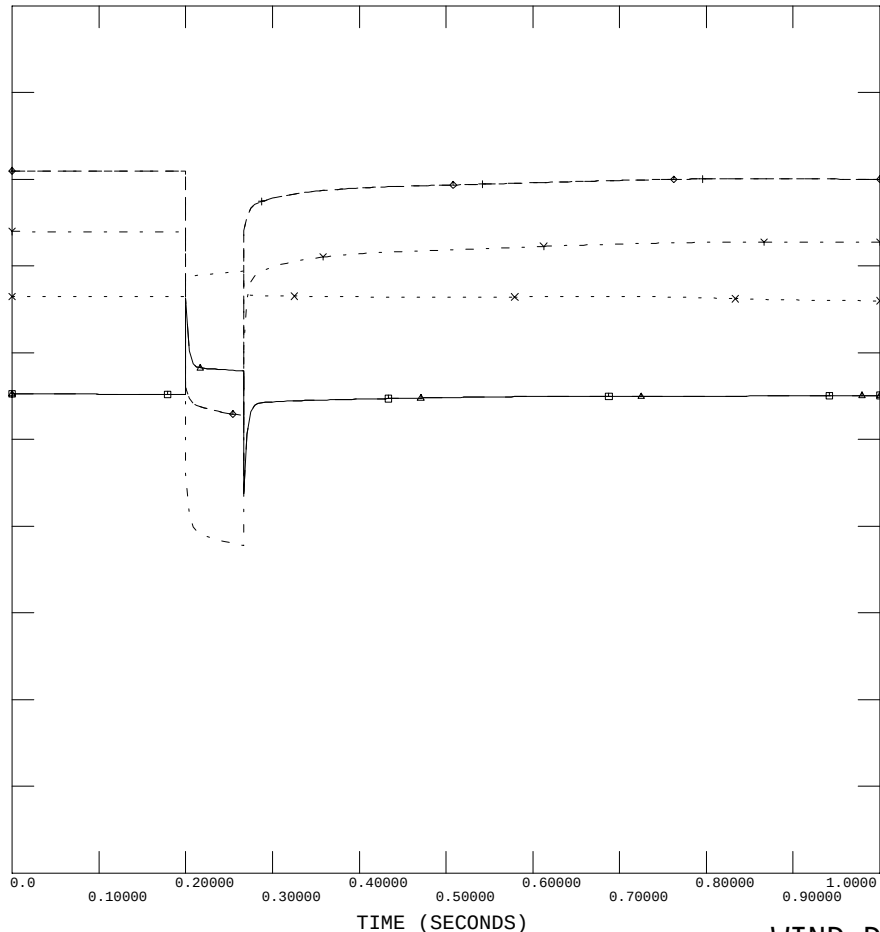
FREQUENCY CON27 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON27-ON\_1ph.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB.KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB.KNOB34.500]] | -180.0  |
| 180.00 | CHNL# 356: [POKR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POKR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



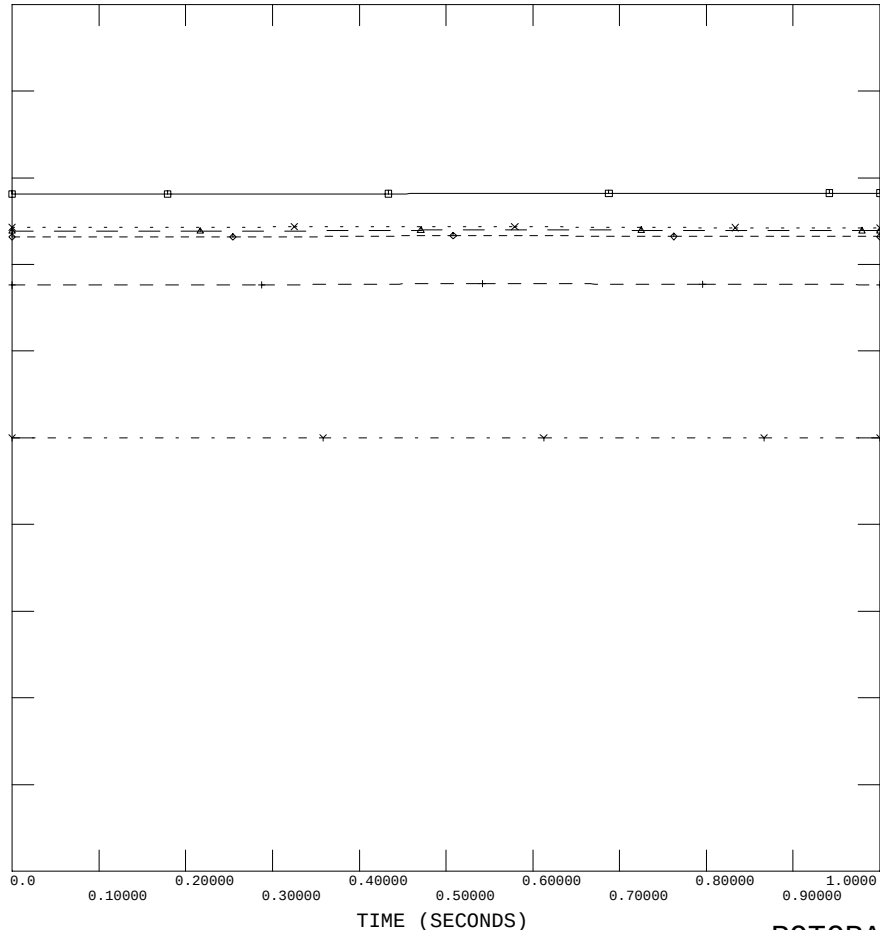
THU, FEB 13 2003 14:48  
WIND DATA CON27 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON29-ON\_1ph.OUT

|        |                                                |        |
|--------|------------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [GOB.KNOB34.500]] [1.1] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000]] [1.1]  | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000]] [1.1]   | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000]] [1.1]  | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800]] [1.1]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000]] [1.1]  | -180.0 |



THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON29 1PH 1

2003 HS - FROM 2003HS4C OPERATING CASE 2003HSA7073AD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON29-0N\_1ph.0UT

CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1]]

✕

CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1 ]]

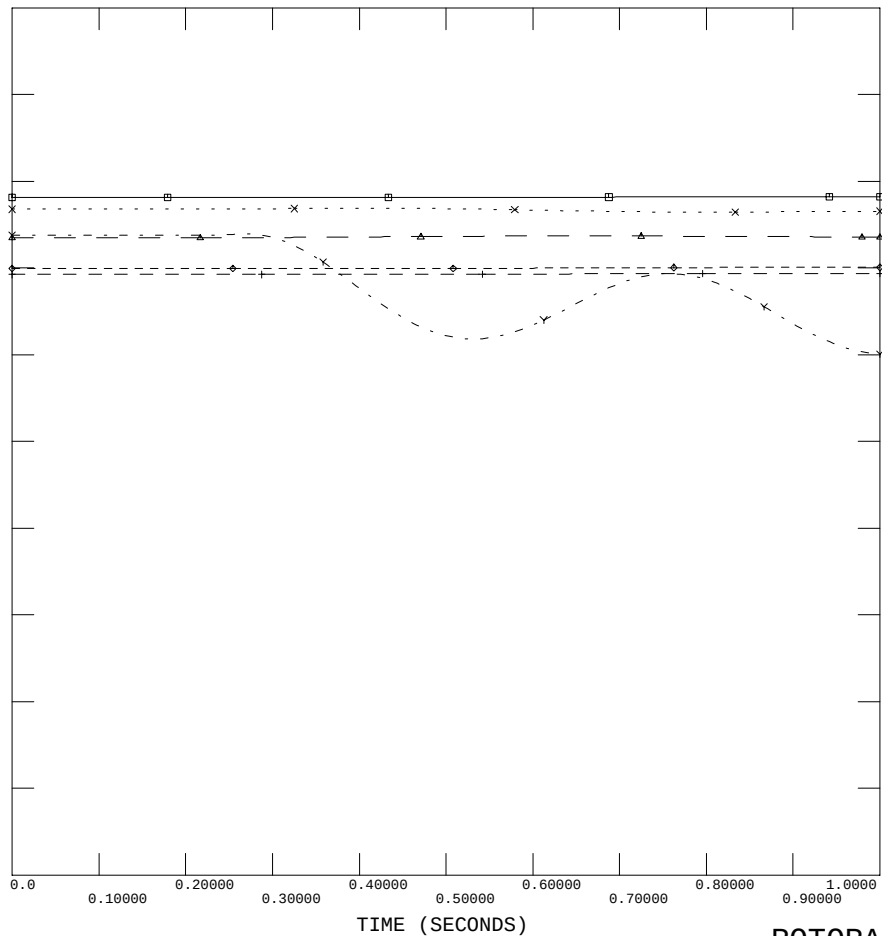
CHNL# 15: [ANGL 70106 [CHEROK4 22.000] [1 ]]

1

CHNL# 96: [ANGL 73532 [LINC0LN13.800] [1 ]]

4

|           |            |                |   |
|-----------|------------|----------------|---|
| CHNL# 98: | ANGL 79015 | CRAIG 1 22.000 | 1 |
|-----------|------------|----------------|---|



0.90000 THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON29 1PH 1

2003 HS - FROM 2003HS4C OPERATING CASE 2003HSA0734DD.SAV  
A/A70, 73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON29-0N\_1ph.0UT

CHNL# 220: [VOLT 70701 [G0B\_KNOB34.500]]

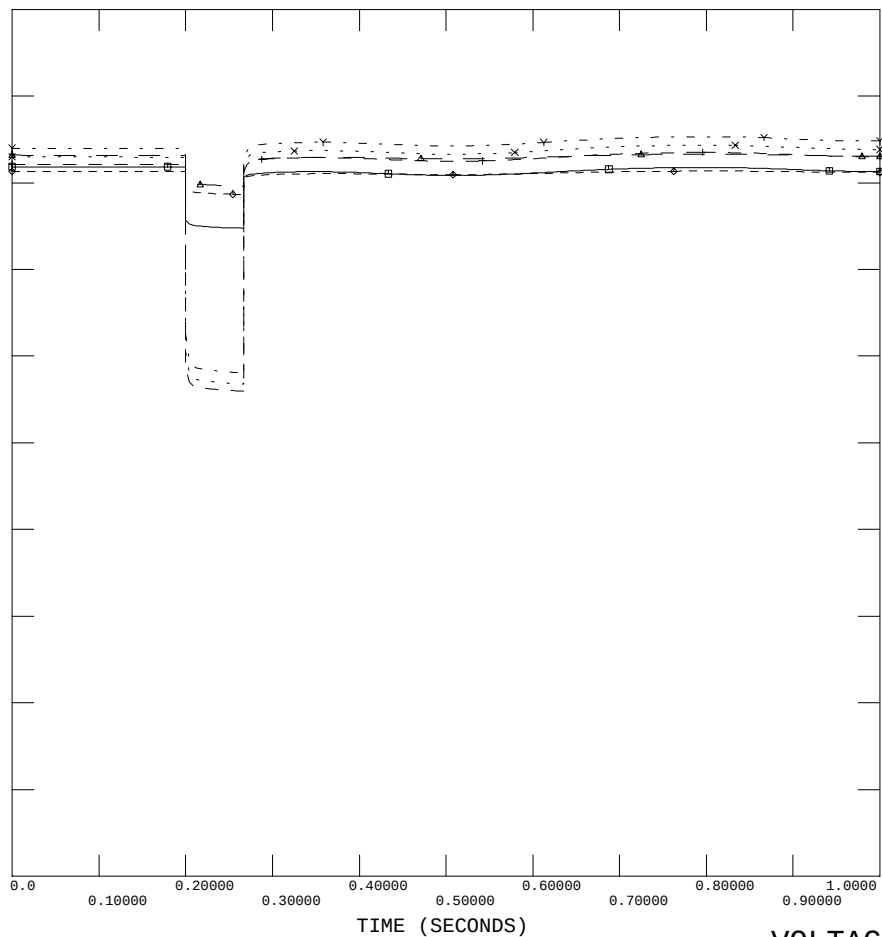
CHNL# 205: [VOLT 70254 [LAMAR C0230.00]]

CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]]

CHNL# 213: [VOLT 70122 [COMANCHE230.00]]

[illegible]

|            |            |       |        |
|------------|------------|-------|--------|
| CHNL# 207: | VOLT 70061 | BOONE | 230.00 |
|------------|------------|-------|--------|



0.90000 THU, FEB 13 2003 14:48  
VOLTAGE 1 CON29 1PH 162MW

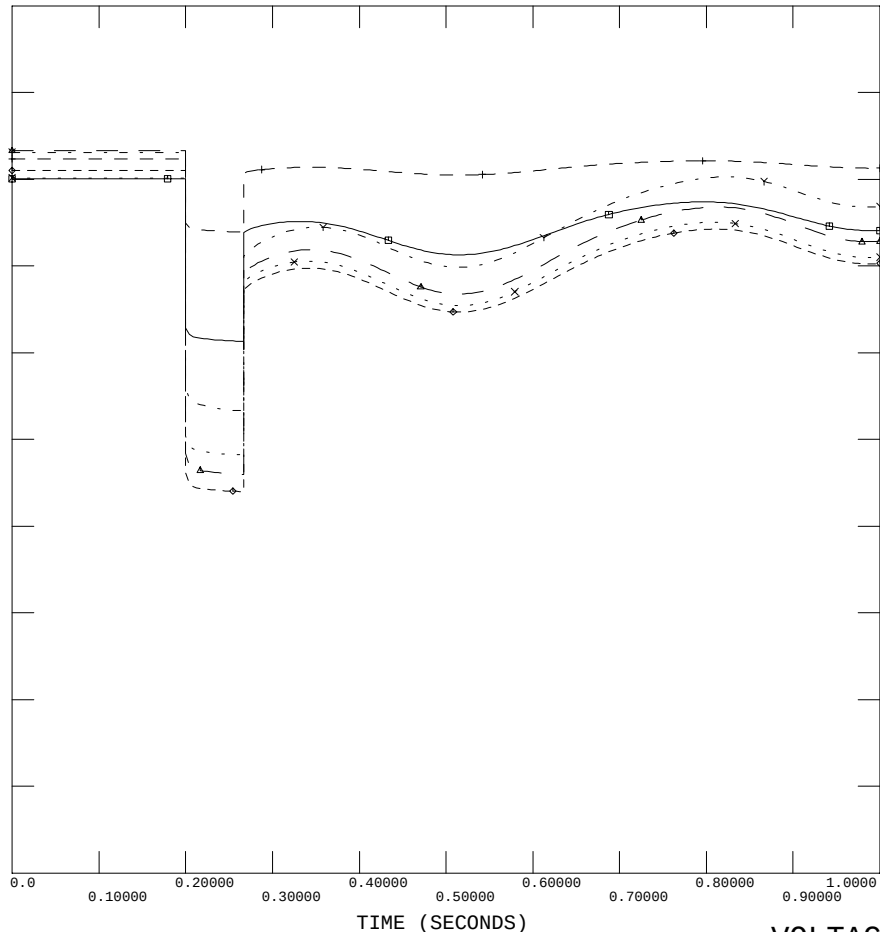


POWER  
TIC  
0.000000  
1.000000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON29-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



THU, FEB 13 2003 14:48  
VOLTAGE 2 CON29 1PH 162MW

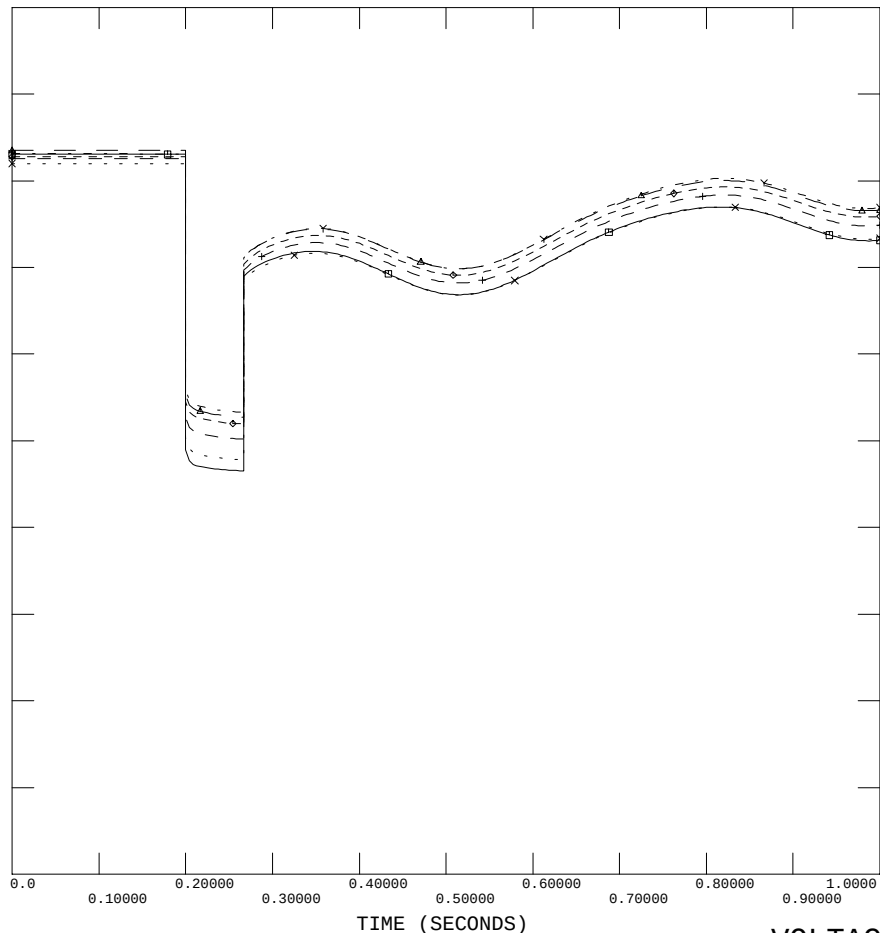


POWER  
TIC  
0.000000  
1.000000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON29-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



THU, FEB 13 2003 14:48  
VOLTAGE 3 CON29 1PH 162MW

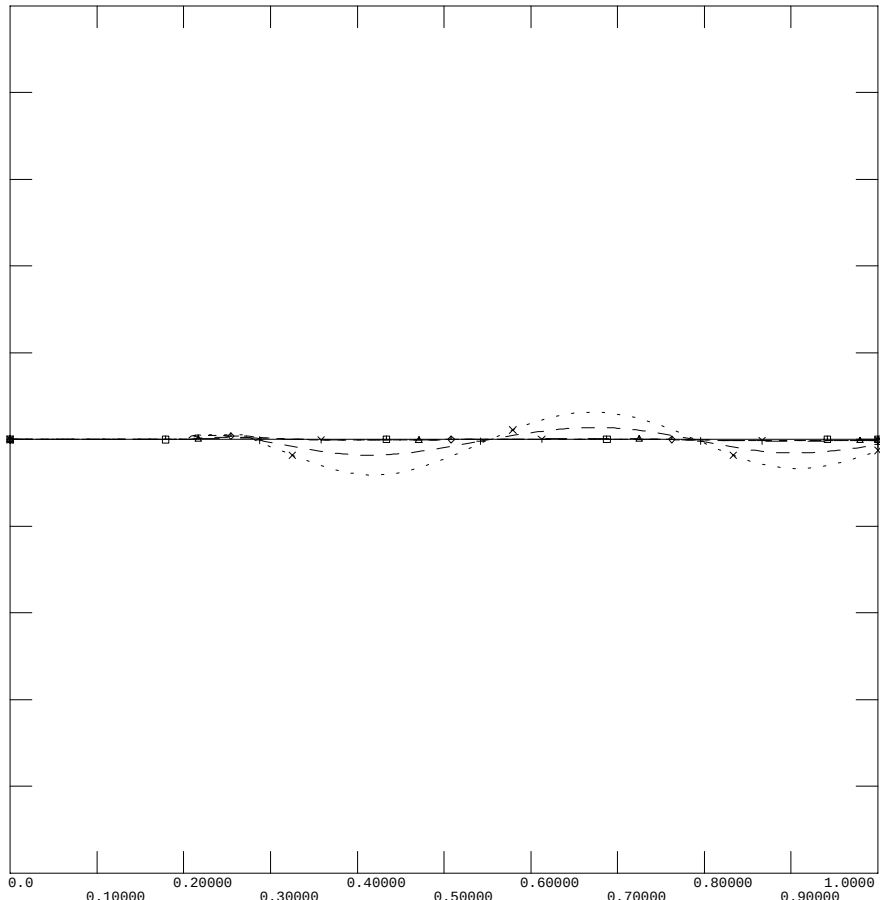


POWER  
TIC 0.0015,  
1 Hz

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON29-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



THU, FEB 13 2003 14:48

FREQUENCY CON29 1PH 162MW

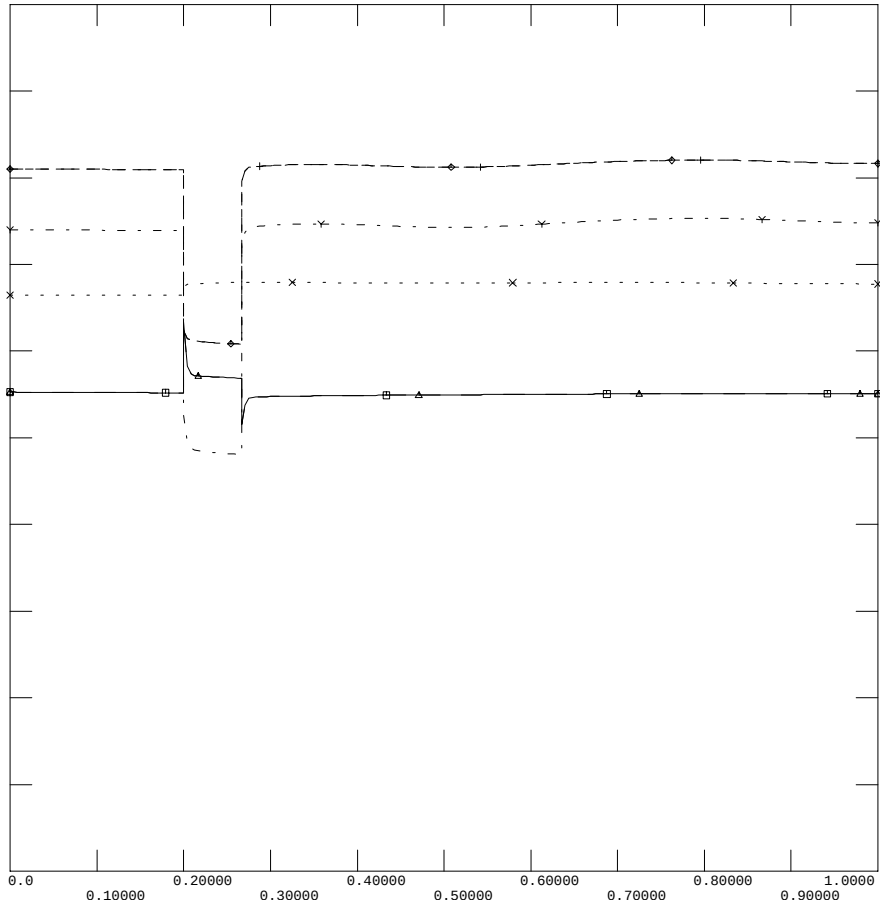


POWER  
TIC 0.0015,  
1 Hz

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON29-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



THU, FEB 13 2003 14:48

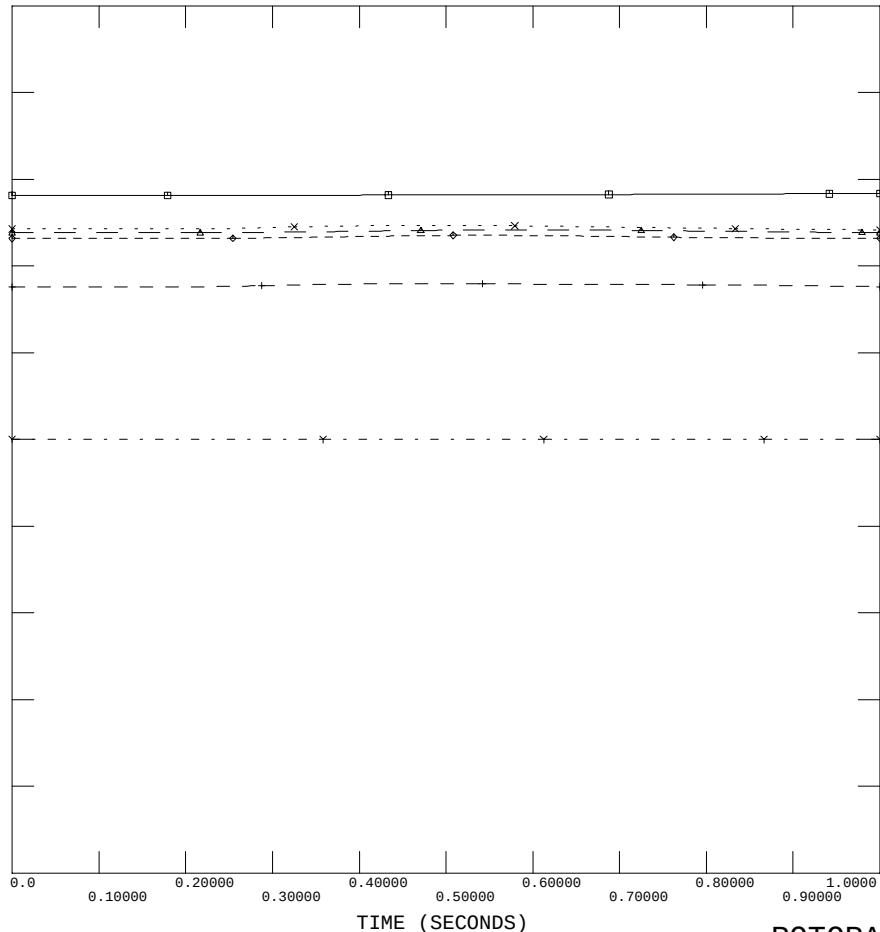
WIND DATA CON29 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON30-ON\_1ph\_OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



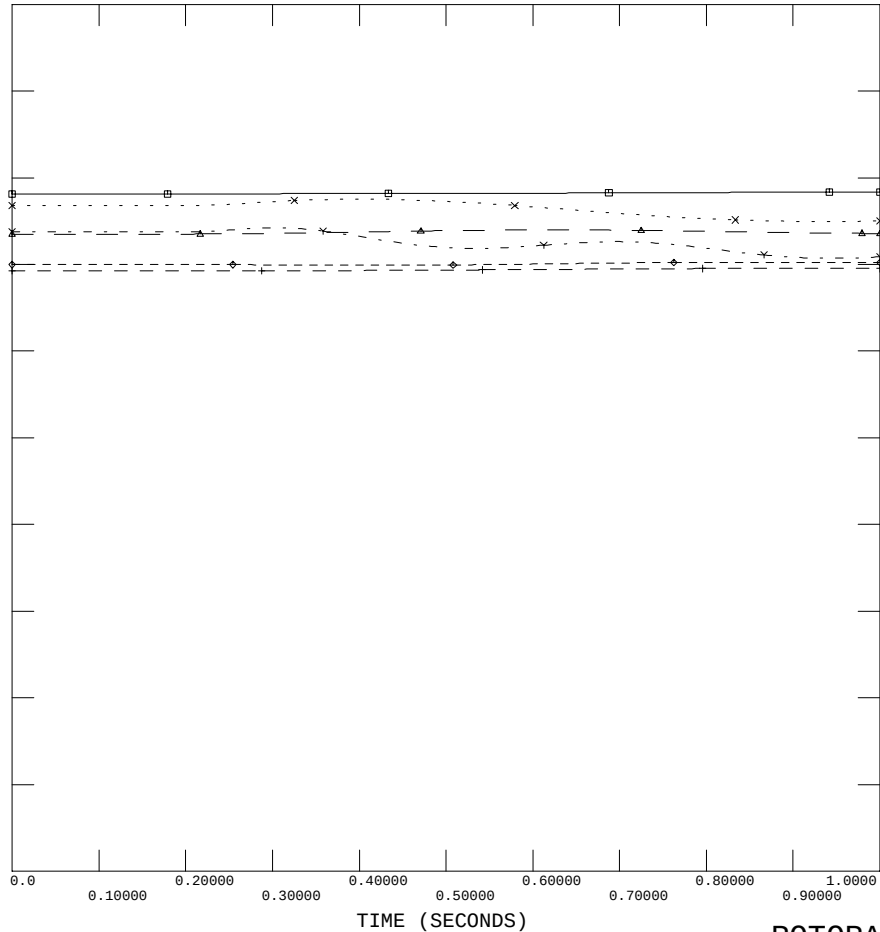
THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON30 1PH 1



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON30-ON\_1ph\_OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 15: [ANGL 70106 [CHEROK4 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: [ANGL 73532 [LINCOLN113.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |

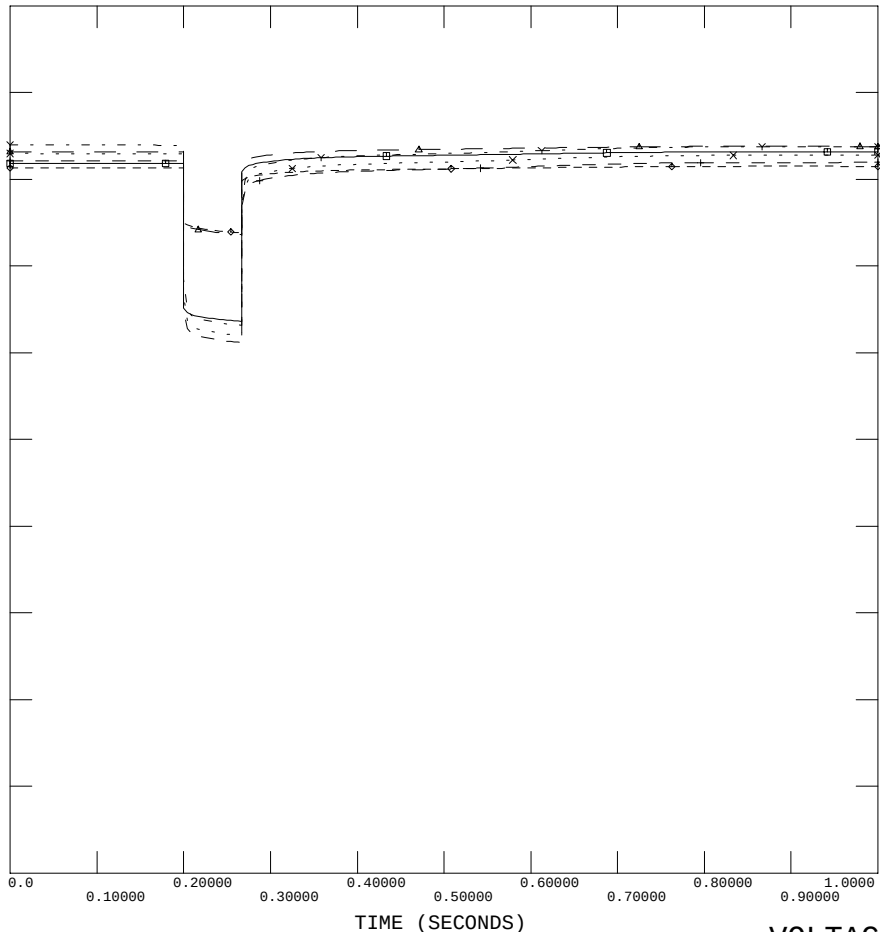


THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON30 1PH 1

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON30-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

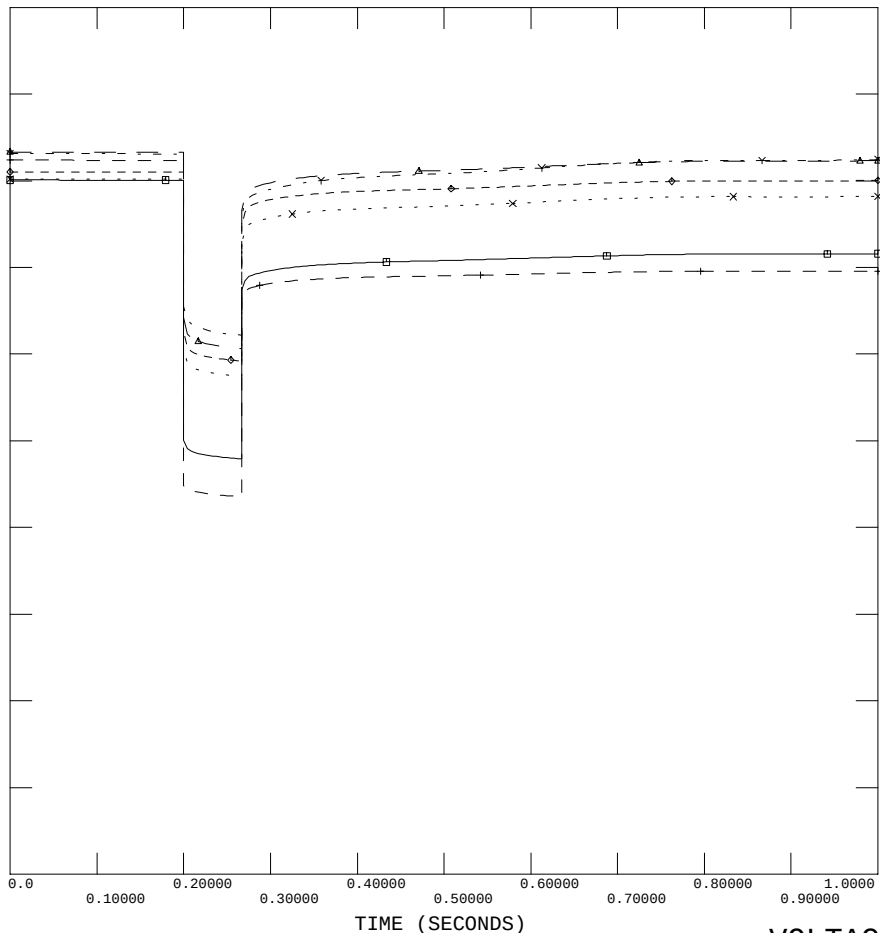


THU, FEB 13 2003 14:48  
VOLTAGE 1 CON30 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON30-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

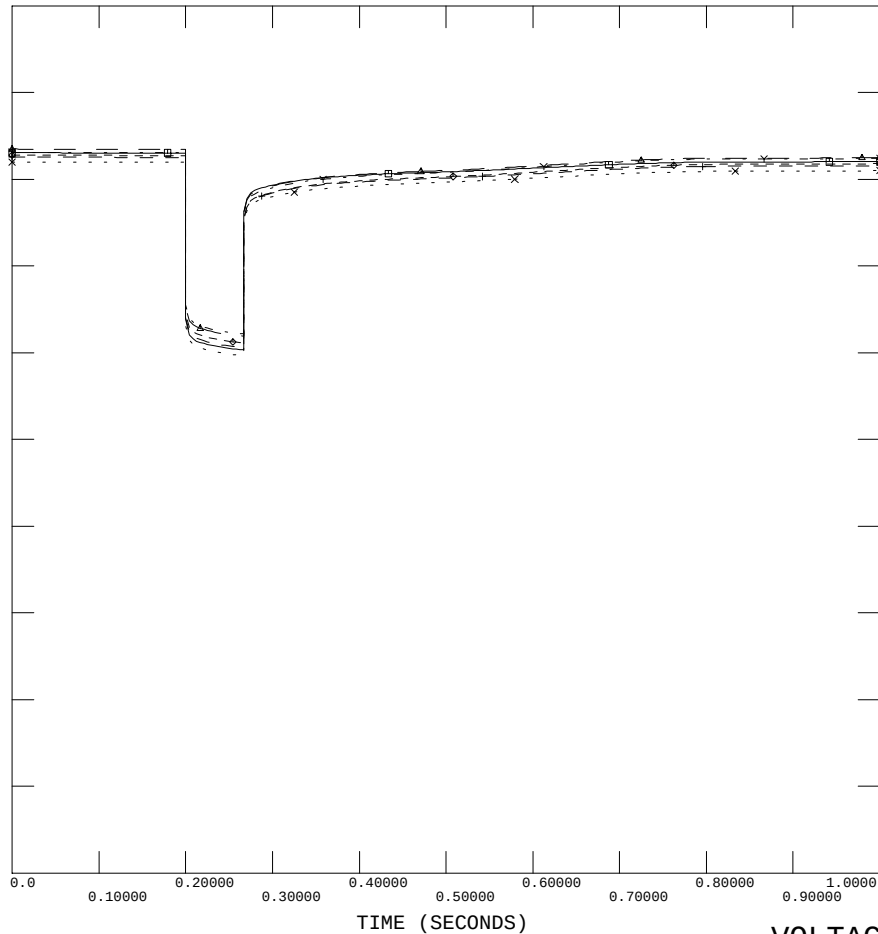


THU, FEB 13 2003 14:48  
VOLTAGE 2 CON30 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON30-ON\_1ph.0UT

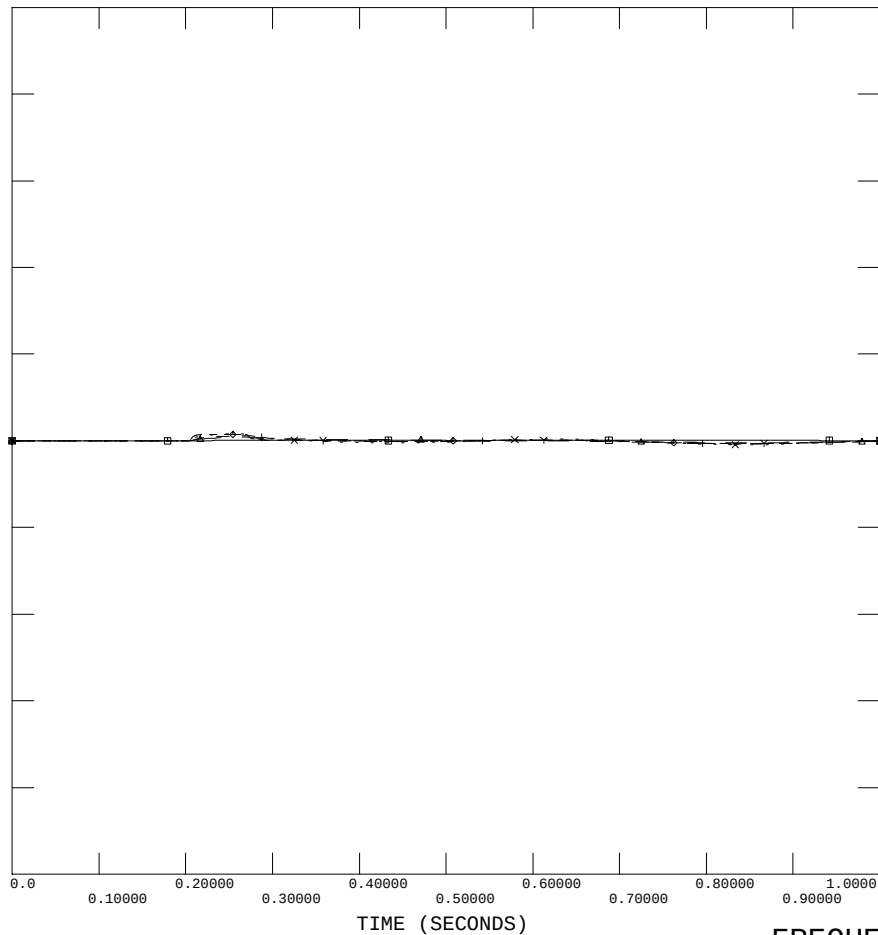
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [LEADS 69.000]]    | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON30-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |



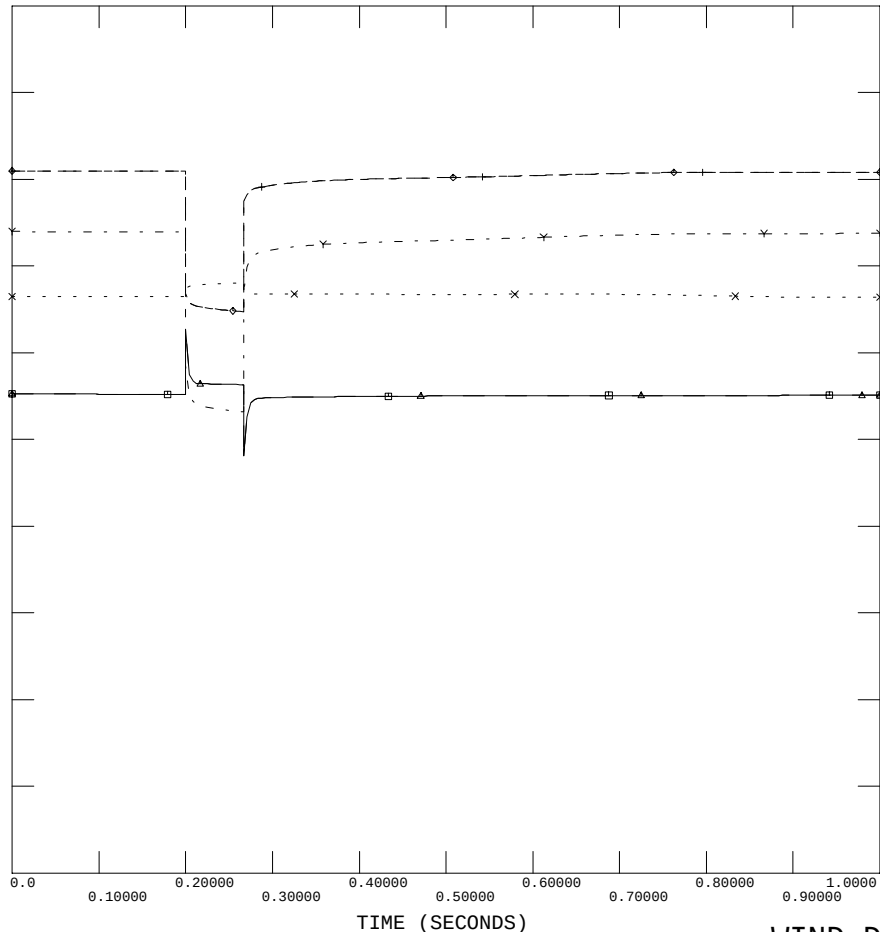




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON30-ON\_1ph.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB.KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB.KNOB34.500]] | -180.0  |
| 180.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



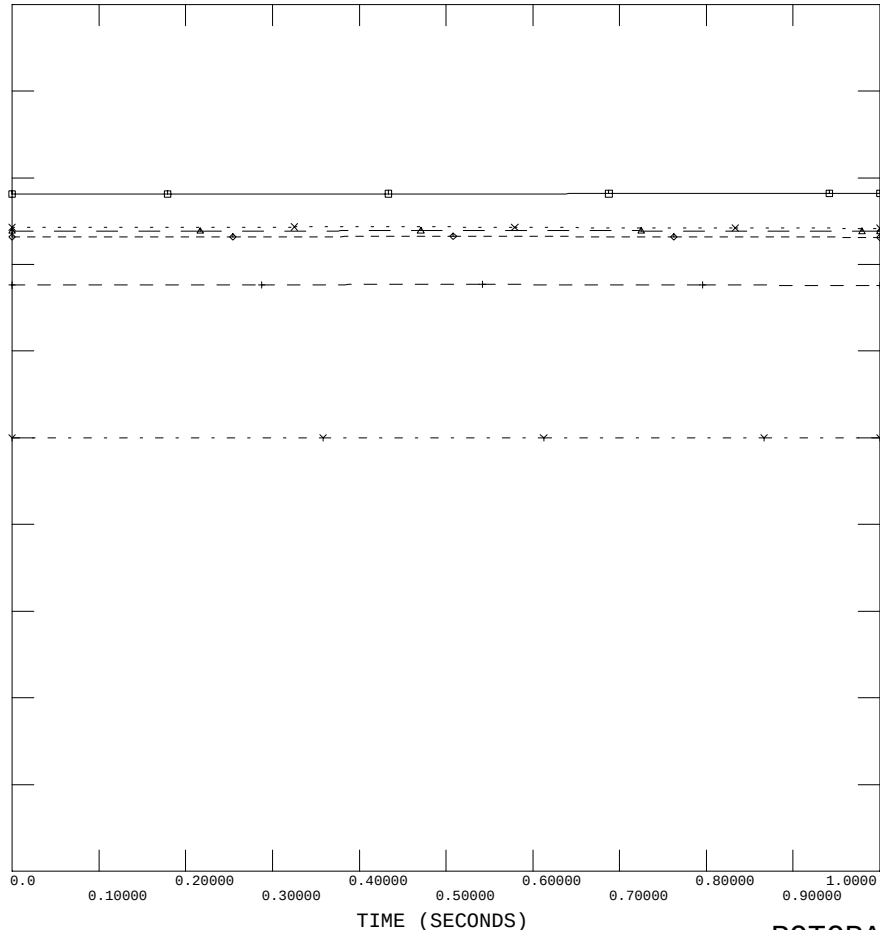
THU, FEB 13 2003 14:48  
WIND DATA CON30 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON31-ON\_1ph.OUT

|        |                                                |        |
|--------|------------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [GOB.KNOB34.500]] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000]] [1.]]  | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000]] [1.]]   | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000]] [1.]]  | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800]] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000]] [1.]]  | -180.0 |



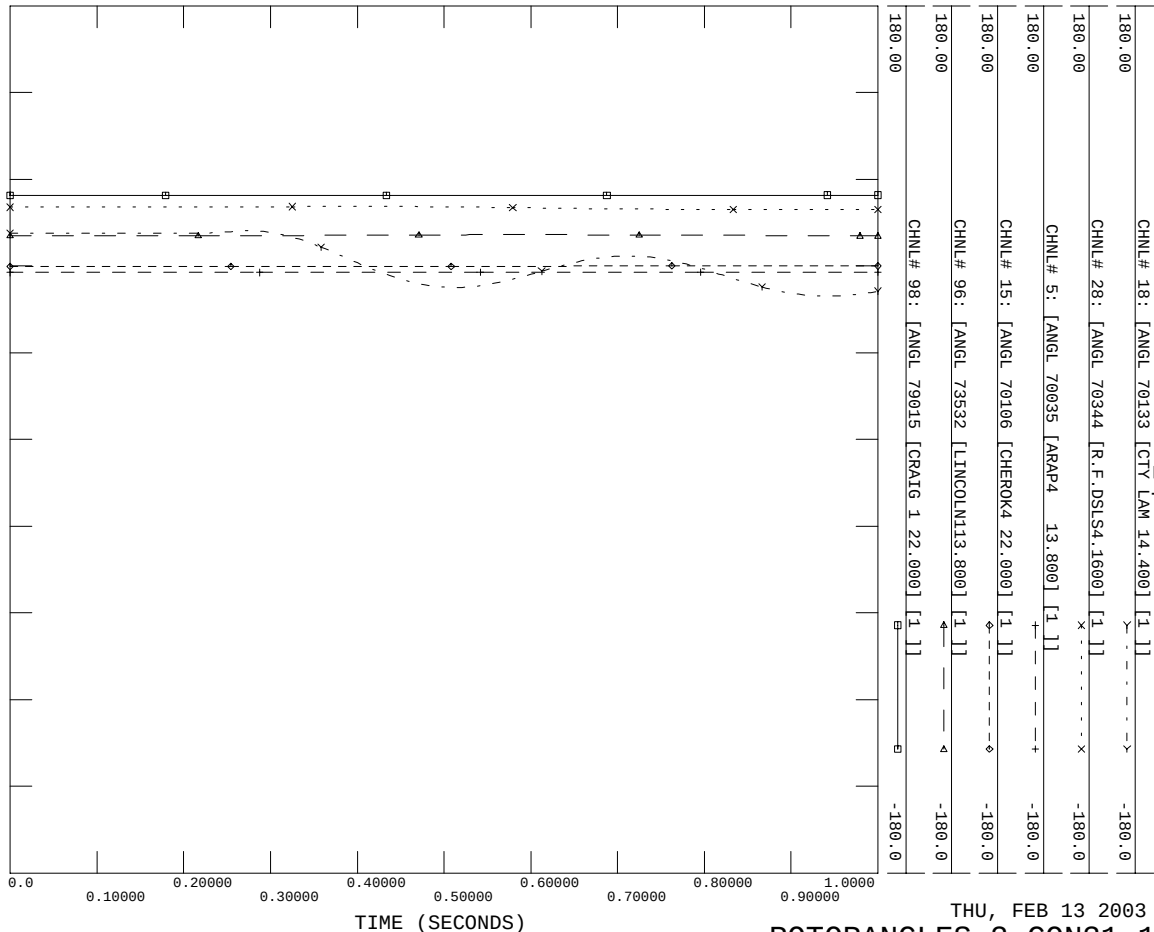
THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON31 1PH 1



POWER  
TIC  
WIND LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON31-ON\_1ph\_OUT



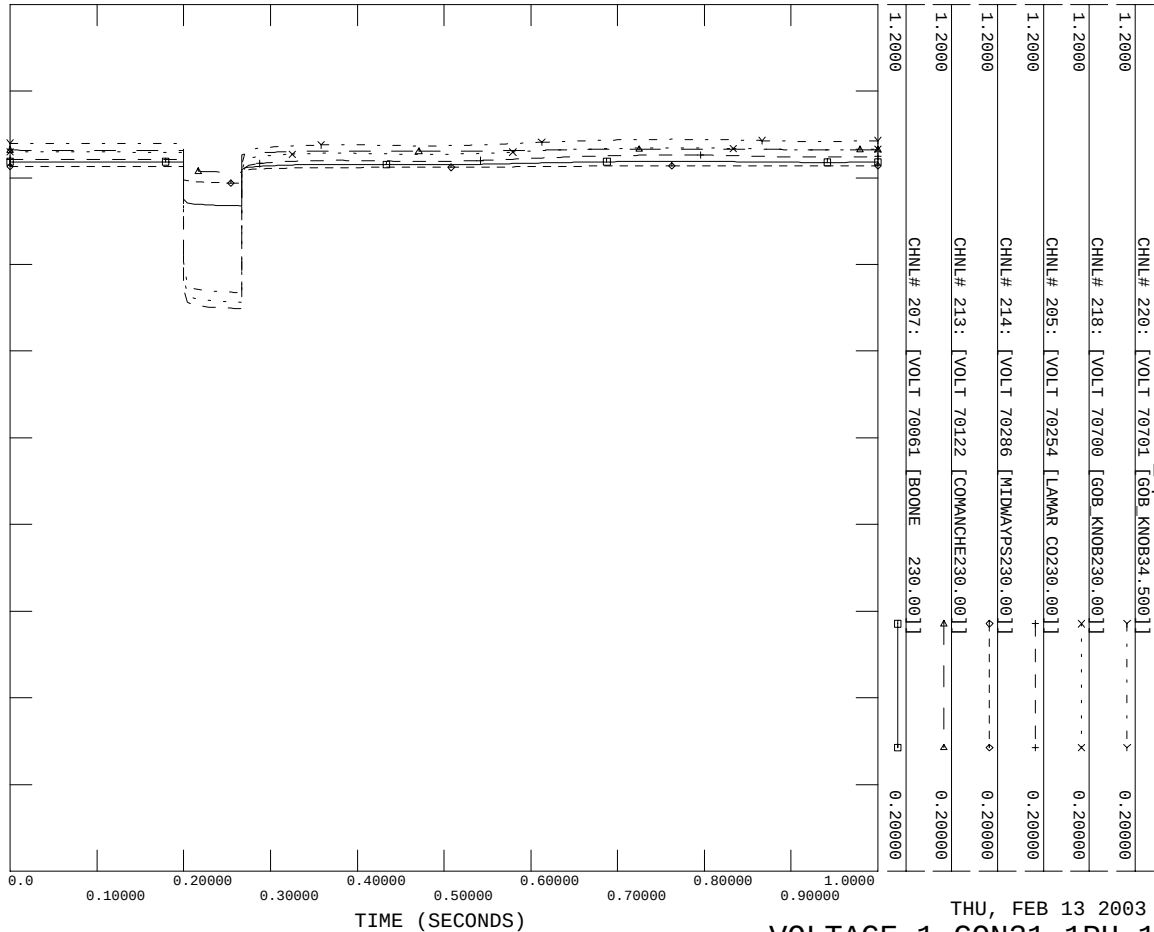
THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON31 1PH 1



POWER  
TIC  
WIND LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

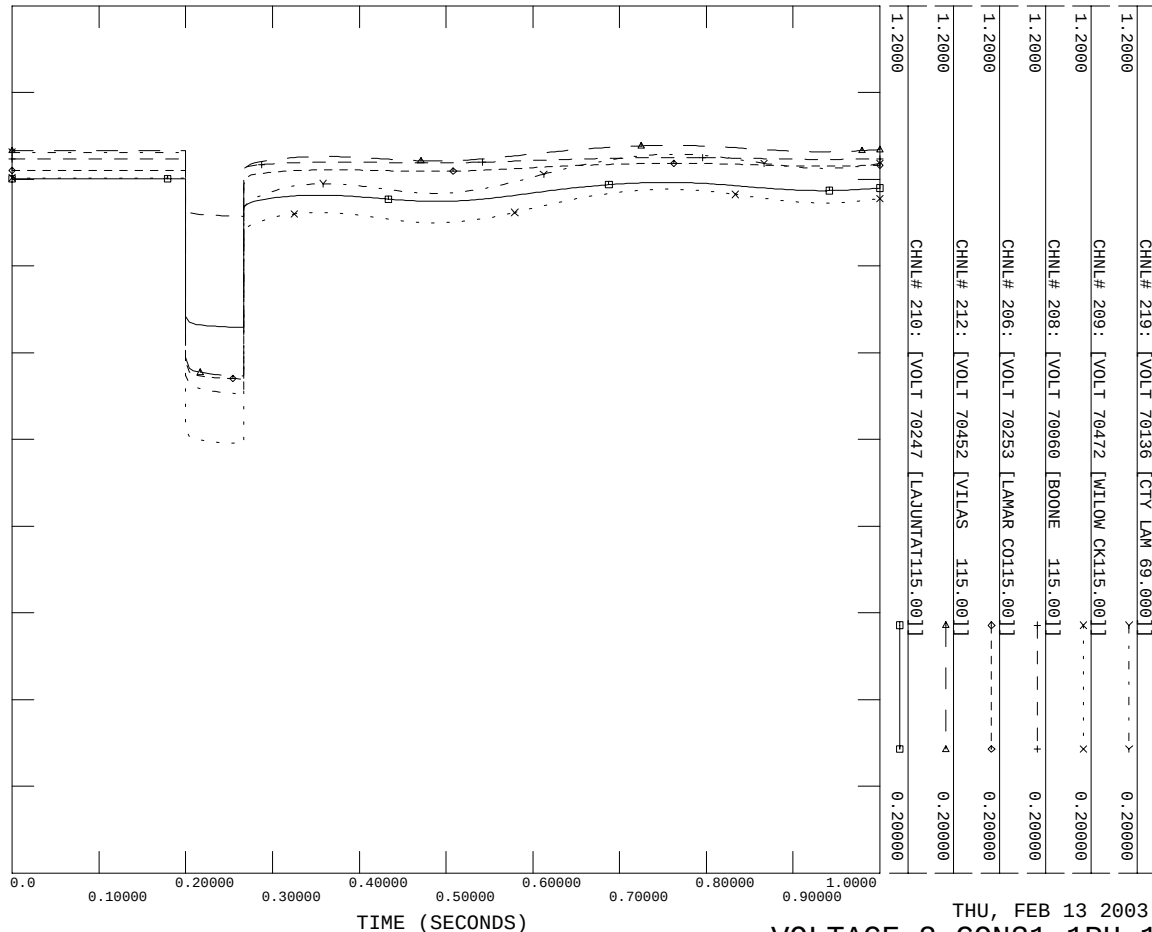
FILE: CON31-ON\_1ph\_OUT



THU, FEB 13 2003 14:48  
VOLTAGE 1 CON31 1PH 162MW

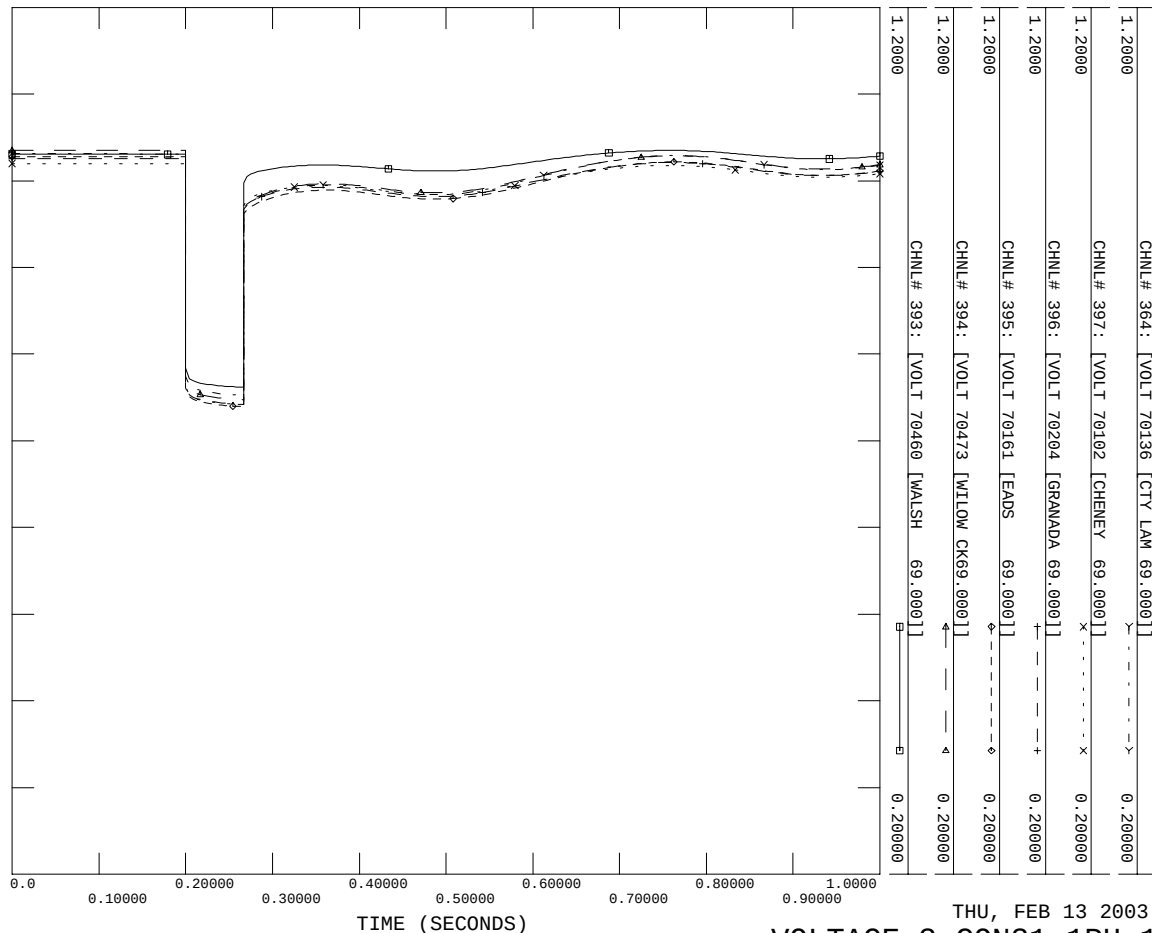
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON31-ON\_1ph.0UT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON31-ON\_1ph.0UT



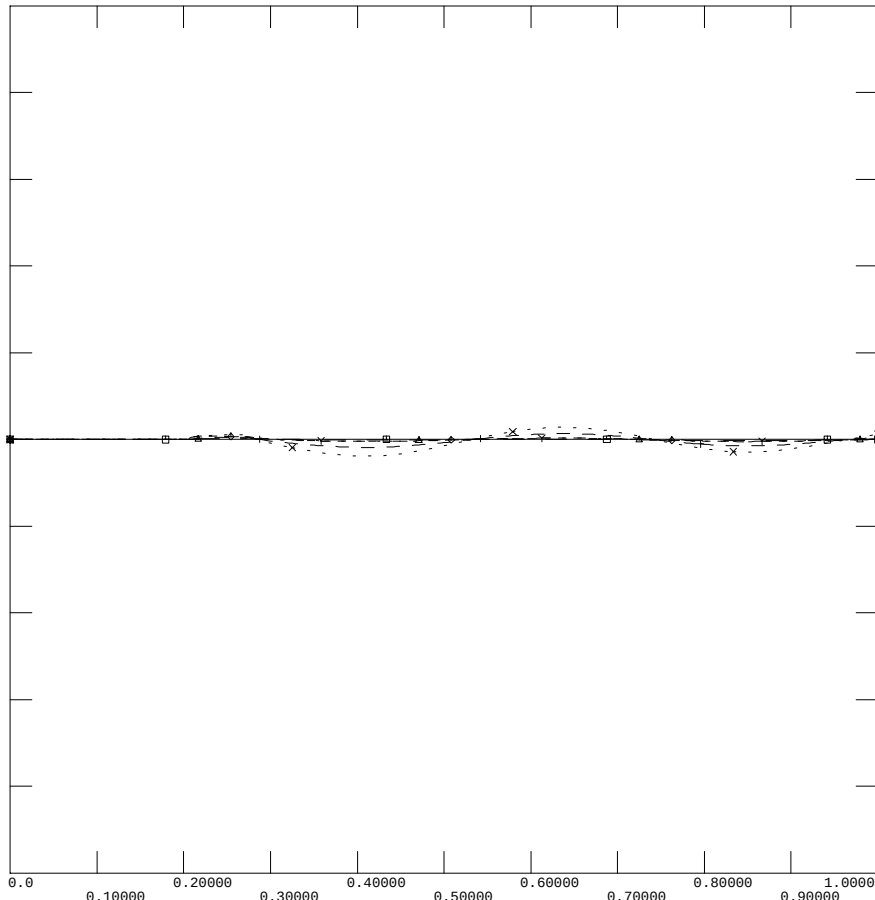


POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON31-ON\_1ph\_OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



THU, FEB 13 2003 14:48

FREQUENCY CON31 1PH 162MW

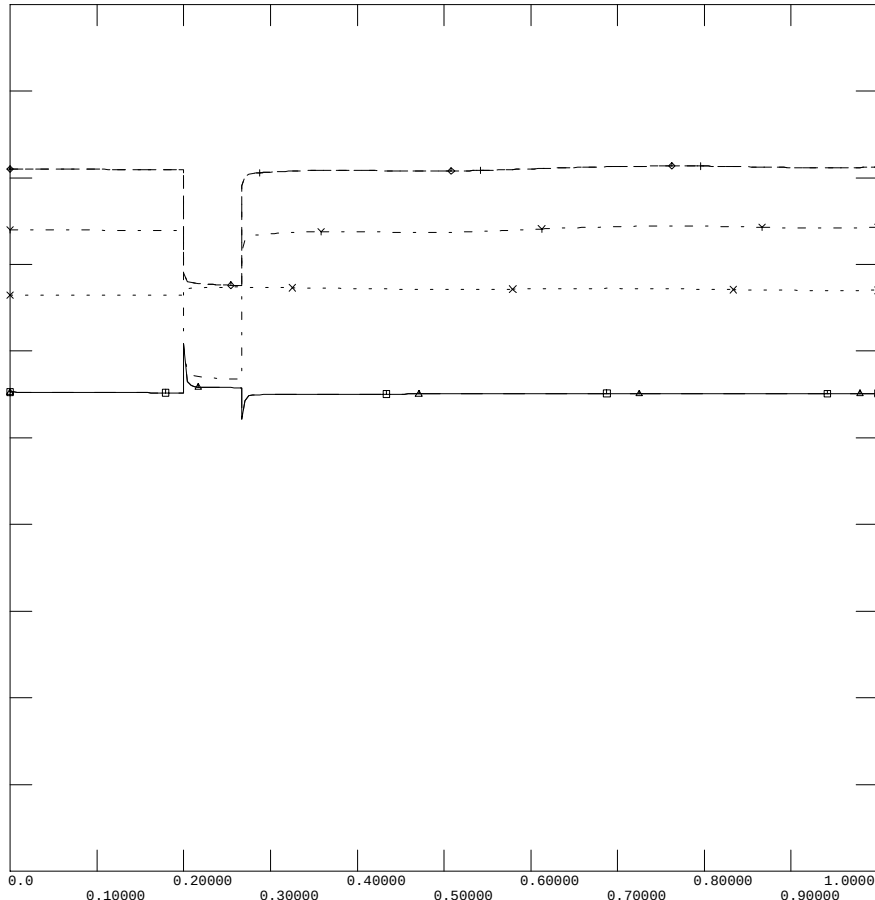


POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON31-ON\_1ph\_OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB KNOB34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



THU, FEB 13 2003 14:48

WIND DATA CON31 1PH 162MW

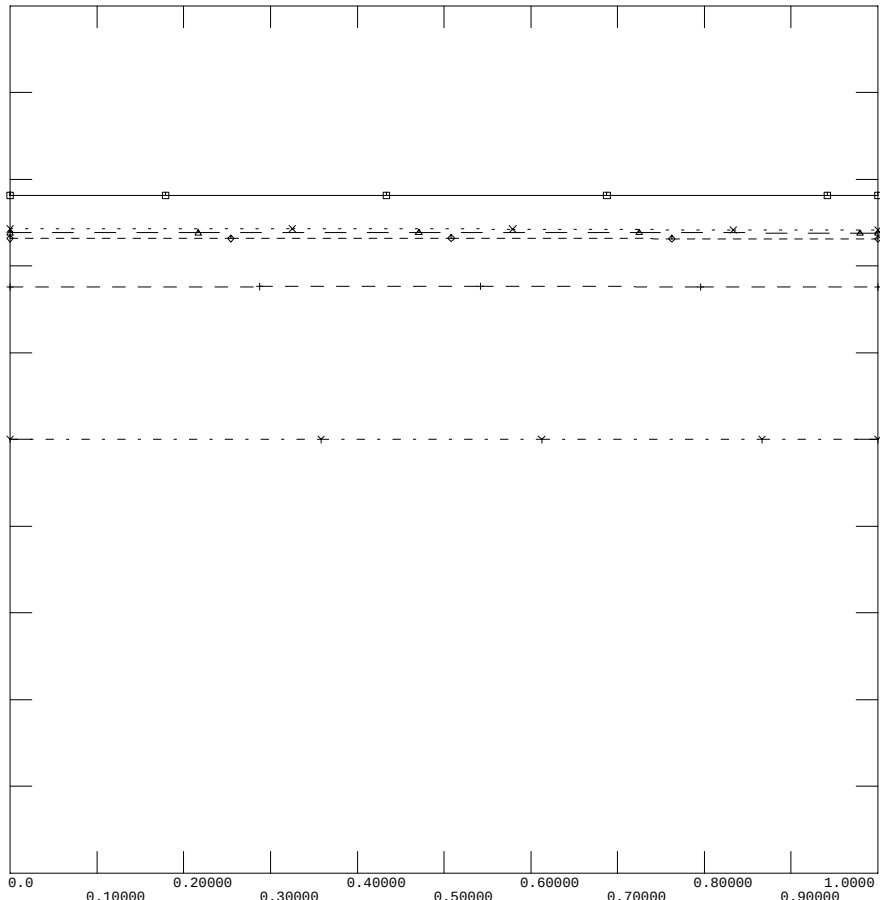


POWER  
LINE  
LOADS.

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON33-ON\_1ph\_OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON33 1PH 1

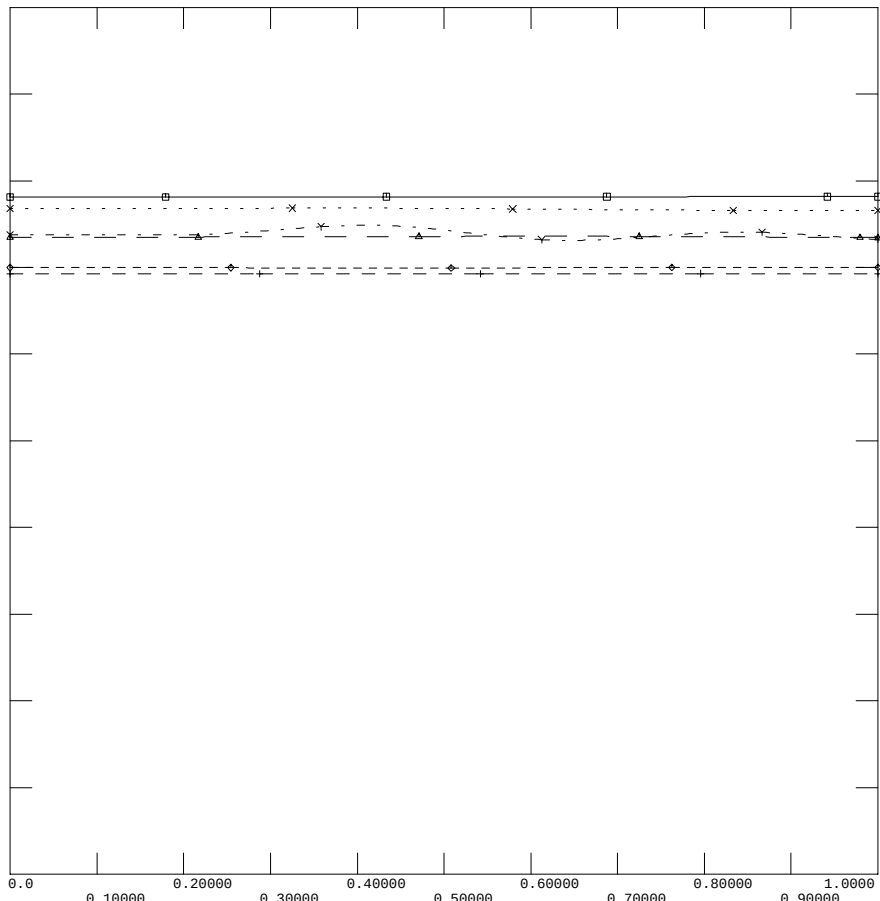


POWER  
LINE  
LOADS.

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON33-ON\_1ph\_OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 15: [ANGL 70106 [CHEROK4 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: [ANGL 73532 [LINCOLN113.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



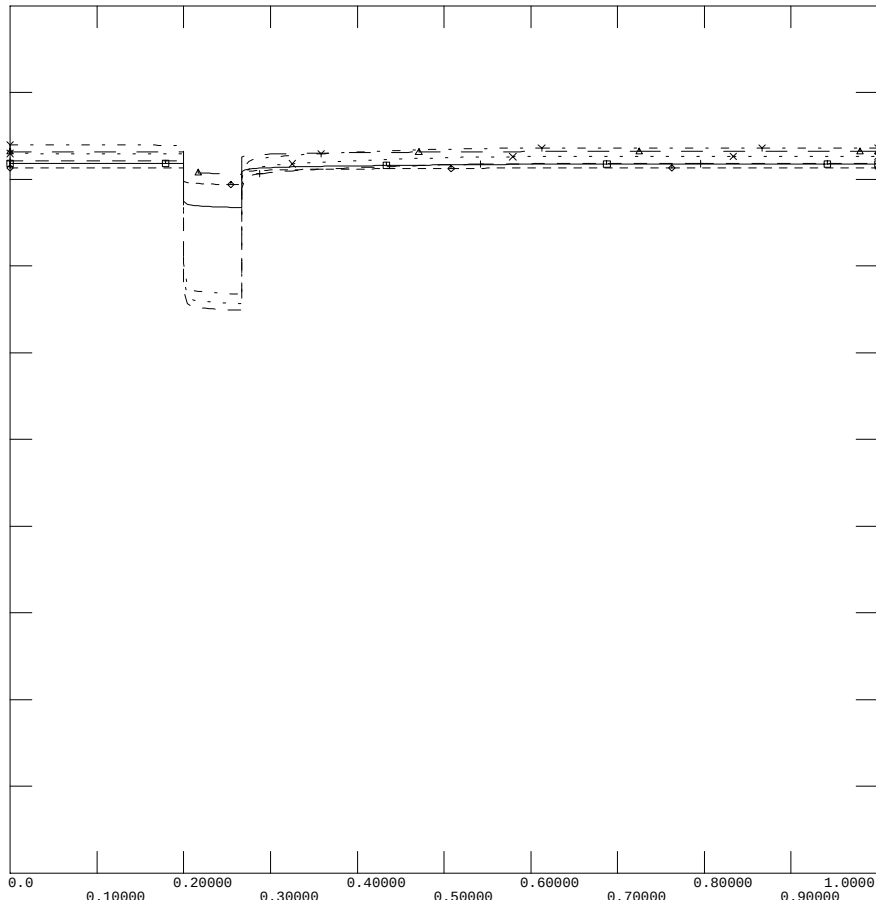
TIME (SECONDS)

THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON33 1PH 1

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON33-ON\_1ph.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [GOB.KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [GOB.KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR.C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

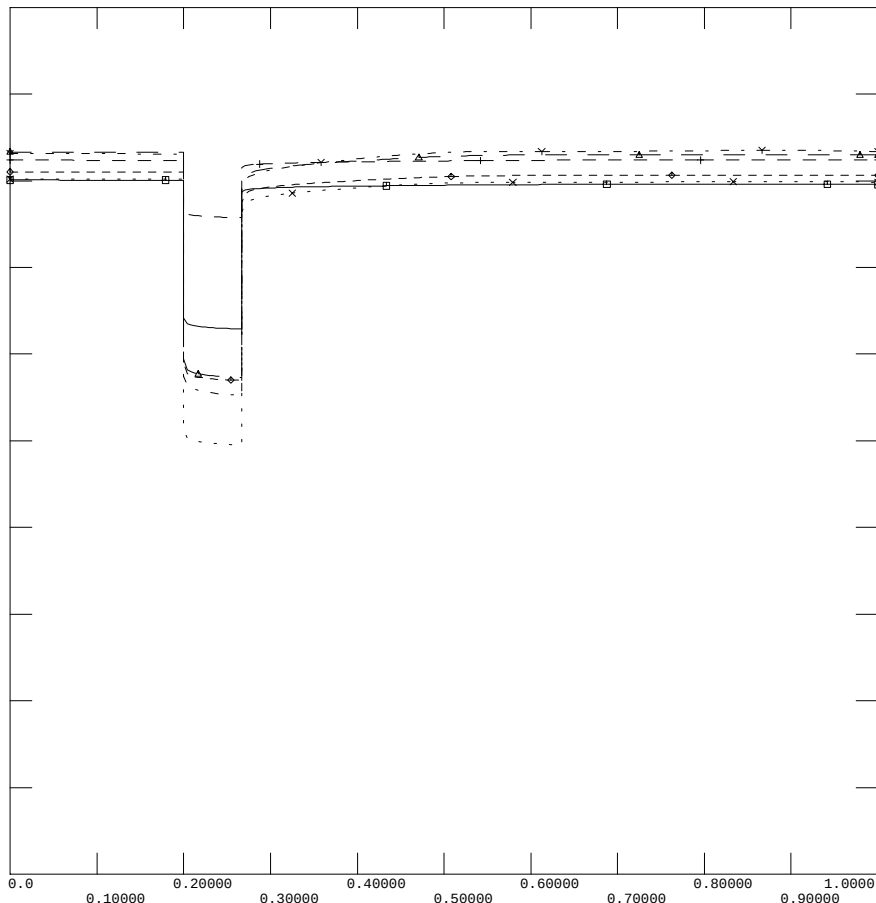


THU, FEB 13 2003 14:48  
VOLTAGE 1 CON33 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON33-ON\_1ph.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY.LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW.CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR.C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



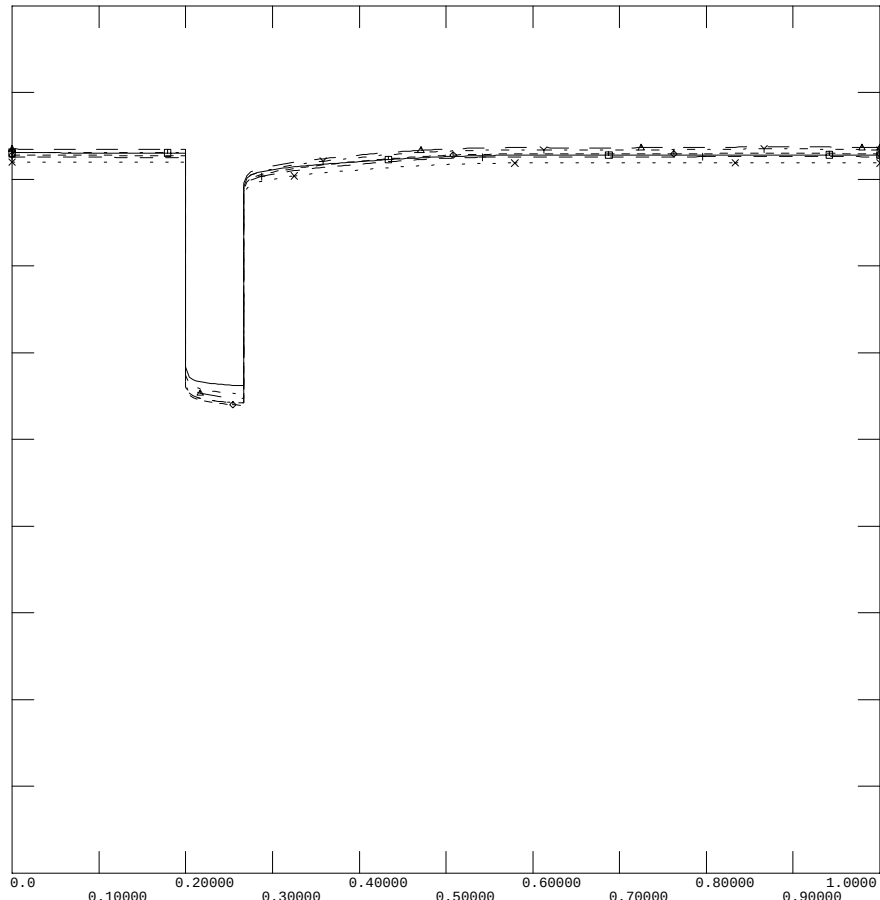
THU, FEB 13 2003 14:48  
VOLTAGE 2 CON33 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON33-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



TIME (SECONDS)

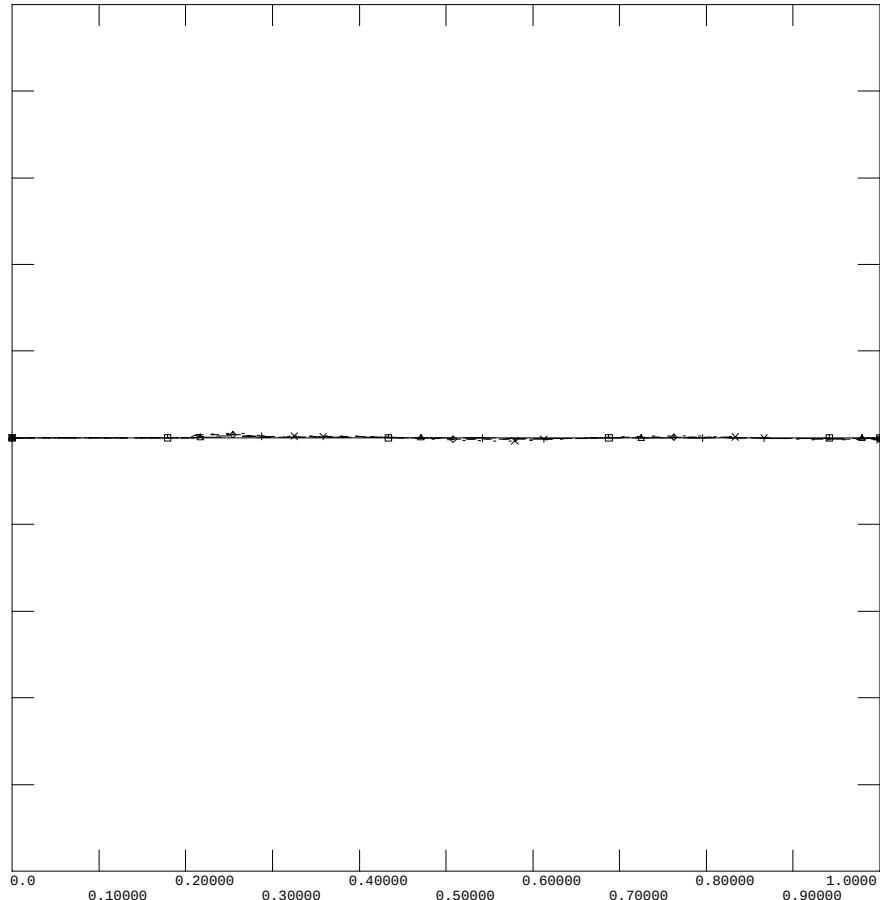
THU, FEB 13 2003 14:48  
VOLTAGE 3 CON33 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON33-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1.22.000]]  | -0.0500 |



TIME (SECONDS)

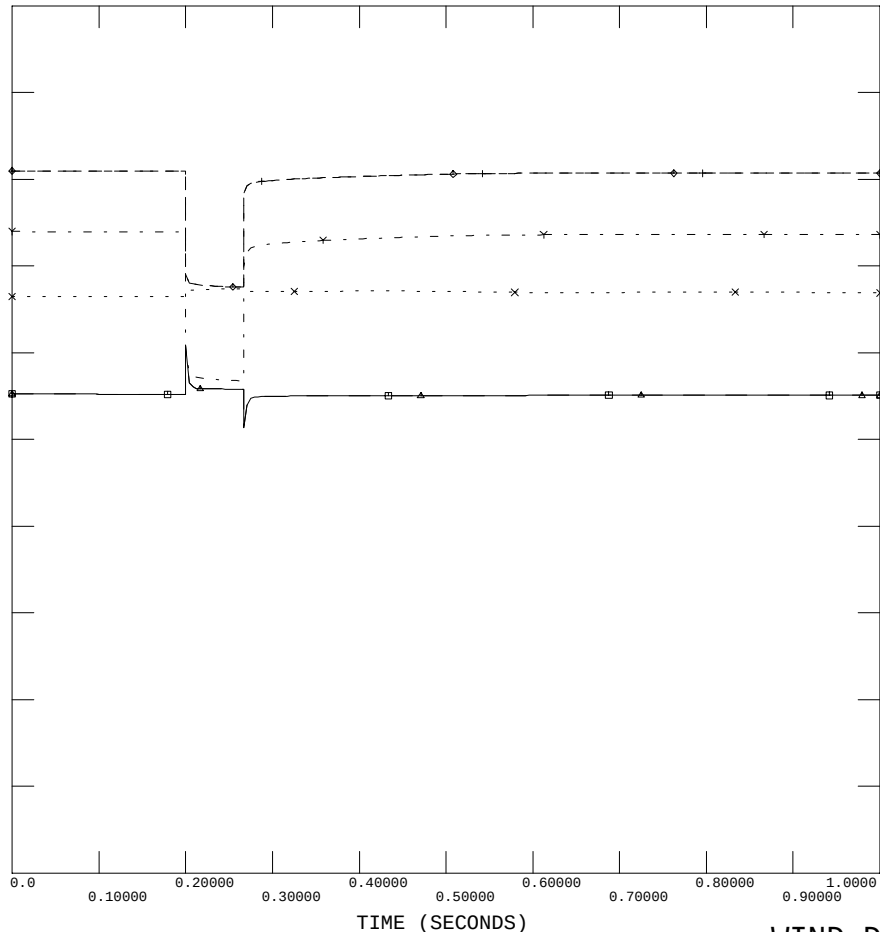
THU, FEB 13 2003 14:48  
FREQUENCY CON33 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON33-ON\_1ph.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB.KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [GOB.KNOB34.500]] | -180.0  |
| 180.00 | CHNL# 356: [POKR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POKR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



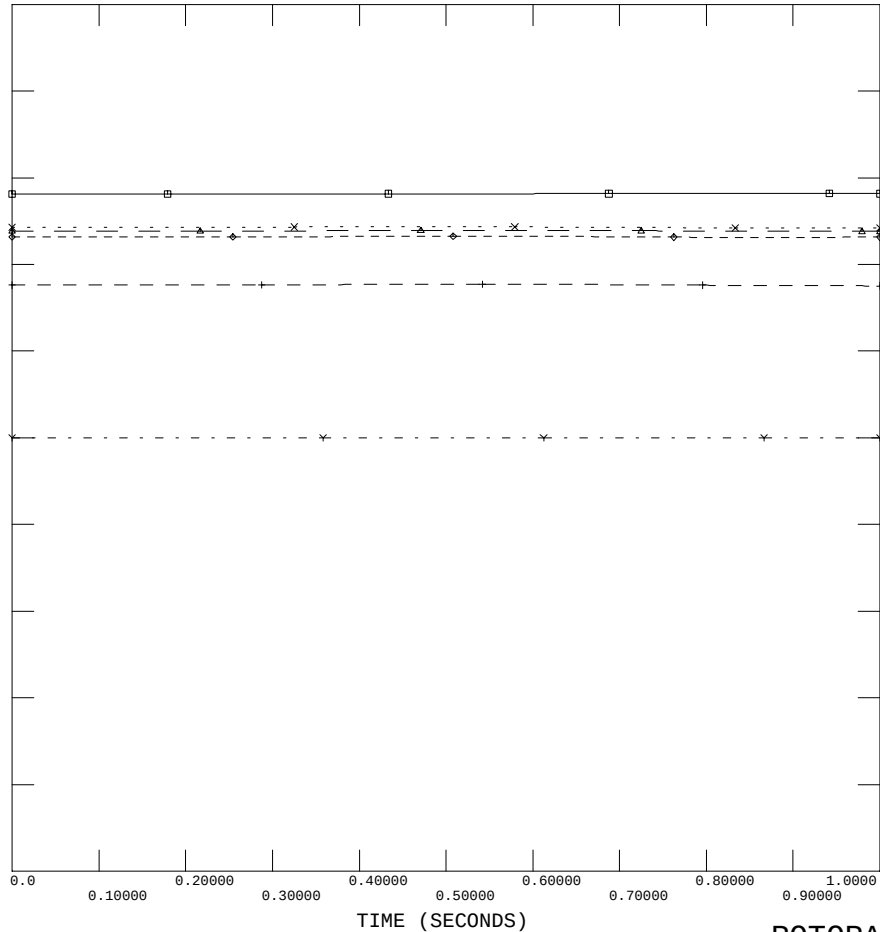
THU, FEB 13 2003 14:48  
WIND DATA CON33 1PH 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON36-ON\_1ph.OUT

|        |                                                |        |
|--------|------------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [GOB.KNOB34.500]] [1.1] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000]] [1.1]  | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000]] [1.1]   | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000]] [1.1]  | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800]] [1.1]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000]] [1.1]  | -180.0 |



THU, FEB 13 2003 14:48  
ROTORANGLES 1 CON36 1PH 1



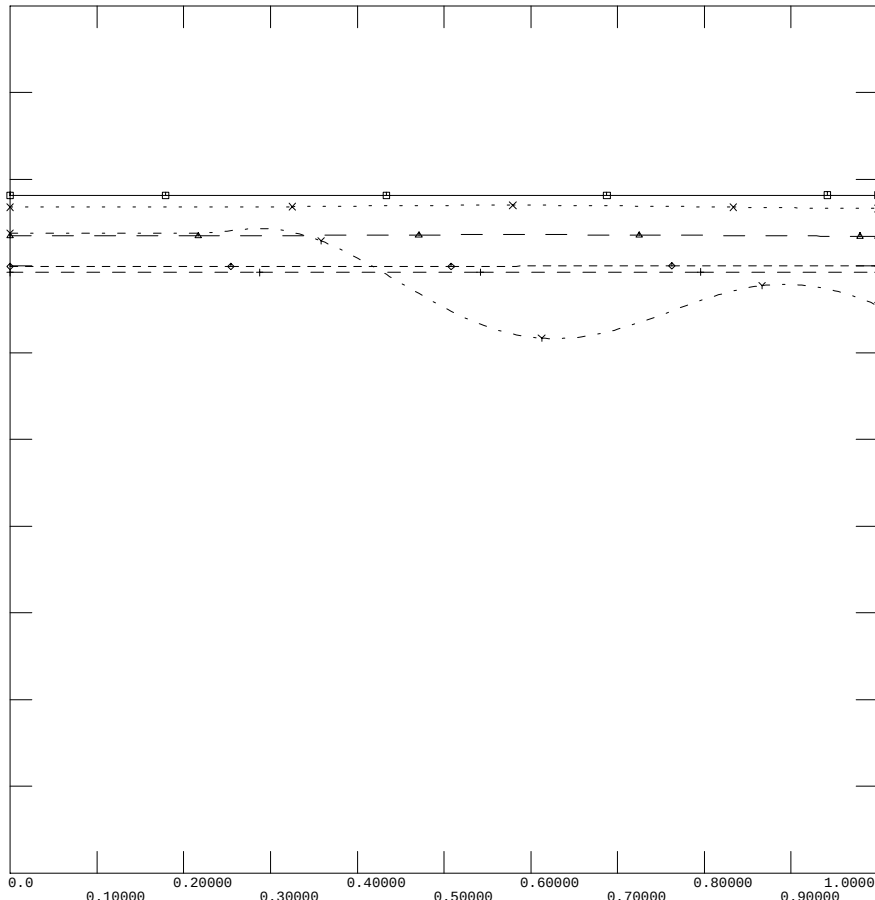


POWER  
TIC  
WIND LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON36-ON\_1ph.0UT

|        |           |                                    |        |
|--------|-----------|------------------------------------|--------|
| 180.00 | CHNL# 18: | [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: | [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5:  | [ANGL 70035 [ARAP4 13.800] [1.]]   | -180.0 |
| 180.00 | CHNL# 15: | [ANGL 70106 [CHEROK4 22.000] [1.]] | -180.0 |
| 180.00 | CHNL# 96: | [ANGL 73532 [LINCOLN113.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: | [ANGL 79015 [CRAIG 1.22.000] [1.]] | -180.0 |



TIME (SECONDS)

THU, FEB 13 2003 14:48  
ROTORANGLES 2 CON36 1PH 1

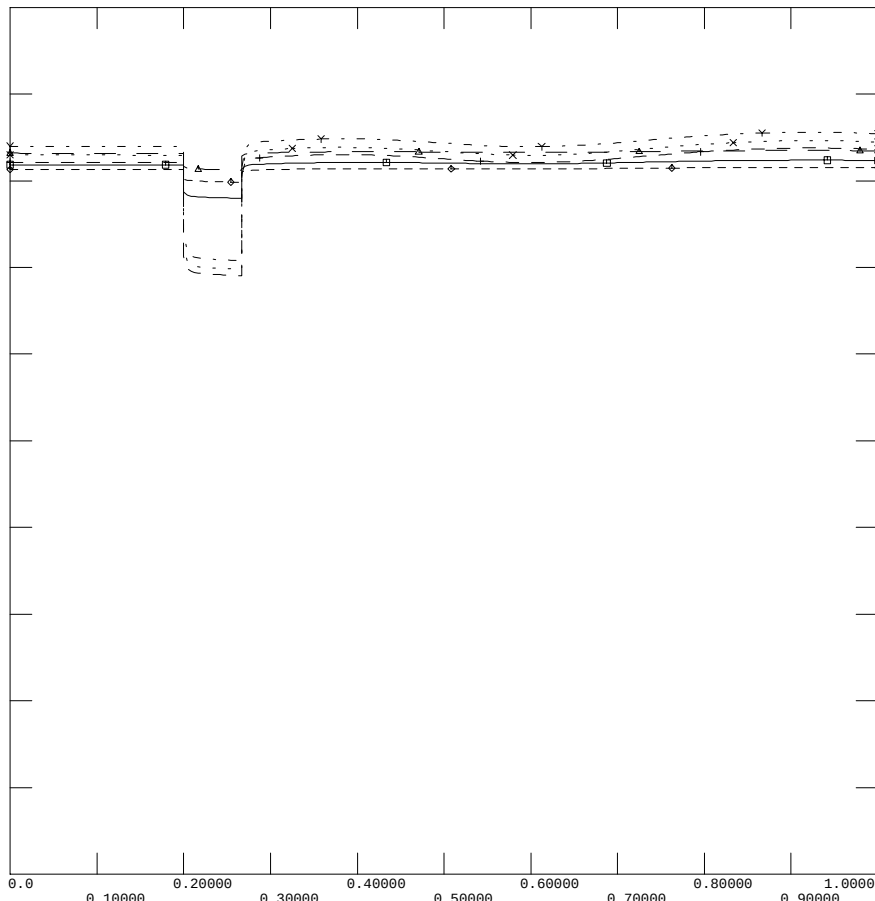


POWER  
TIC  
WIND LOADS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON36-ON\_1ph.0UT

|        |            |                               |         |
|--------|------------|-------------------------------|---------|
| 1.2000 | CHNL# 220: | [VOLT 70701 [GOB KNOB34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: | [VOLT 70700 [GOB KNOB230.00]] | 0.20000 |
| 1.2000 | CHNL# 205: | [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: | [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: | [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: | [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



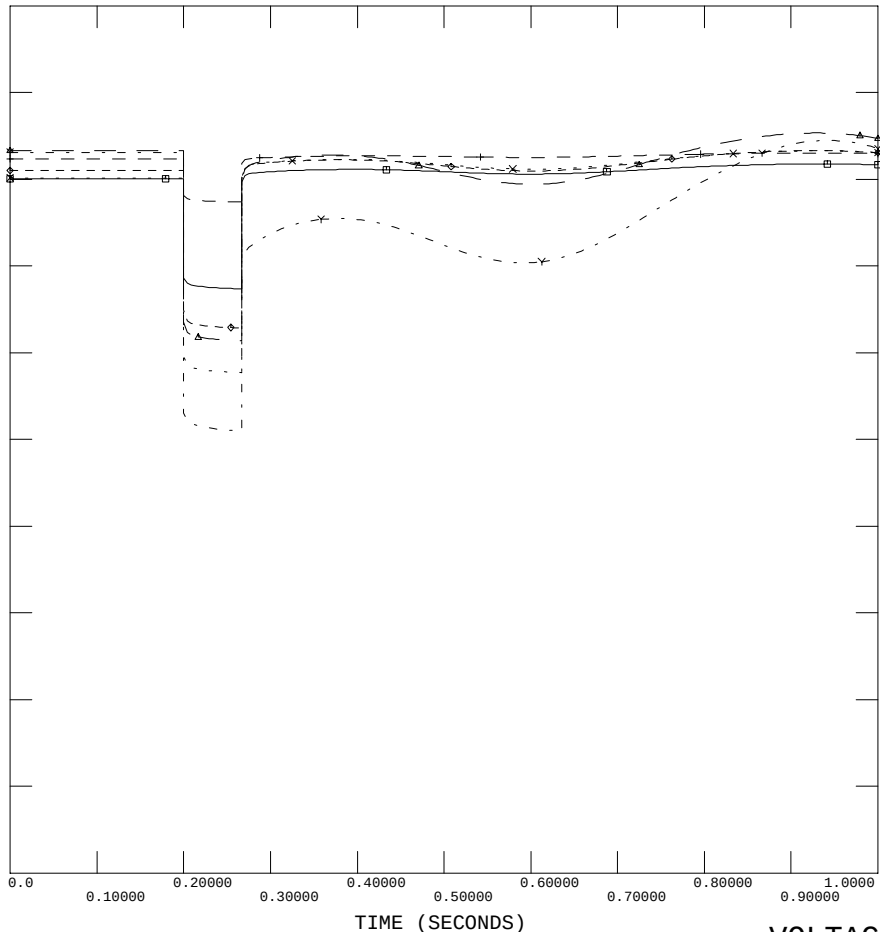
TIME (SECONDS)

THU, FEB 13 2003 14:48  
VOLTAGE 1 CON36 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON36-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

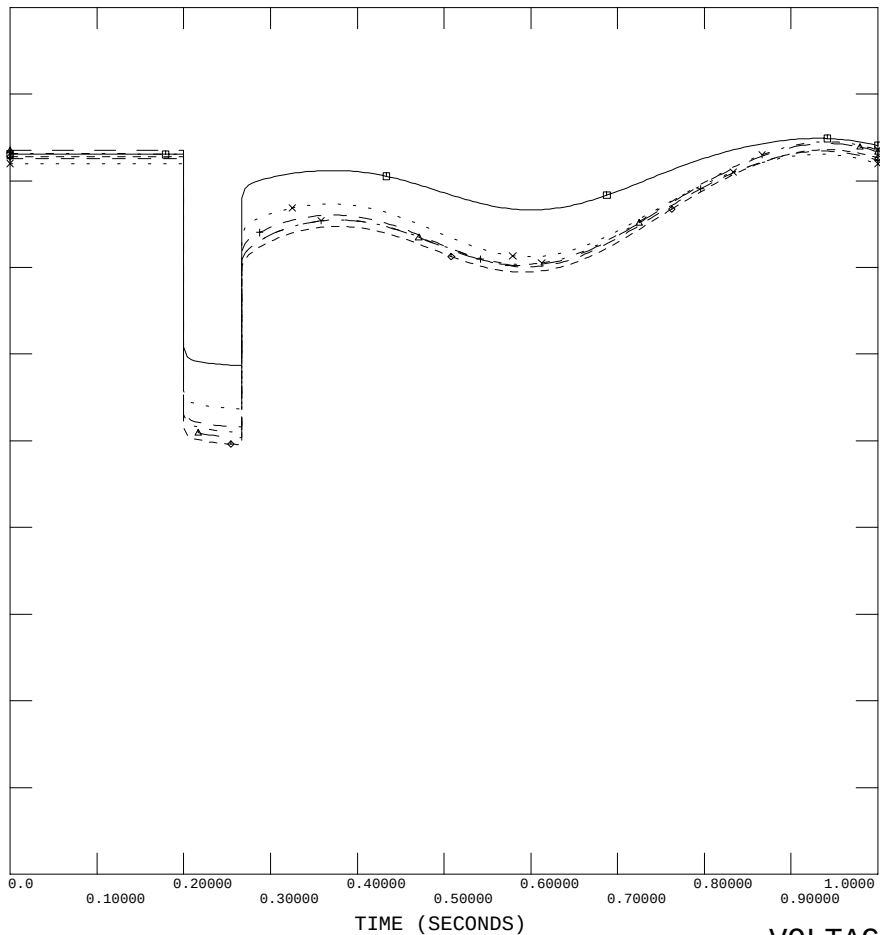


THU, FEB 13 2003 14:48  
VOLTAGE 2 CON36 1PH 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON36-ON\_1ph.0UT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRANADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



THU, FEB 13 2003 14:48  
VOLTAGE 3 CON36 1PH 162MW

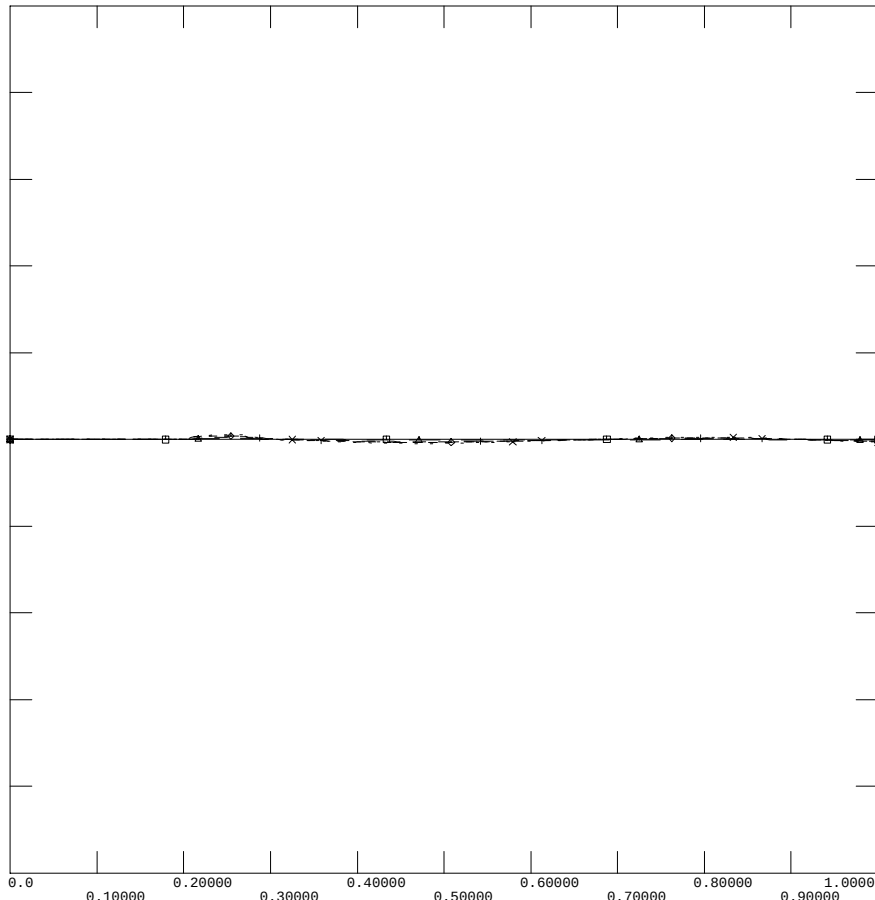


POWER  
TIC  
0.001615

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON36-ON\_1ph.0UT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



THU, FEB 13 2003 14:48

FREQUENCY CON36 1PH 162MW

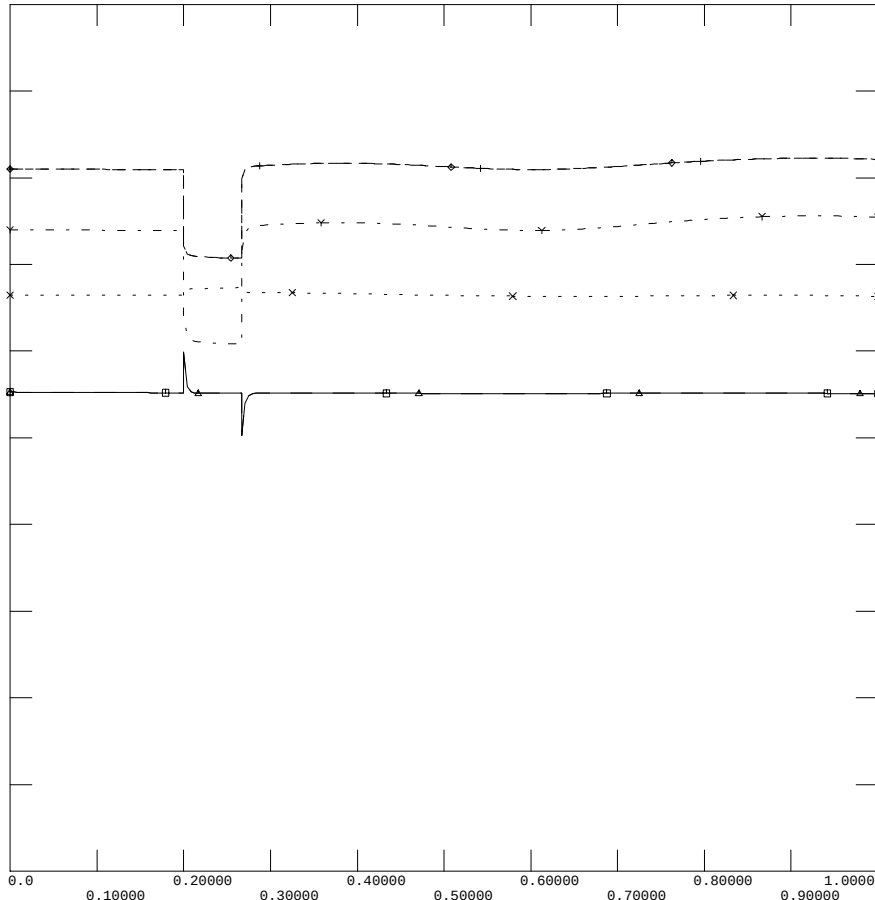


POWER  
TIC  
0.001615

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25/02, WIND 162 MW

FILE: CON36-ON\_1ph.0UT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [GOB KNOB34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [GOB KNOB34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



THU, FEB 13 2003 14:48

WIND DATA CON36 1PH 162MW



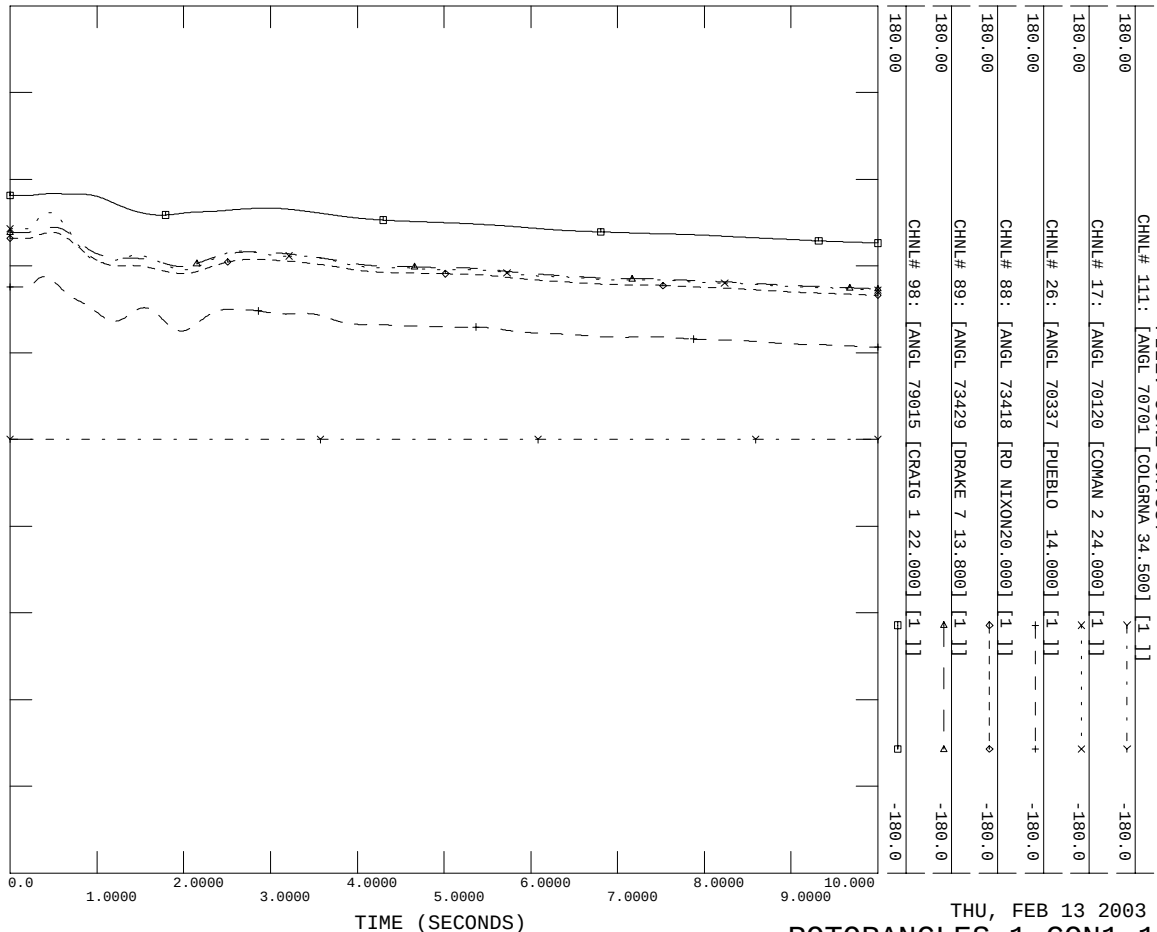
**D-7 - 1-Phase Stability Analysis**

**2003 Base Case**

**With Golden Prairie – Lamar 230-kV Circuit, With Detailed Wind Farm  
Representation**



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON1 - FAULT ON BOONE - LAMAR 230 [BOONE END]  
FILE: CON1-ON.OUT

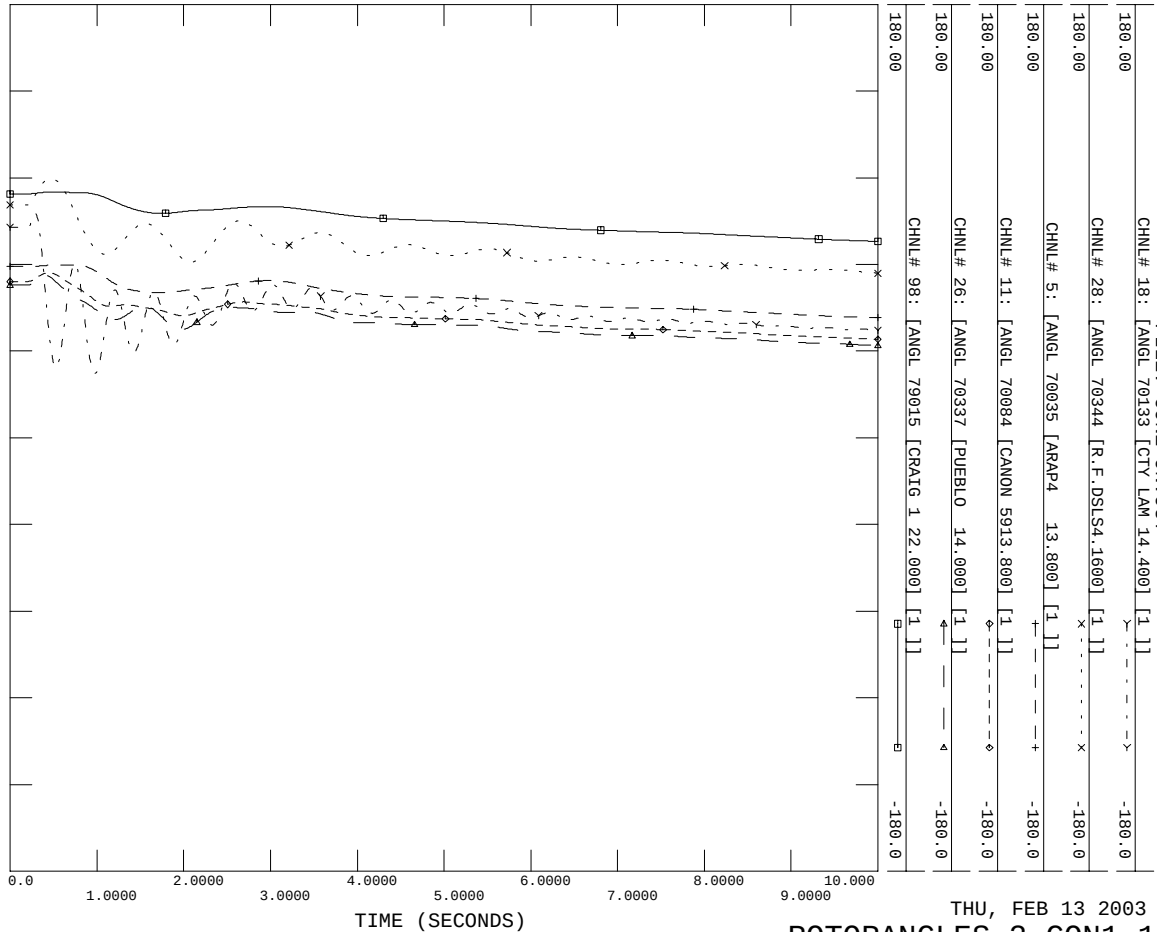


THU, FEB 13 2003 16:22

ROTORANGLES 1 CON1 162MW

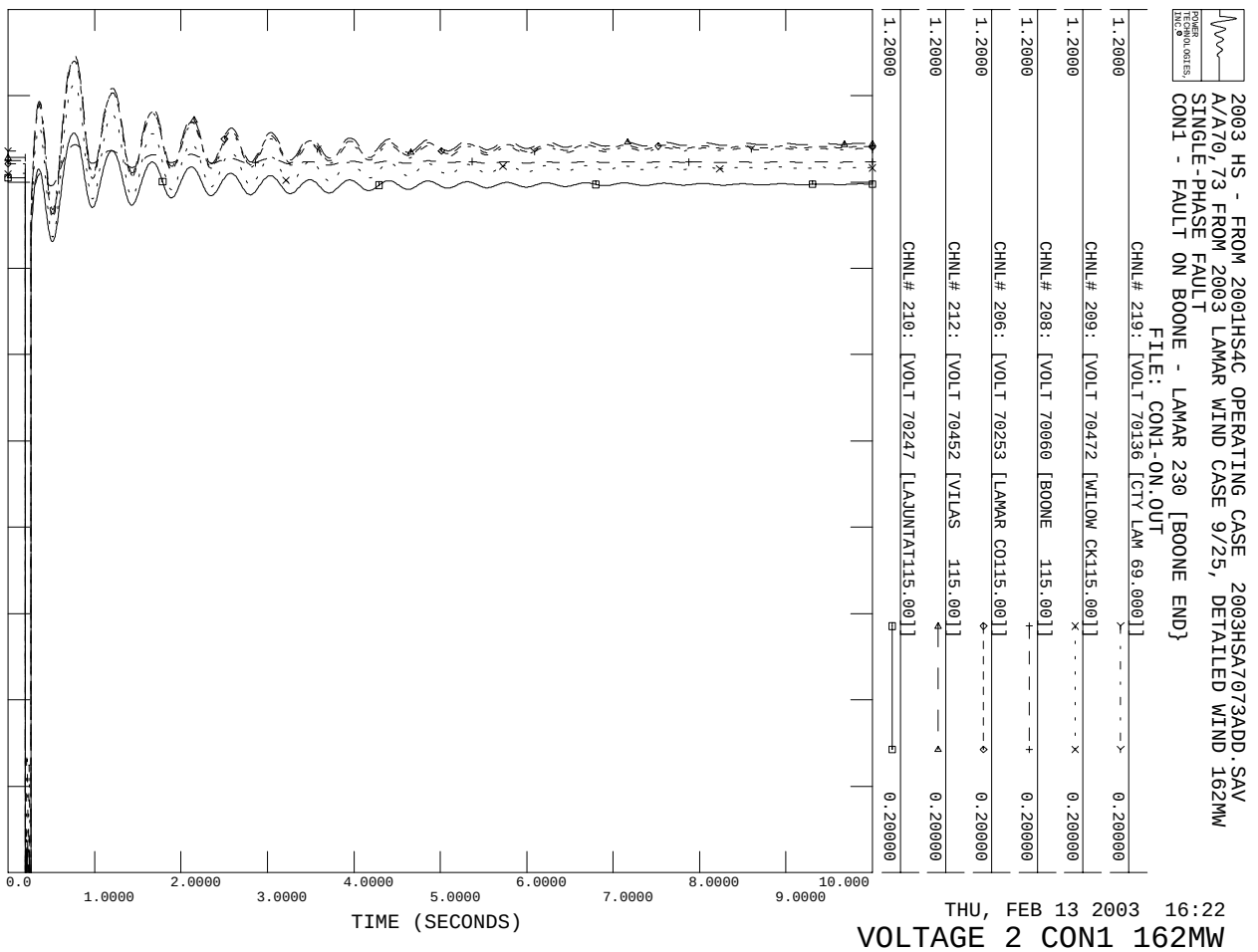
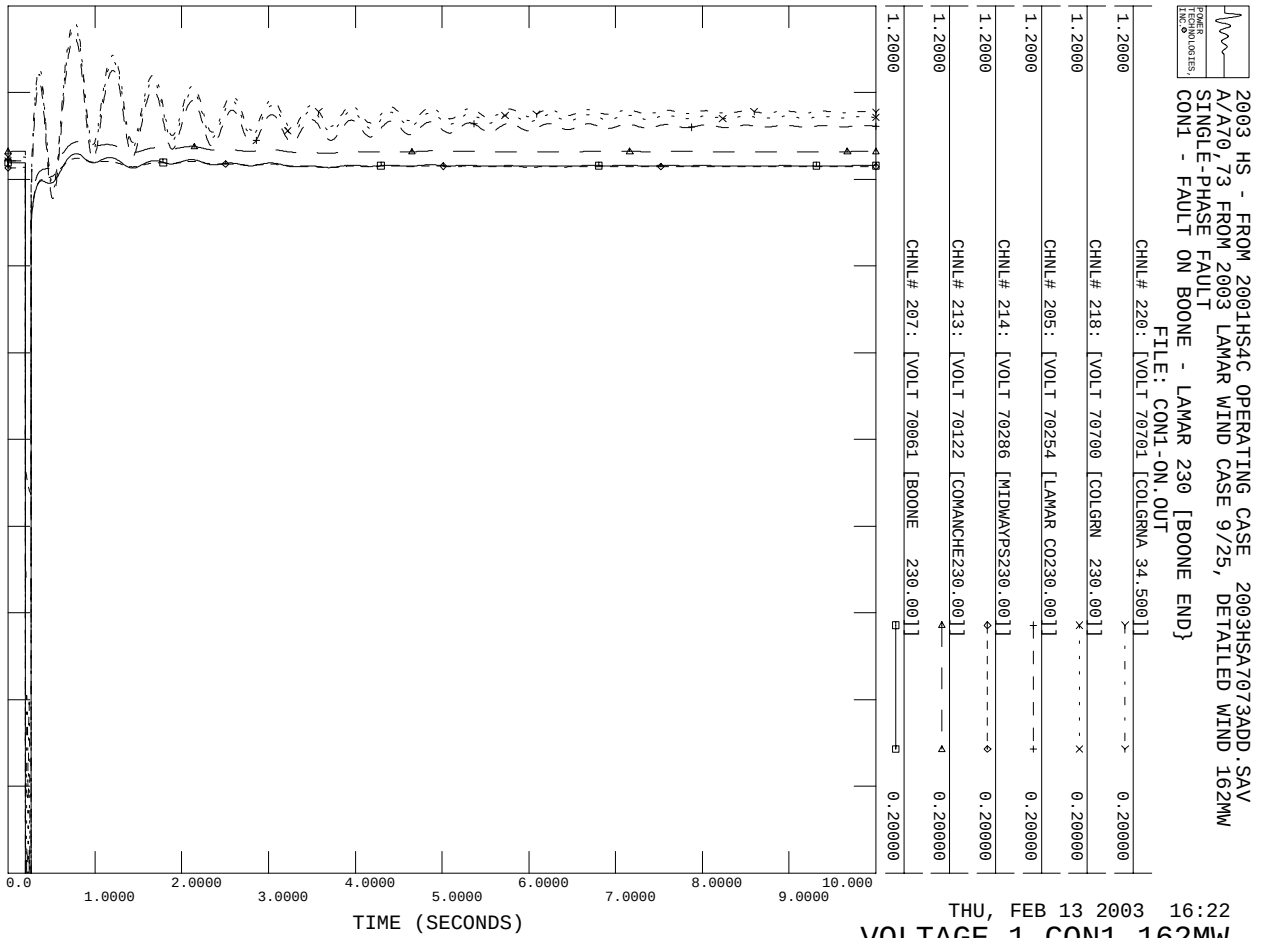


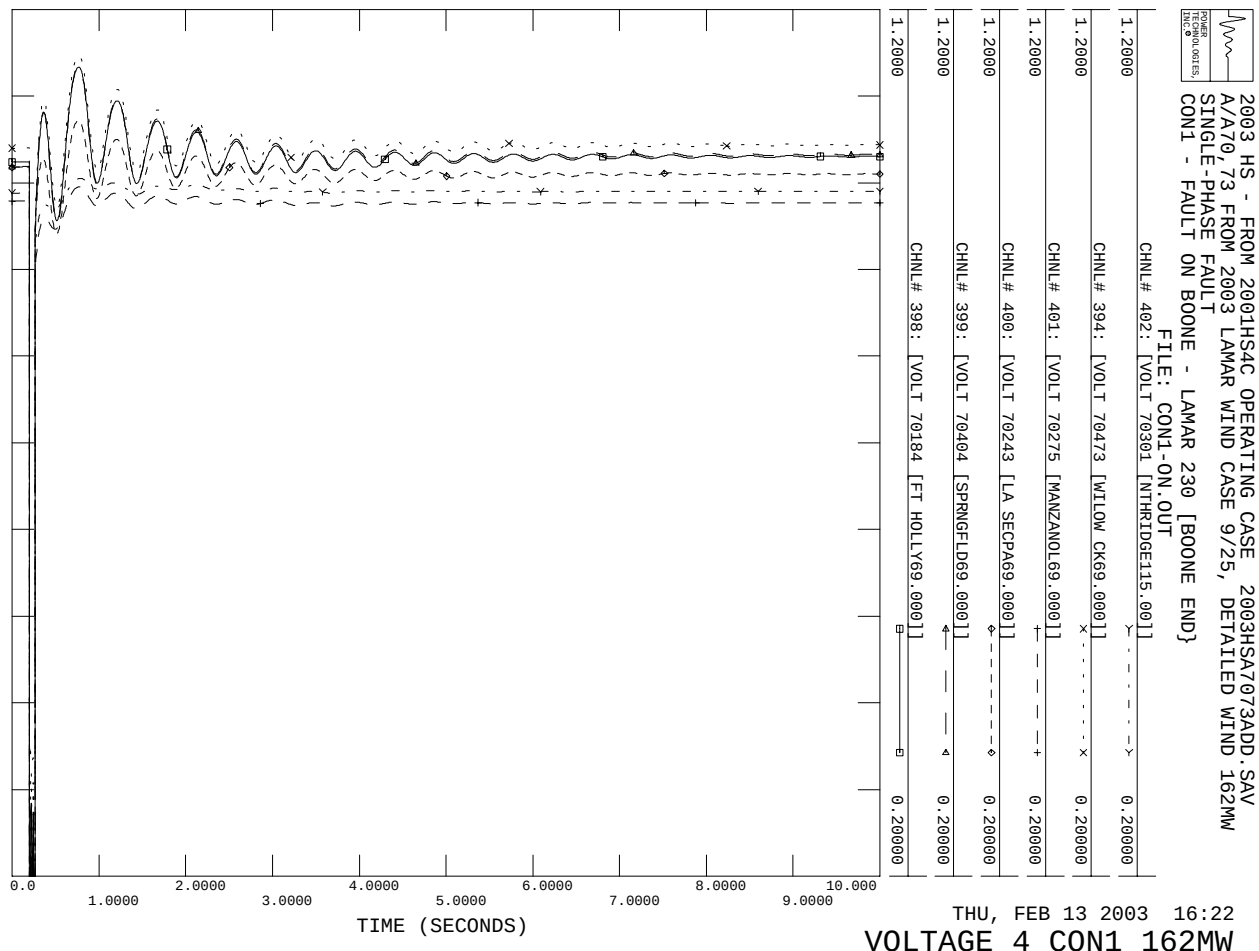
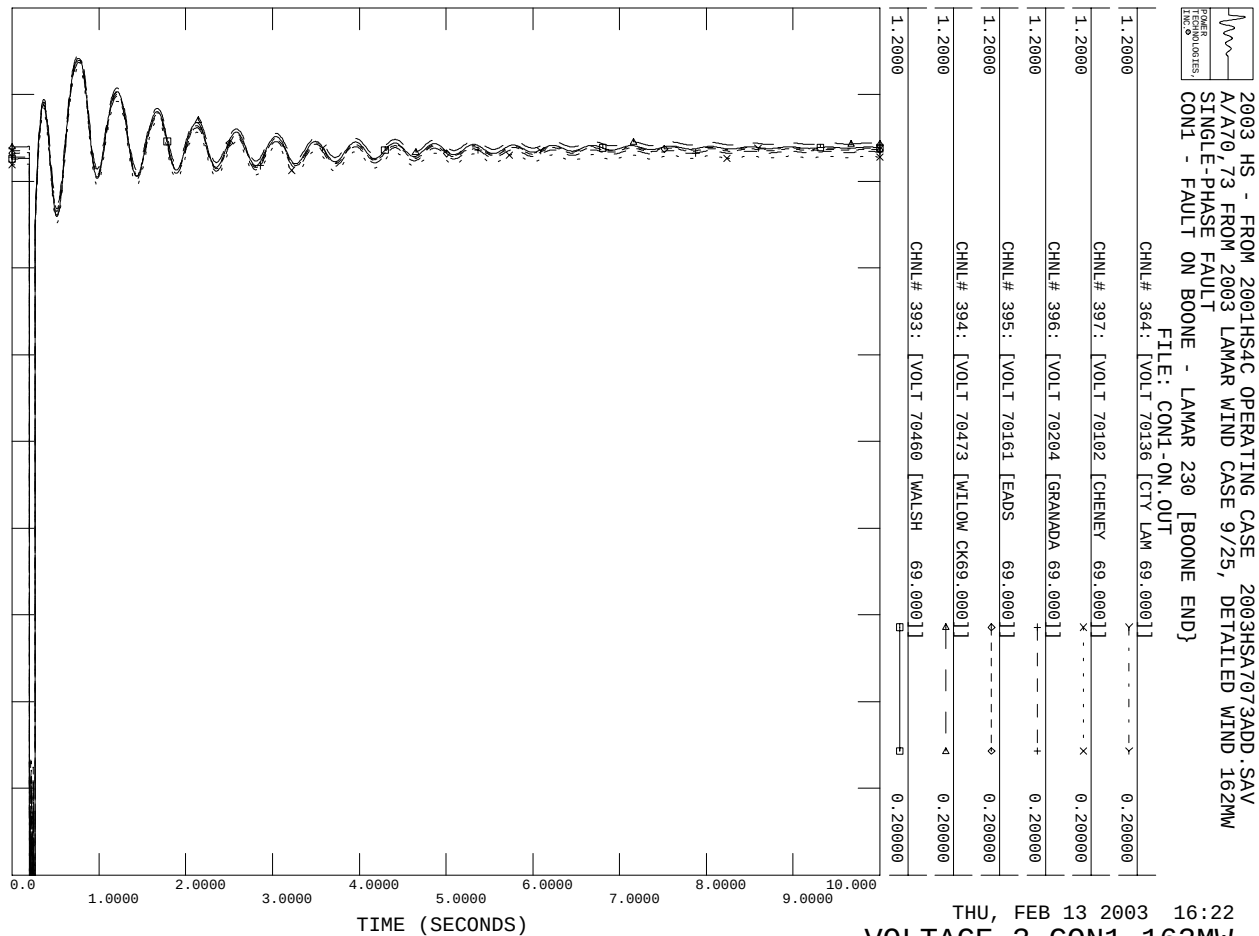
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON1 - FAULT ON BOONE - LAMAR 230 [BOONE END]  
FILE: CON1-ON.OUT



THU, FEB 13 2003 16:22

ROTORANGLES 2 CON1 162MW



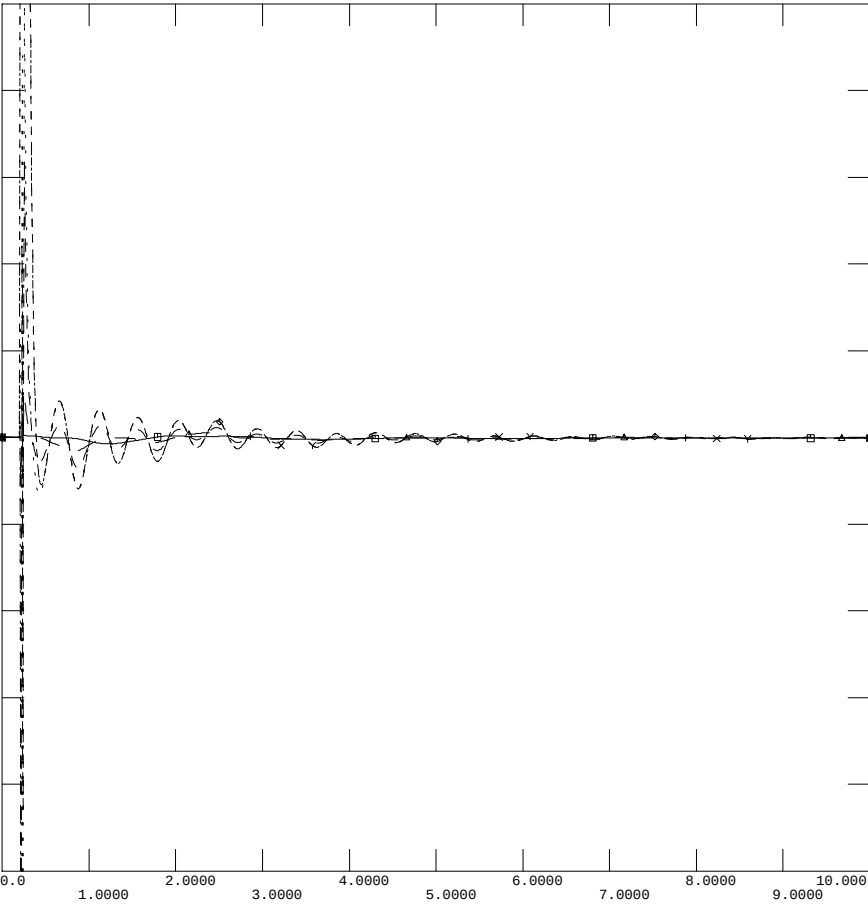






2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON1 - FAULT ON BOONE - LAMAR 230 [BOONE END]  
FILE: CON1-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

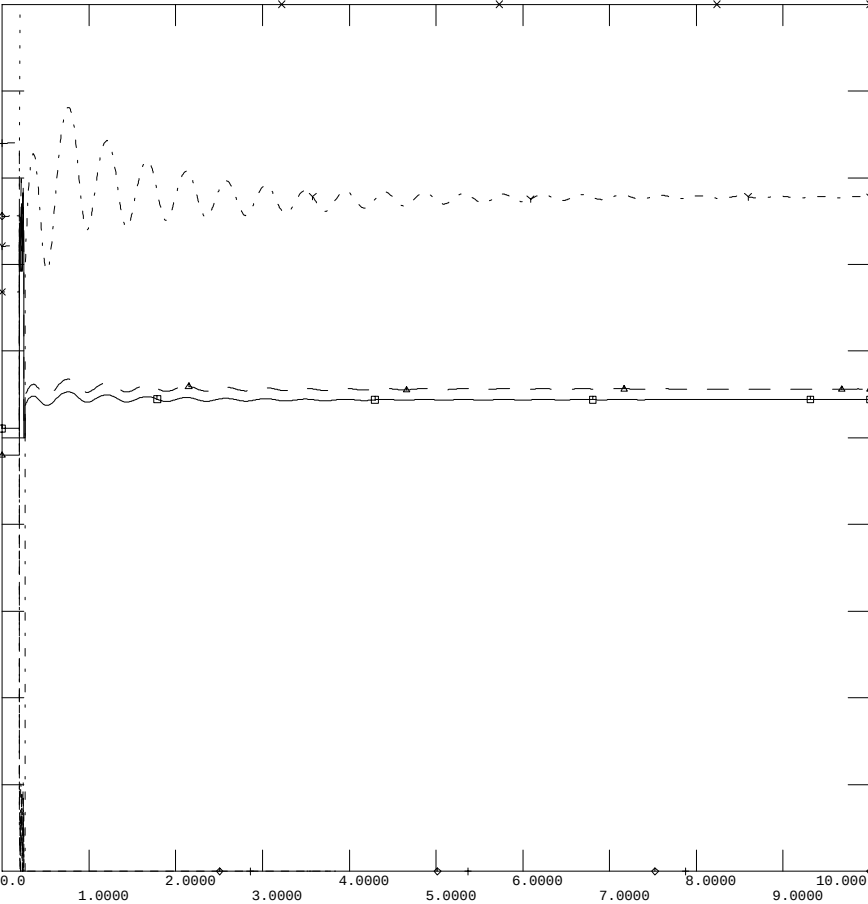


THU, FEB 13 2003 16:22  
FREQUENCY CON1 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON1 - FAULT ON BOONE - LAMAR 230 [BOONE END]  
FILE: CON1-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG1 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

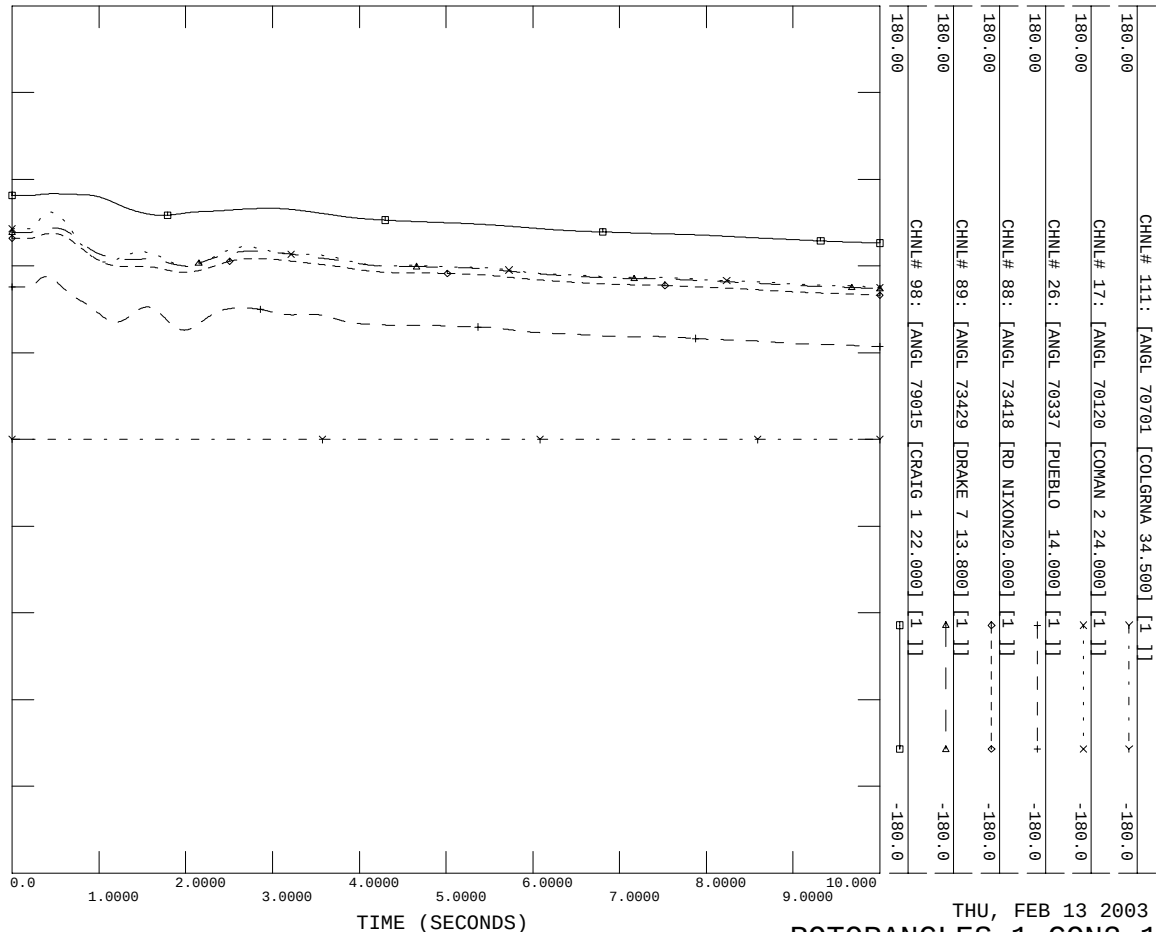


THU, FEB 13 2003 16:22  
WIND DATA CON1 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]

FILE: CON2-ON.OUT



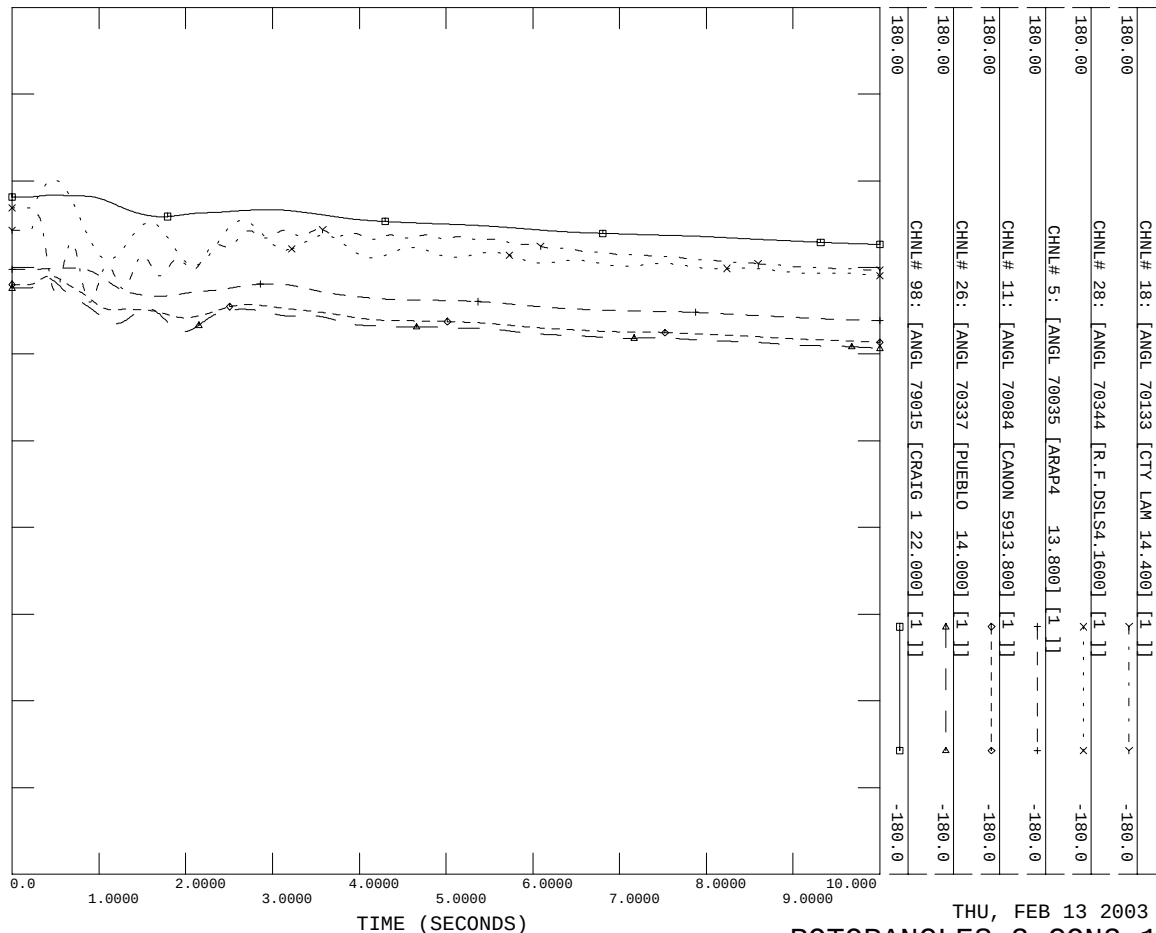
THU, FEB 13 2003 16:22

ROTORANGLES 1 CON2 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]

FILE: CON2-ON.OUT



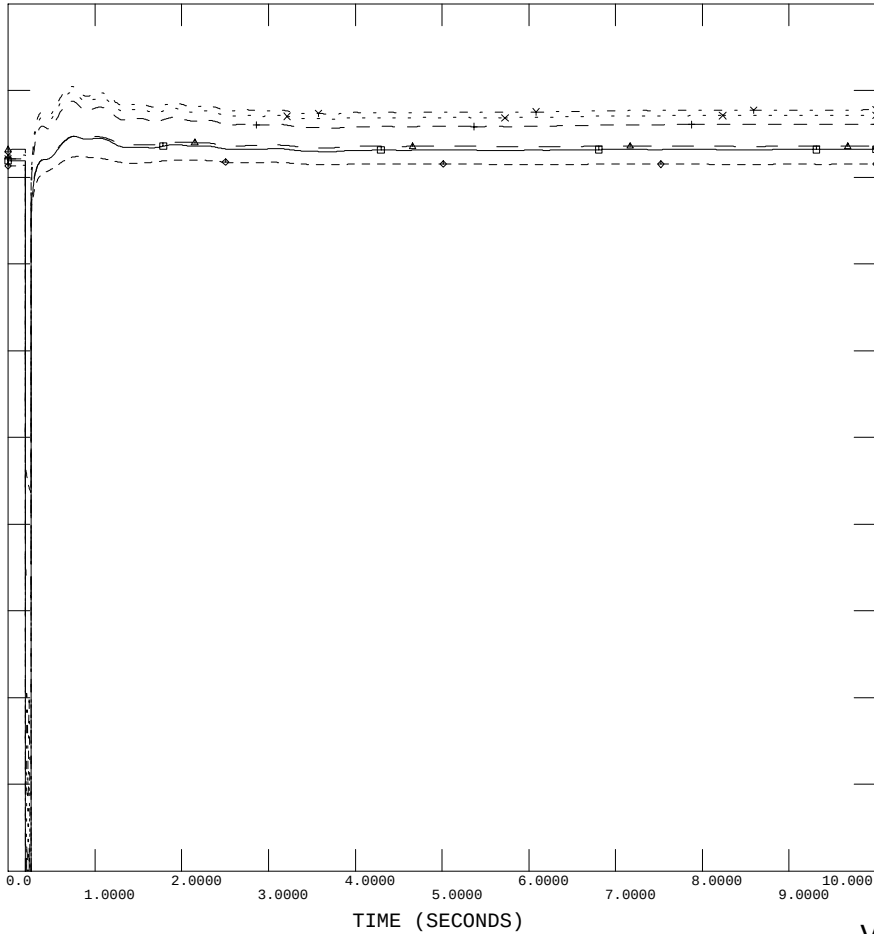
THU, FEB 13 2003 16:22

ROTORANGLES 2 CON2 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]  
FILE: CON2-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

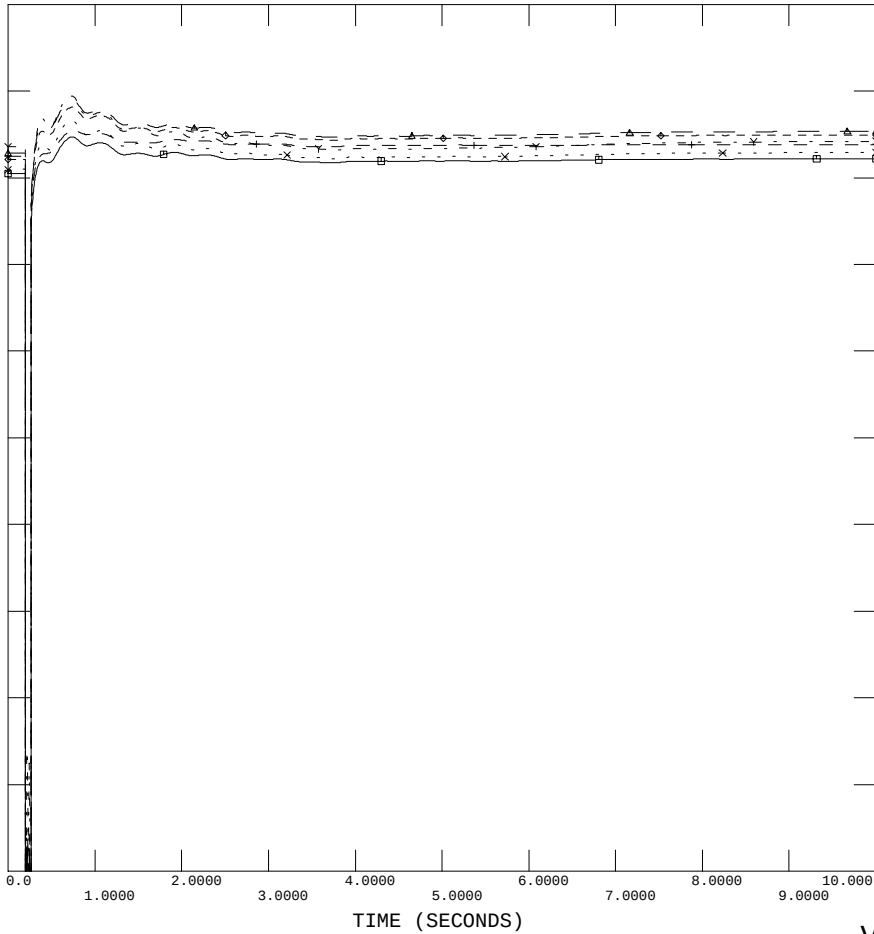


THU, FEB 13 2003 16:22  
VOLTAGE 1 CON2 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]  
FILE: CON2-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

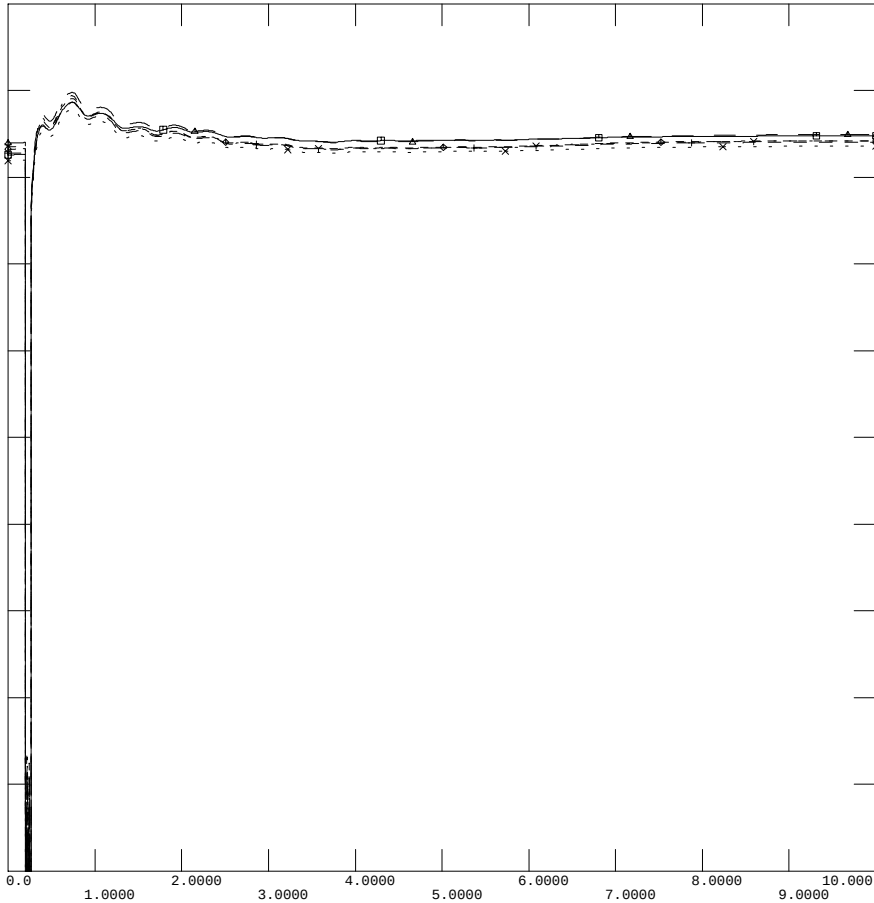


THU, FEB 13 2003 16:22  
VOLTAGE 2 CON2 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]  
FILE: CON2-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

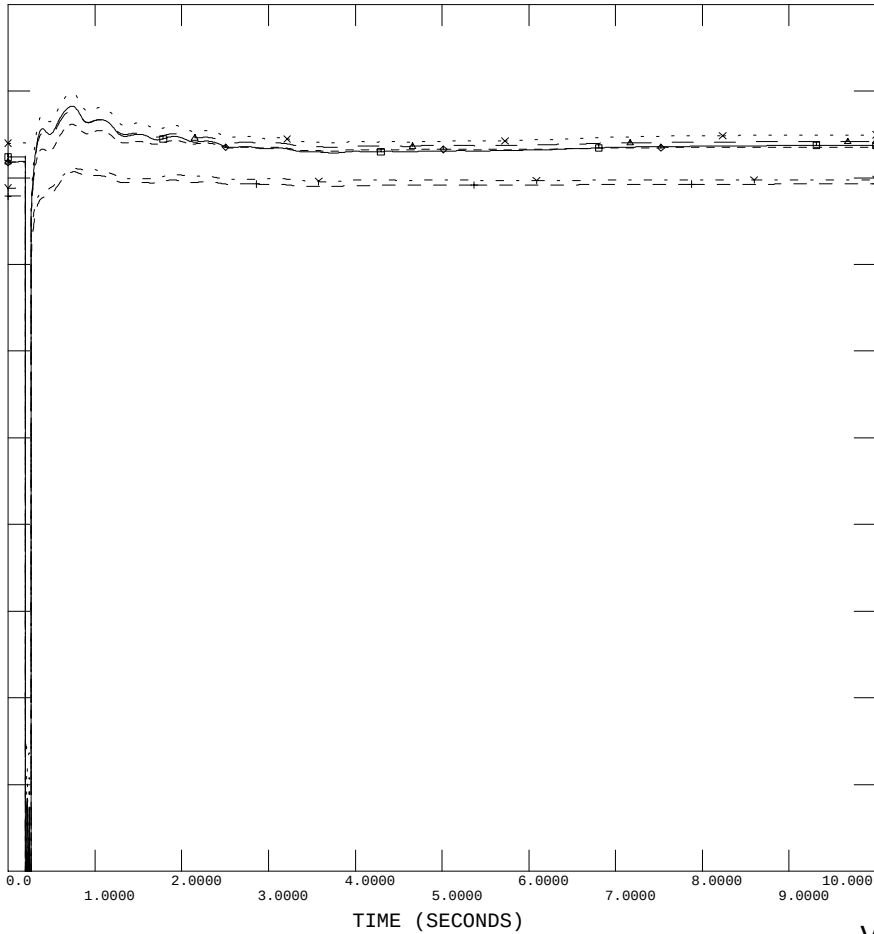


THU, FEB 13 2003 16:22  
VOLTAGE 3 CON2 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]  
FILE: CON2-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRINGFLD69.000]] | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |



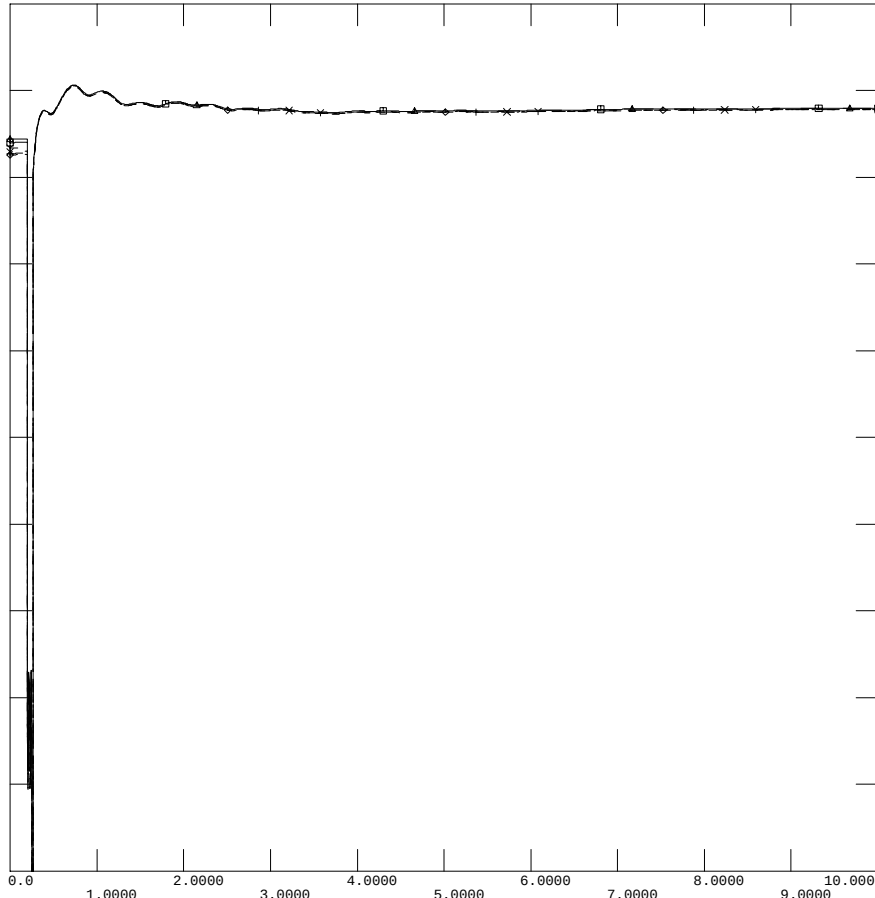
THU, FEB 13 2003 16:22  
VOLTAGE 4 CON2 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON2 - FAULT ON BOONE [BOONE END]

FILE: CON2-ON.OUT

|        |                                         |         |
|--------|-----------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]  | 0.20000 |



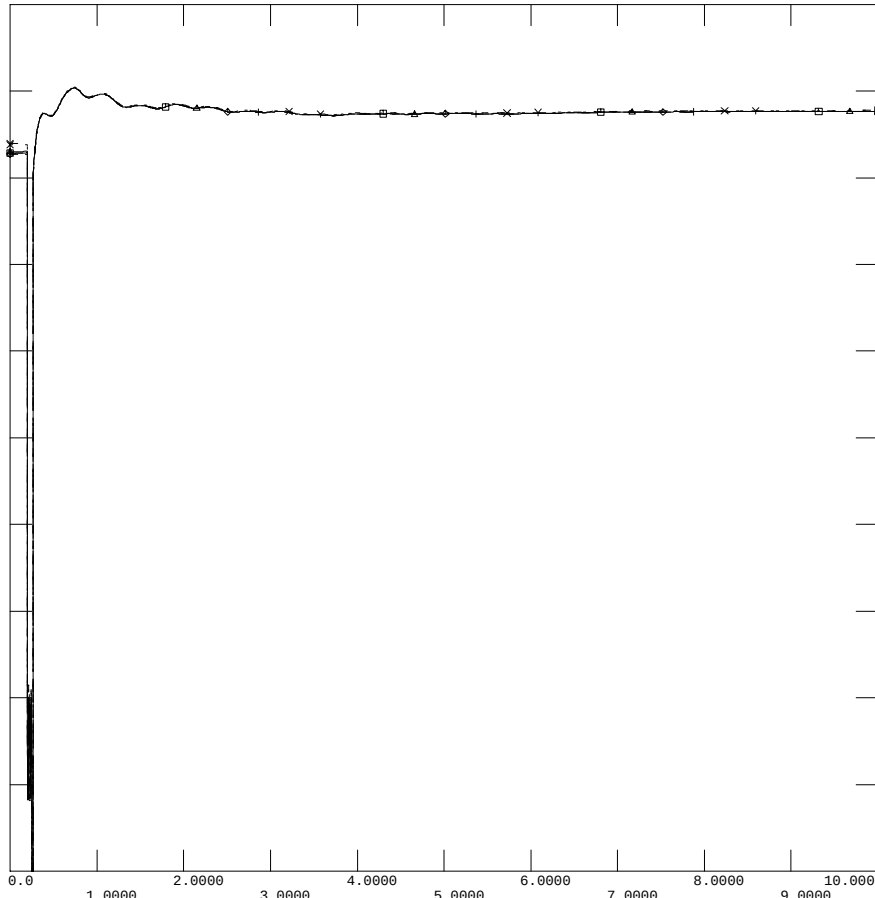
THU, FEB 13 2003 16:22  
VOLTAGE 5 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON2 - FAULT ON BOONE [BOONE END]

FILE: CON2-ON.OUT

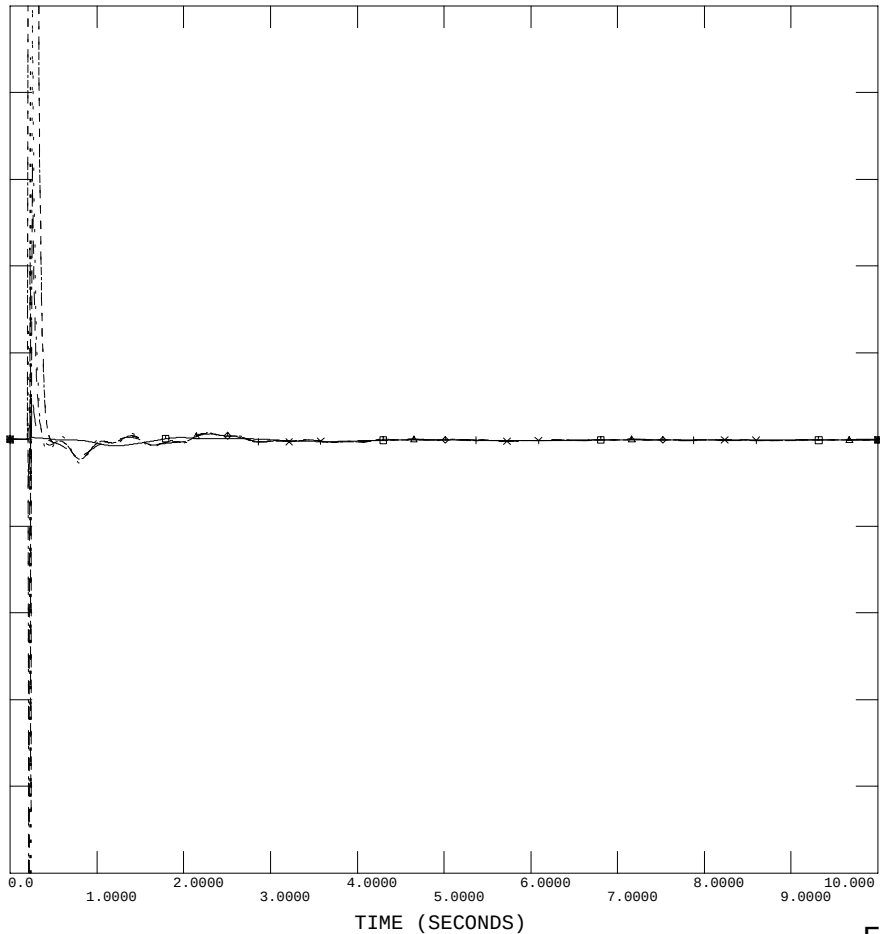
|        |                                         |         |
|--------|-----------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]  | 0.20000 |



THU, FEB 13 2003 16:22  
VOLTAGE 6 162MW

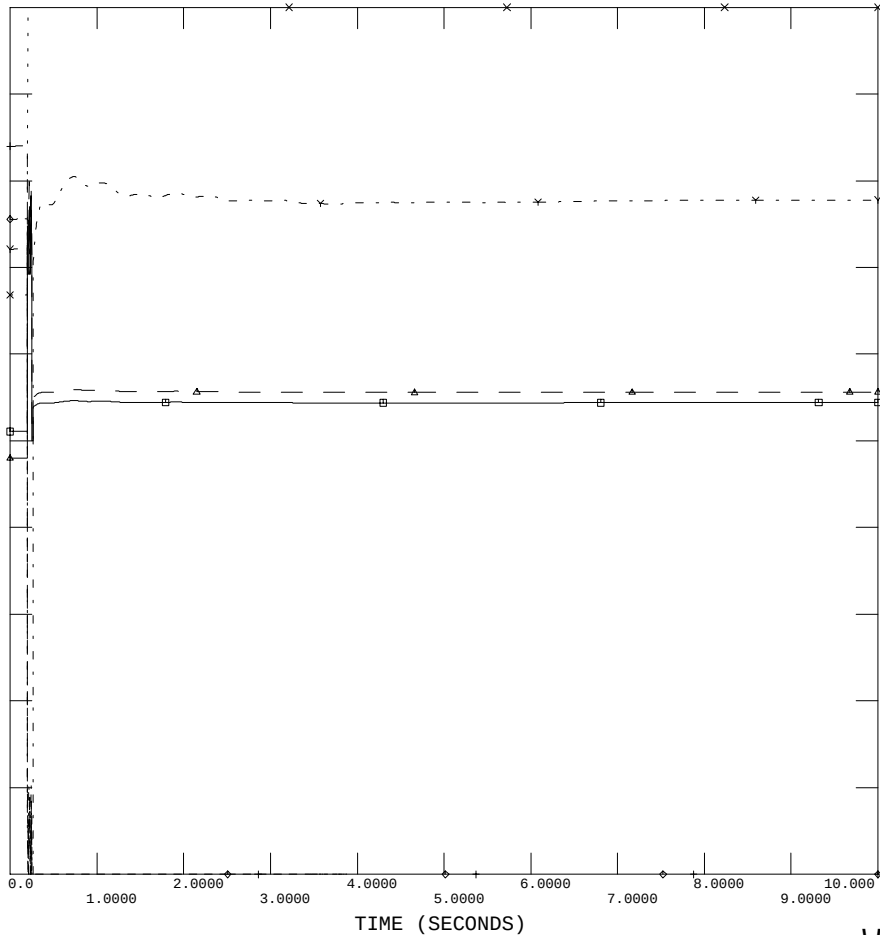
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]  
FILE: CON2-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON2 - FAULT ON BOONE - MIDWAY 230 [BOONE END]  
FILE: CON2-ON.OUT

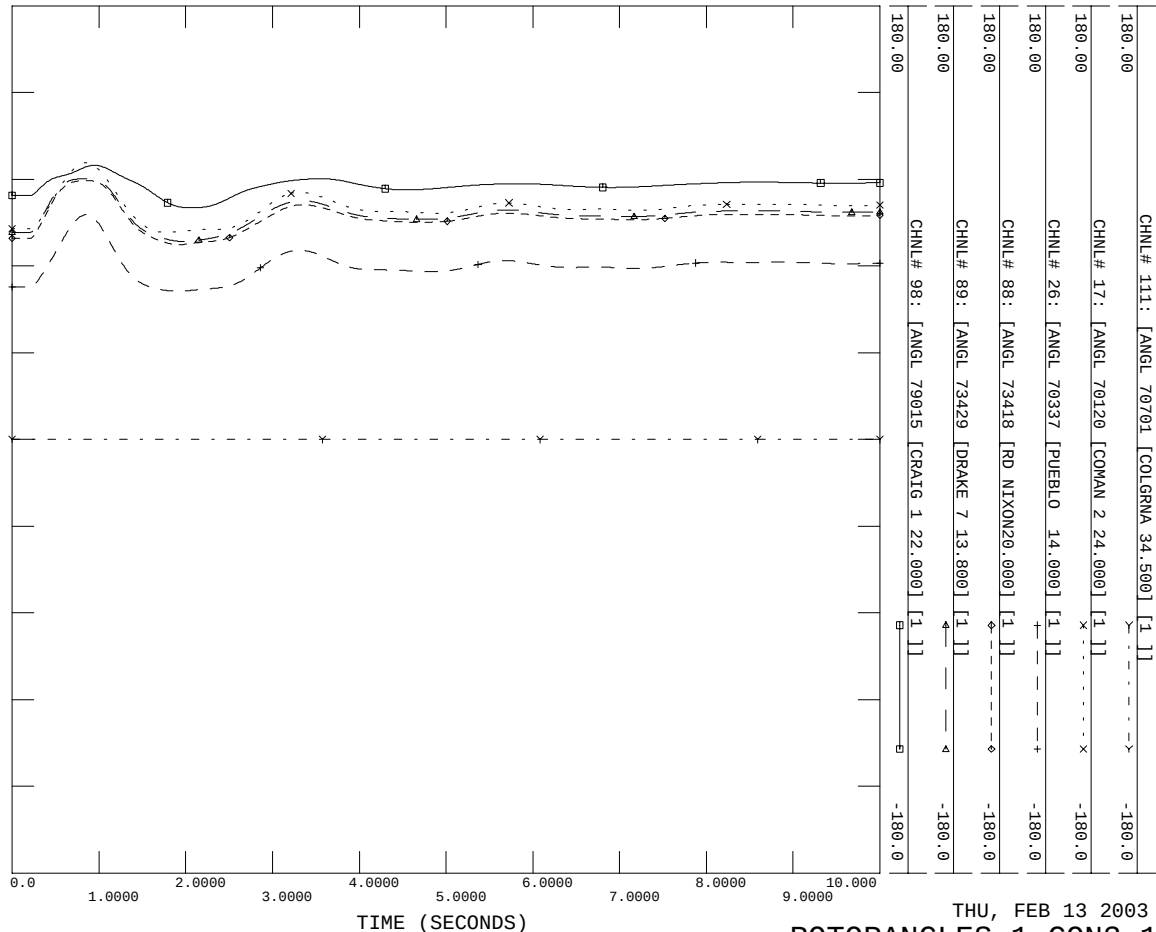
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG1 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |





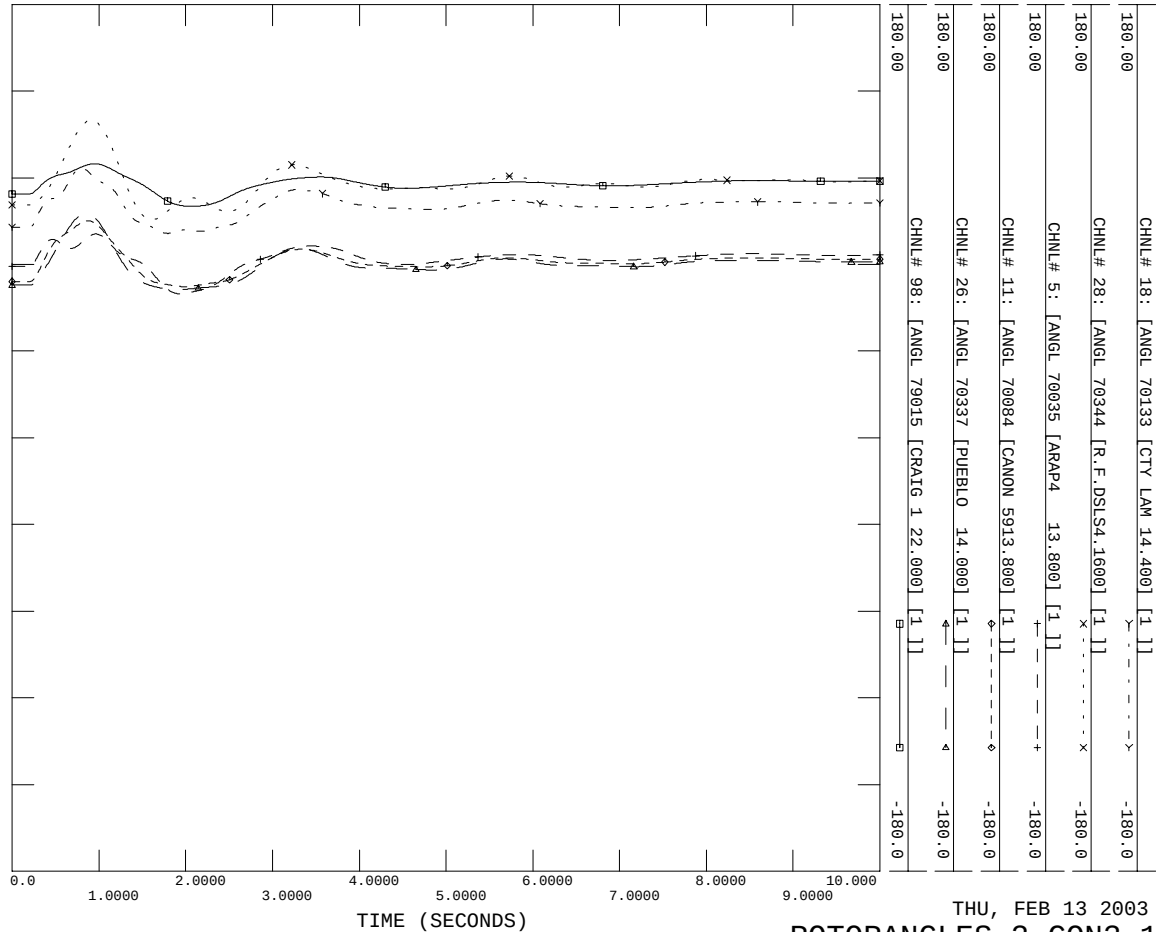
POWER  
TIC 0.001ES.

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]  
FILE: CON3-ON.OUT



POWER  
TIC 0.001ES.

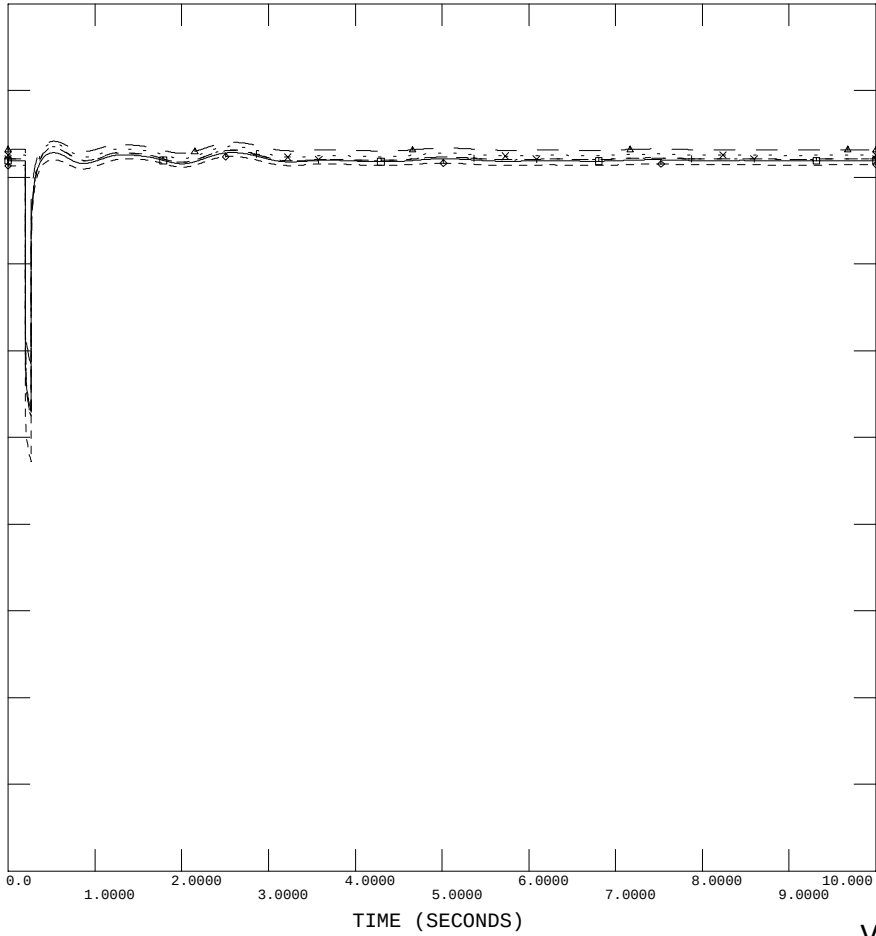
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]  
FILE: CON3-ON.OUT





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]  
FILE: CON3-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

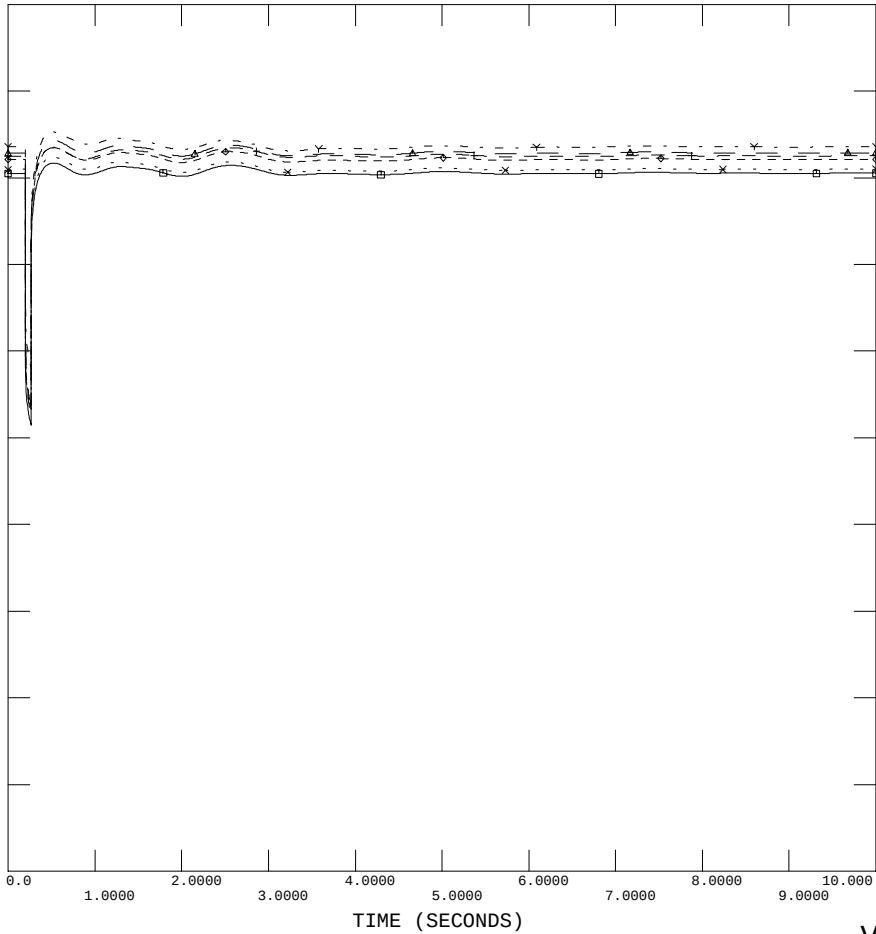


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VOLTAGE 1 CON3 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]  
FILE: CON3-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



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VOLTAGE 2 CON3 162MW

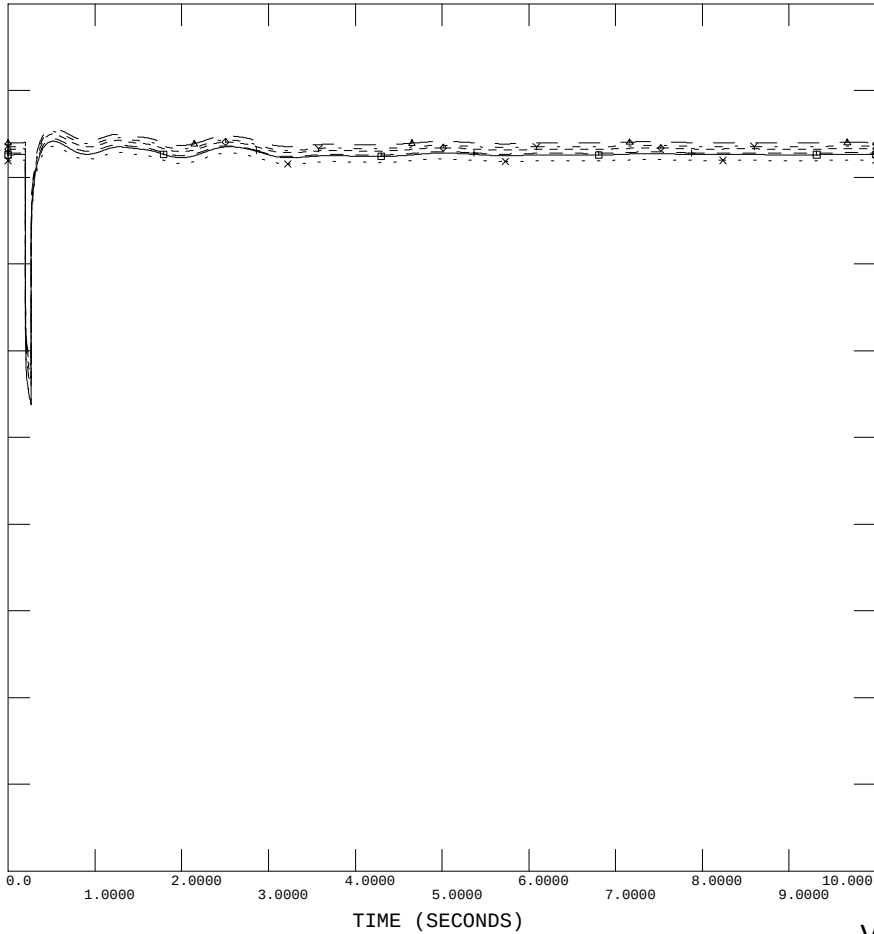




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON3-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



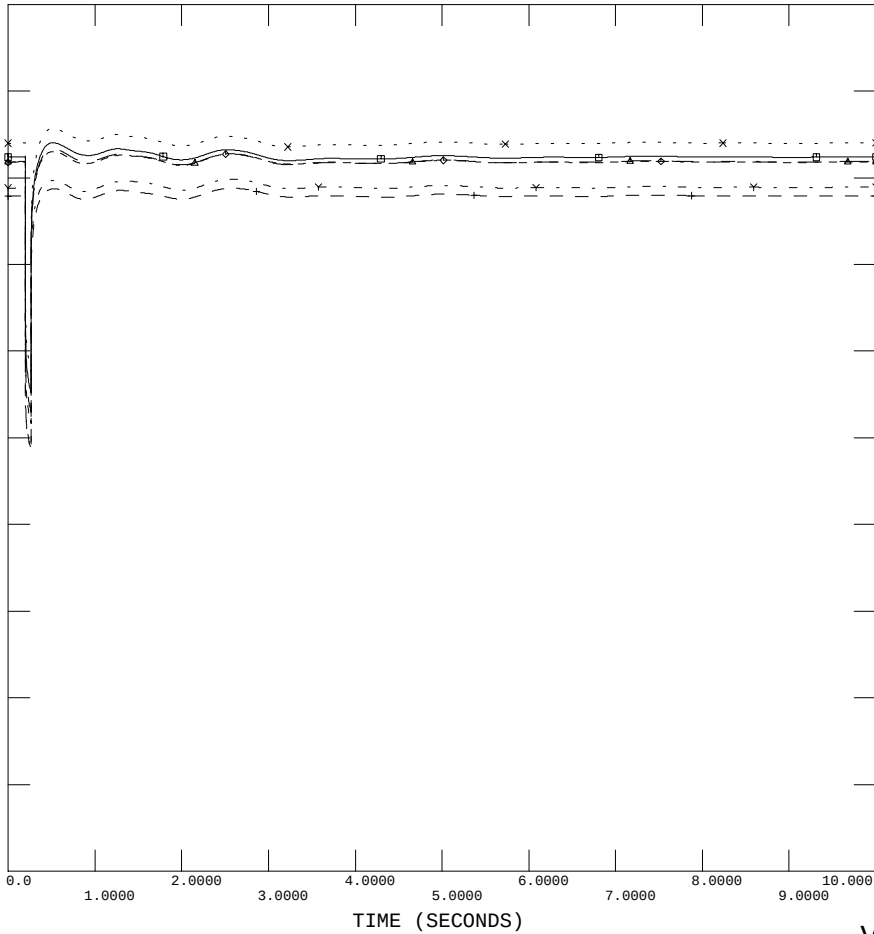
THU, FEB 13 2003 16:22  
VOLTAGE 3 CON3 162MW



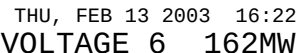
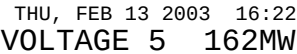
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON3-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGET15.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |



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VOLTAGE 4 CON3 162MW

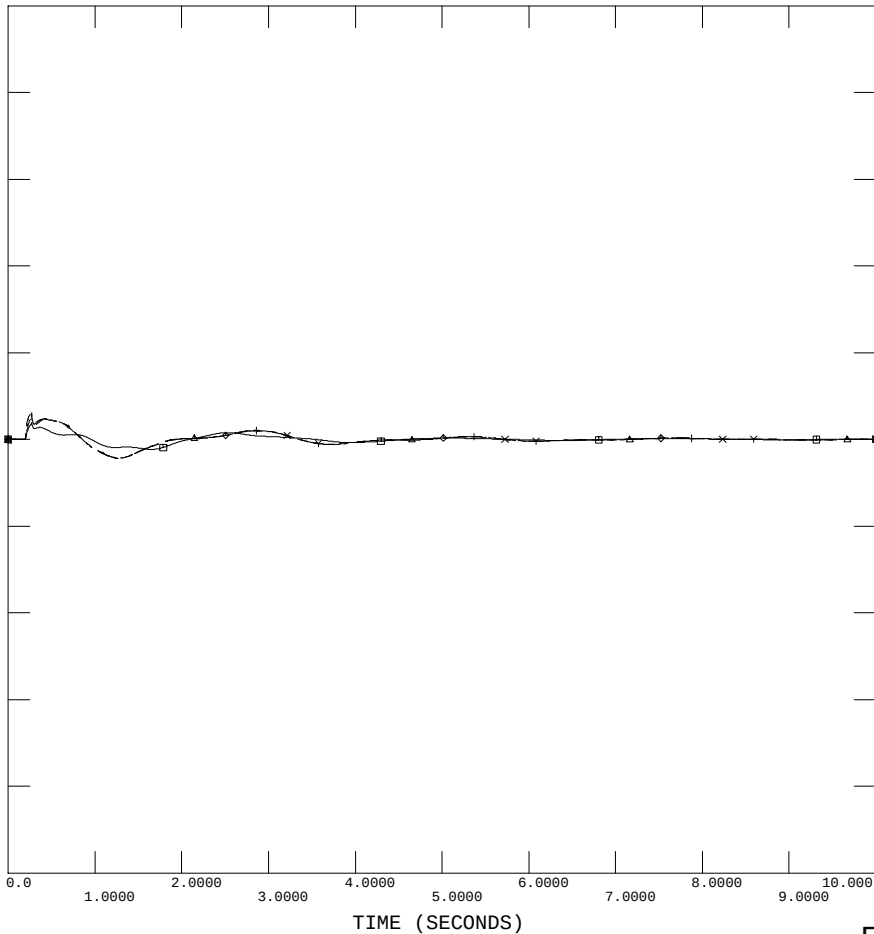




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON3-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



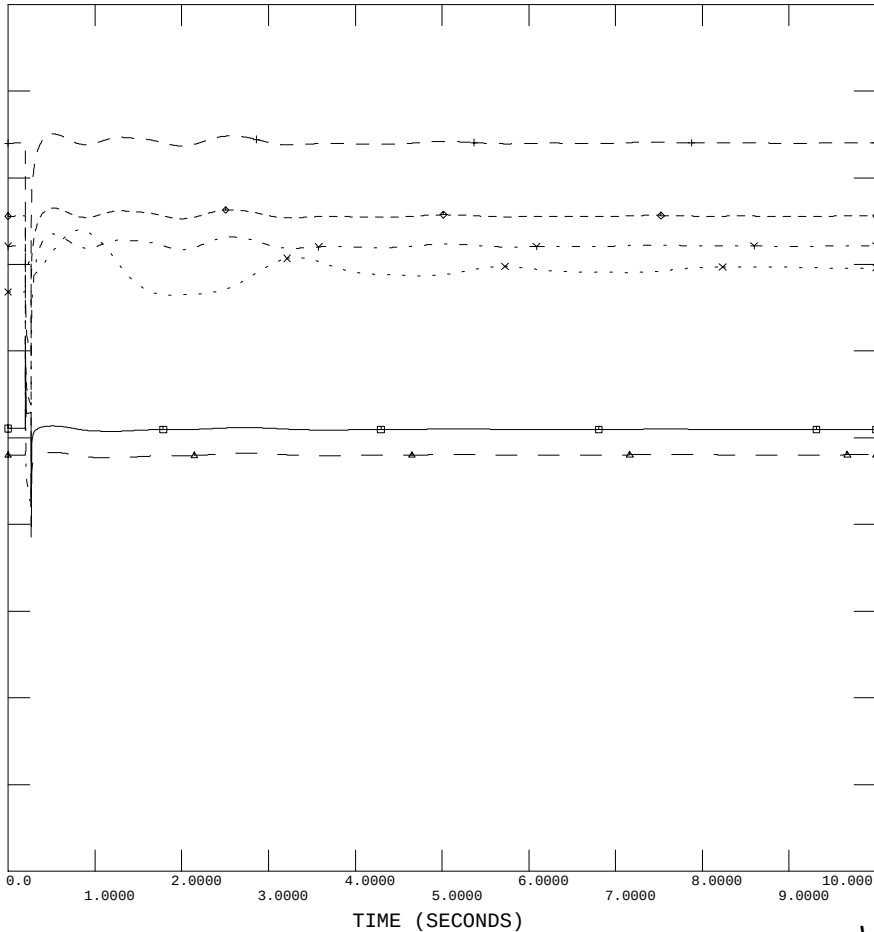
THU, FEB 13 2003 16:22  
FREQUENCY CON3 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON3 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON3-ON.OUT

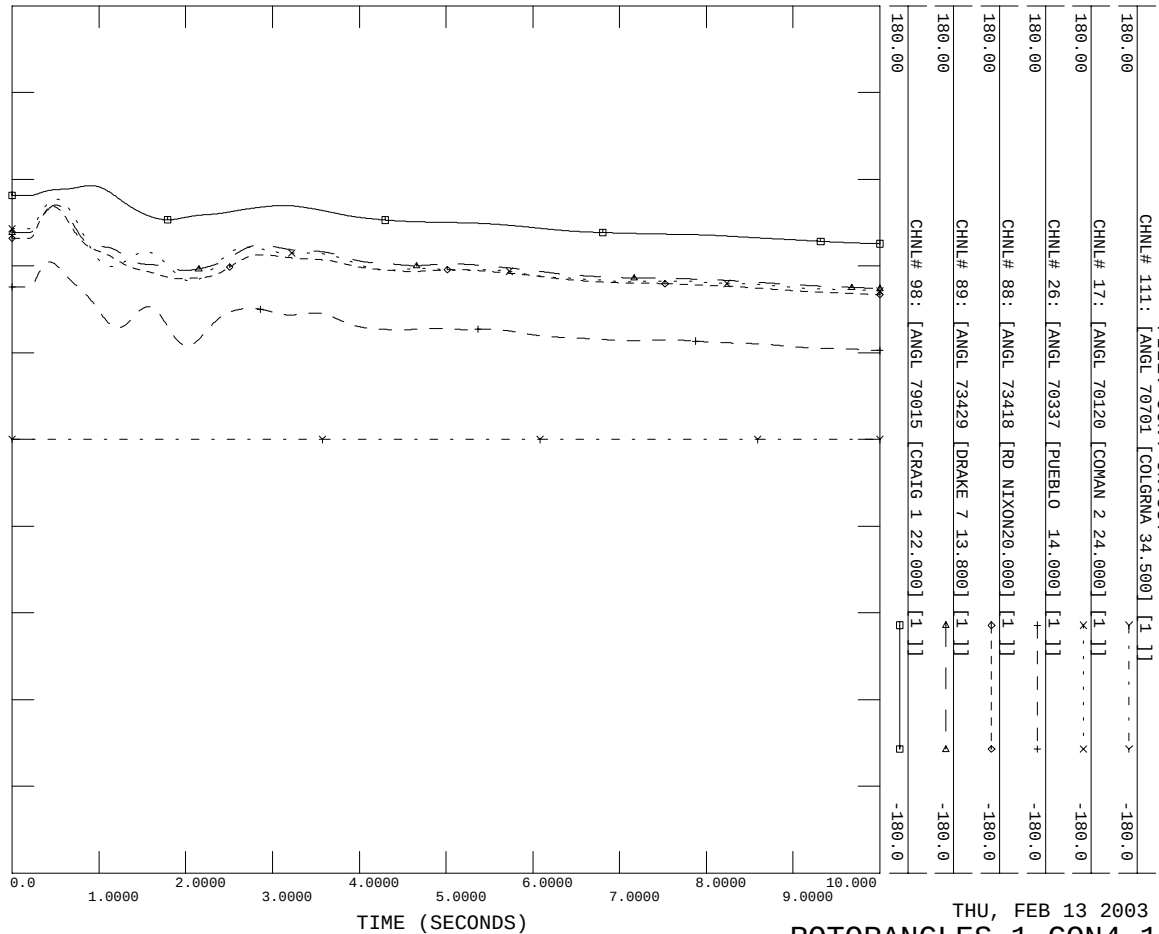
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON3 162MW

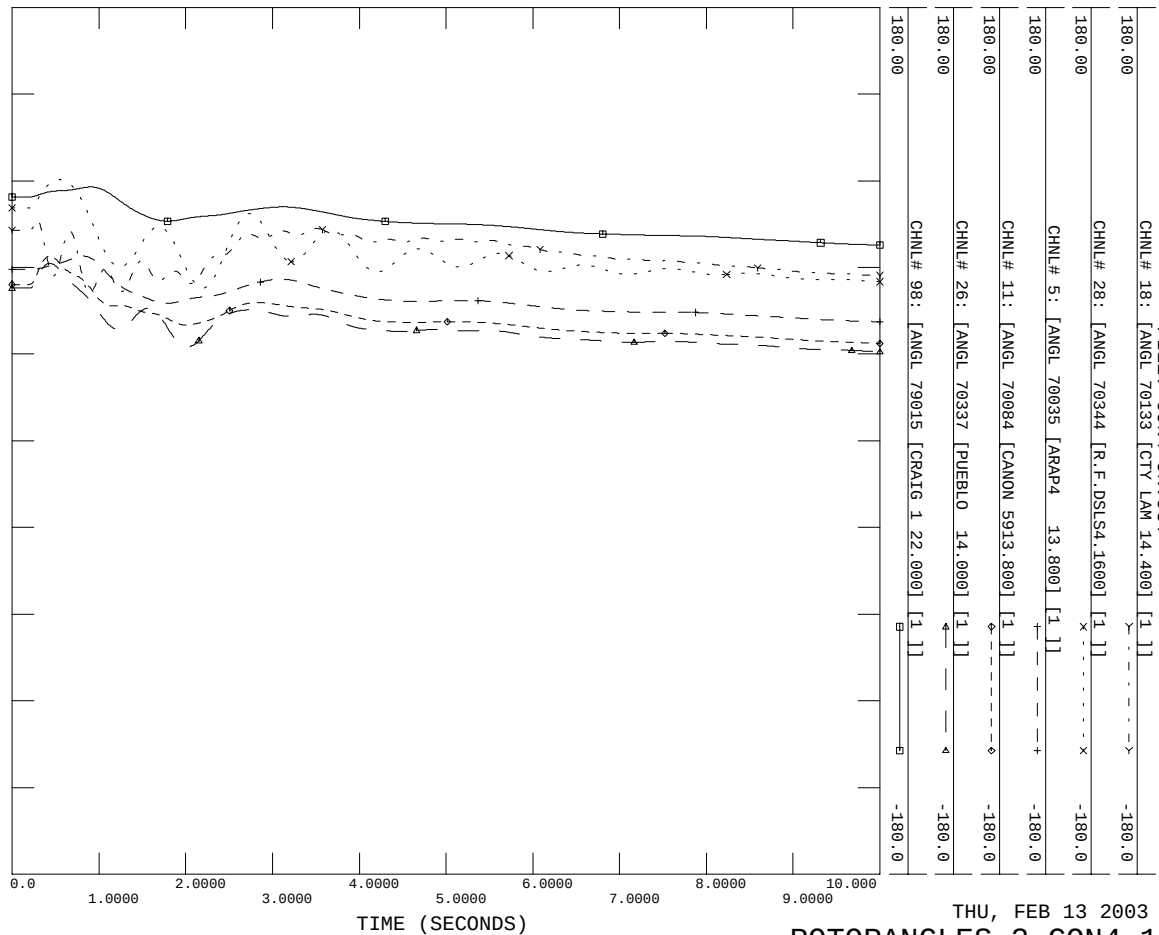
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

FILE: CON4-ON.OUT



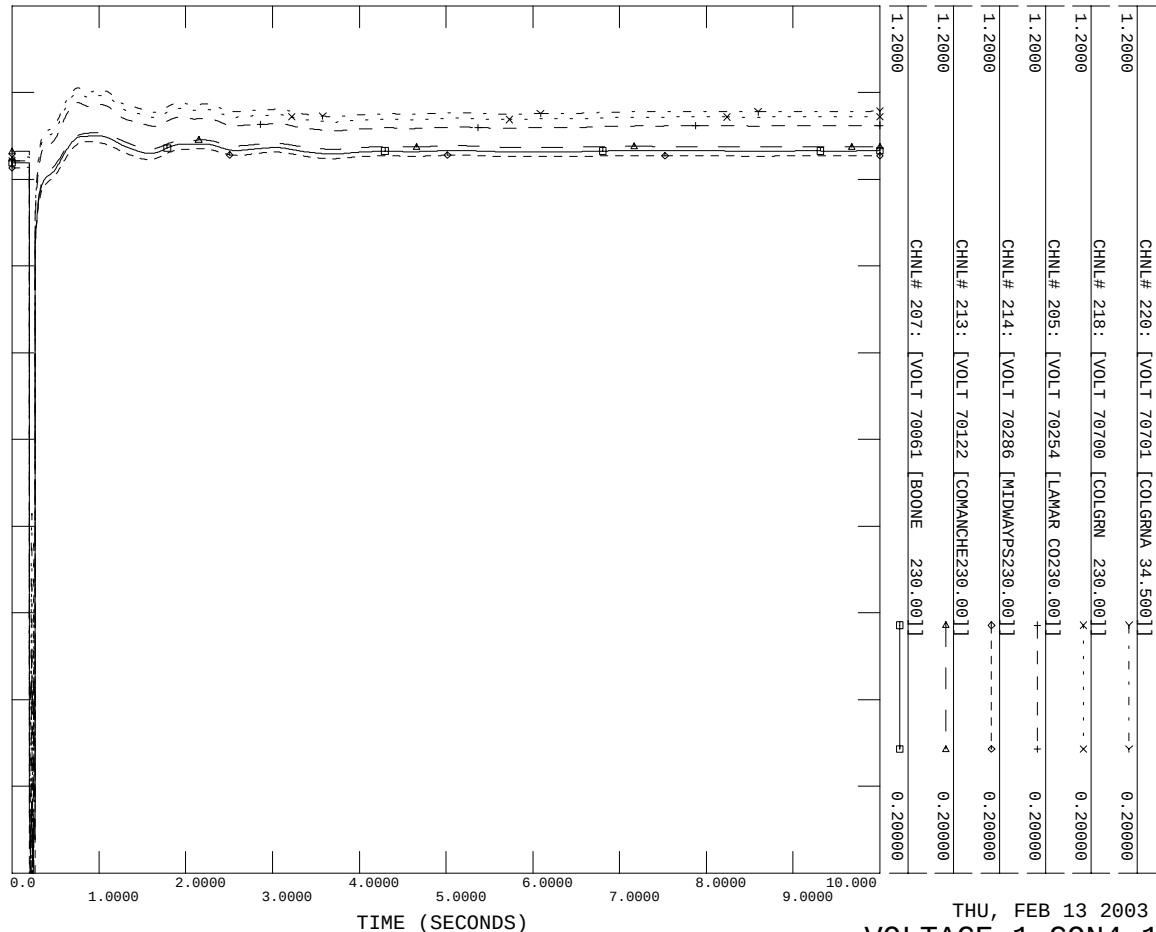
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

FILE: CON4-ON.OUT



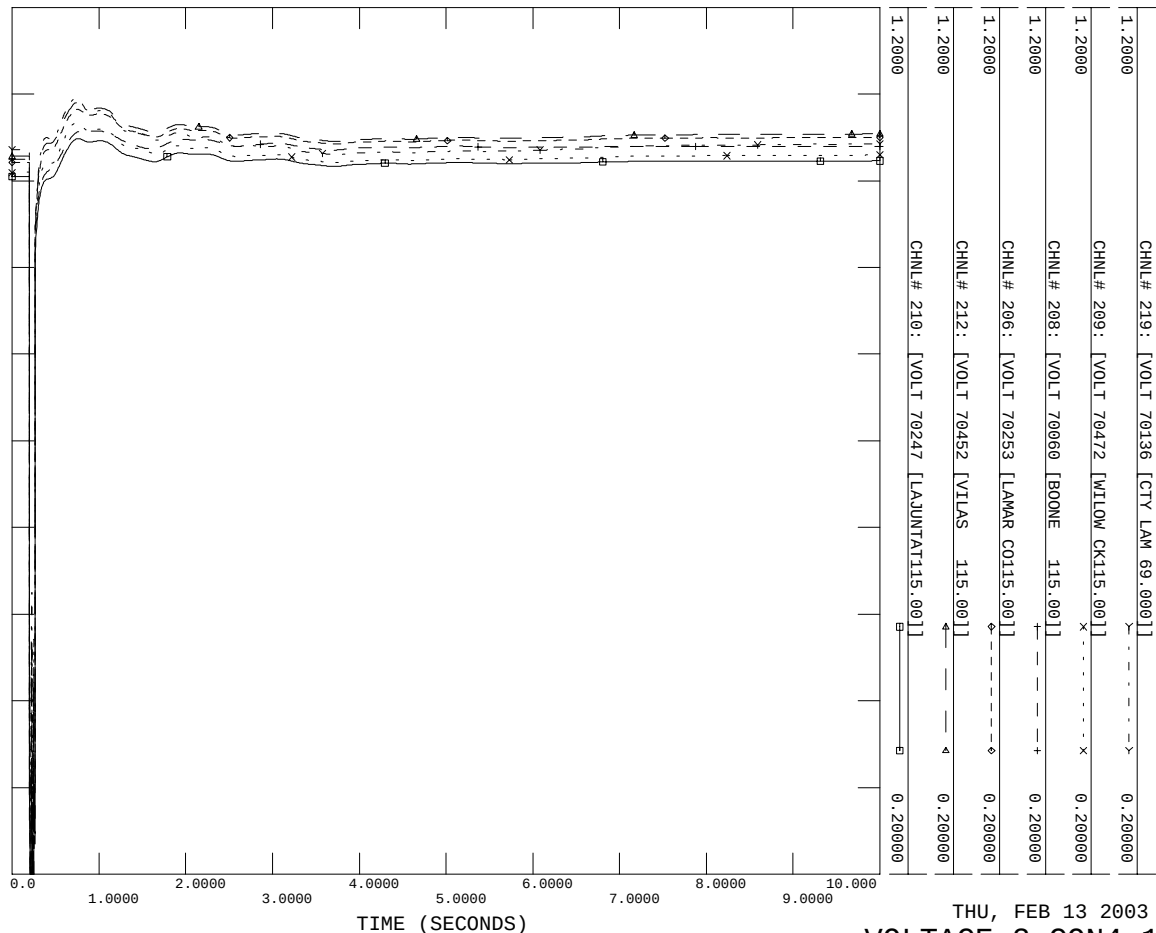
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

FILE: CON4-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

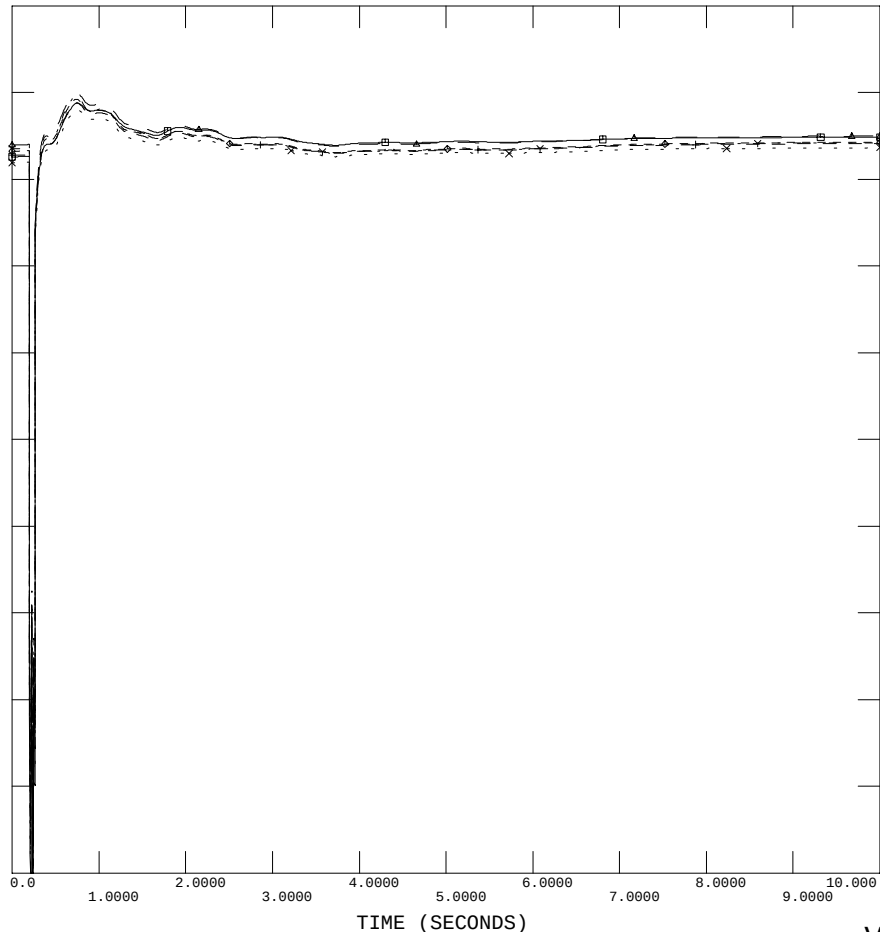
FILE: CON4-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

FILE: CON4-ON.OUT

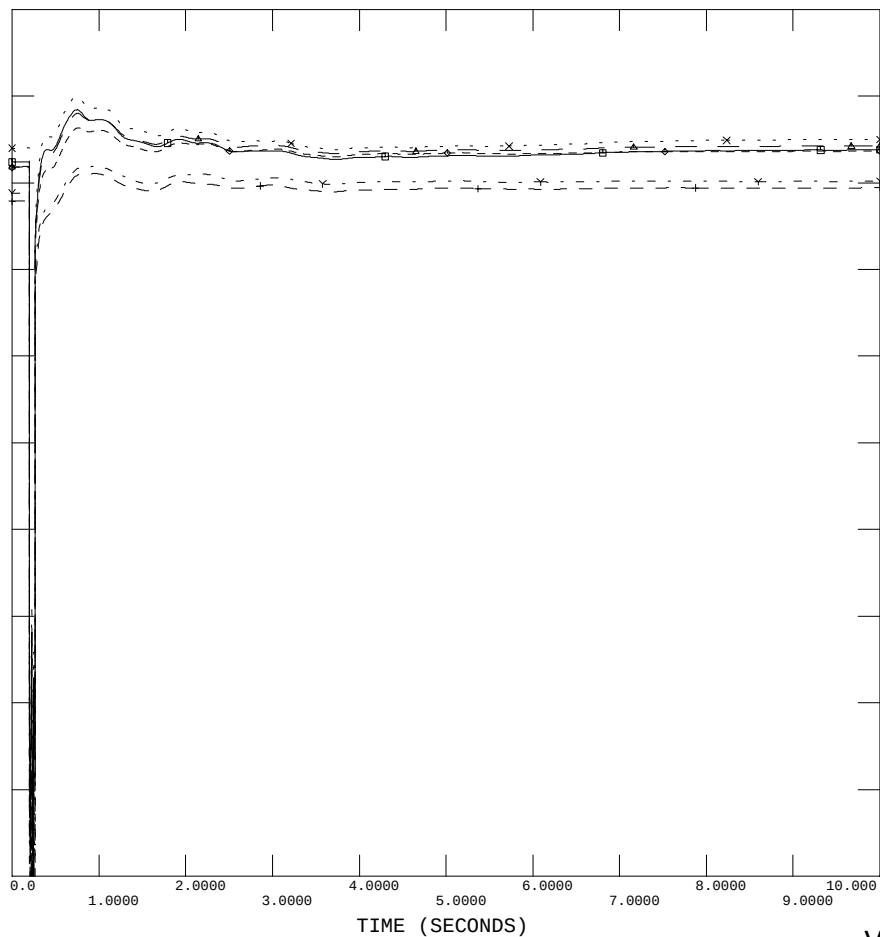
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]

FILE: CON4-ON.OUT

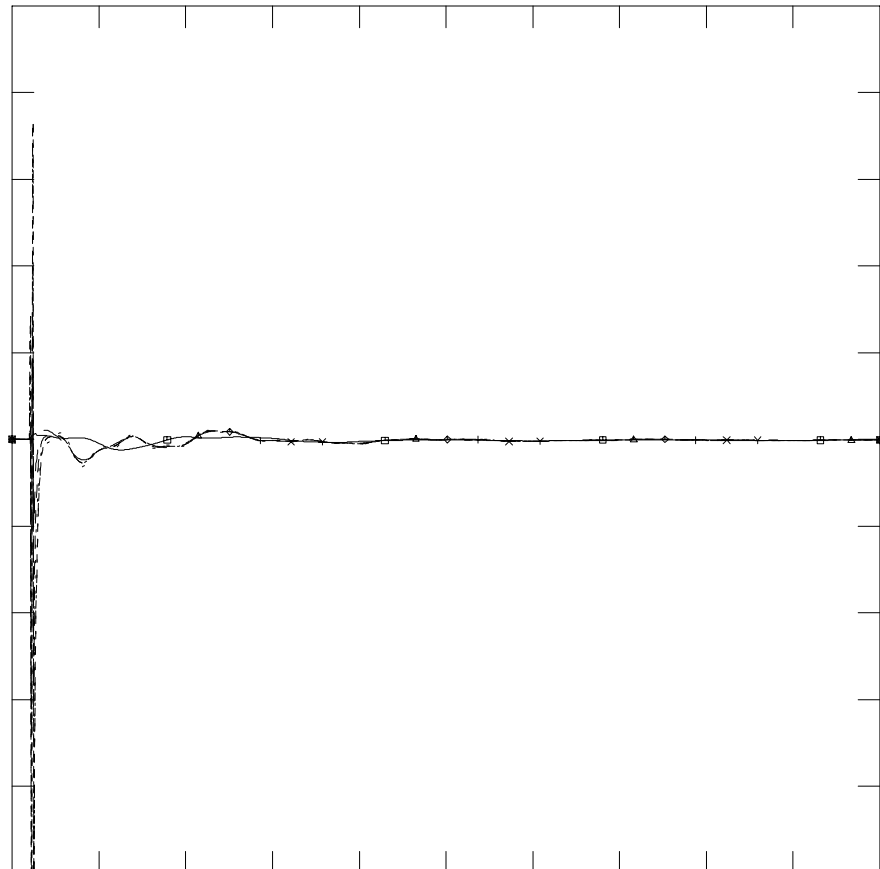
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]  
FILE: CON4-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

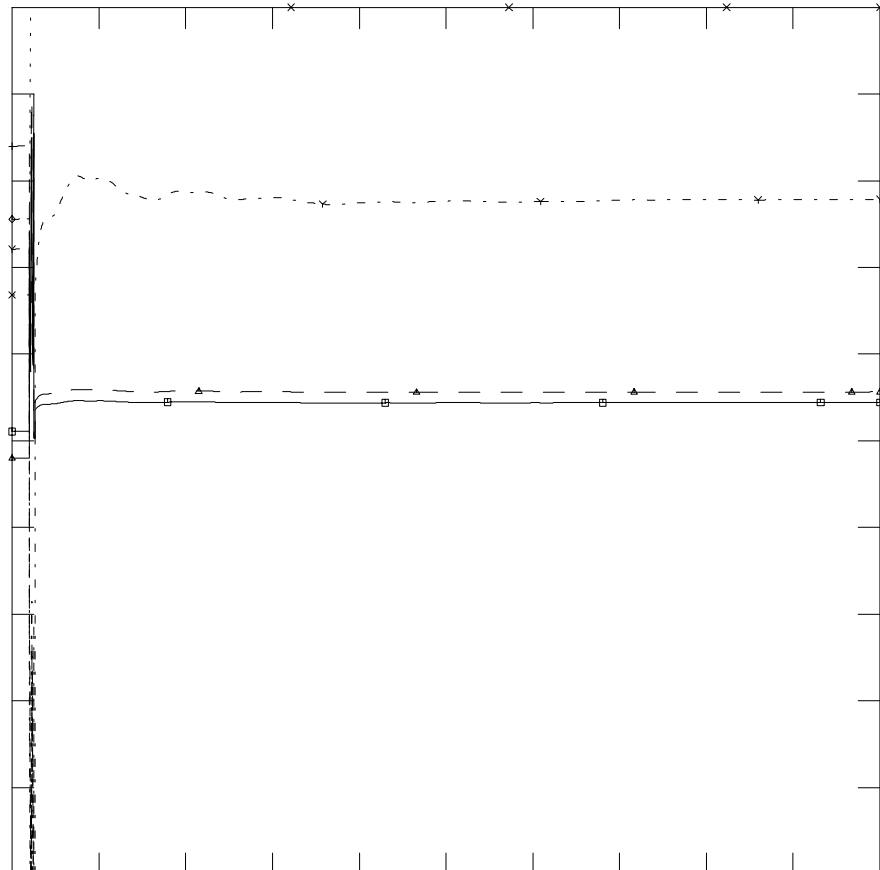


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FREQUENCY CON4 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON4 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY END]  
FILE: CON4-ON.OUT

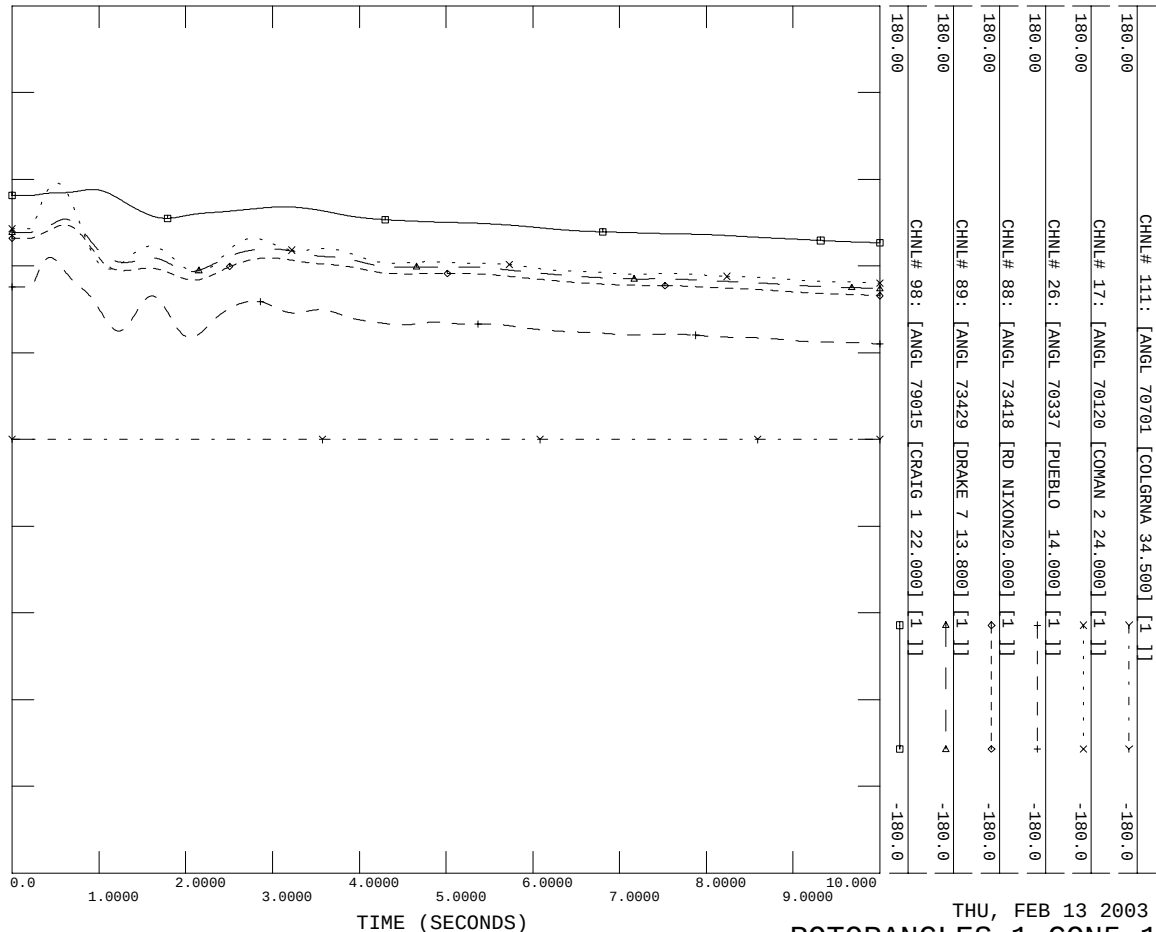
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG1 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



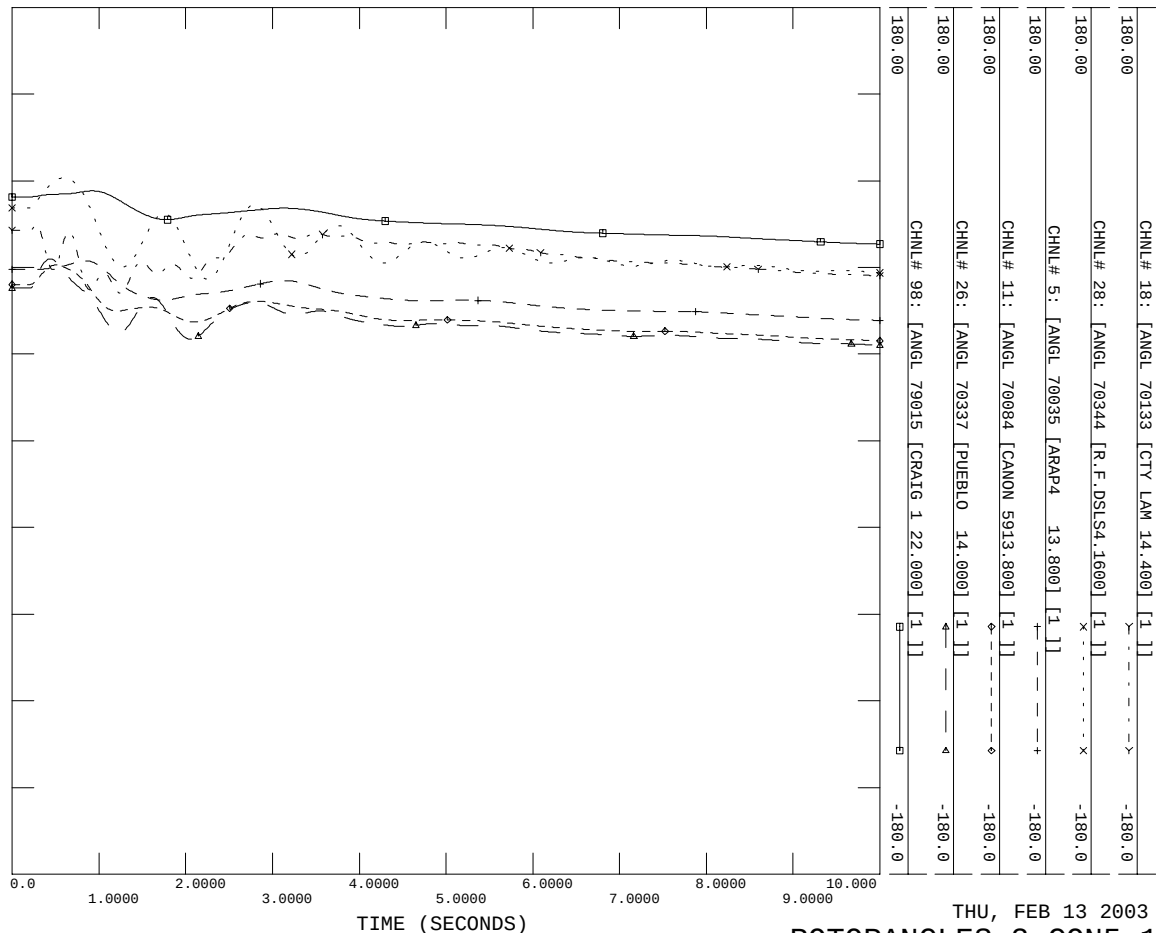
THU, FEB 13 2003 16:23  
WIND DATA CON4 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT

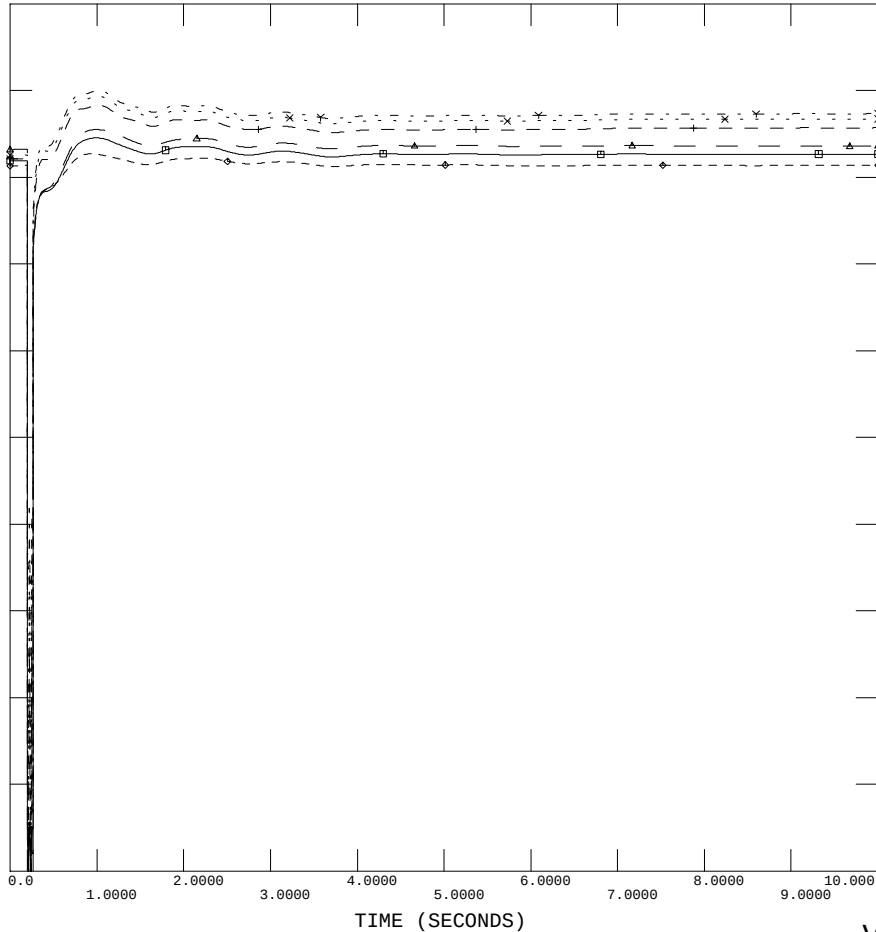






2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

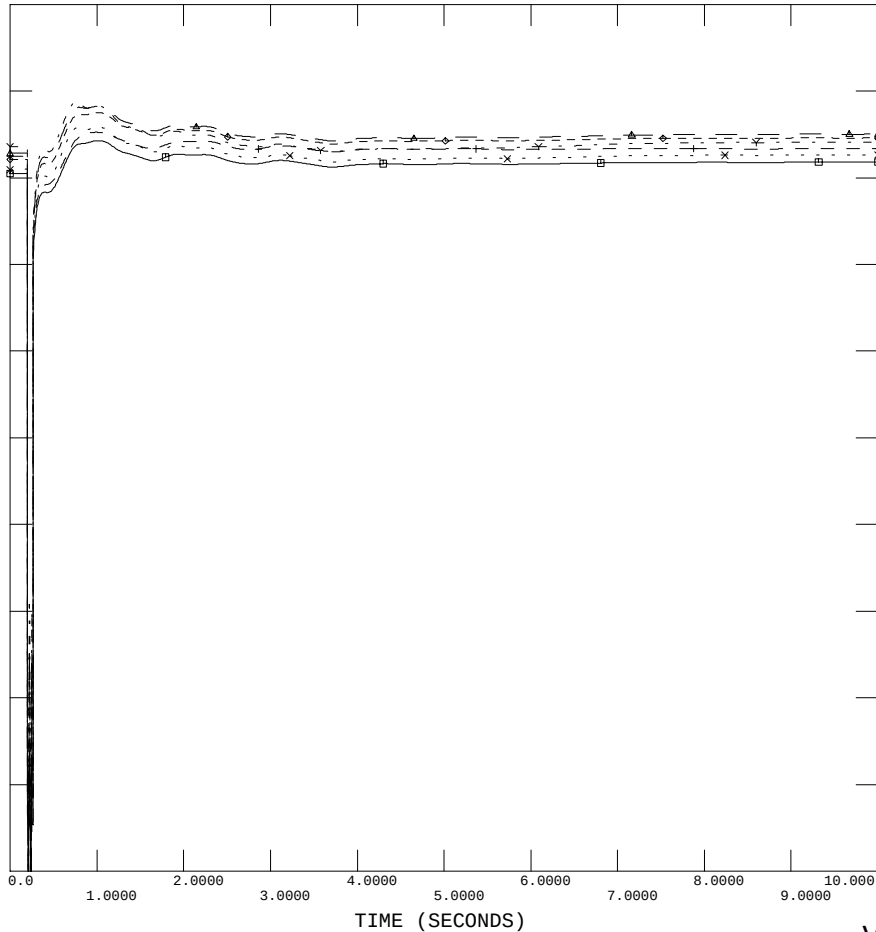


THU, FEB 13 2003 16:23  
VOLTAGE 1 CON5 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

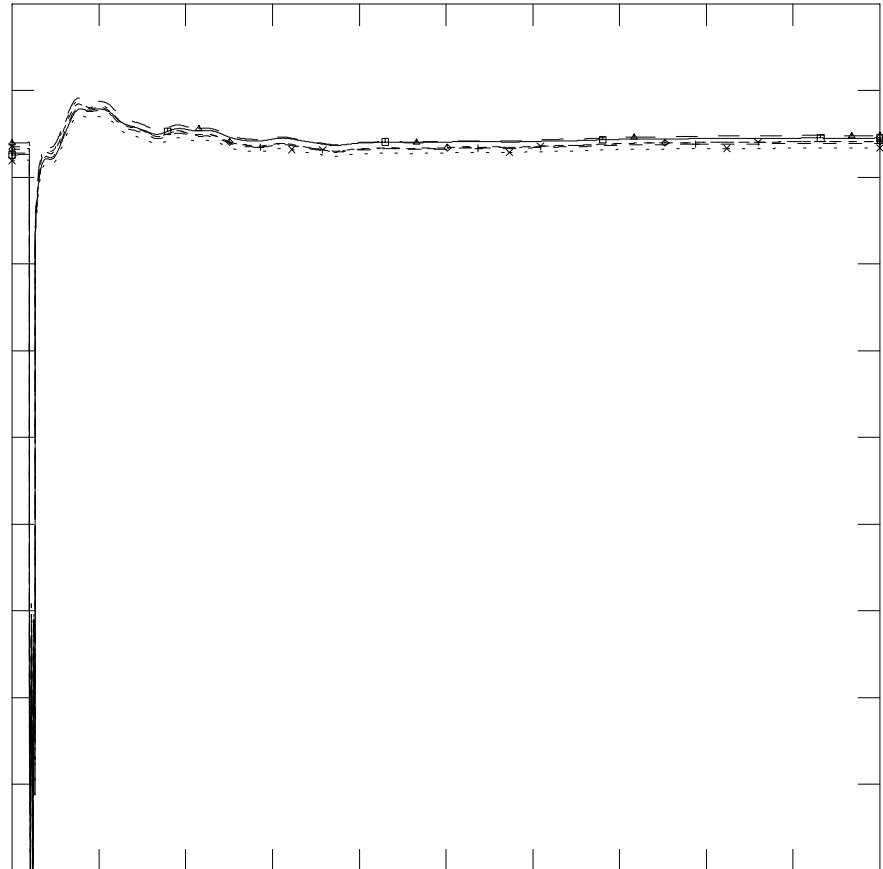


THU, FEB 13 2003 16:23  
VOLTAGE 2 CON5 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

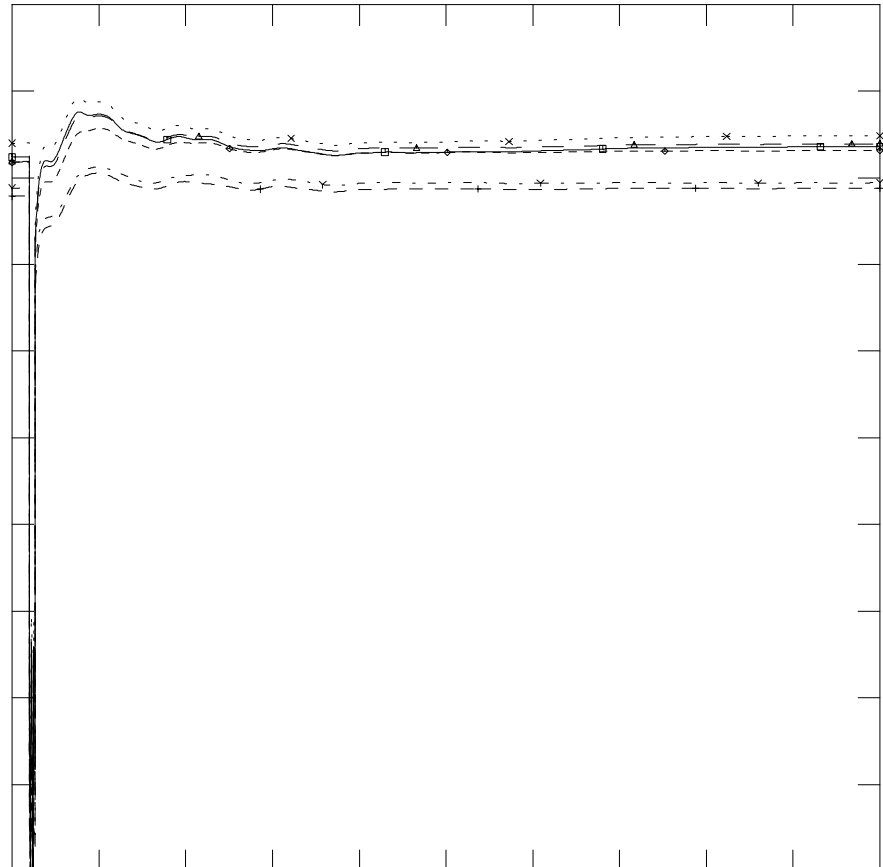


THU, FEB 13 2003 16:23  
VOLTAGE 3 CON5 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

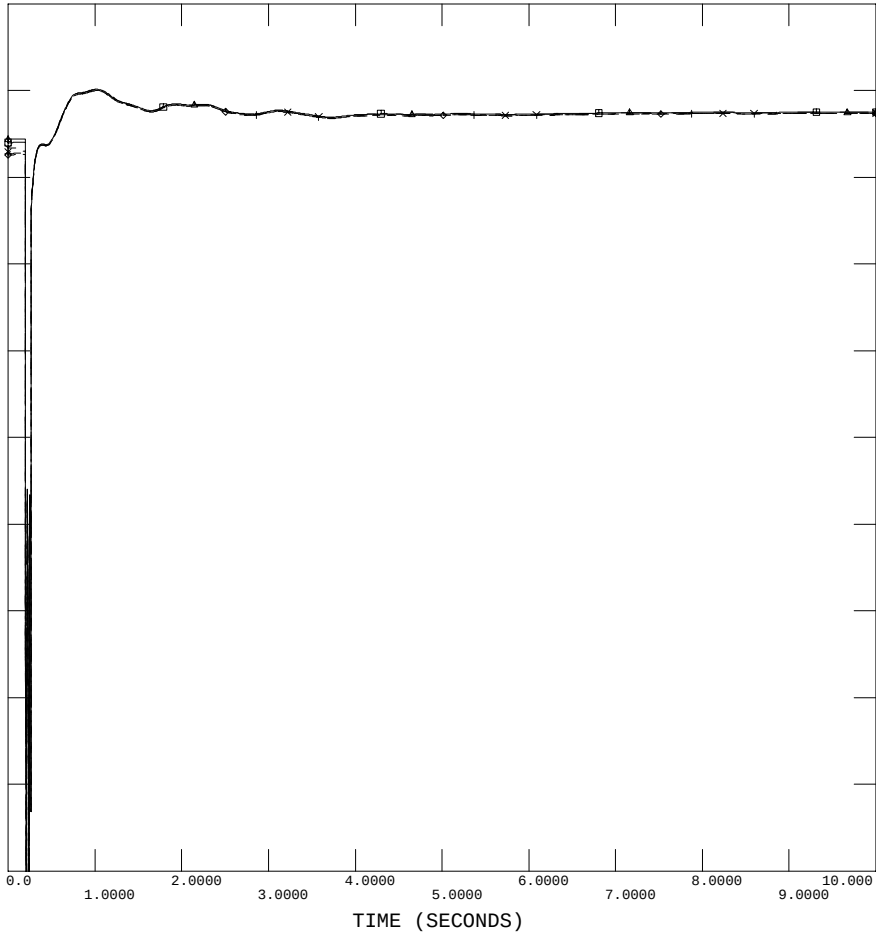


THU, FEB 13 2003 16:23  
VOLTAGE 4 CON5 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT

|        |                                         |         |
|--------|-----------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]  | 0.20000 |

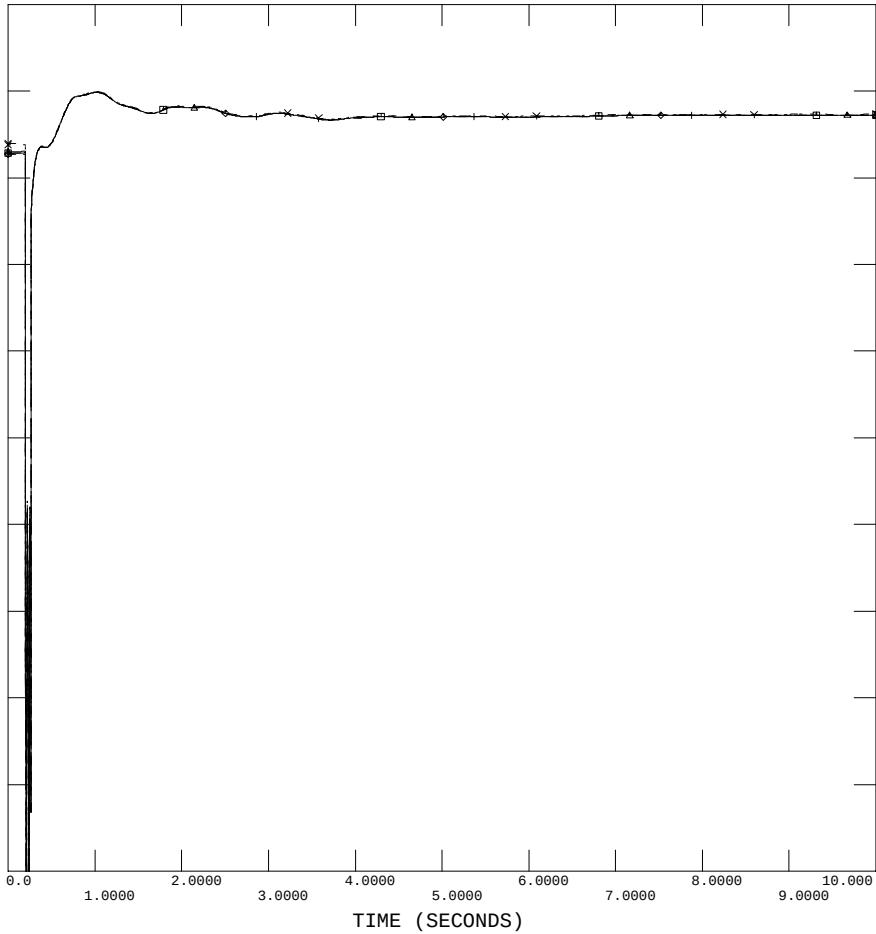


THU, FEB 13 2003 16:23  
VOLTAGE 5 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT

|        |                                         |         |
|--------|-----------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]  | 0.20000 |

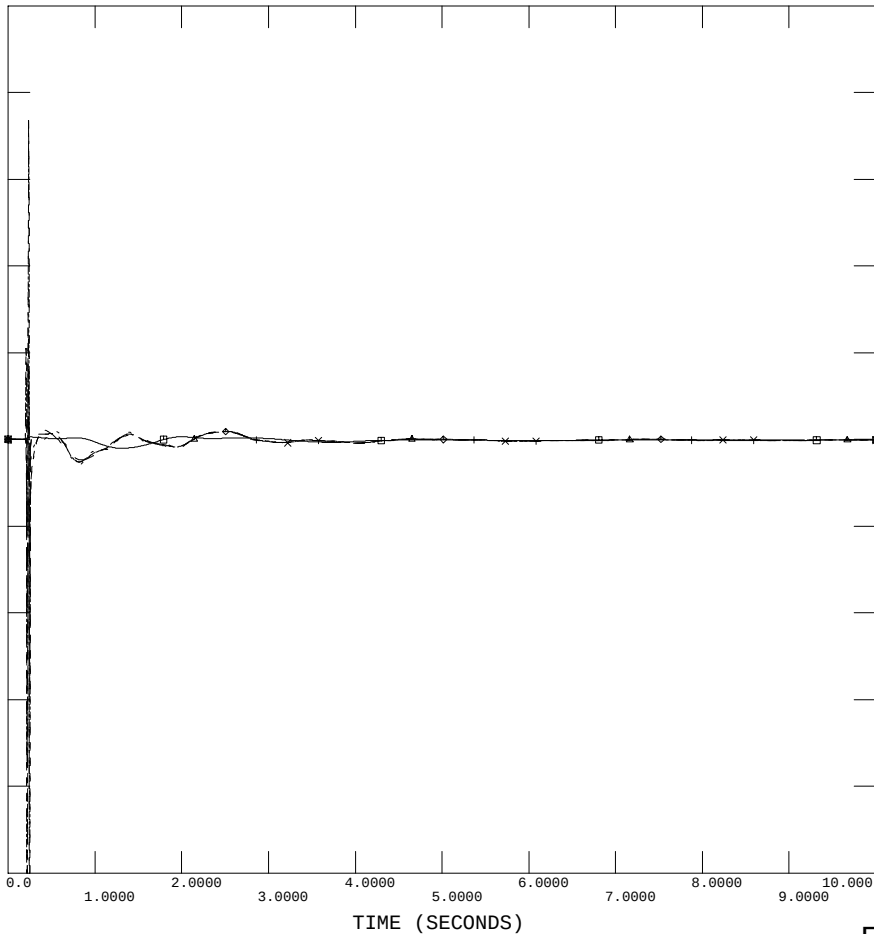


THU, FEB 13 2003 16:23  
VOLTAGE 6 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

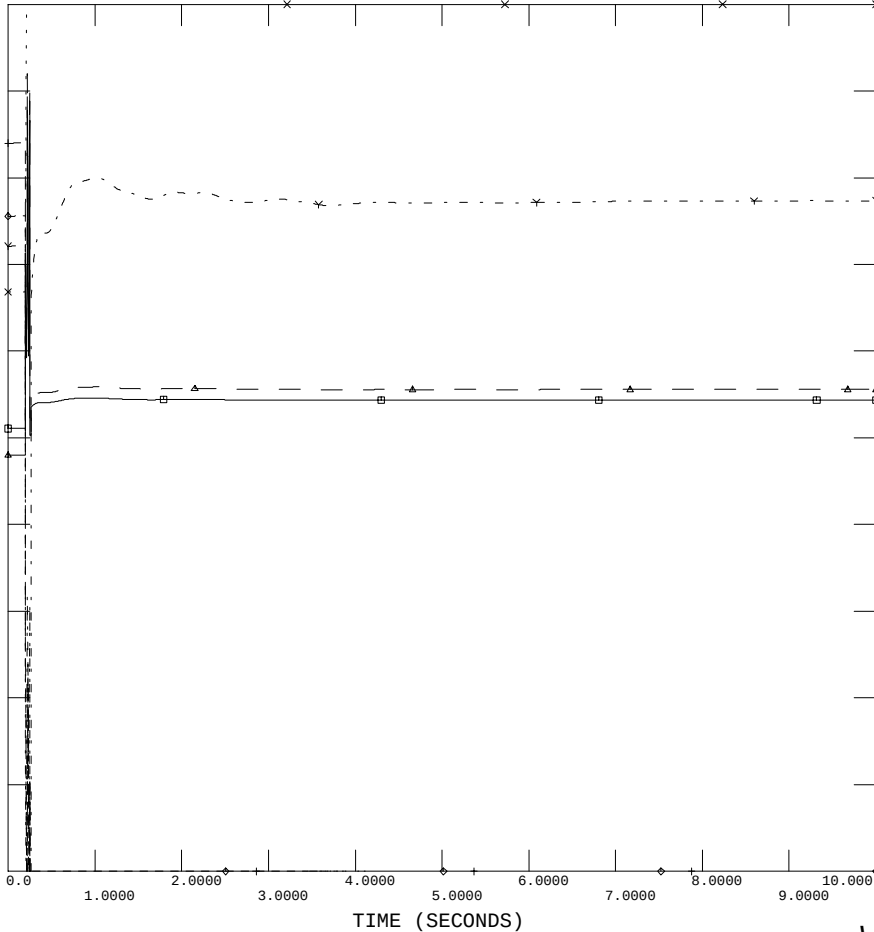


THU, FEB 13 2003 16:23  
FREQUENCY CON5 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CONS - FAULT ON COMANCHE - MIDWAY 230 [COMANCHE END]  
FILE: CONS-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



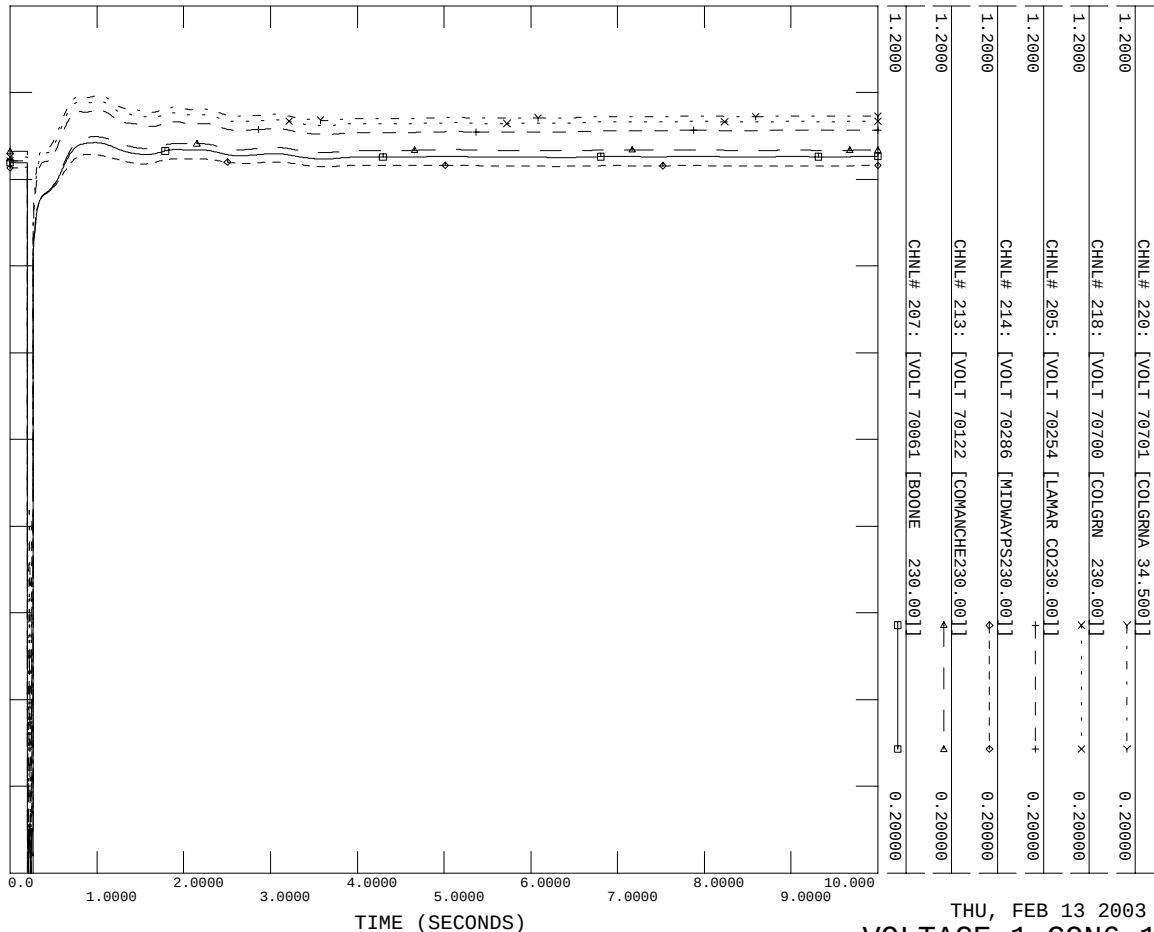
THU, FEB 13 2003 16:23  
WIND DATA CON5 162MW





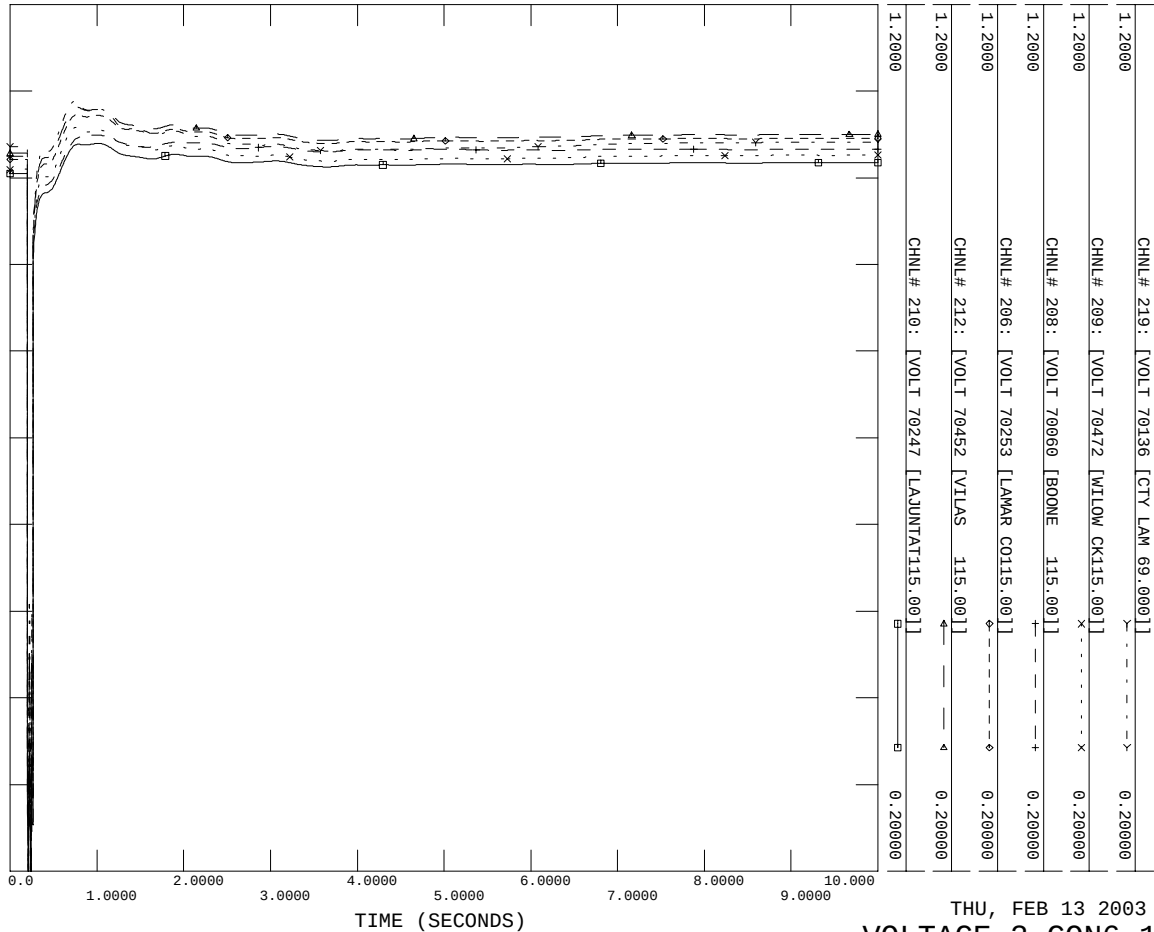
POWER  
WIND 0013,  
TIC

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]  
FILE: CON6-ON.OUT



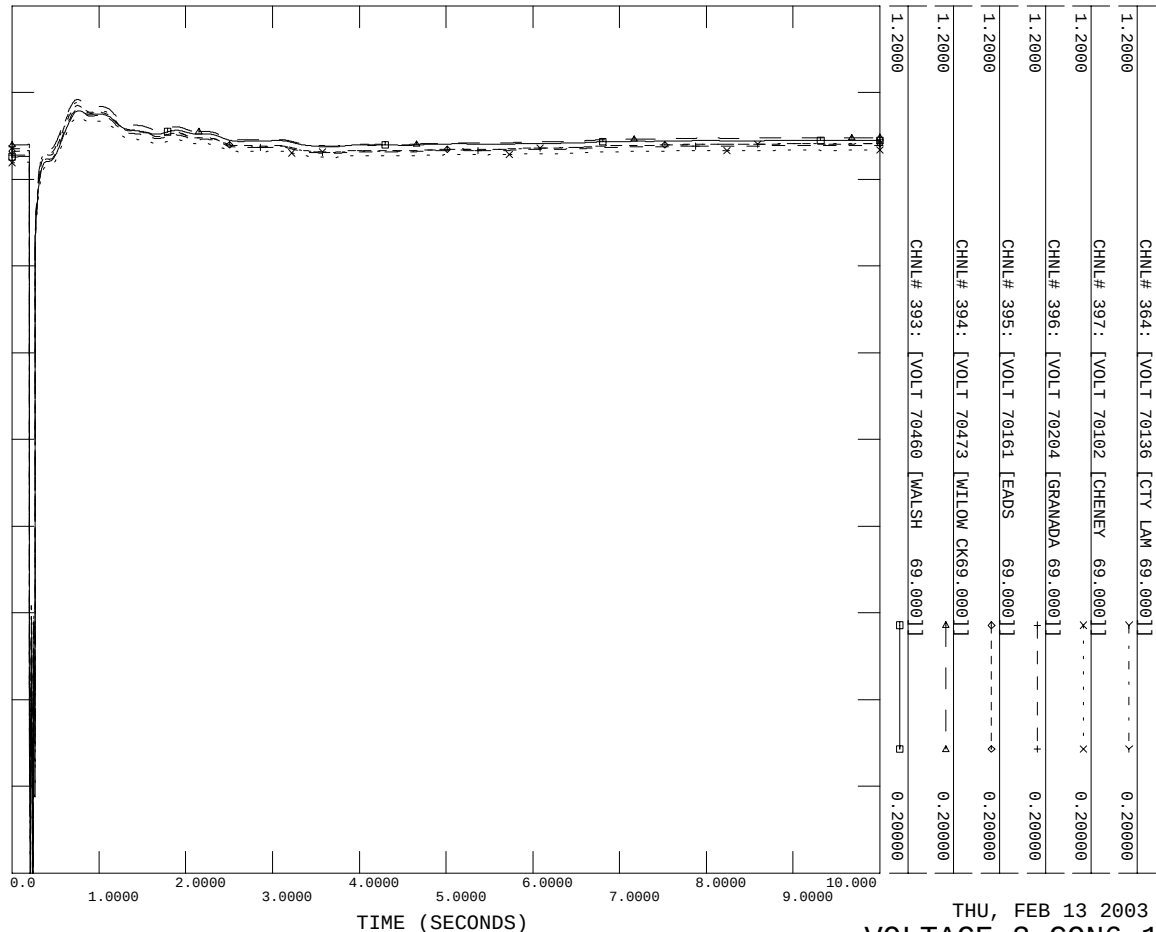
POWER  
WIND 0013,  
TIC

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]  
FILE: CON6-ON.OUT

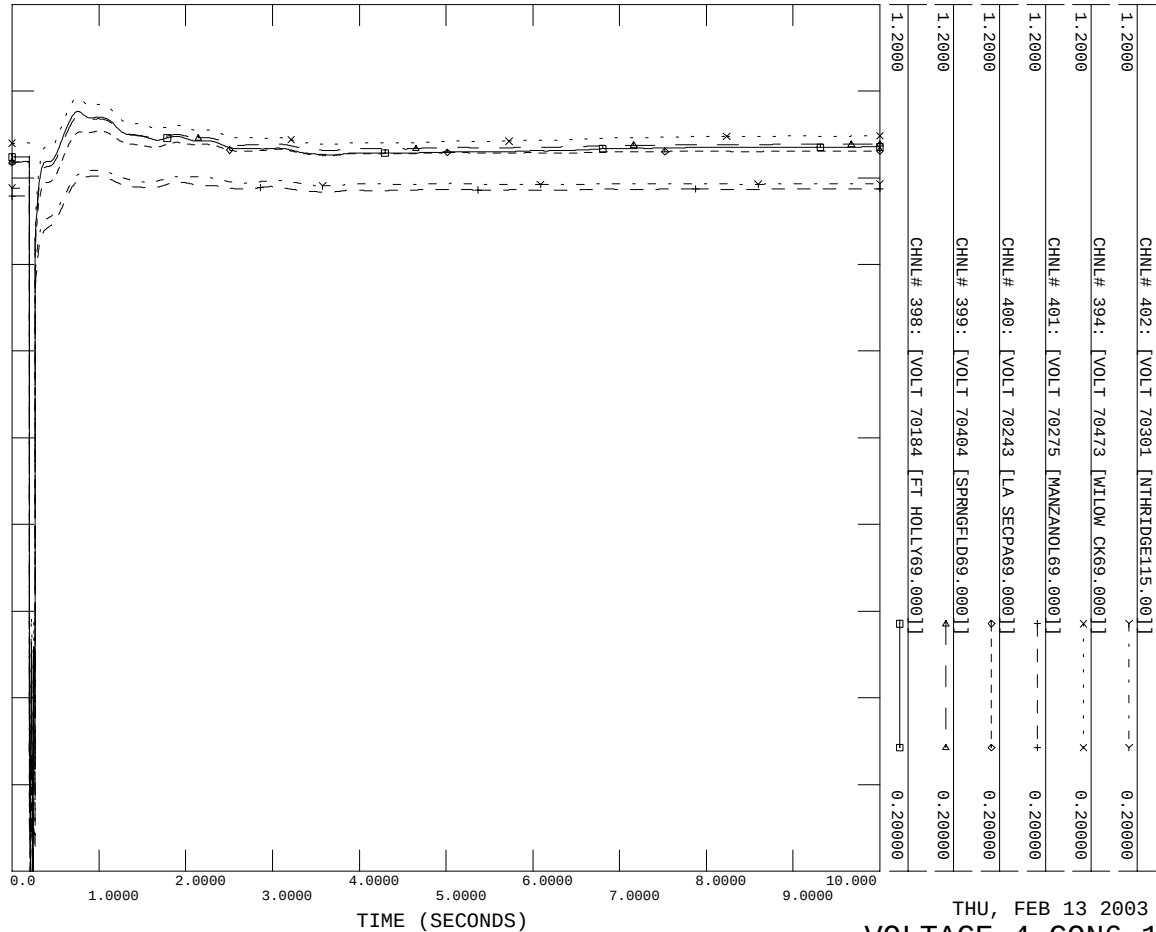




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]  
FILE: CON6-ON.OUT



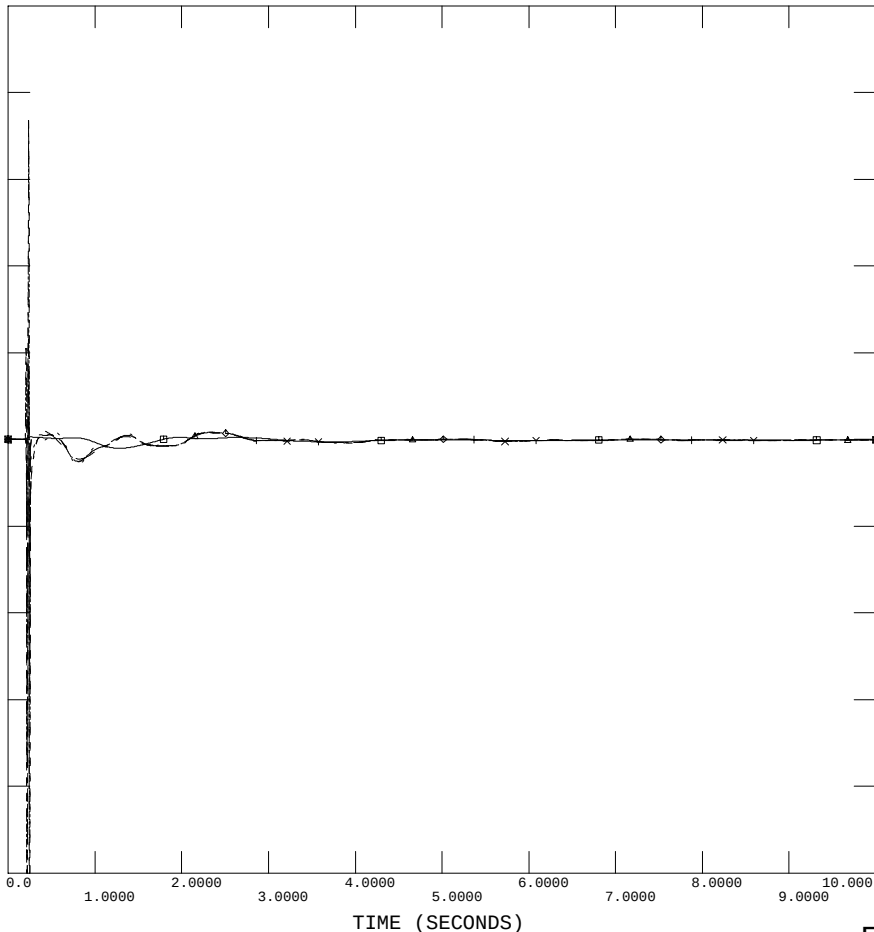
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]  
FILE: CON6-ON.OUT





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]  
FILE: CON6-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 70015 [CRAIG 1 22.000]]  | -0.0500 |

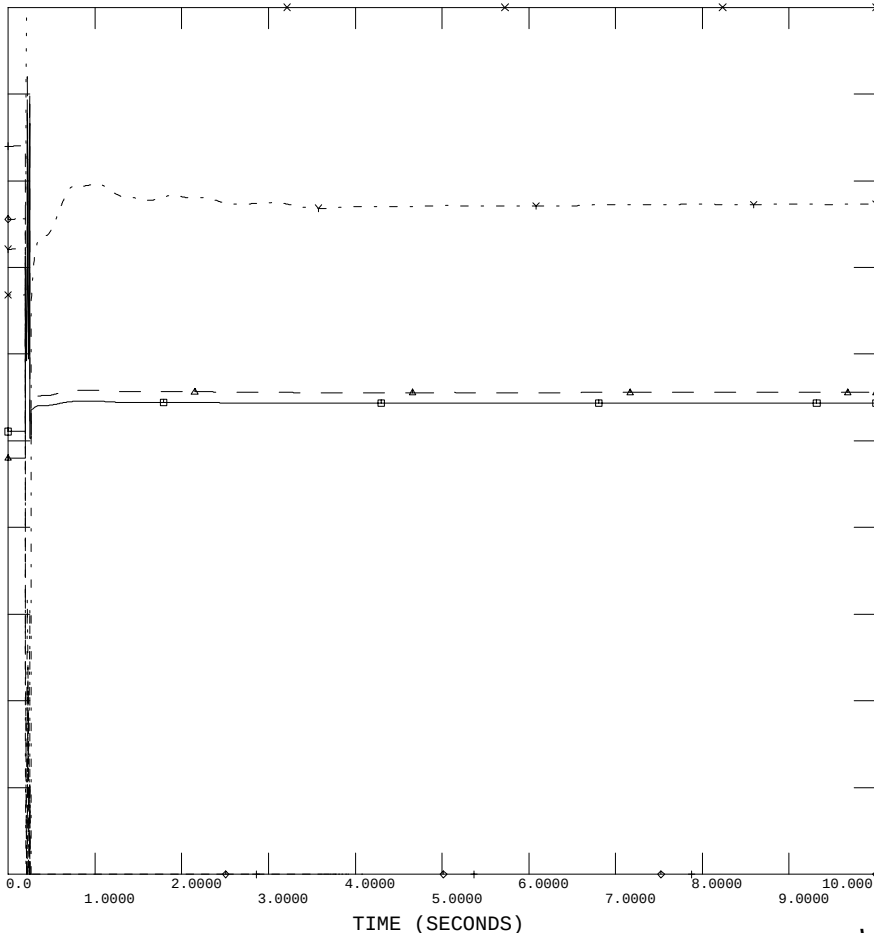


THU, FEB 13 2003 16:23  
FREQUENCY CON6 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON6 - FAULT ON COMANCHE - WALSENBURG 230 [COMANCHE END]  
FILE: CON6-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG1 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

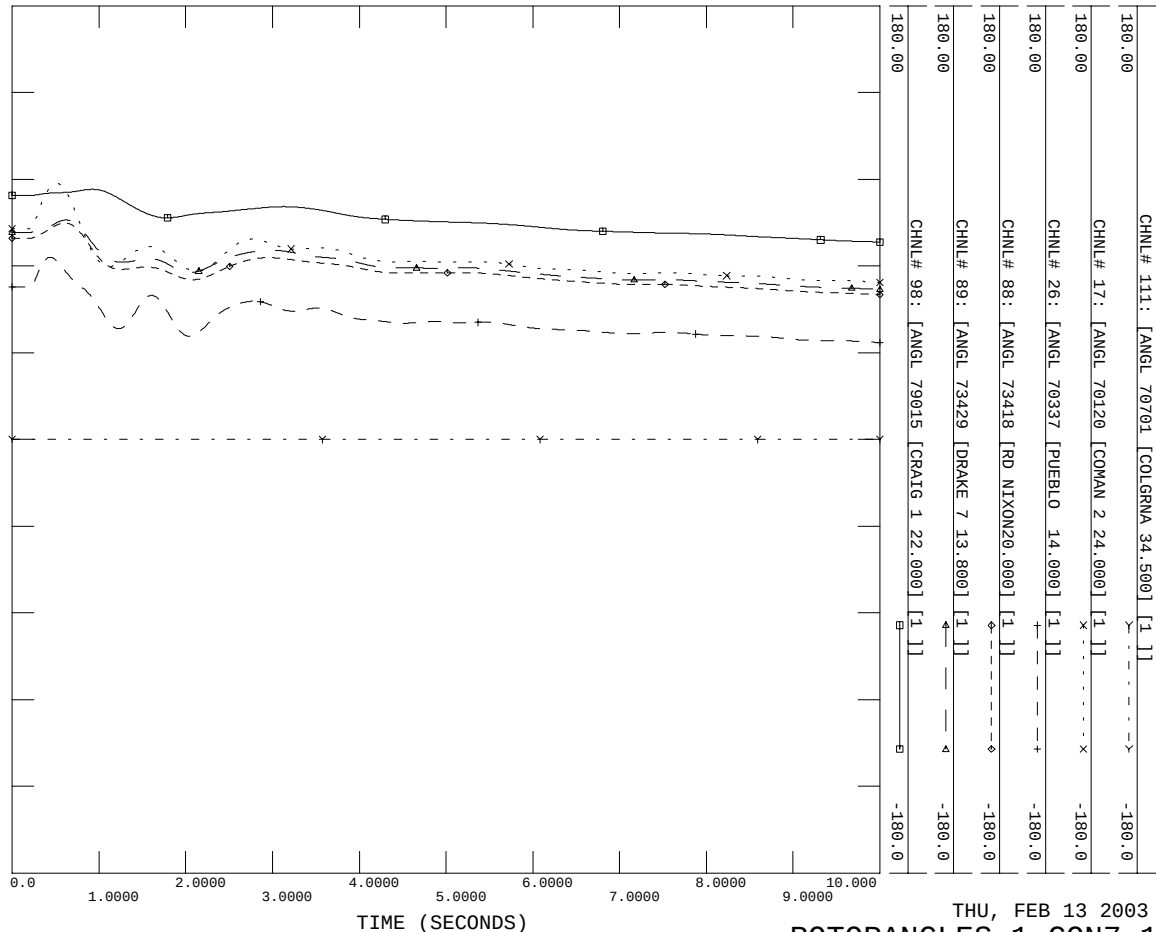


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WIND DATA CON6 162MW





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]  
FILE: CON7-ON.OUT

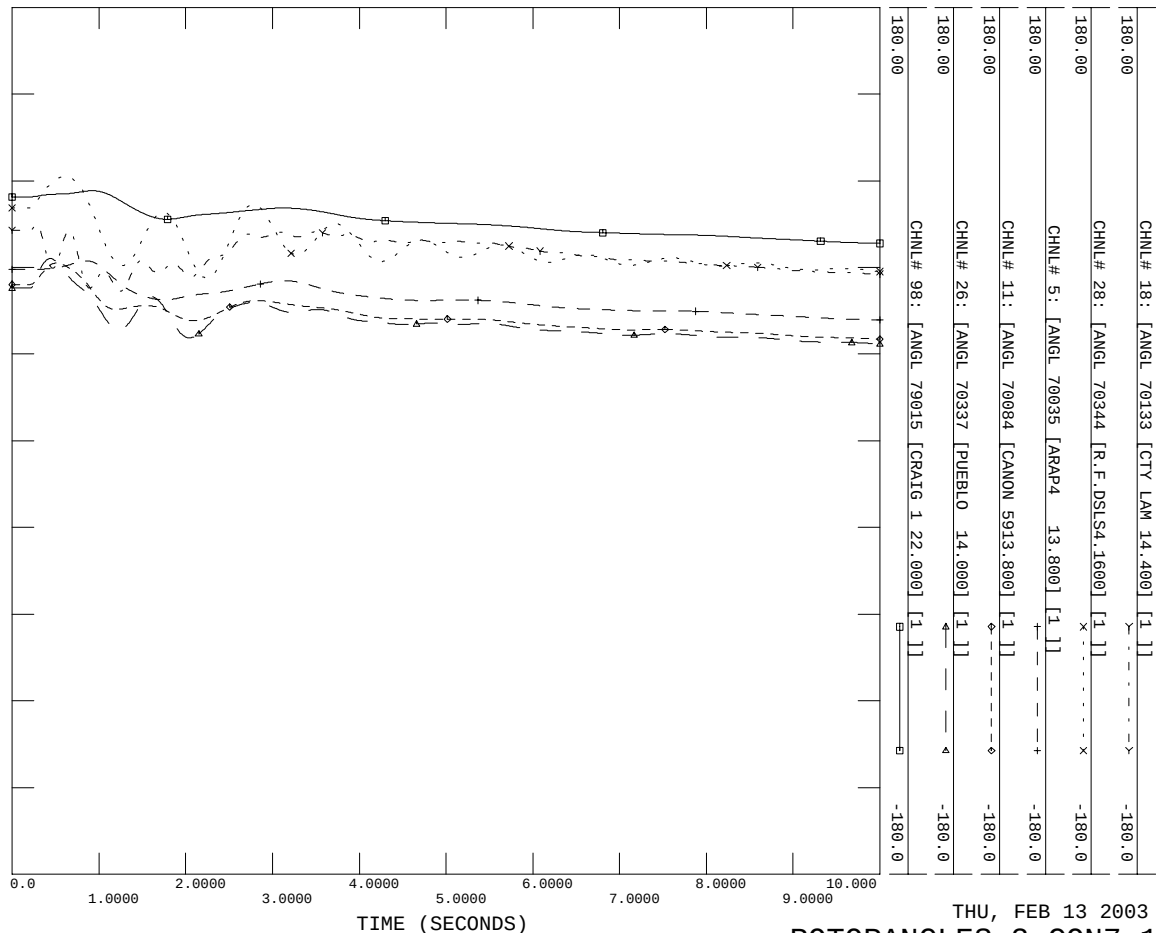


THU, FEB 13 2003 16:23

ROTORANGLES 1 CON7 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]  
FILE: CON7-ON.OUT



THU, FEB 13 2003 16:23

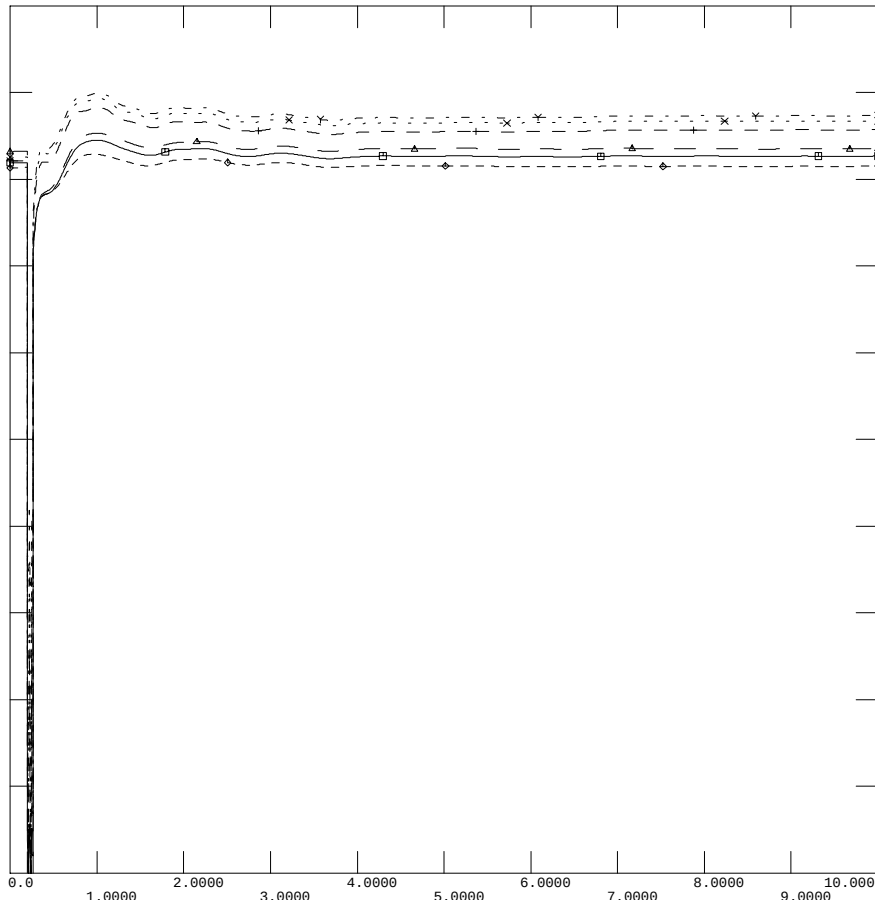
ROTORANGLES 2 CON7 162MW



POWER  
LINE LOGS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]  
FILE: CON7-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRMA 34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



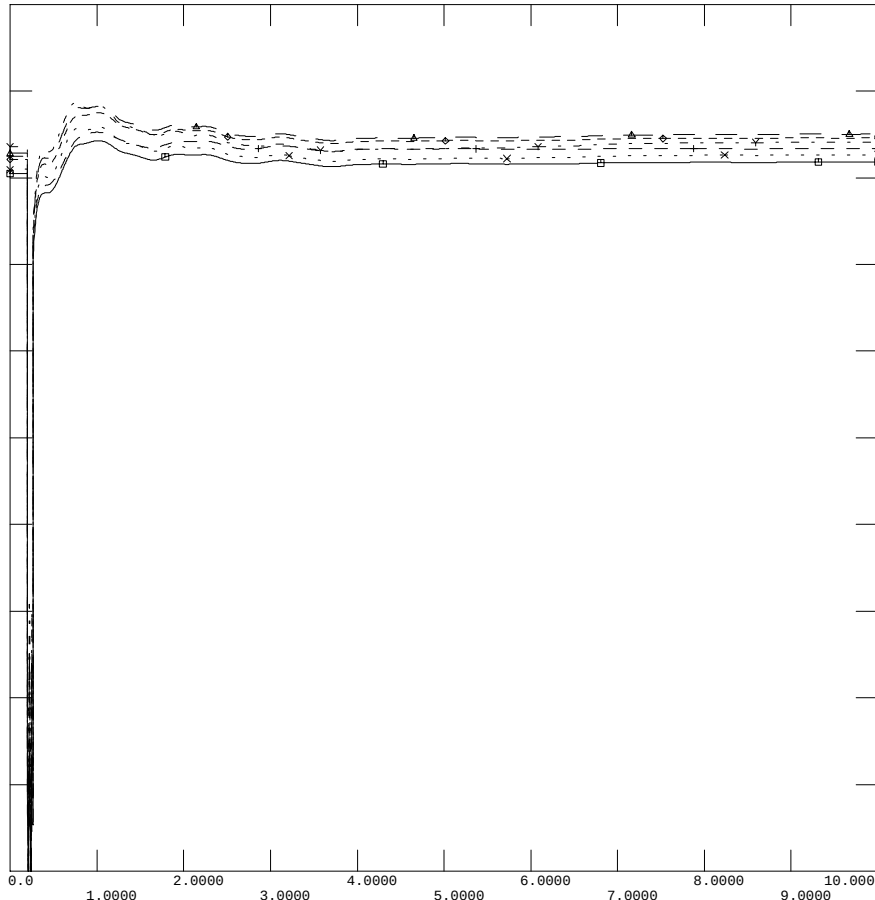
THU, FEB 13 2003 16:23  
VOLTAGE 1 CON7 162MW



POWER  
LINE LOGS

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]  
FILE: CON7-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

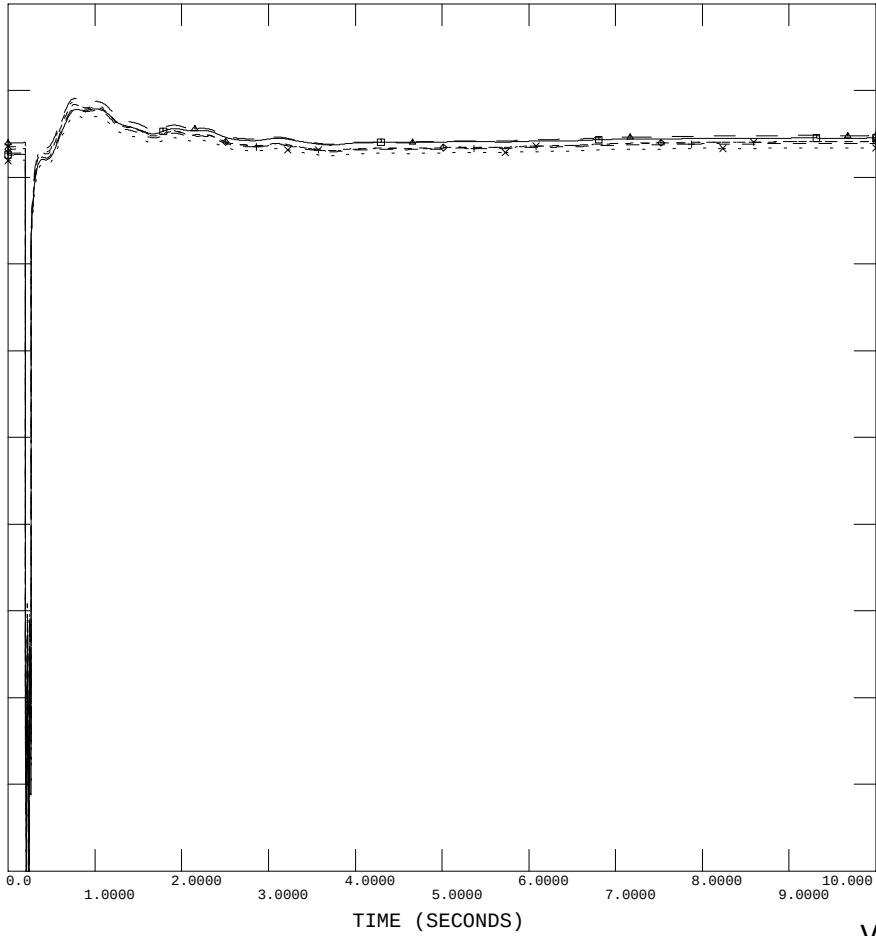


THU, FEB 13 2003 16:23  
VOLTAGE 2 CON7 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]  
FILE: CON7-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

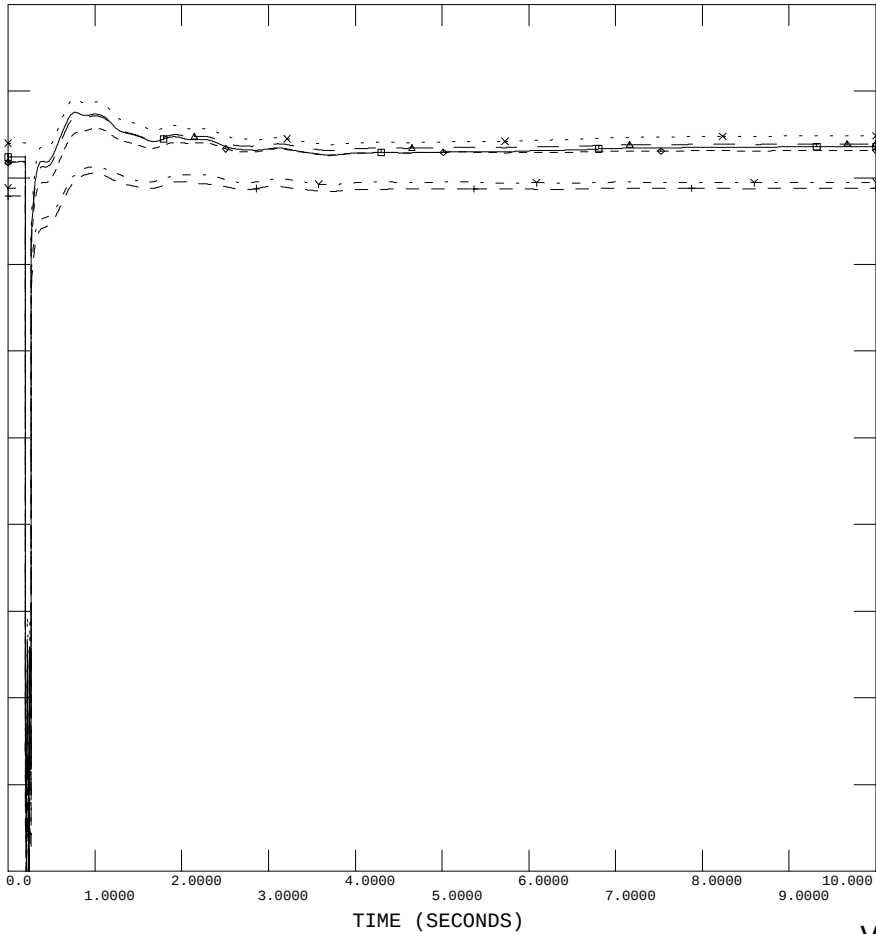


THU, FEB 13 2003 16:23  
VOLTAGE 3 CON7 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]  
FILE: CON7-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

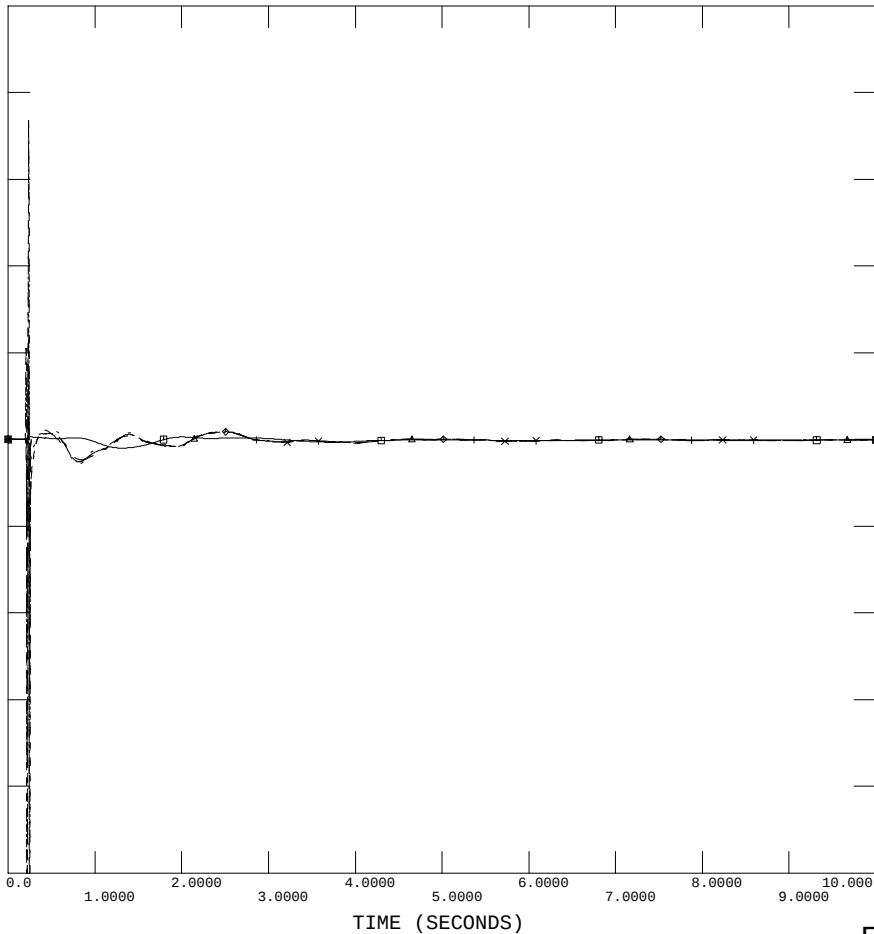


THU, FEB 13 2003 16:23  
VOLTAGE 4 CON7 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]  
FILE: CON7-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

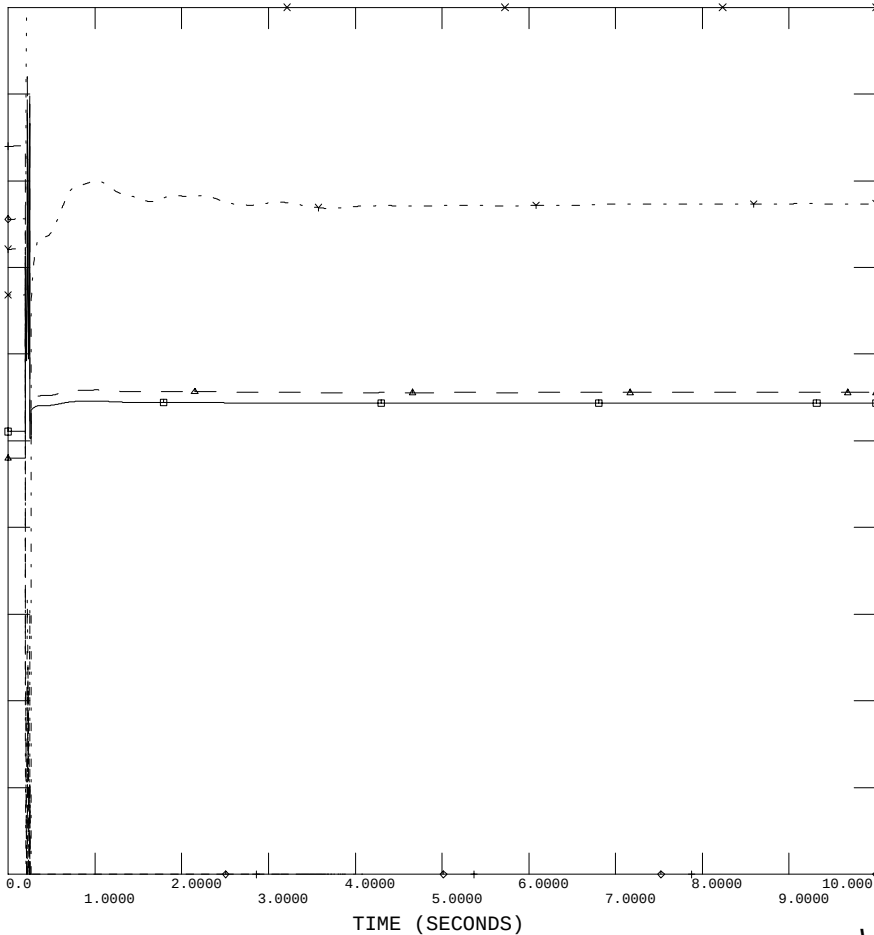


THU, FEB 13 2003 16:23  
FREQUENCY CON7 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON7 - FAULT ON COMANCHE - FULLER 230 [COMANCHE END]  
FILE: CON7-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

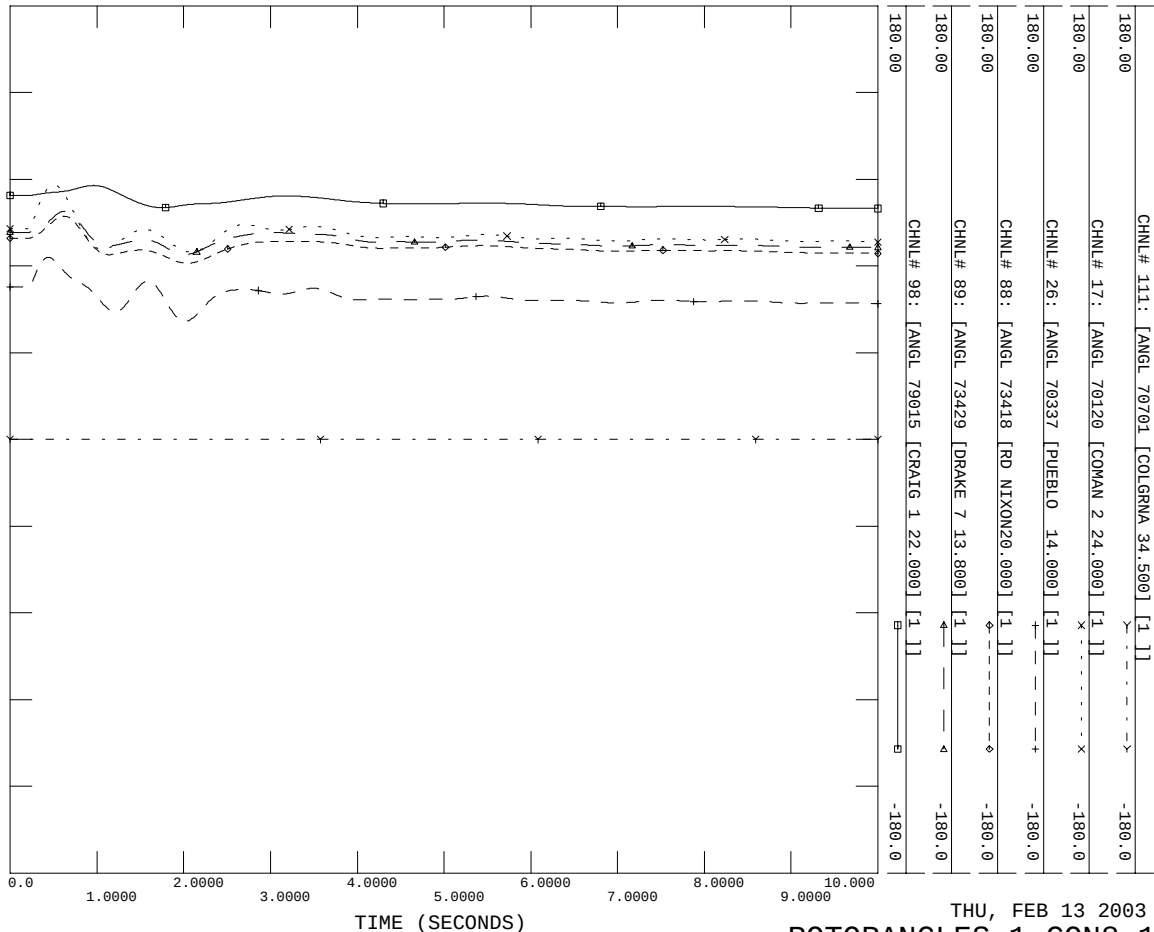


THU, FEB 13 2003 16:23  
WIND DATA CON7 162MW



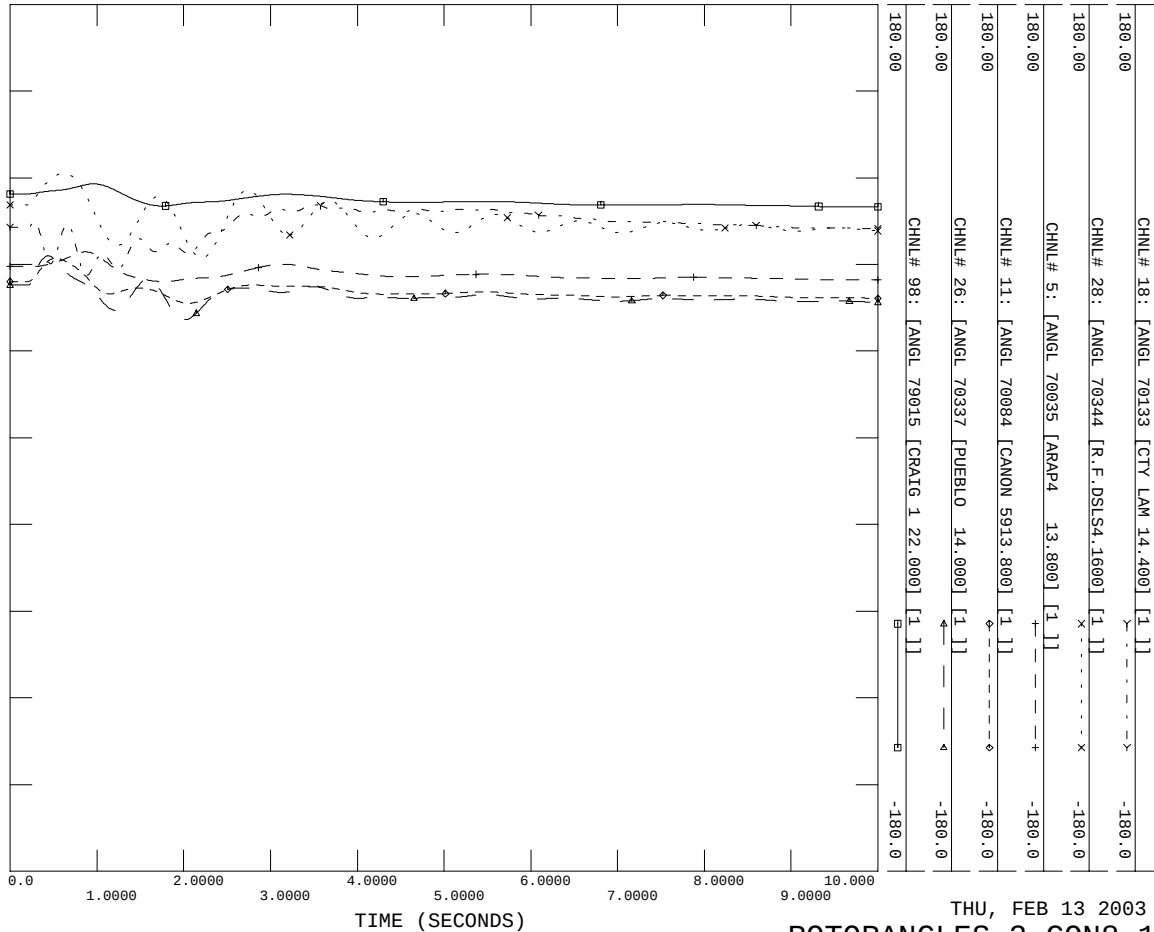
POWER  
TIC  
0.00015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]  
FILE: CON8-ON.OUT



POWER  
TIC  
0.00015

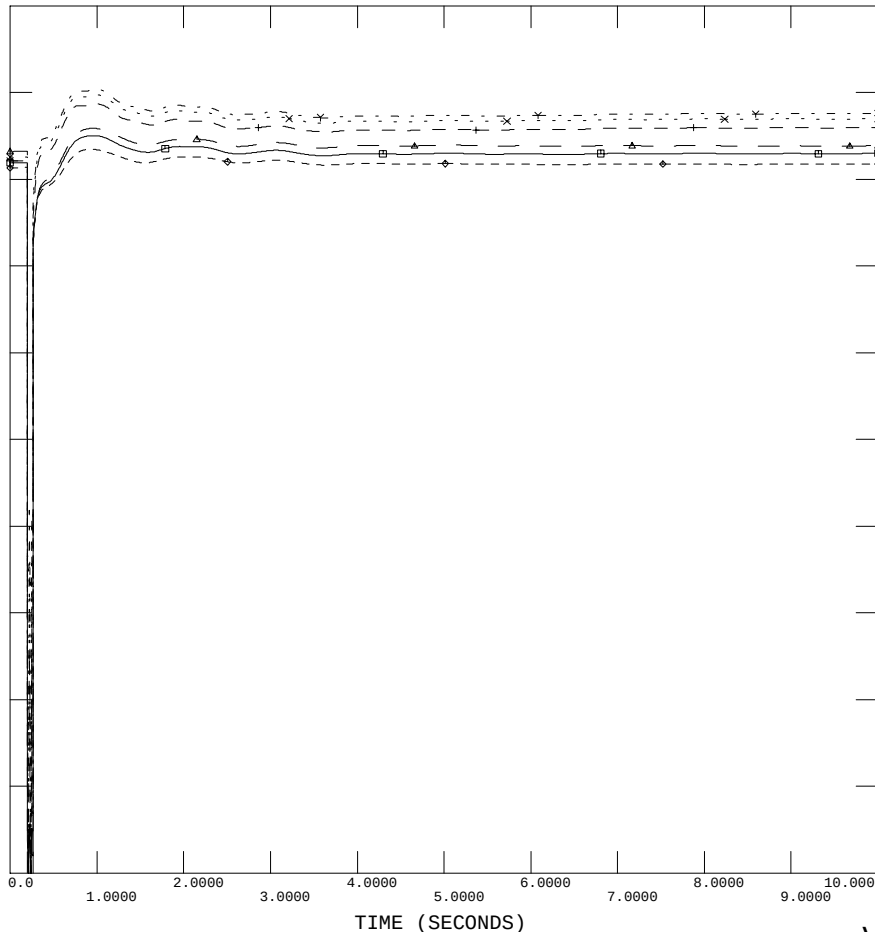
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]  
FILE: CON8-ON.OUT





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]  
FILE: CON8-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

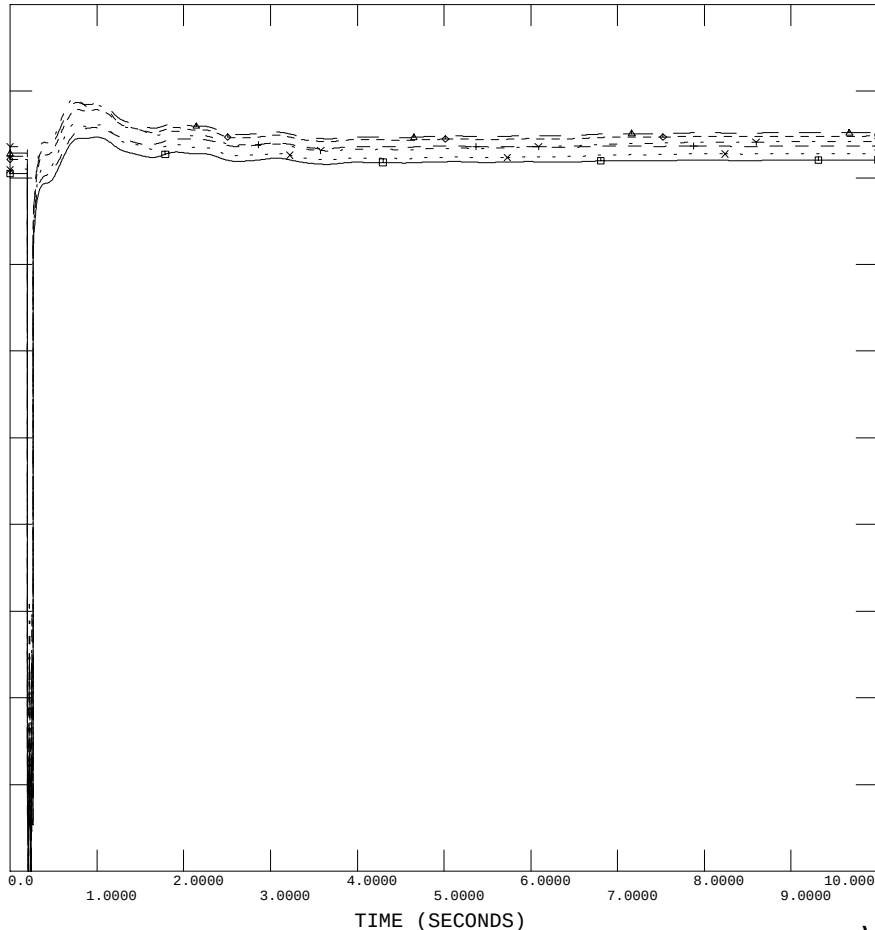


THU, FEB 13 2003 16:23  
VOLTAGE 1 CON8 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]  
FILE: CON8-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

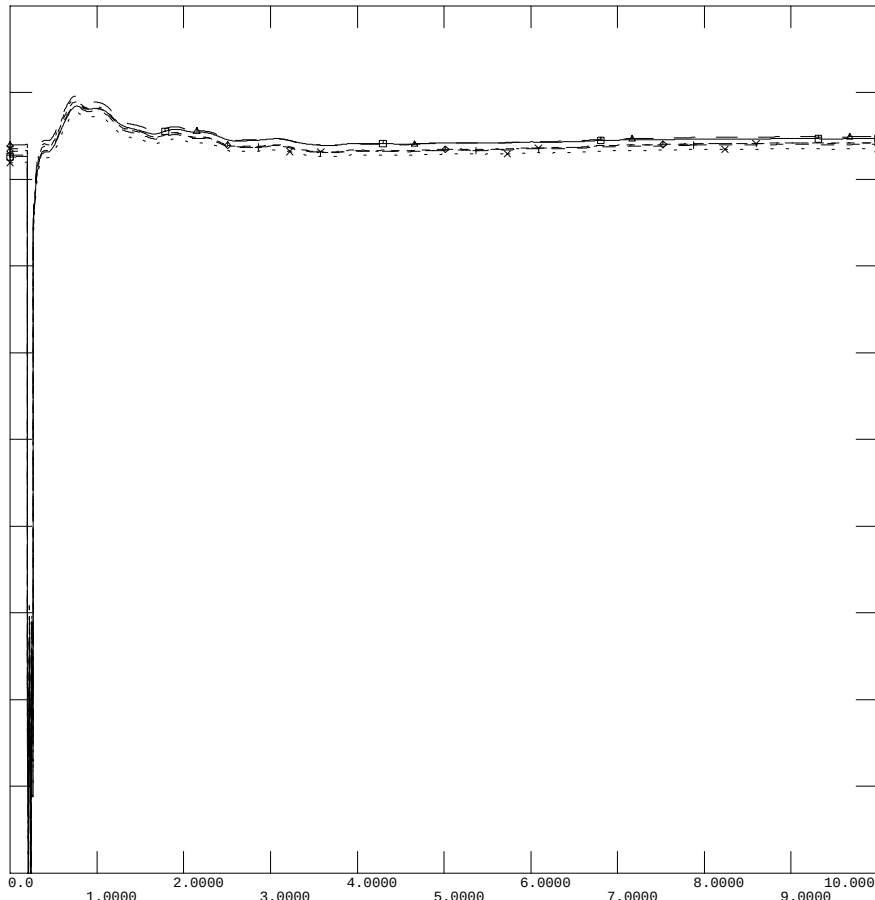


THU, FEB 13 2003 16:23  
VOLTAGE 2 CON8 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]  
FILE: CON8-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

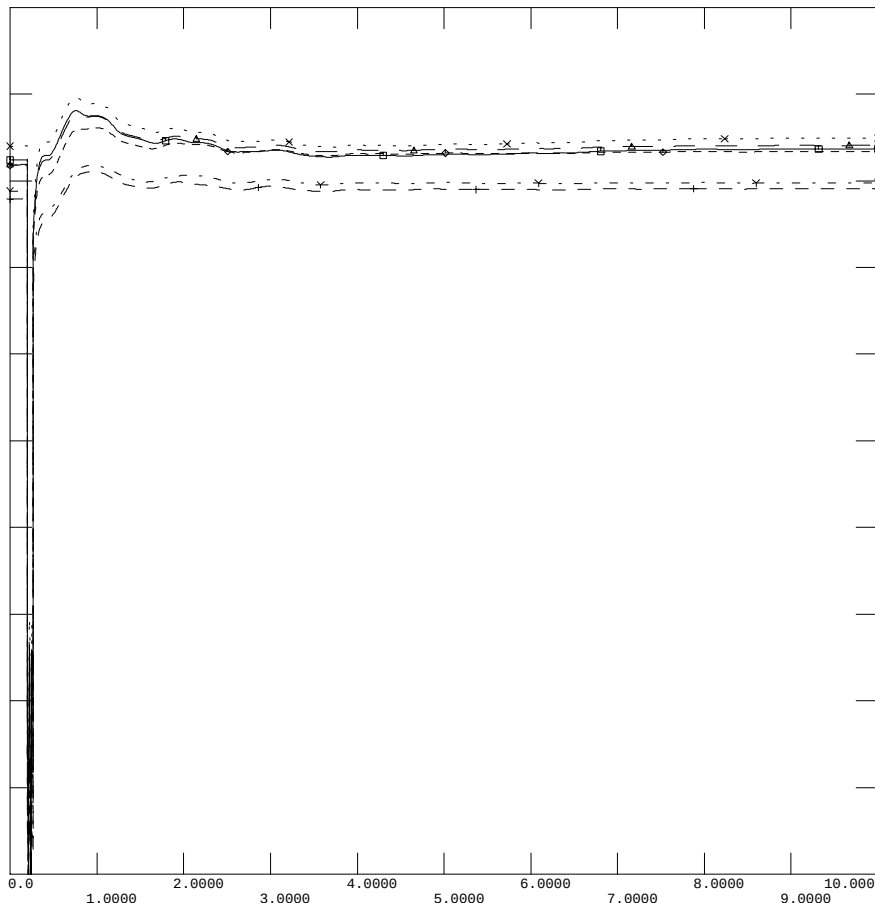


THU, FEB 13 2003 16:23  
VOLTAGE 3 CON8 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]  
FILE: CON8-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

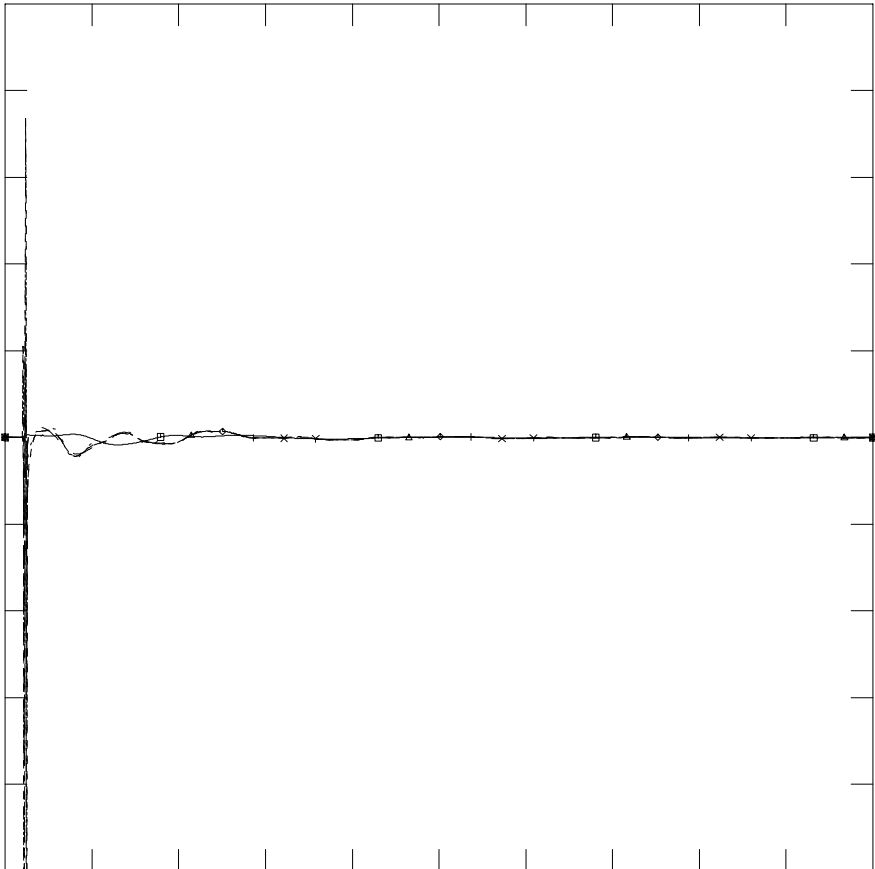


THU, FEB 13 2003 16:23  
VOLTAGE 4 CON8 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]  
FILE: CON8-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

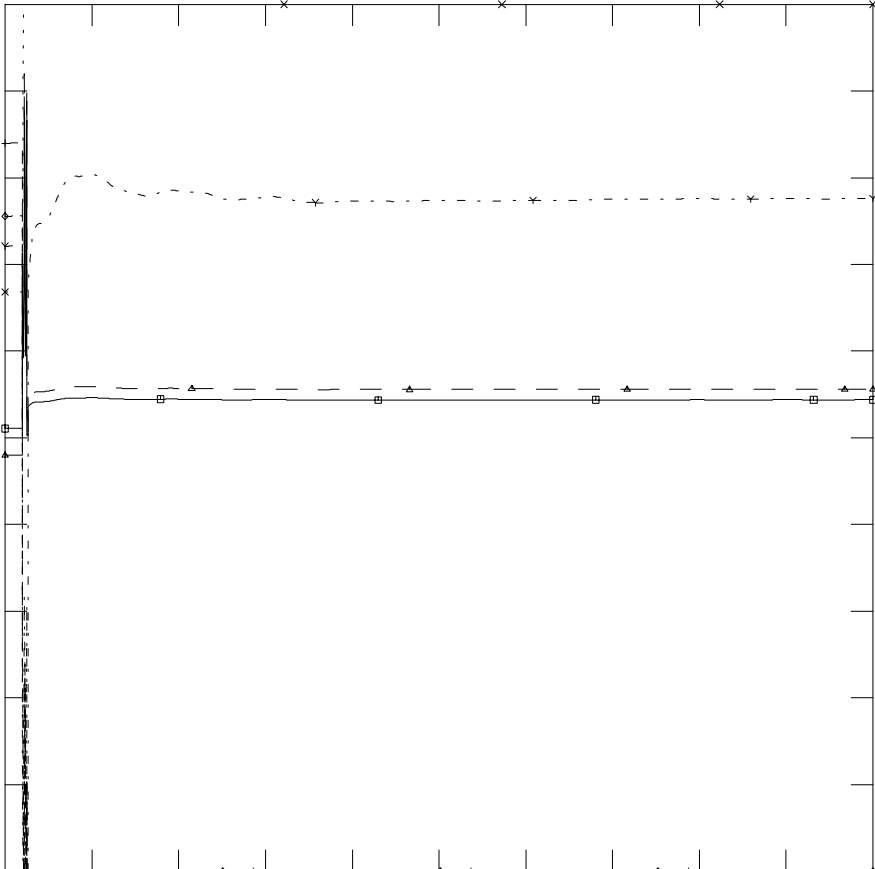


THU, FEB 13 2003 16:23  
FREQUENCY CON8 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON8 - FAULT ON COMANCHE - CF&I FURNACE 230 [COMANCHE END]  
FILE: CON8-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG1 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

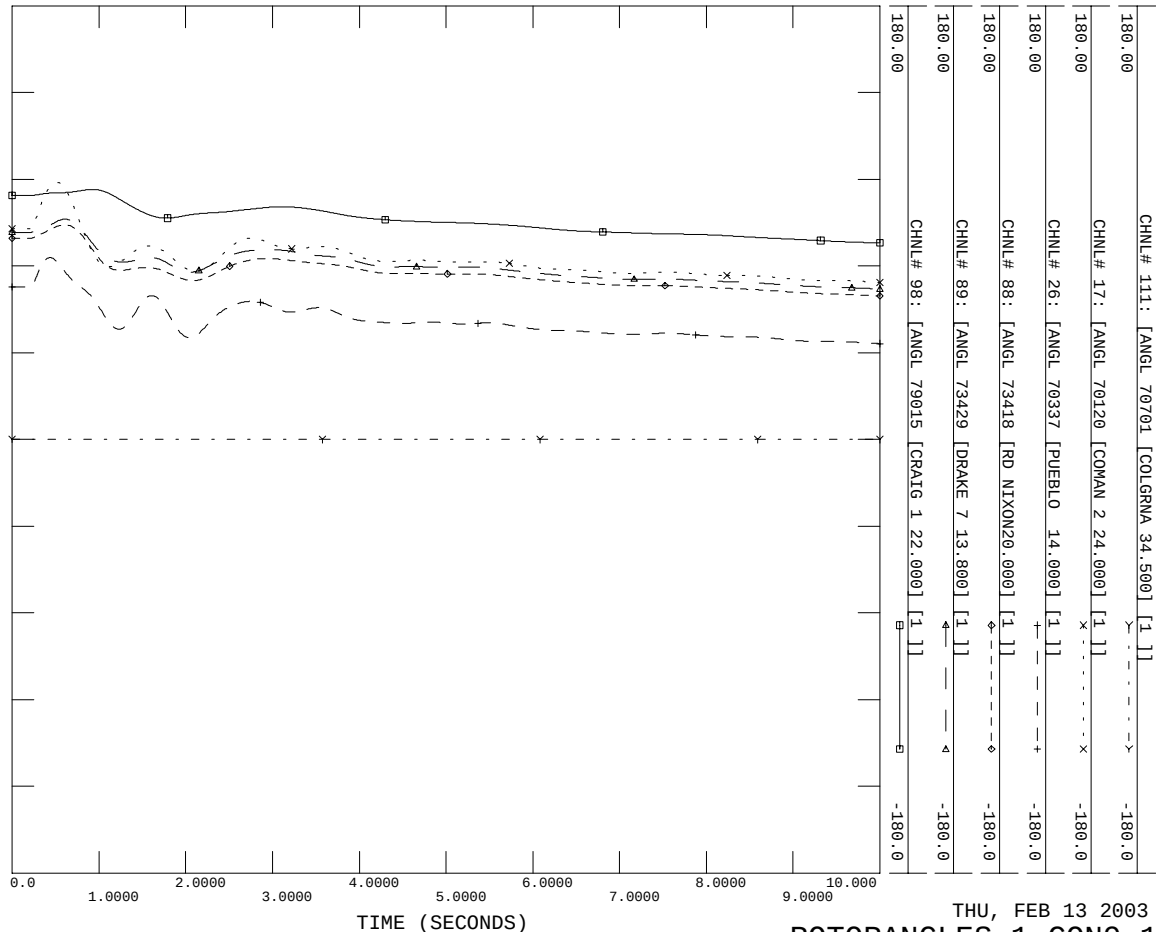


THU, FEB 13 2003 16:23  
WIND DATA CON8 162MW





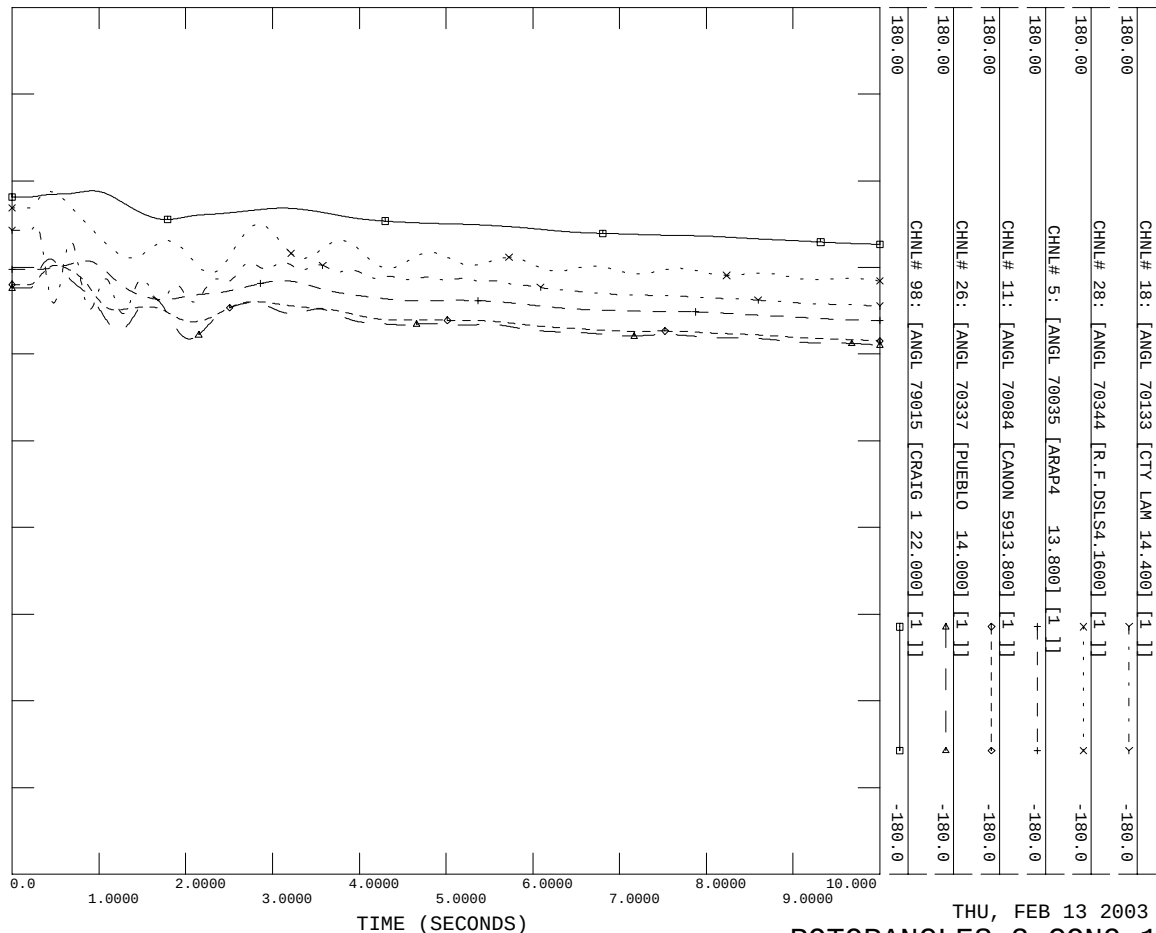
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]  
FILE: CON9-ON.OUT



THU, FEB 13 2003 16:23  
ROTORANGLES 1 CON9 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]  
FILE: CON9-ON.OUT

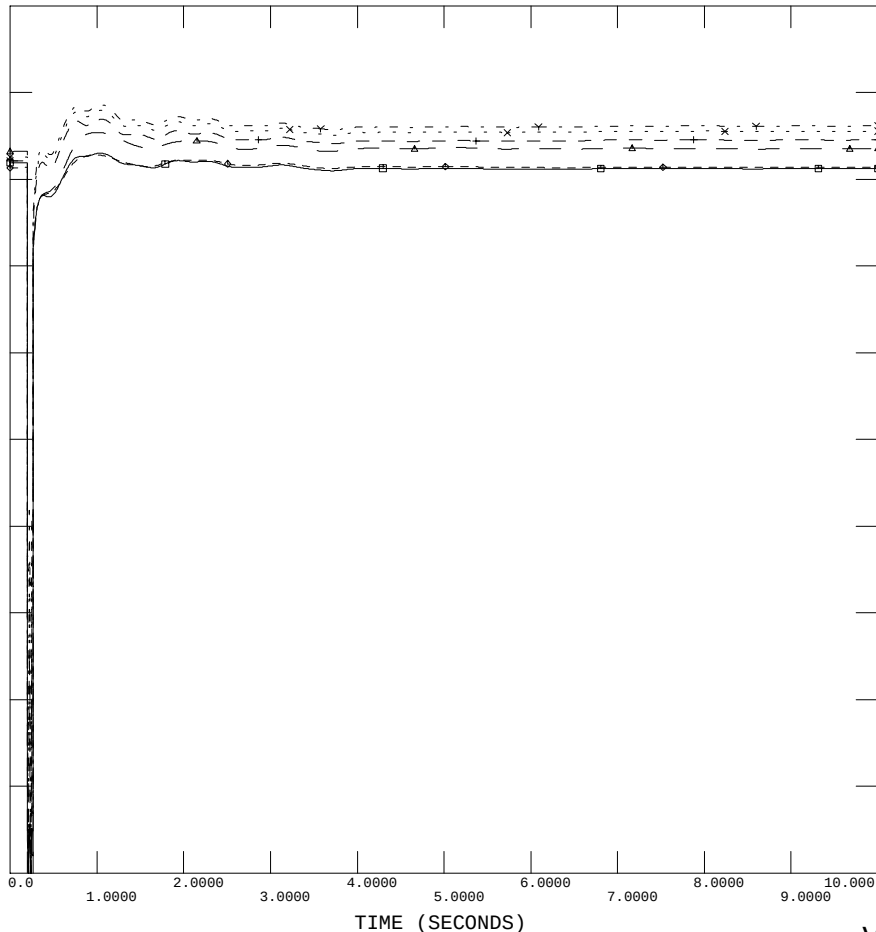


THU, FEB 13 2003 16:23  
ROTORANGLES 2 CON9 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

FILE: CON9-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

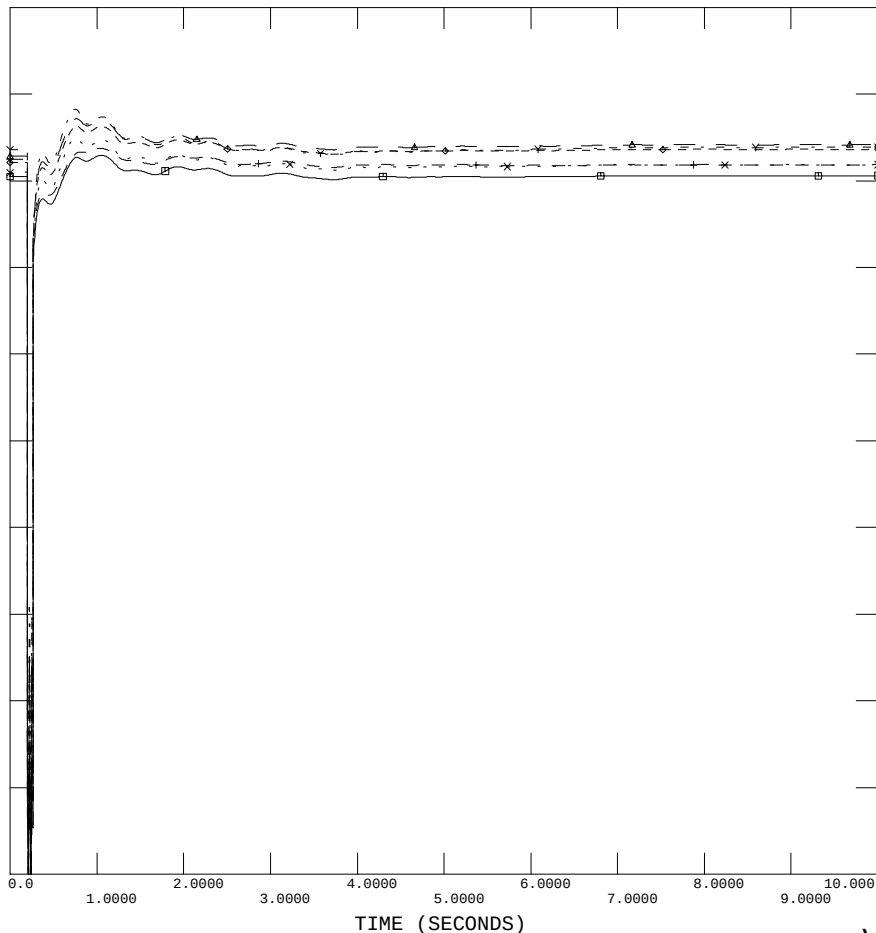


THU, FEB 13 2003 16:23  
VOLTAGE 1 CON9 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

FILE: CON9-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

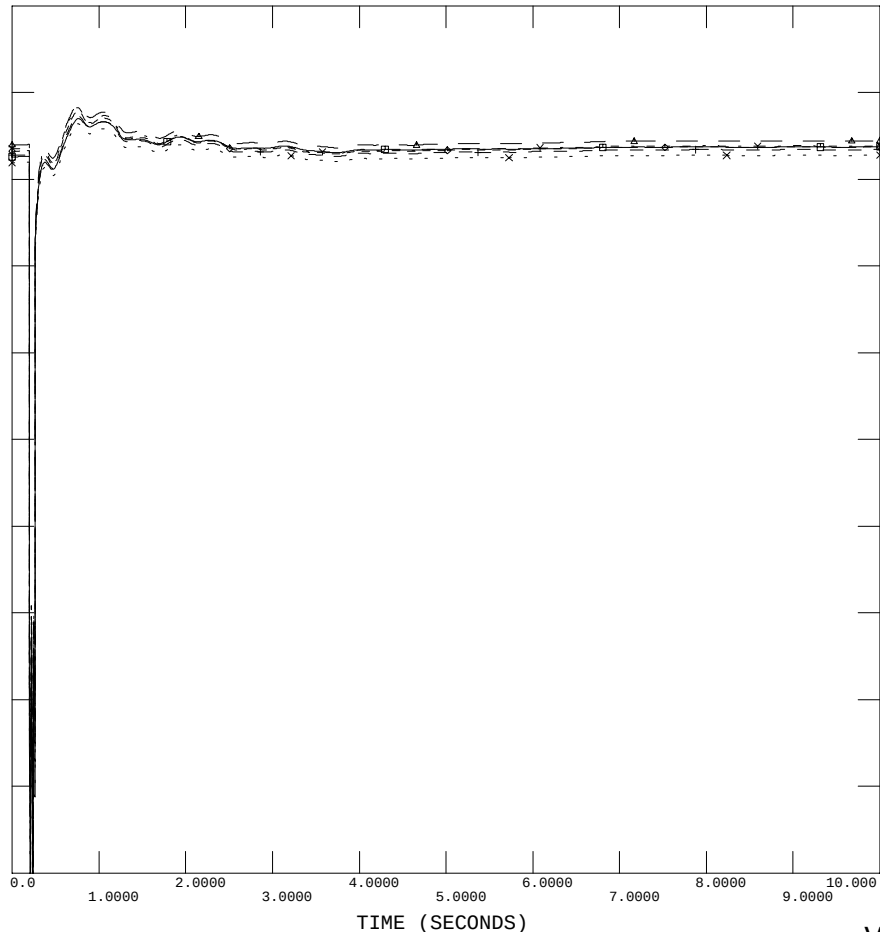


THU, FEB 13 2003 16:23  
VOLTAGE 2 CON9 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

FILE: CON9-ON.OUT

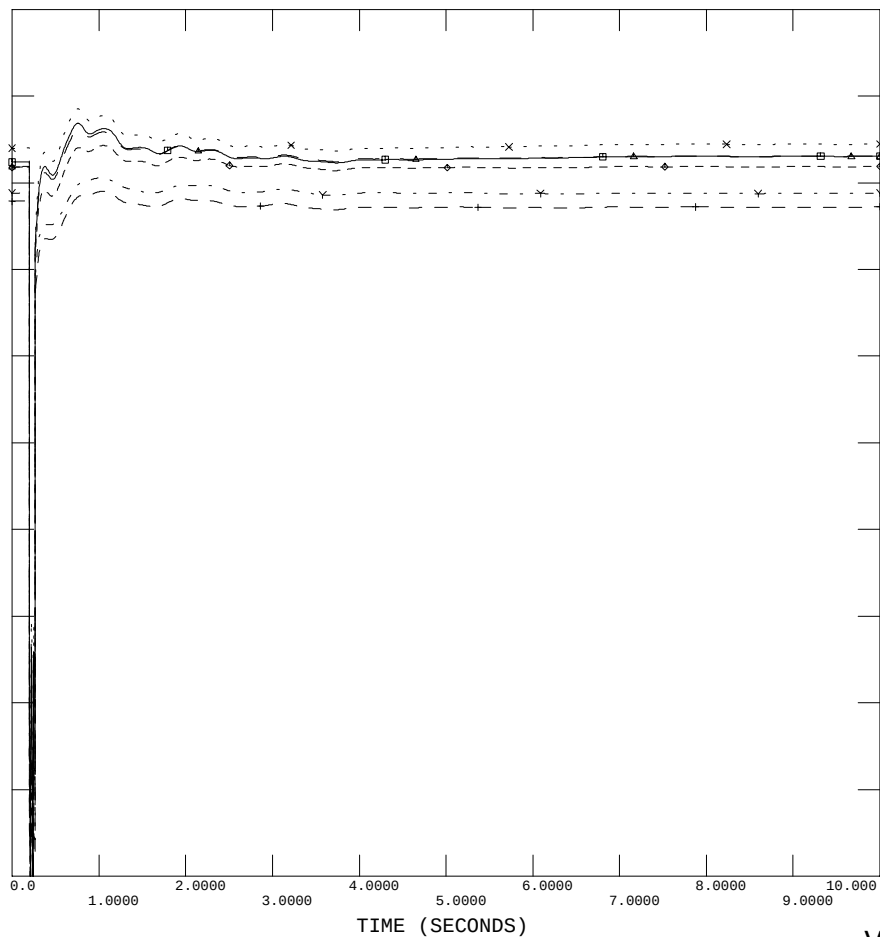
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]

FILE: CON9-ON.OUT

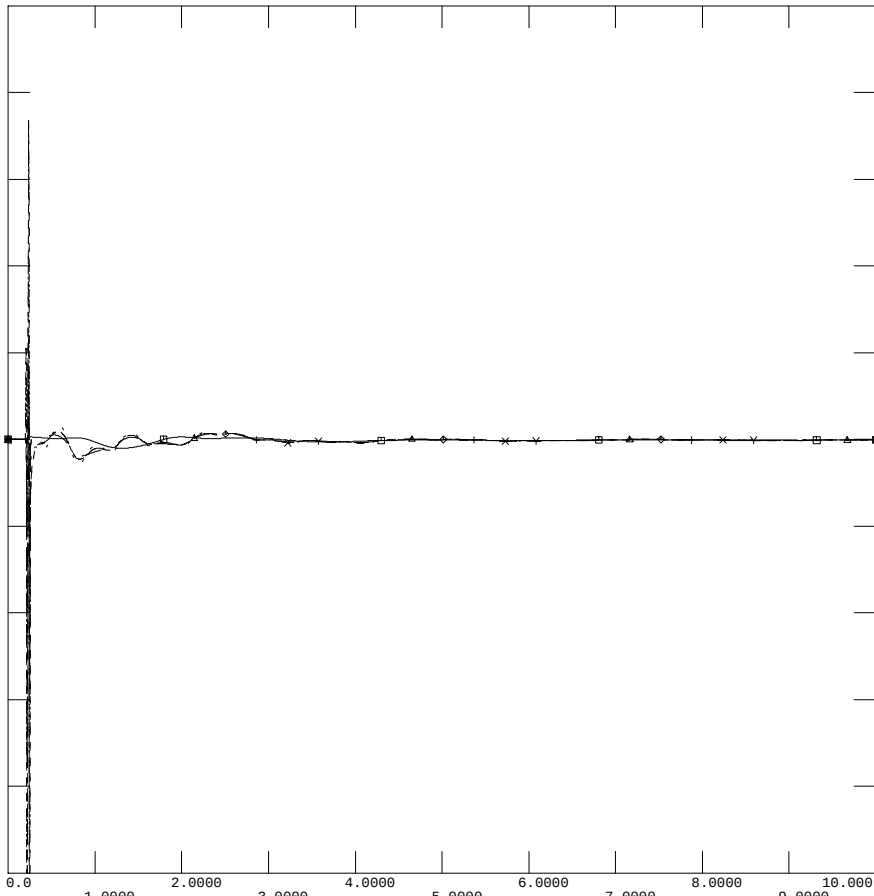
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRINGFLD69.000]] | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]  
FILE: CON9-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

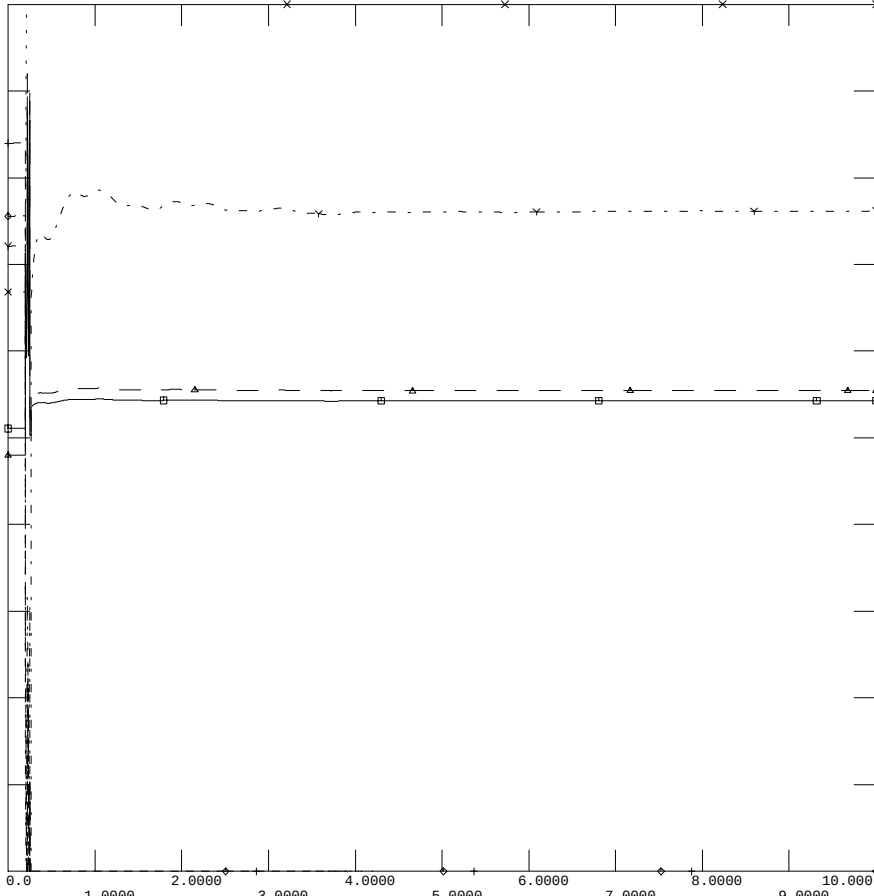


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FREQUENCY CON9 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON9 - FAULT ON COMANCHE - BOONE 230 [COMANCHE END]  
FILE: CON9-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



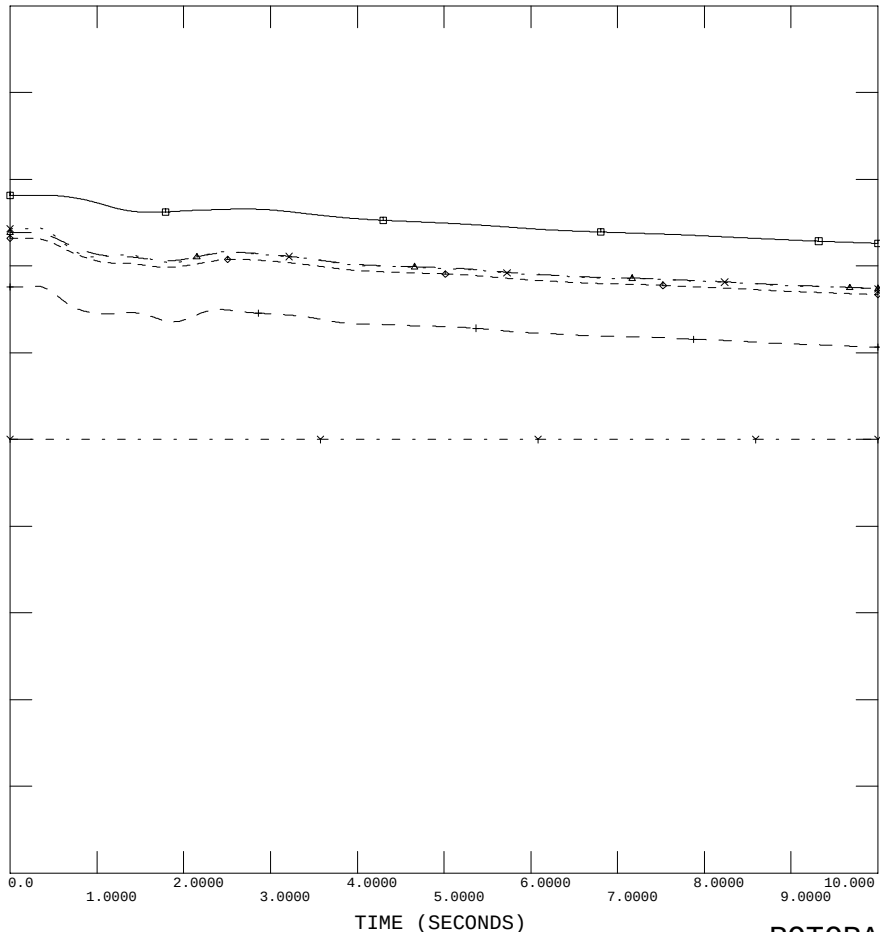
THU, FEB 13 2003 16:23  
WIND DATA CON9 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70701 [COLGRN 34.500] [1.]]  | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



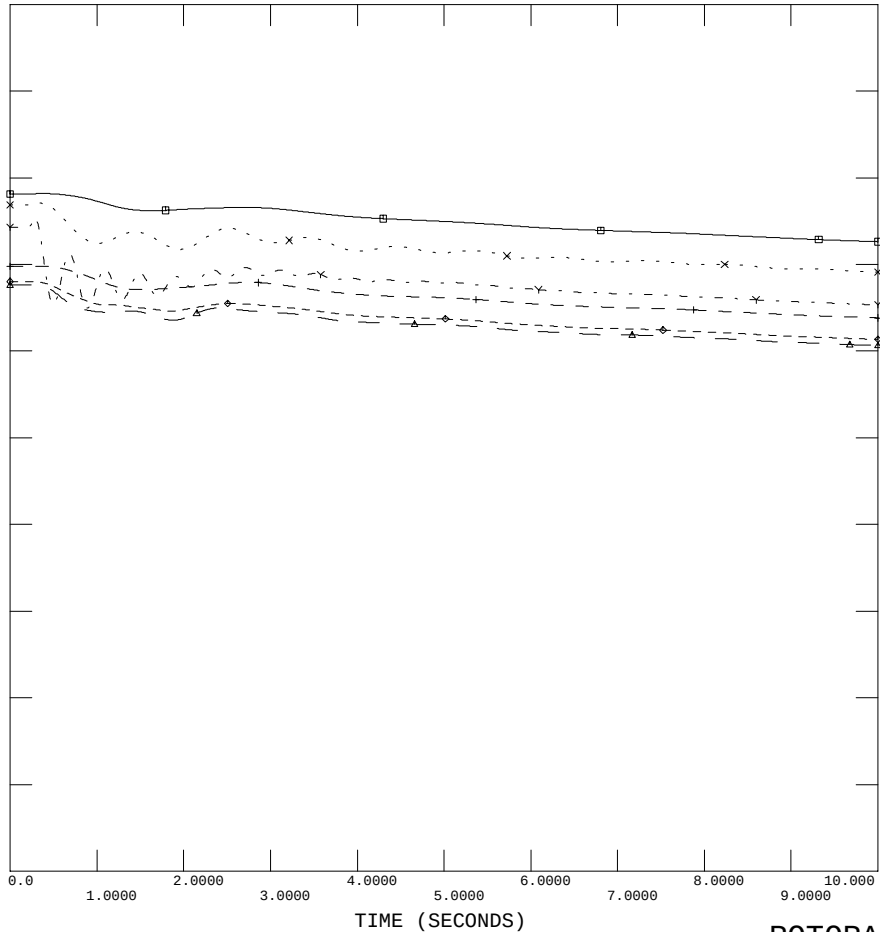
THU, FEB 13 2003 16:23  
ROTORANGLES 1 CON10 162MW



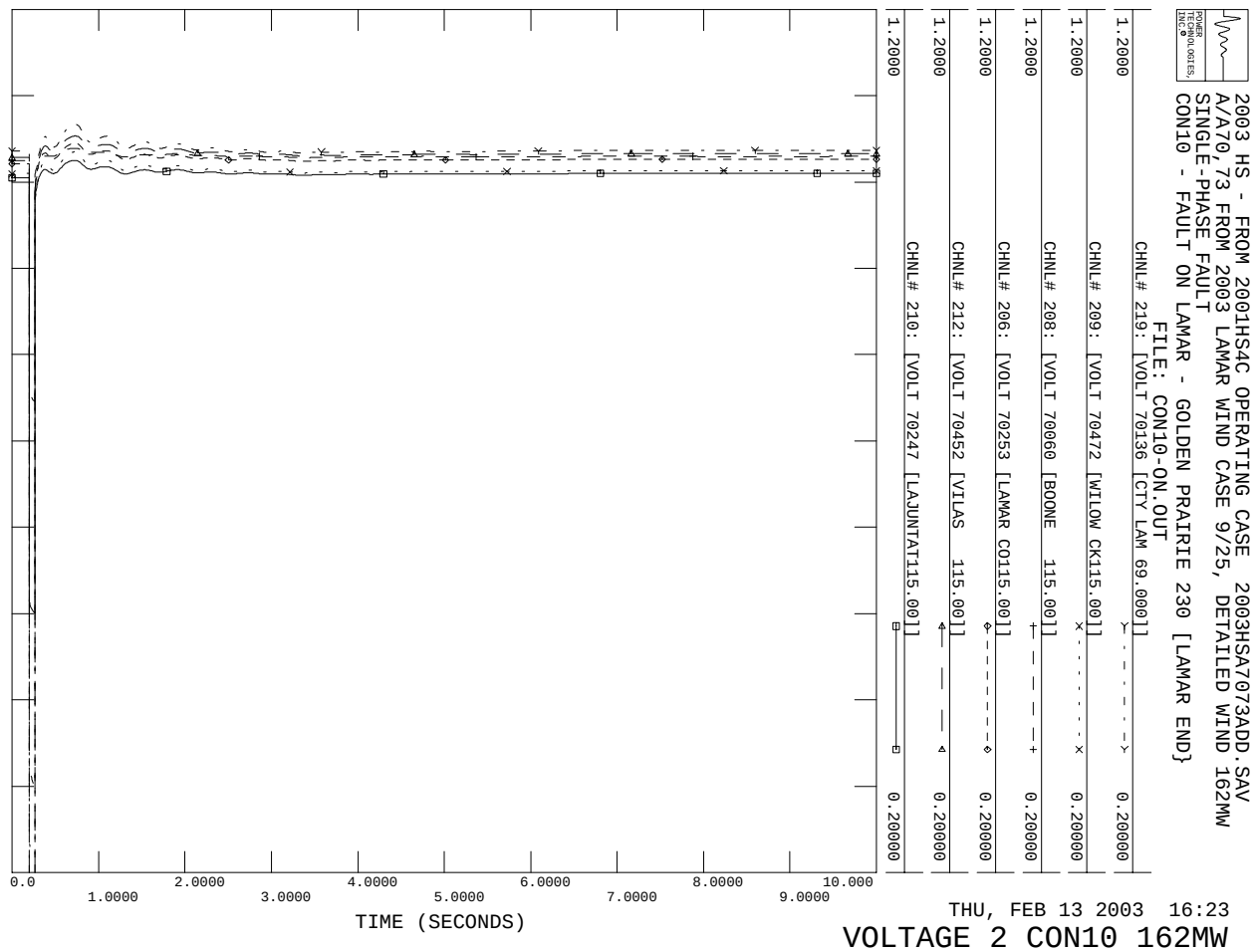
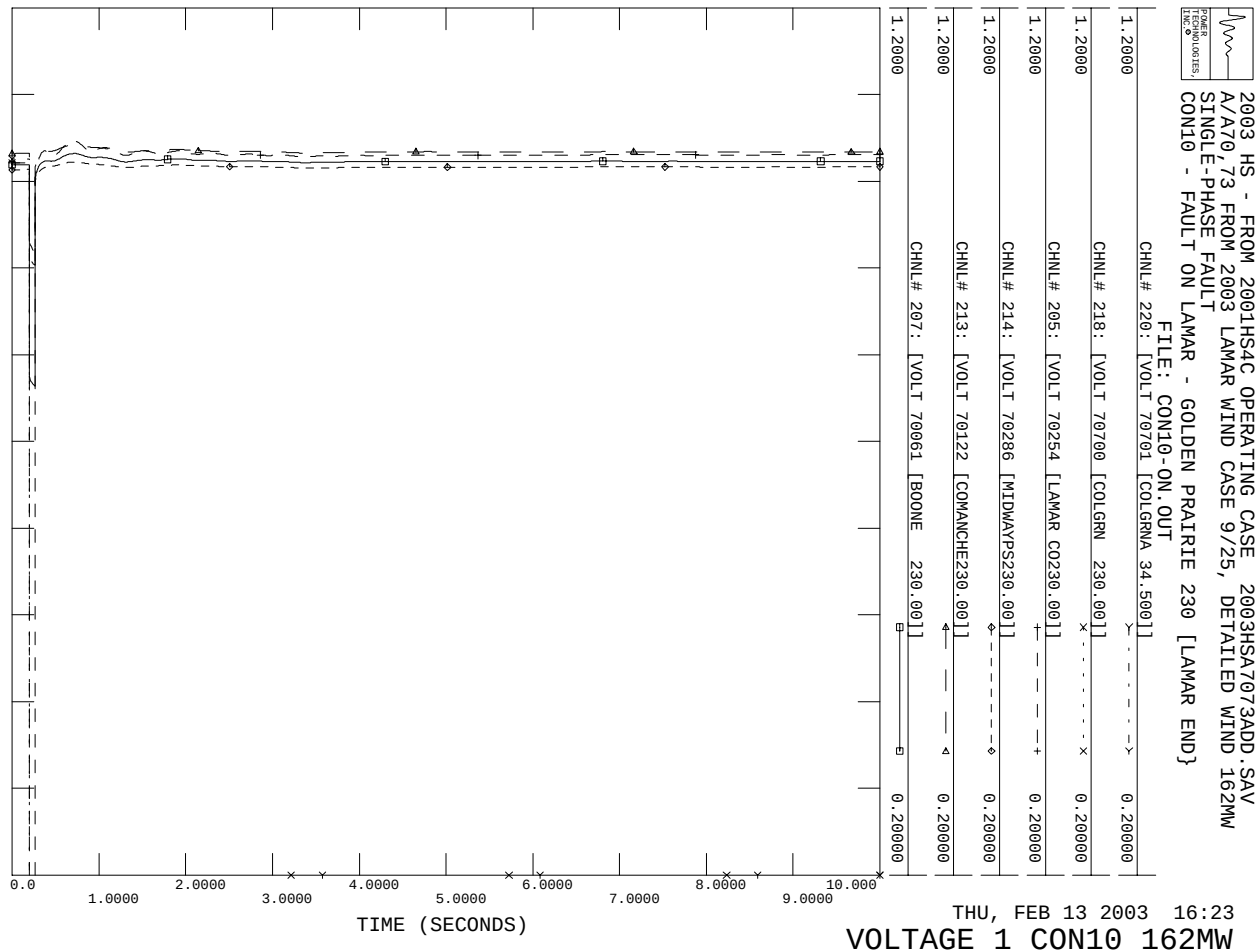
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



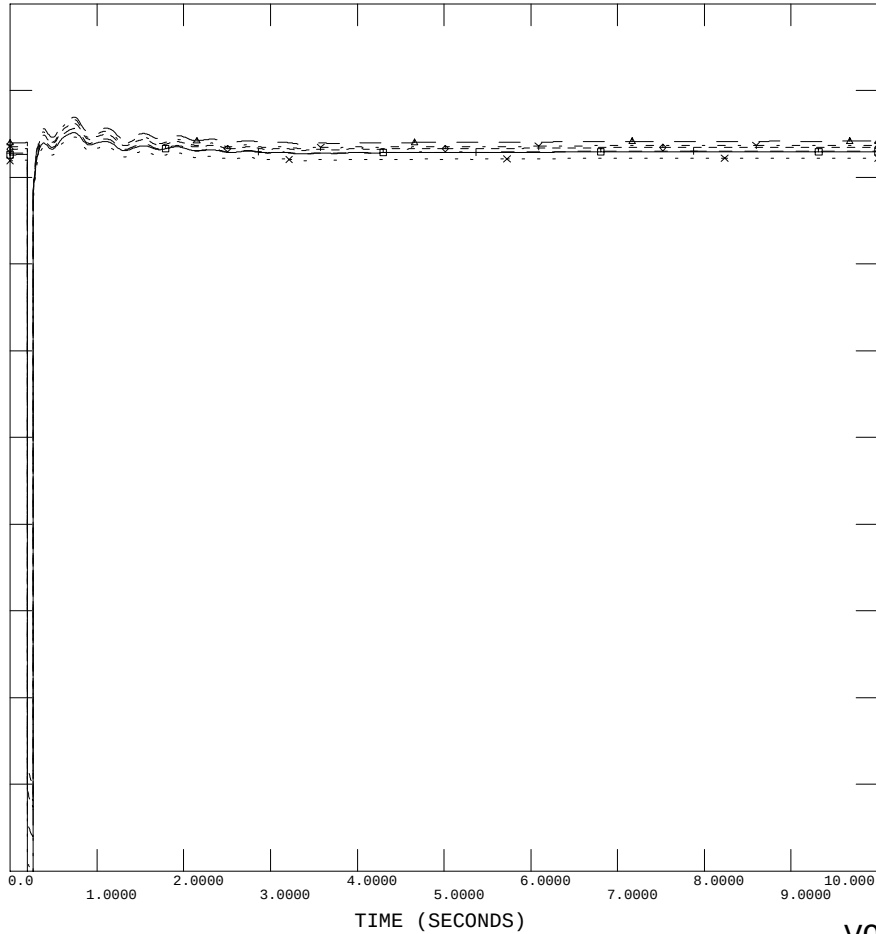
THU, FEB 13 2003 16:23  
ROTORANGLES 2 CON10 162MW





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]  
FILE: CON10-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

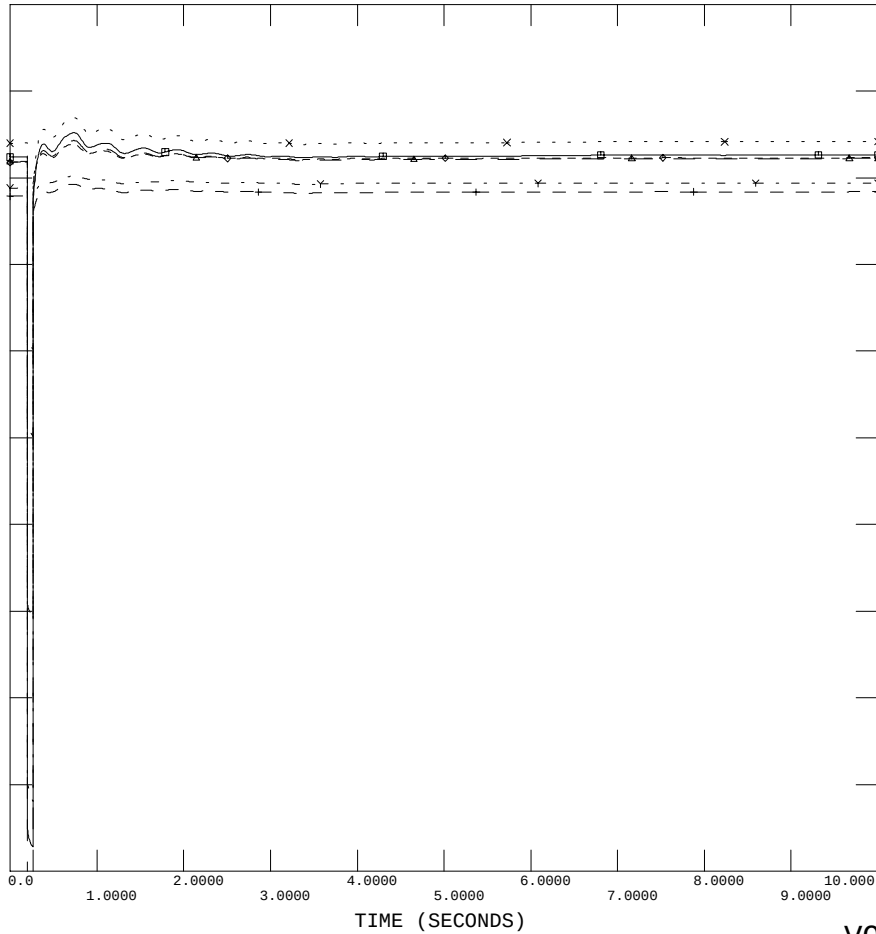


THU, FEB 13 2003 16:23  
VOLTAGE 3 CON10 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]  
FILE: CON10-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |



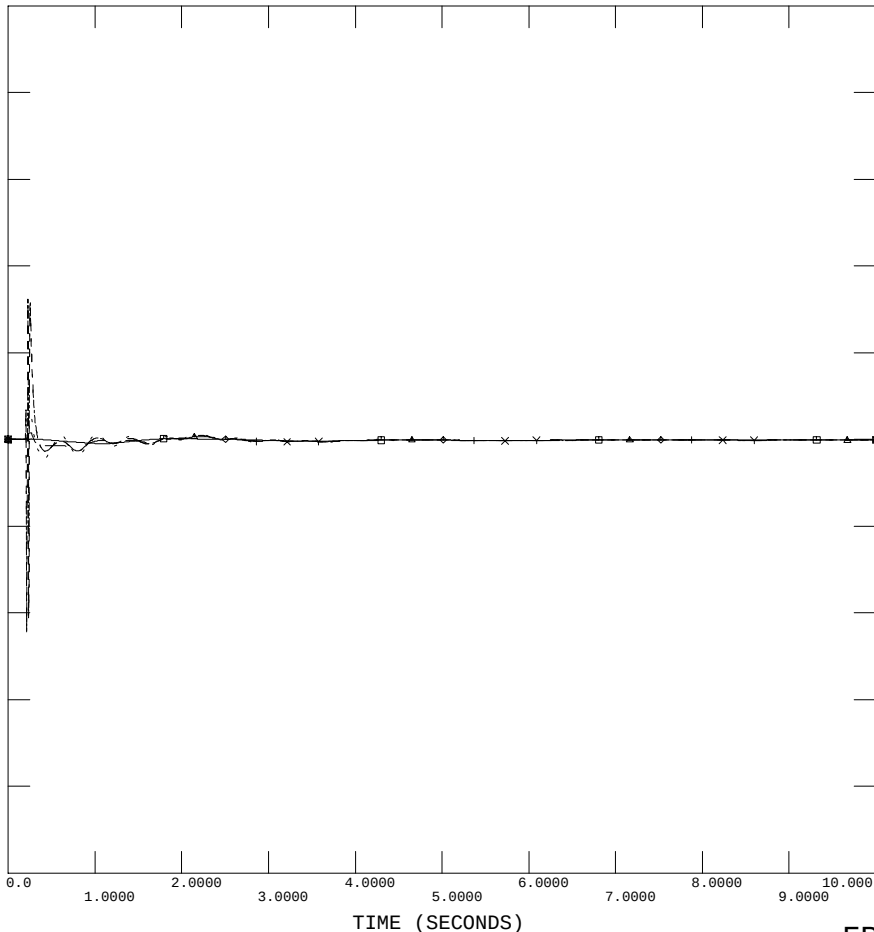
THU, FEB 13 2003 16:23  
VOLTAGE 4 CON10 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



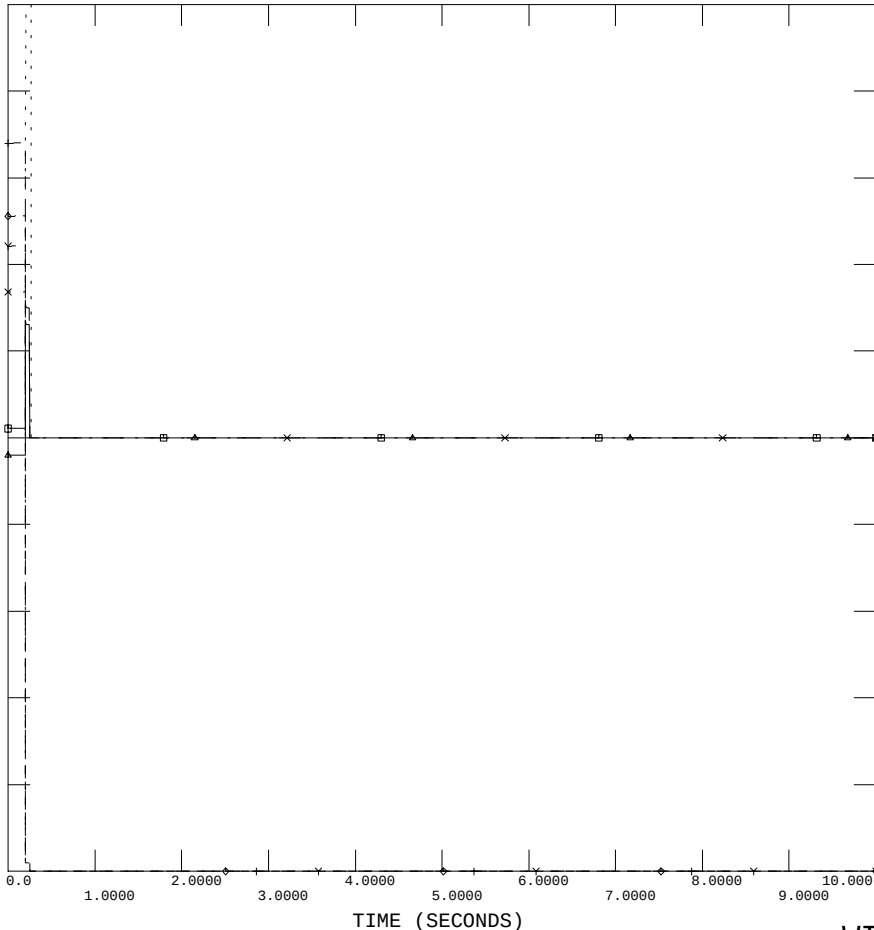
THU, FEB 13 2003 16:23  
FREQUENCY CON10 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON10 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [LAMAR END]

FILE: CON10-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

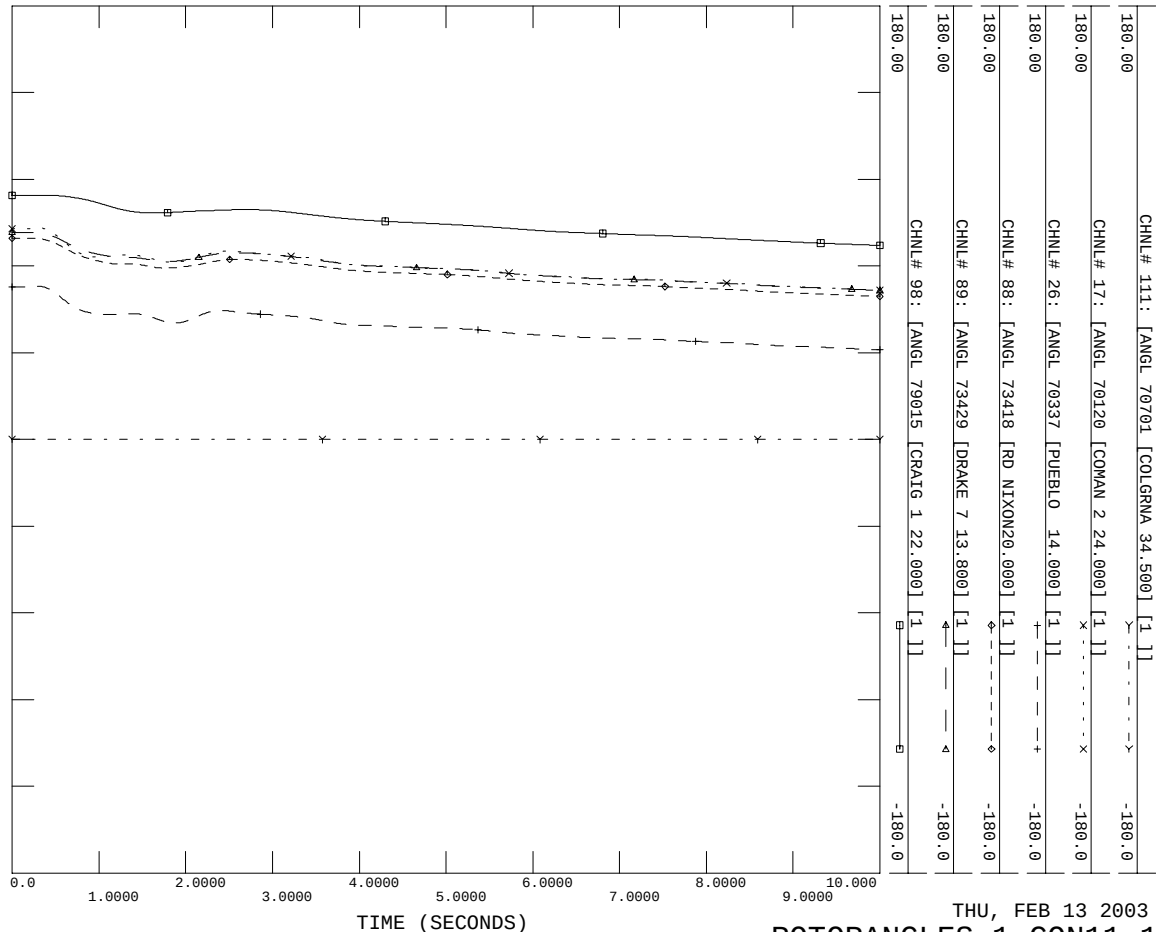


THU, FEB 13 2003 16:23  
WIND DATA CON10 162MW





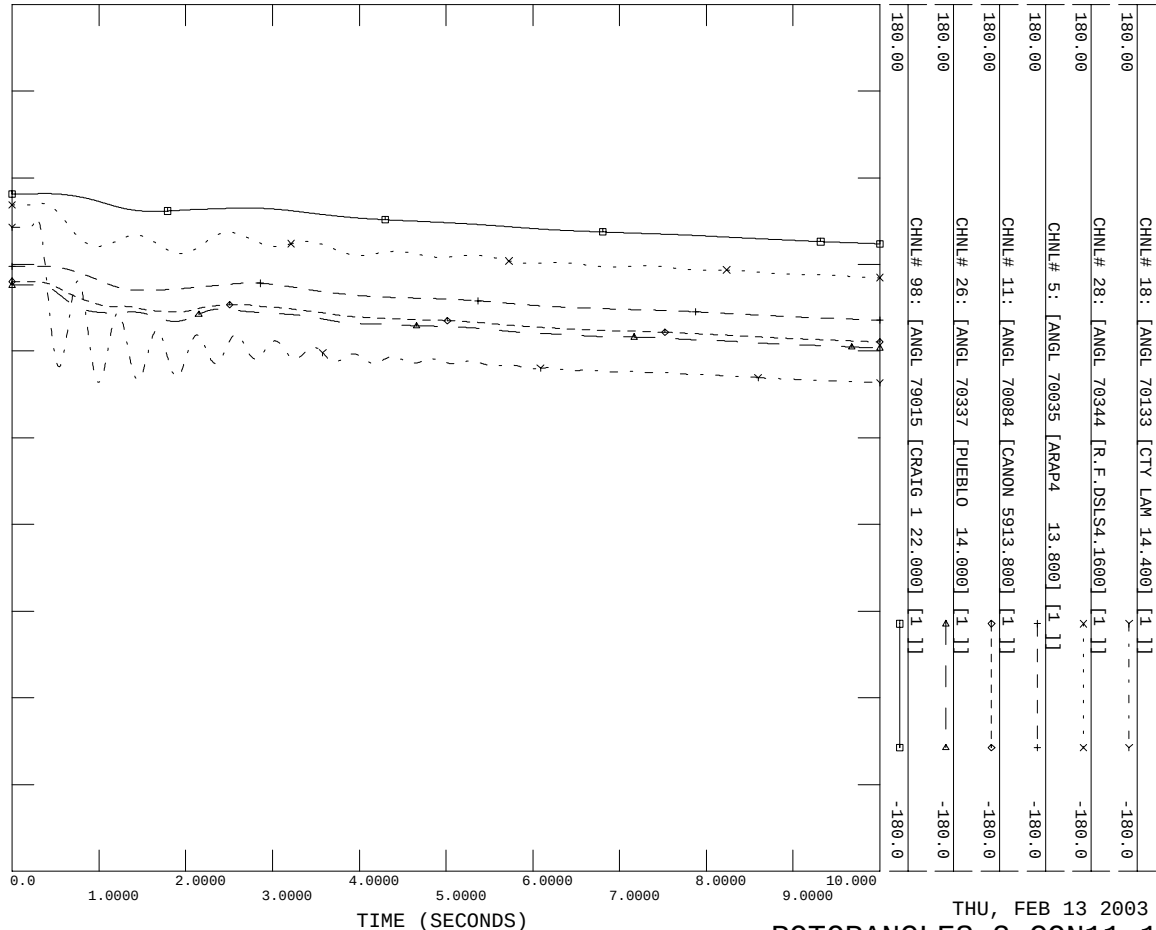
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT



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ROTORANGLES 1 CON11 162MW

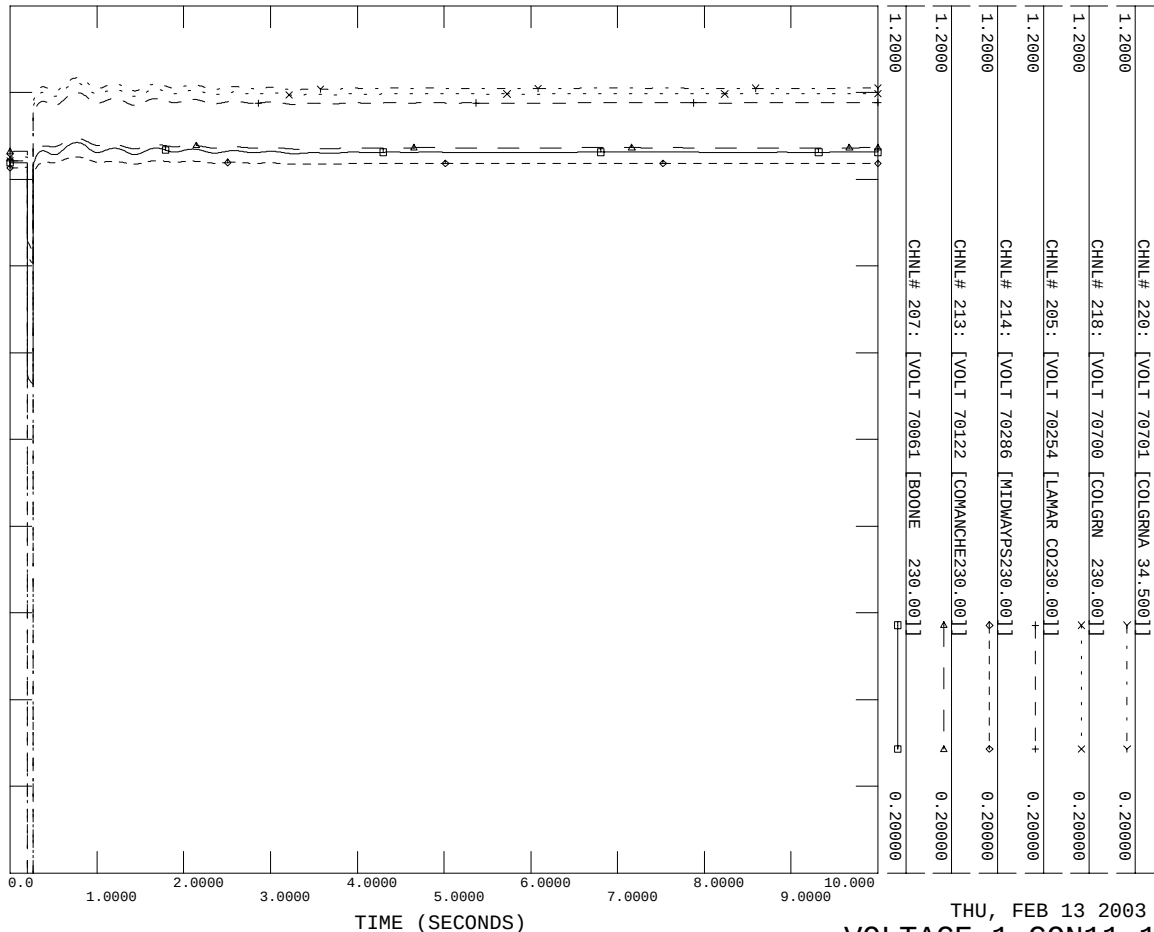


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT



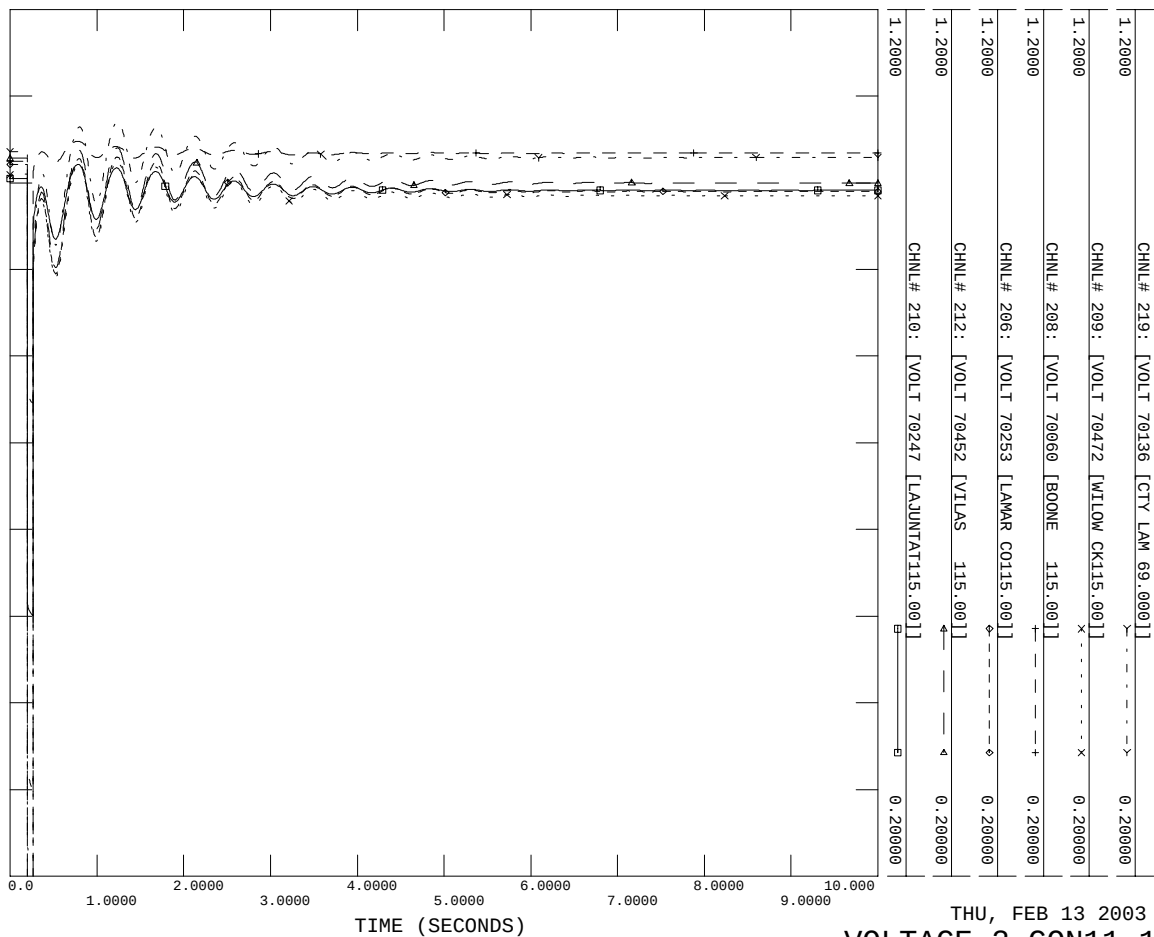
THU, FEB 13 2003 16:24  
ROTORANGLES 2 CON11 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT



THU, FEB 13 2003 16:24  
VOLTAGE 1 CON11 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT

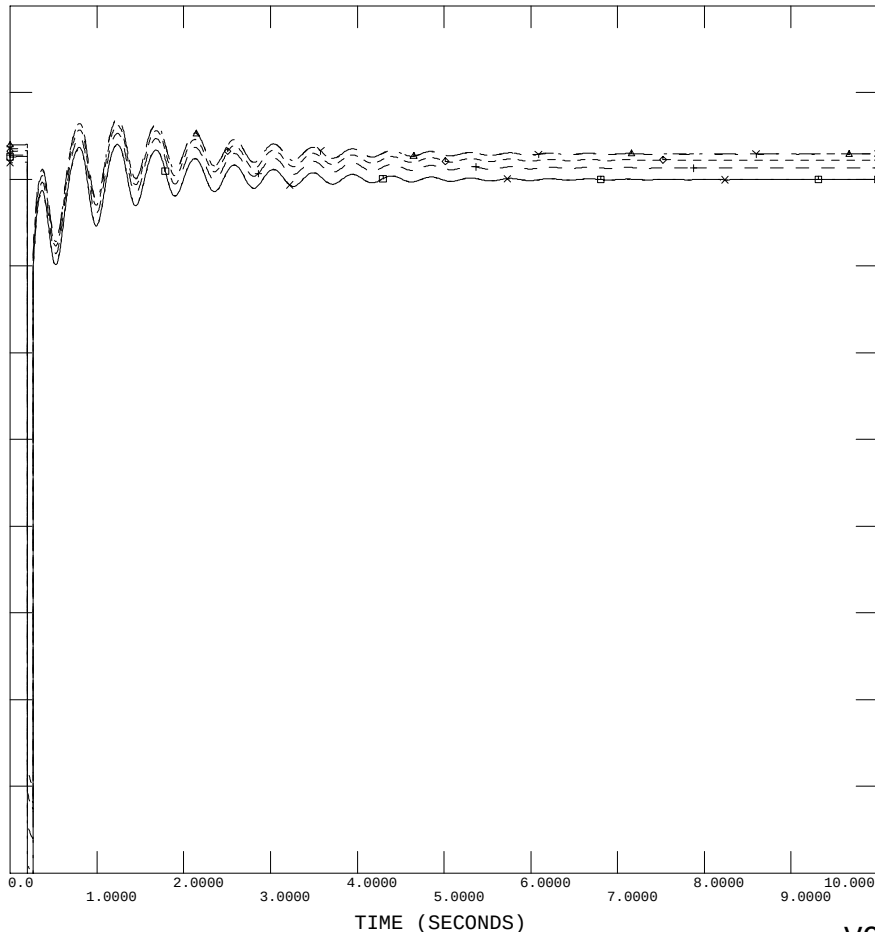


THU, FEB 13 2003 16:24  
VOLTAGE 2 CON11 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

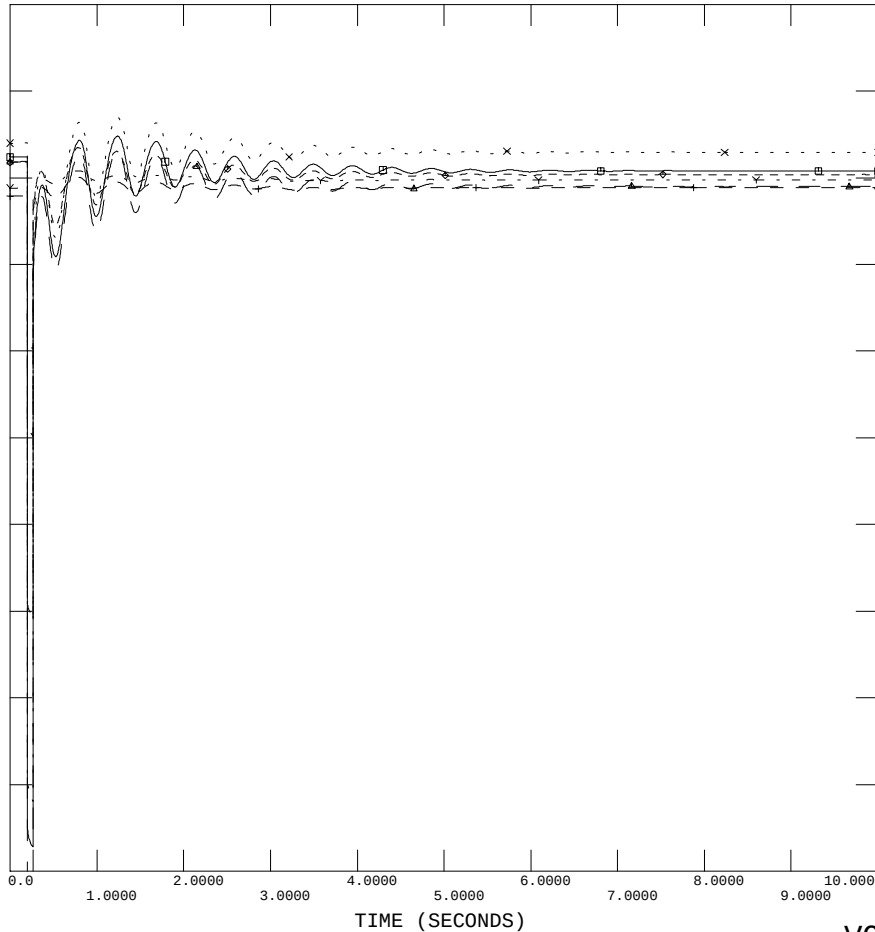


THU, FEB 13 2003 16:24  
VOLTAGE 3 CON11 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRINGFLD69.000]] | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

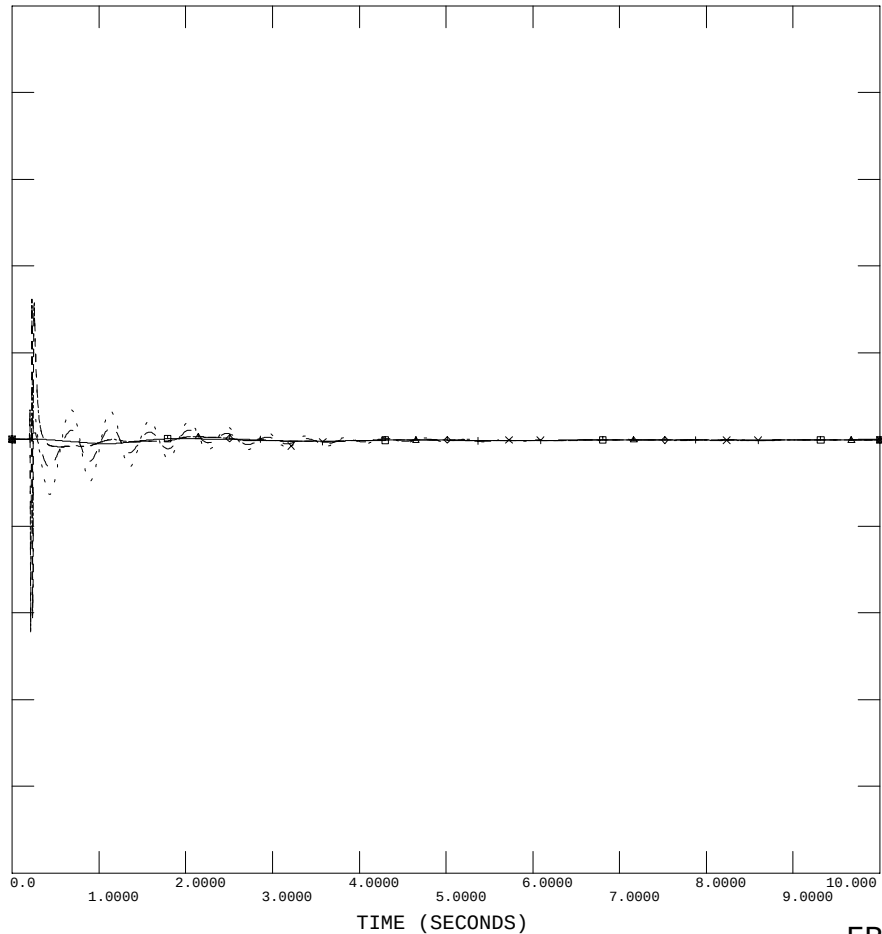


THU, FEB 13 2003 16:24  
VOLTAGE 4 CON11 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

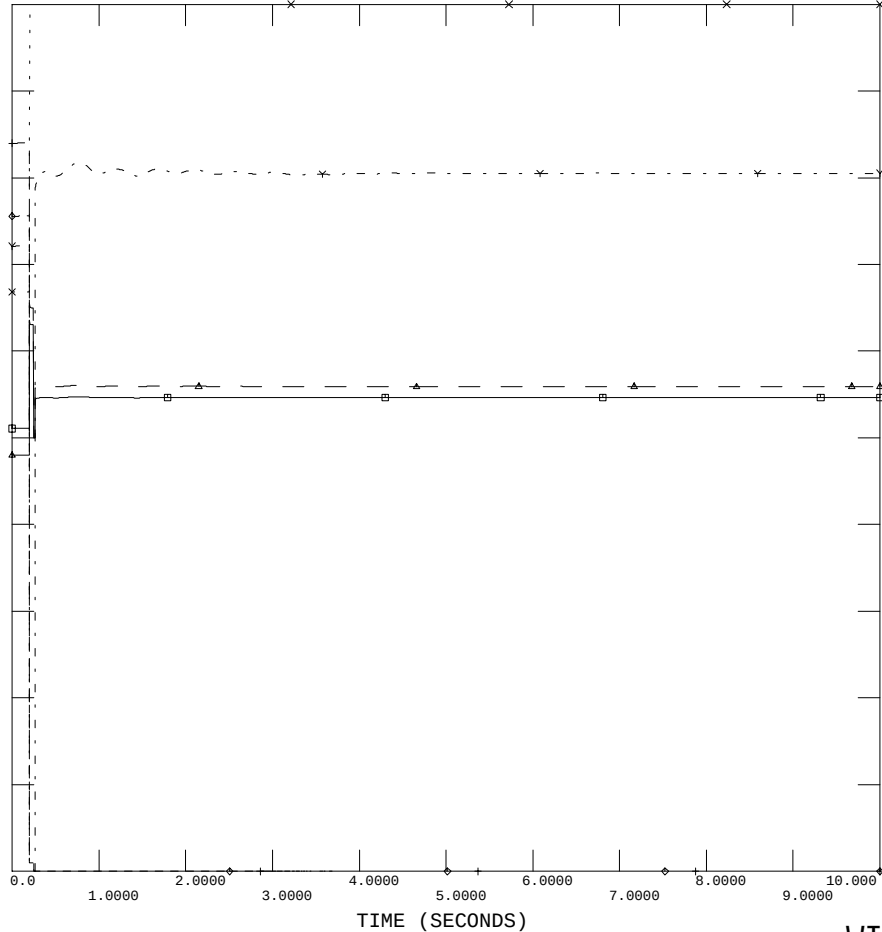


THU, FEB 13 2003 16:24  
FREQUENCY CON11 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON11 - FAULT ON LAMAR 230/115 TRANSFORMER [230-KV END]  
FILE: CON11-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [COLGRNA 34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

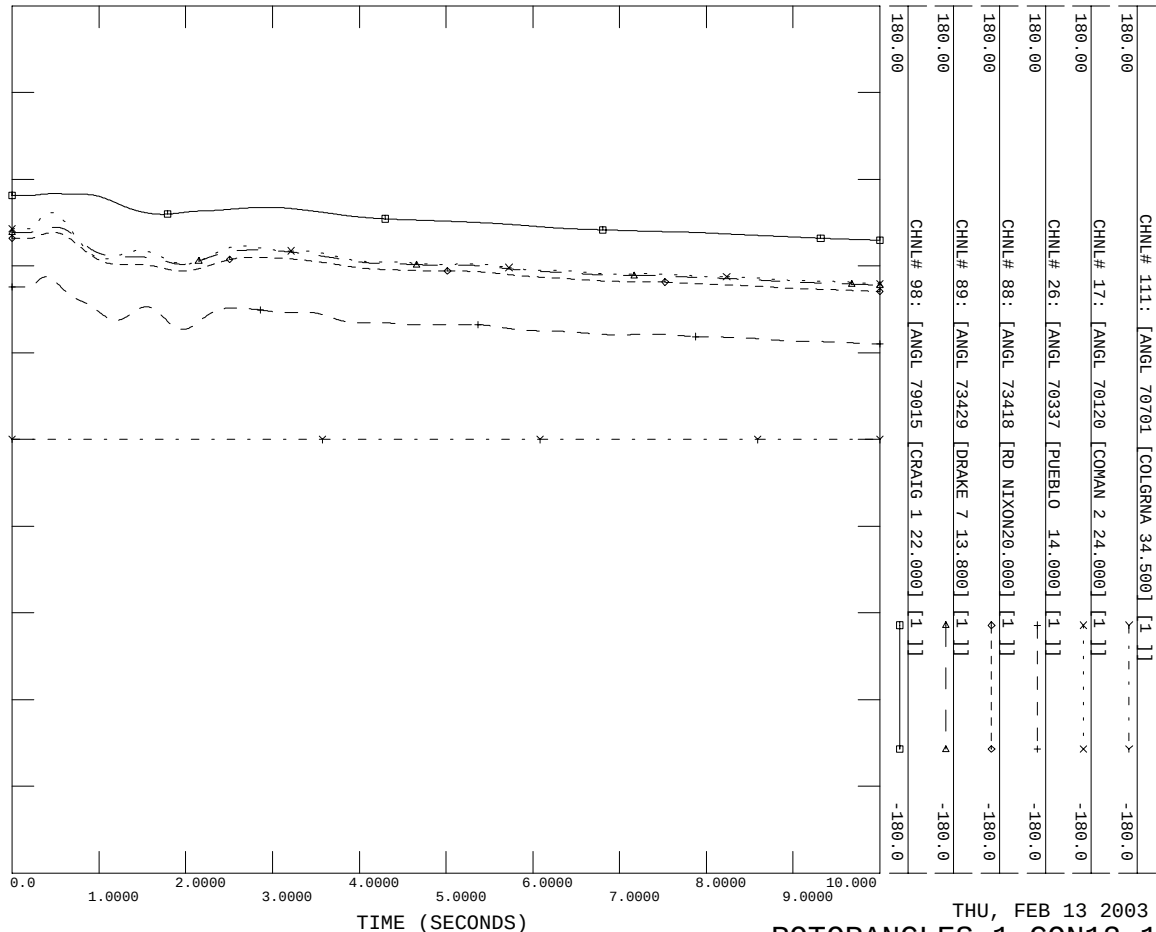


THU, FEB 13 2003 16:24  
WIND DATA CON11 162MW



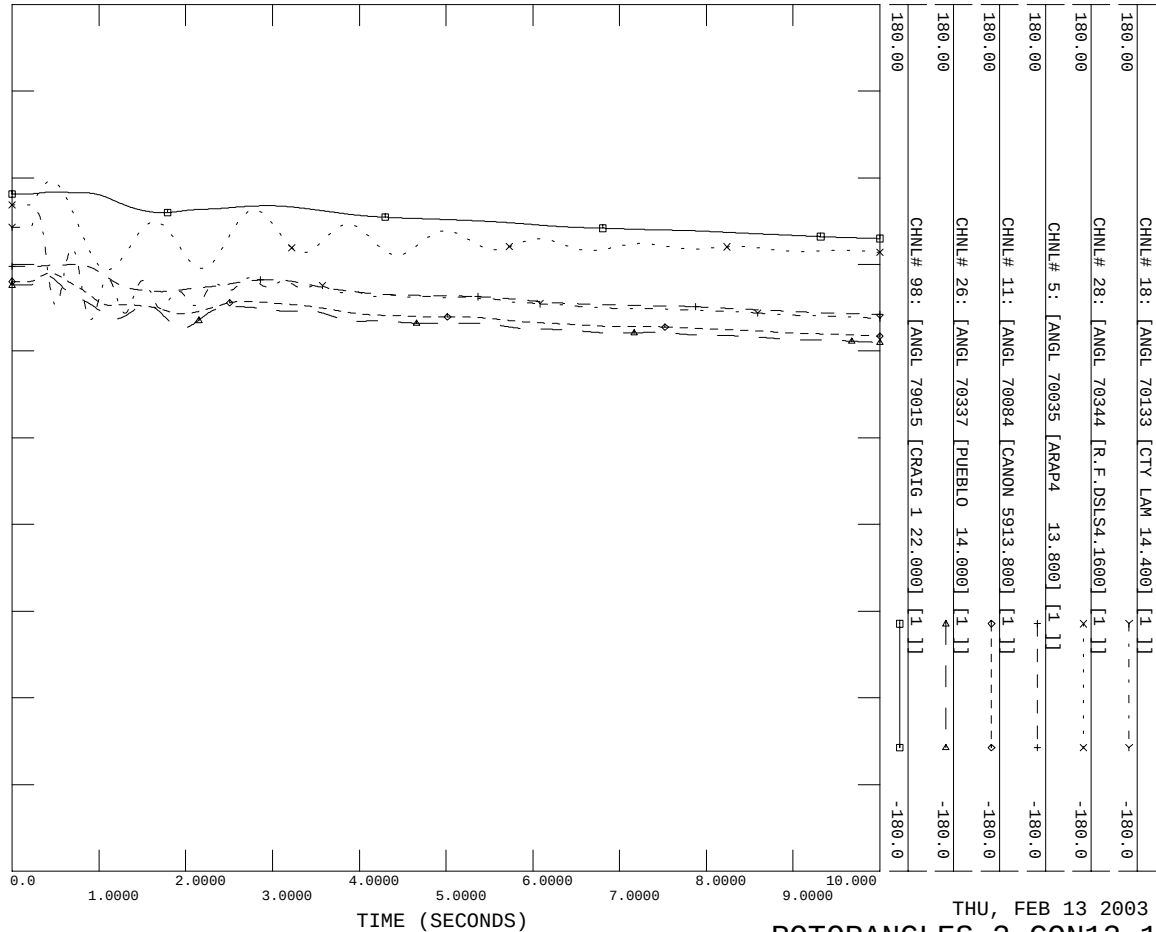
POWER  
TIC  
0.00013

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT

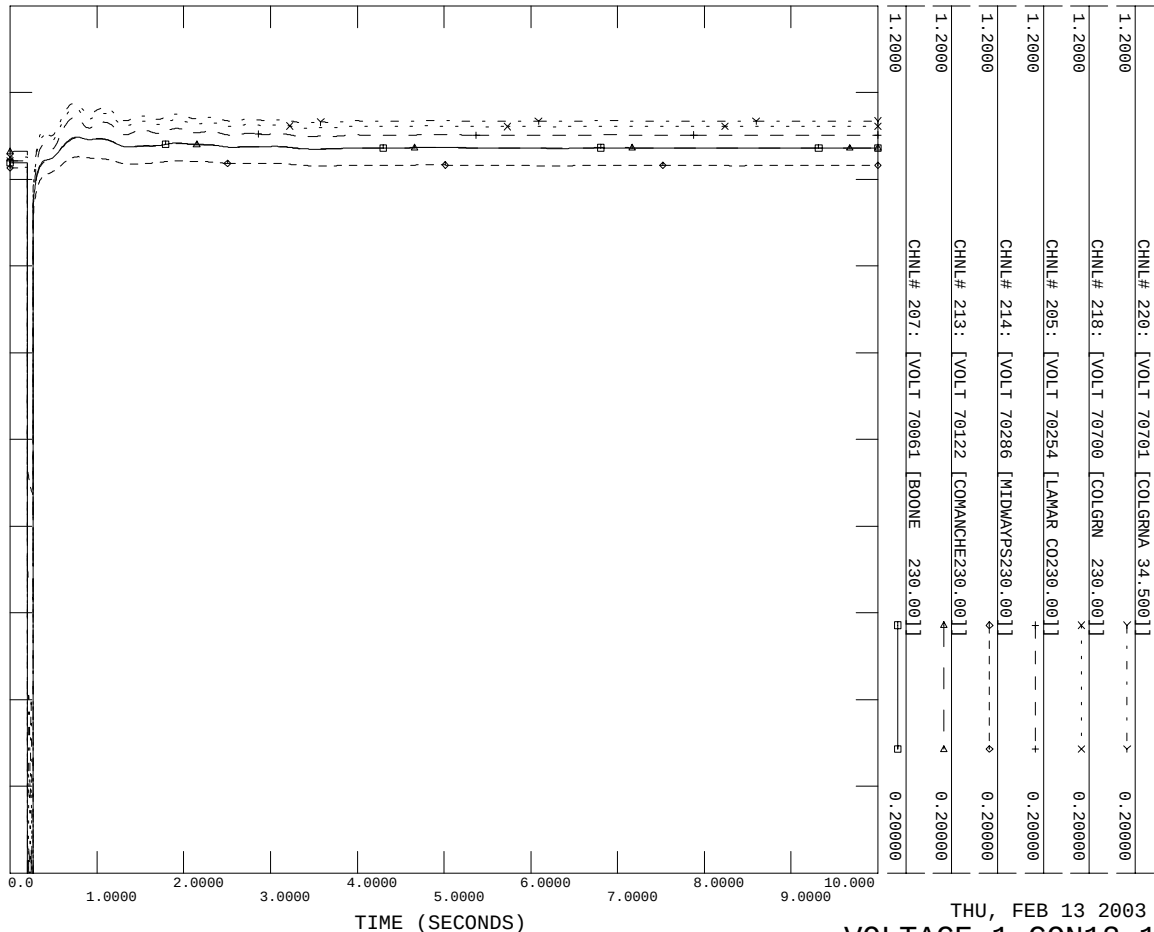


POWER  
TIC  
0.00013

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT

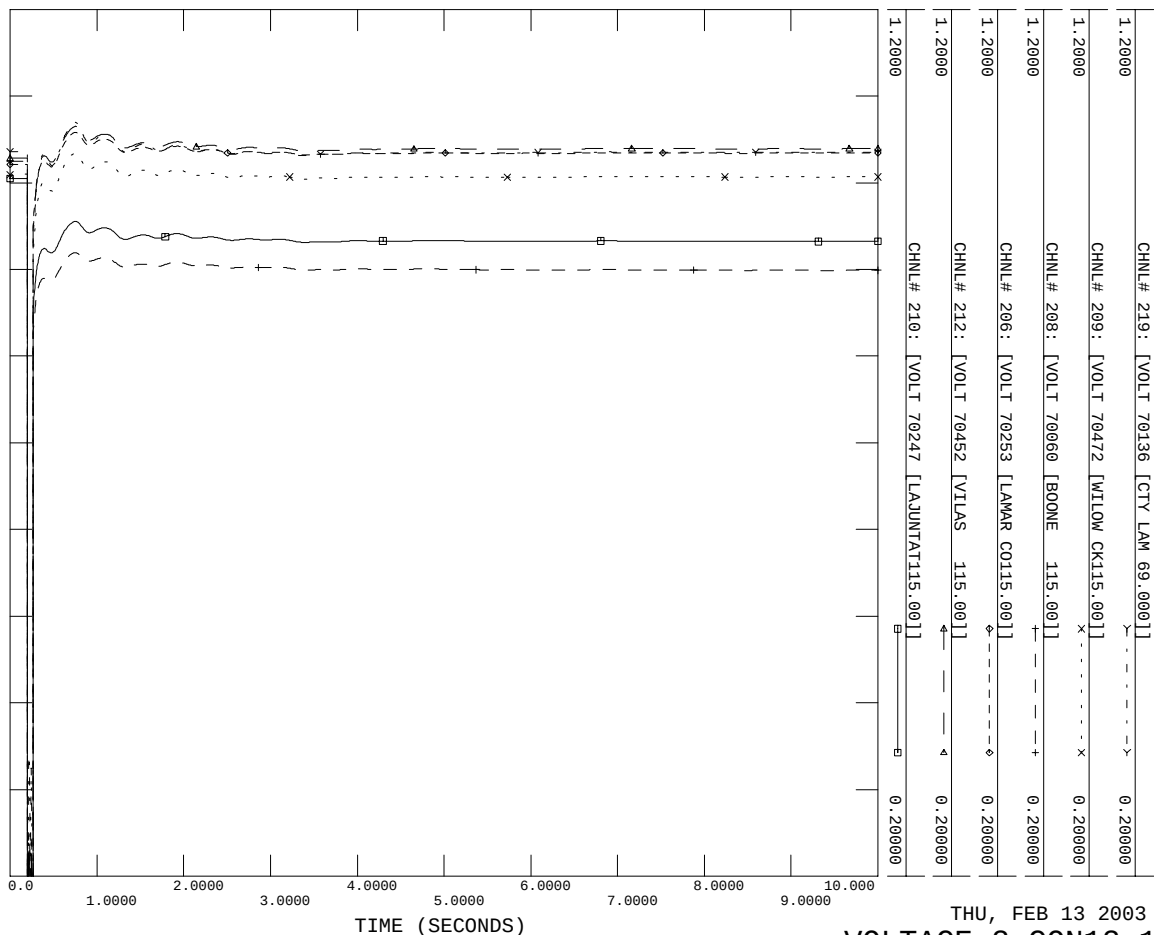


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT



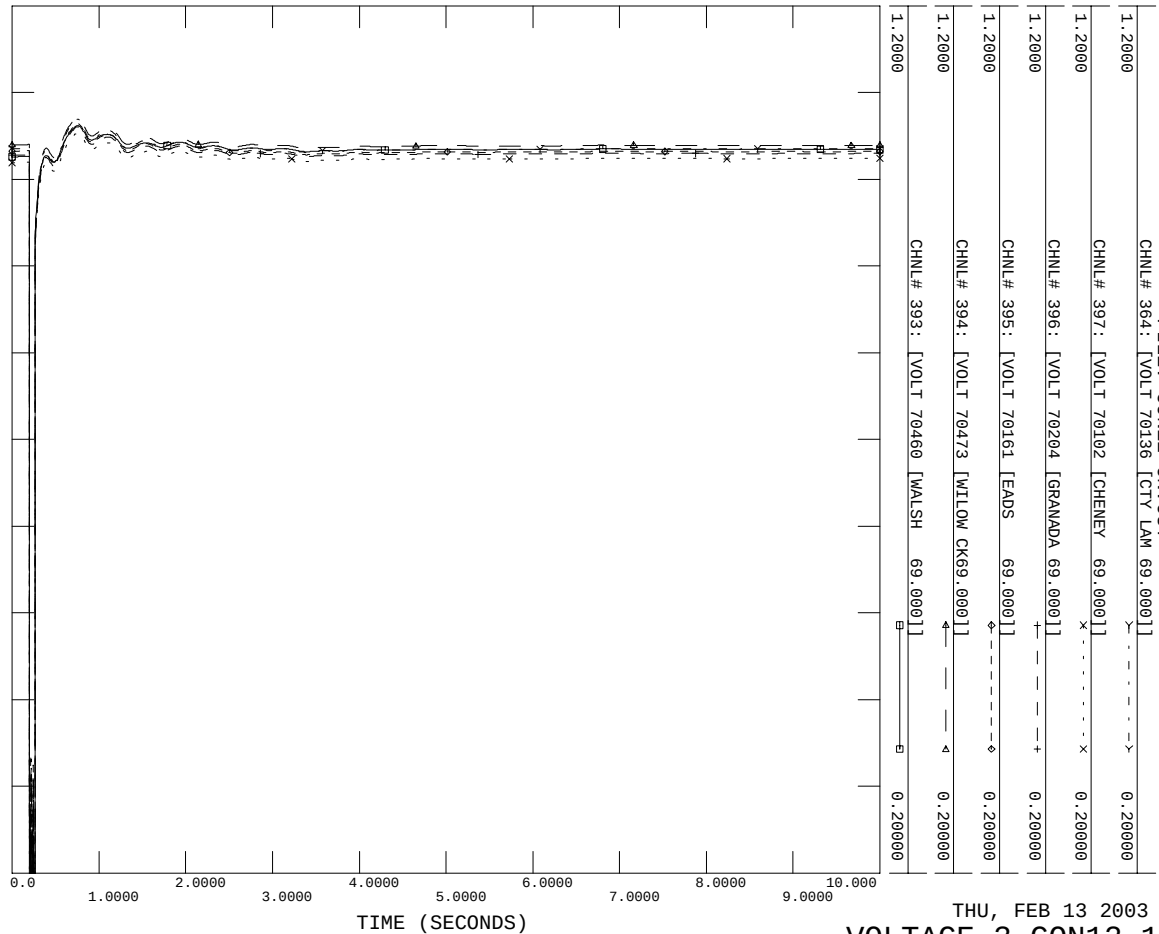
THU, FEB 13 2003 16:24  
VOLTAGE 1 CON12 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT

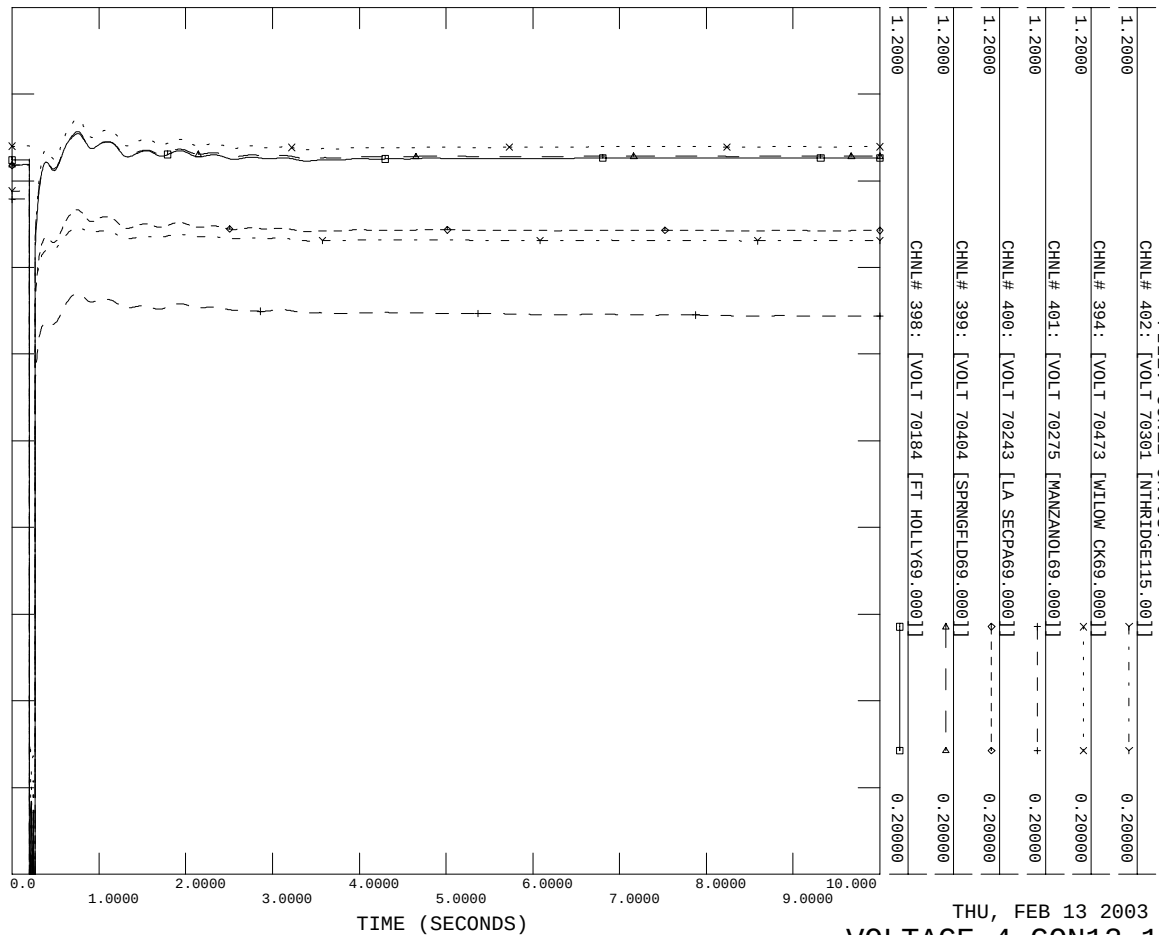


THU, FEB 13 2003 16:24  
VOLTAGE 2 CON12 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT



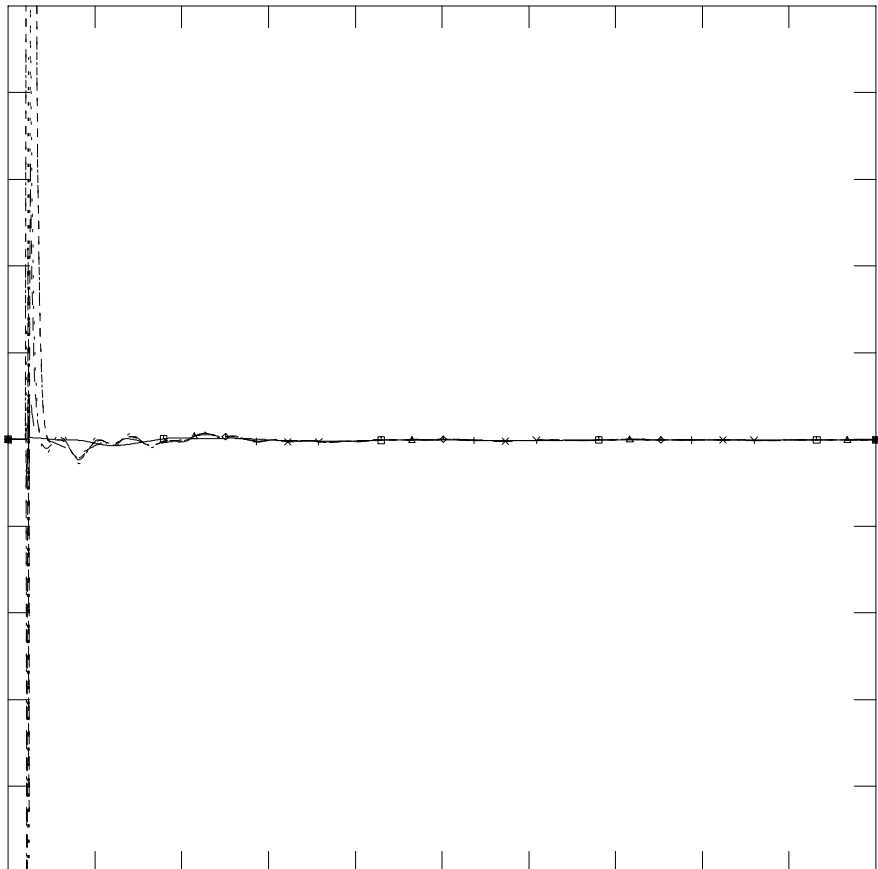
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

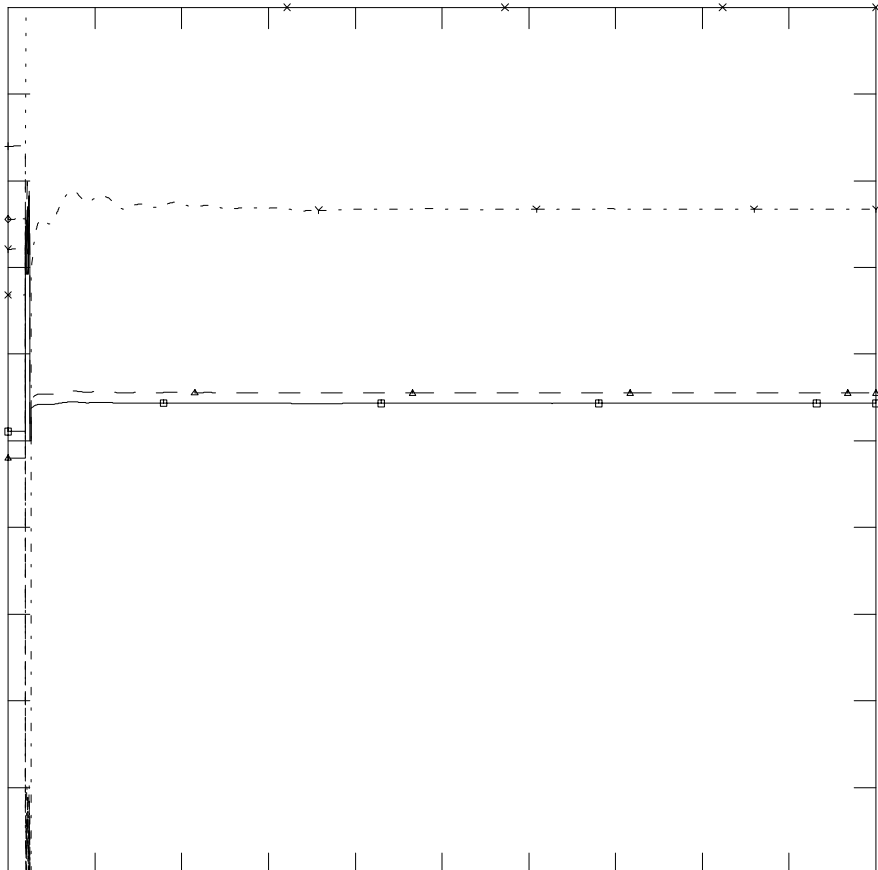


THU, FEB 13 2003 16:24  
FREQUENCY CON12 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON12 - FAULT ON BOONE 230/115 TRANSFORMER [230-KV END]  
FILE: CON12-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PMWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [PMWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

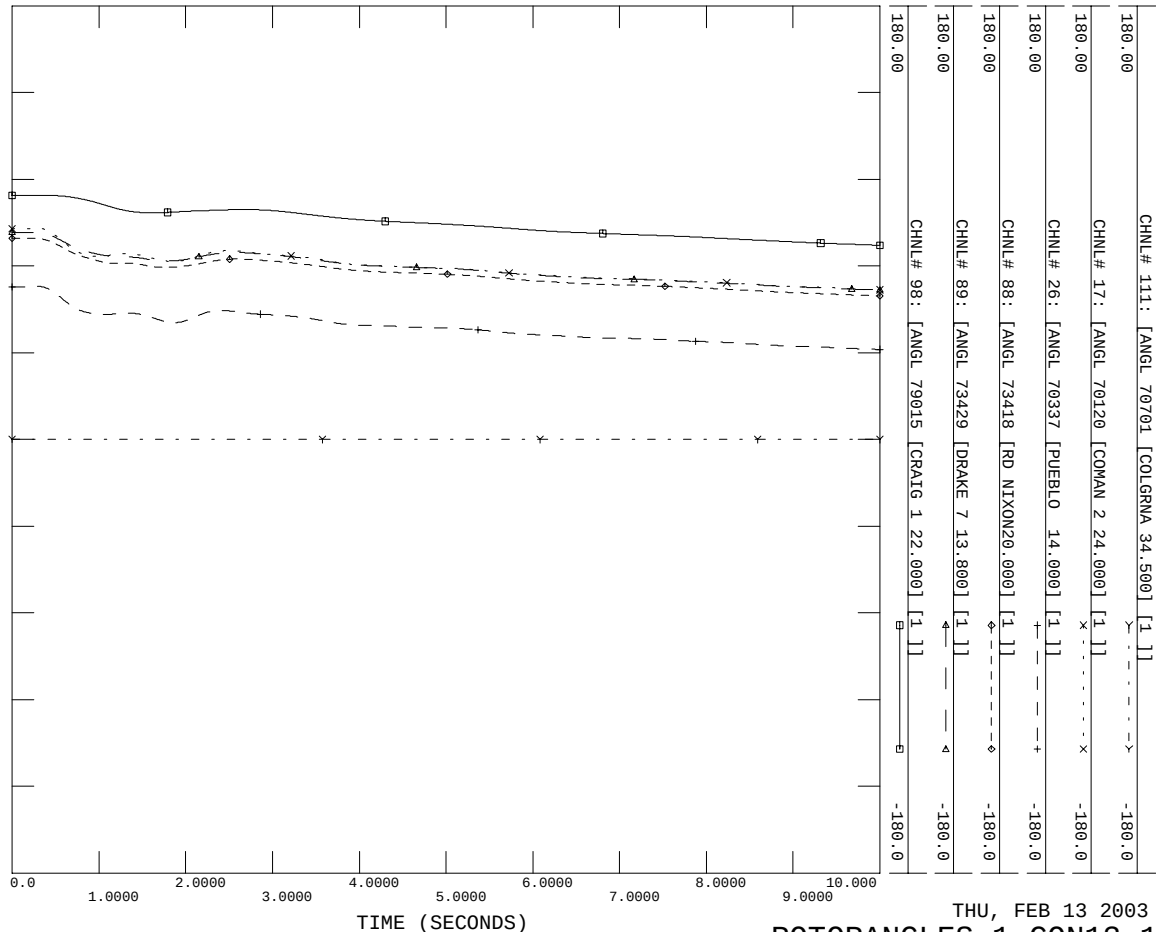


THU, FEB 13 2003 16:24  
WIND DATA CON12 162MW





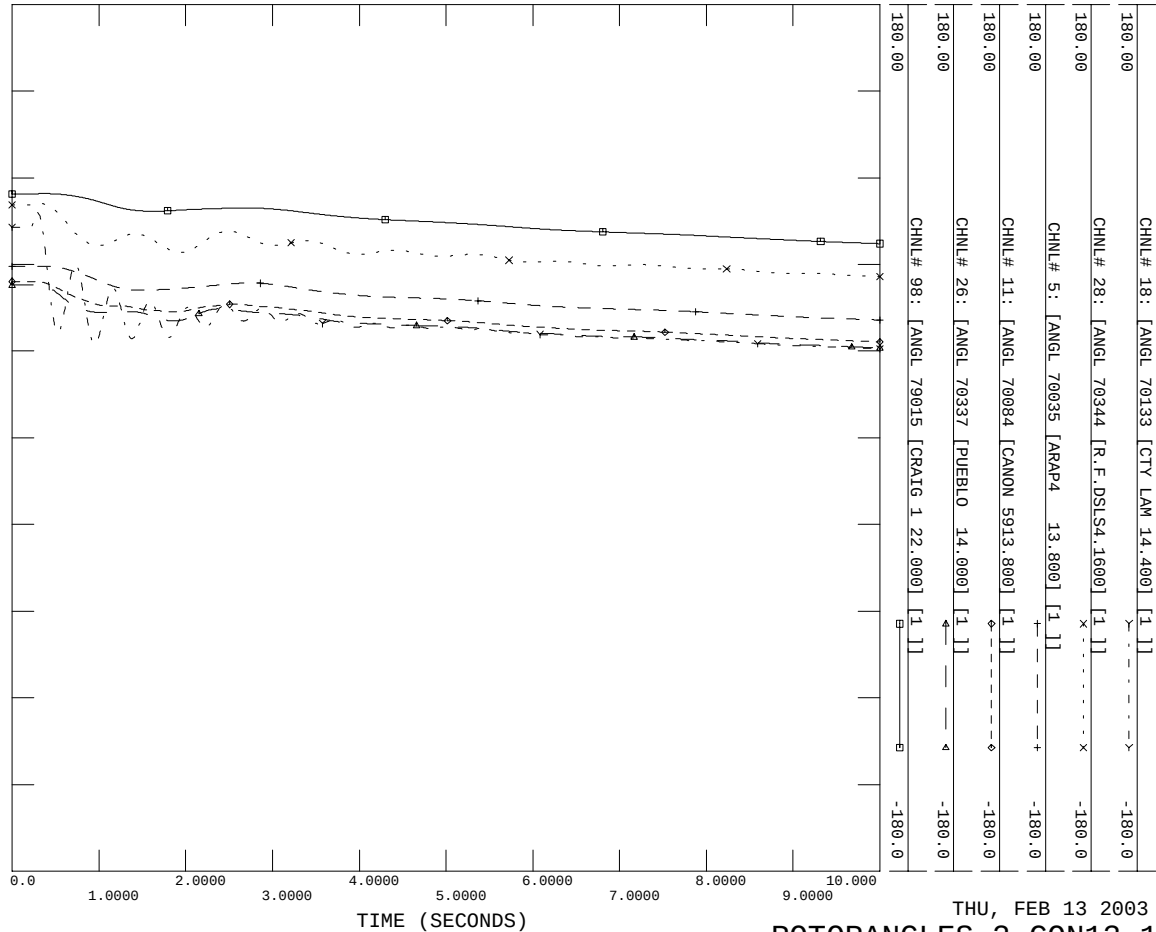
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT



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ROTORANGLES 1 CON13 162MW



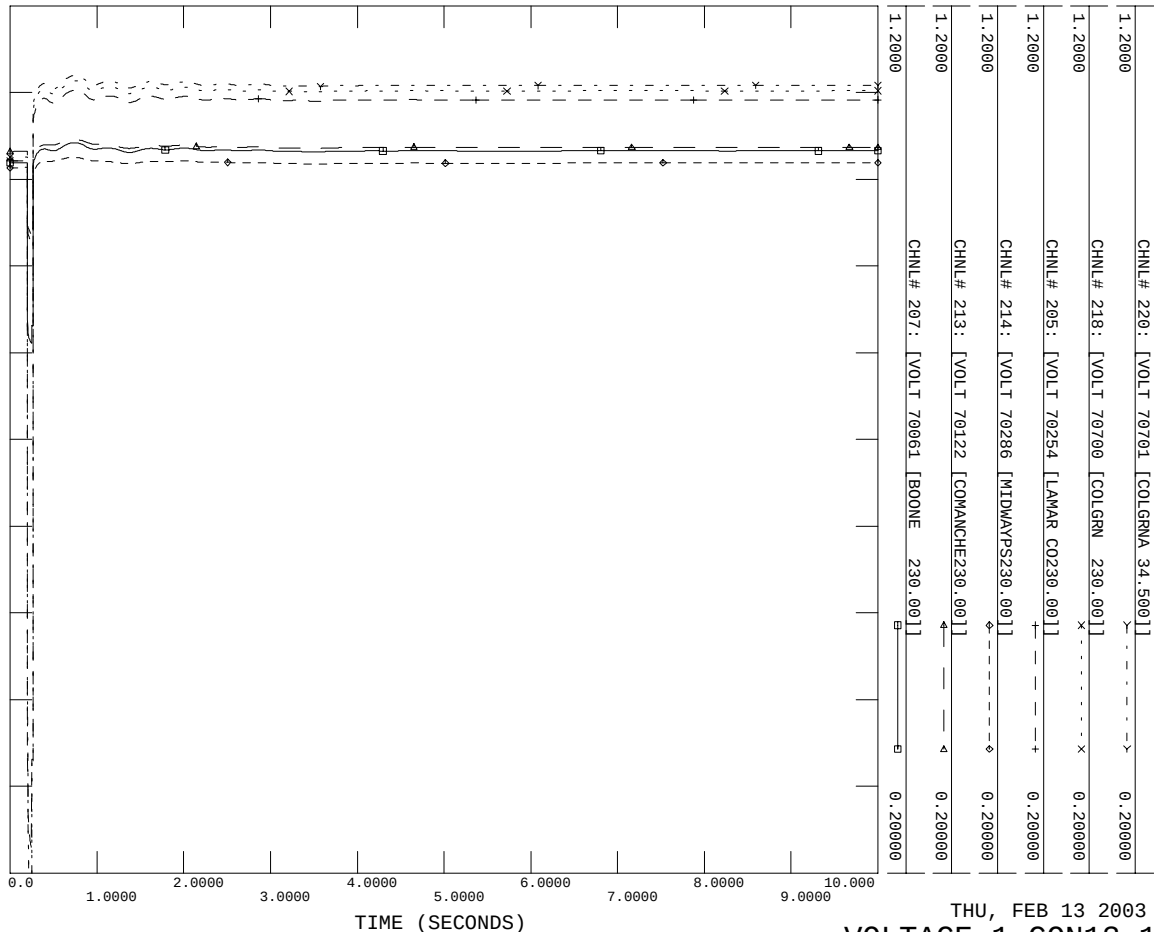
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT



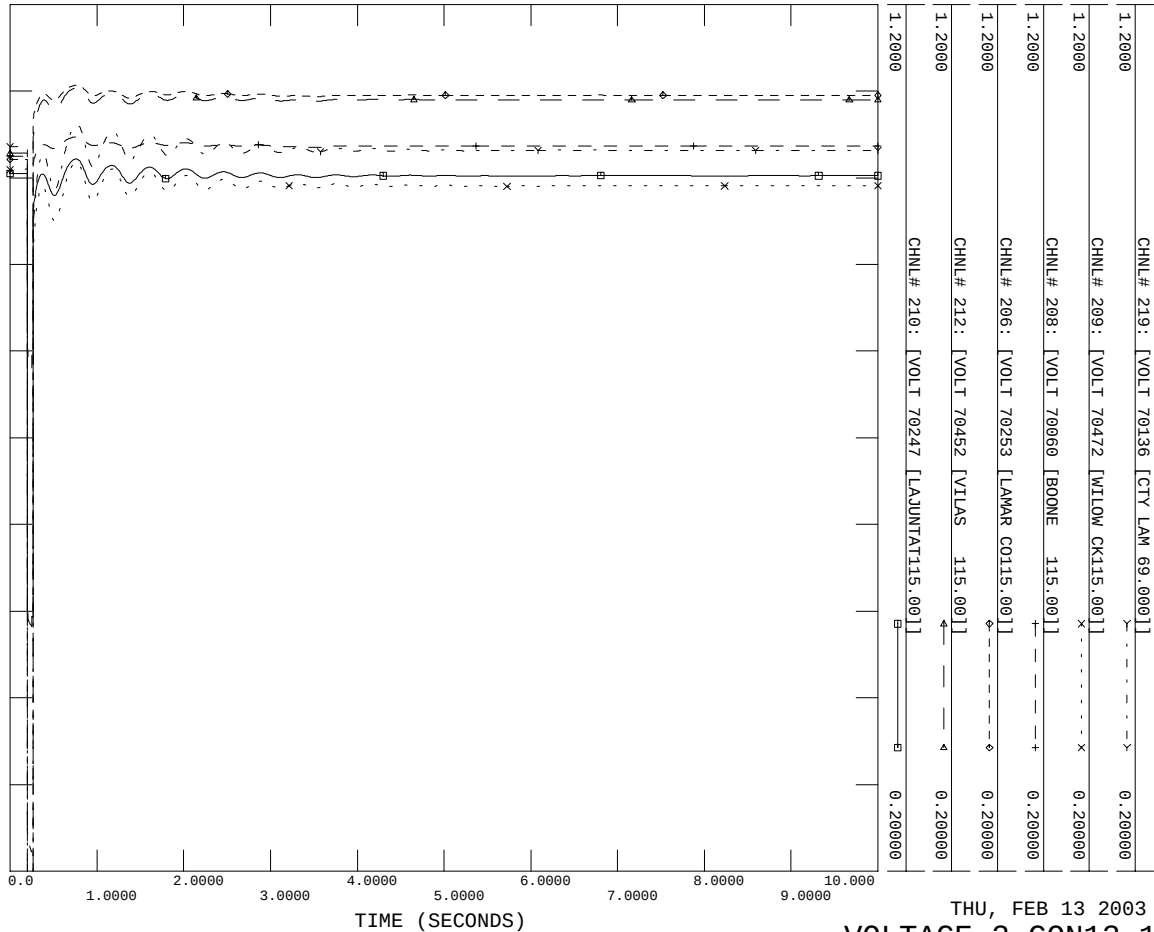
THU, FEB 13 2003 16:24  
ROTORANGLES 2 CON13 162MW

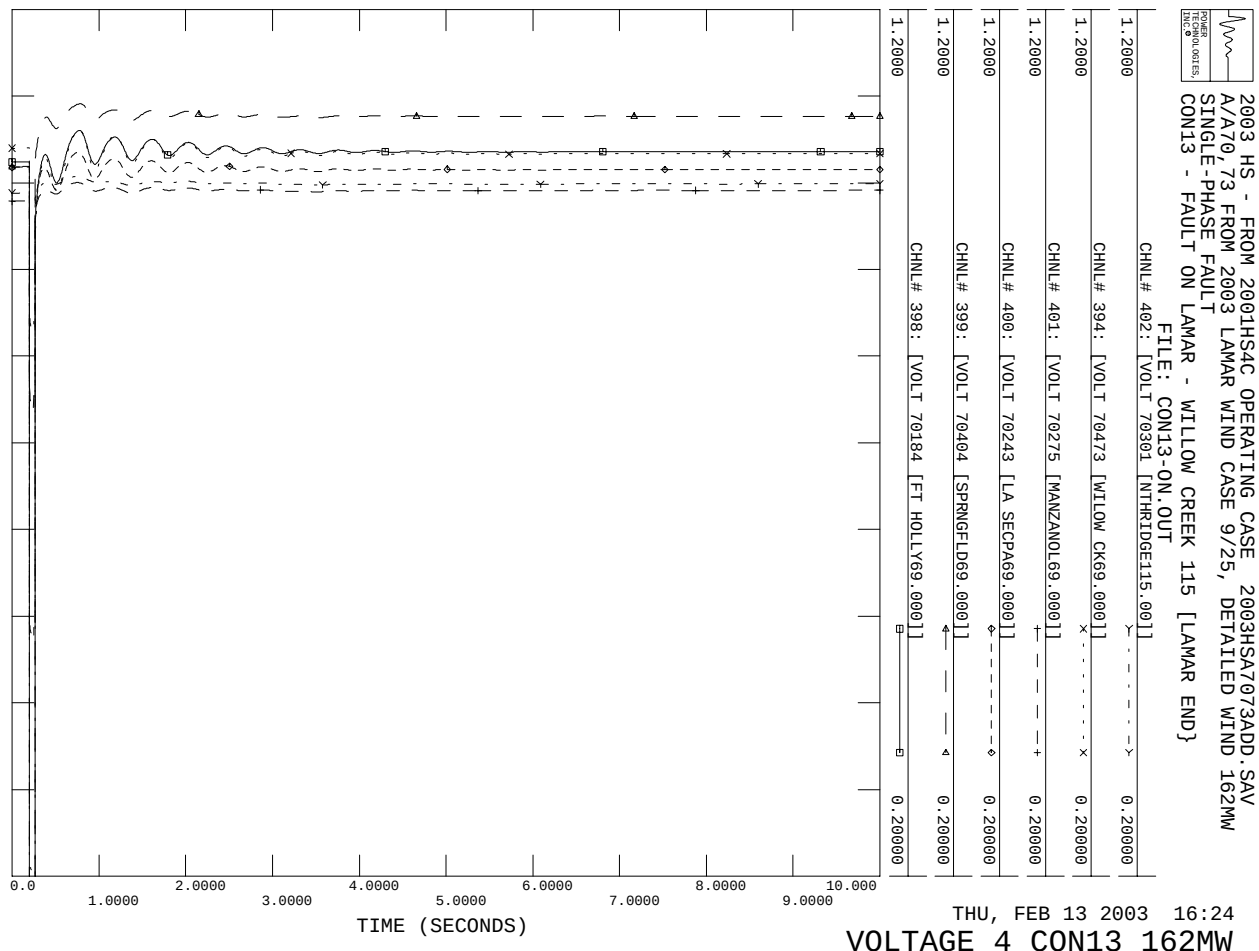
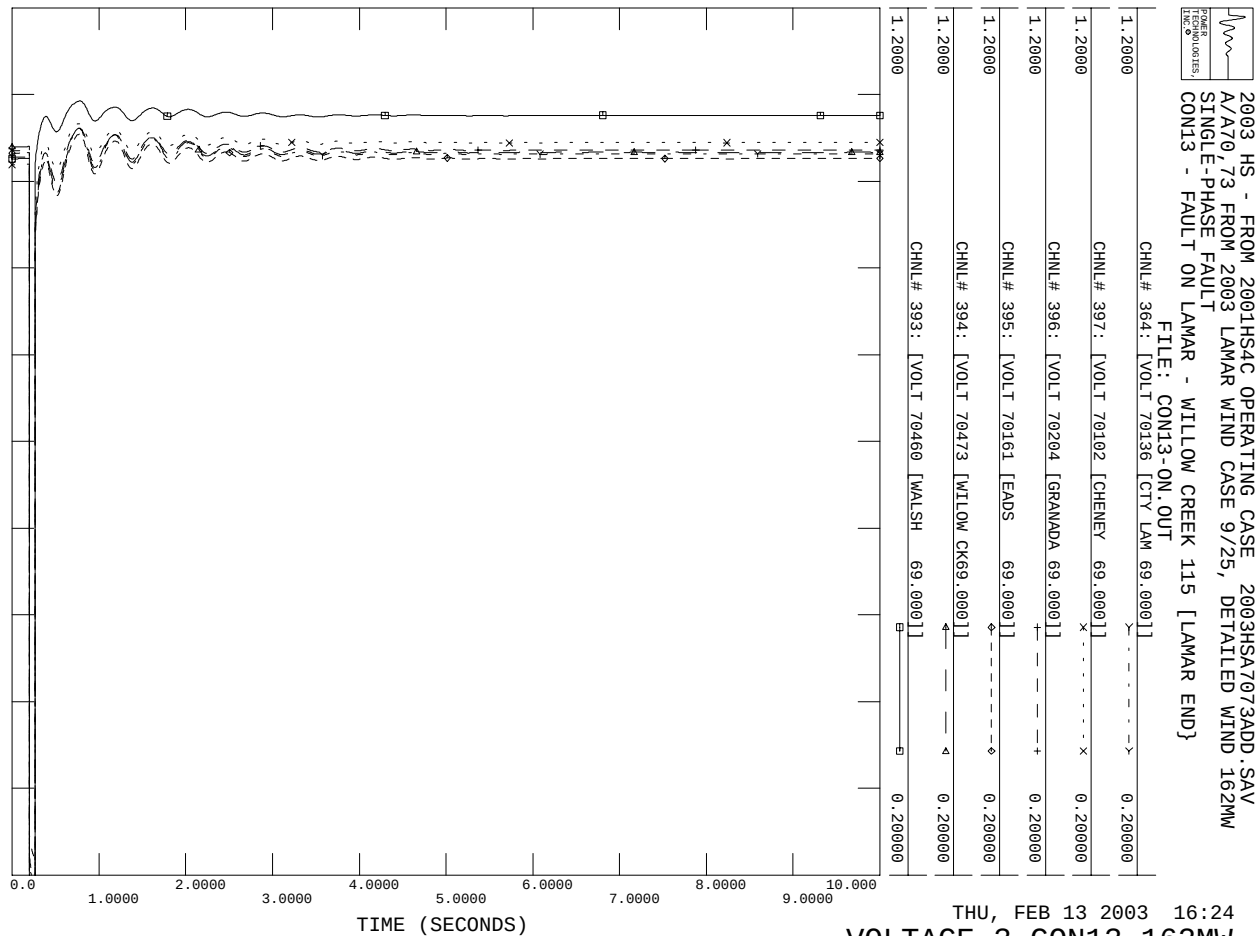


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT



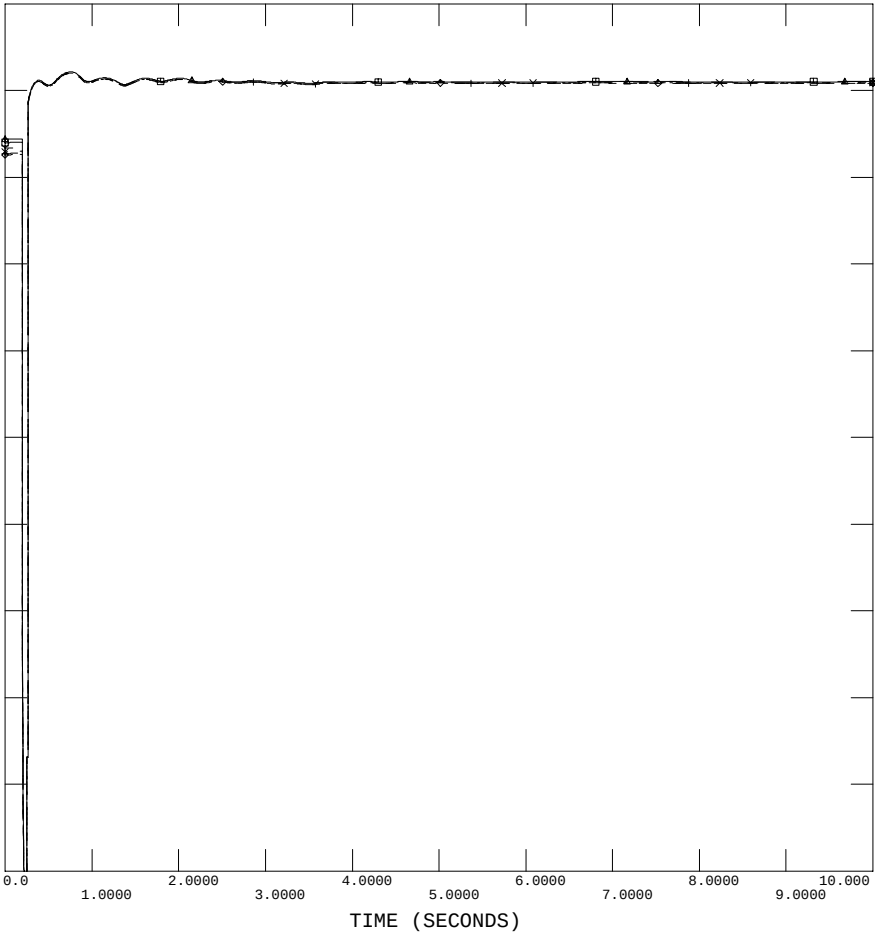




POWER  
TIC  
LINE 000103

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



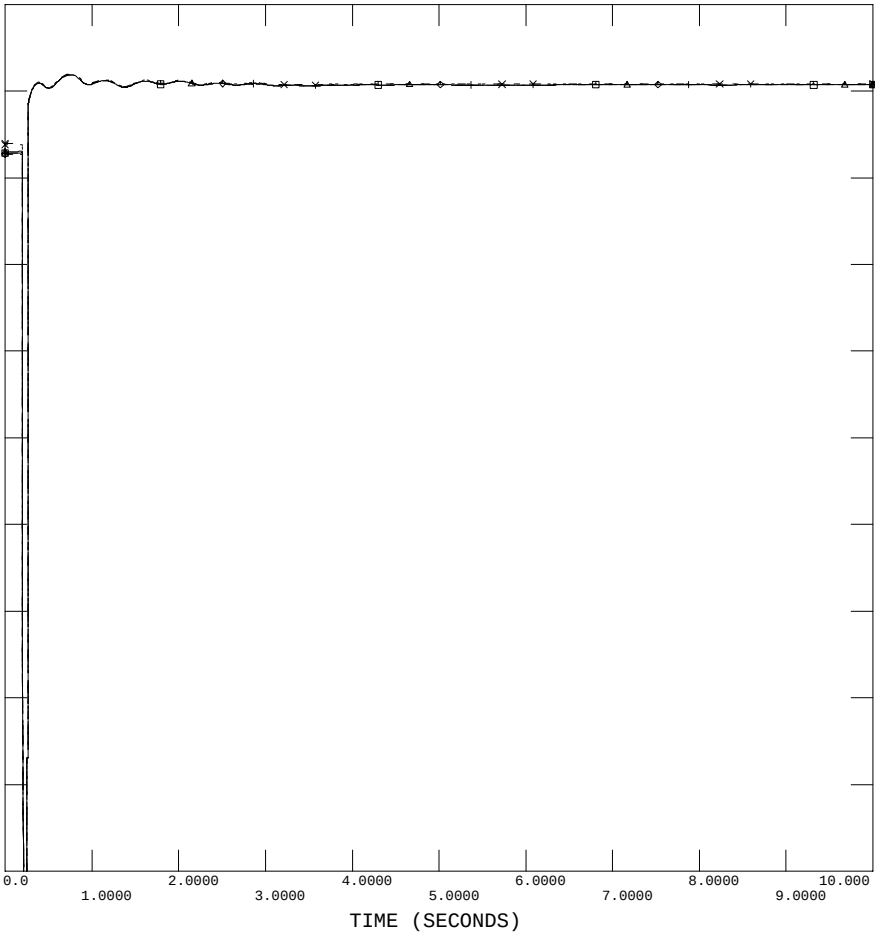
THU, FEB 13 2003 16:24  
VOLTAGE 5 162MW



POWER  
TIC  
LINE 000103

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |

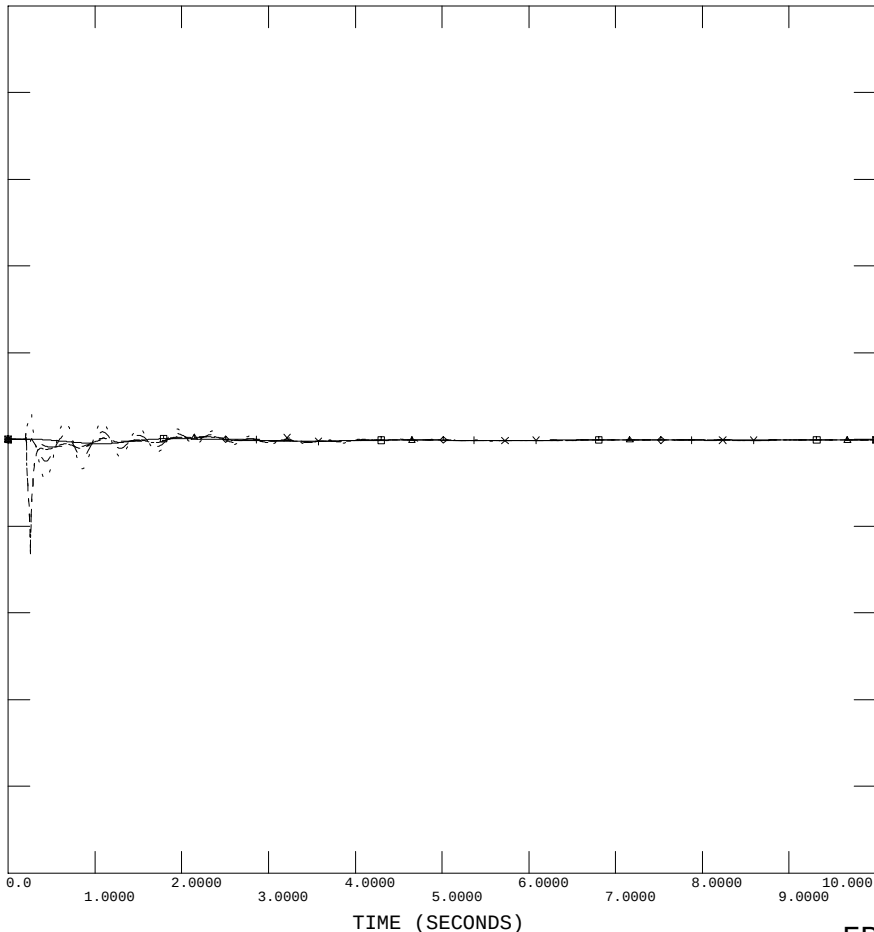


THU, FEB 13 2003 16:24  
VOLTAGE 6 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

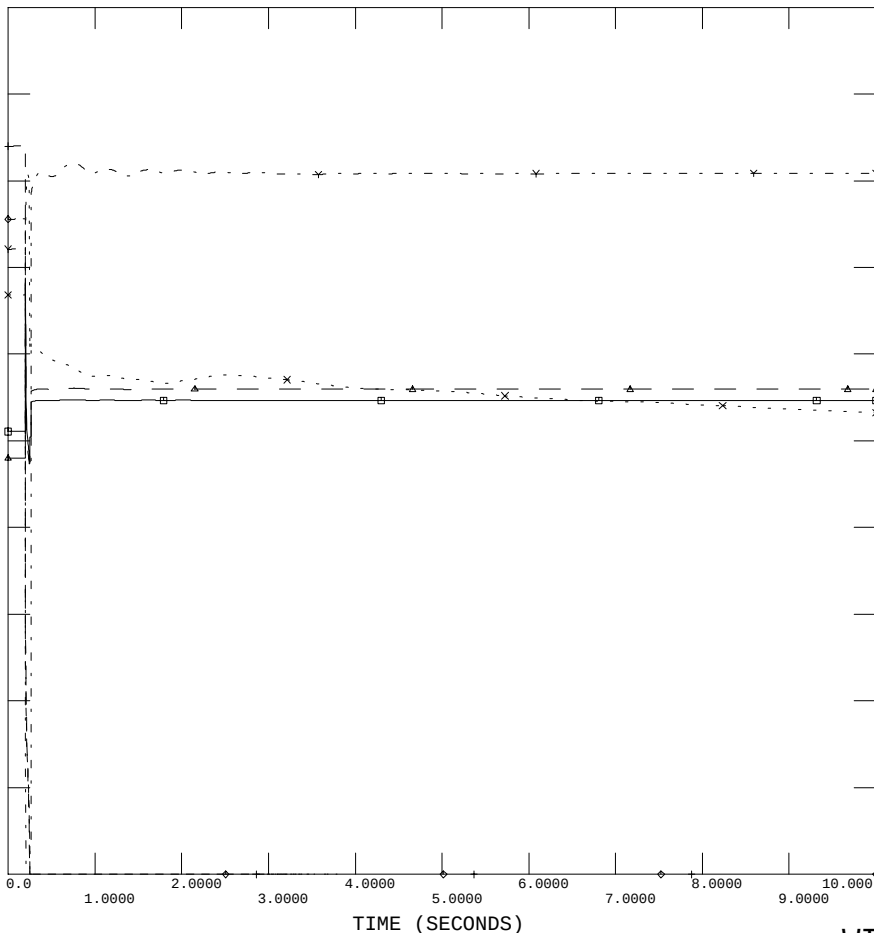


THU, FEB 13 2003 16:24  
FREQUENCY CON13 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON13 - FAULT ON LAMAR - WILLOW CREEK 115 [LAMAR END]  
FILE: CON13-ON.OUT

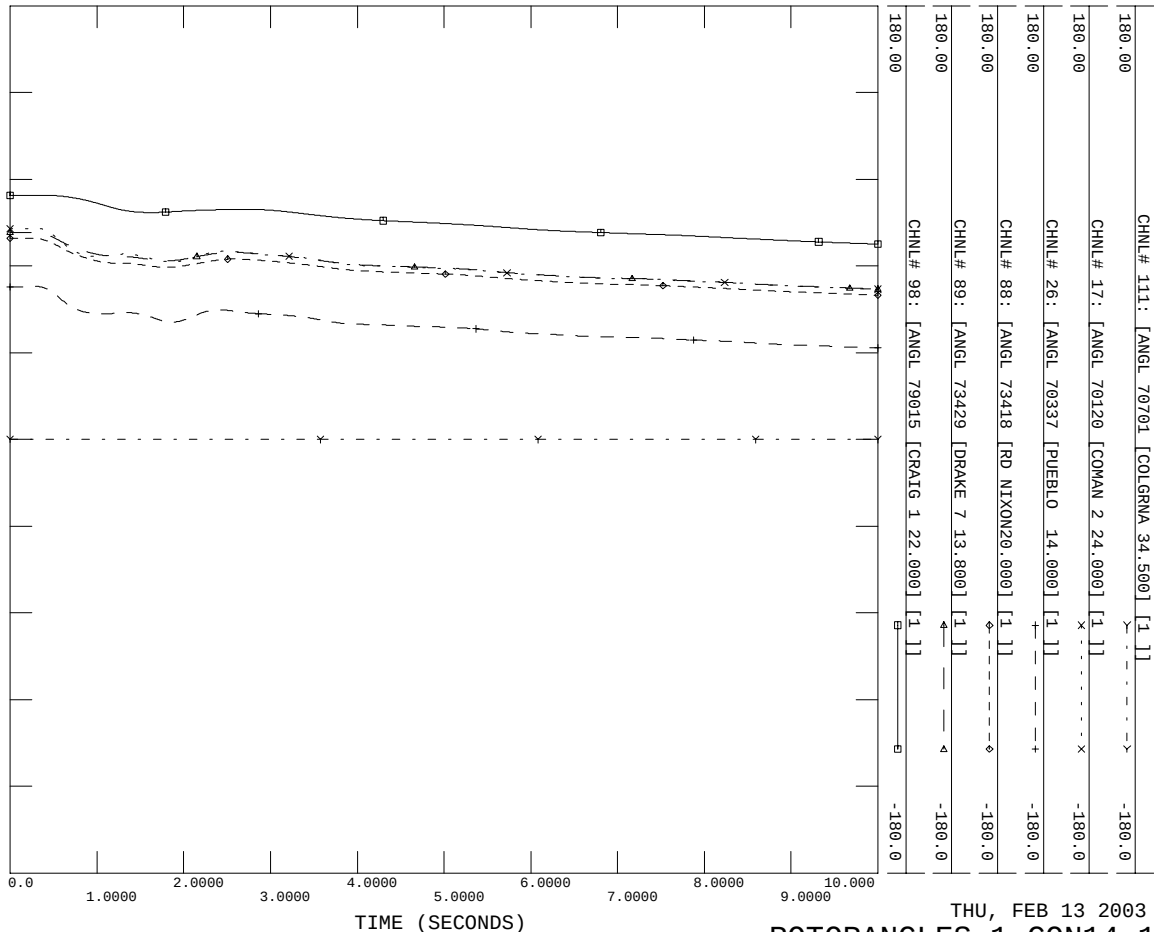
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [COLGRNA 34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



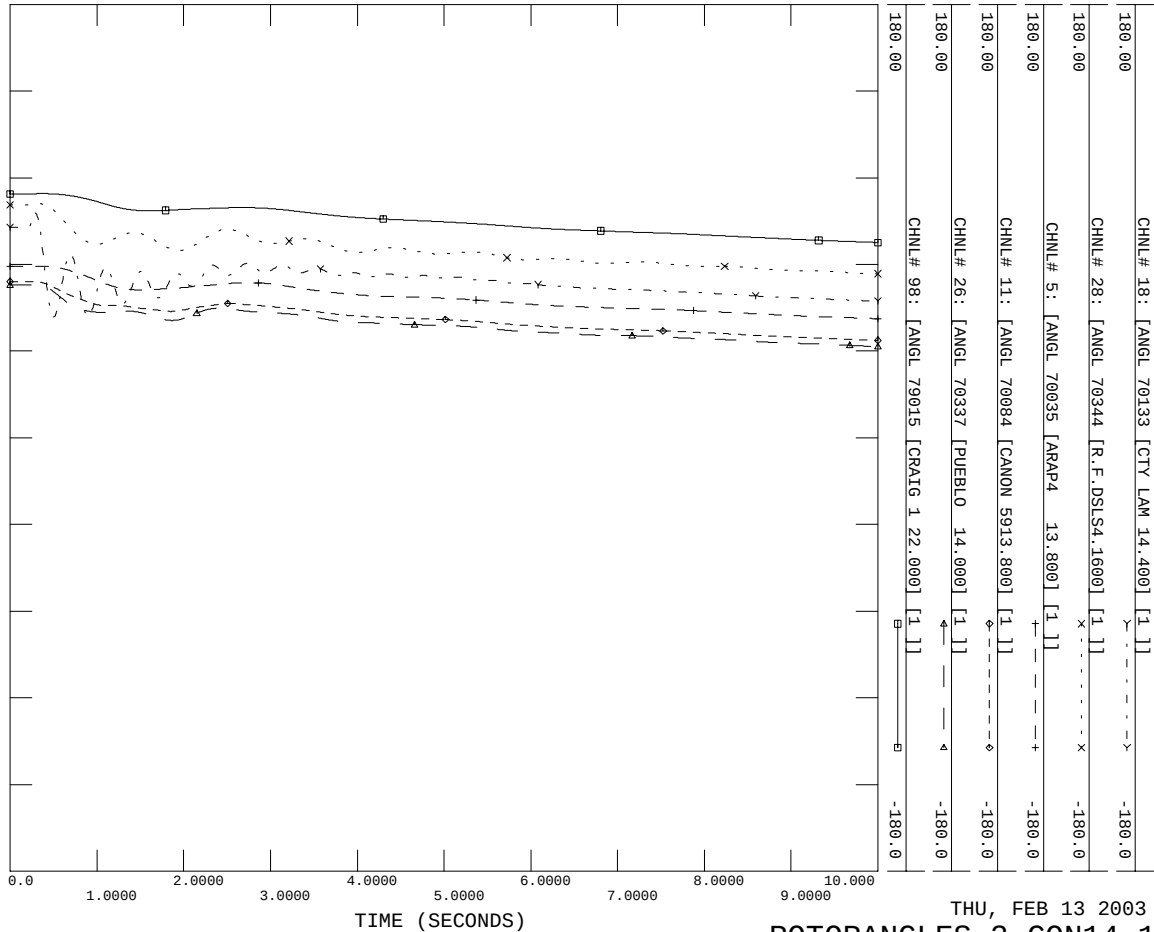
THU, FEB 13 2003 16:24  
WIND DATA CON13 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON14 - FAULT ON LAMAR - VIJAS 115 [LAMAR END]  
FILE: CON14-ON.OUT



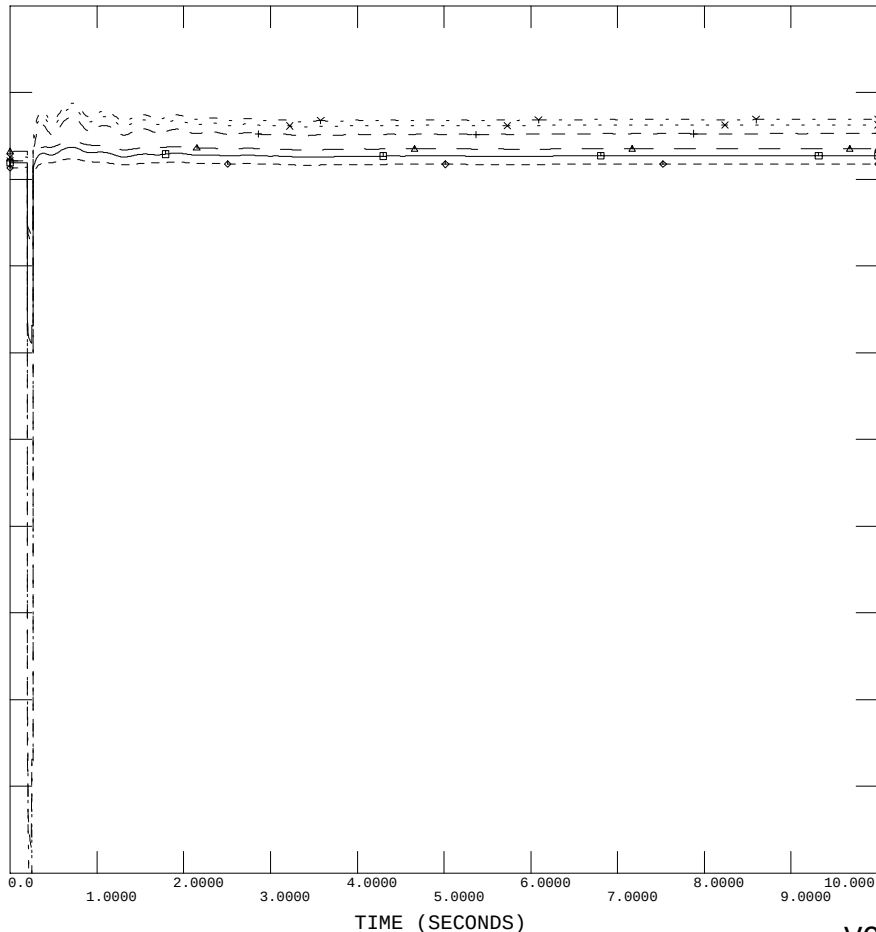
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON14 - FAULT ON LAMAR - VIJAS 115 [LAMAR END]  
FILE: CON14-ON.OUT





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON14 - FAULT ON LAMAR - VILAS 115 [LAMAR END]  
FILE: CON14-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRMA 34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

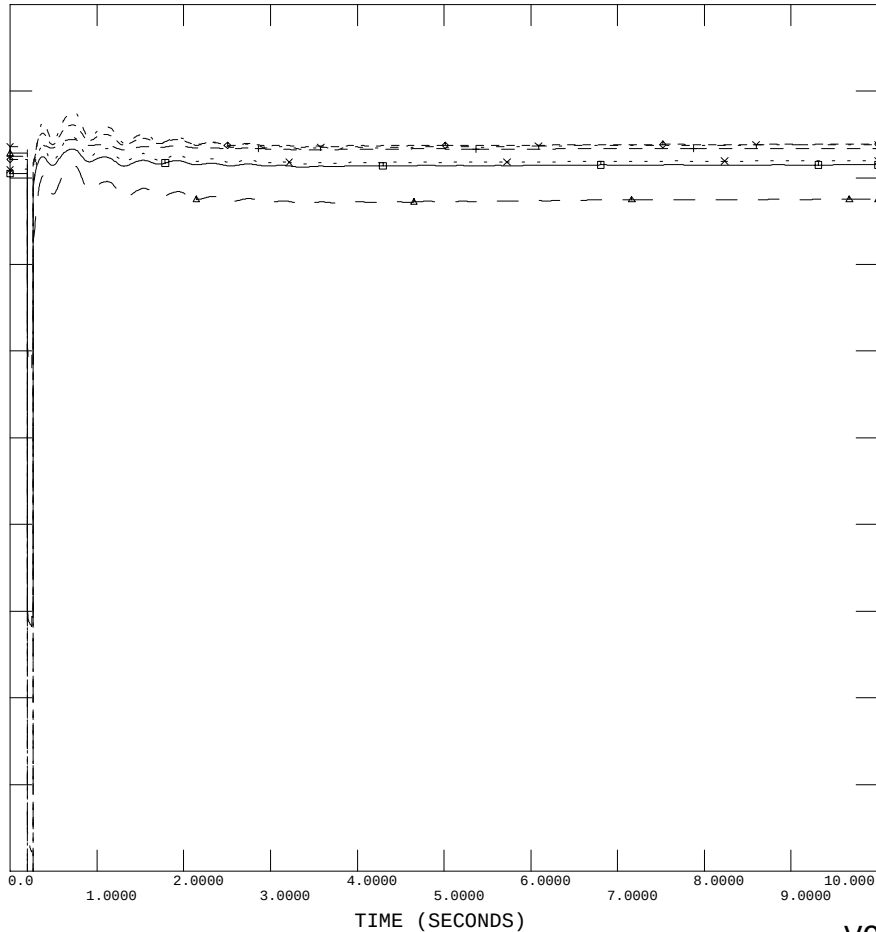


THU, FEB 13 2003 16:24  
VOLTAGE 1 CON14 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON14 - FAULT ON LAMAR - VILAS 115 [LAMAR END]  
FILE: CON14-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



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VOLTAGE 2 CON14 162MW

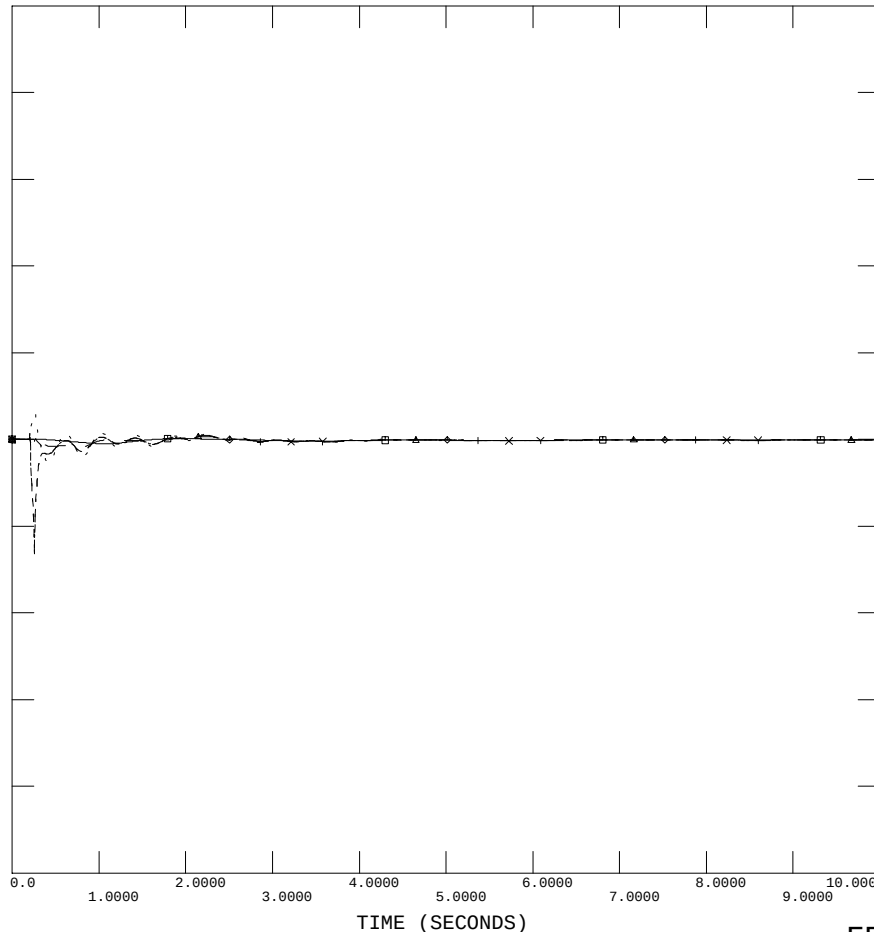






2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON14 - FAULT ON LAMAR - VIAS 115 [LAMAR END]  
FILE: CON14-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

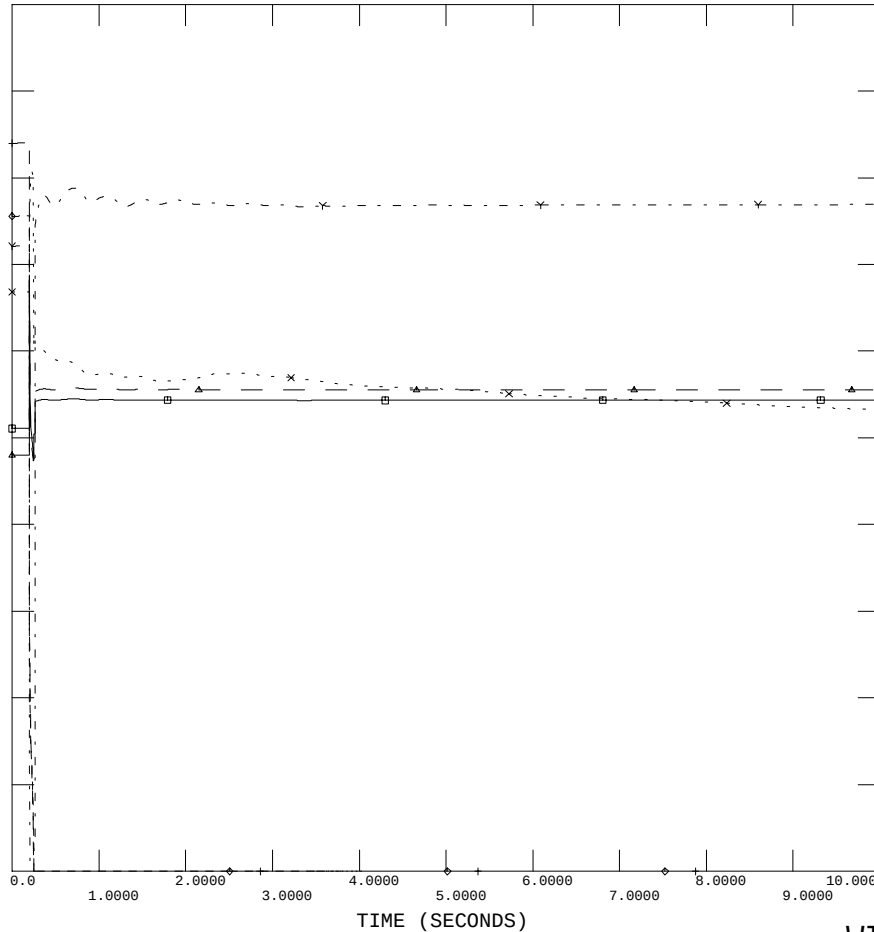


THU, FEB 13 2003 16:24  
FREQUENCY CON14 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON14 - FAULT ON LAMAR - VIAS 115 [LAMAR END]  
FILE: CON14-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [COLGRNA 34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON14 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]  
FILE: CON15-ON.OUT

CHNL# 111: [ANGL 70701 [COLGRN 34.500] [1.]]

180.00 CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] -180.0

180.00 CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]] -180.0

180.00 CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] -180.0

180.00 CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] -180.0

180.00 CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] -180.0

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ROTORANGLES 1 CON15 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]  
FILE: CON15-ON.OUT

CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]]

180.00 CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] -180.0

180.00 CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]] -180.0

180.00 CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] -180.0

180.00 CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]] -180.0

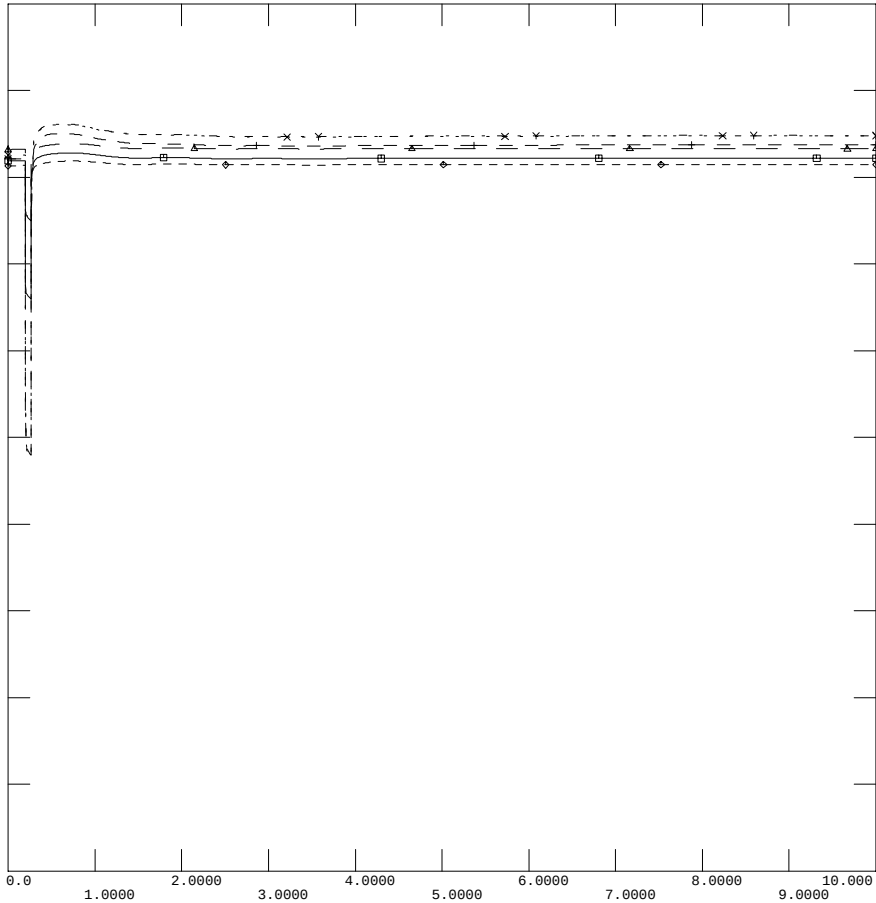
180.00 CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] -180.0

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ROTORANGLES 2 CON15 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]  
FILE: CON15-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

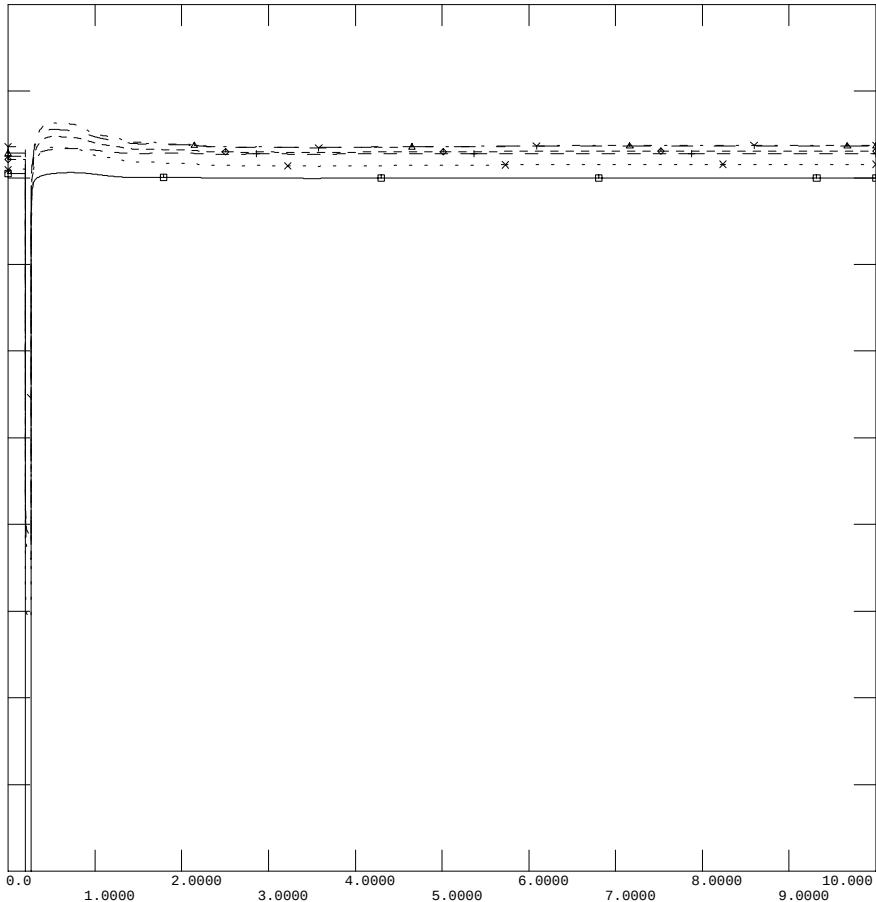


THU, FEB 13 2003 16:24  
VOLTAGE 1 CON15 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]  
FILE: CON15-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTA115.00]]   | 0.20000 |



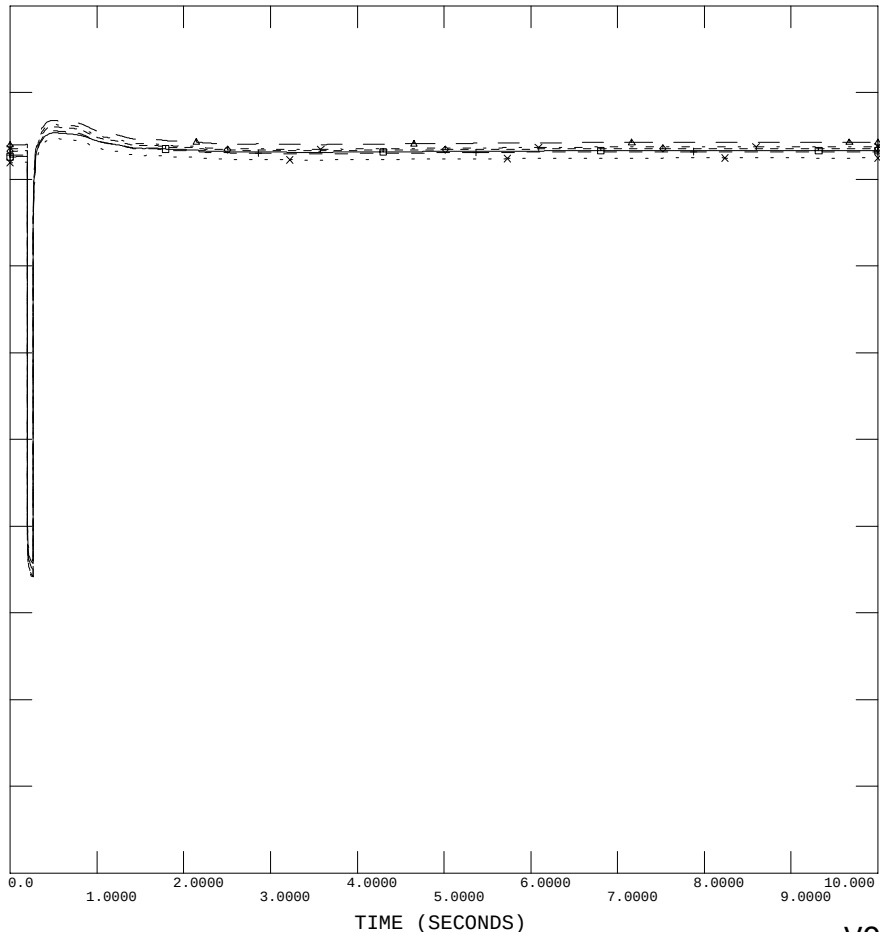
THU, FEB 13 2003 16:24  
VOLTAGE 2 CON15 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]

FILE: CON15-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



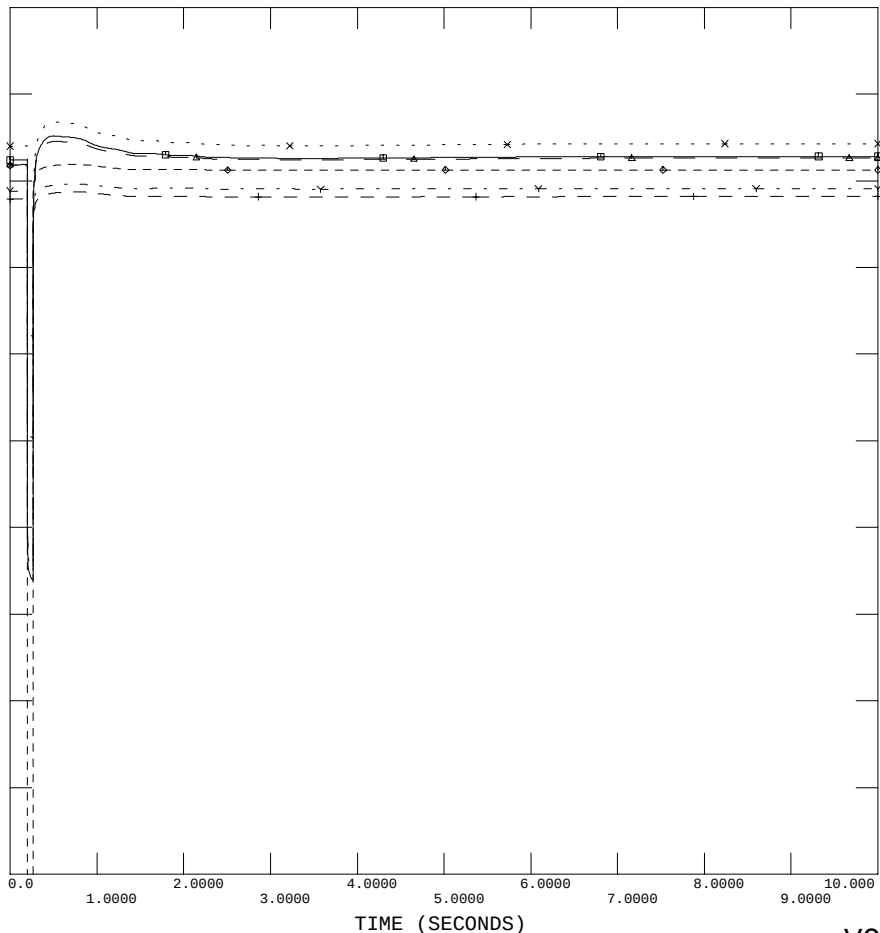
THU, FEB 13 2003 16:24  
VOLTAGE 3 CON15 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]

FILE: CON15-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |



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VOLTAGE 4 CON15 162MW

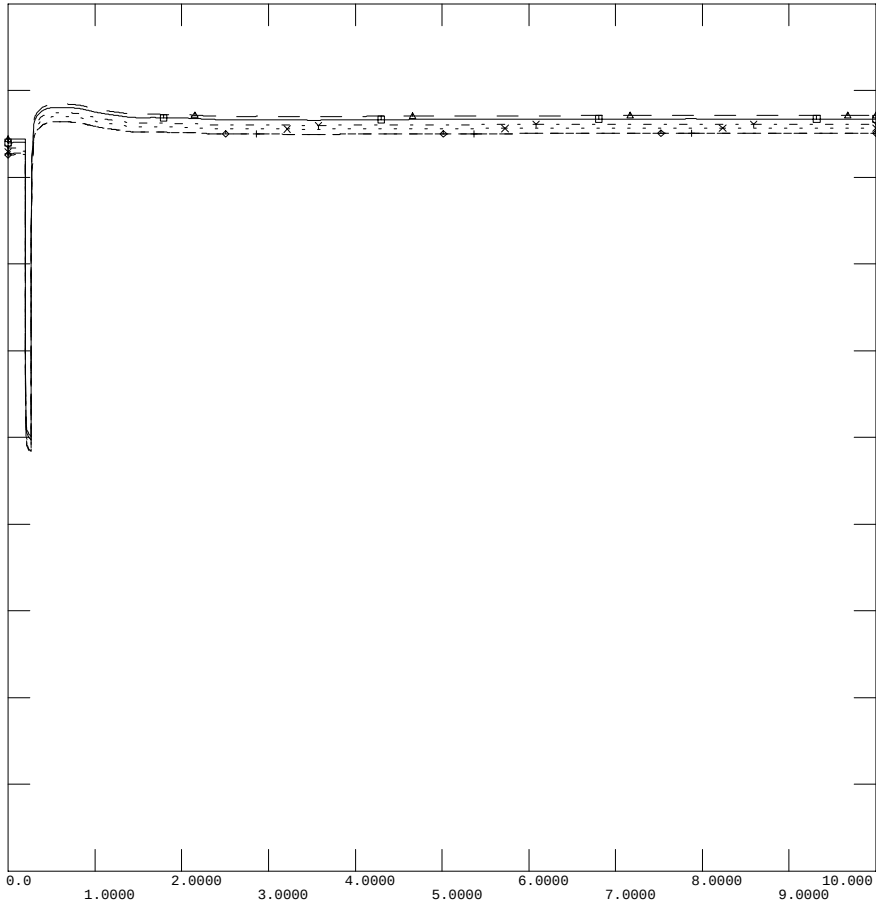


POWER  
TIC  
0.000000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]

FILE: CON15-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |



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VOLTAGE 5 162MW

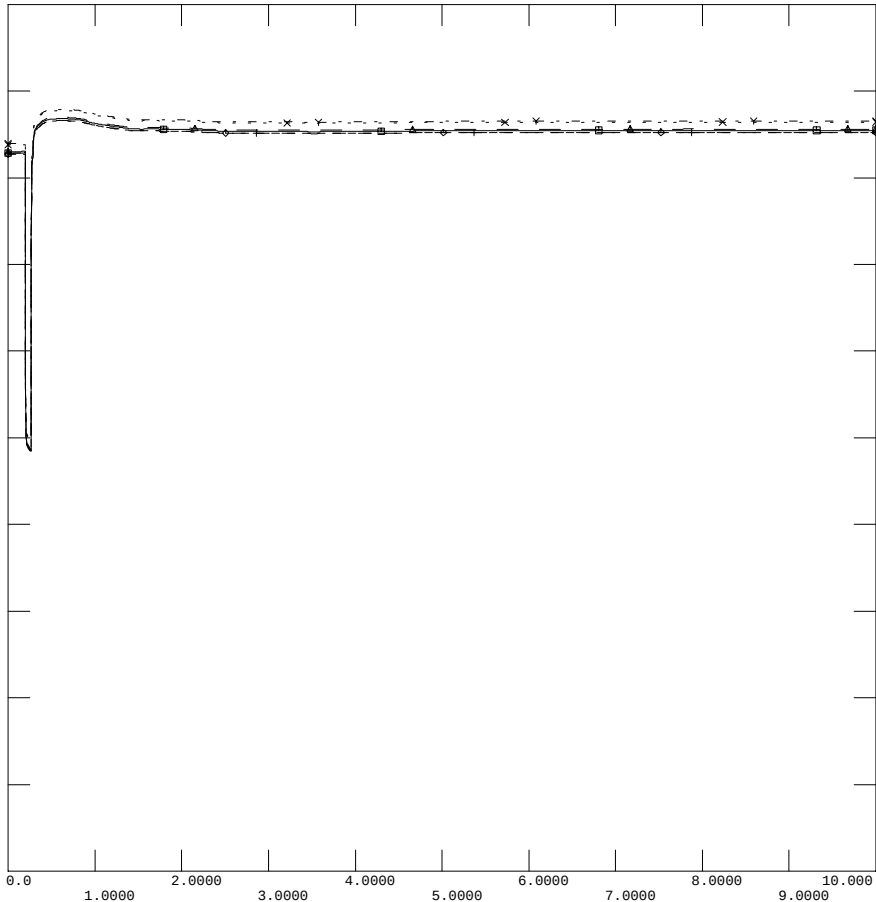


POWER  
TIC  
0.000000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]

FILE: CON15-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |

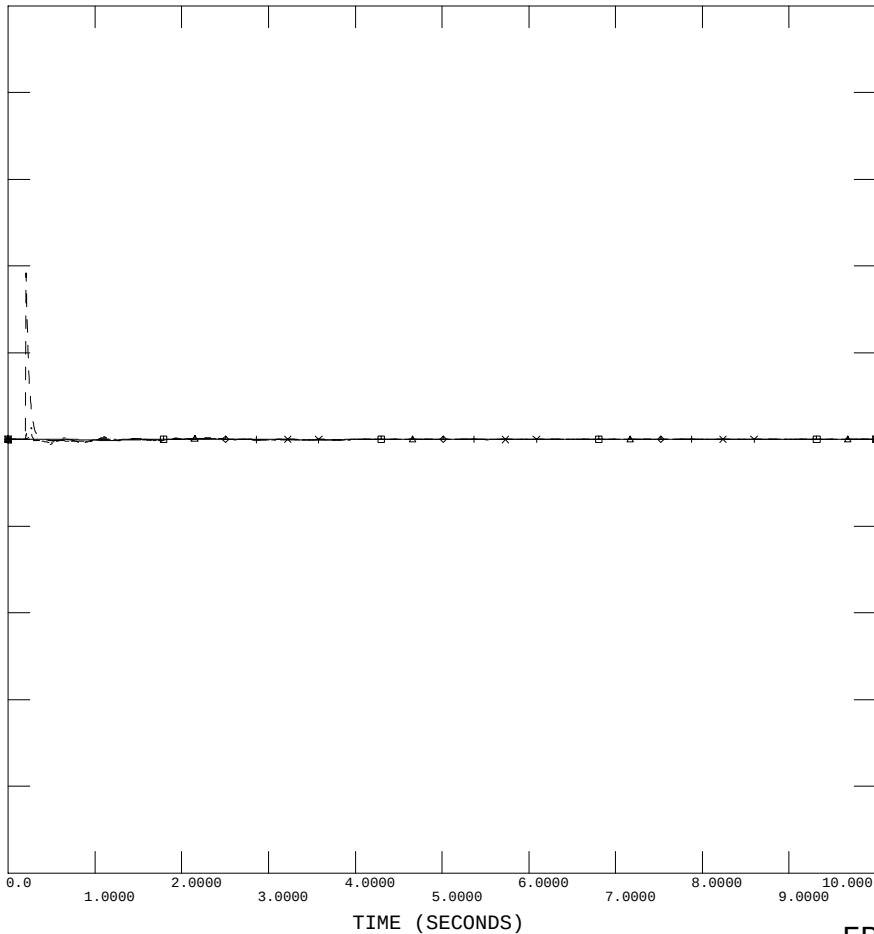


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VOLTAGE 6 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]  
FILE: CON15-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 70015 [CRAIG 1 22.000]]  | -0.0500 |

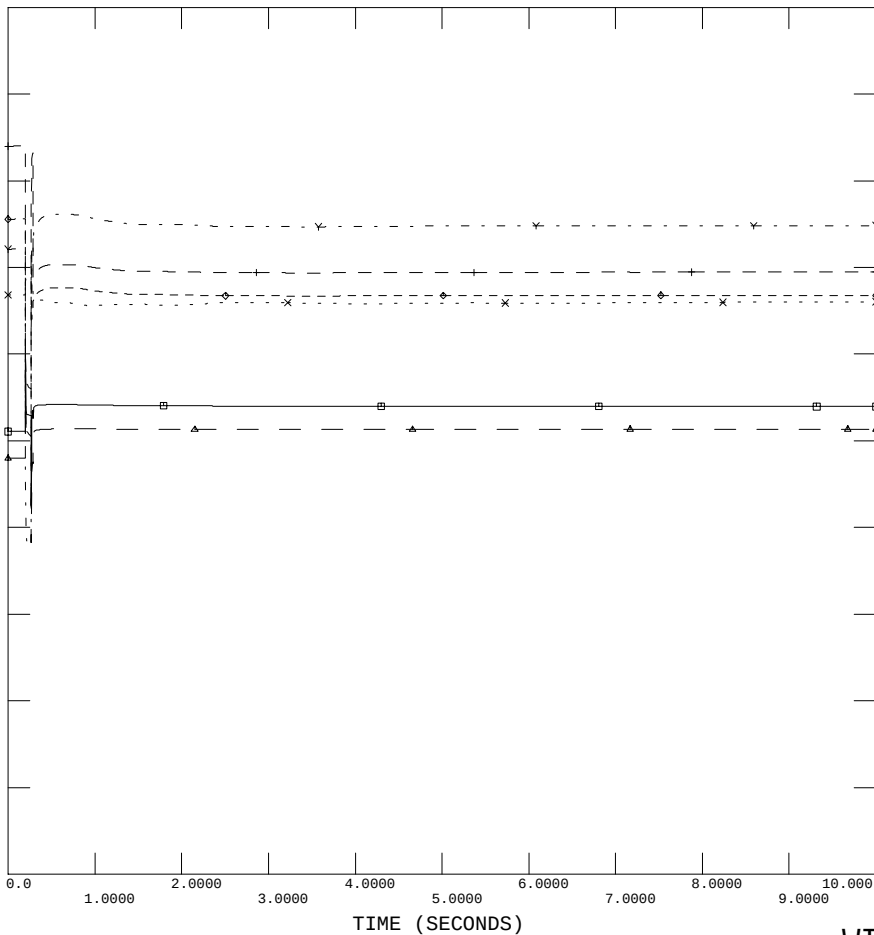


THU, FEB 13 2003 16:24  
FREQUENCY CON15 162MW

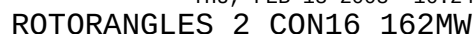
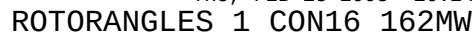


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON15 - FAULT ON LAJUNTA - WILLOW CREEK 115 [LA JUNTA END]  
FILE: CON15-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



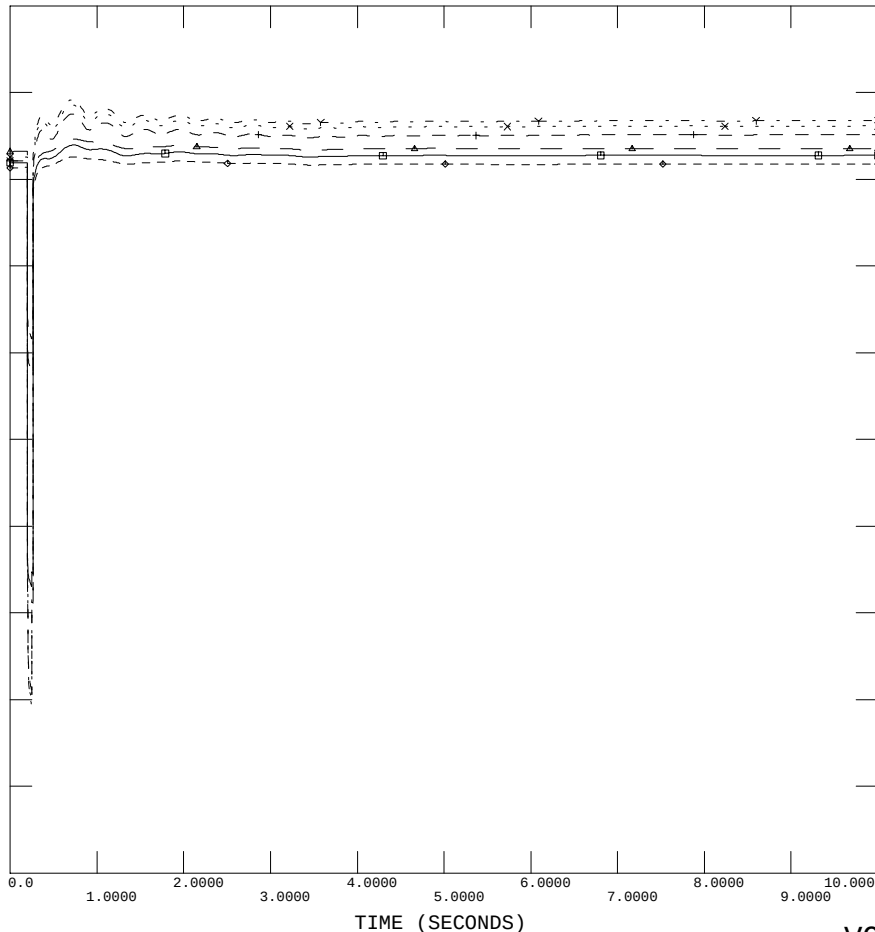
THU, FEB 13 2003 16:24  
WIND DATA CON15 162MW





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]  
FILE: CON16-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

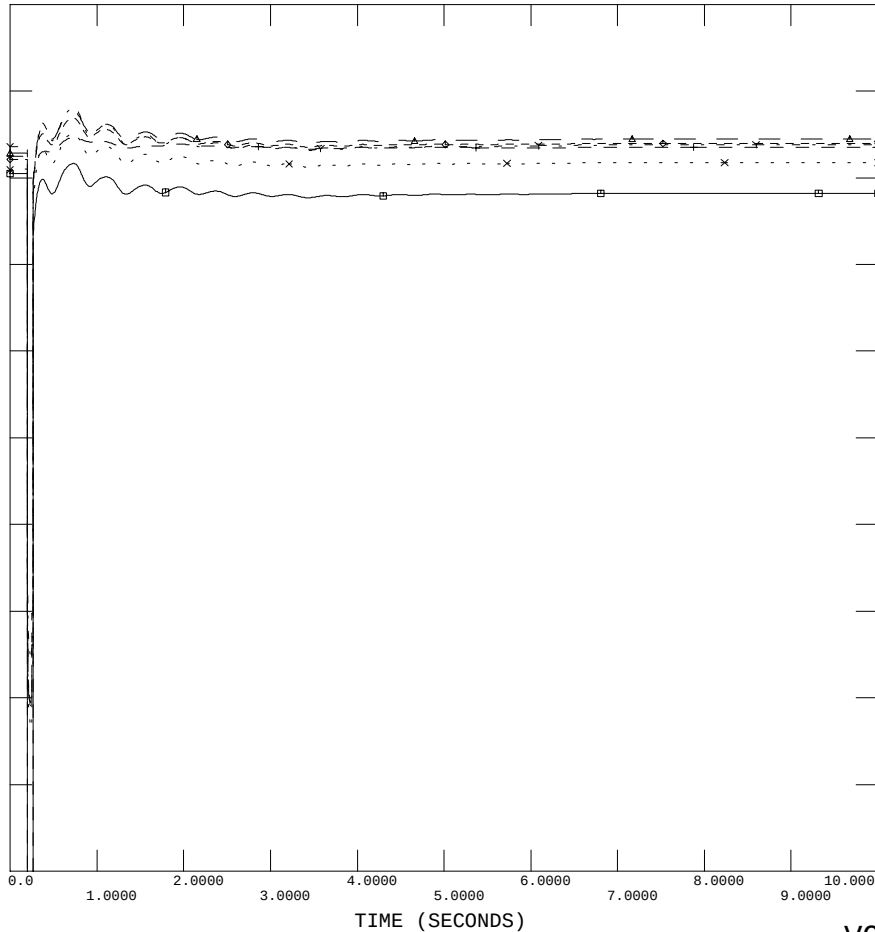


THU, FEB 13 2003 16:24  
VOLTAGE 1 CON16 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]  
FILE: CON16-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTA115.00]]   | 0.20000 |



THU, FEB 13 2003 16:24  
VOLTAGE 2 CON16 162MW

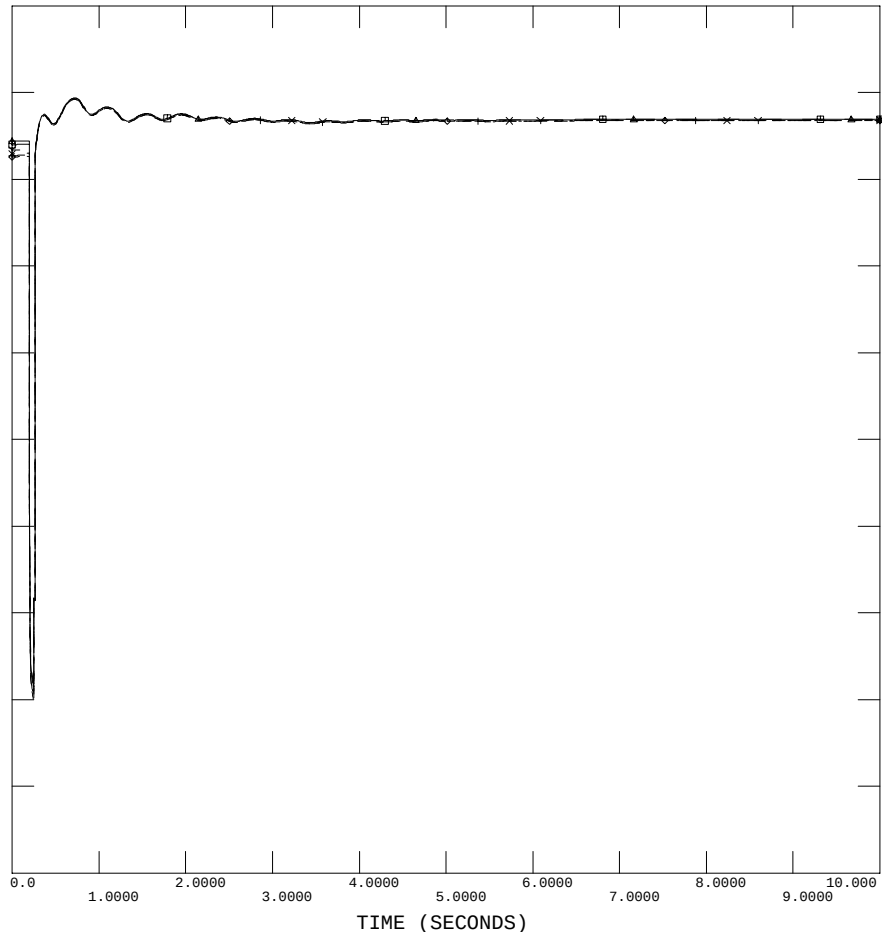






2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]  
FILE: CON16-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PADMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PADMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 418: [VOLT 70710 [PADMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]   | 0.20000 |

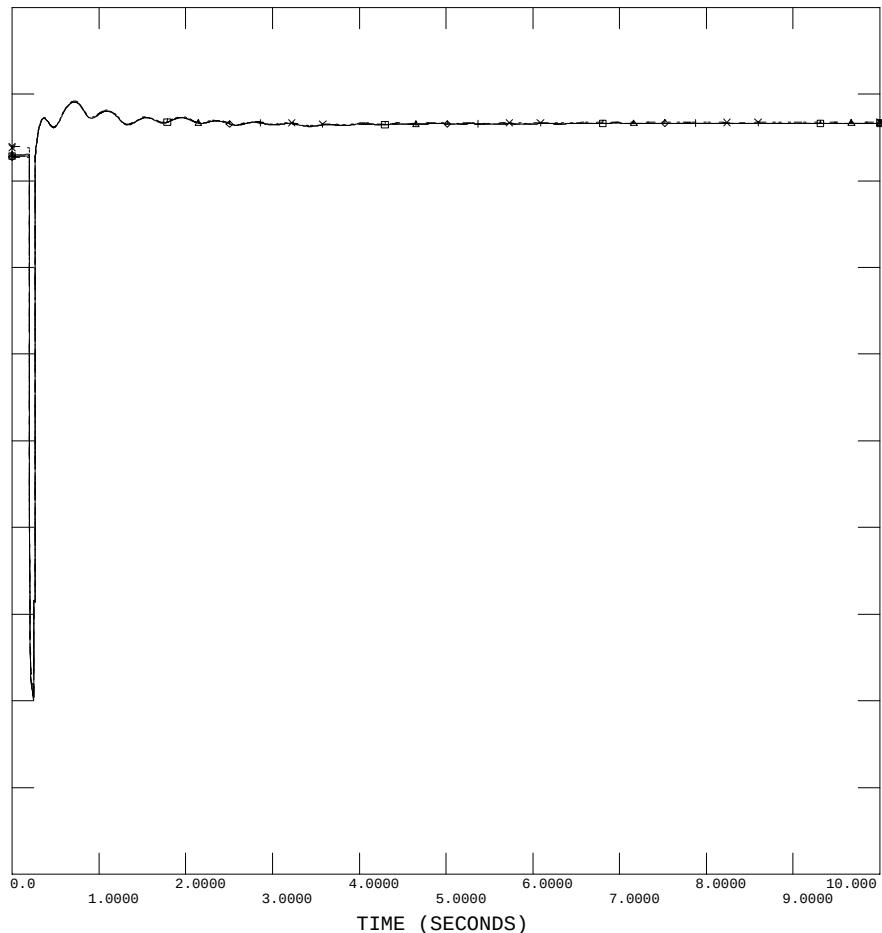


THU, FEB 13 2003 16:24  
VOLTAGE 5 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]  
FILE: CON16-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PADMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PADMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]   | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PADMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]   | 0.20000 |

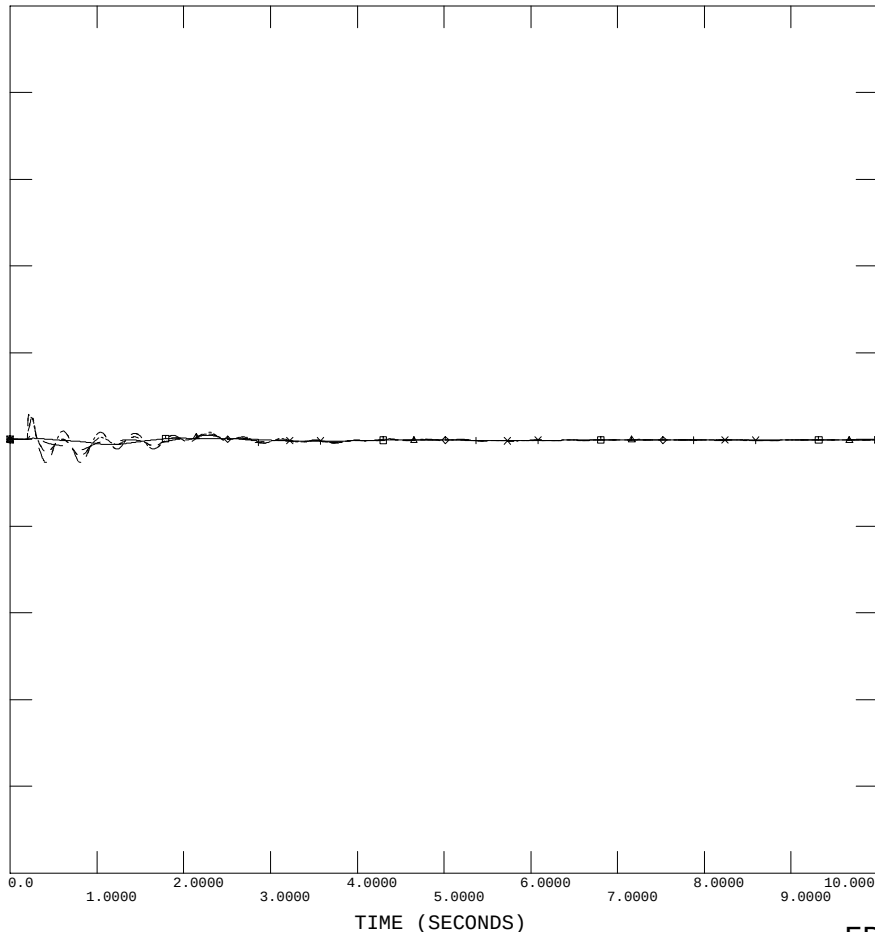


THU, FEB 13 2003 16:24  
VOLTAGE 6 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]  
FILE: CON16-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

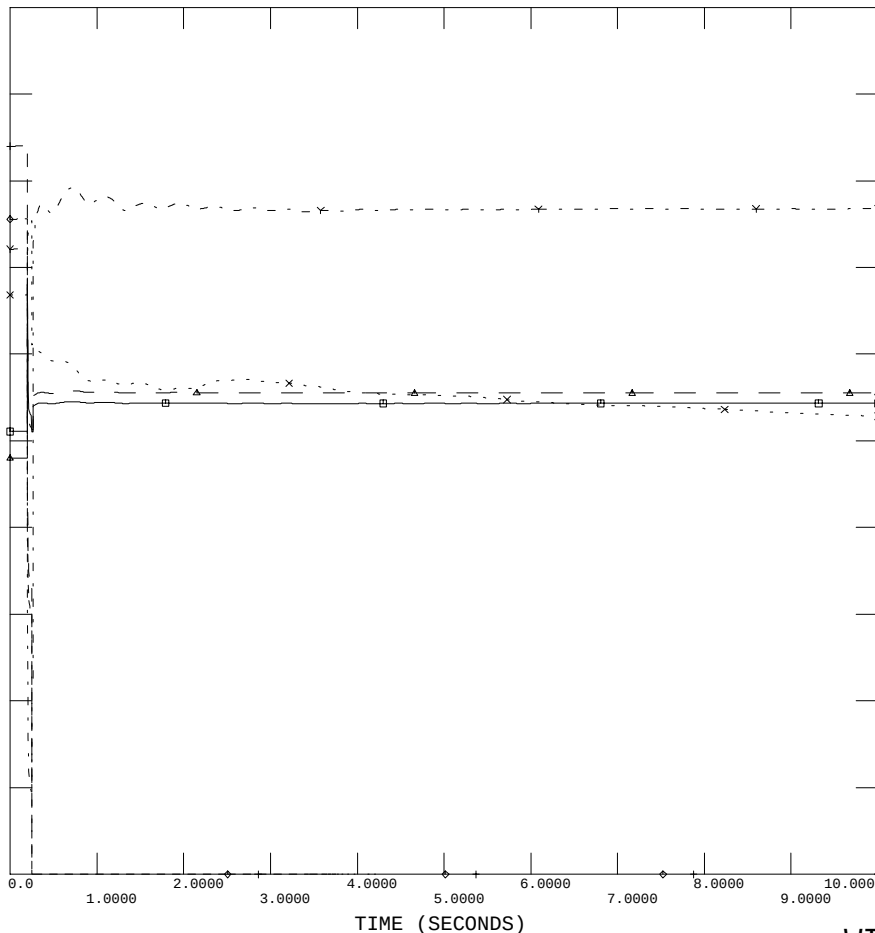


THU, FEB 13 2003 16:24  
FREQUENCY CON16 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON16 - FAULT ON BOONE - LAJUNTA 115 [BOONE END]  
FILE: CON16-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG1 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



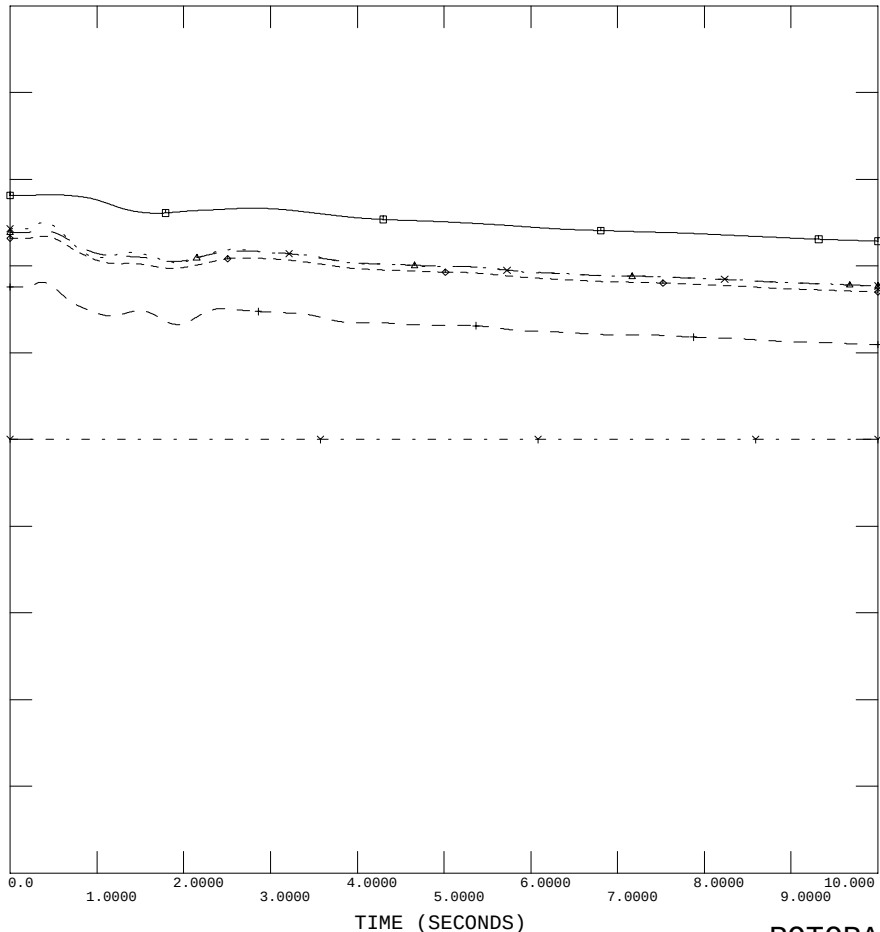
THU, FEB 13 2003 16:24  
WIND DATA CON16 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]

FILE: CON17-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70701 [COLGRN 34.500] [1.]]  | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



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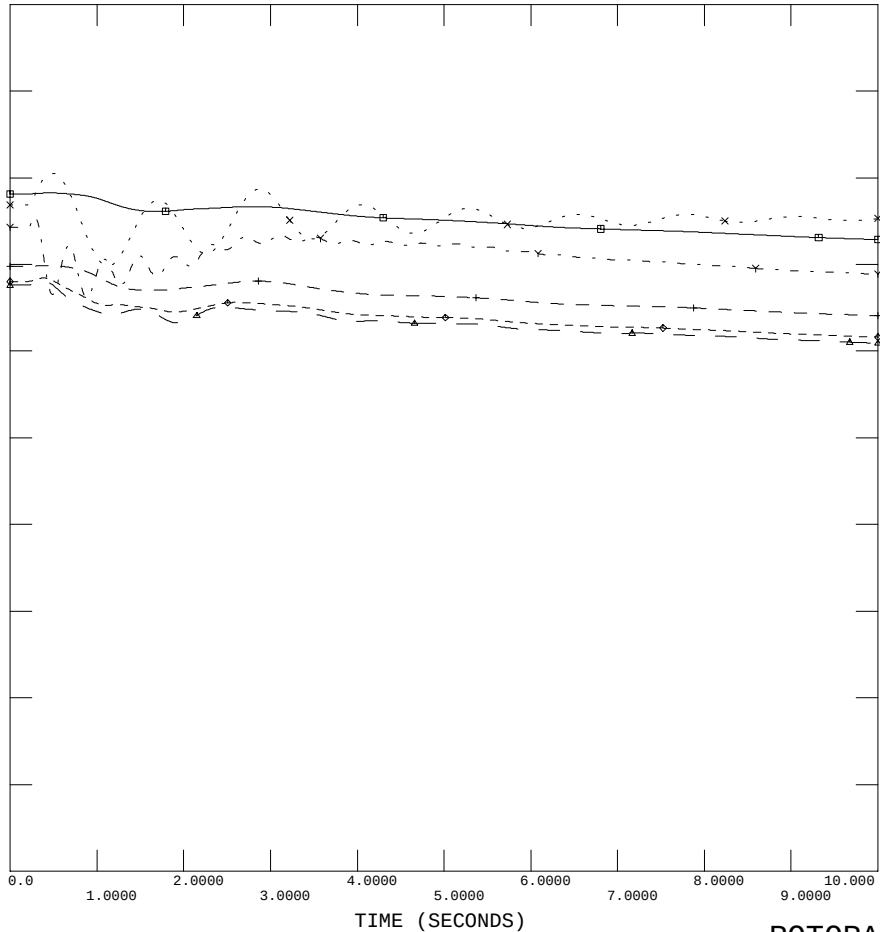
ROTORANGLES 1 CON17 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]

FILE: CON17-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



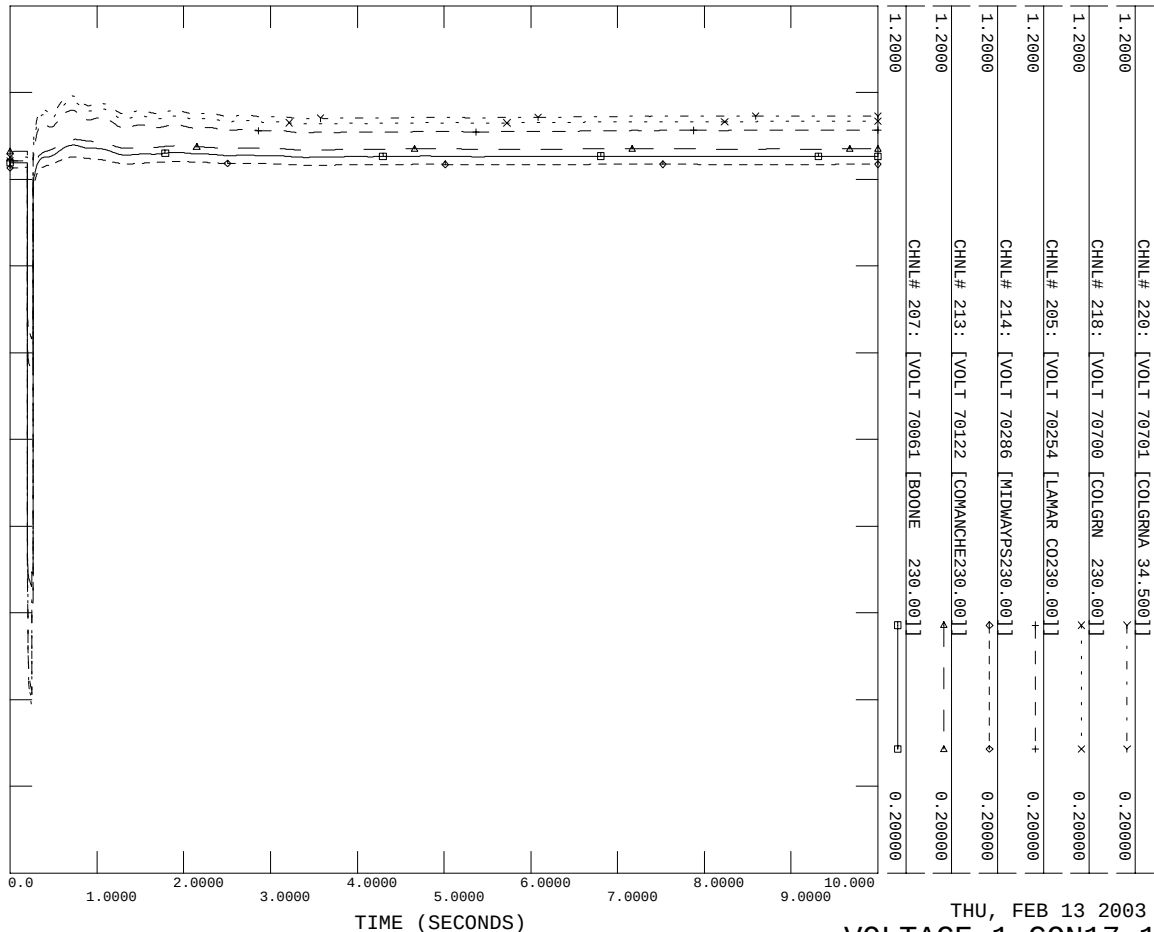
THU, FEB 13 2003 16:24

ROTORANGLES 2 CON17 162MW



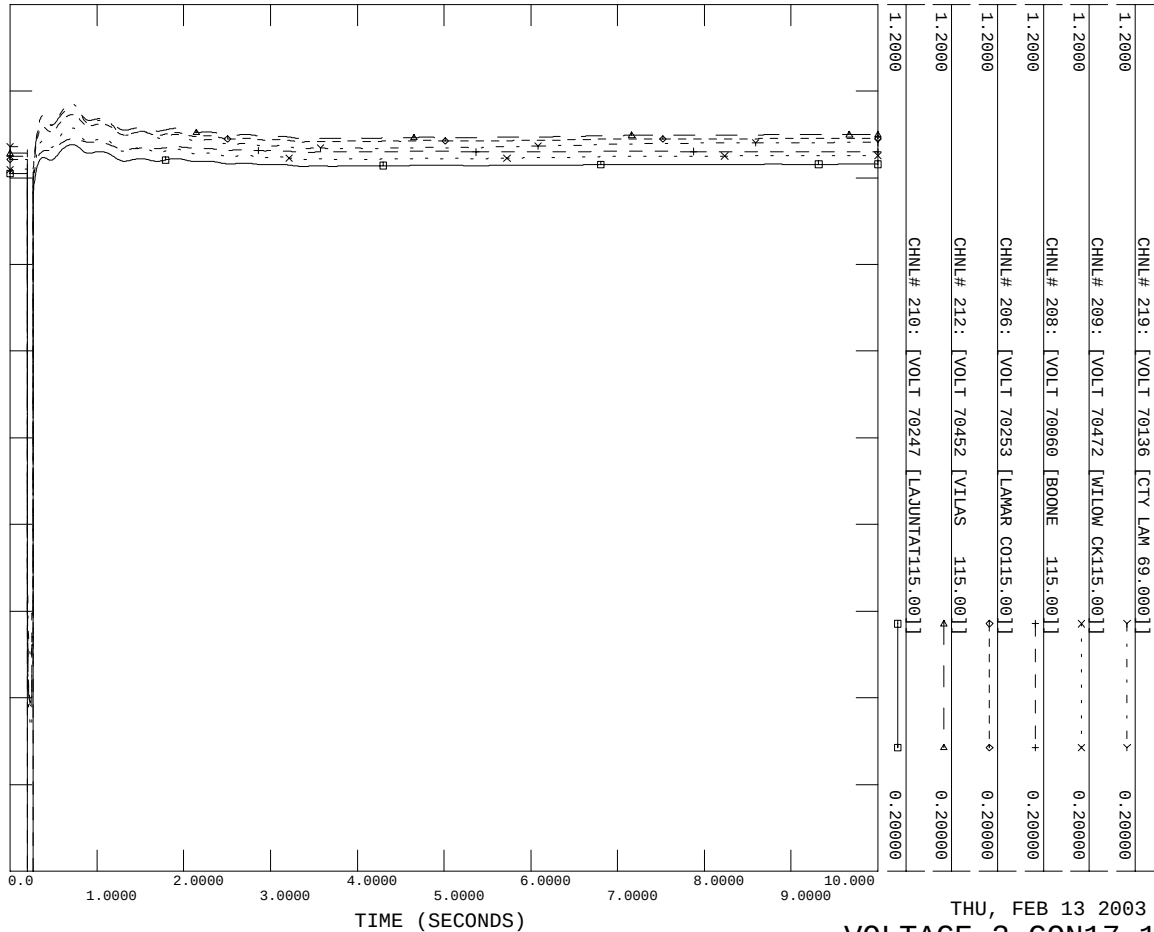
POWER  
WIND TICS  
FILE

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT



POWER  
WIND TICS  
FILE

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT

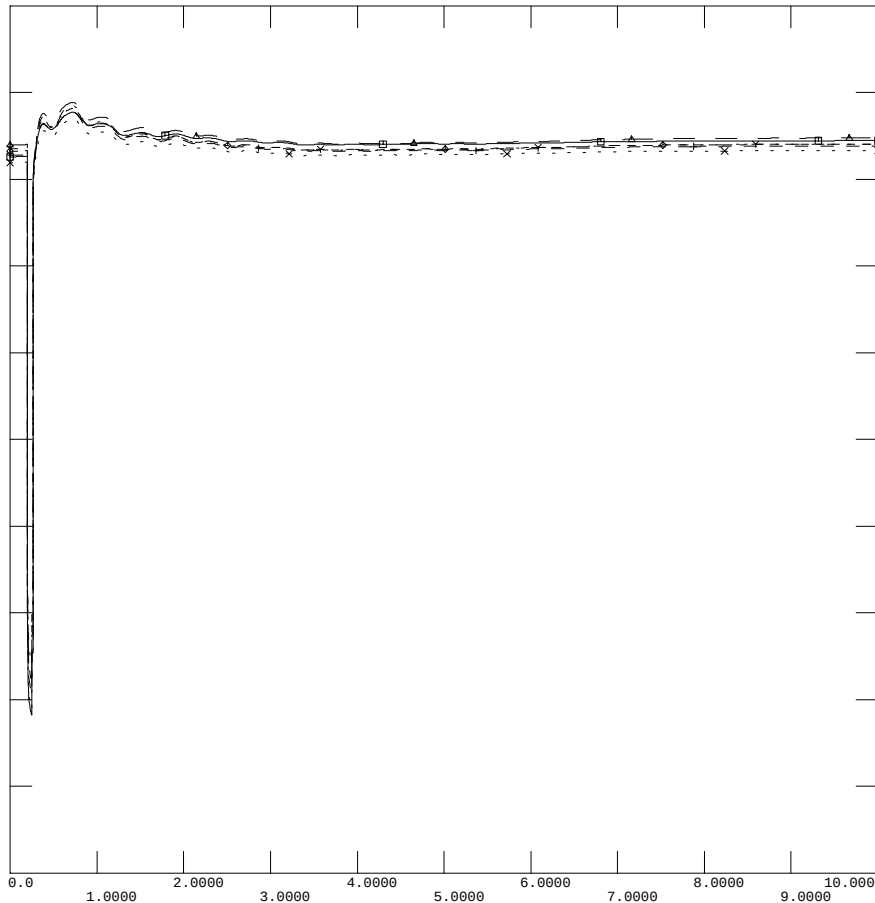




POWER  
TIC 0.00015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



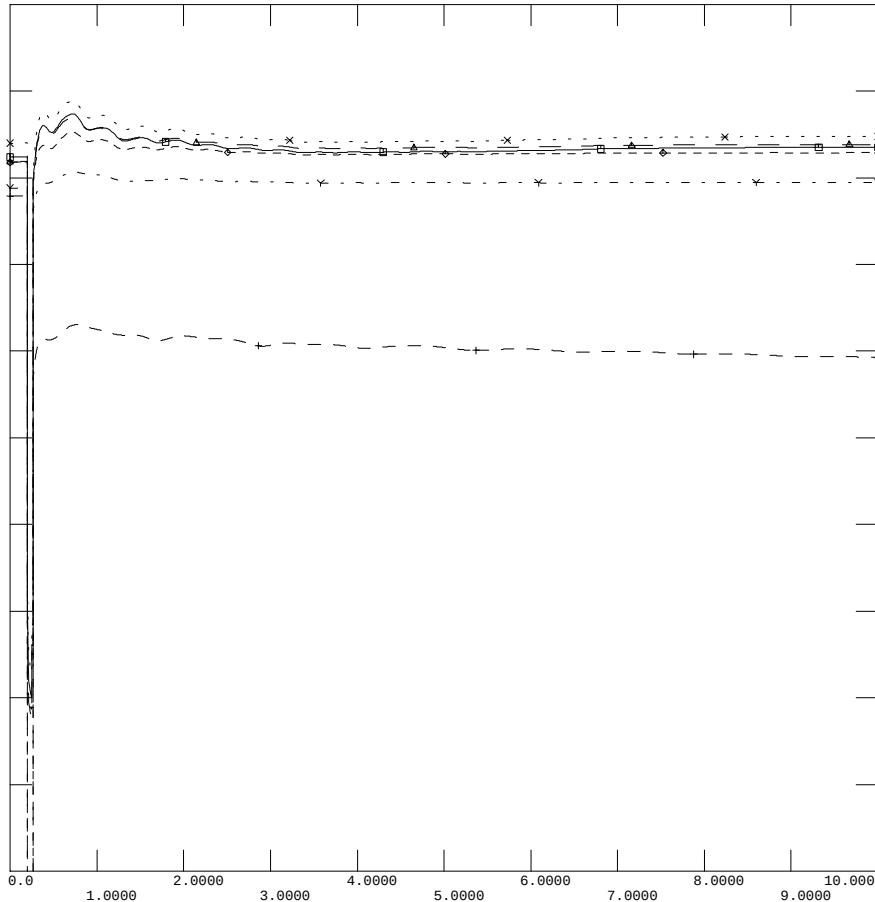
THU, FEB 13 2003 16:24  
VOLTAGE 3 CON17 162MW



POWER  
TIC 0.00015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

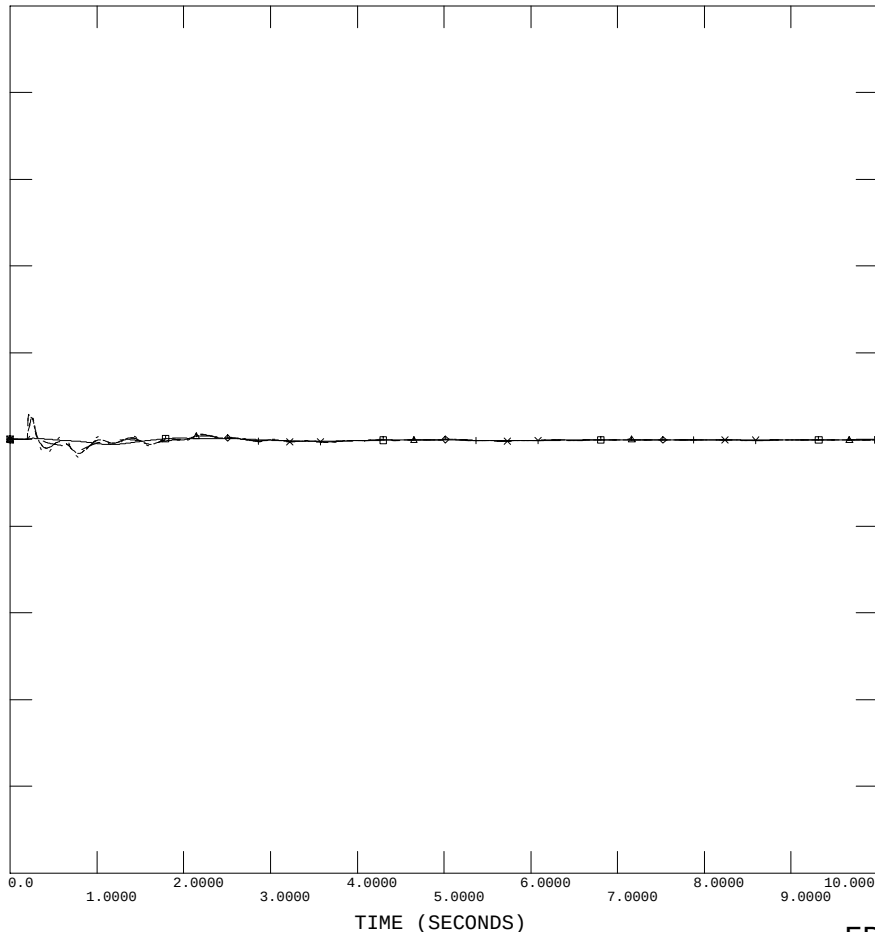


THU, FEB 13 2003 16:24  
VOLTAGE 4 CON17 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

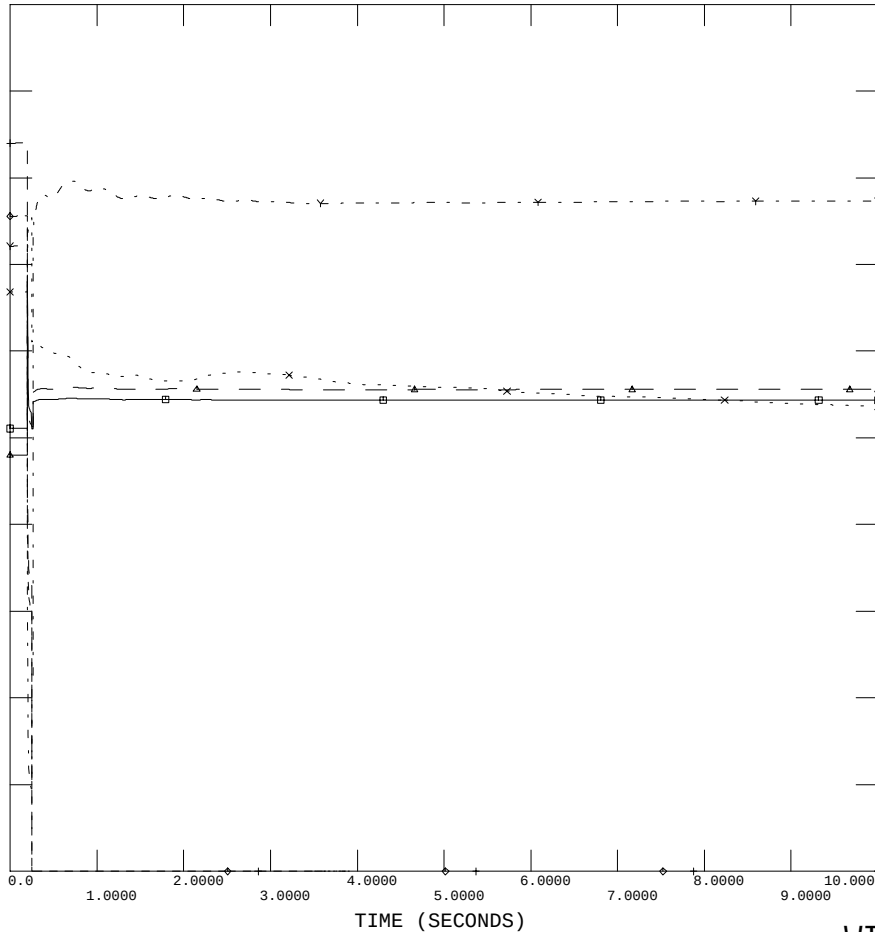


THU, FEB 13 2003 16:24  
FREQUENCY CON17 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON17 - FAULT ON BOONE - LAJUNTA WEST 115 [BOONE END]  
FILE: CON17-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [COLGRNA 34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



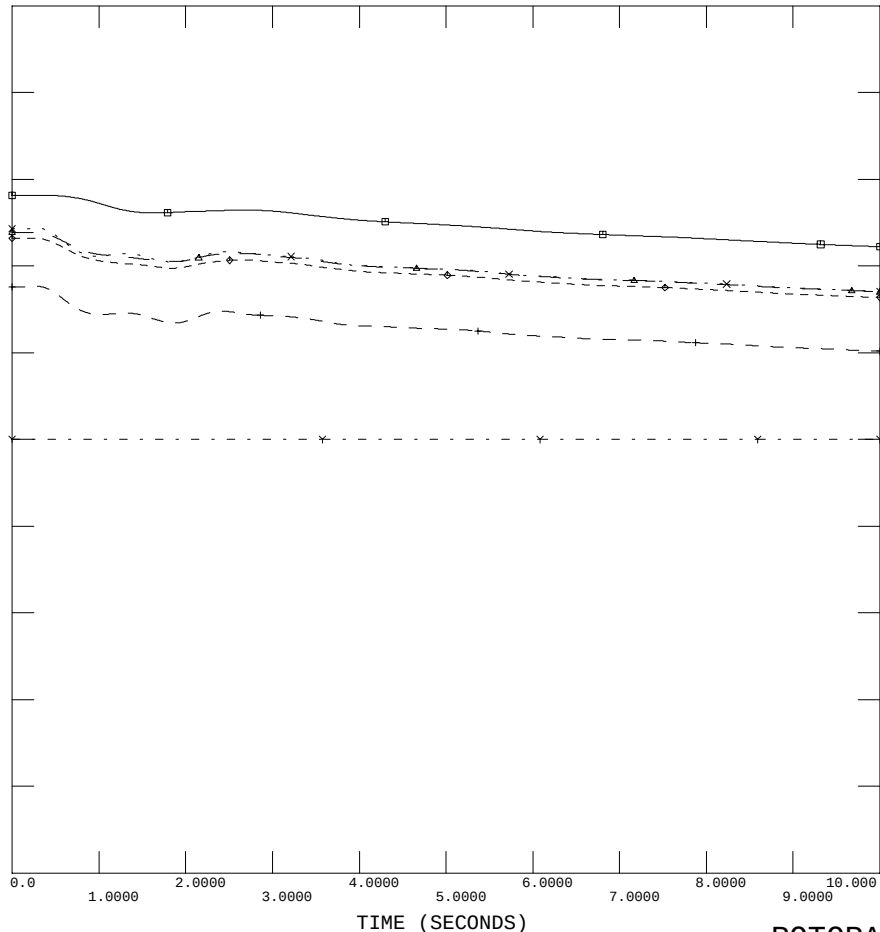
THU, FEB 13 2003 16:24  
WIND DATA CON17 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]

FILE: CON18-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70701 [COLGRN 34.500] [1.]]  | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



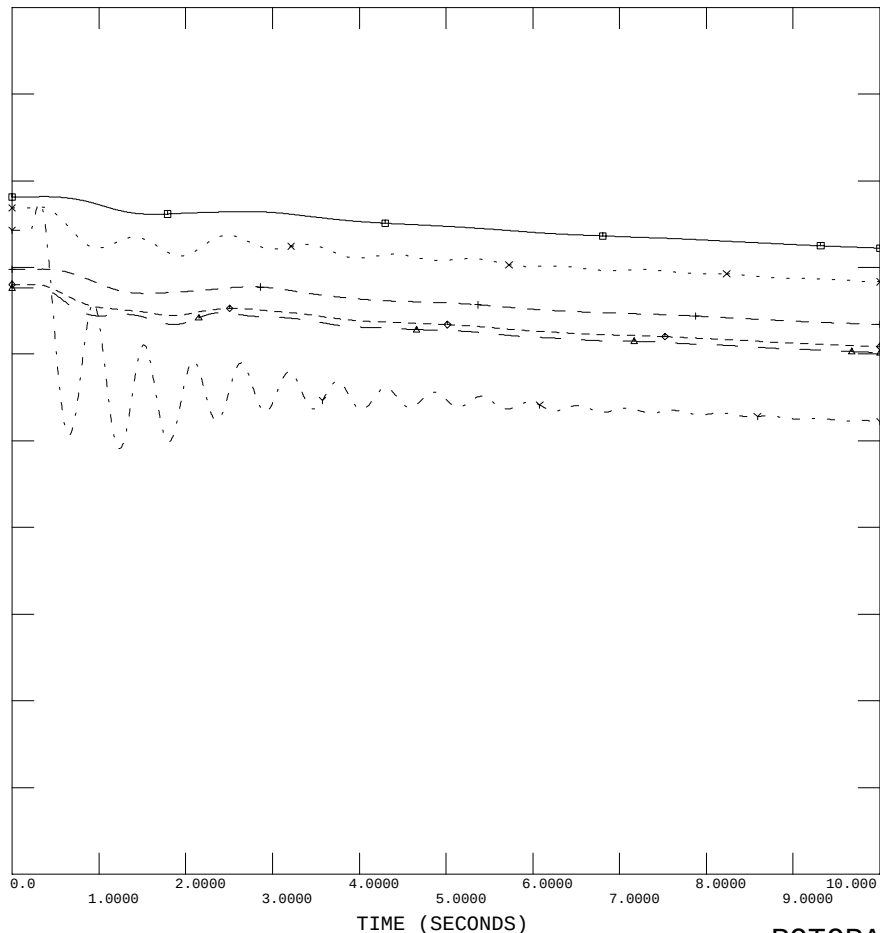
THU, FEB 13 2003 16:24  
ROTORANGLES 1 CON18 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]

FILE: CON18-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |

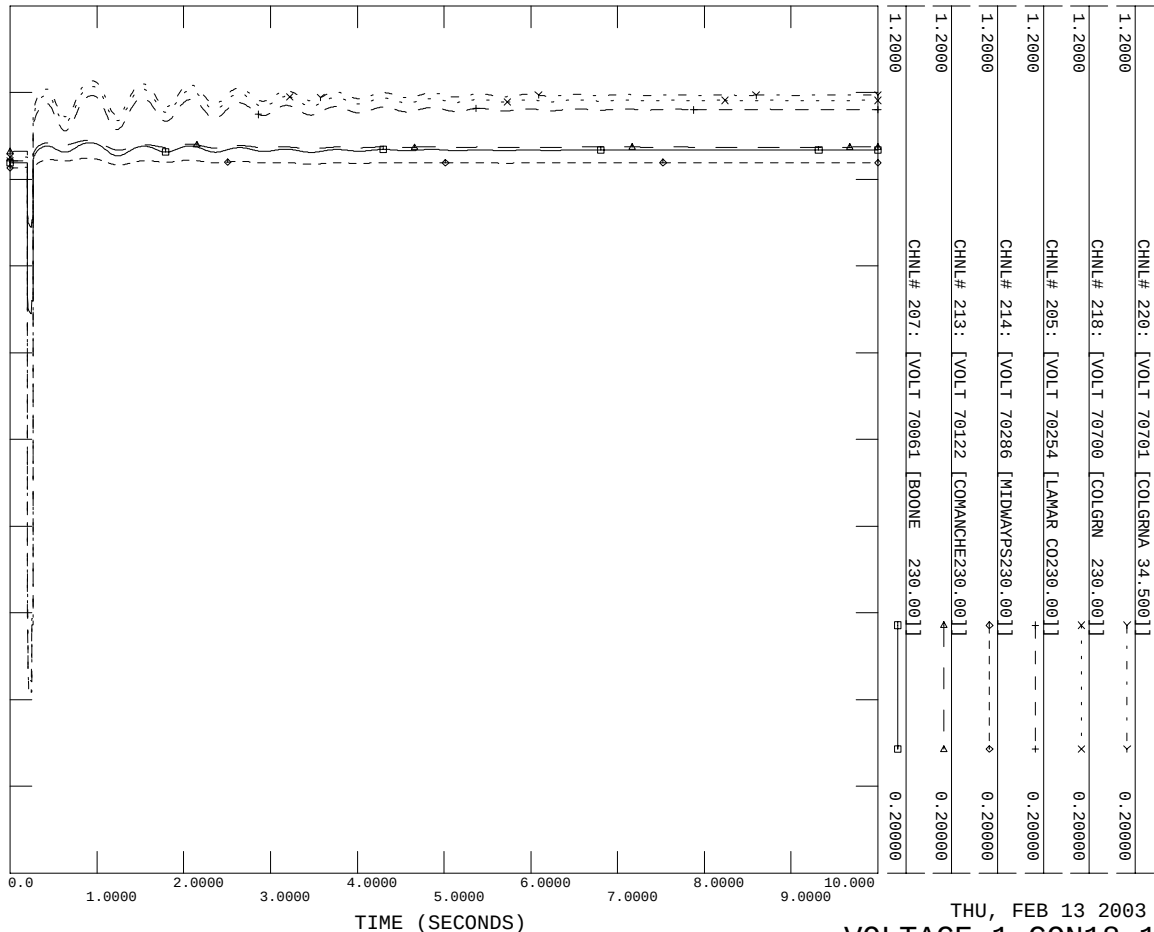


THU, FEB 13 2003 16:24  
ROTORANGLES 2 CON18 162MW

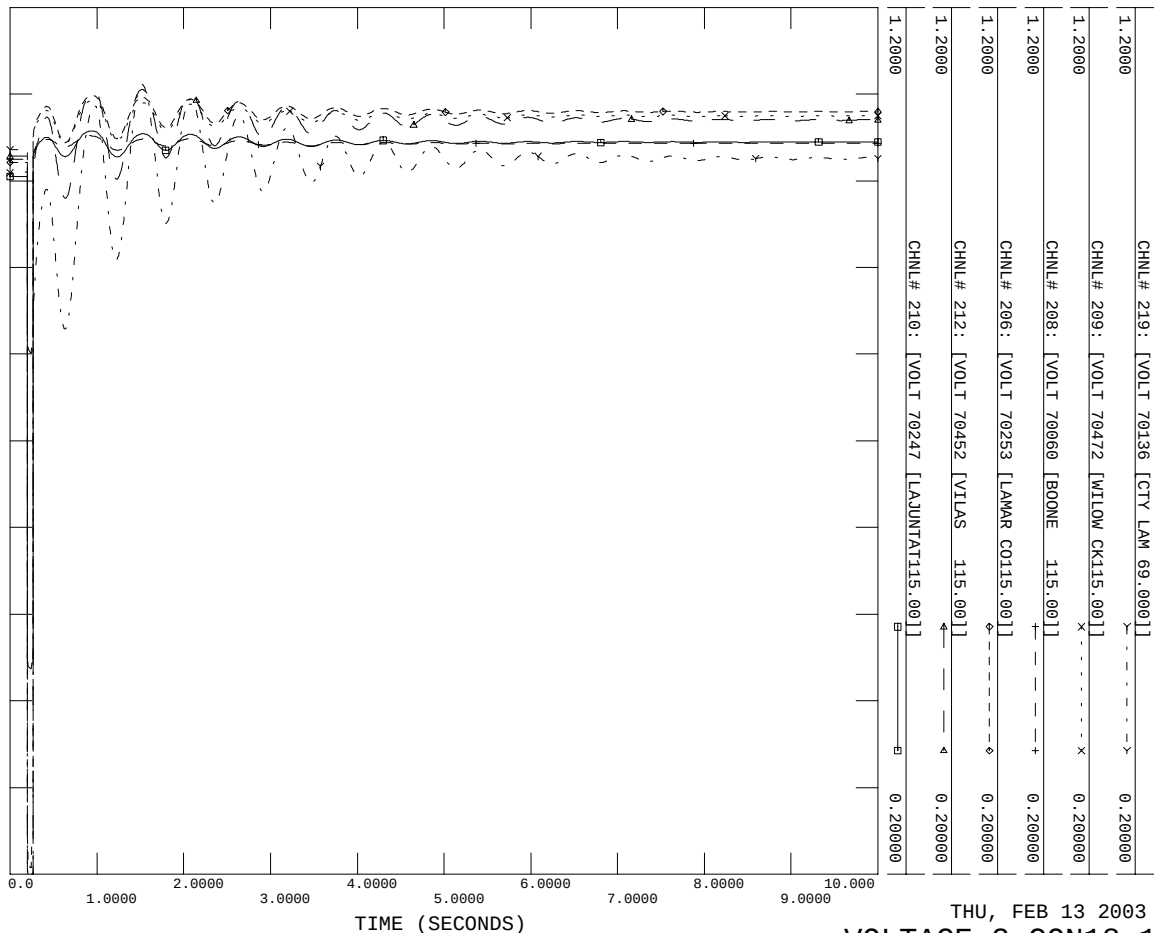




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT

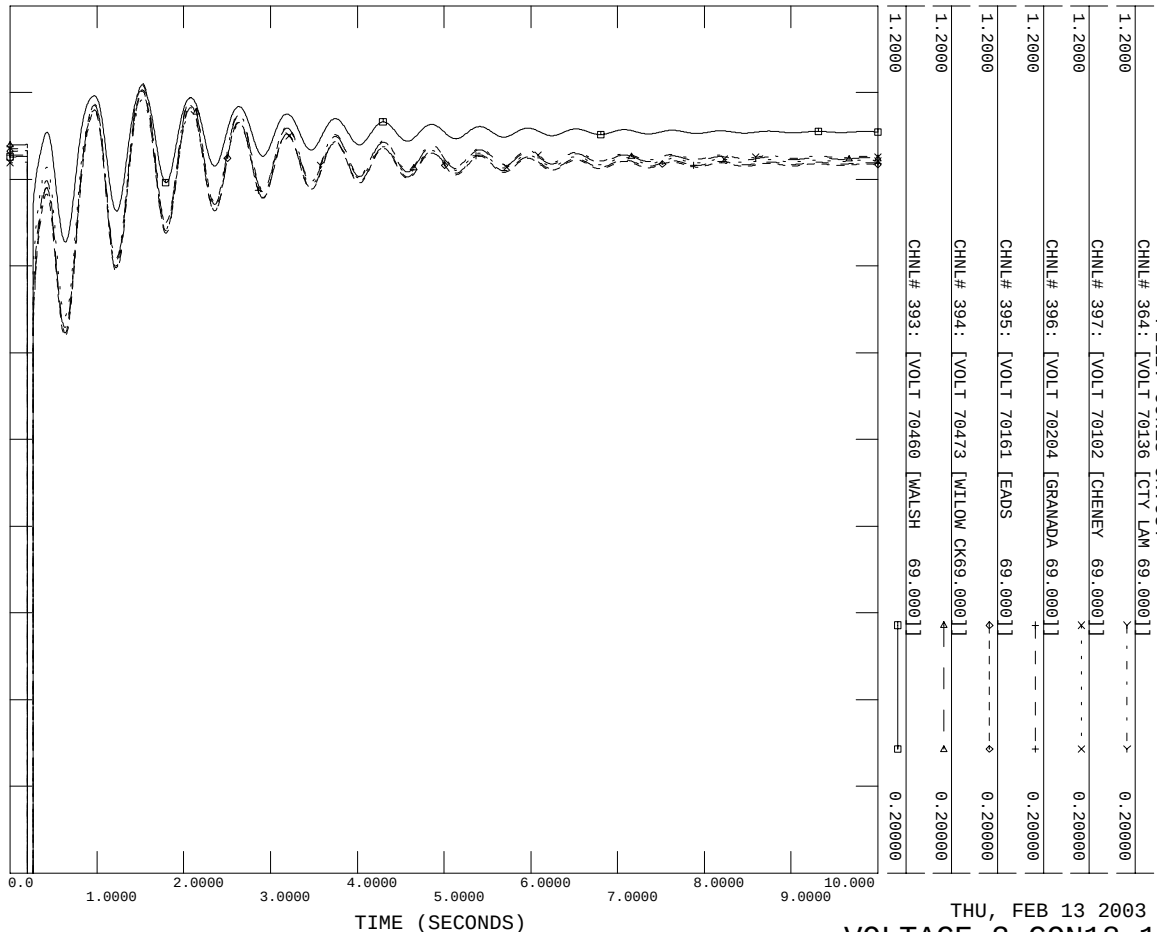


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT

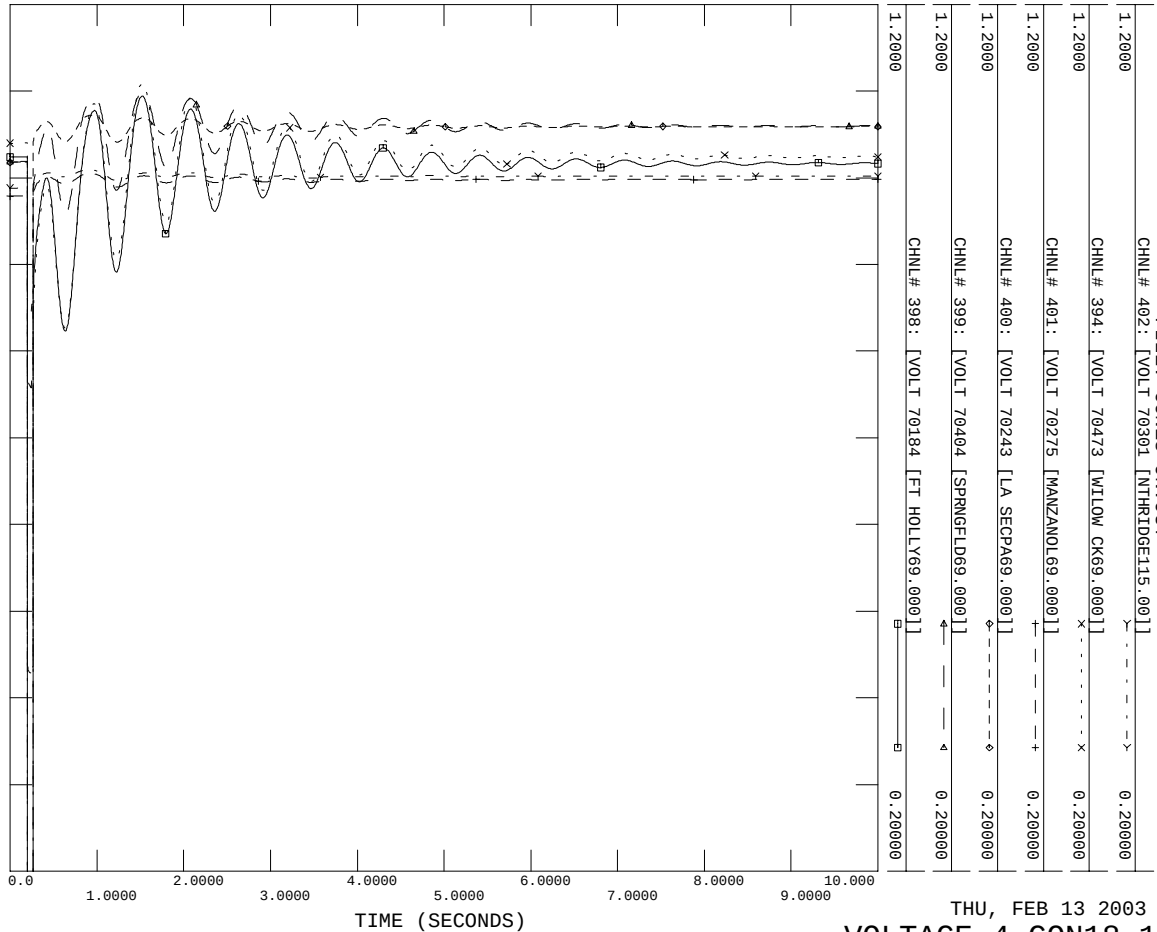




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT



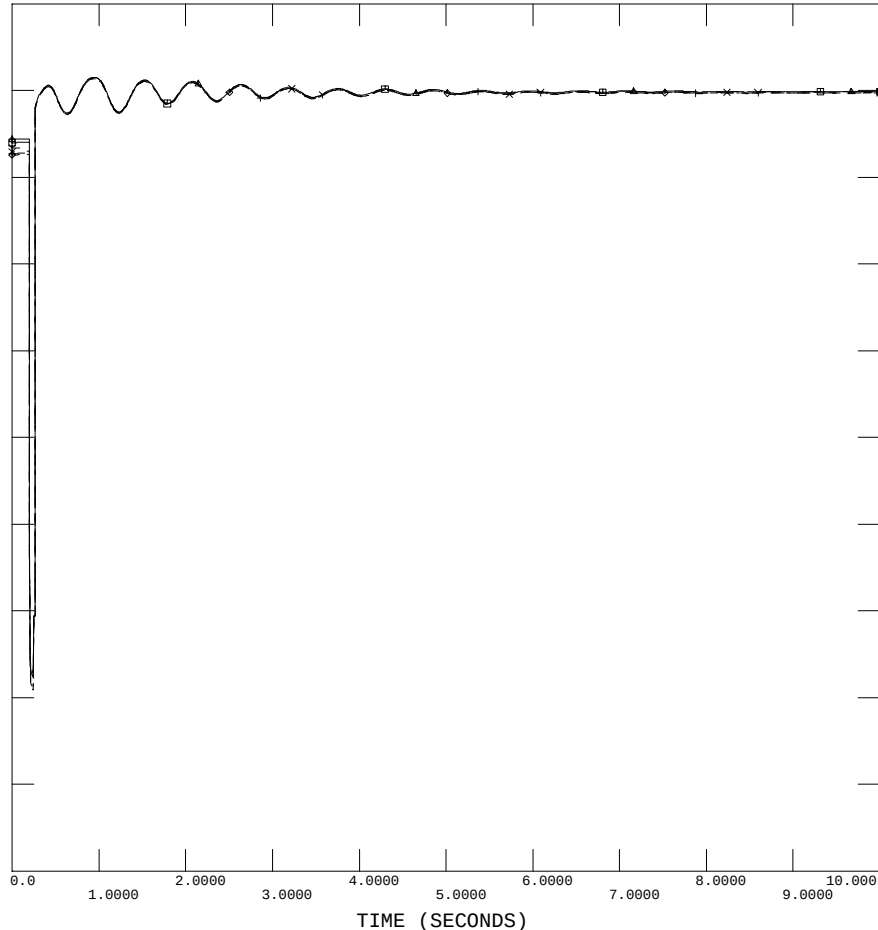
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT

|        |                                         |         |
|--------|-----------------------------------------|---------|
| 1.2000 | CHNL# 417: [VOLT 70717 [PDMNT9 34.500]] | 0.20000 |
| 1.2000 | CHNL# 405: [VOLT 70705 [SMGR3 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 414: [VOLT 70714 [PDMNT6 34.500]] | 0.20000 |
| 1.2000 | CHNL# 404: [VOLT 70704 [SMGR2 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 410: [VOLT 70710 [PDMNT2 34.500]] | 0.20000 |
| 1.2000 | CHNL# 403: [VOLT 70703 [SMGR1 34.500]]  | 0.20000 |

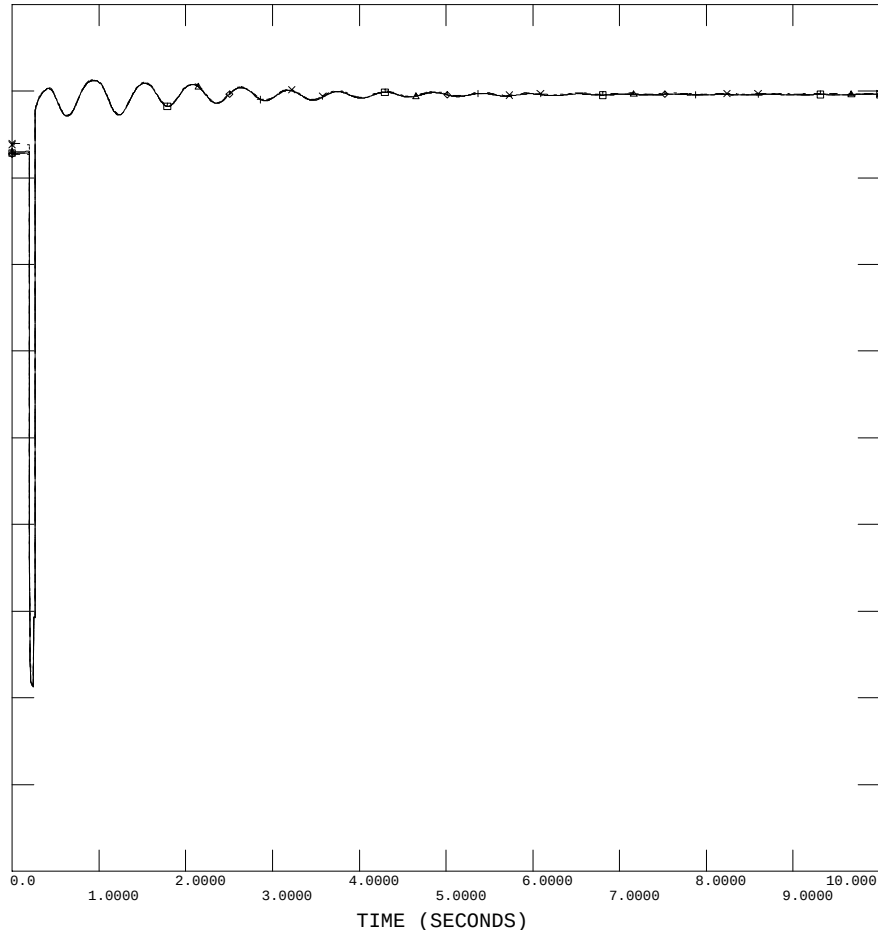


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VOLTAGE 5 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT

|        |                                         |         |
|--------|-----------------------------------------|---------|
| 1.2000 | CHNL# 426: [VOLT 70727 [PDMNT1934.500]] | 0.20000 |
| 1.2000 | CHNL# 408: [VOLT 70708 [SMGR6 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 423: [VOLT 70724 [PDMNT1634.500]] | 0.20000 |
| 1.2000 | CHNL# 407: [VOLT 70707 [SMGR5 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 420: [VOLT 70721 [PDMNT1334.500]] | 0.20000 |
| 1.2000 | CHNL# 406: [VOLT 70706 [SMGR4 34.500]]  | 0.20000 |

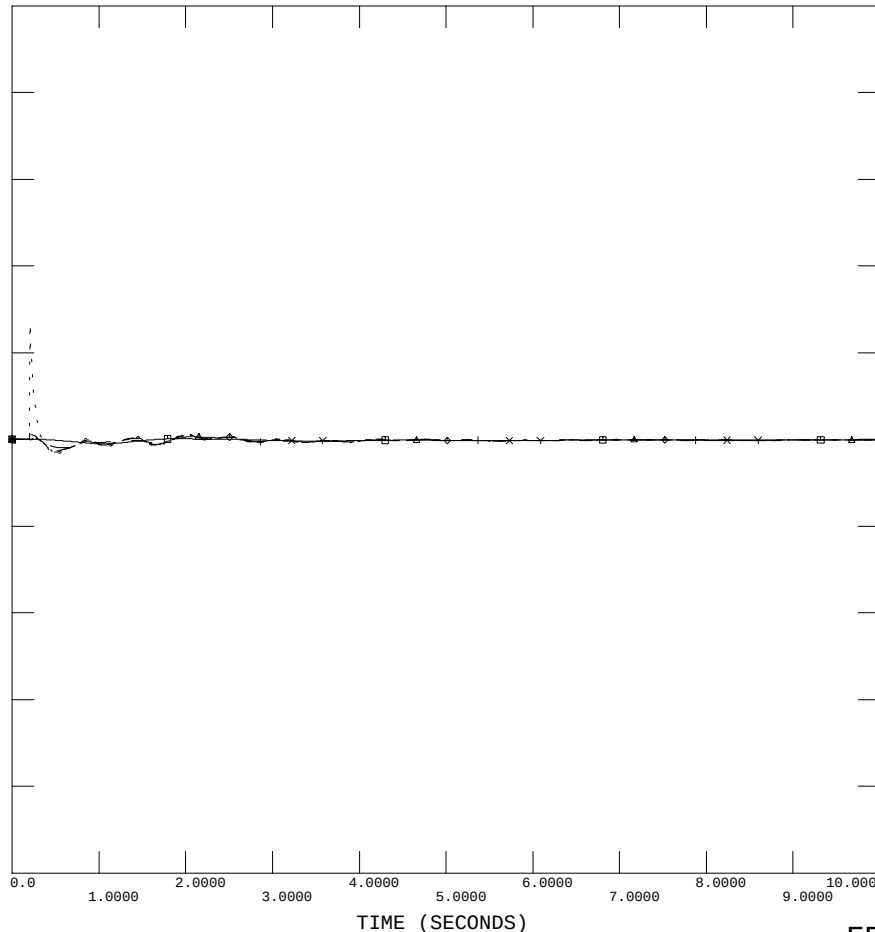


THU, FEB 13 2003 16:24  
VOLTAGE 6 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

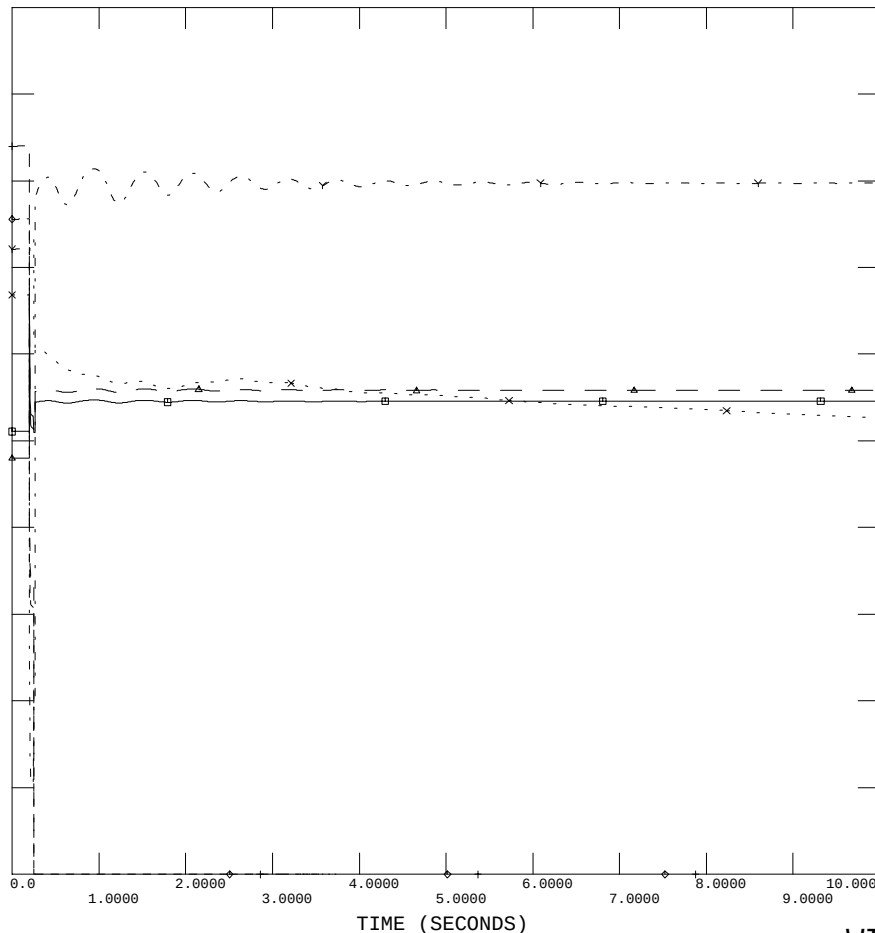


THU, FEB 13 2003 16:24  
FREQUENCY CON18 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON18 - FAULT ON WILLOWCREEK 115/69 TRANSFORMER [115-KV END]  
FILE: CON18-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [COLGRNA 34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



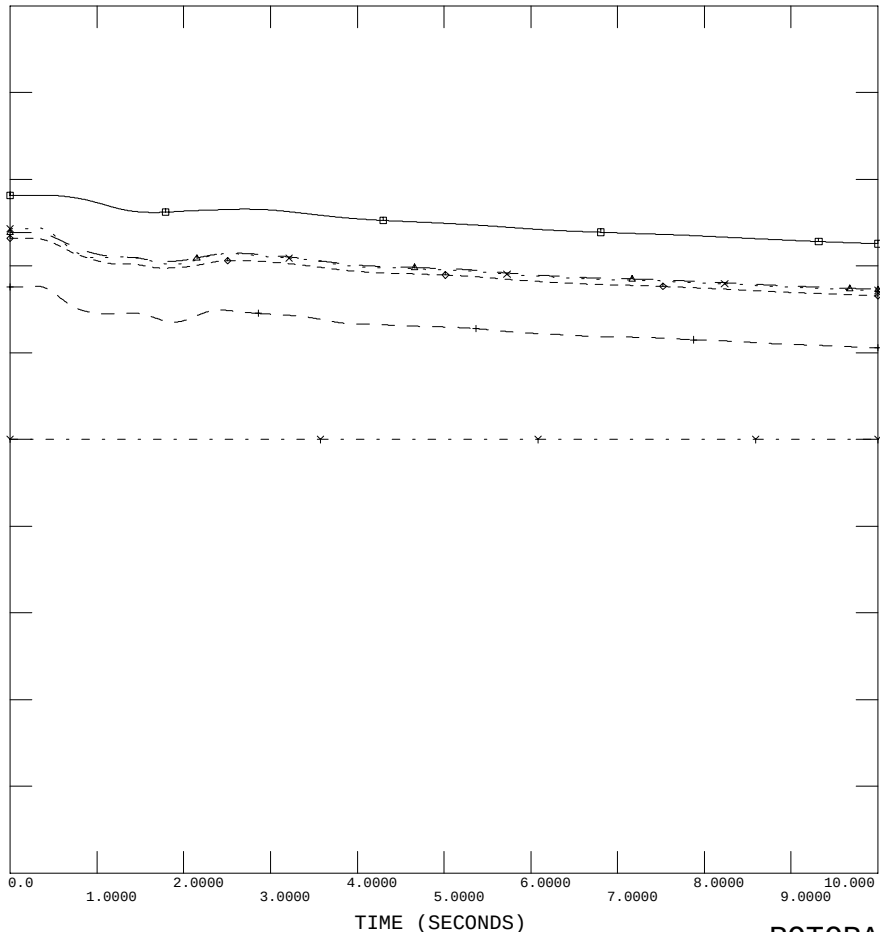
THU, FEB 13 2003 16:24  
WIND DATA CON18 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]

FILE: CON19-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70701 [COLGRN 34.500] [1.]]  | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



THU, FEB 13 2003 16:24

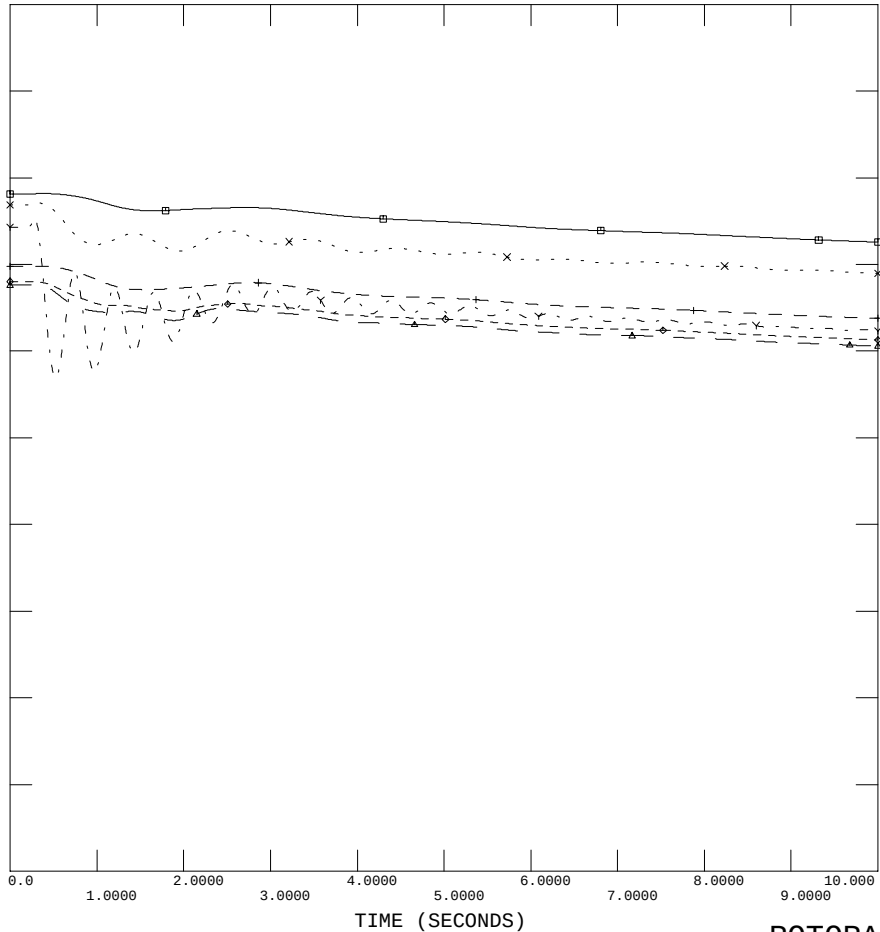
ROTORANGLES 1 CON19 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]

FILE: CON19-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DLS4.1600] [1.]]  | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



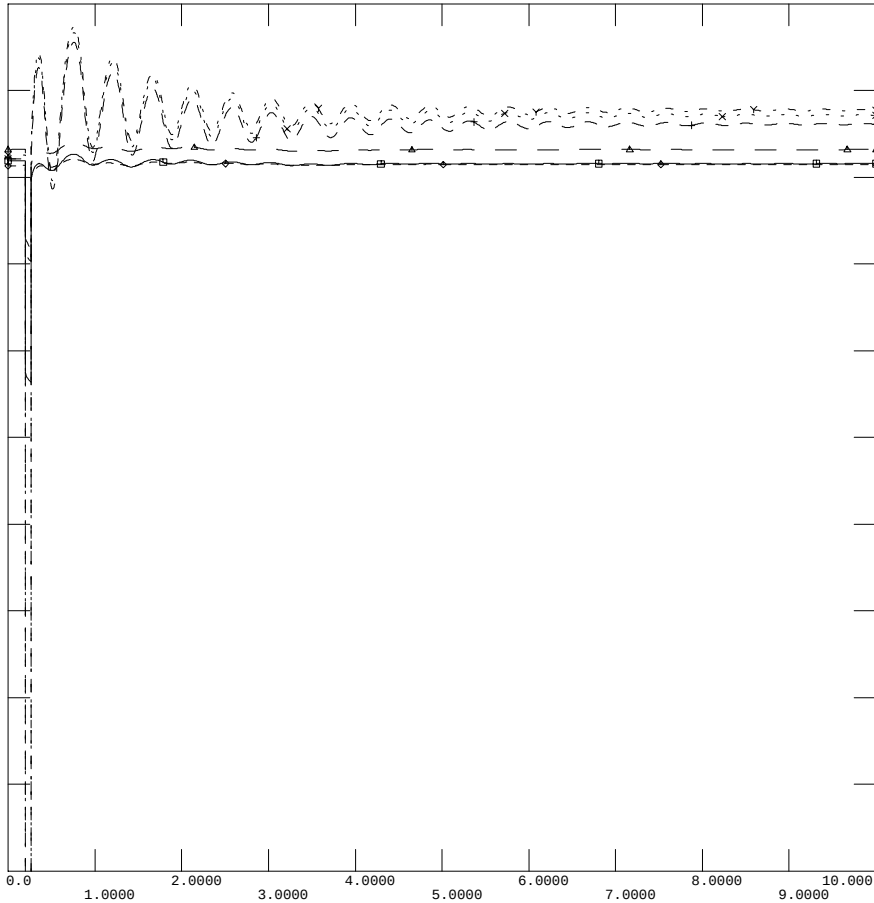
THU, FEB 13 2003 16:24

ROTORANGLES 2 CON19 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]  
FILE: CON19-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

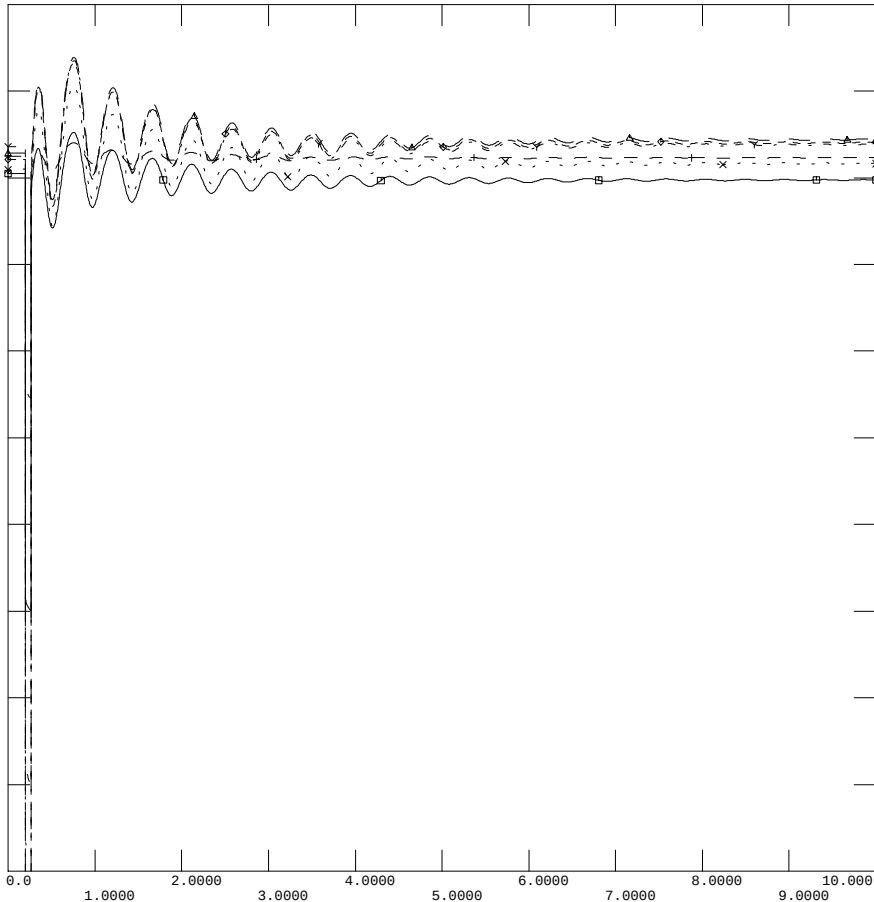


THU, FEB 13 2003 16:24  
VOLTAGE 1 CON19 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]  
FILE: CON19-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

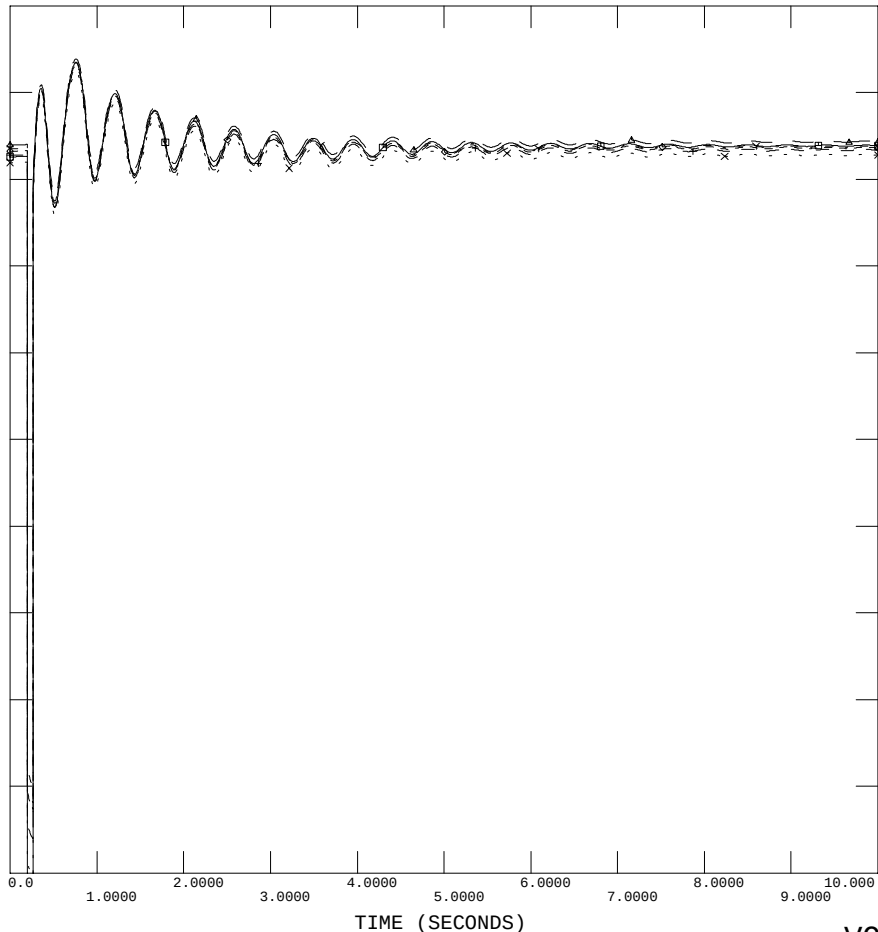


THU, FEB 13 2003 16:24  
VOLTAGE 2 CON19 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]

FILE: CON19-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

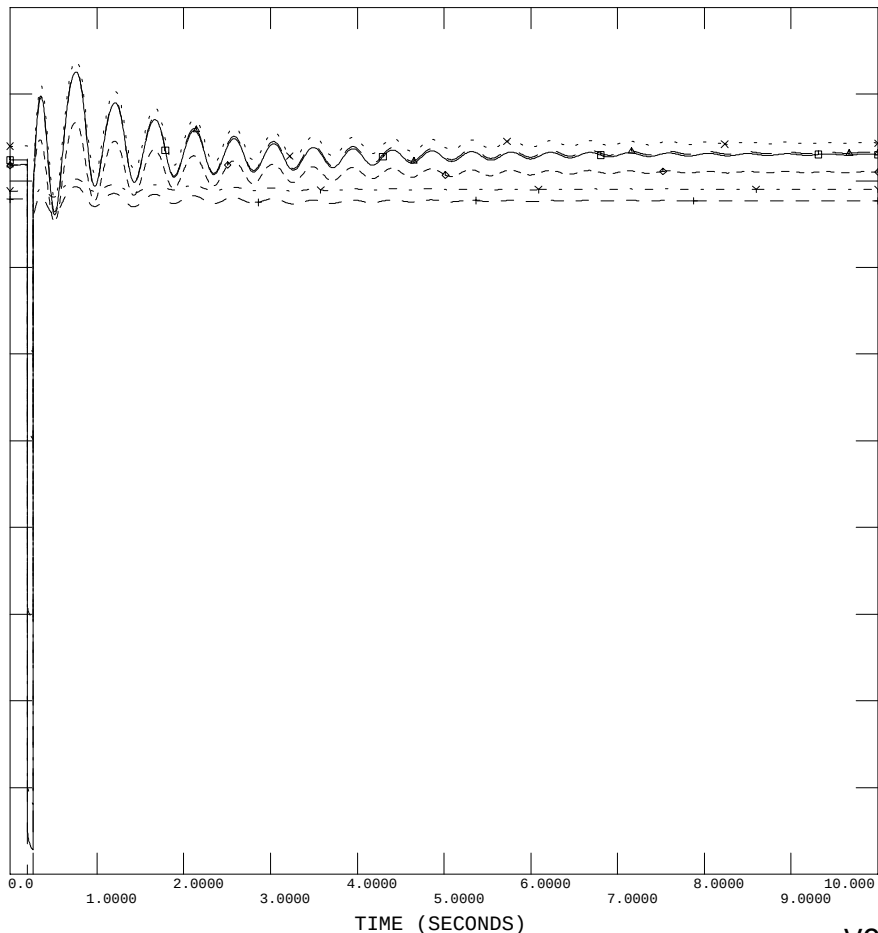


THU, FEB 13 2003 16:24  
VOLTAGE 3 CON19 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]

FILE: CON19-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

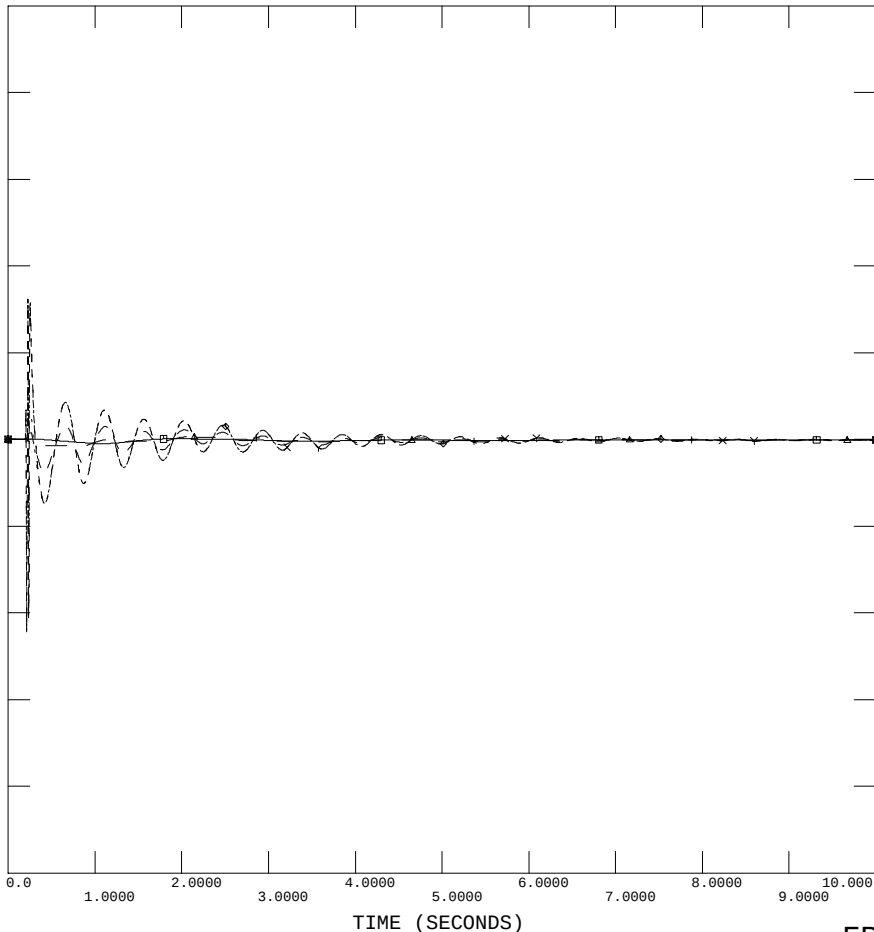


THU, FEB 13 2003 16:24  
VOLTAGE 4 CON19 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]  
FILE: CON19-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

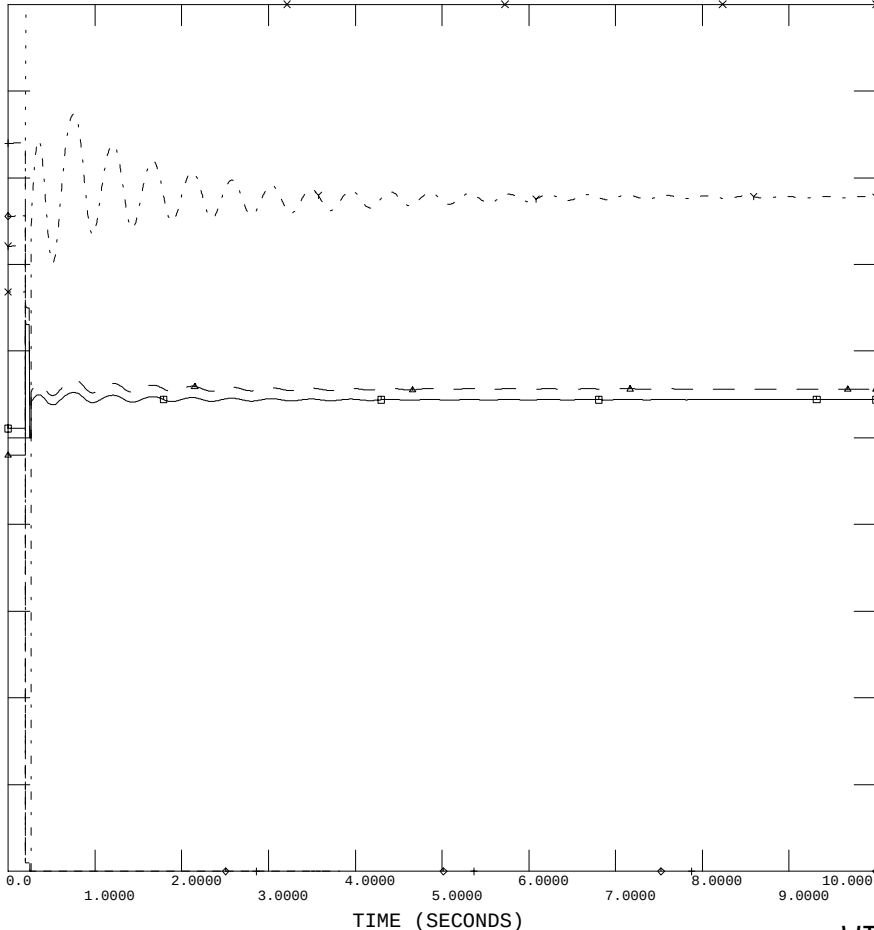


THU, FEB 13 2003 16:24  
FREQUENCY CON19 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON19 - FAULT ON BOONE - LAMAR 230 [LAMAR END]  
FILE: CON19-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [COLGRNA 34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

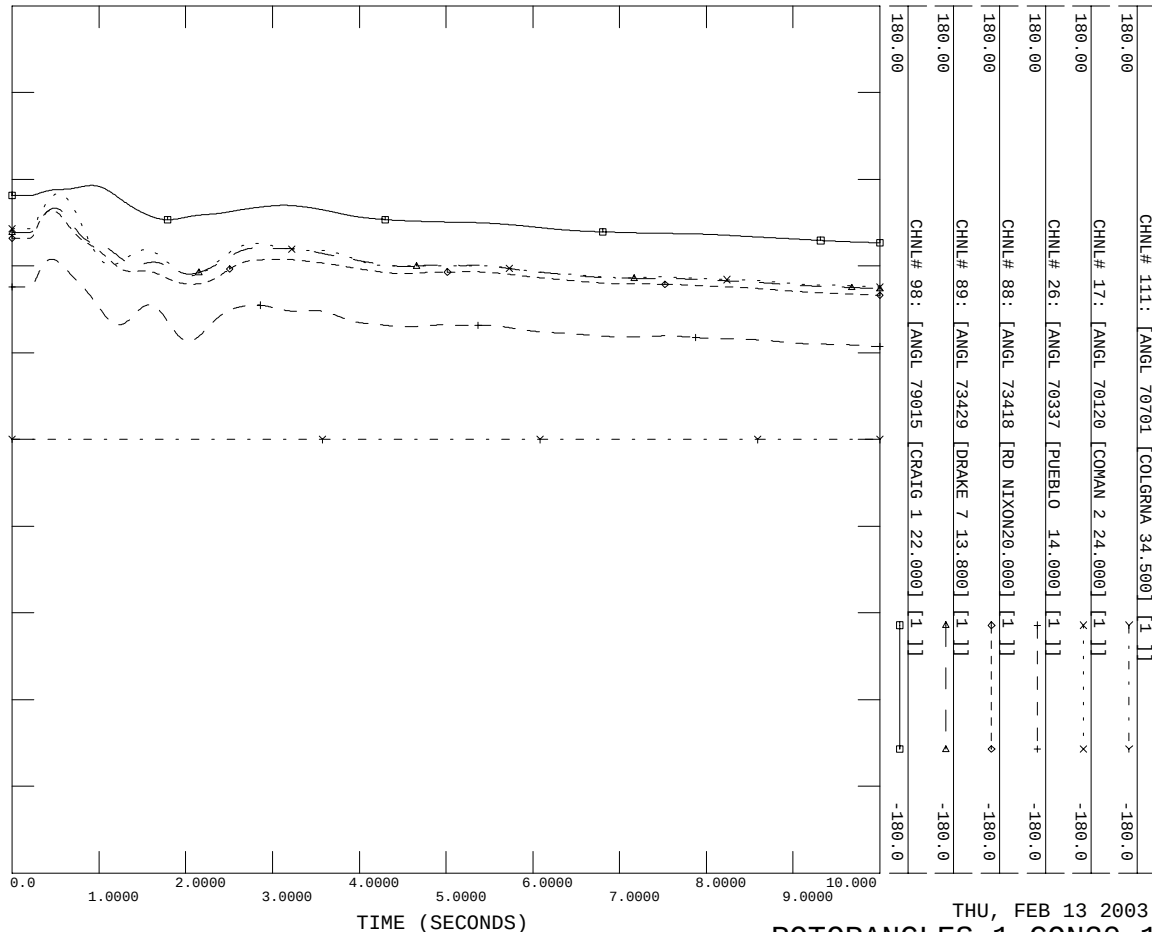


THU, FEB 13 2003 16:24  
WIND DATA CON19 162MW

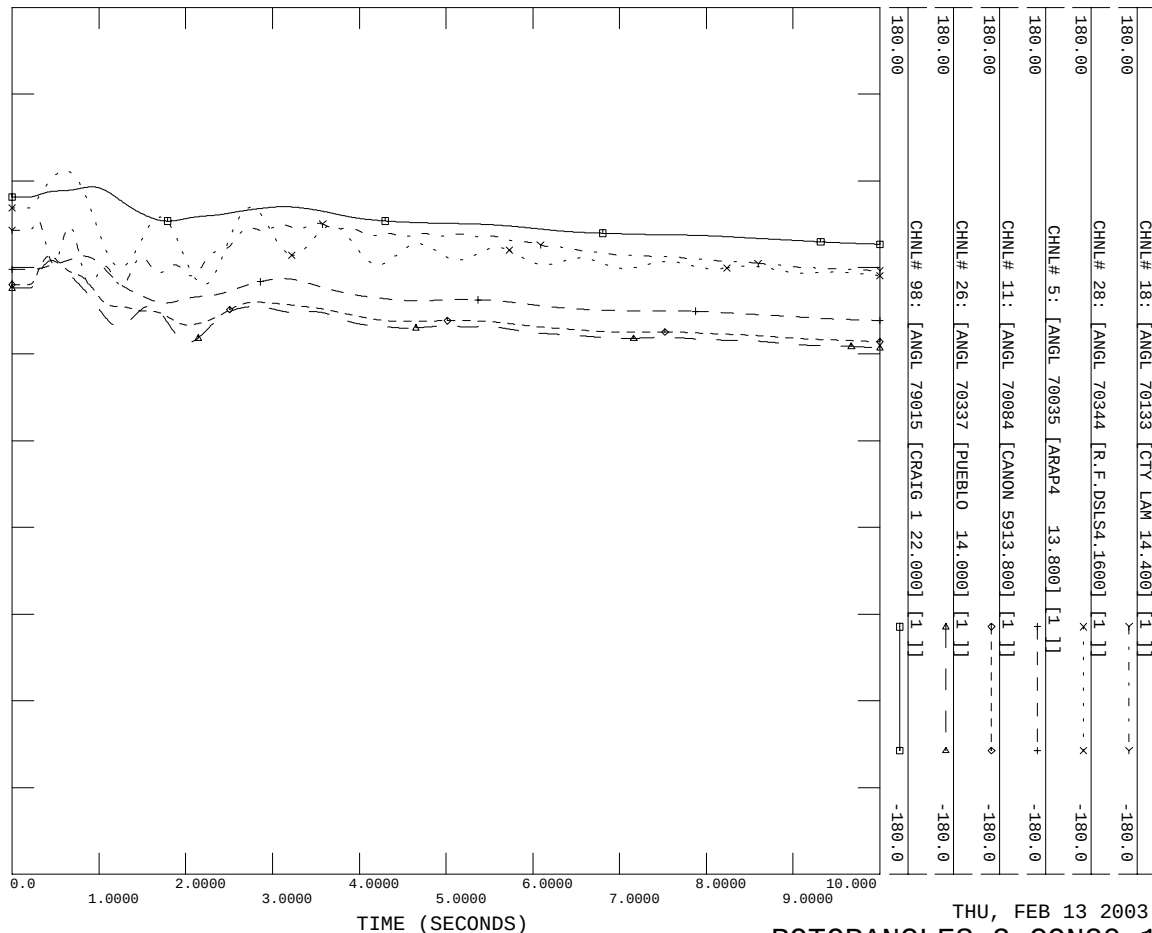




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]  
FILE: CON20-ON.OUT



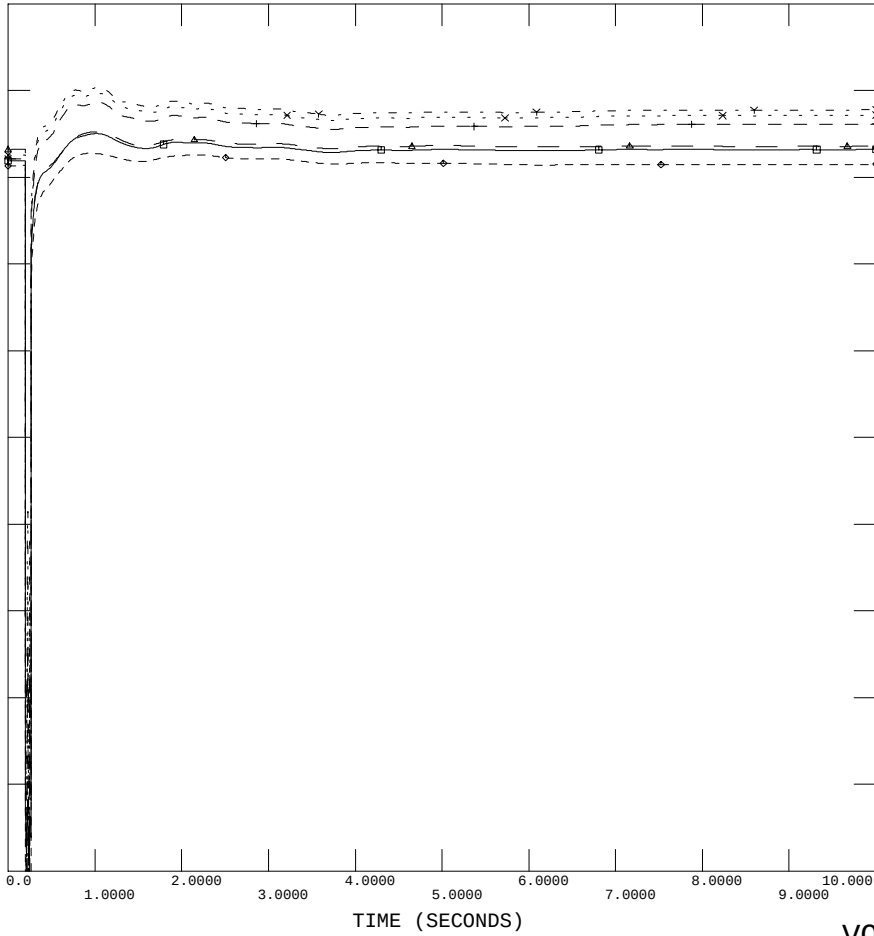
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]  
FILE: CON20-ON.OUT





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]  
FILE: CON20-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

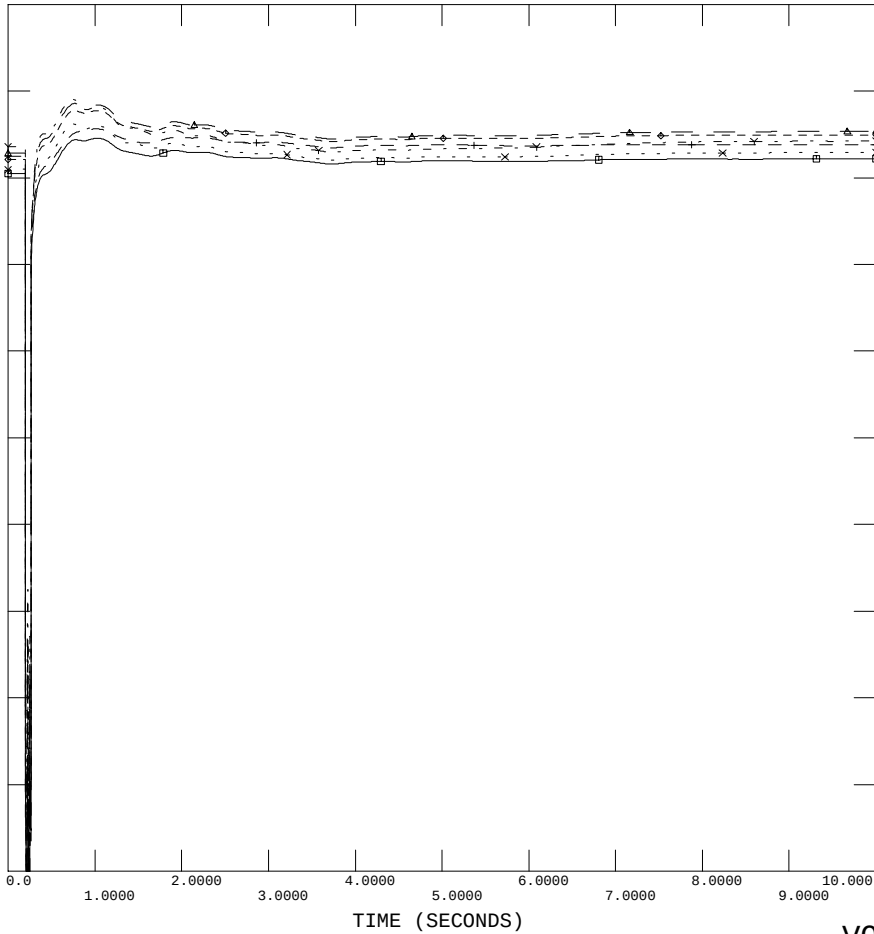


THU, FEB 13 2003 16:25  
VOLTAGE 1 CON20 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]  
FILE: CON20-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

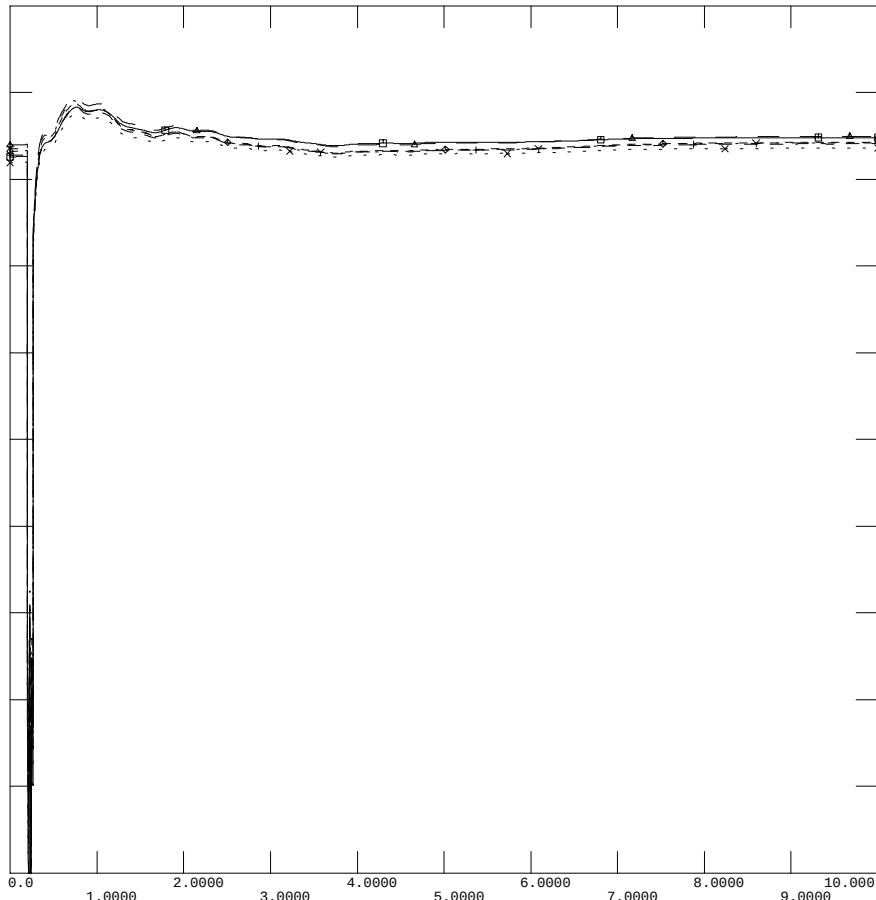


THU, FEB 13 2003 16:25  
VOLTAGE 2 CON20 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]  
FILE: CON20-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

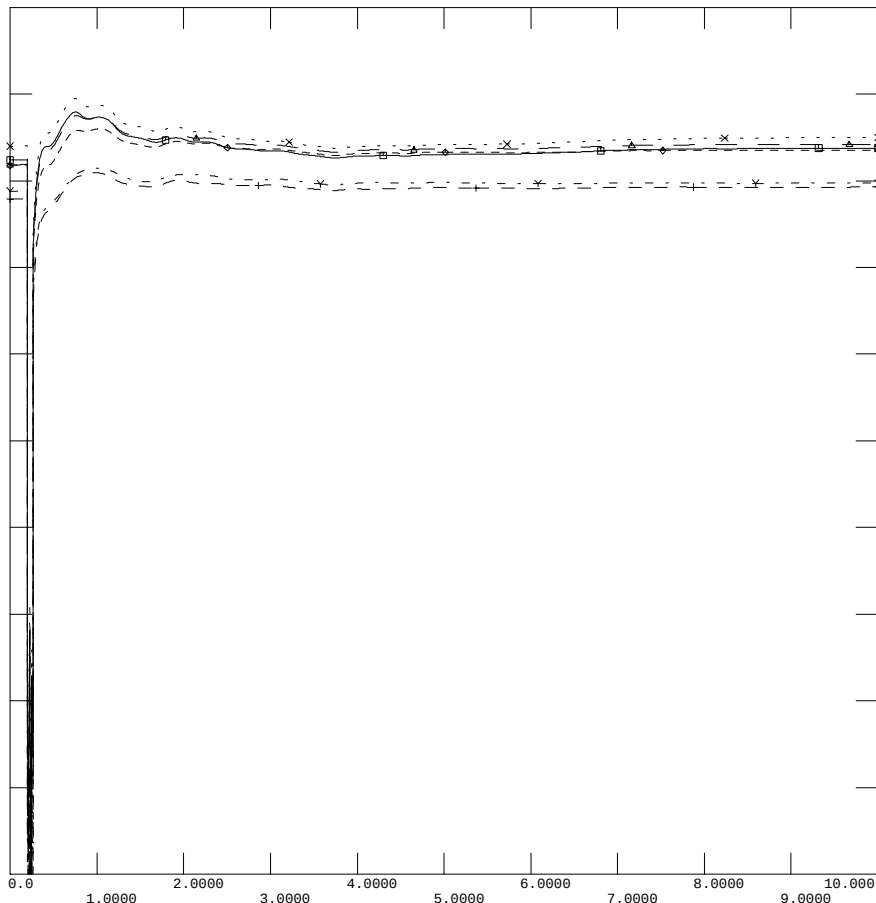


THU, FEB 13 2003 16:25  
VOLTAGE 3 CON20 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]  
FILE: CON20-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

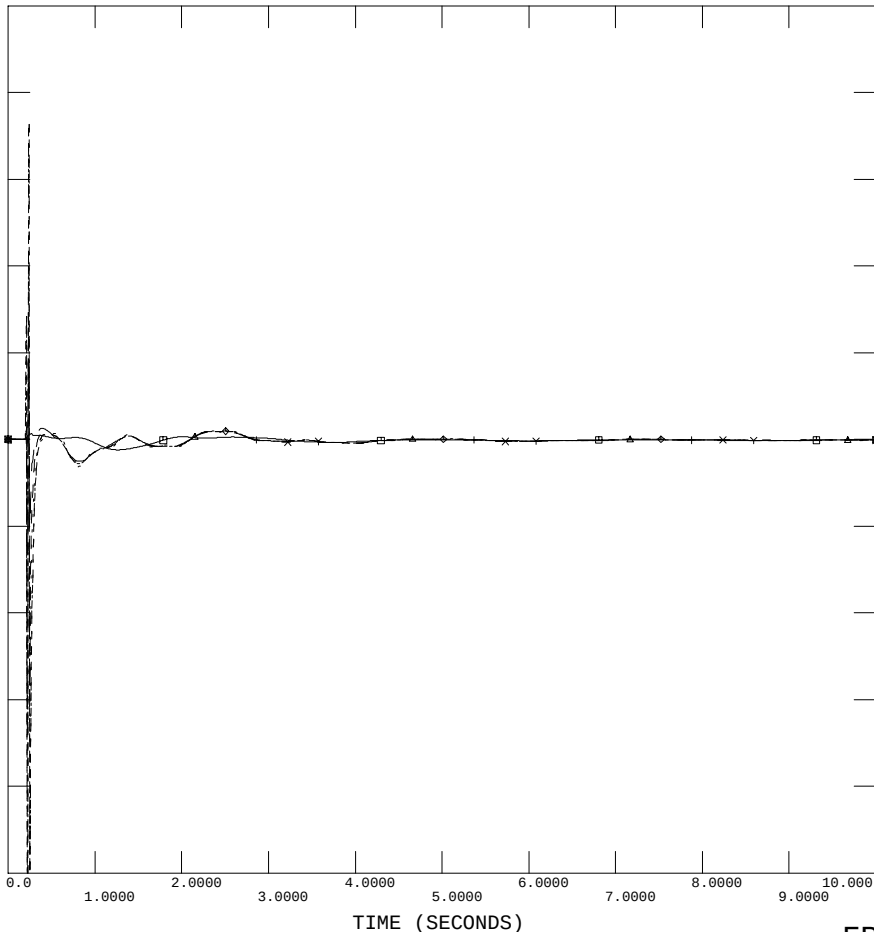


THU, FEB 13 2003 16:25  
VOLTAGE 4 CON20 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]  
FILE: CON20-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

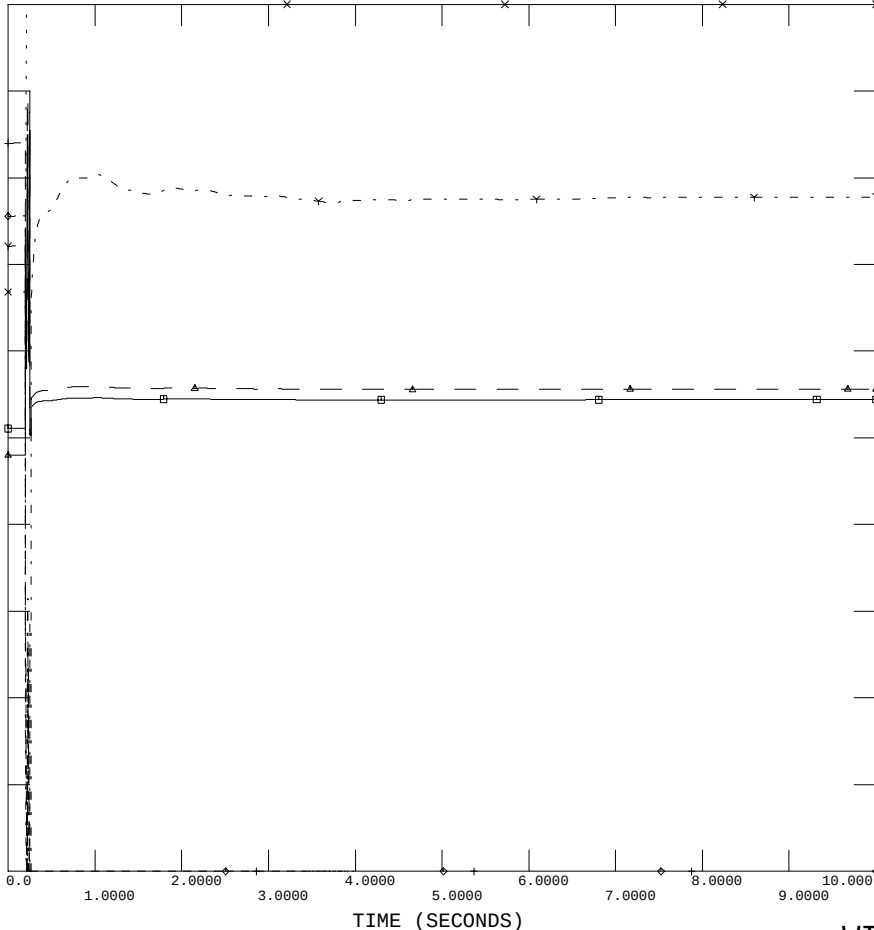


THU, FEB 13 2003 16:25  
FREQUENCY CON20 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON20 - FAULT ON BOONE - MIDWAY 230 [MIDWAY END]  
FILE: CON20-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG1 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



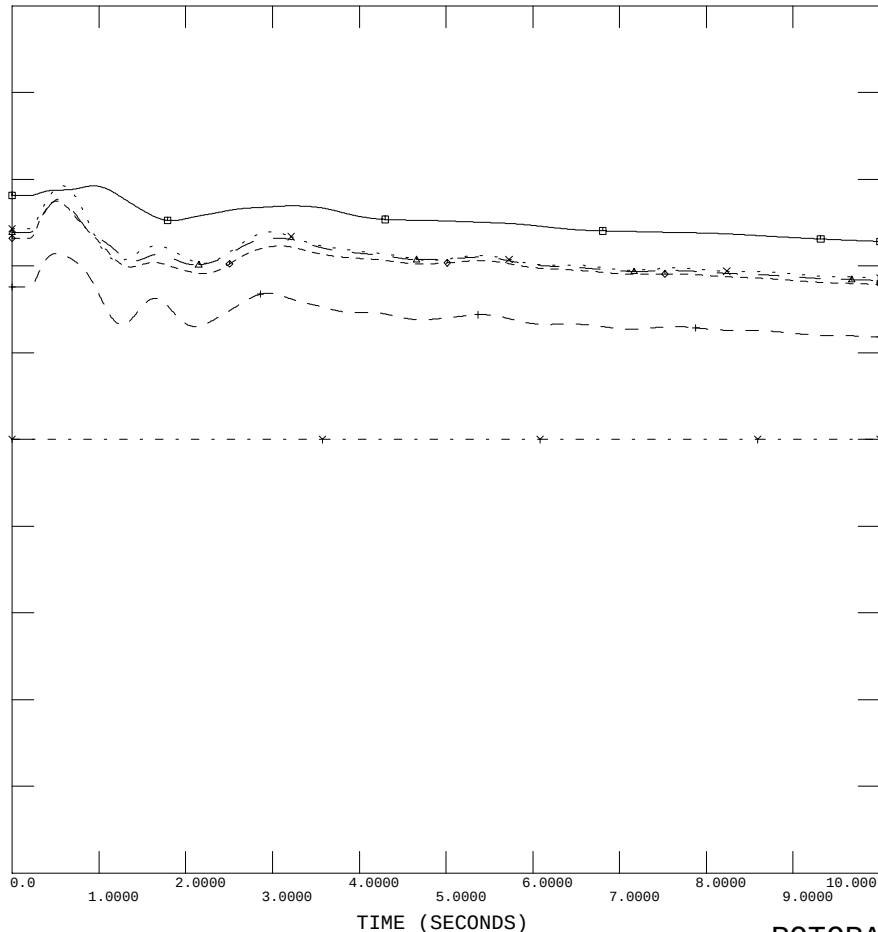
THU, FEB 13 2003 16:25  
WIND DATA CON20 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON21-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70701 [COLGRN 34.500] [1.]]  | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



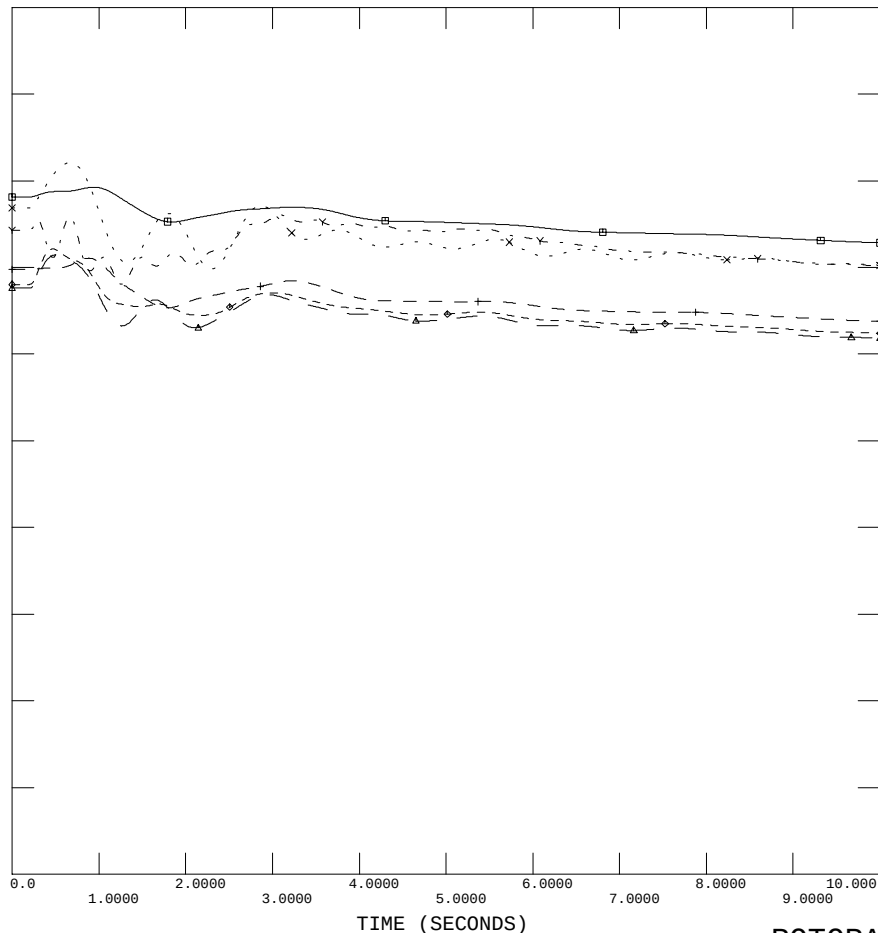
THU, FEB 13 2003 16:25  
ROTORANGLES 1 CON21 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON21-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |

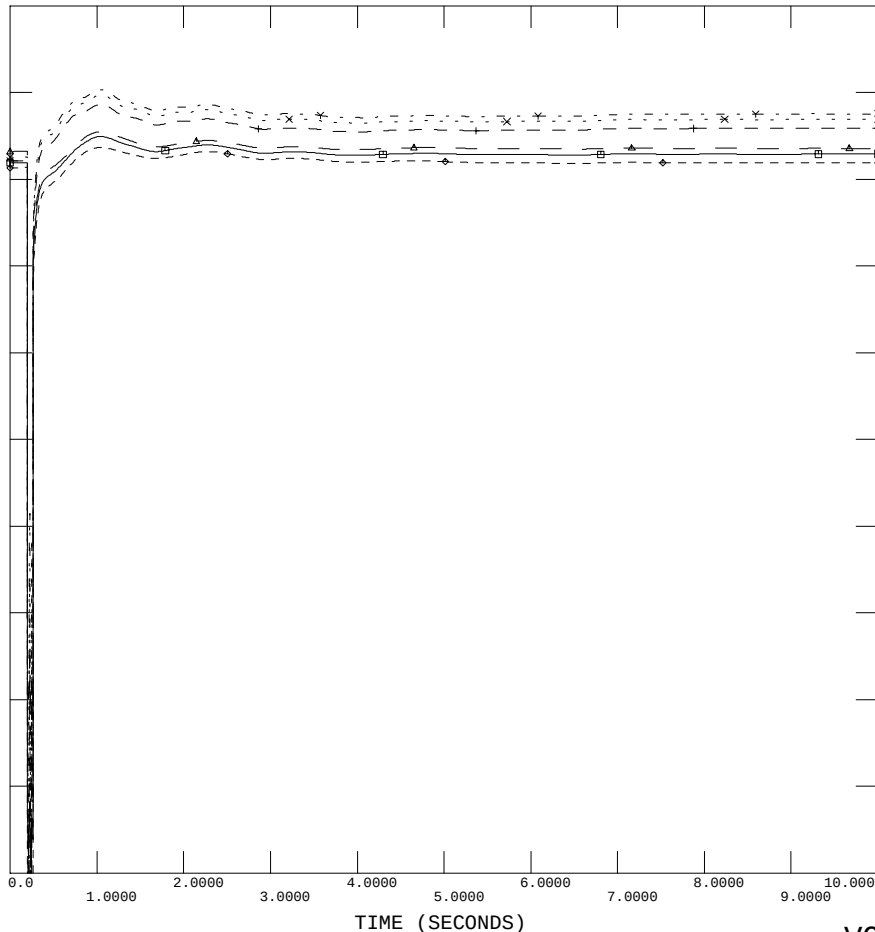


THU, FEB 13 2003 16:25  
ROTORANGLES 2 CON21 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]  
FILE: CON21-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRMA 34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

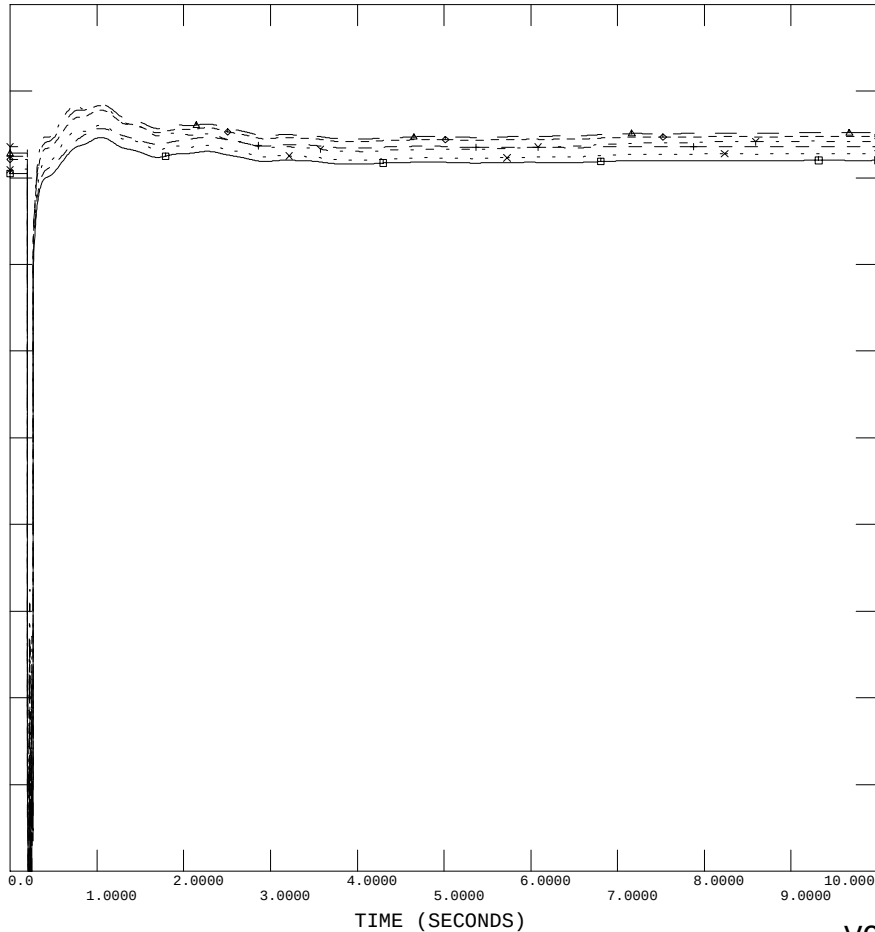


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VOLTAGE 1 CON21 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]  
FILE: CON21-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



THU, FEB 13 2003 16:25  
VOLTAGE 2 CON21 162MW

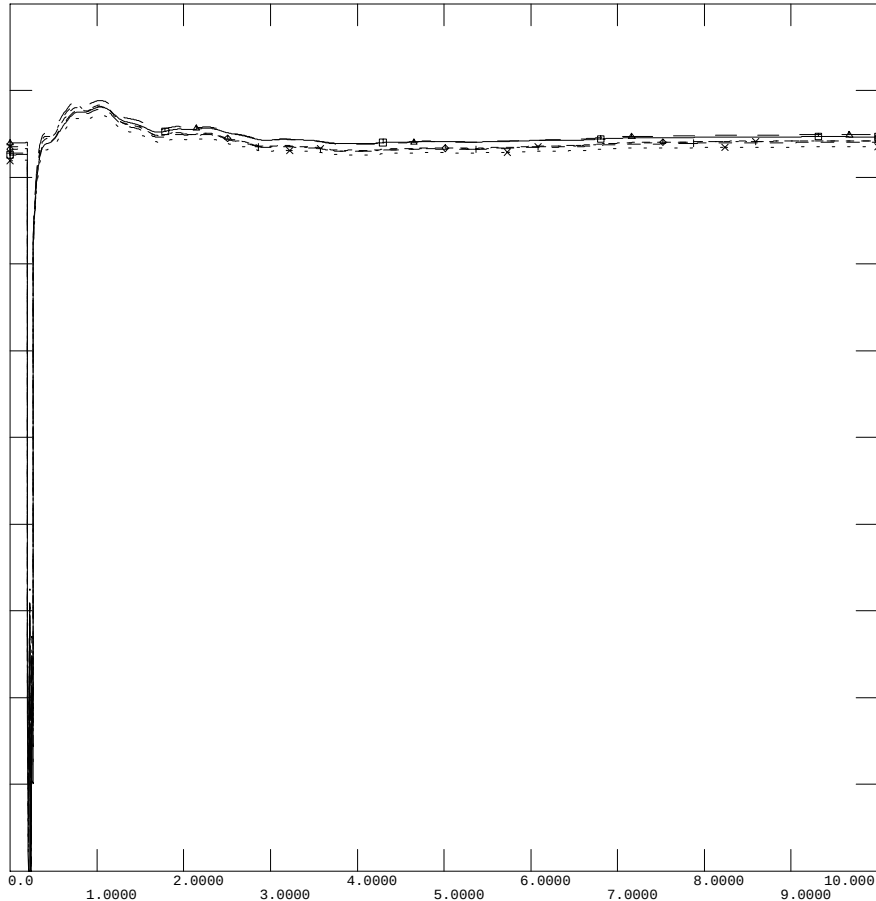


POWER  
TIC  
0.000000  
1.000000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON21-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



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VOLTAGE 3 CON21 162MW

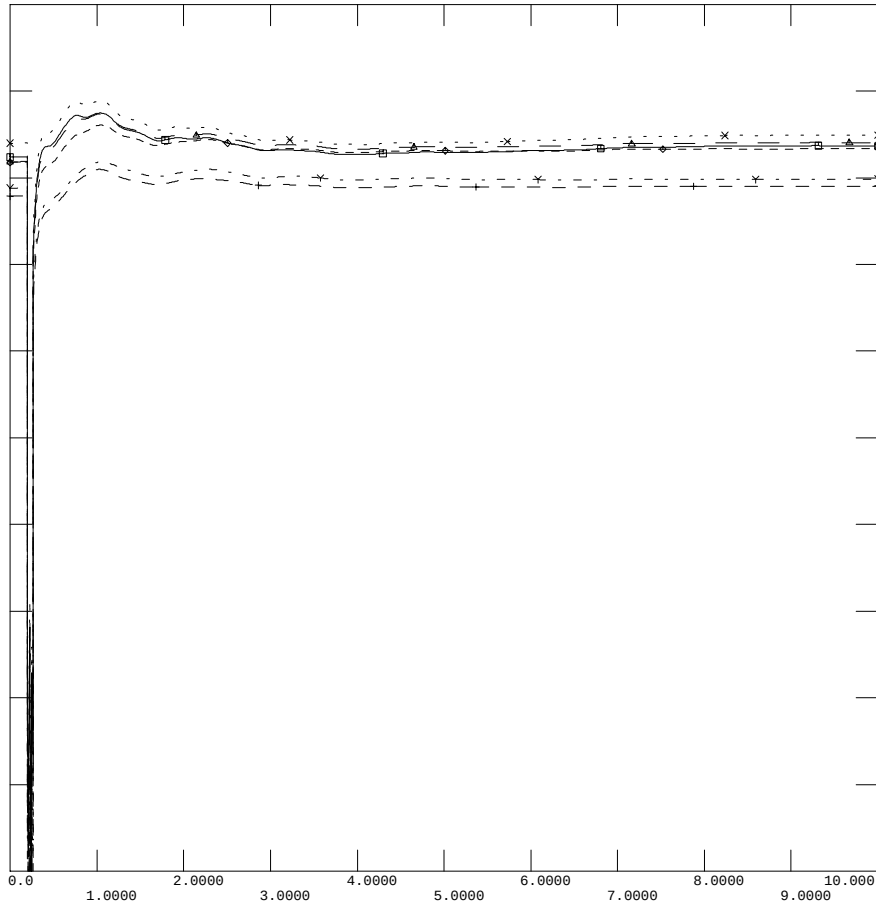


POWER  
TIC  
0.000000  
1.000000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON21-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |



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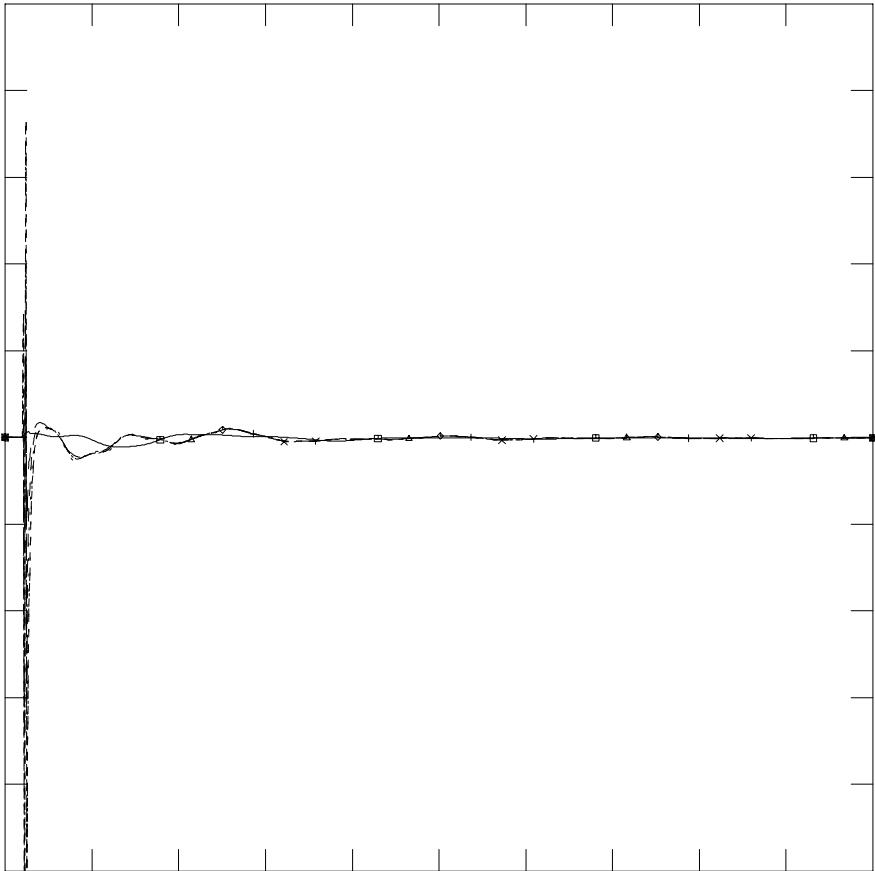
VOLTAGE 4 CON21 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON21-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



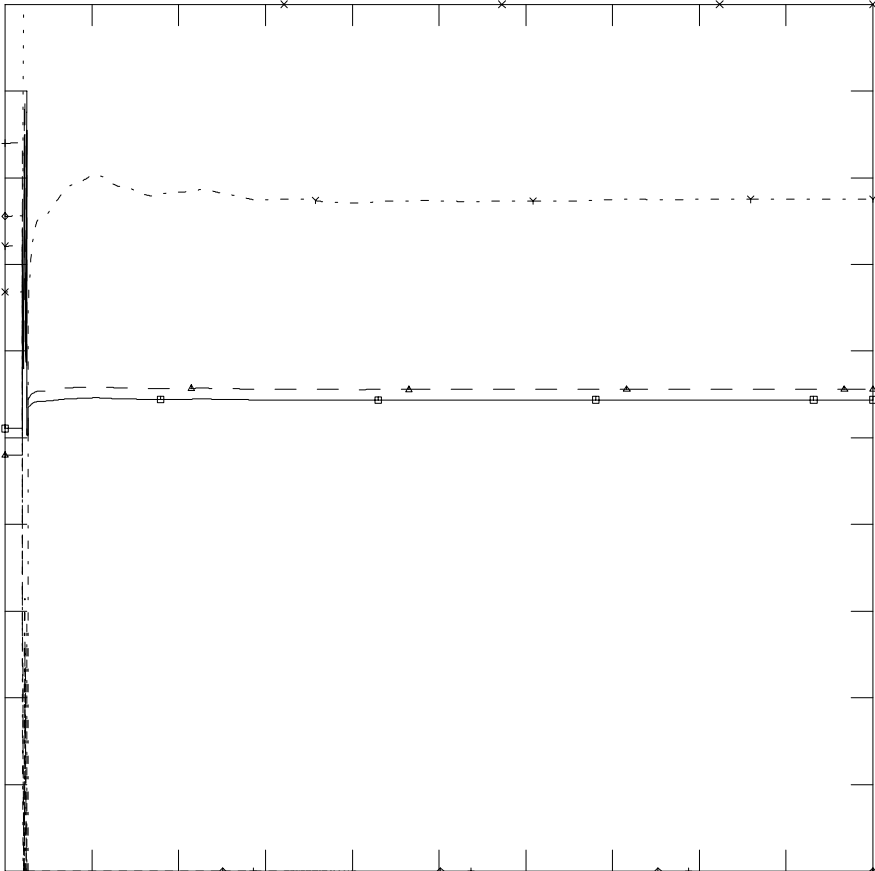
THU, FEB 13 2003 16:25  
FREQUENCY CON21 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON21 - FAULT ON DANIELS PARK - MIDWAY 230 [MIDWAY END]

FILE: CON21-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [COLGRNA 34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

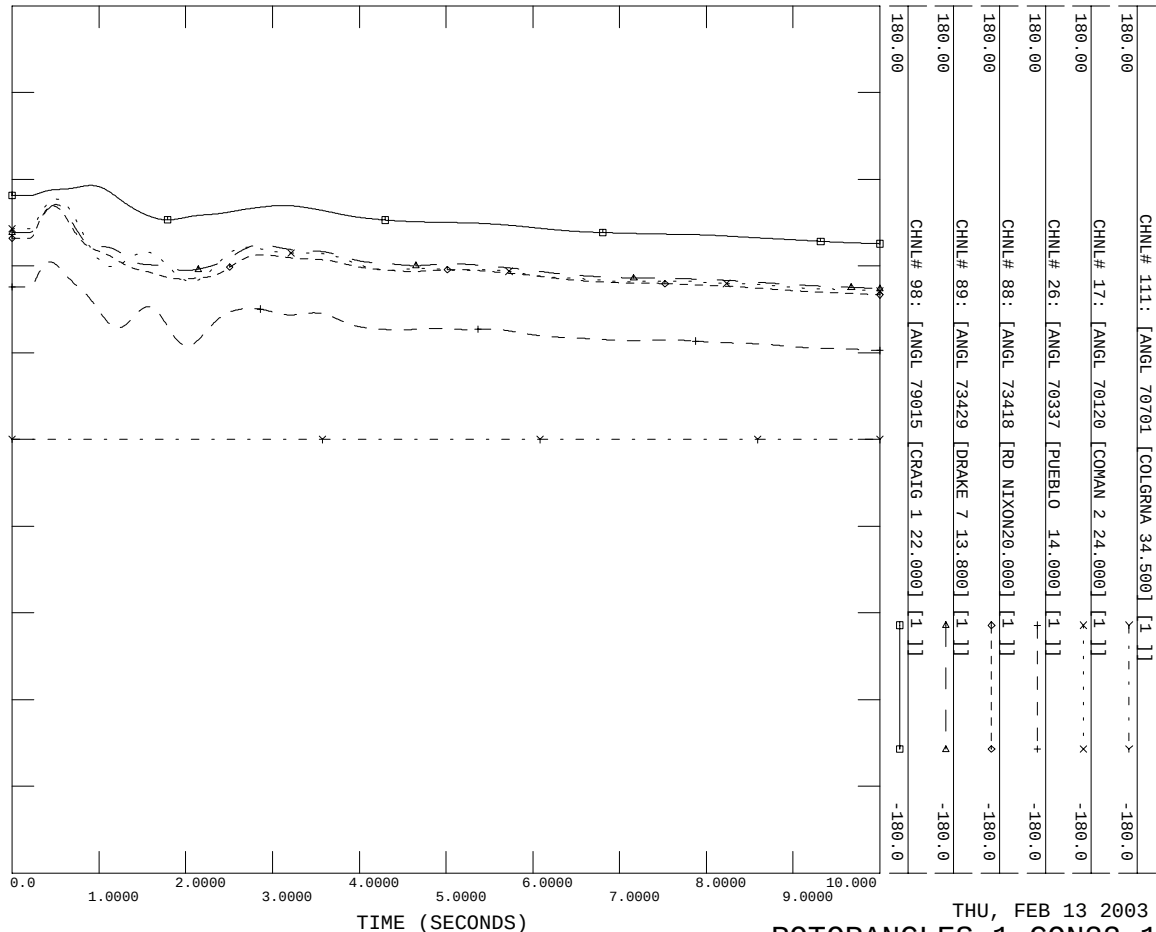


THU, FEB 13 2003 16:25  
WIND DATA CON21 162MW

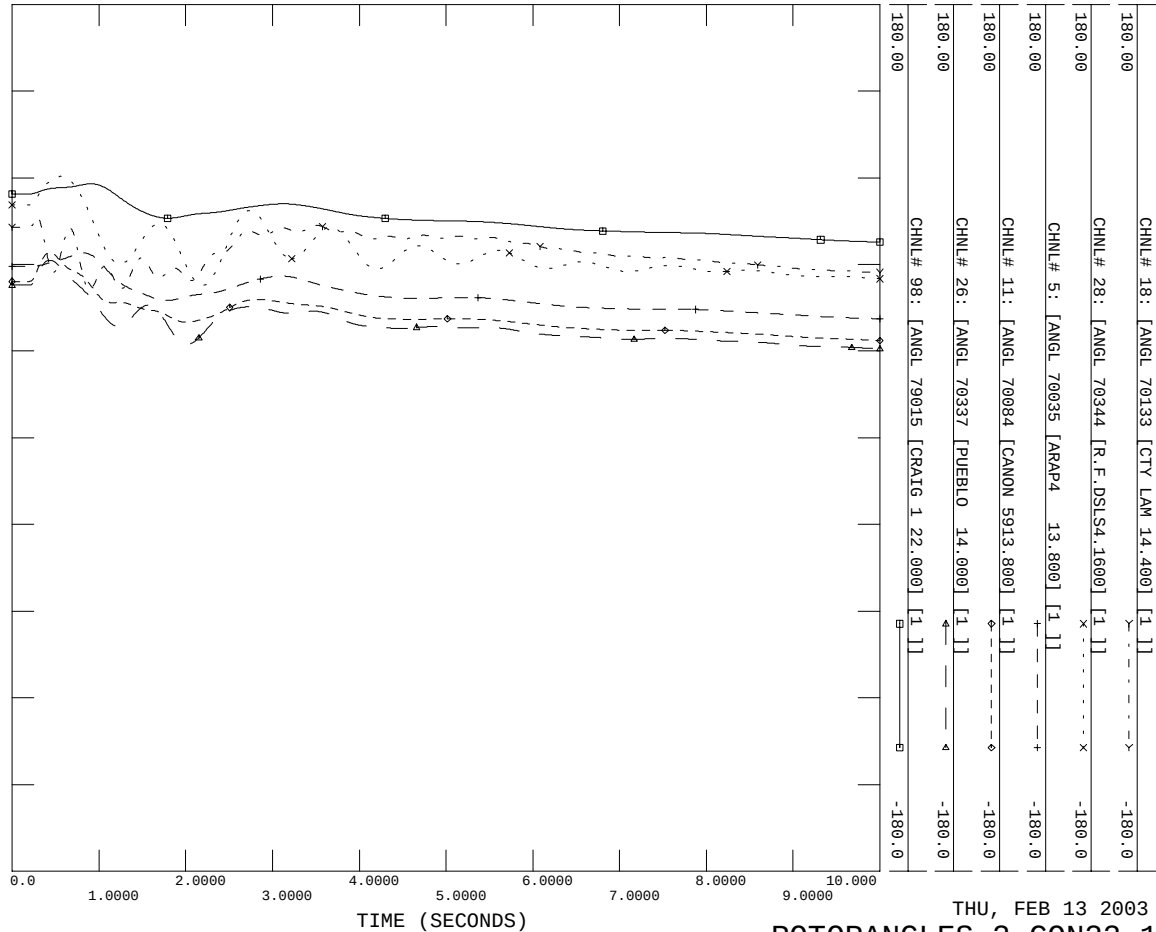




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MM  
SINGLE-PHASE FAULT  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]  
FILE: CON22-ON.OUT

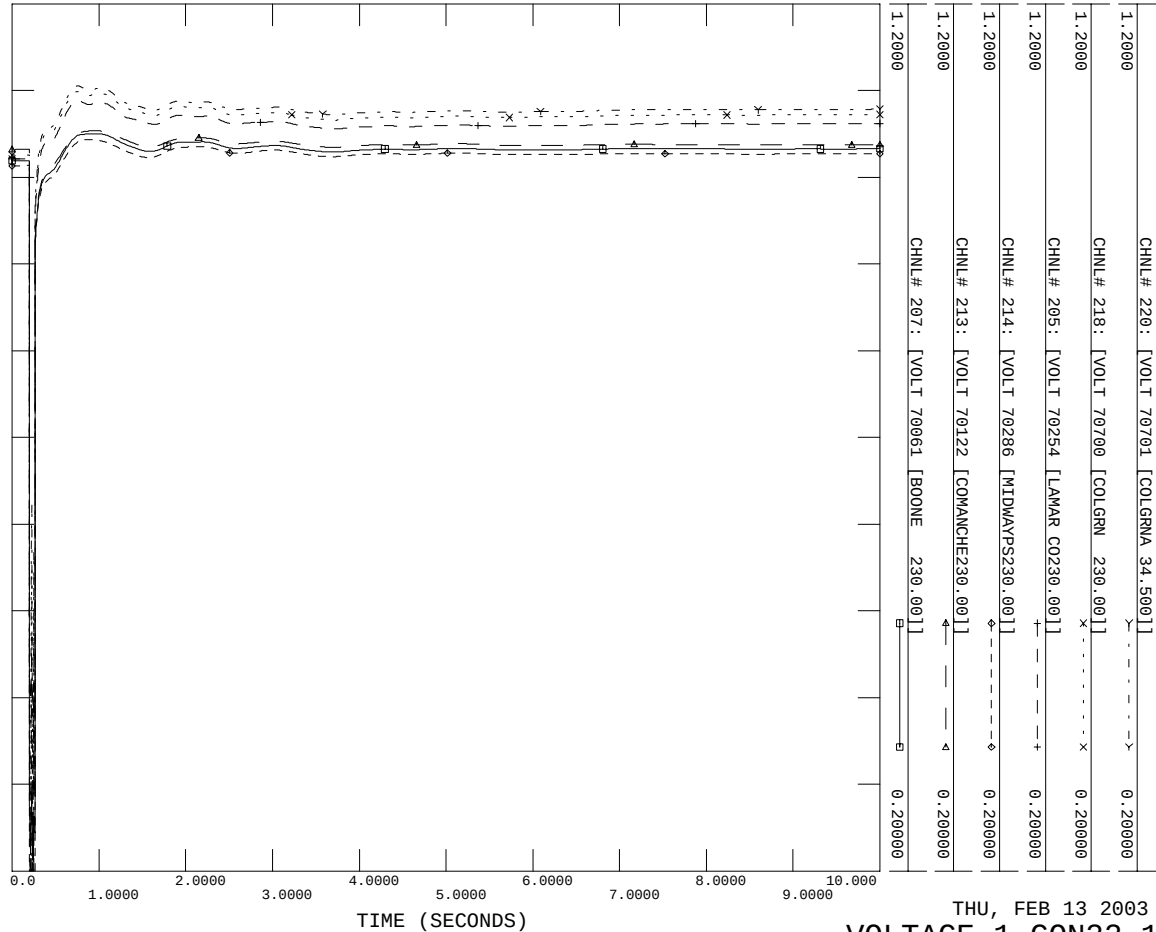


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MM  
SINGLE-PHASE FAULT  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]  
FILE: CON22-ON.OUT

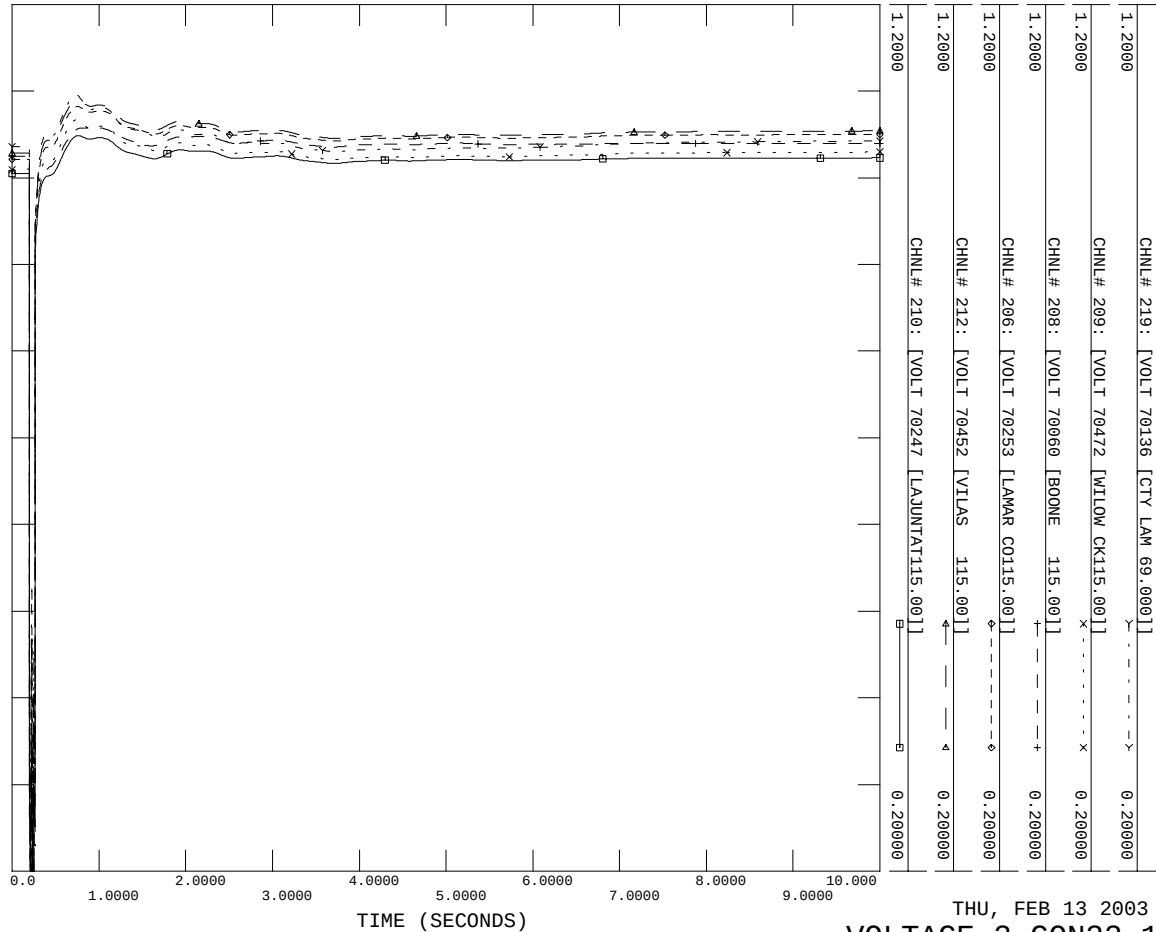




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]  
FILE: CON22-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]  
FILE: CON22-ON.OUT

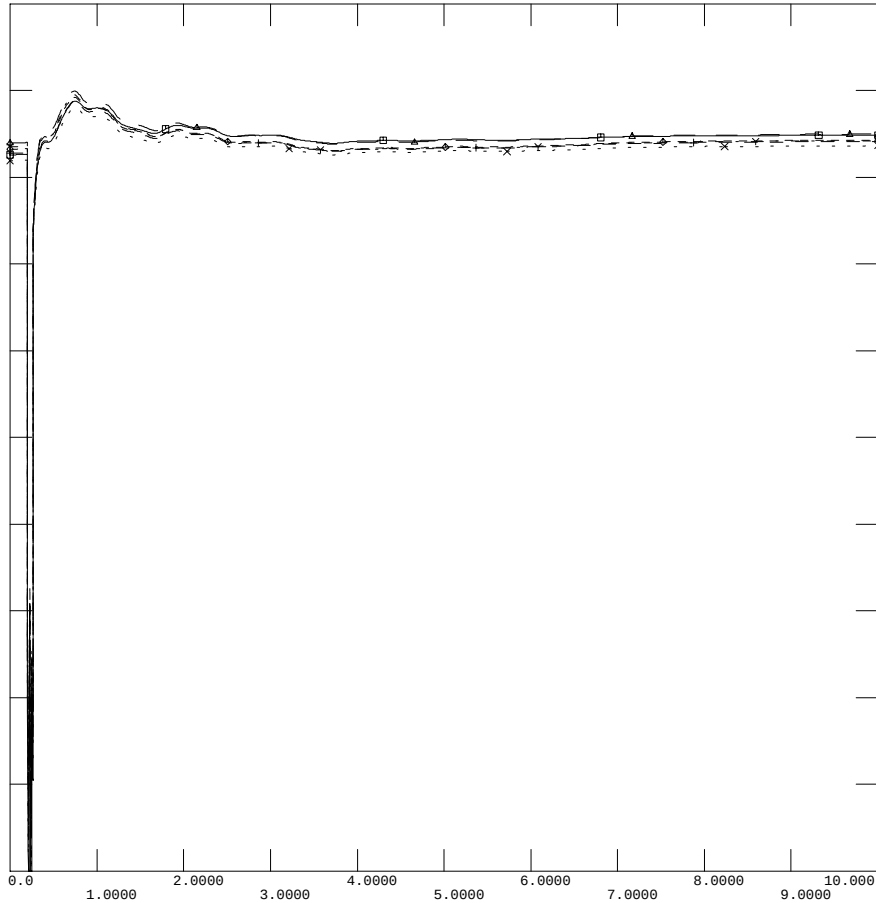




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]

FILE: CON22-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



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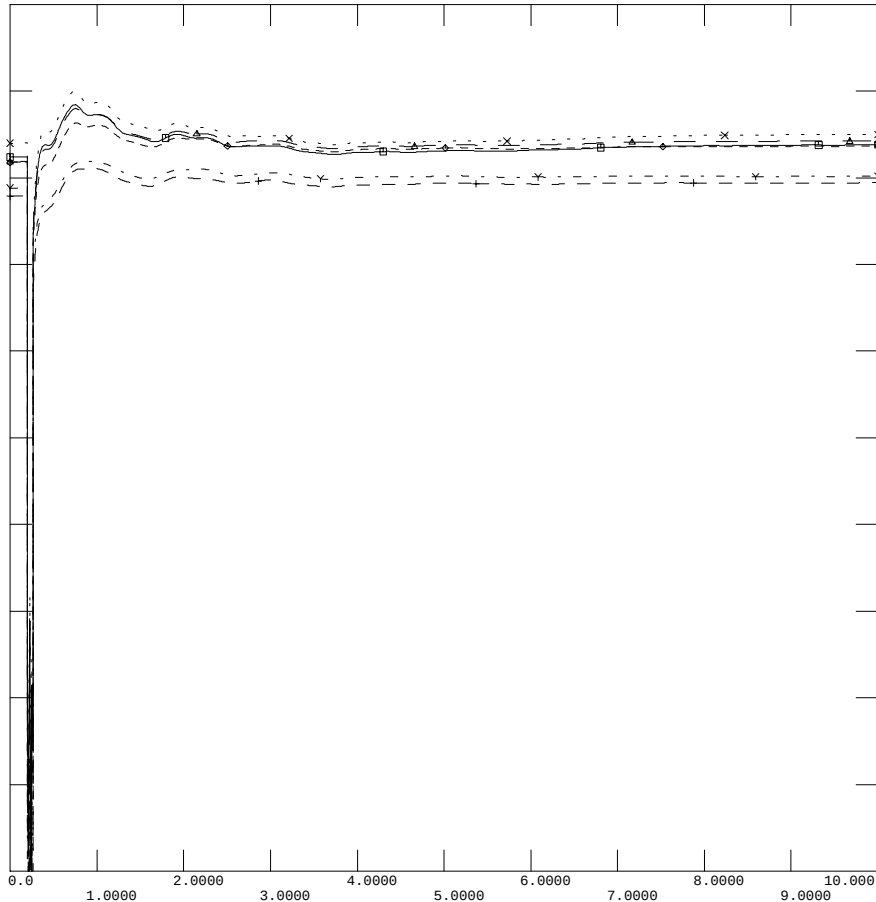
VOLTAGE 3 CON22 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]

FILE: CON22-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |



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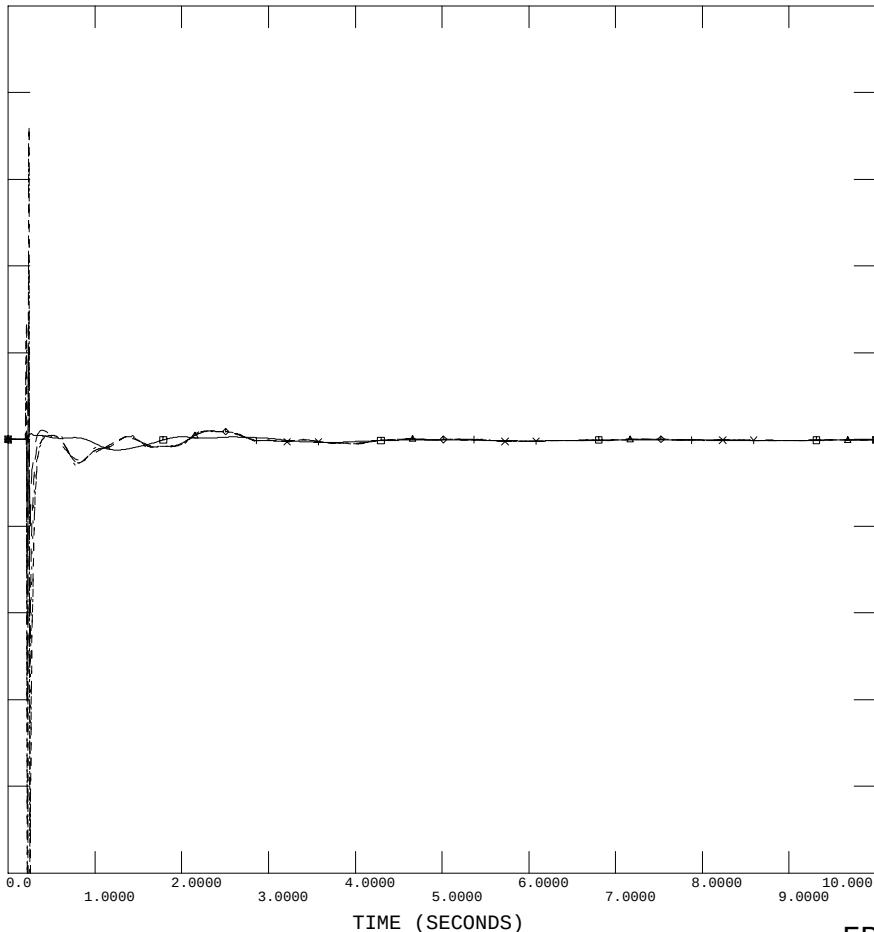
VOLTAGE 4 CON22 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]

FILE: CON22-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



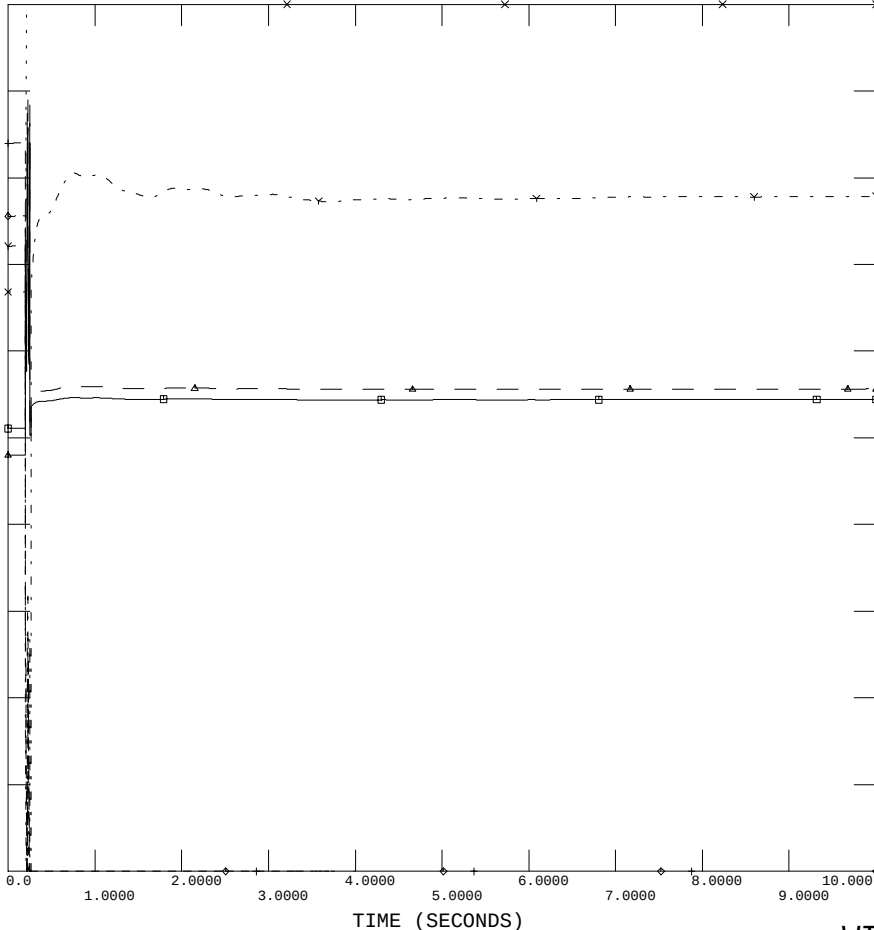
THU, FEB 13 2003 16:25  
FREQUENCY CON22 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON22 - FAULT ON MIDWAY - MIDWAY CB 230 [MIDWAY CB END]

FILE: CON22-ON.OUT

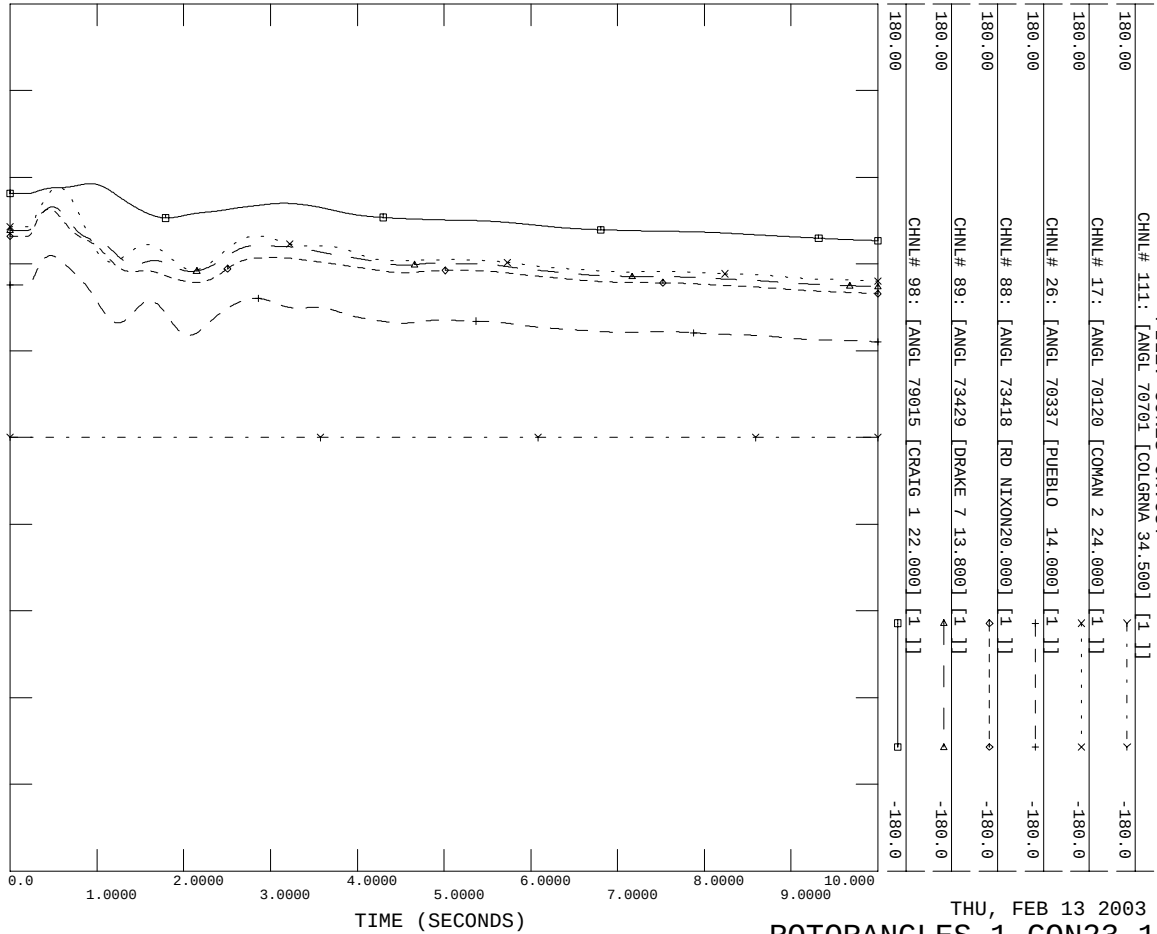
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [COLGRNA 34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



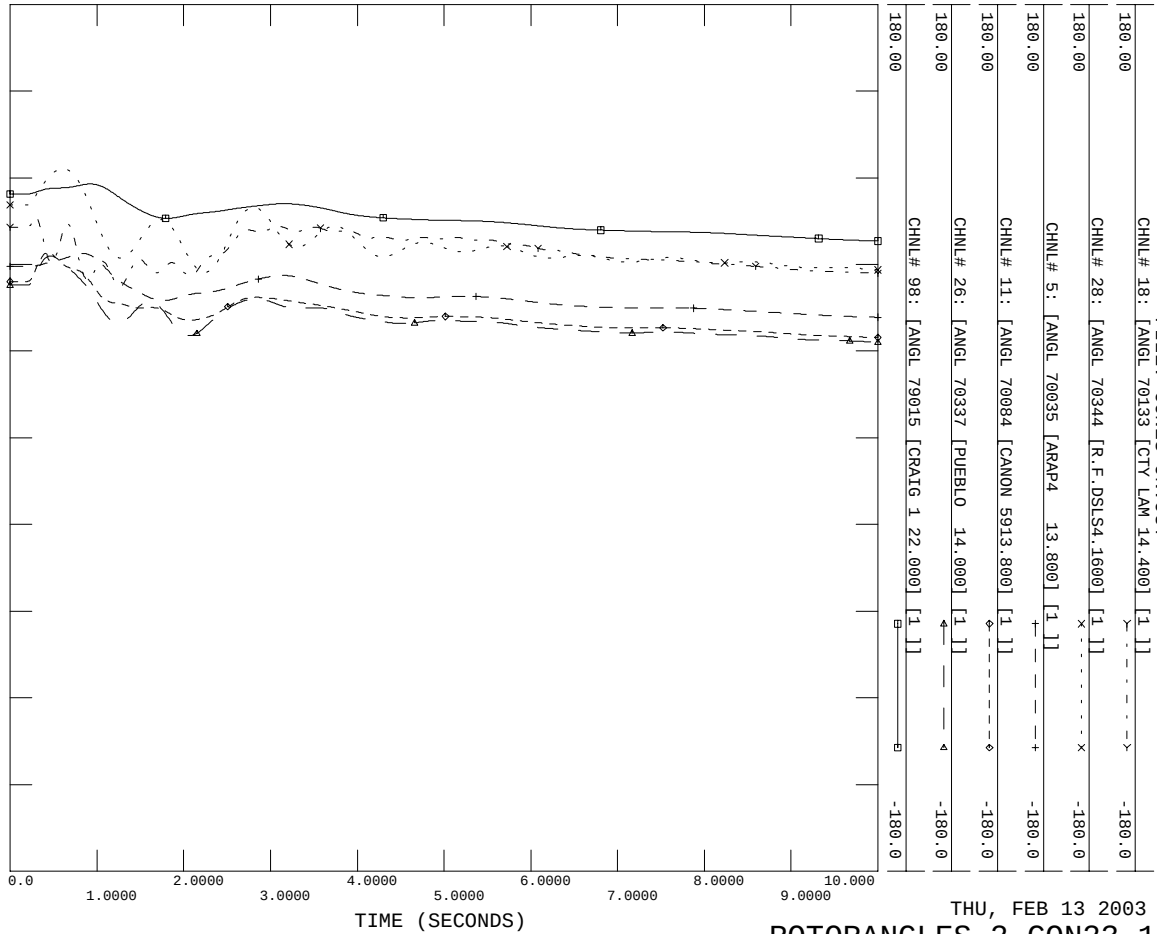
THU, FEB 13 2003 16:25  
WIND DATA CON22 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]  
FILE: CON23-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]  
FILE: CON23-ON.OUT

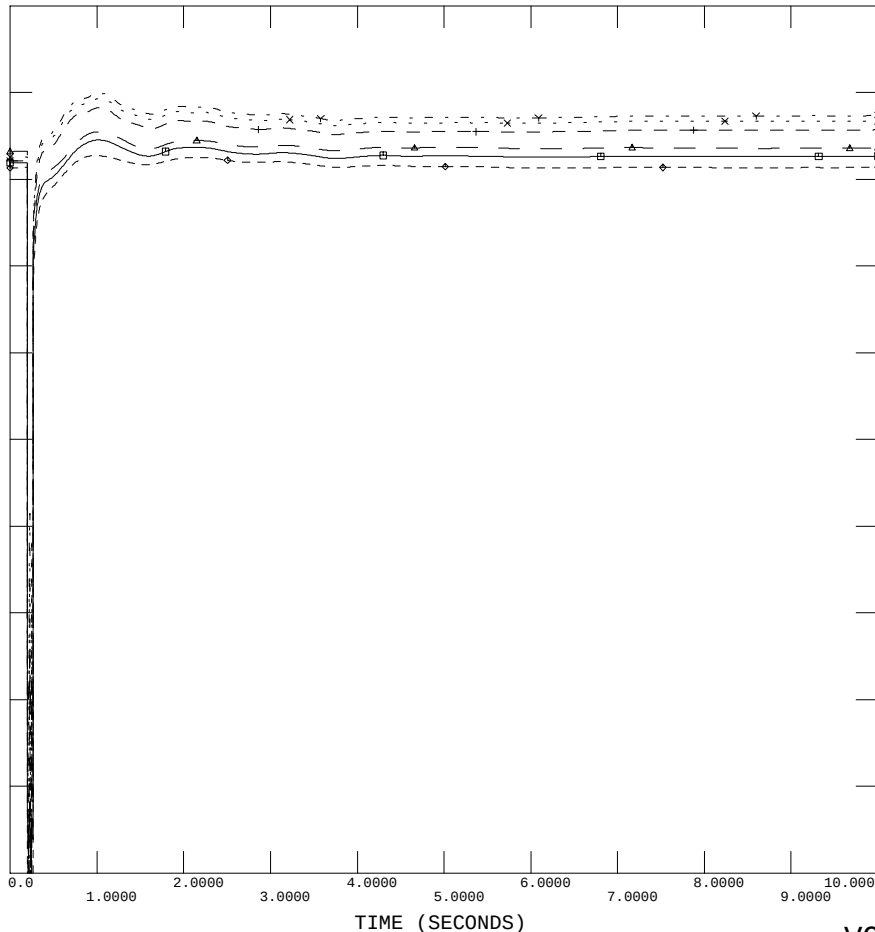




POWER  
TIC  
0.00163

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]  
FILE: CON23-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



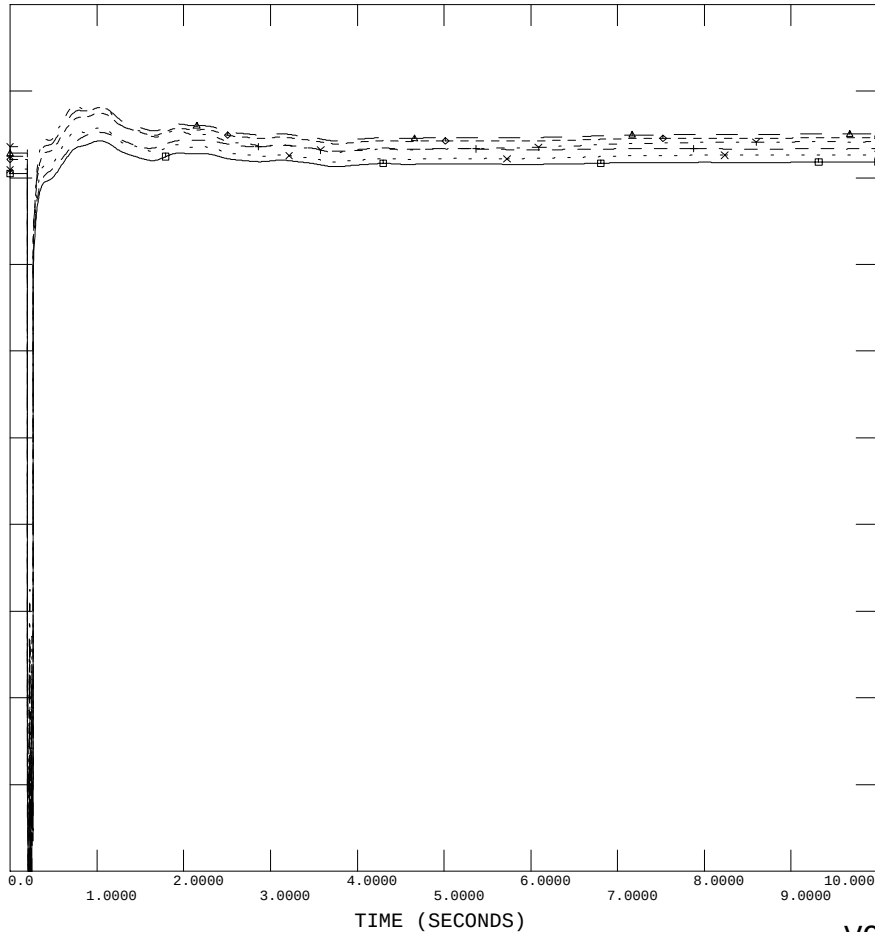
THU, FEB 13 2003 16:25  
VOLTAGE 1 CON23 162MW



POWER  
TIC  
0.00163

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]  
FILE: CON23-ON.OUT

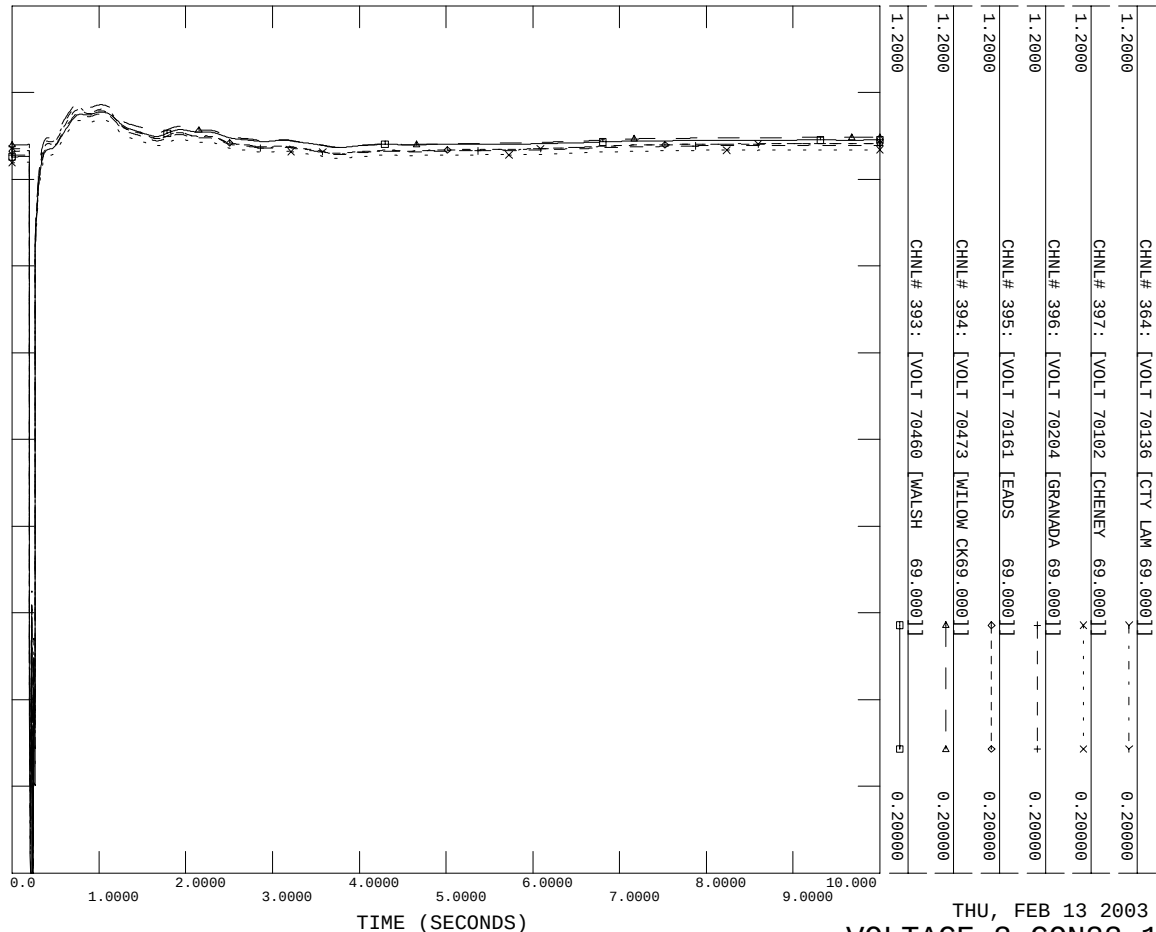
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



THU, FEB 13 2003 16:25  
VOLTAGE 2 CON23 162MW

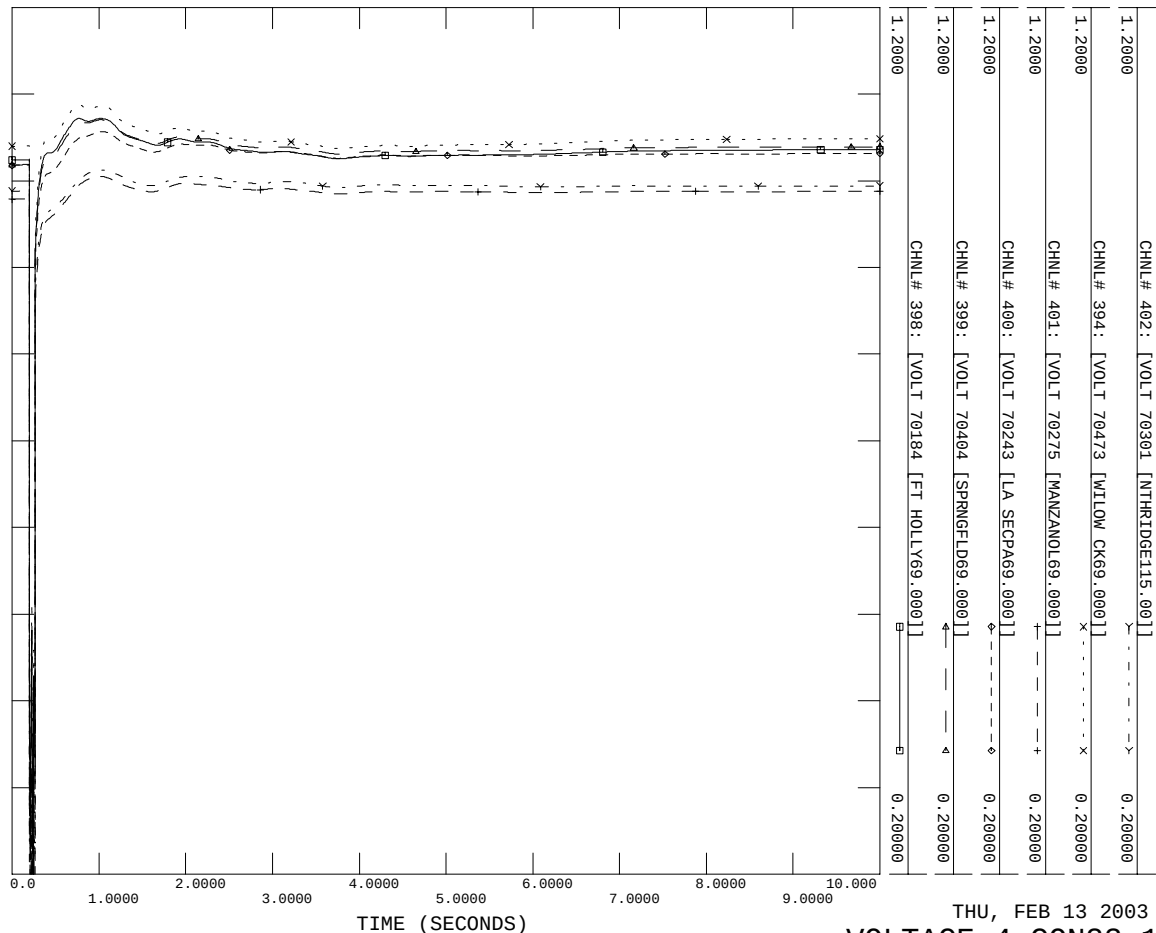
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]

FILE: CON23-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]

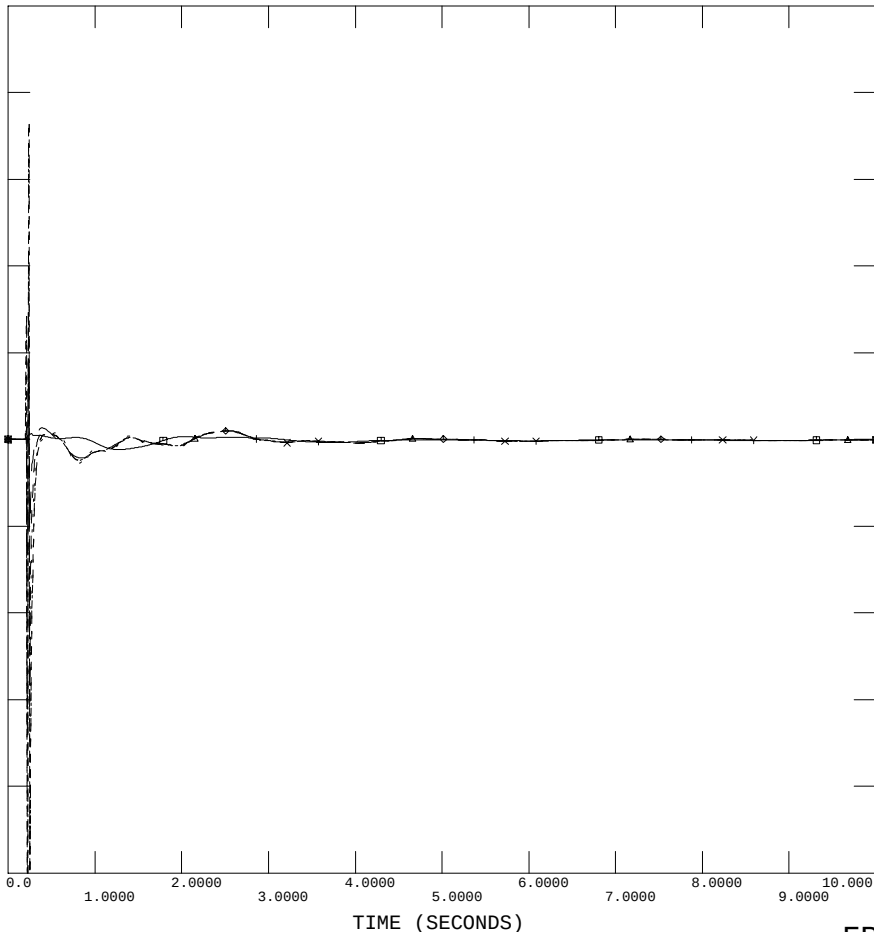
FILE: CON23-ON.OUT





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]  
FILE: CON23-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

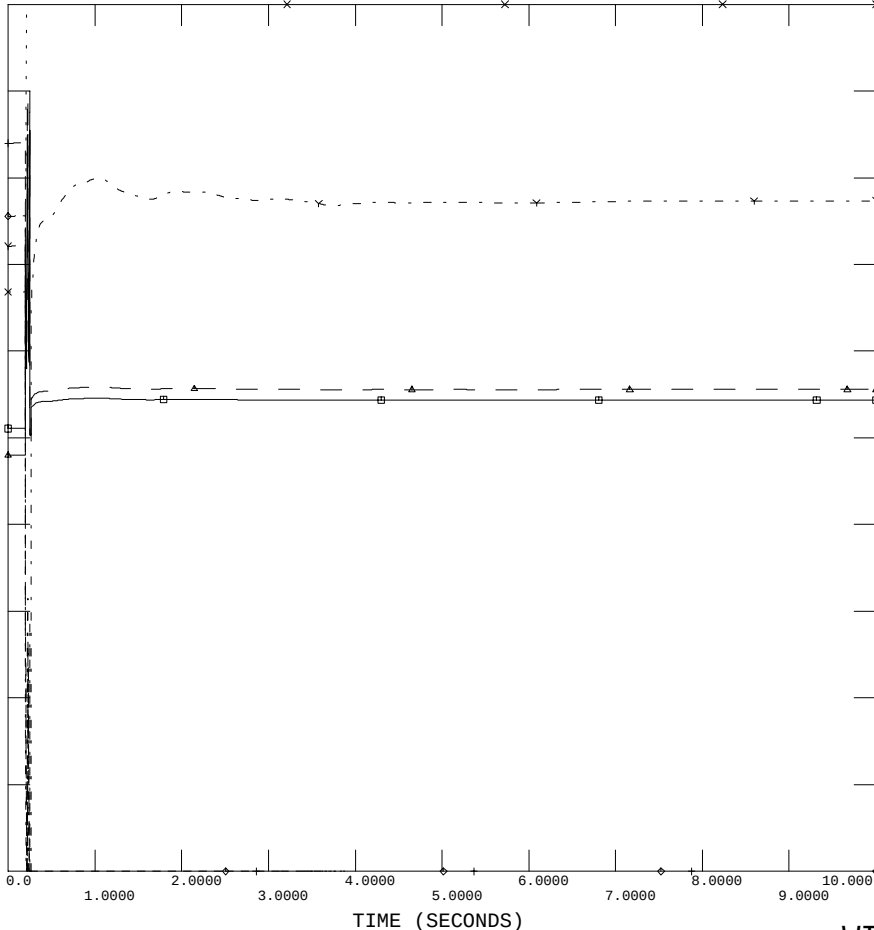


THU, FEB 13 2003 16:25  
FREQUENCY CON23 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON23 - FAULT ON COMANCHE - MIDWAY 230 [MIDWAY END]  
FILE: CON23-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG1 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

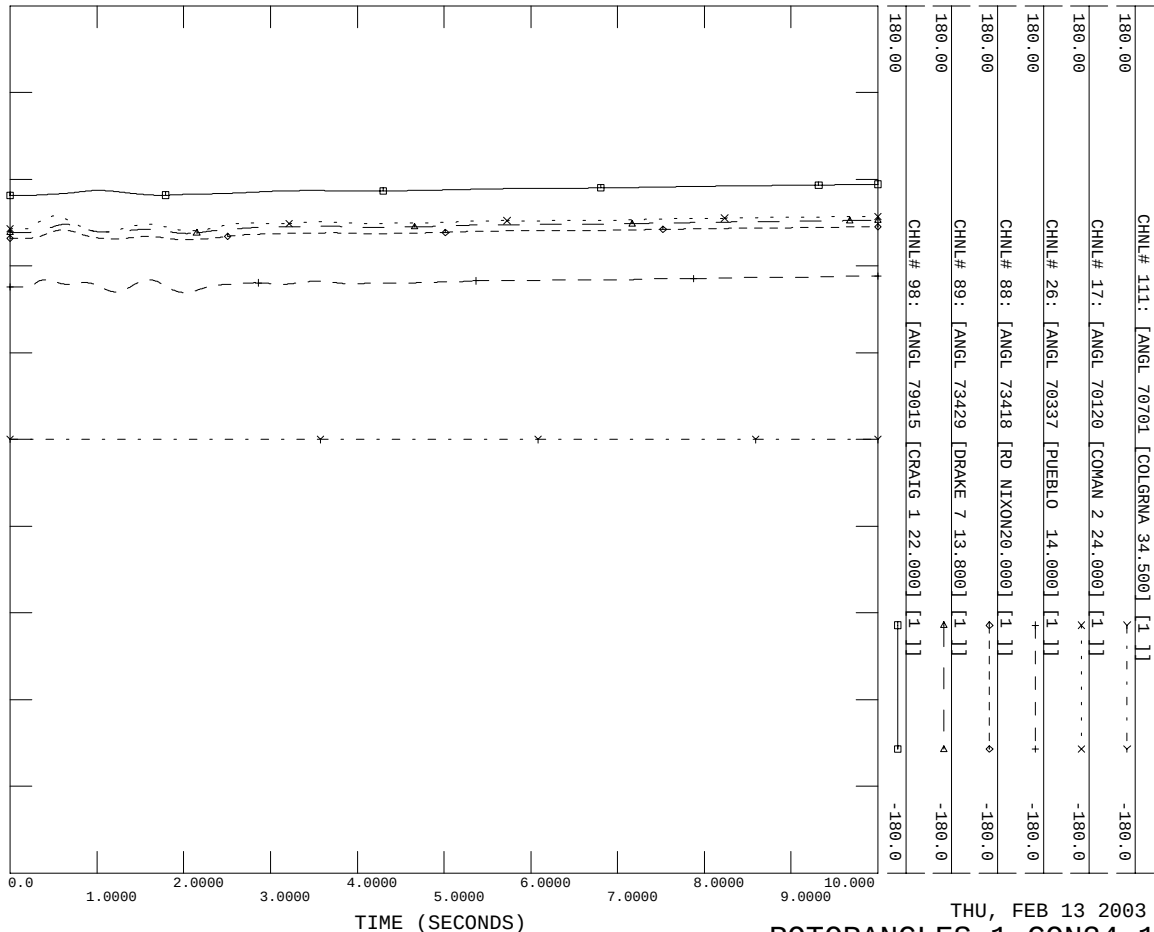


THU, FEB 13 2003 16:25  
WIND DATA CON23 162MW





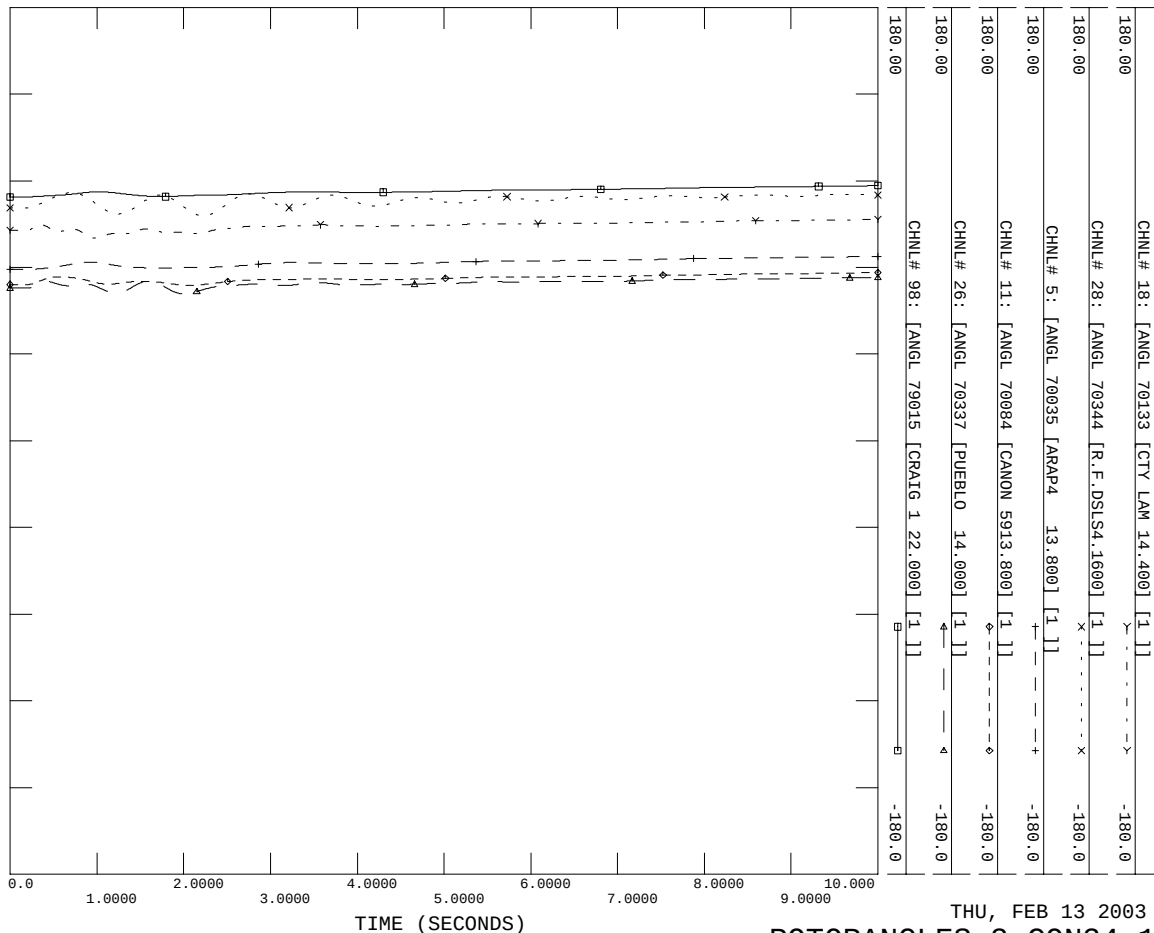
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]  
FILE: CON24-ON.OUT



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ROTORANGLES 1 CON24 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]  
FILE: CON24-ON.OUT

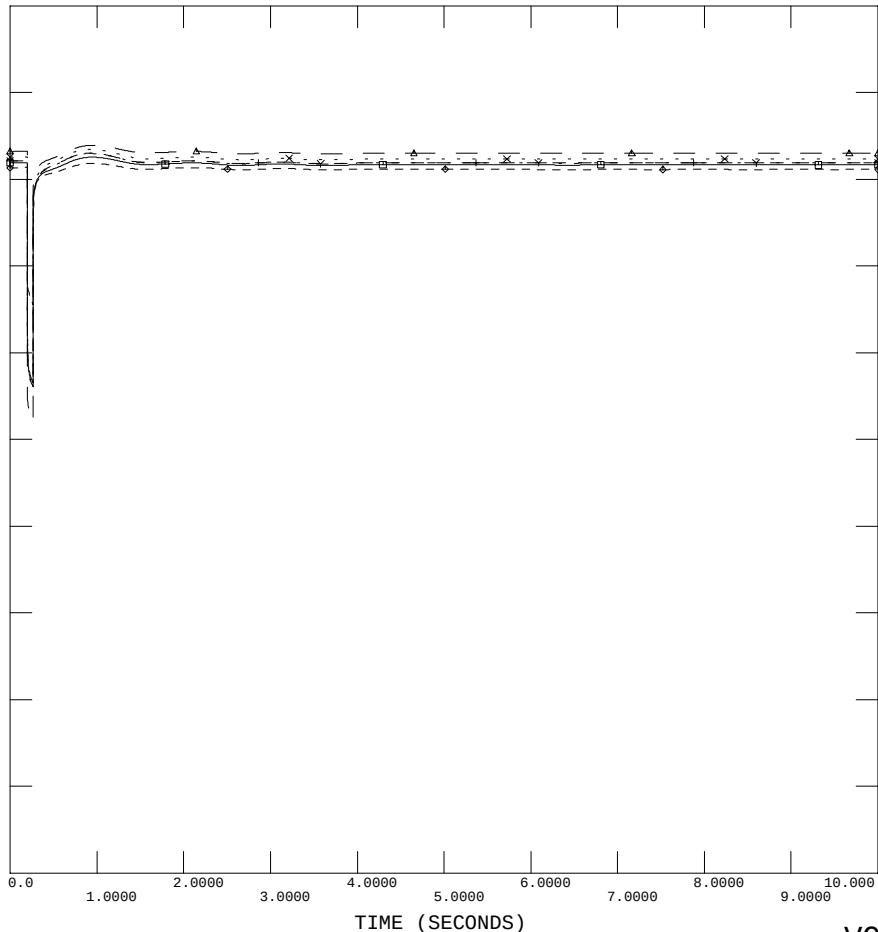


THU, FEB 13 2003 16:25  
ROTORANGLES 2 CON24 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]

FILE: CON24-ON.OUT

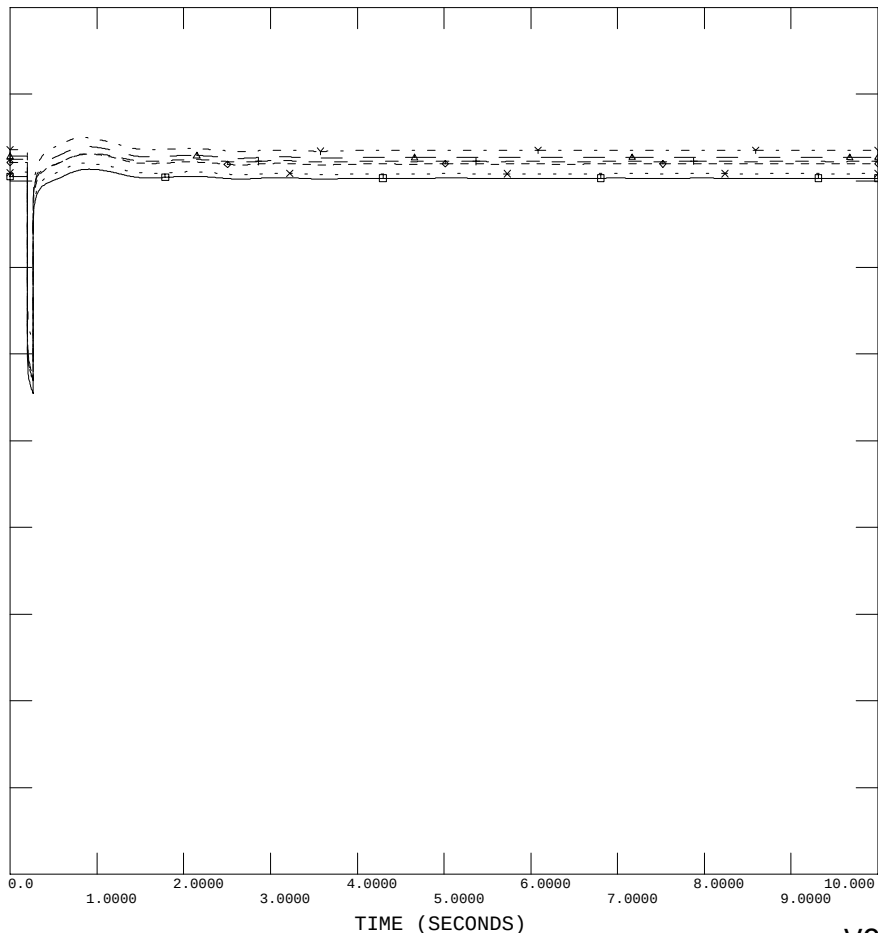
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRMA 34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]

FILE: CON24-ON.OUT

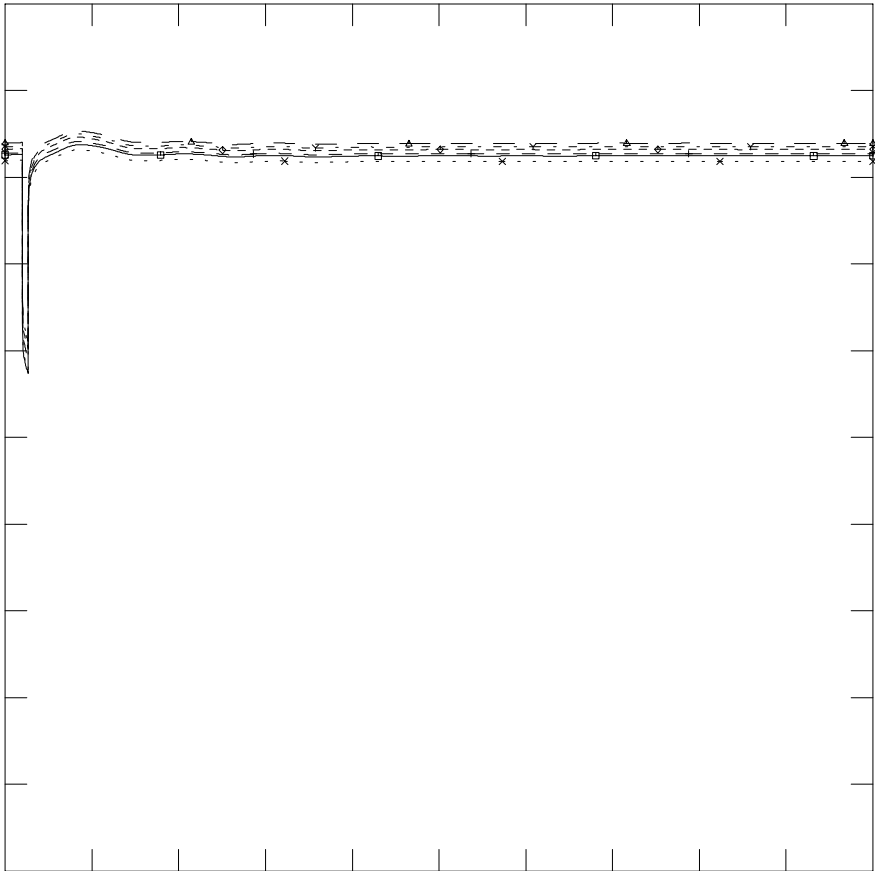
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]  
FILE: CON24-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

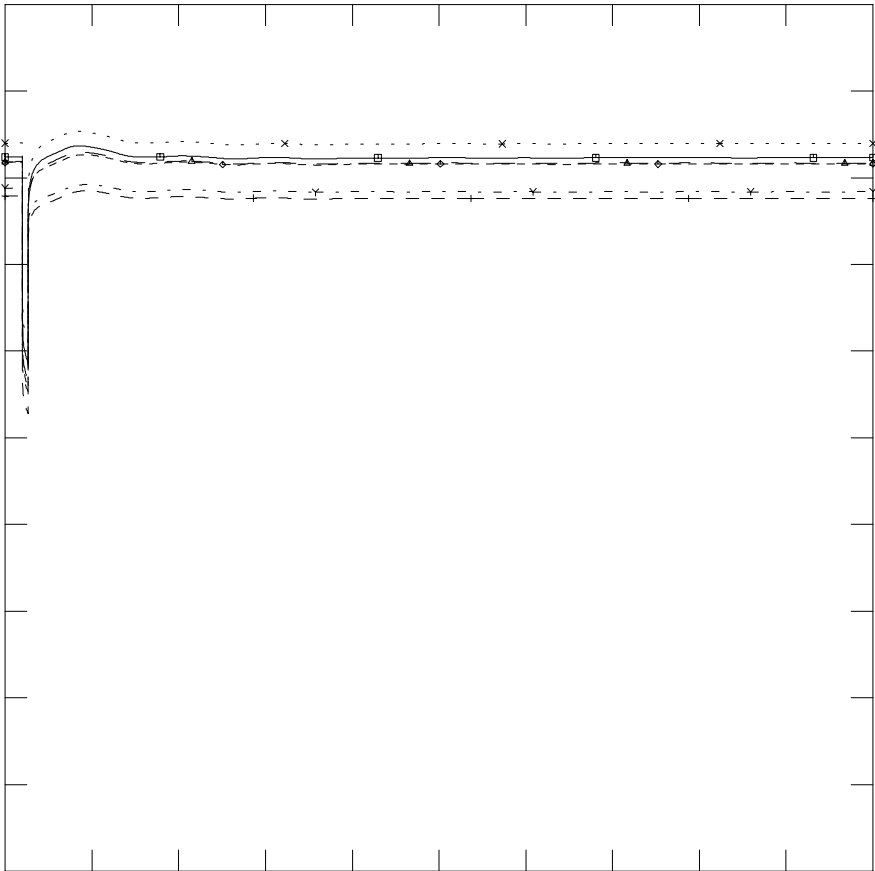


THU, FEB 13 2003 16:25  
VOLTAGE 3 CON24 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]  
FILE: CON24-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGET15.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRINGFLD69.000]] | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

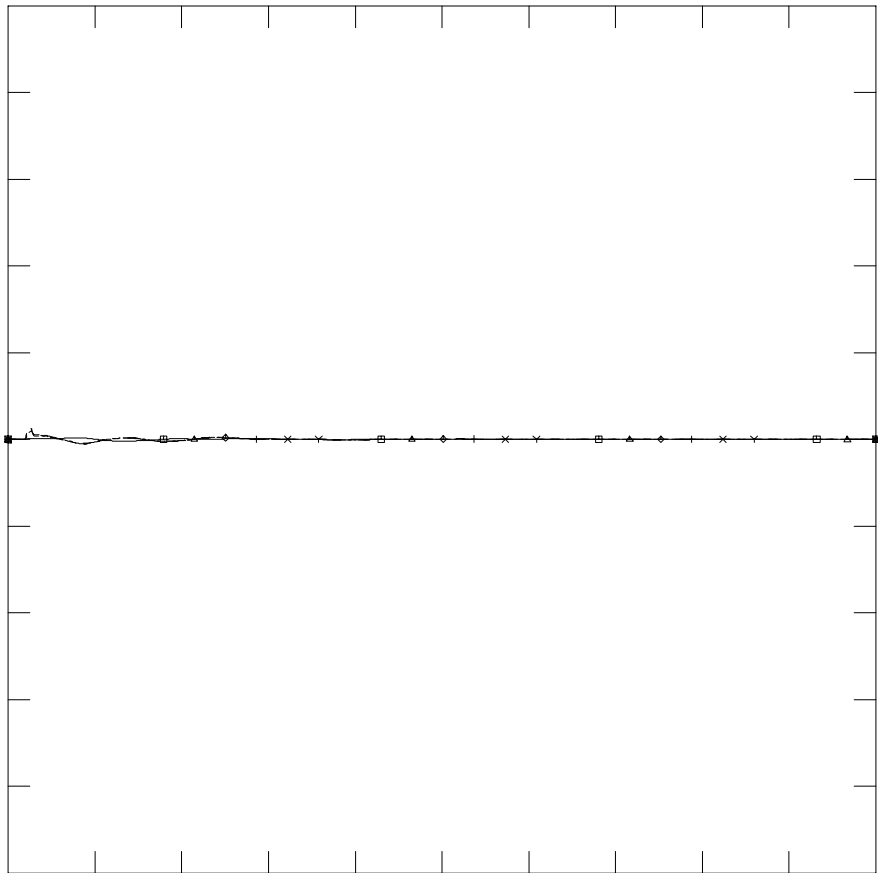


THU, FEB 13 2003 16:25  
VOLTAGE 4 CON24 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MM  
SINGLE-PHASE FAULT  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]  
FILE: CON24-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

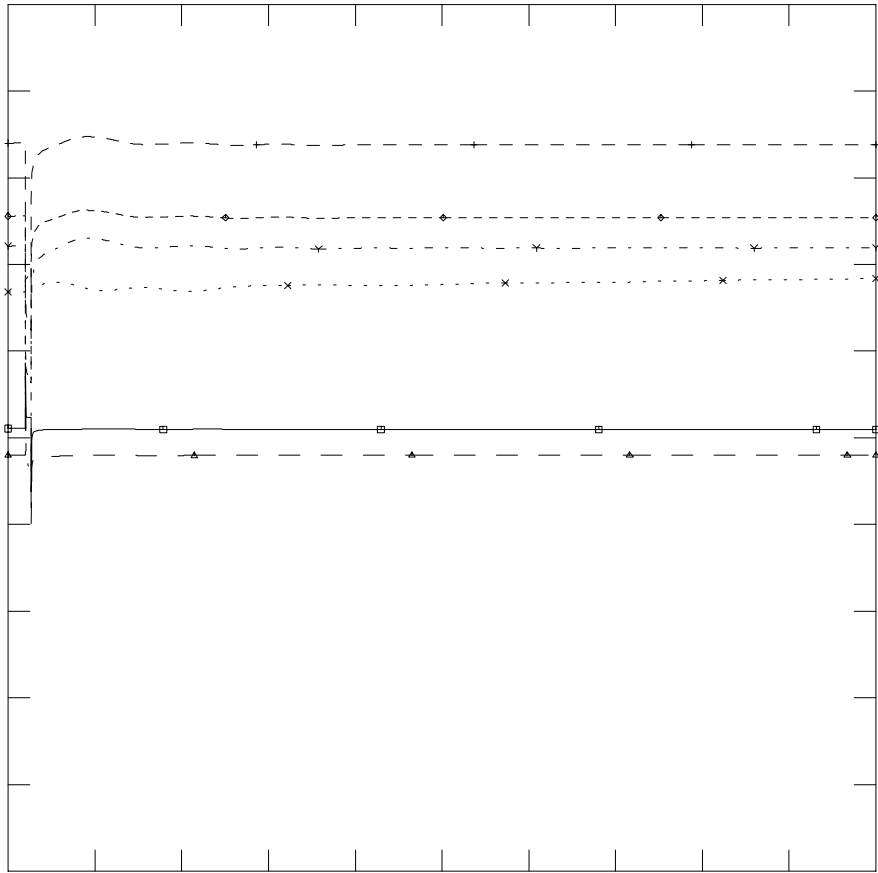


THU, FEB 13 2003 16:25  
FREQUENCY CON24 162MM



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MM  
SINGLE-PHASE FAULT  
CON24 - FAULT ON COMANCHE - WALSENBURG 230 [WALSENBURG END]  
FILE: CON24-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



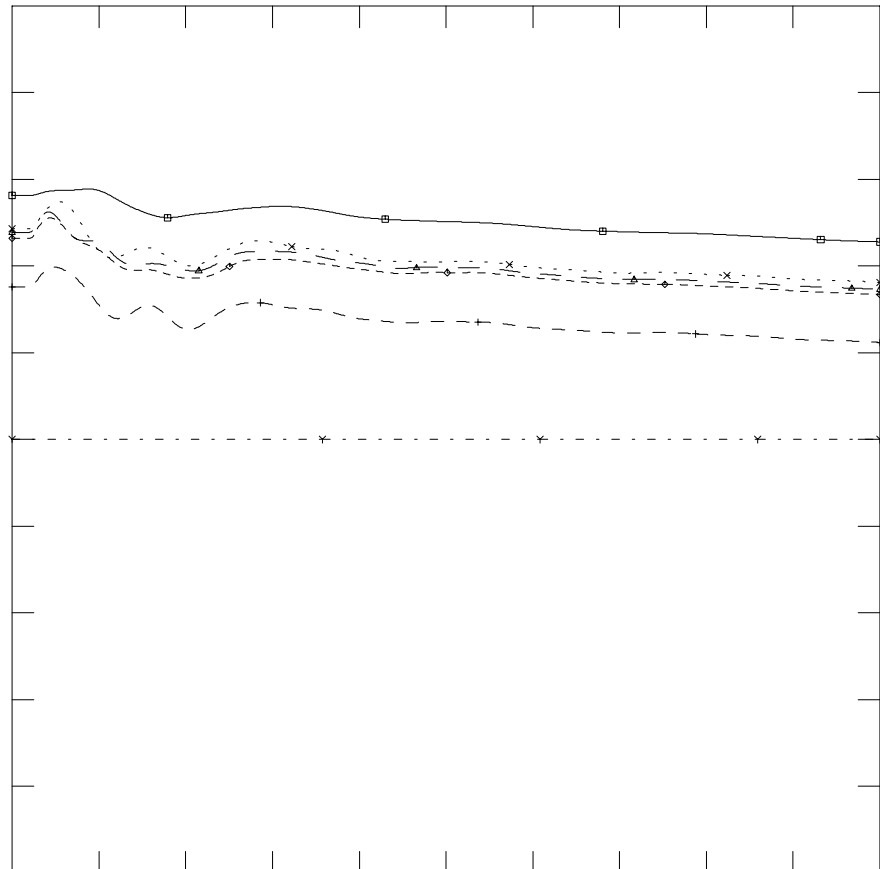
THU, FEB 13 2003 16:25  
WIND DATA CON24 162MM



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

FILE: CON25-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 11: [ANGL 70701 [COLGRN 34.500] [1.]]  | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



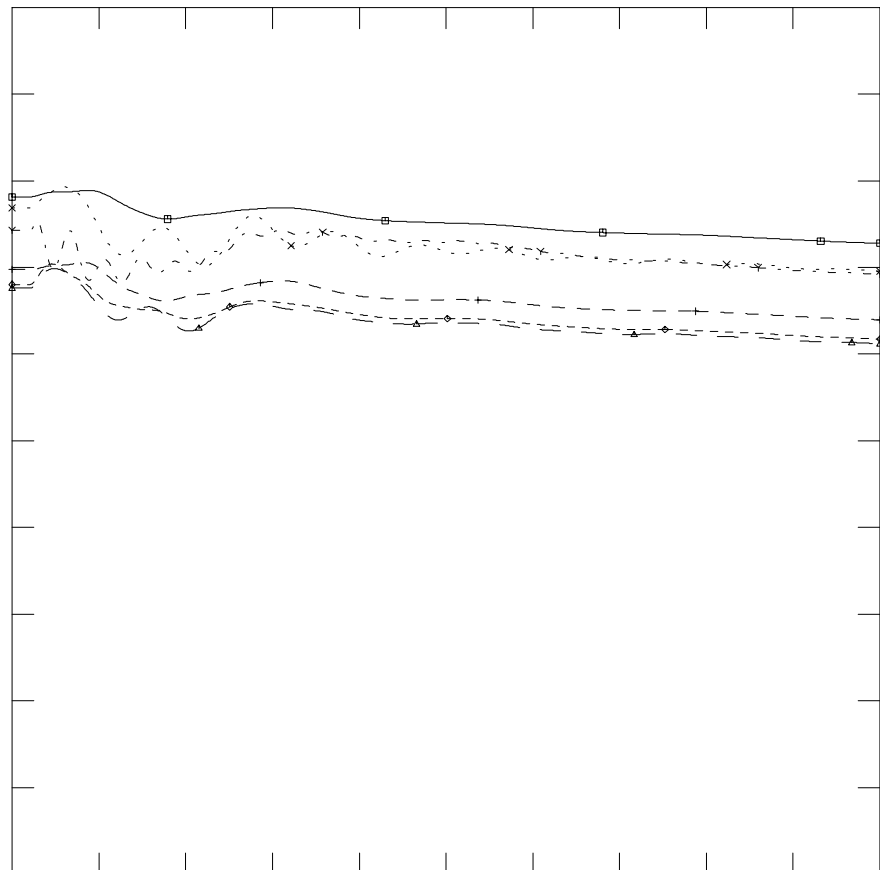
THU, FEB 13 2003 16:25  
ROTORANGLES 1 CON25 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

FILE: CON25-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



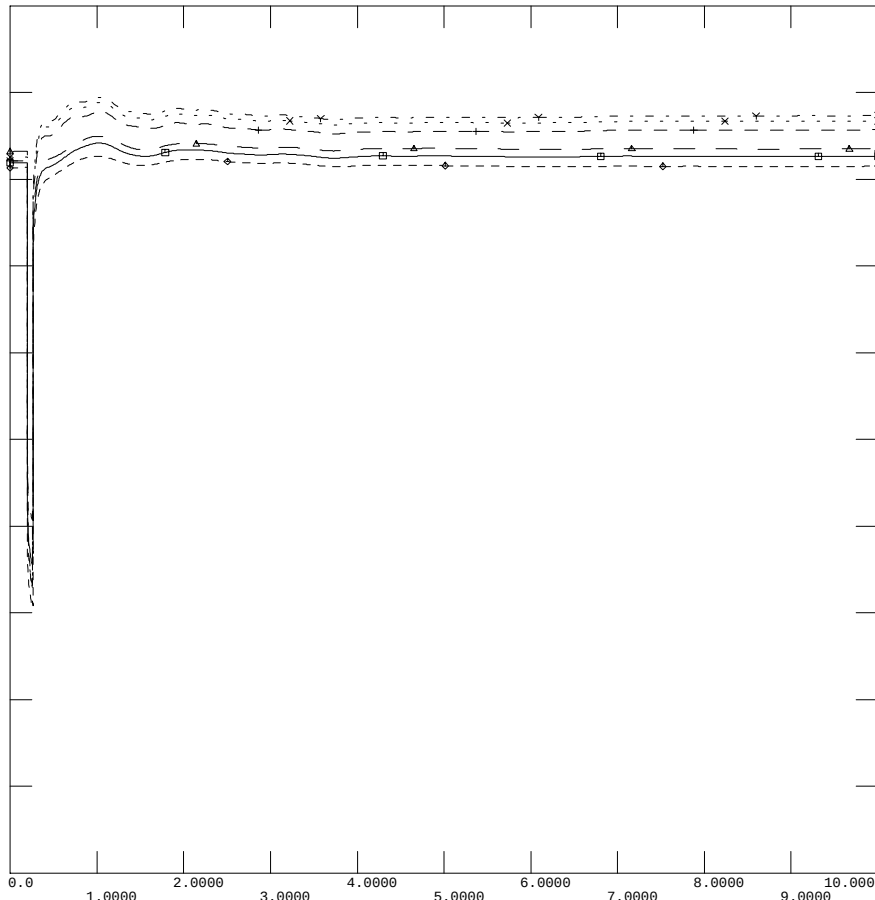
THU, FEB 13 2003 16:25  
ROTORANGLES 2 CON25 162MW



POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]  
FILE: CON25-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



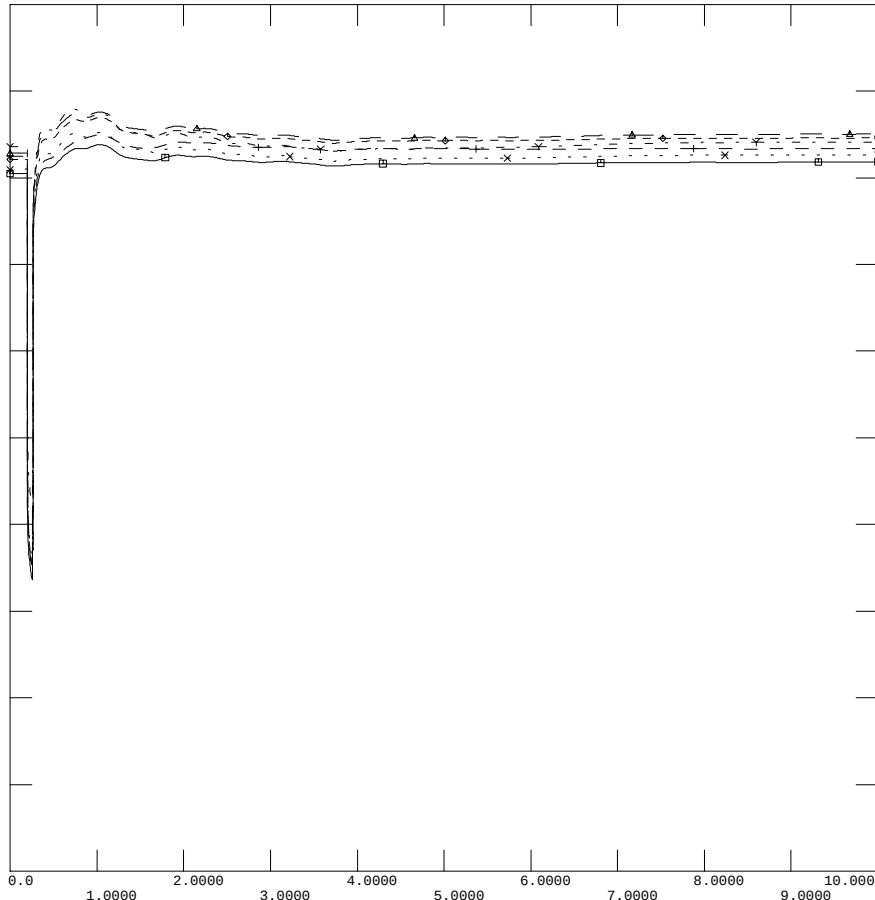
THU, FEB 13 2003 16:25  
VOLTAGE 1 CON25 162MW



POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]  
FILE: CON25-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |

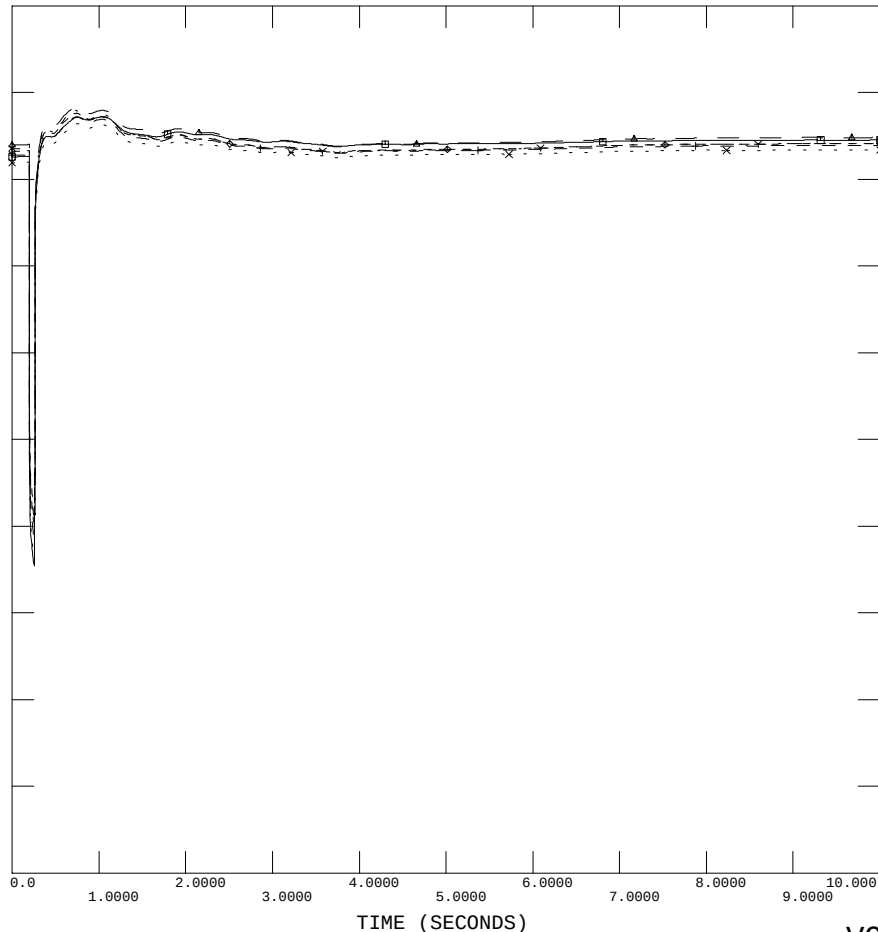


THU, FEB 13 2003 16:25  
VOLTAGE 2 CON25 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

FILE: CON25-ON.OUT

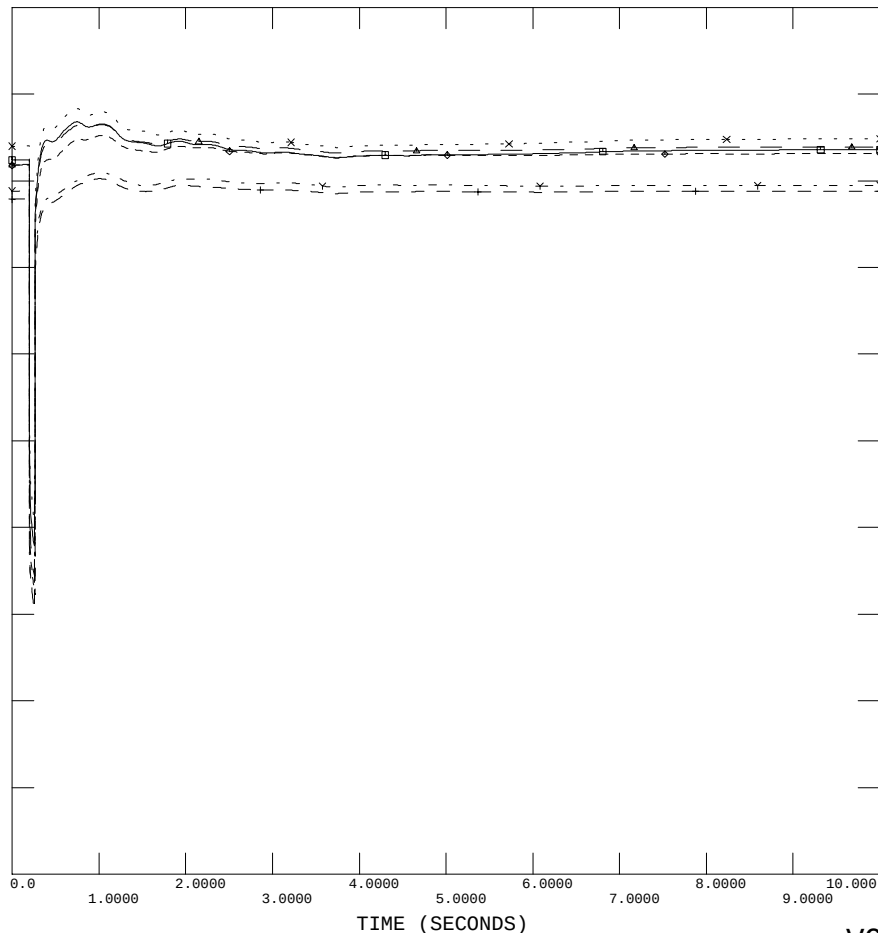
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]

FILE: CON25-ON.OUT

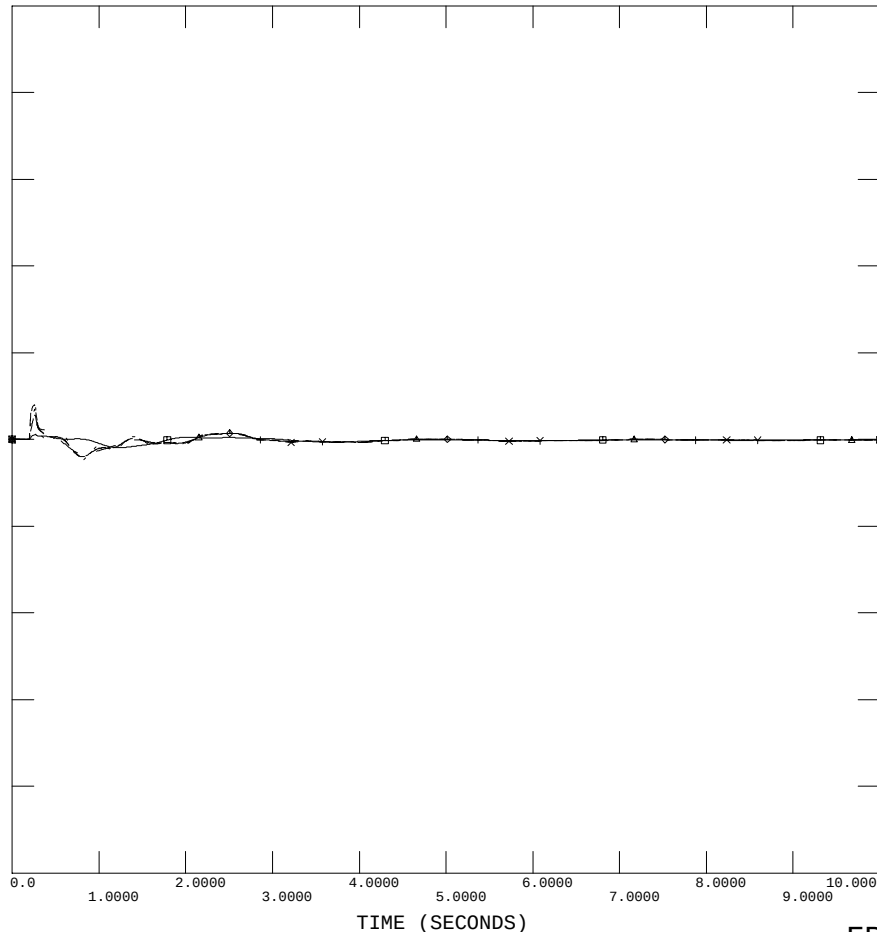
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRINGFLD69.000]] | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]  
FILE: CON25-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 70015 [CRAIG 1 22.000]]  | -0.0500 |

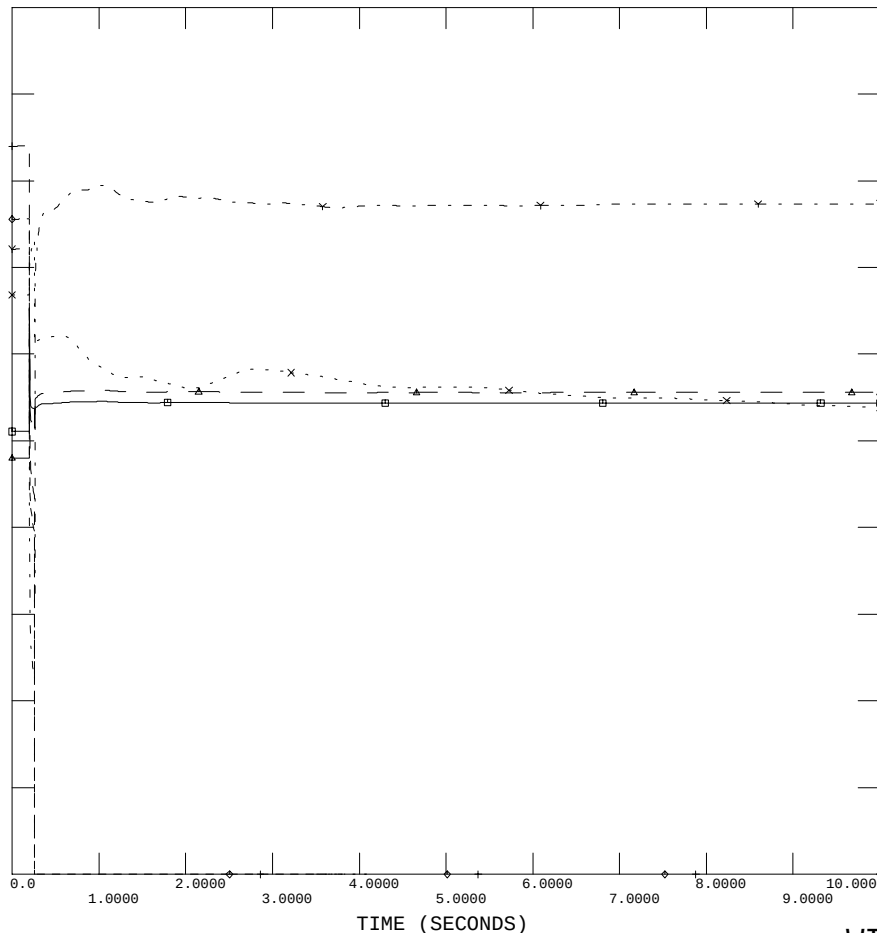


THU, FEB 13 2003 16:25  
FREQUENCY CON25 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON25 - FAULT ON COMANCHE - FULLER 230 [FULLER END]  
FILE: CON25-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGI 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

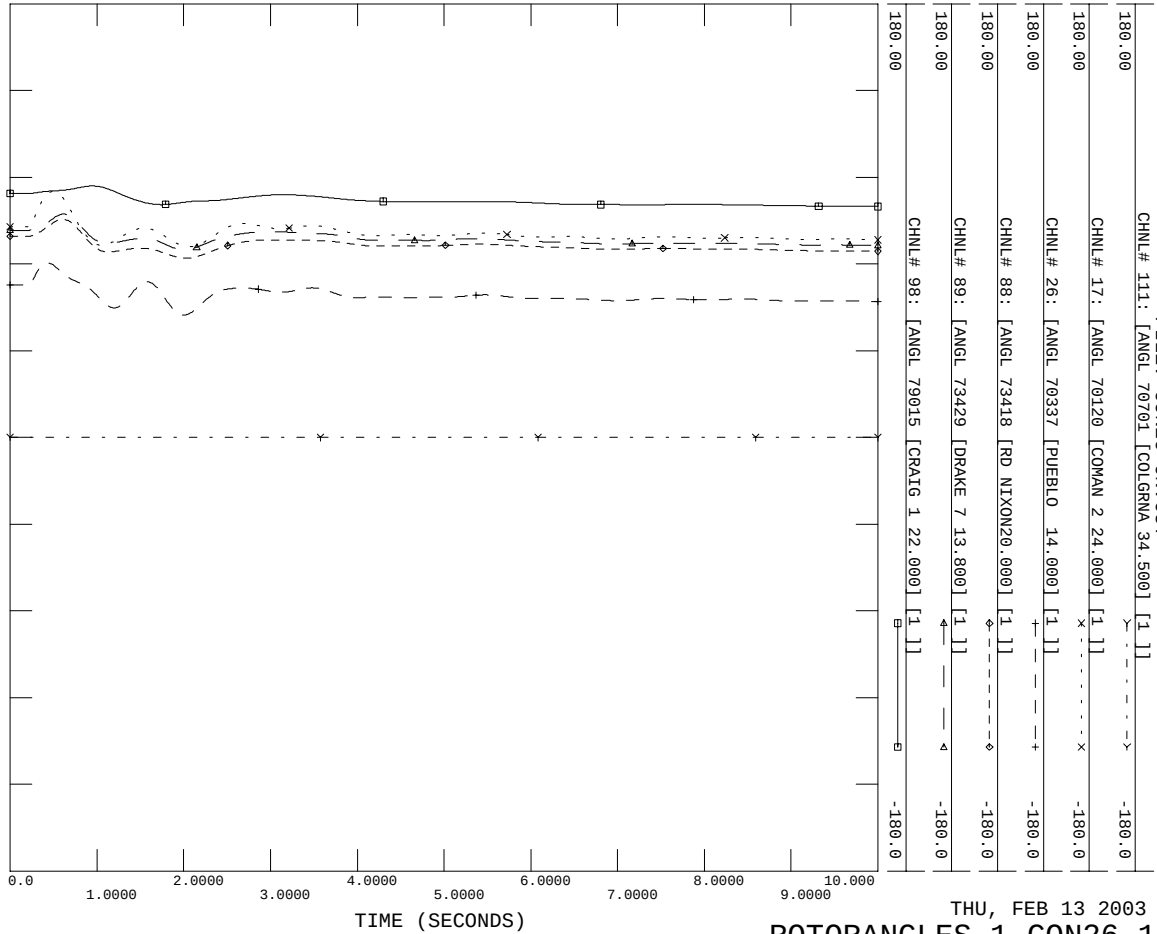


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WIND DATA CON25 162MW

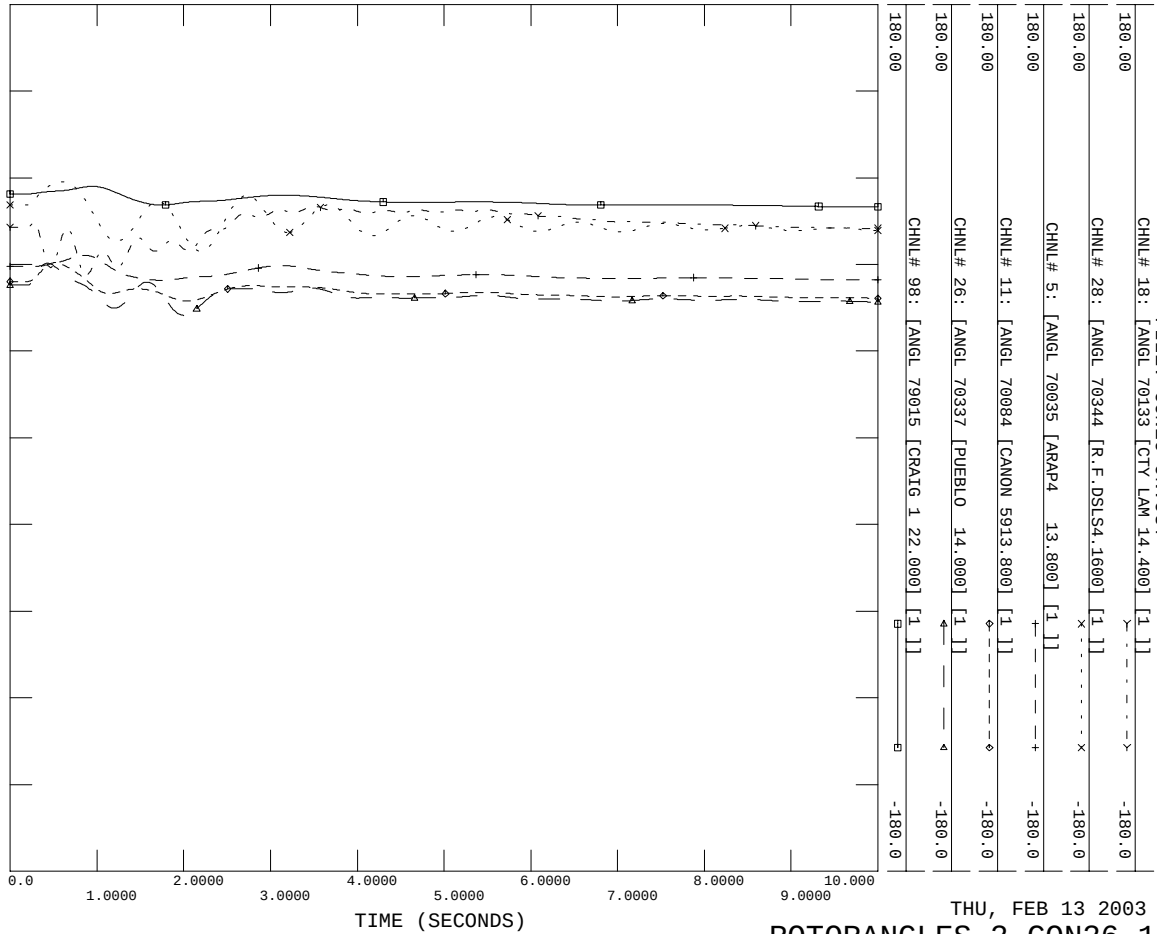




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]  
FILE: CON26-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]  
FILE: CON26-ON.OUT

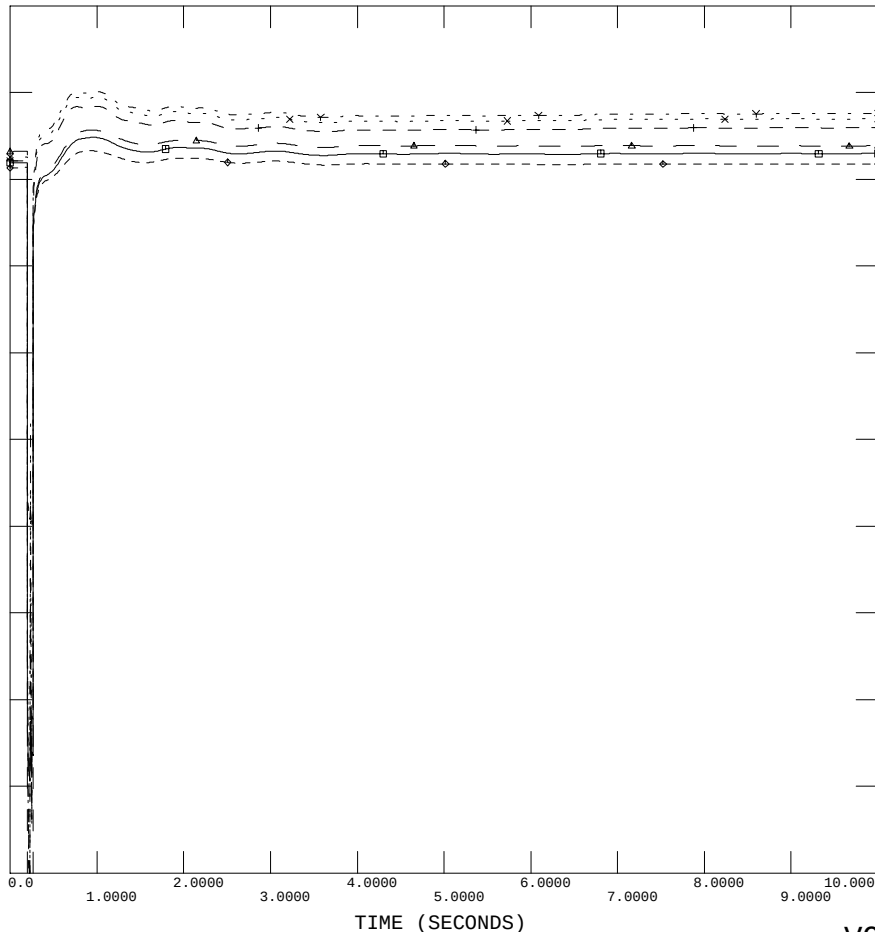




POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]  
FILE: CON26-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



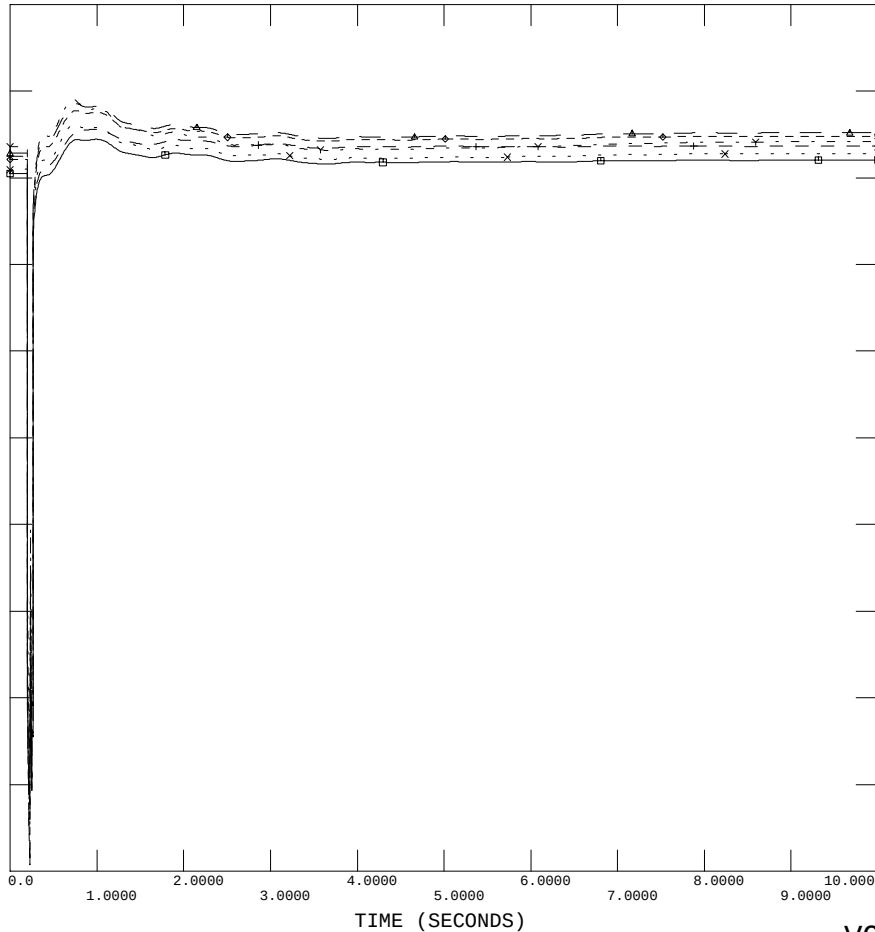
THU, FEB 13 2003 16:25  
VOLTAGE 1 CON26 162MW



POWER  
TIC  
0.0015

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]  
FILE: CON26-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



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VOLTAGE 2 CON26 162MW

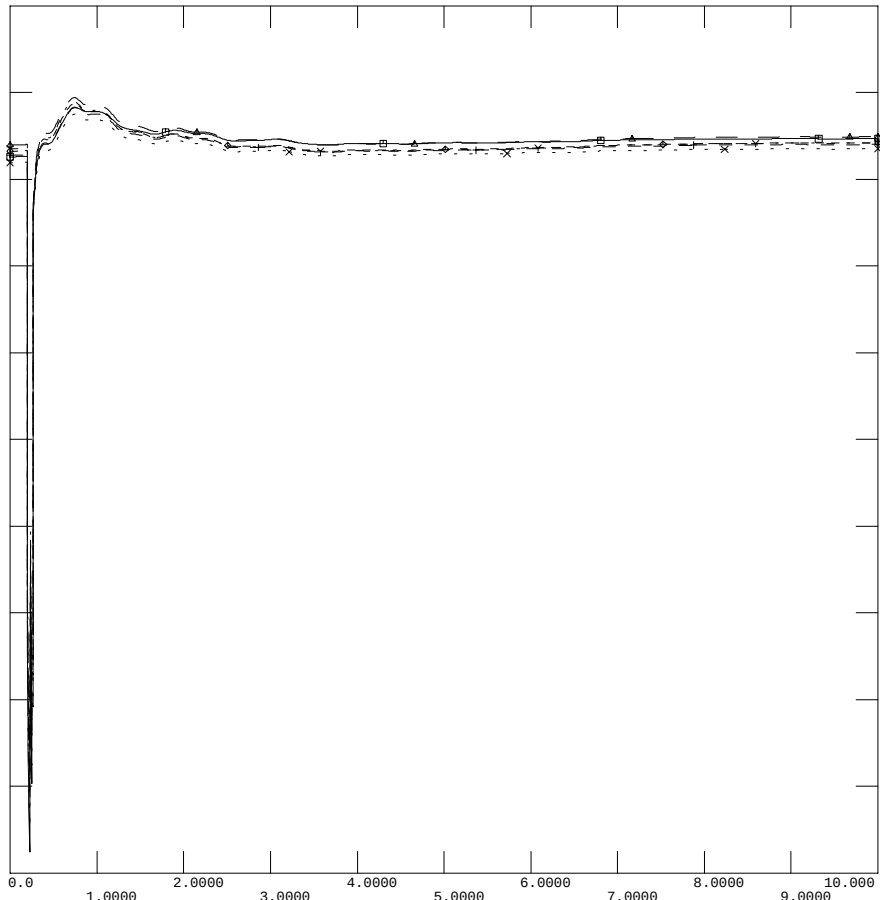


POWER  
TIC  
0.000000  
1.000000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]

FILE: CON26-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



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VOLTAGE 3 CON26 162MW

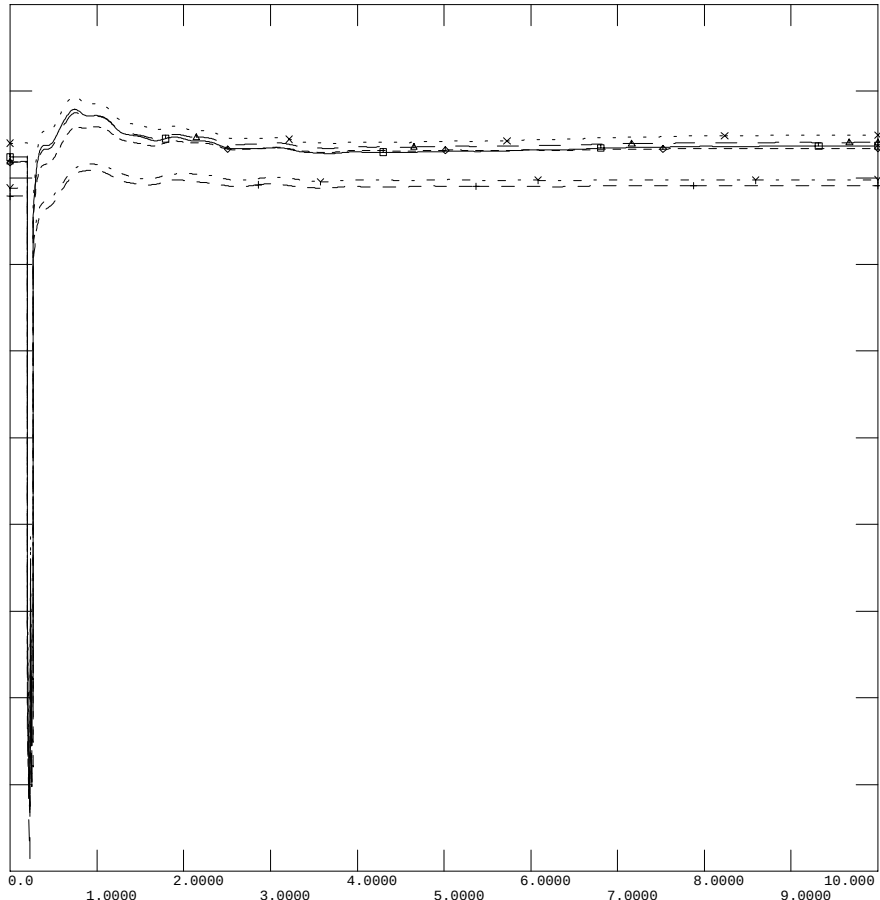


POWER  
TIC  
0.000000  
1.000000

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]

FILE: CON26-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGET15.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

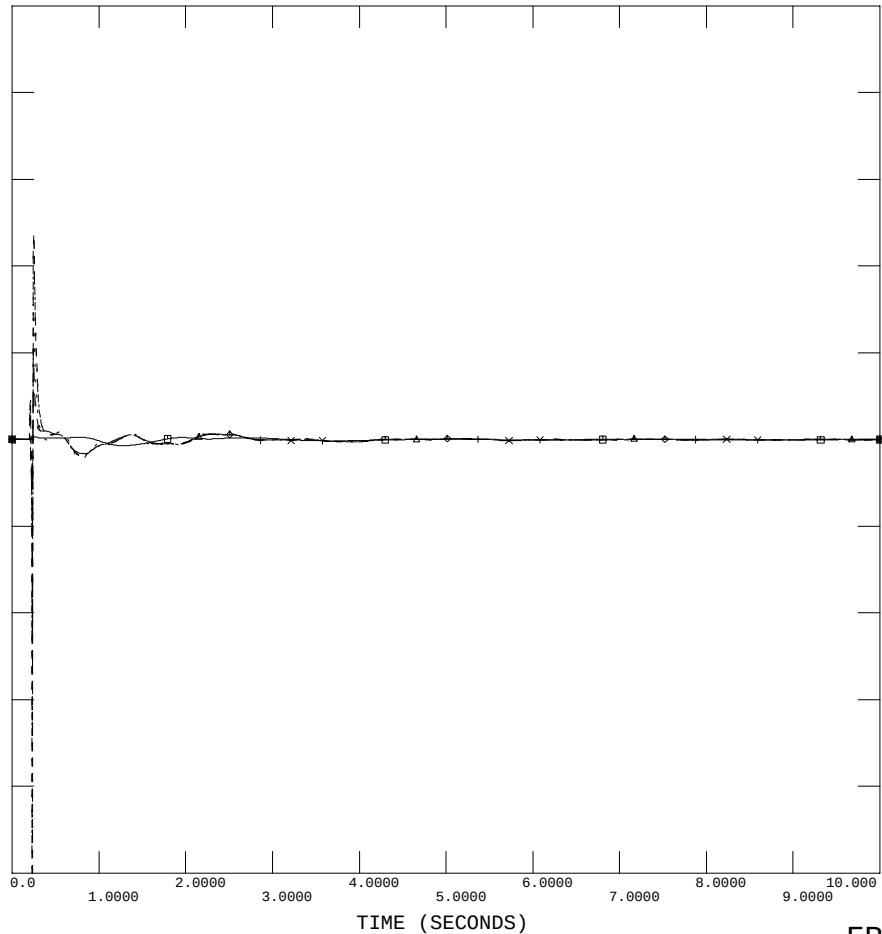


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VOLTAGE 4 CON26 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]  
FILE: CON26-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

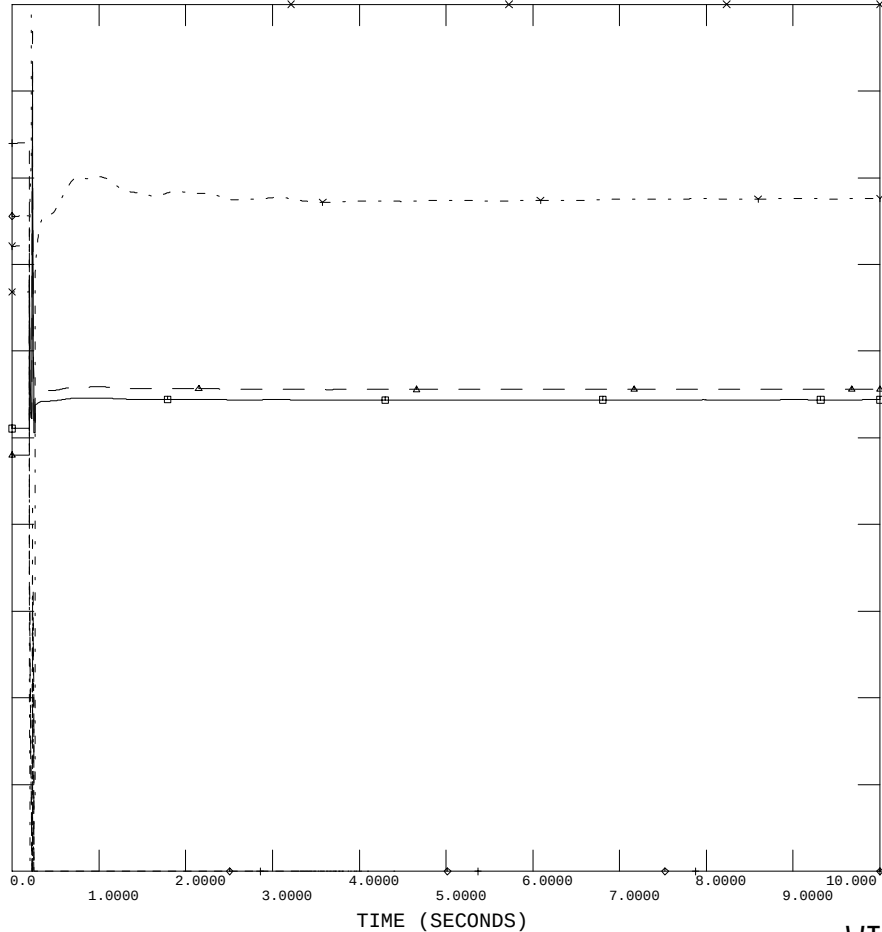


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FREQUENCY CON26 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON26 - FAULT ON BOONE - CF&I FURNACE 230 [CF&I END]  
FILE: CON26-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG1 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



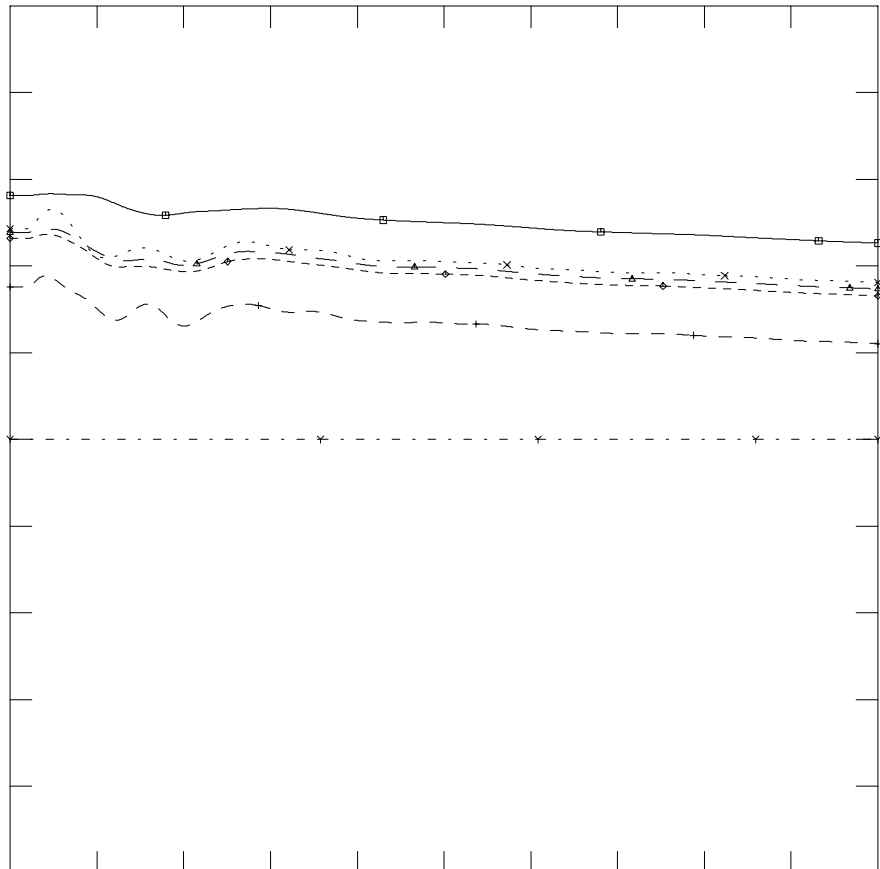
THU, FEB 13 2003 16:25  
WIND DATA CON26 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT

|        |           |                                    |        |
|--------|-----------|------------------------------------|--------|
| 180.00 | CHNL# 11: | [ANGL 70701 [COLGRN 34.500] [1.]]  | -180.0 |
| 180.00 | CHNL# 17: | [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: | [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: | [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: | [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: | [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



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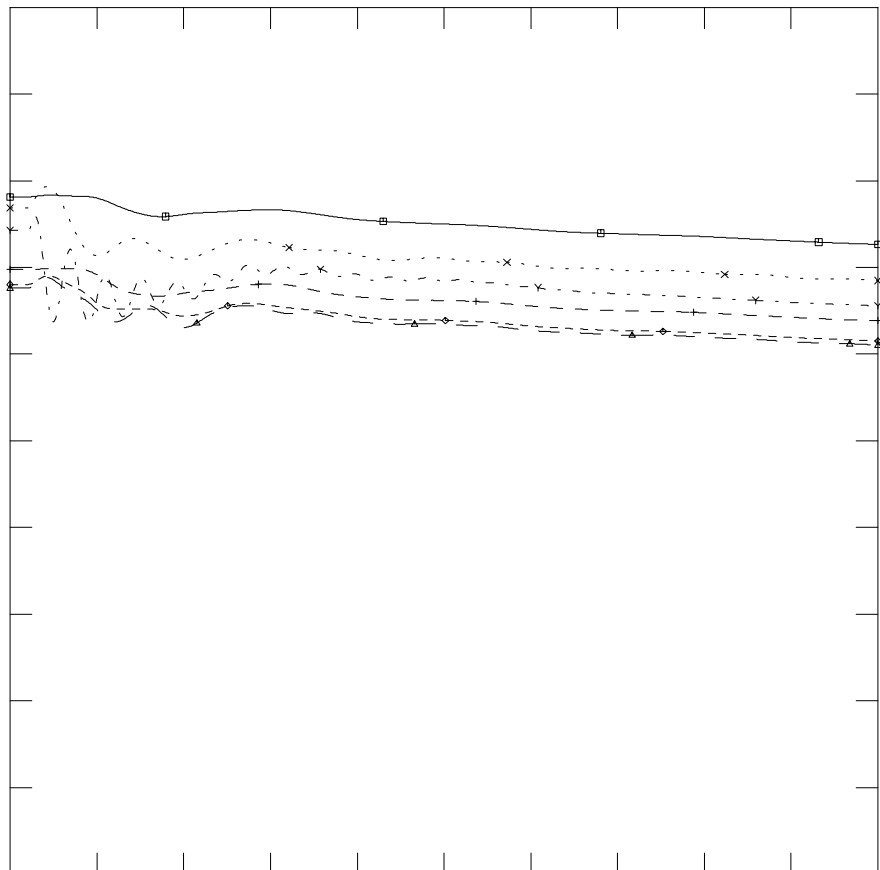
ROTORANGLES 1 CON27 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT

|        |           |                                    |        |
|--------|-----------|------------------------------------|--------|
| 180.00 | CHNL# 18: | [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: | [ANGL 70344 [R.F.DSL54.1600] [1.]] | -180.0 |
| 180.00 | CHNL# 5:  | [ANGL 70035 [ARAP4 13.800] [1.]]   | -180.0 |
| 180.00 | CHNL# 11: | [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: | [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: | [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



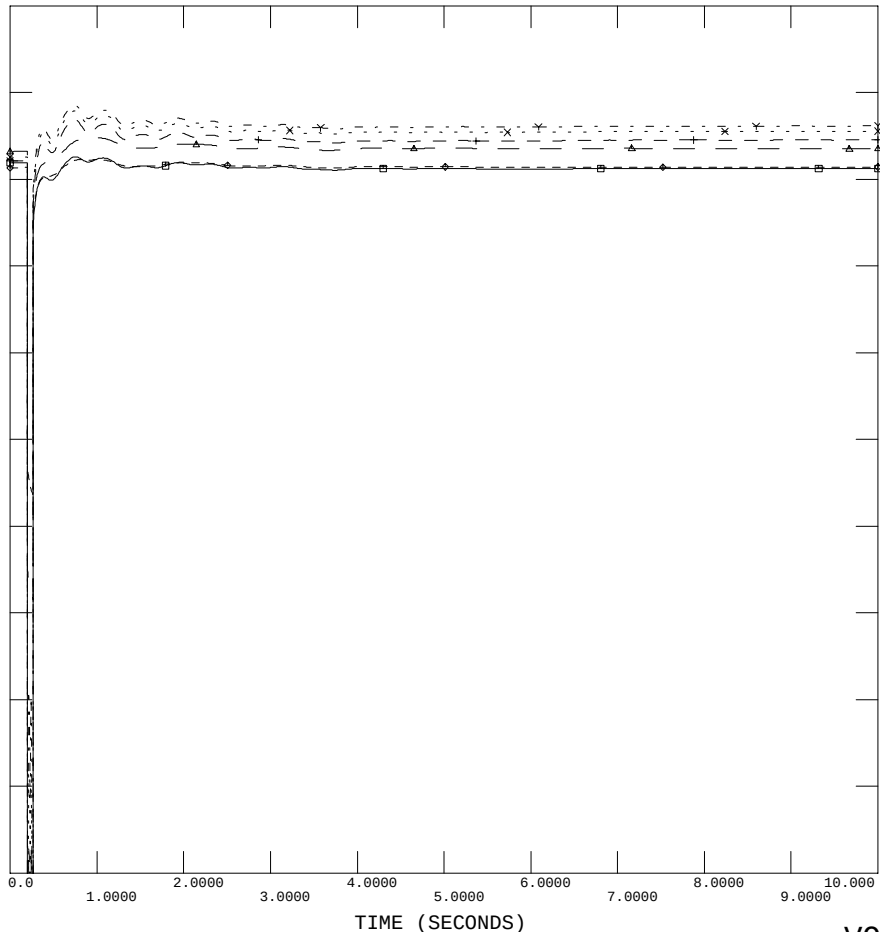
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ROTORANGLES 2 CON27 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT

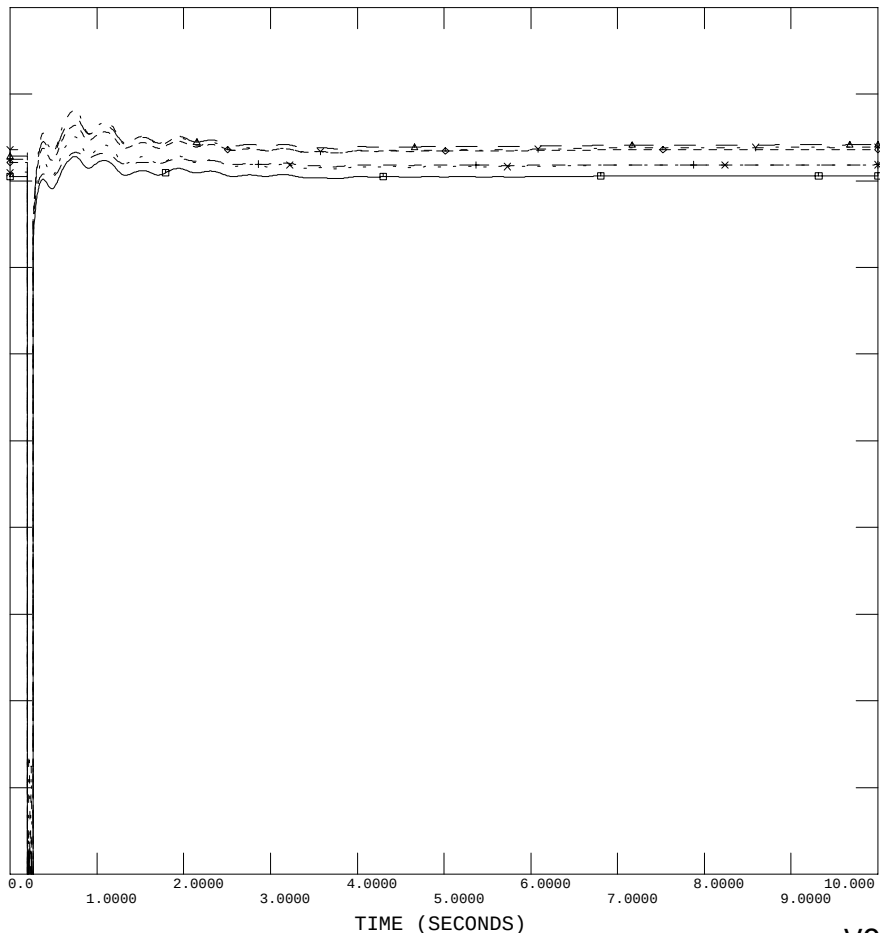
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

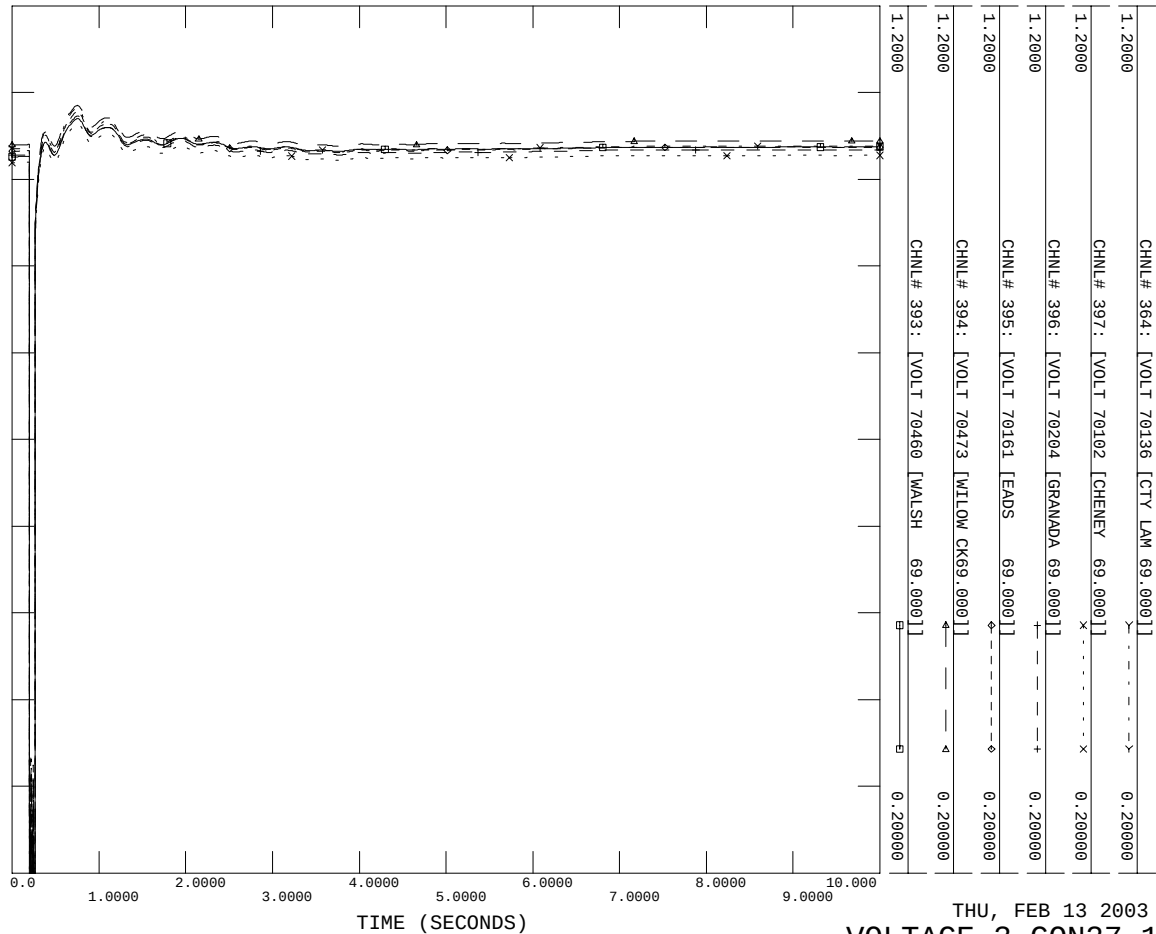
FILE: CON27-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



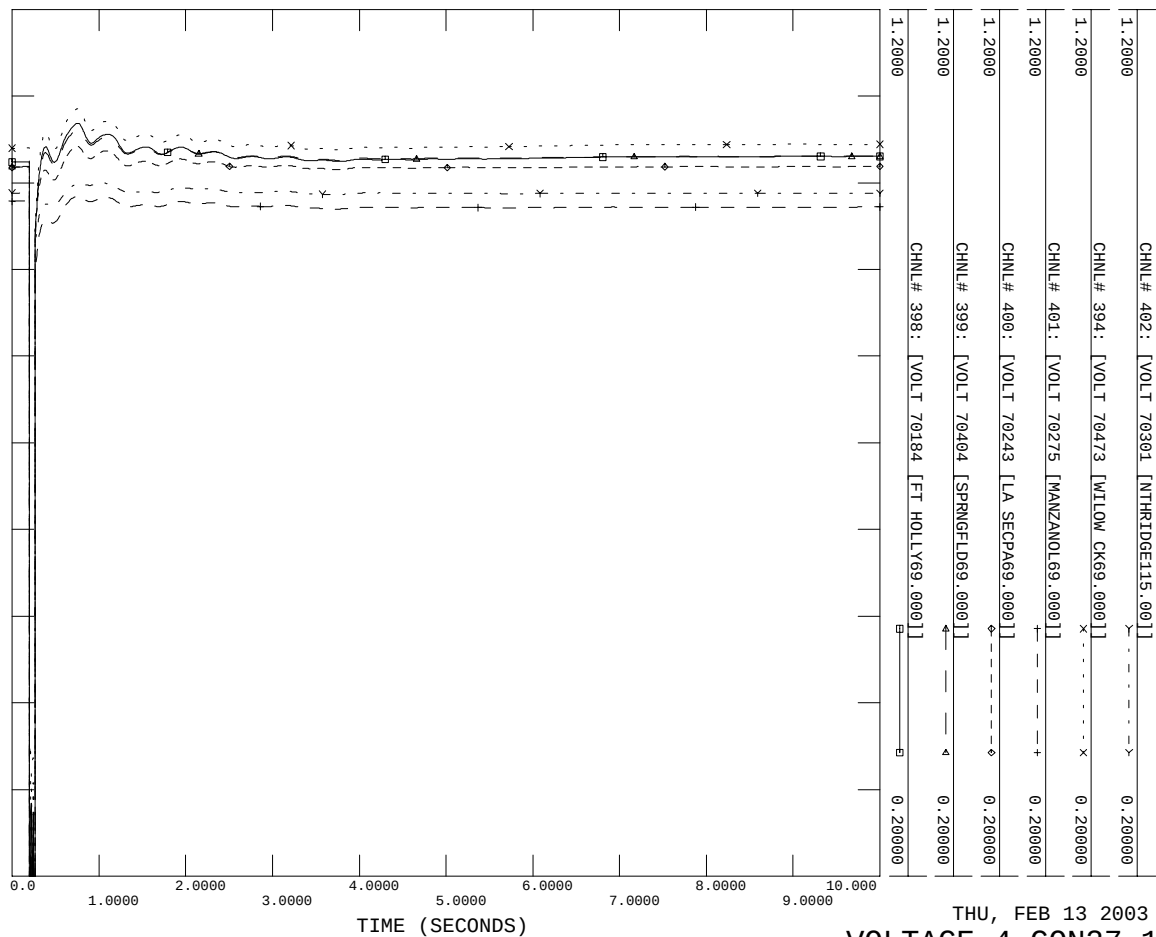
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT

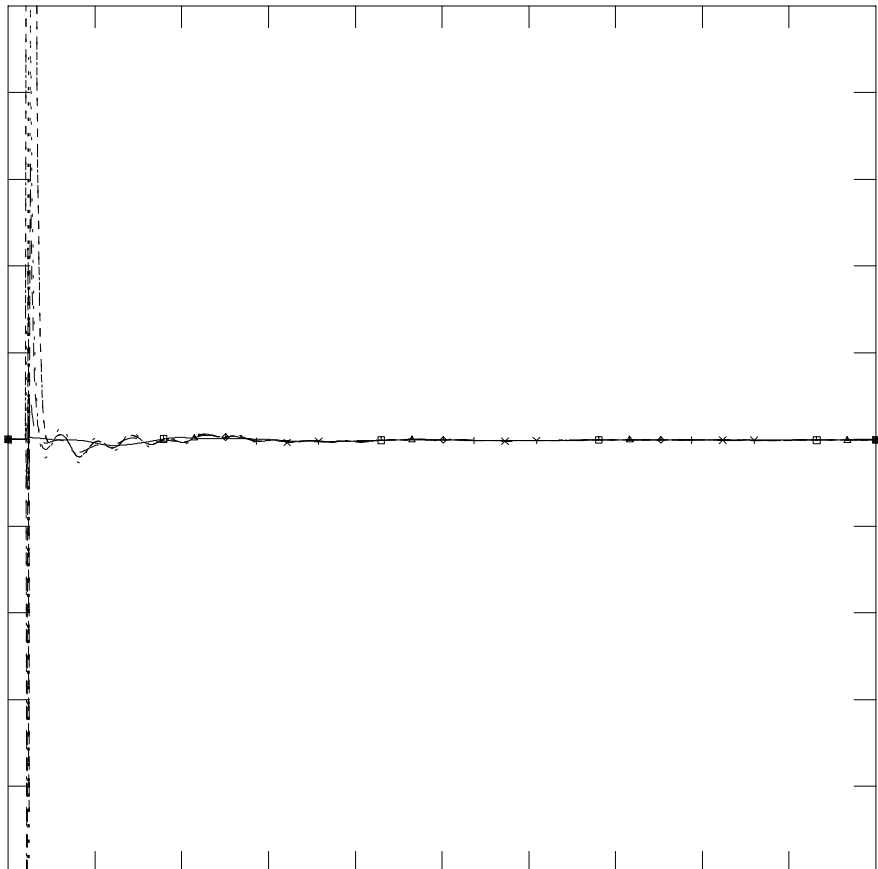




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

FILE: CON27-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



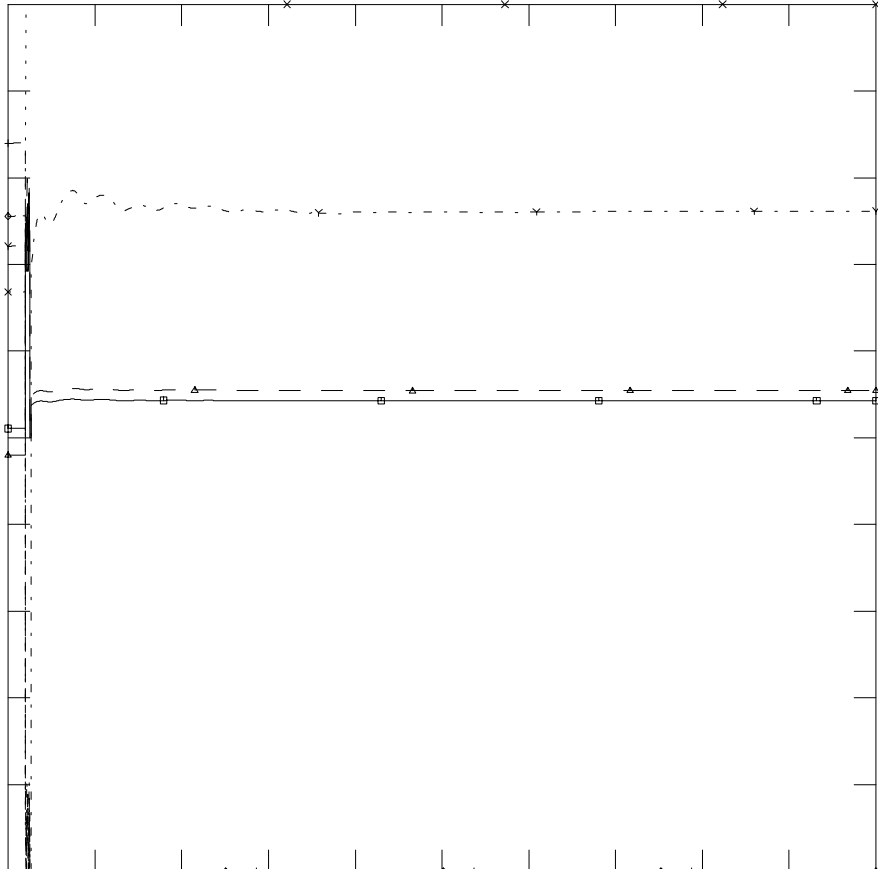
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FREQUENCY CON27 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON27 - FAULT ON COMANCHE - BOONE 230 [BOONE END]

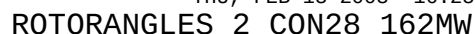
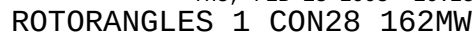
FILE: CON27-ON.OUT

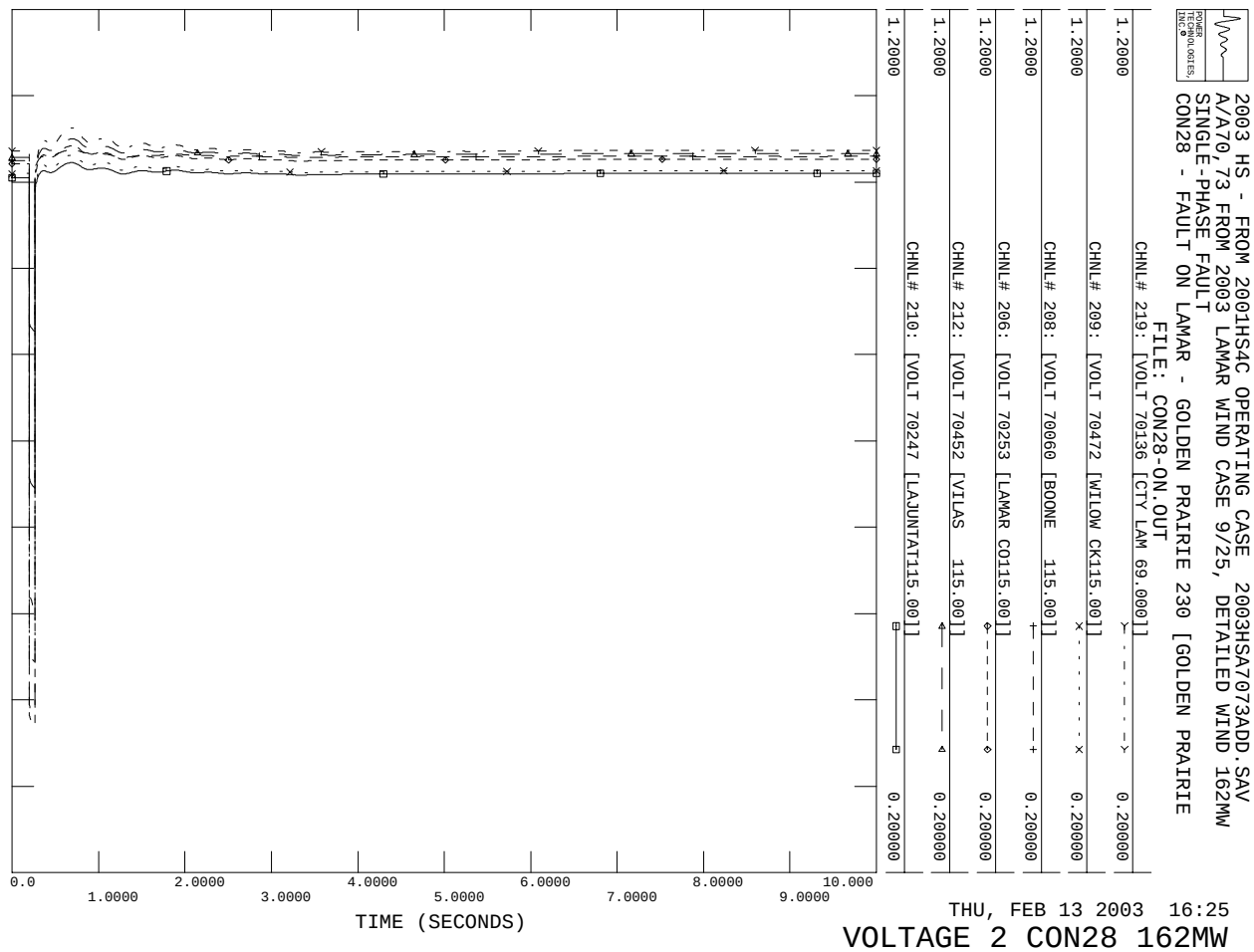
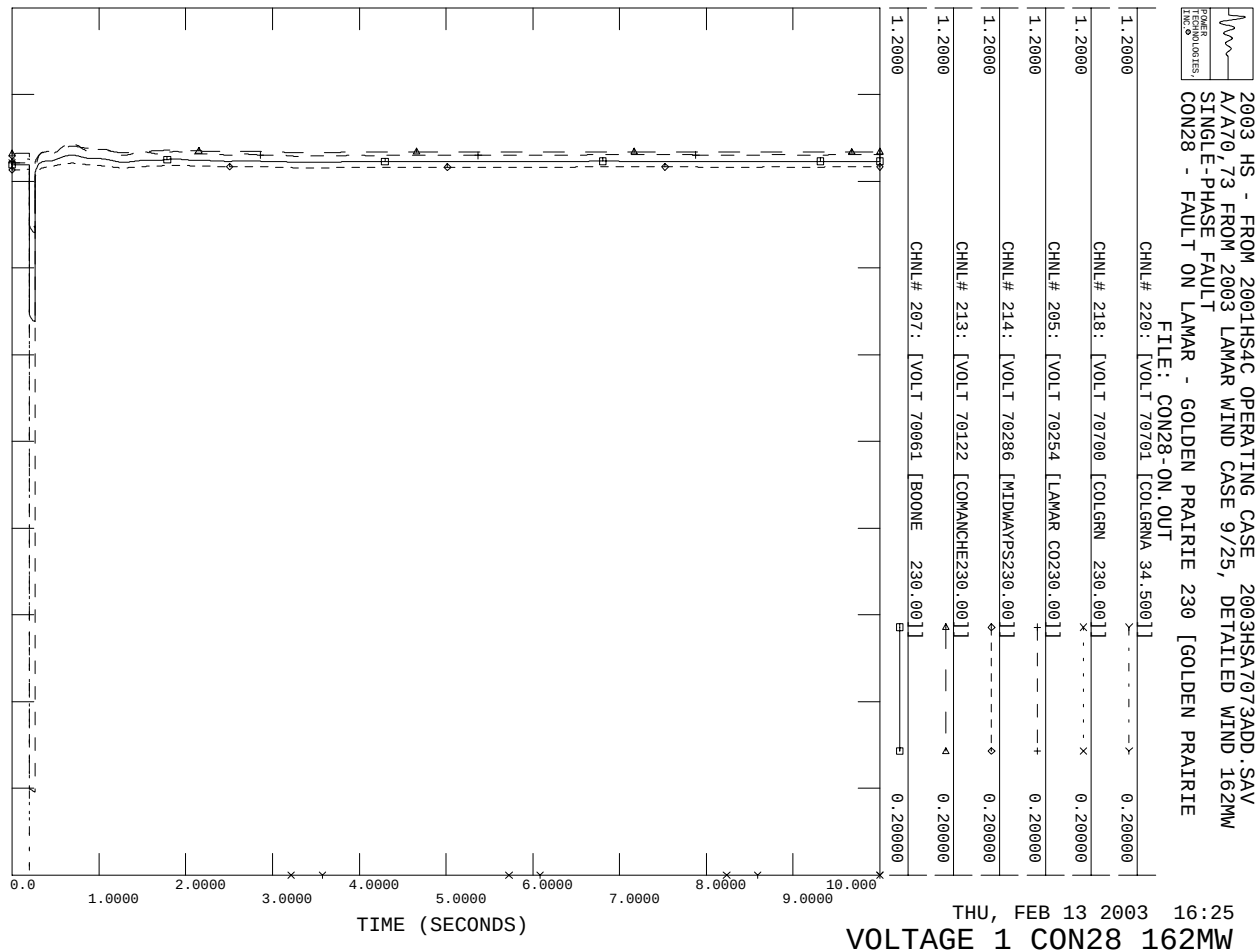
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON27 162MW



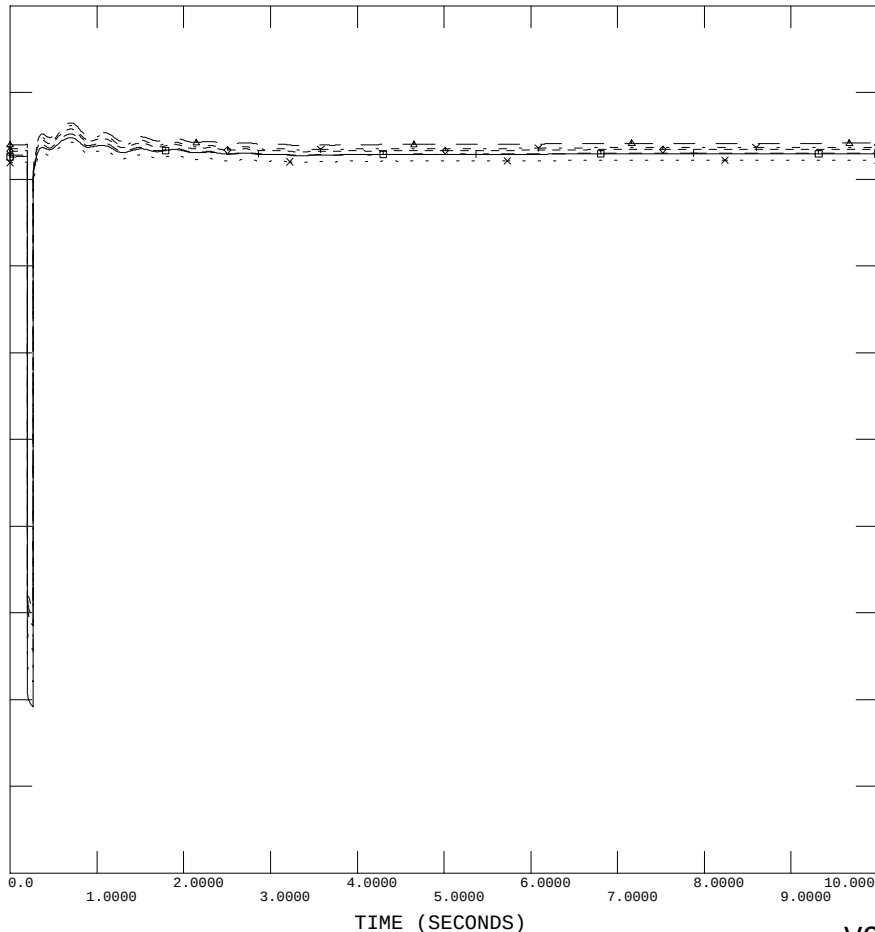






2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE  
FILE: CON28-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

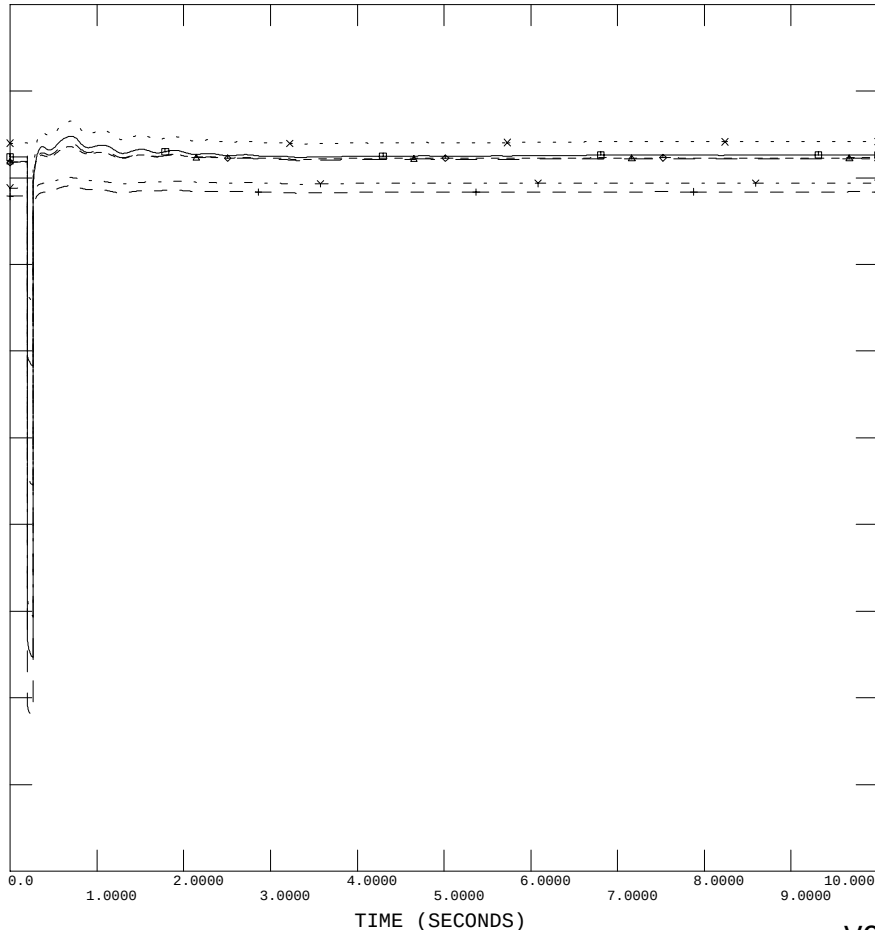


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VOLTAGE 3 CON28 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE  
FILE: CON28-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGET15.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

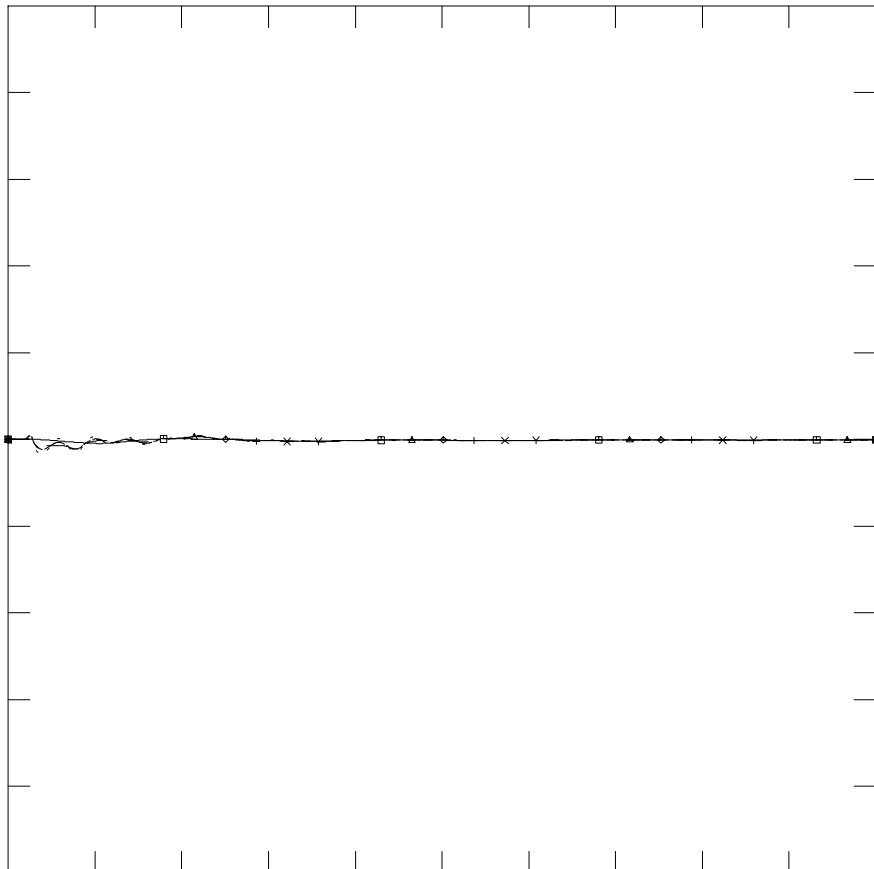


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VOLTAGE 4 CON28 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE  
FILE: CON28-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

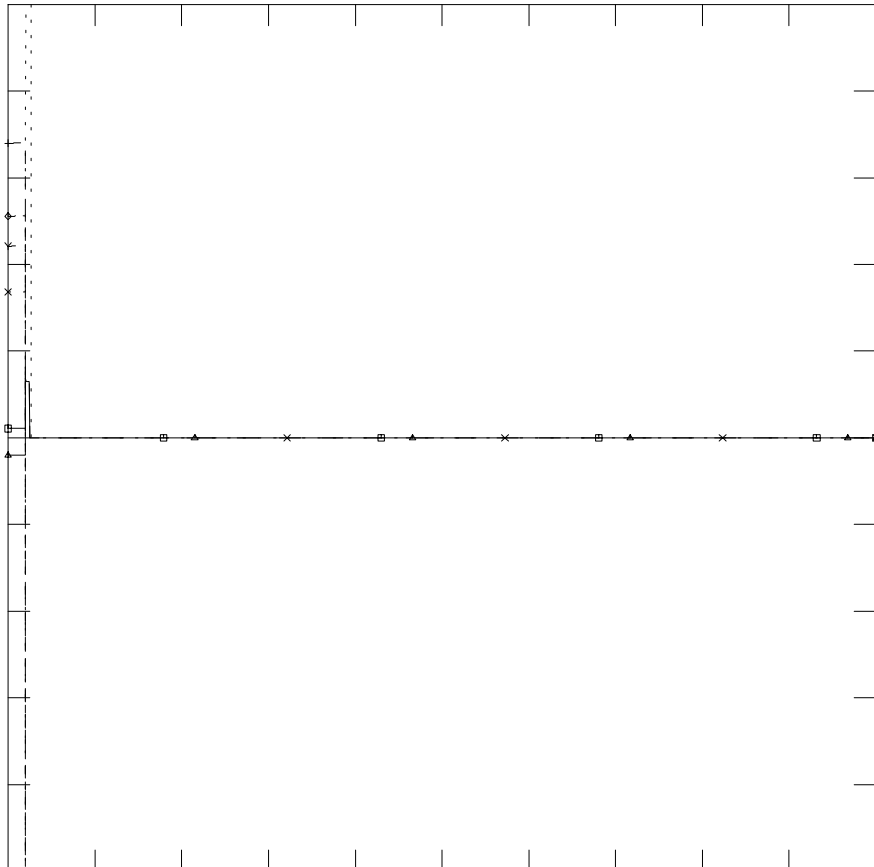


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FREQUENCY CON28 162MW

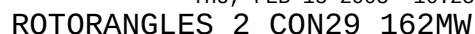
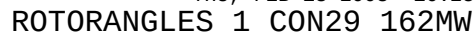


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON28 - FAULT ON LAMAR - GOLDEN PRAIRIE 230 [GOLDEN PRAIRIE  
FILE: CON28-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

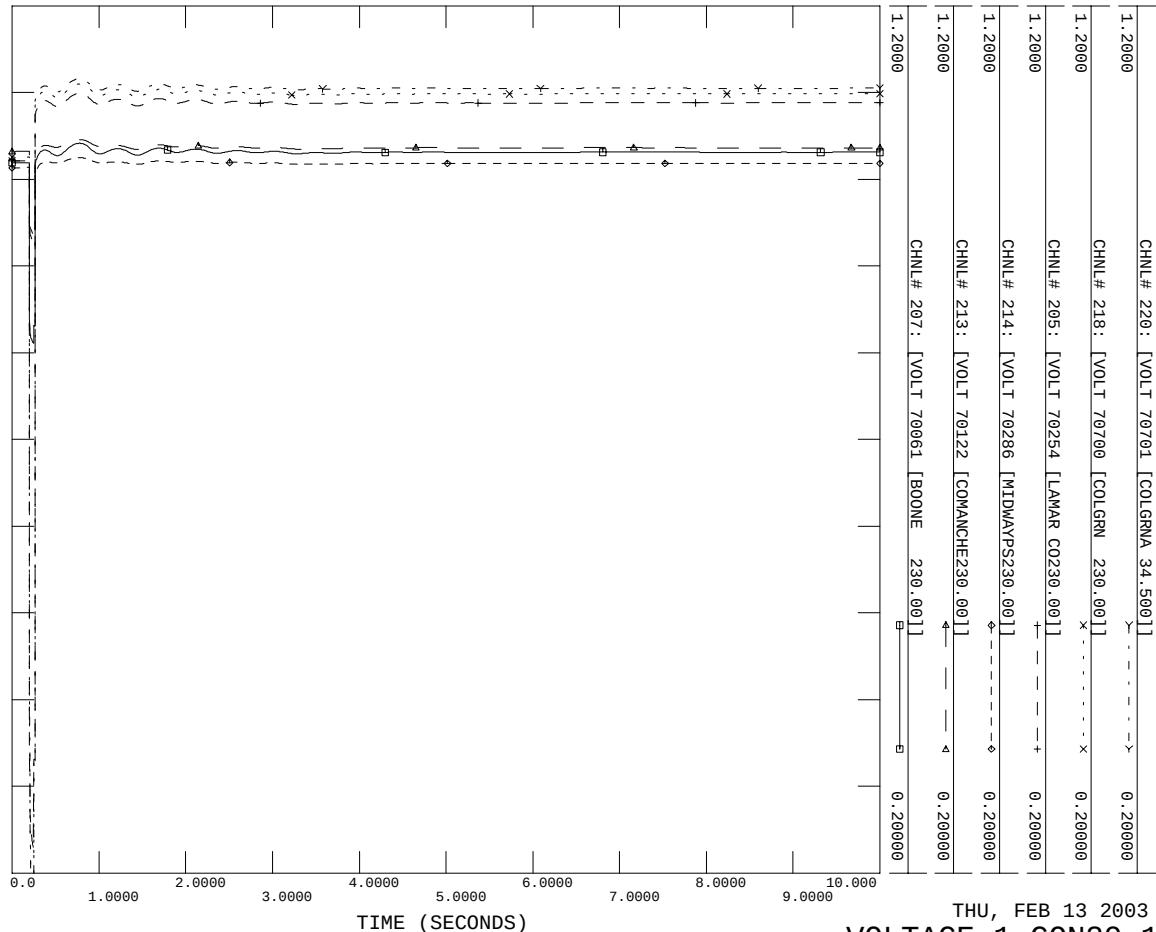


THU, FEB 13 2003 16:25  
WIND DATA CON28 162MW

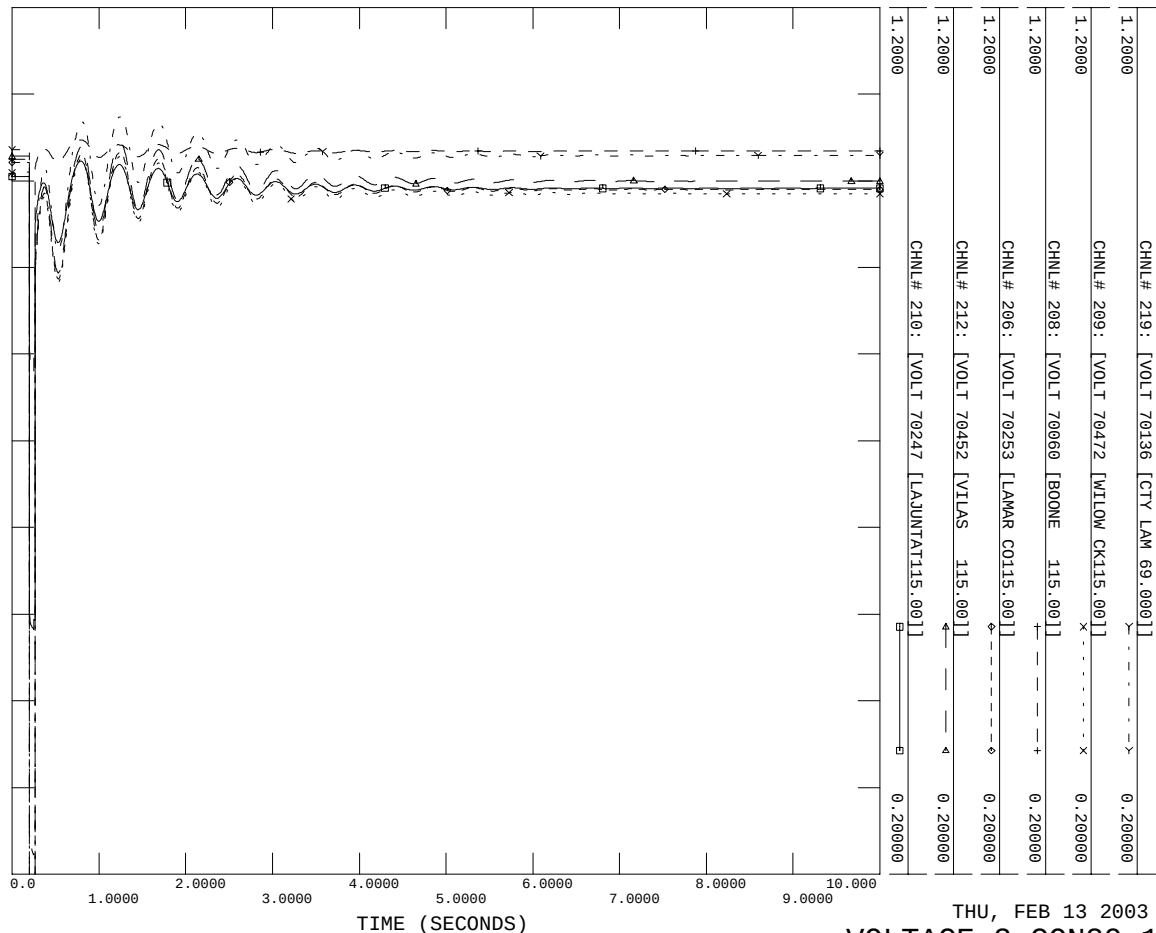




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]  
FILE: CON29-ON.OUT

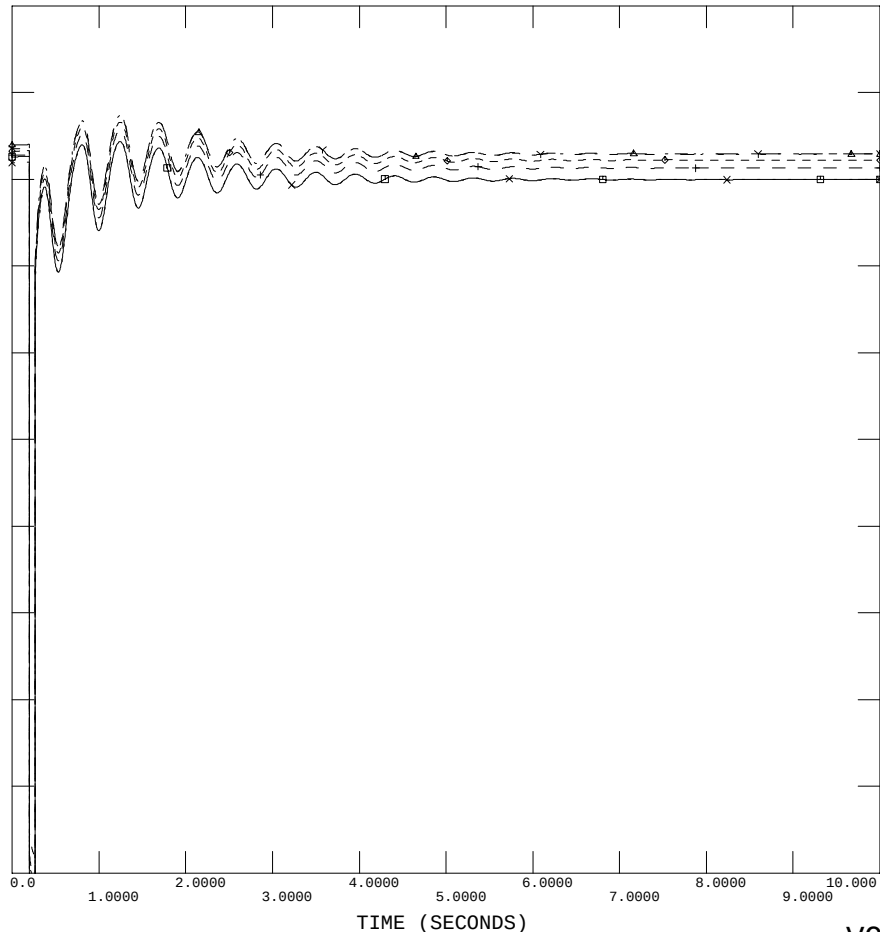


2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]  
FILE: CON29-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]  
FILE: CON29-ON.OUT

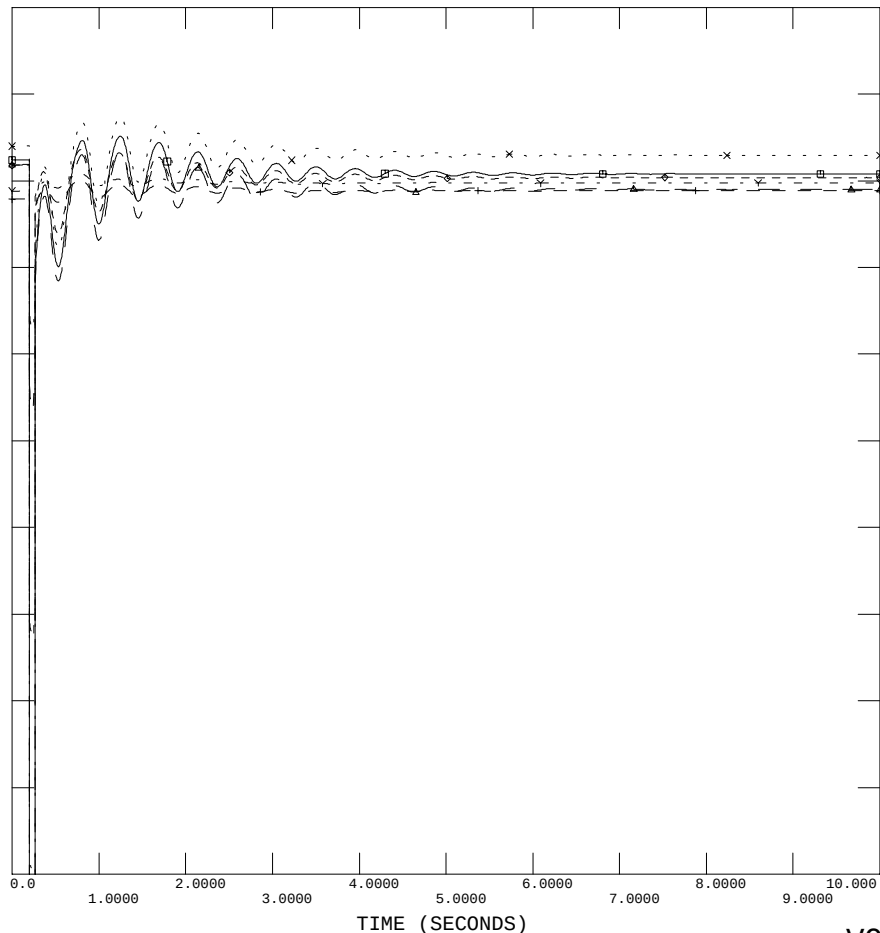
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



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VOLTAGE 3 CON29 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]  
FILE: CON29-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

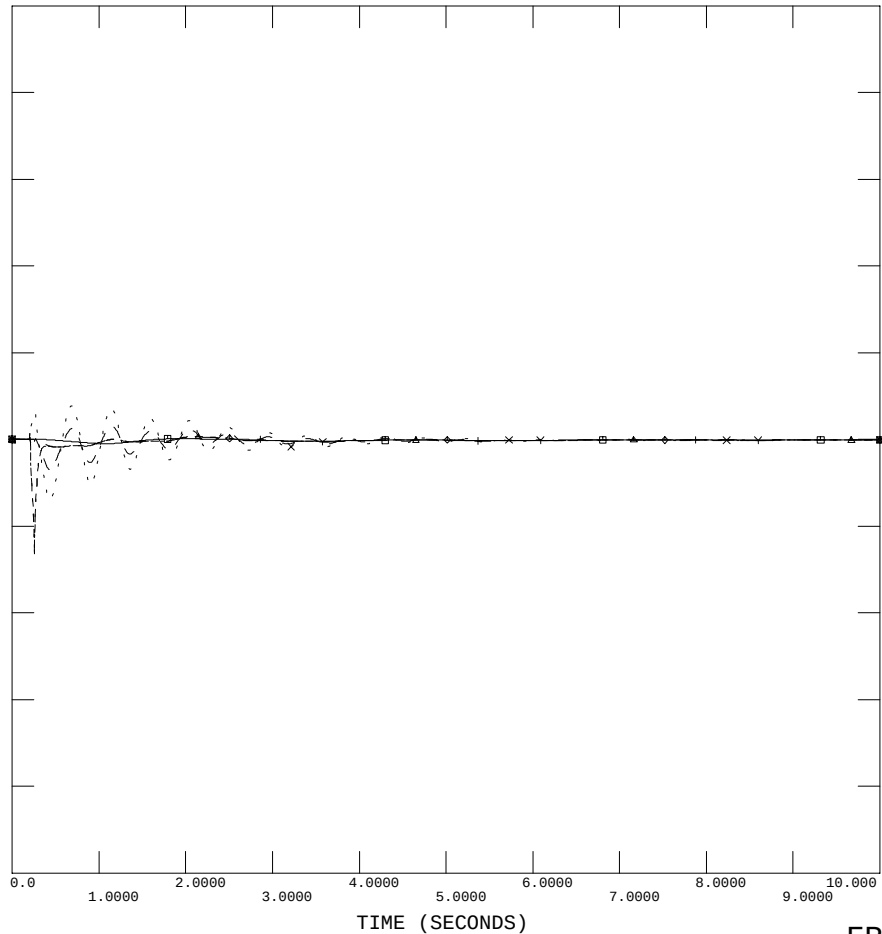


THU, FEB 13 2003 16:25  
VOLTAGE 4 CON29 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]  
FILE: CON29-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

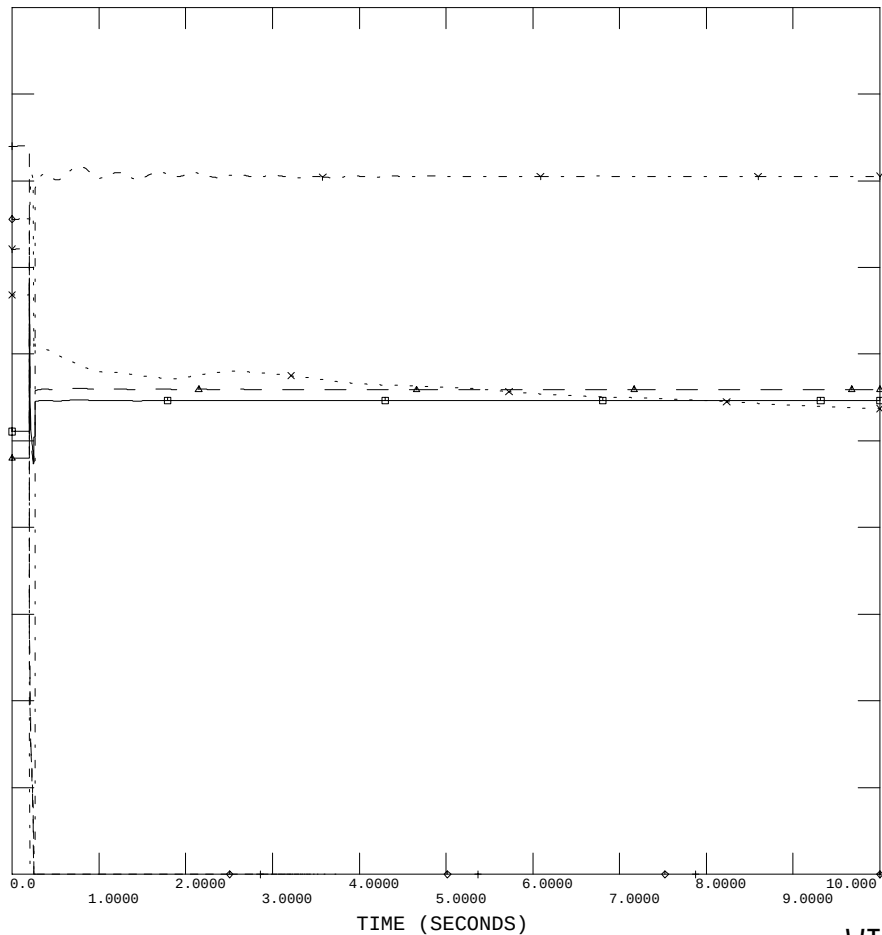


THU, FEB 13 2003 16:26  
FREQUENCY CON29 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON29 - FAULT ON LAMAR 230/115 TRANSFORMER [115-KV END]  
FILE: CON29-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [COLGRNA 34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

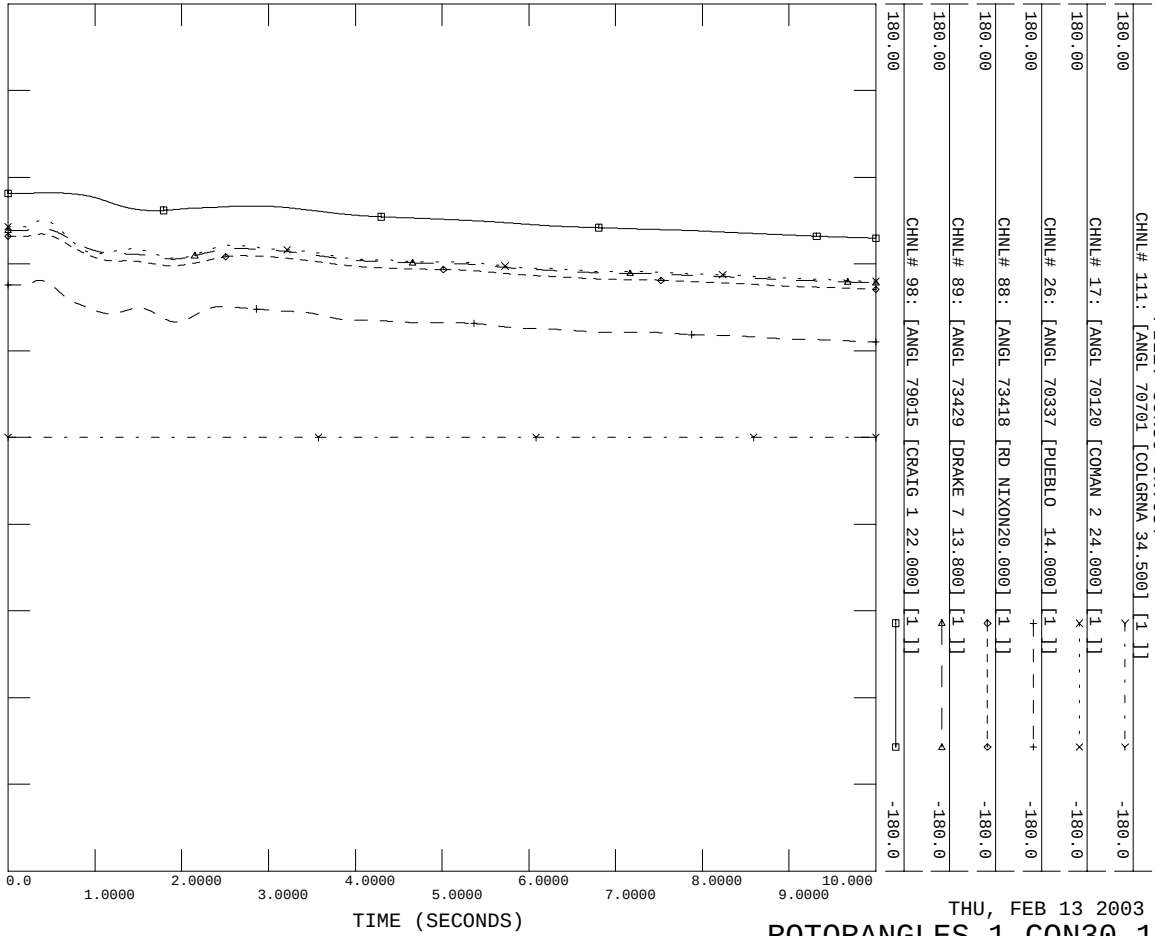


THU, FEB 13 2003 16:26  
WIND DATA CON29 162MW

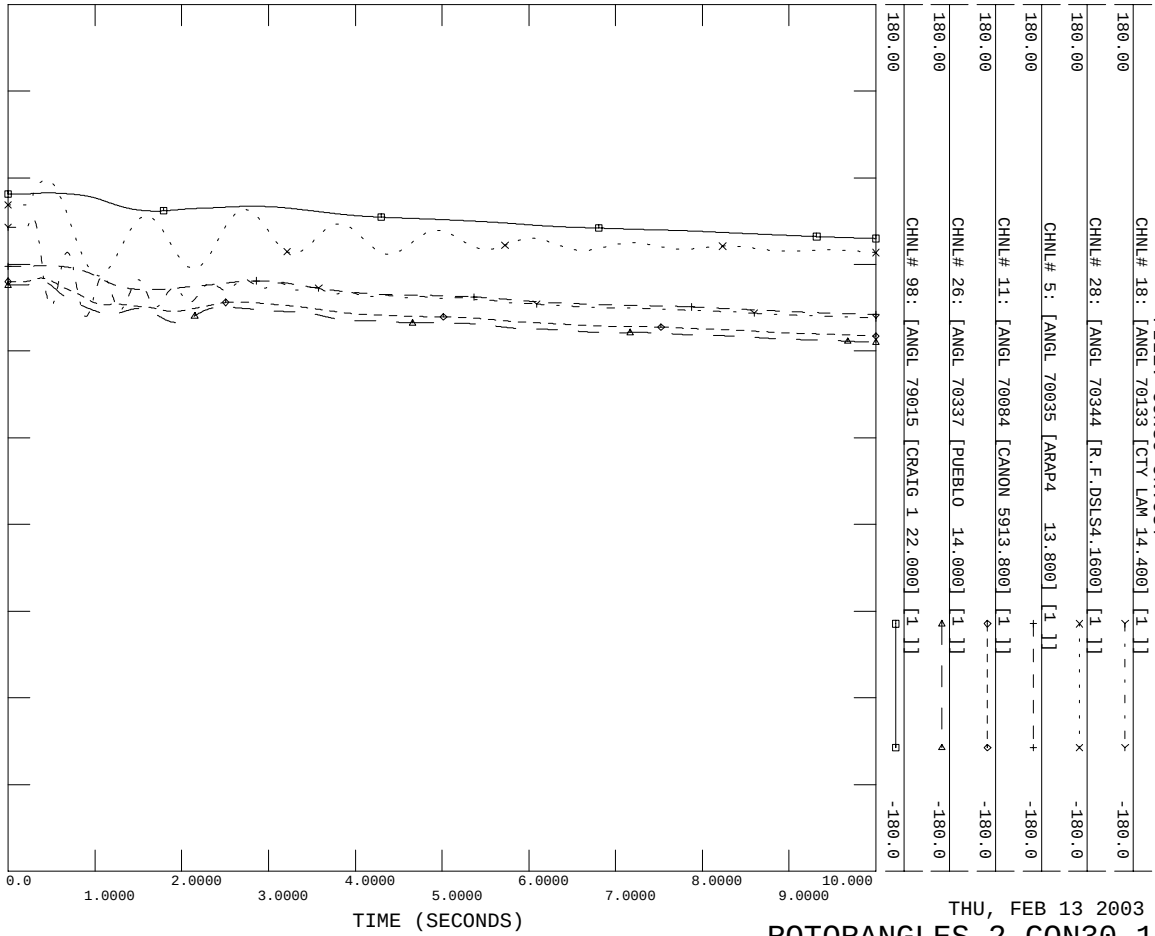




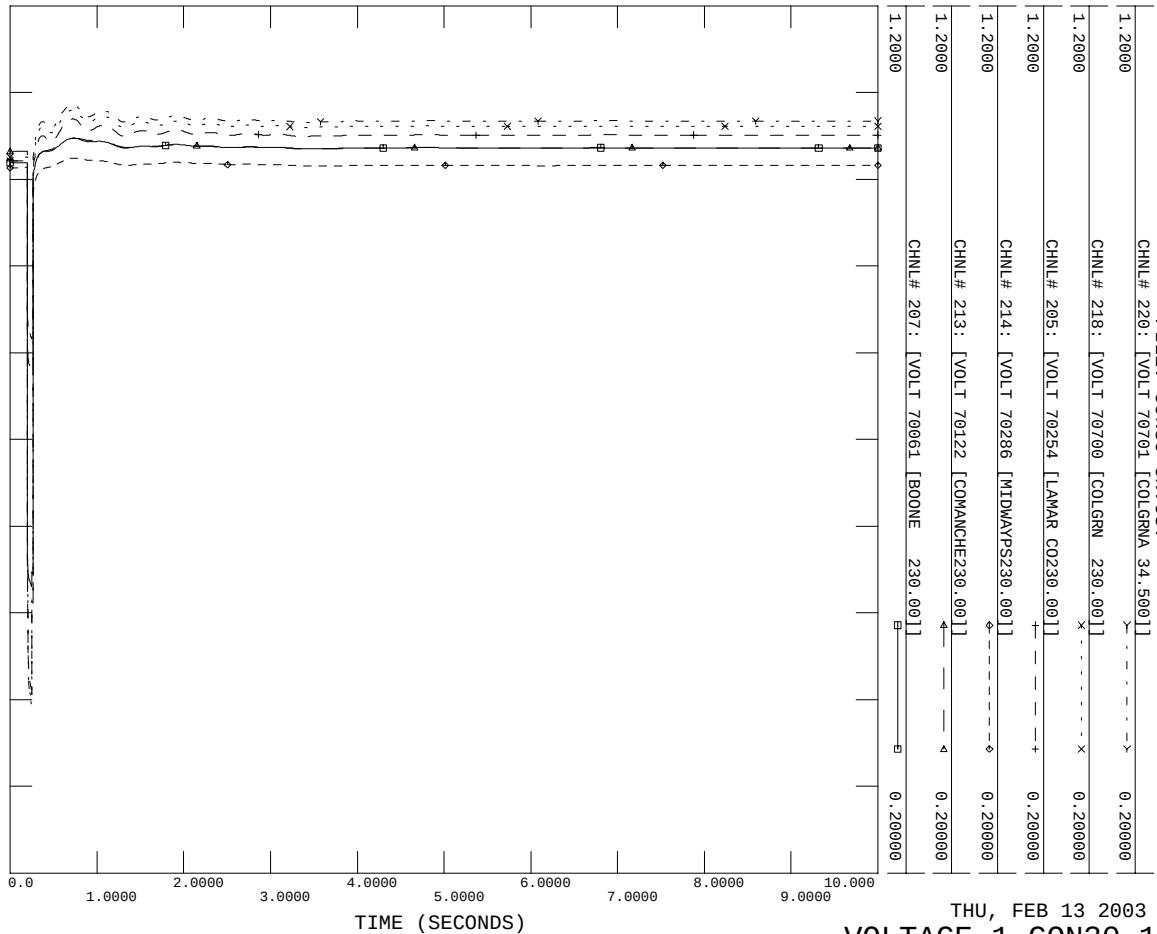
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT



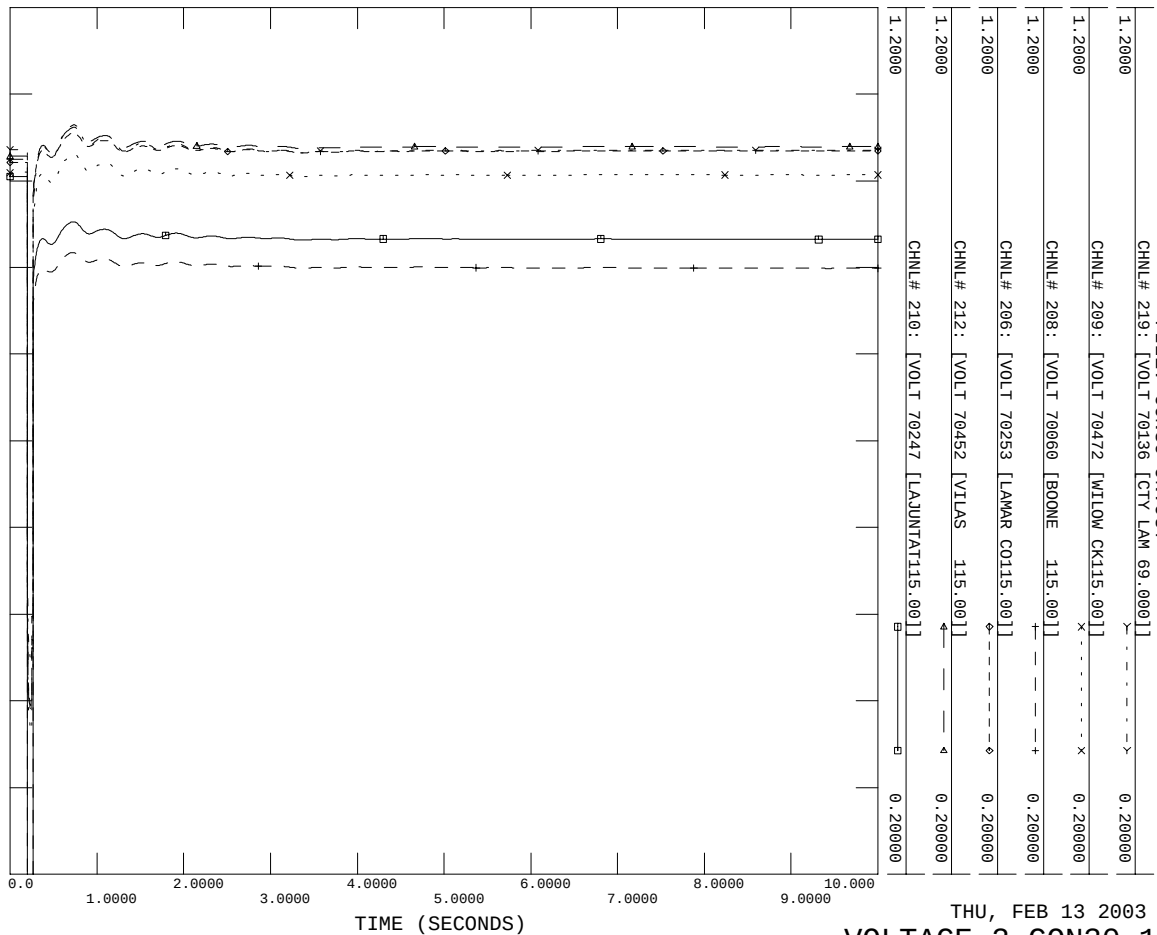
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT



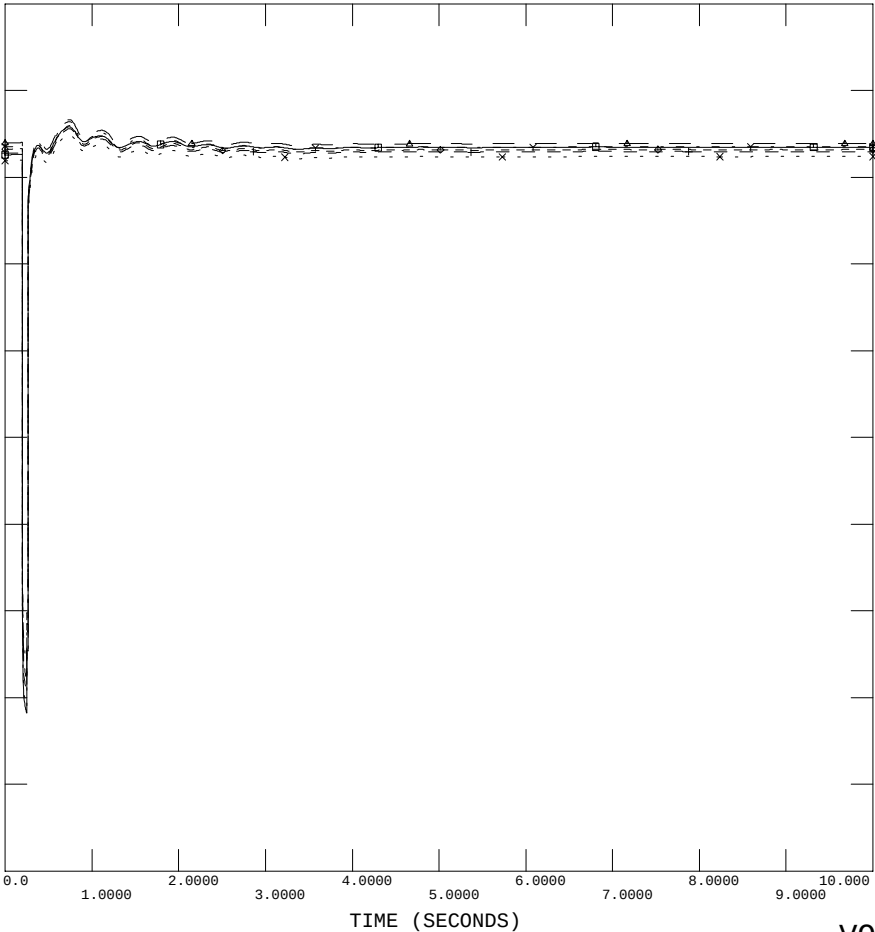
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

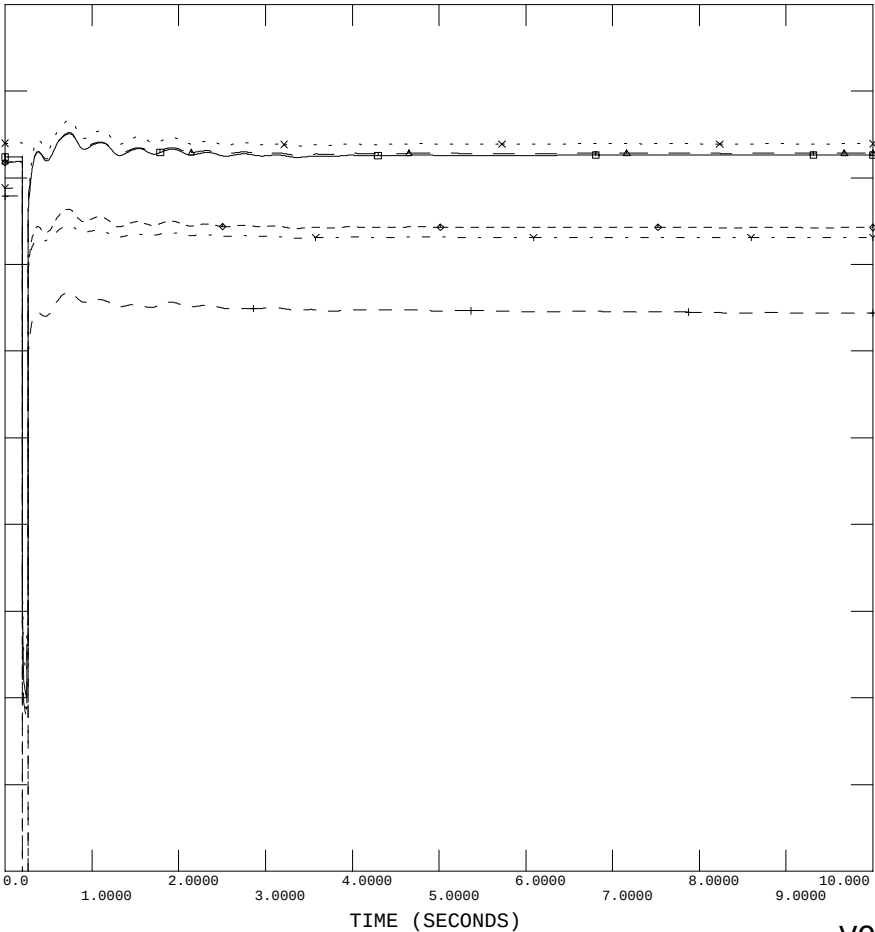


THU, FEB 13 2003 16:26  
VOLTAGE 3 CON30 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRINGFLD69.000]] | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

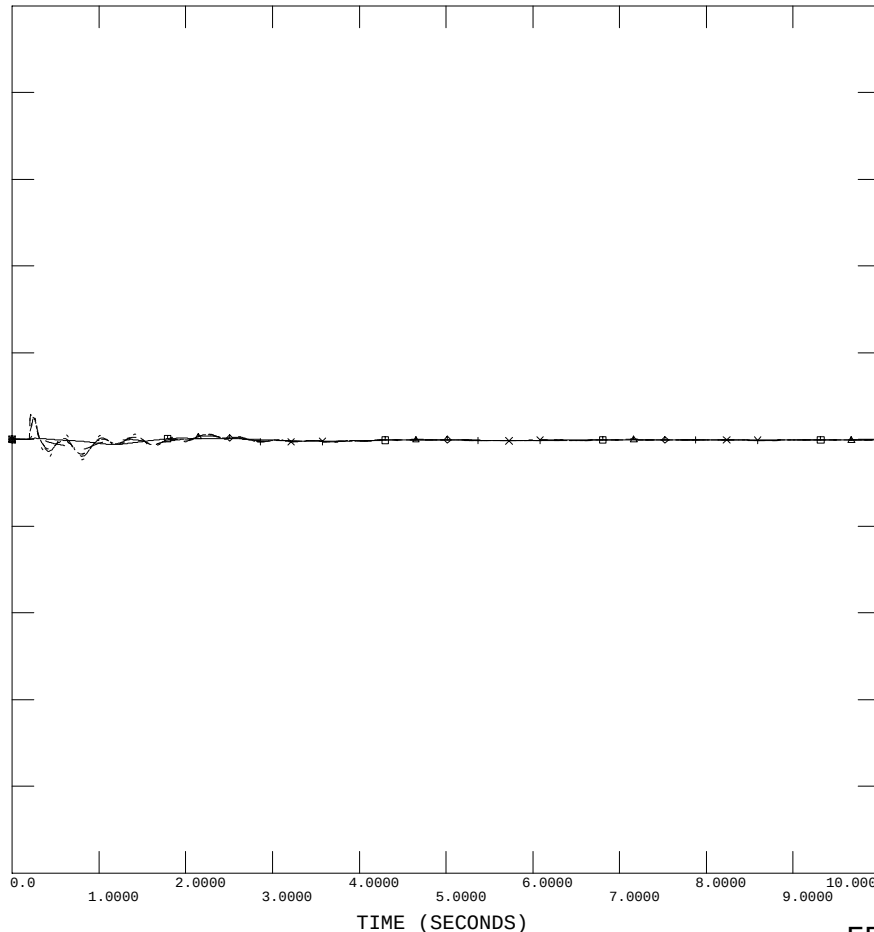


THU, FEB 13 2003 16:26  
VOLTAGE 4 CON30 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

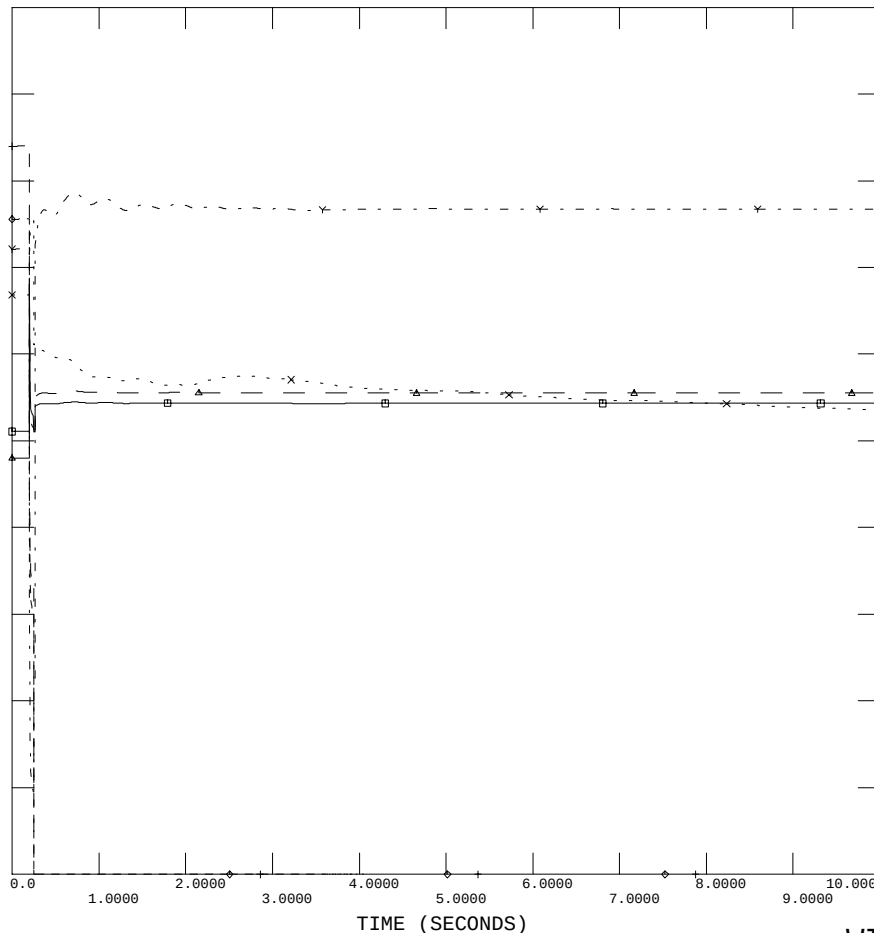


THU, FEB 13 2003 16:26  
FREQUENCY CON30 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON30 - FAULT ON BOONE 230/115 TRANSFORMER [115-KV END]  
FILE: CON30-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [COLGRNA 34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

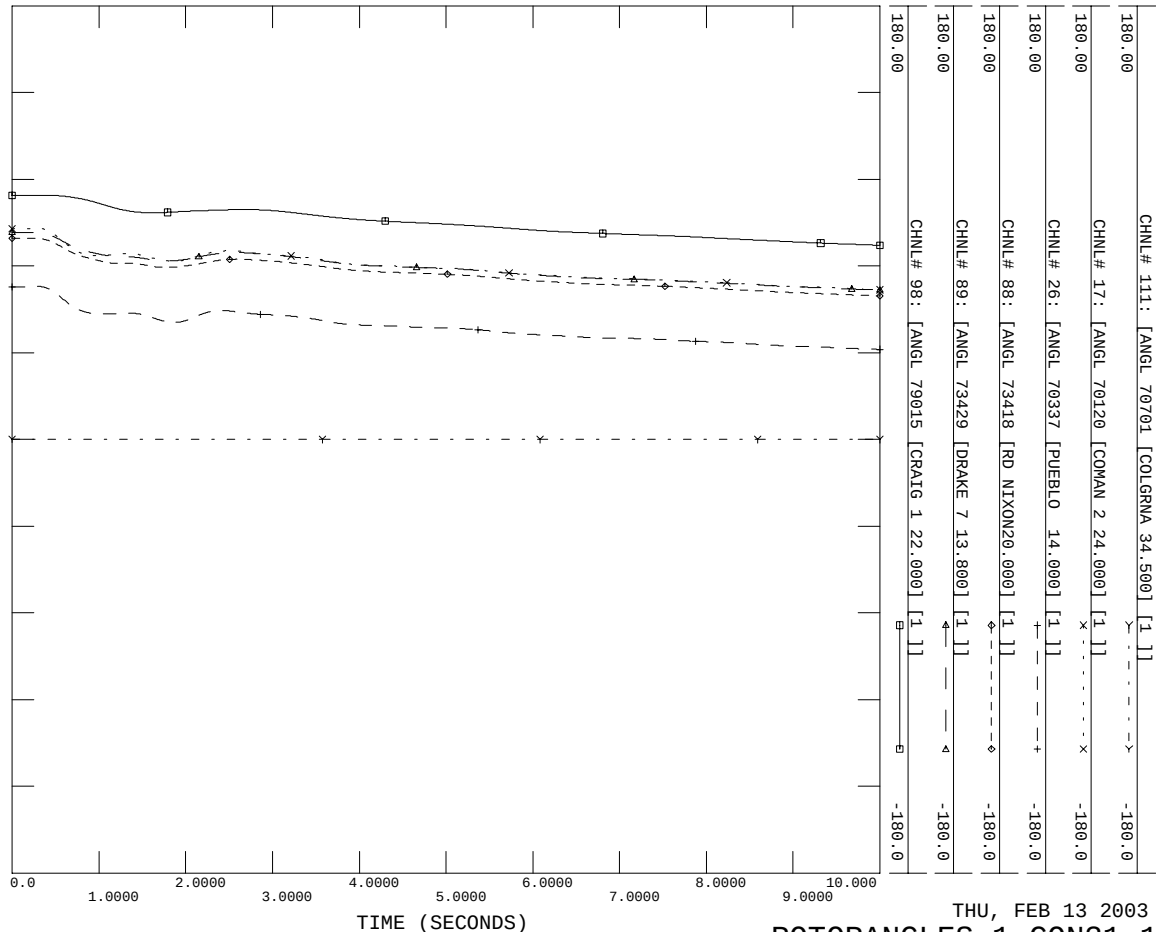


THU, FEB 13 2003 16:26  
WIND DATA CON30 162MW



POWER  
TIC 0.00163,  
LINE 0

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]  
FILE: CON31-ON.OUT

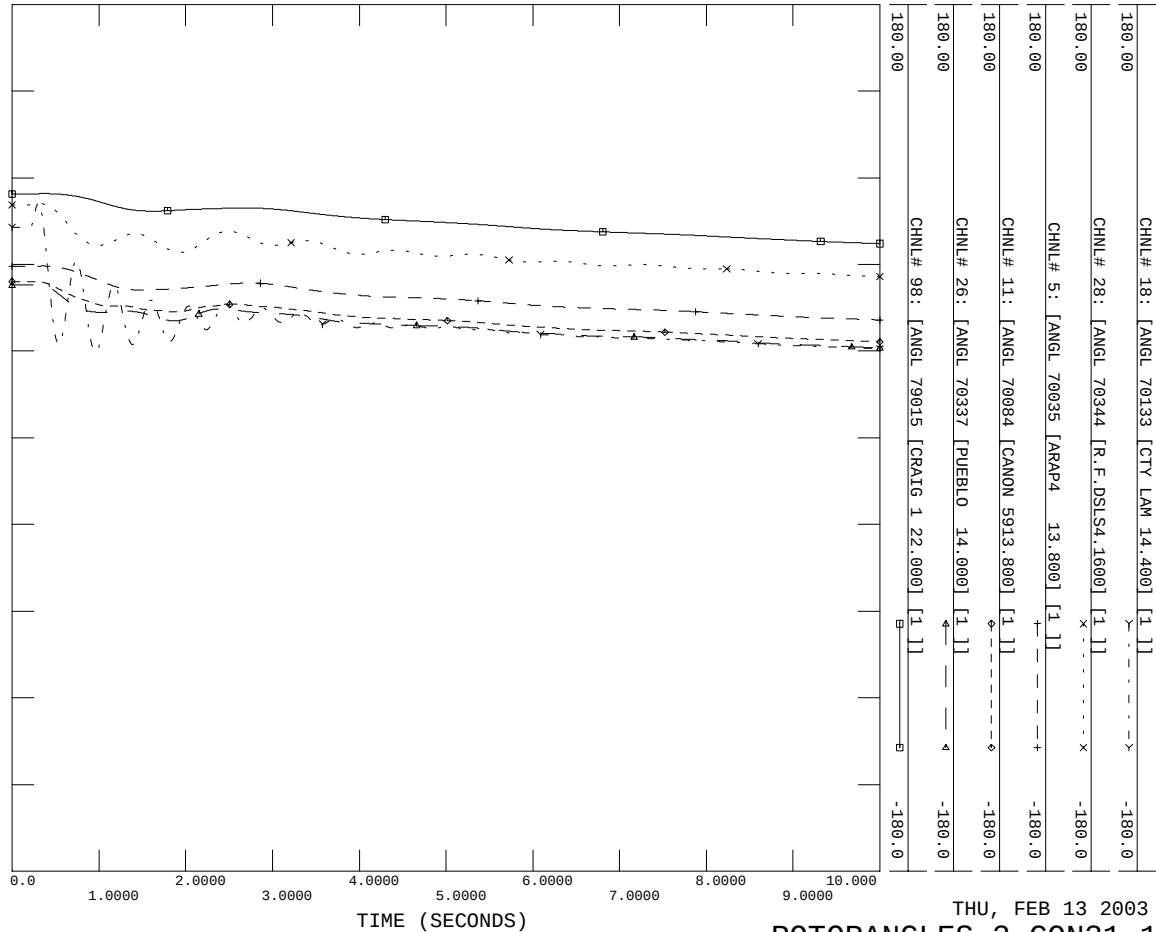


THU, FEB 13 2003 16:26  
ROTORANGLES 1 CON31 162MW



POWER  
TIC 0.00163,  
LINE 0

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]  
FILE: CON31-ON.OUT



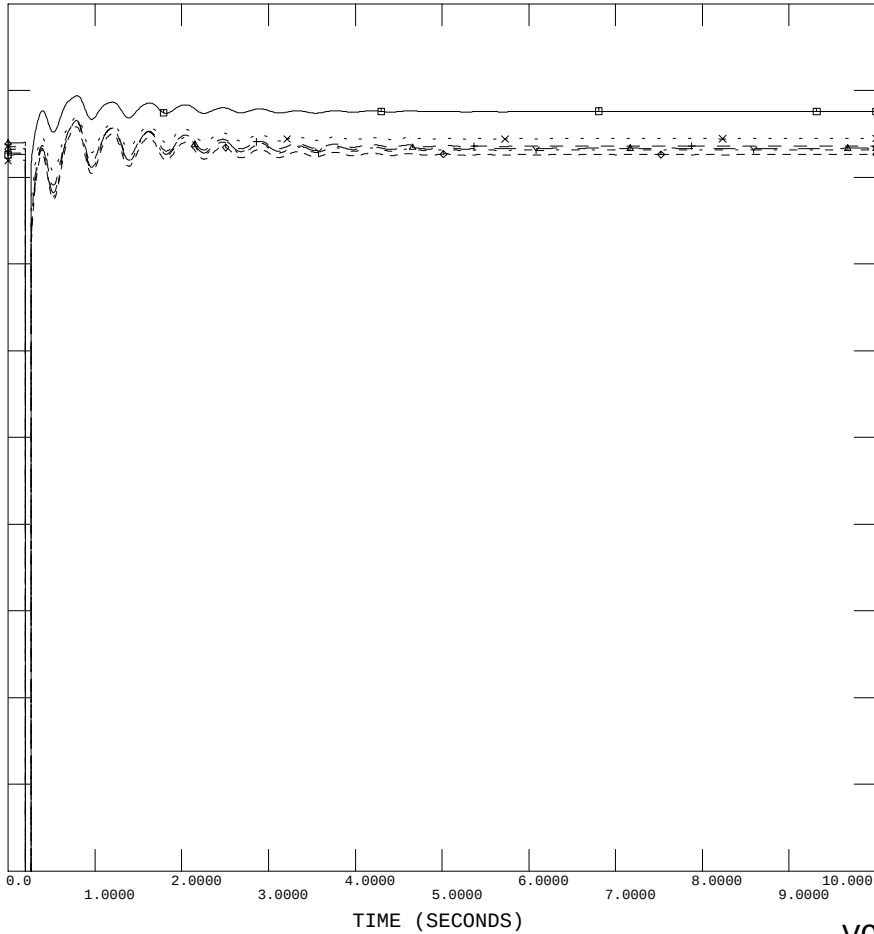
THU, FEB 13 2003 16:26  
ROTORANGLES 2 CON31 162MW





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]  
FILE: CON31-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

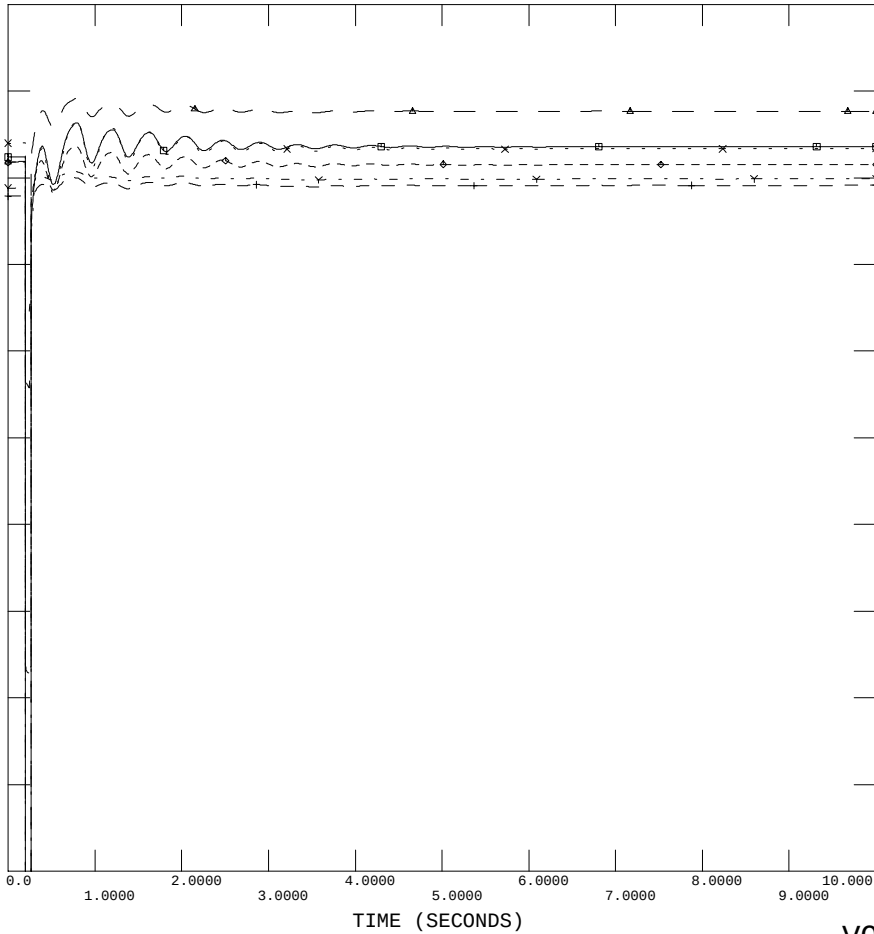


THU, FEB 13 2003 16:26  
VOLTAGE 3 CON31 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]  
FILE: CON31-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

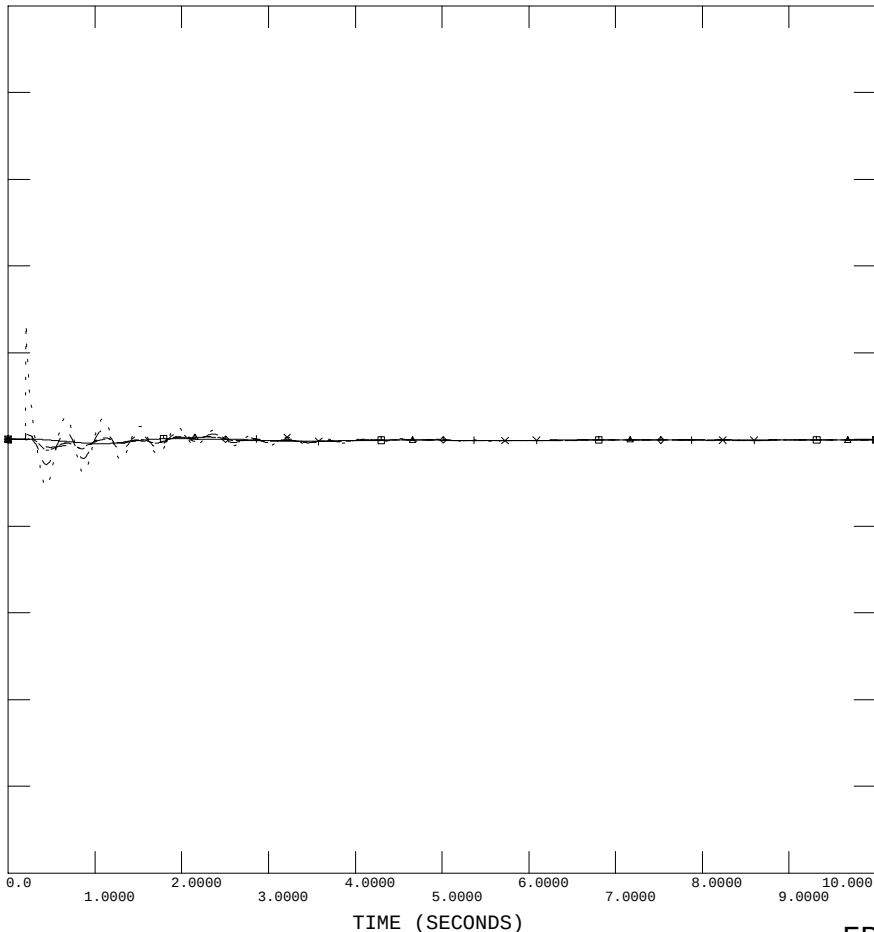


THU, FEB 13 2003 16:26  
VOLTAGE 4 CON31 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]  
FILE: CON31-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

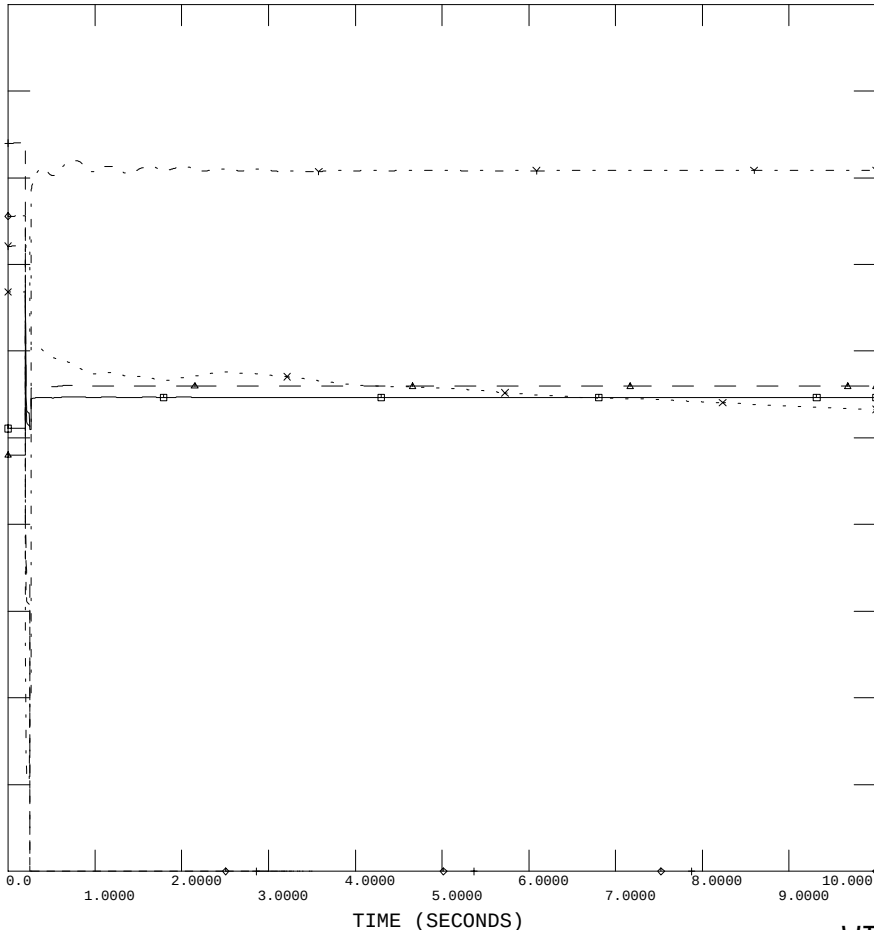


THU, FEB 13 2003 16:26  
FREQUENCY CON31 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON31 - FAULT ON LAMAR - WILLOW CREEK 115 [WILLOW CREEK END]  
FILE: CON31-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PMWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [PMWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

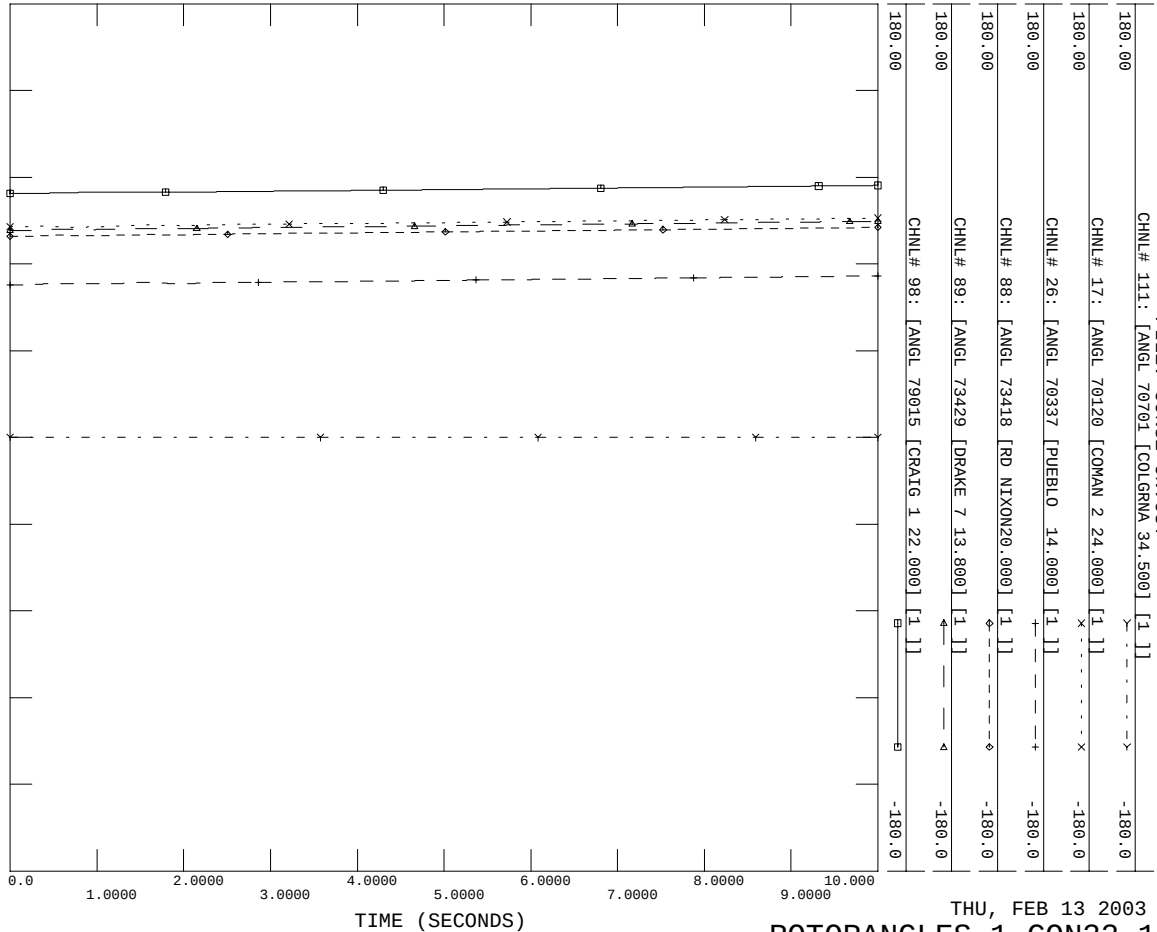


THU, FEB 13 2003 16:26  
WIND DATA CON31 162MW





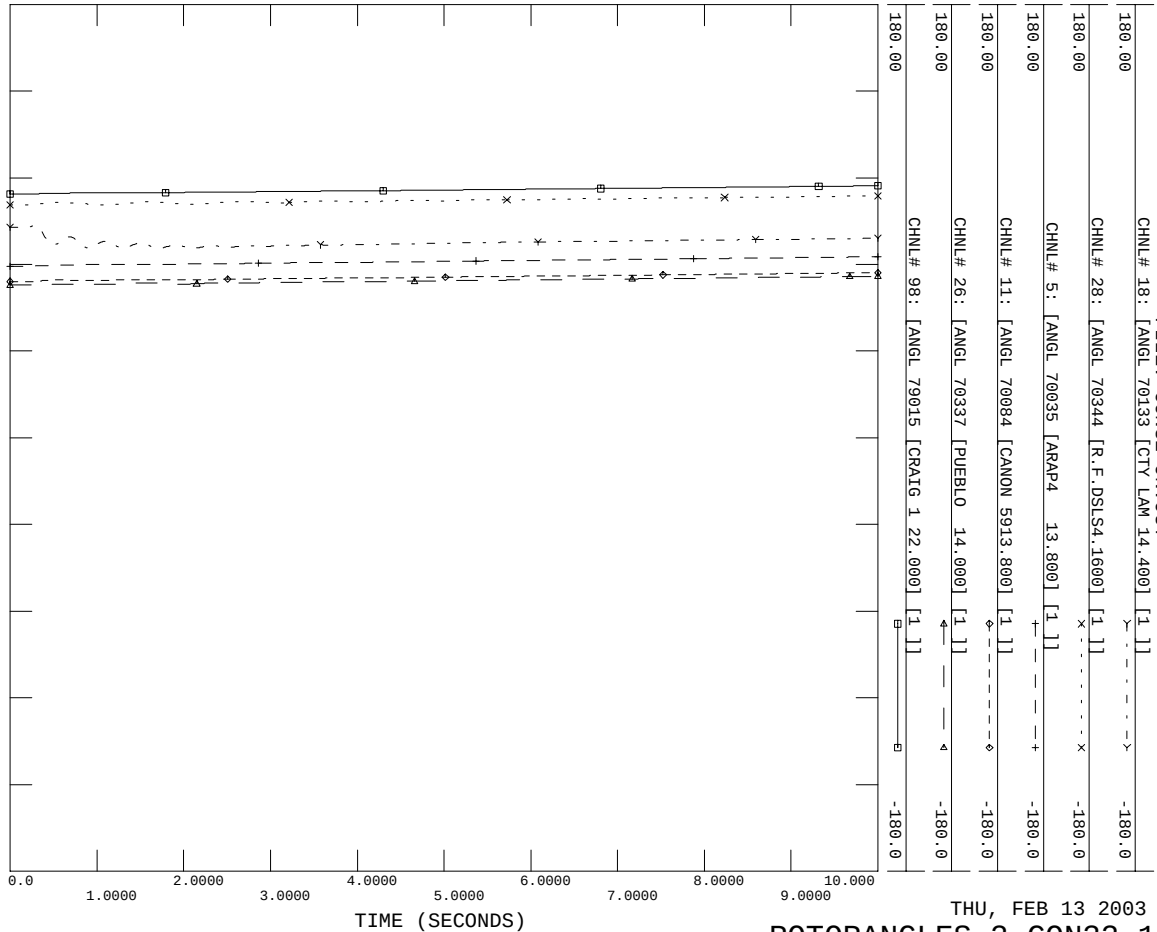
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT



THU, FEB 13 2003 16:26  
ROTORANGLES 1 CON32 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT

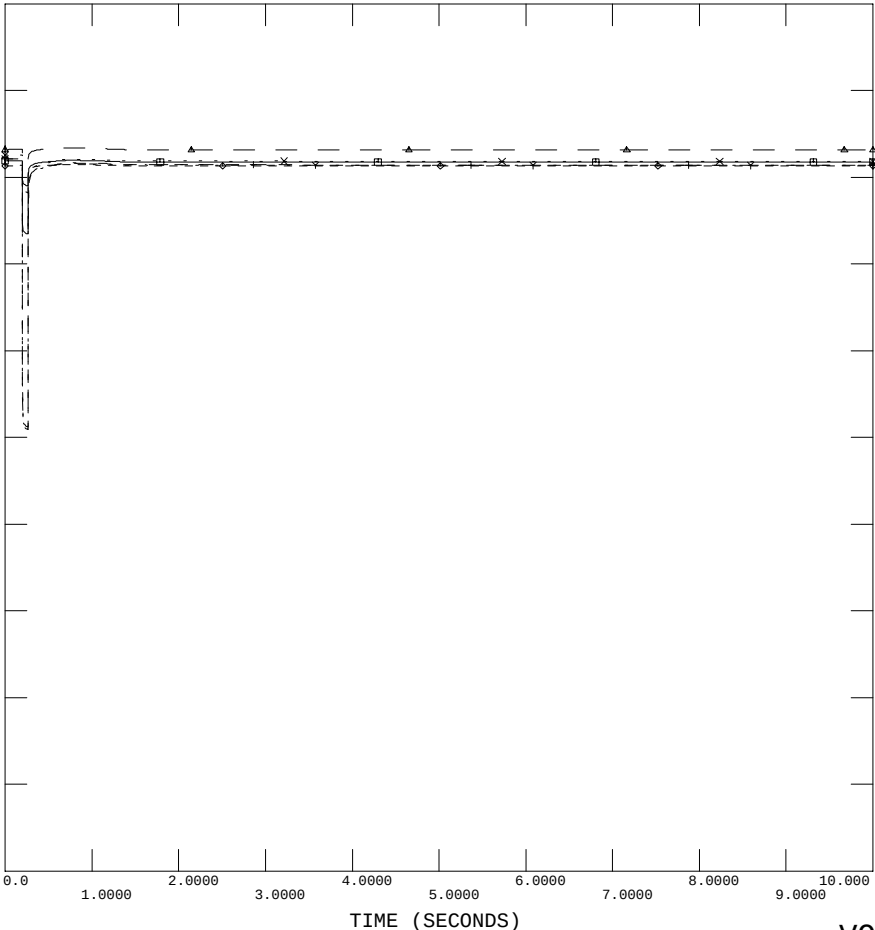


THU, FEB 13 2003 16:26  
ROTORANGLES 2 CON32 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]

FILE: CON32-ON.OUT

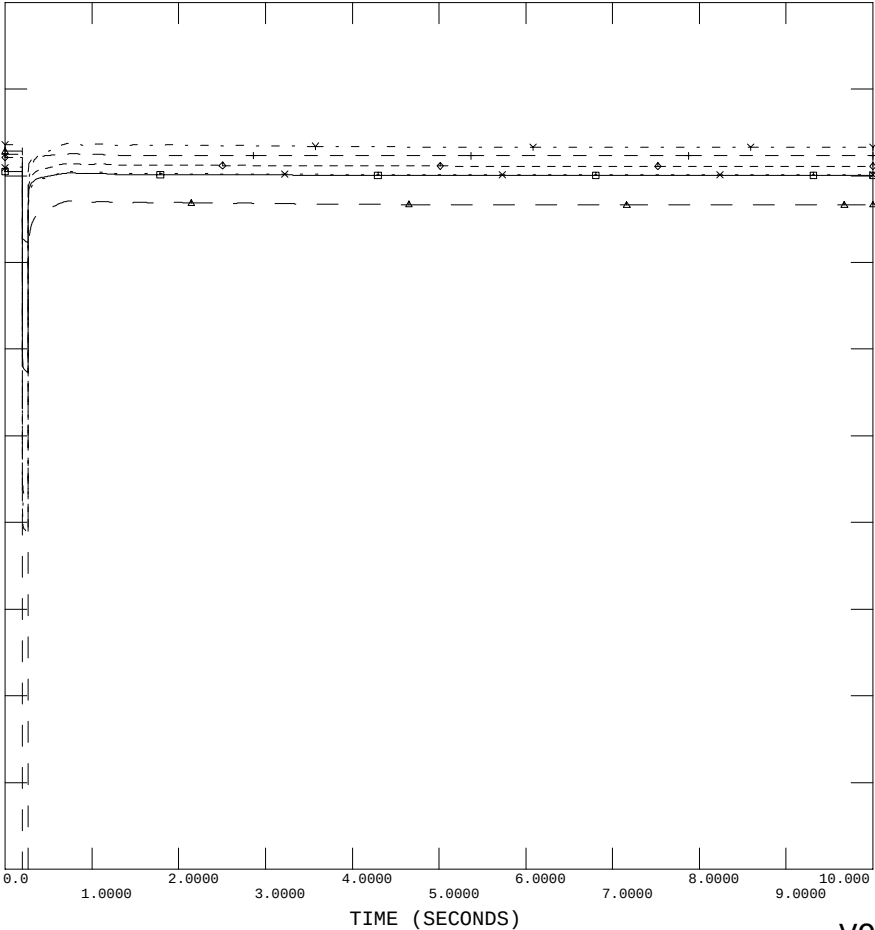
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRMA 34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]

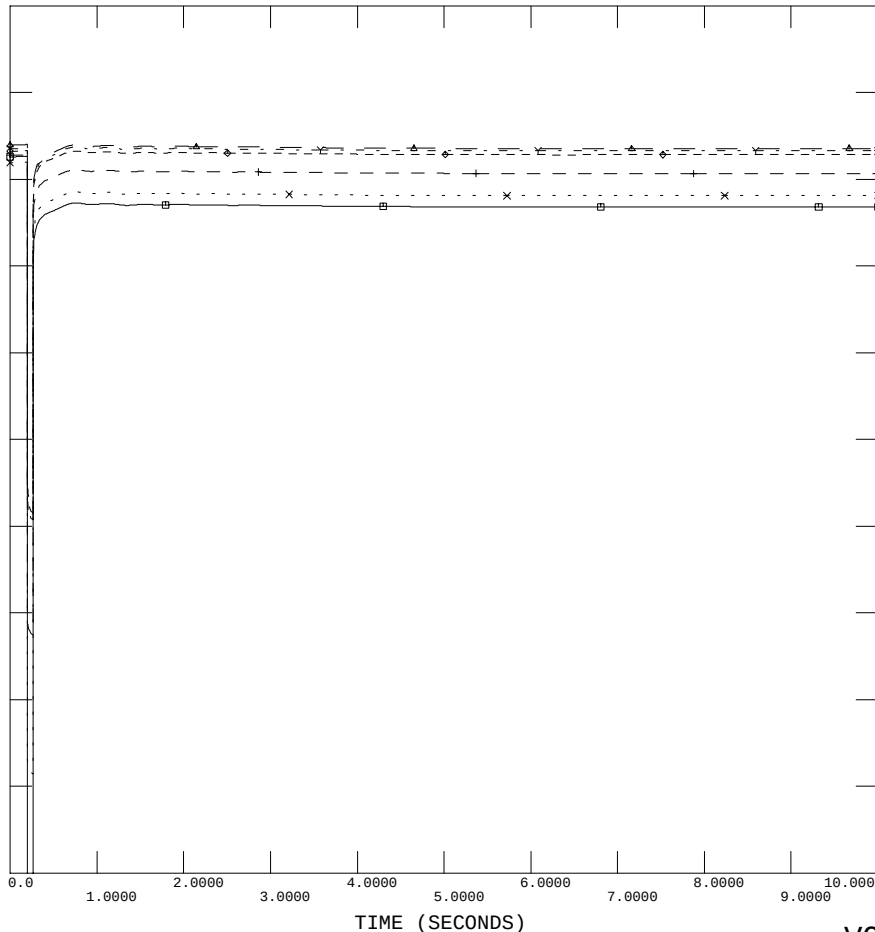
FILE: CON32-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTAT115.00]]  | 0.20000 |



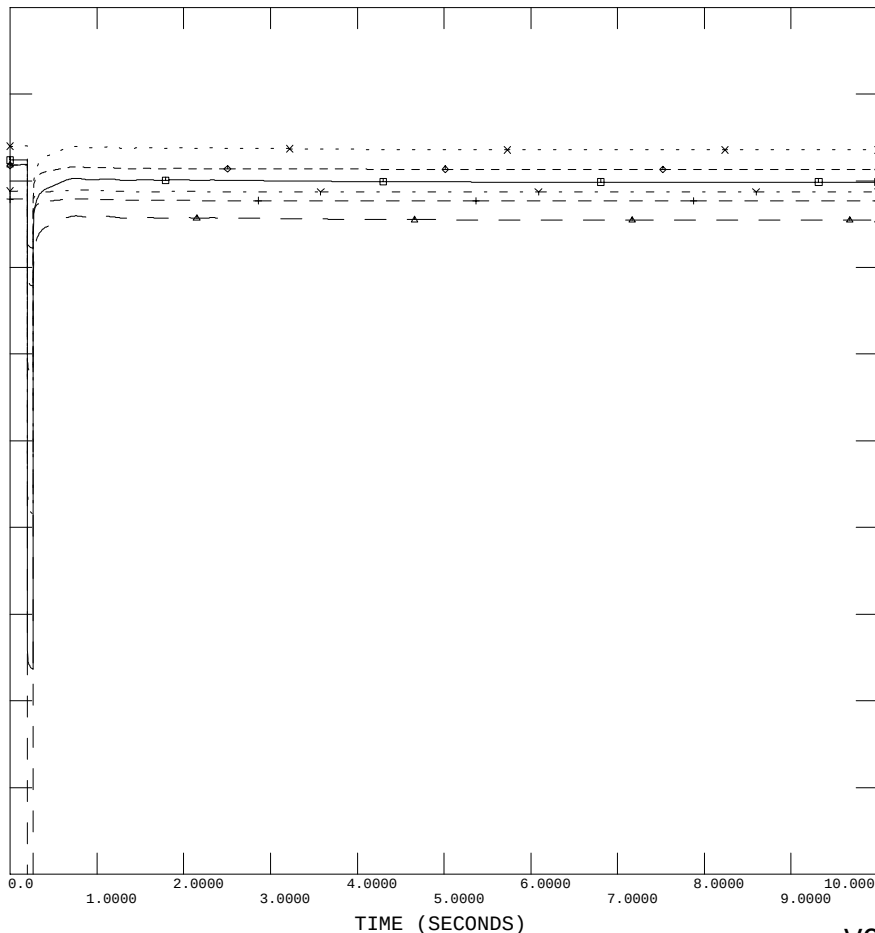
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT

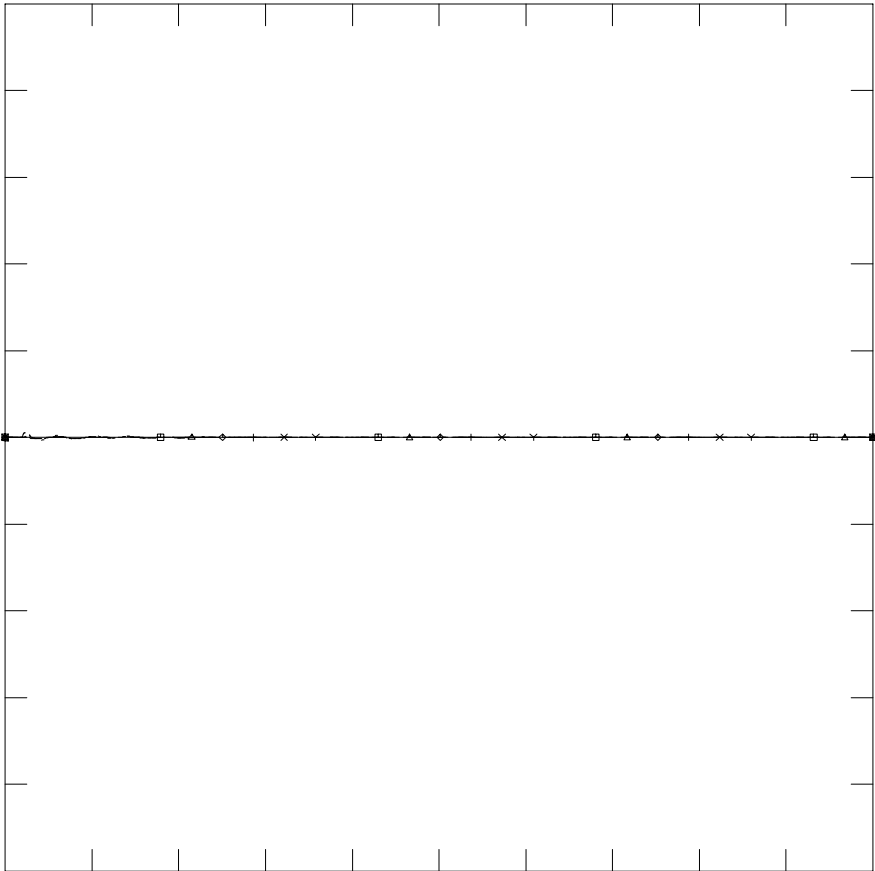
|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTAT115.00]]  | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

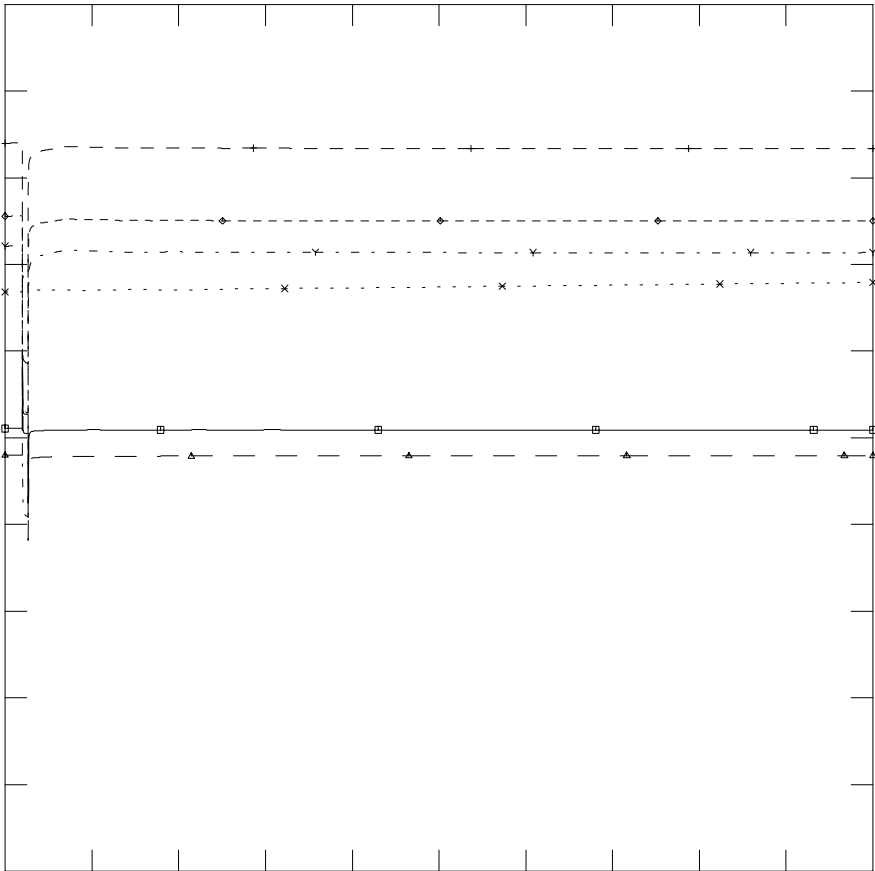


THU, FEB 13 2003 16:26  
FREQUENCY CON32 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON32 - FAULT ON LAMAR - VILAS 115 [VILAS END]  
FILE: CON32-ON.OUT

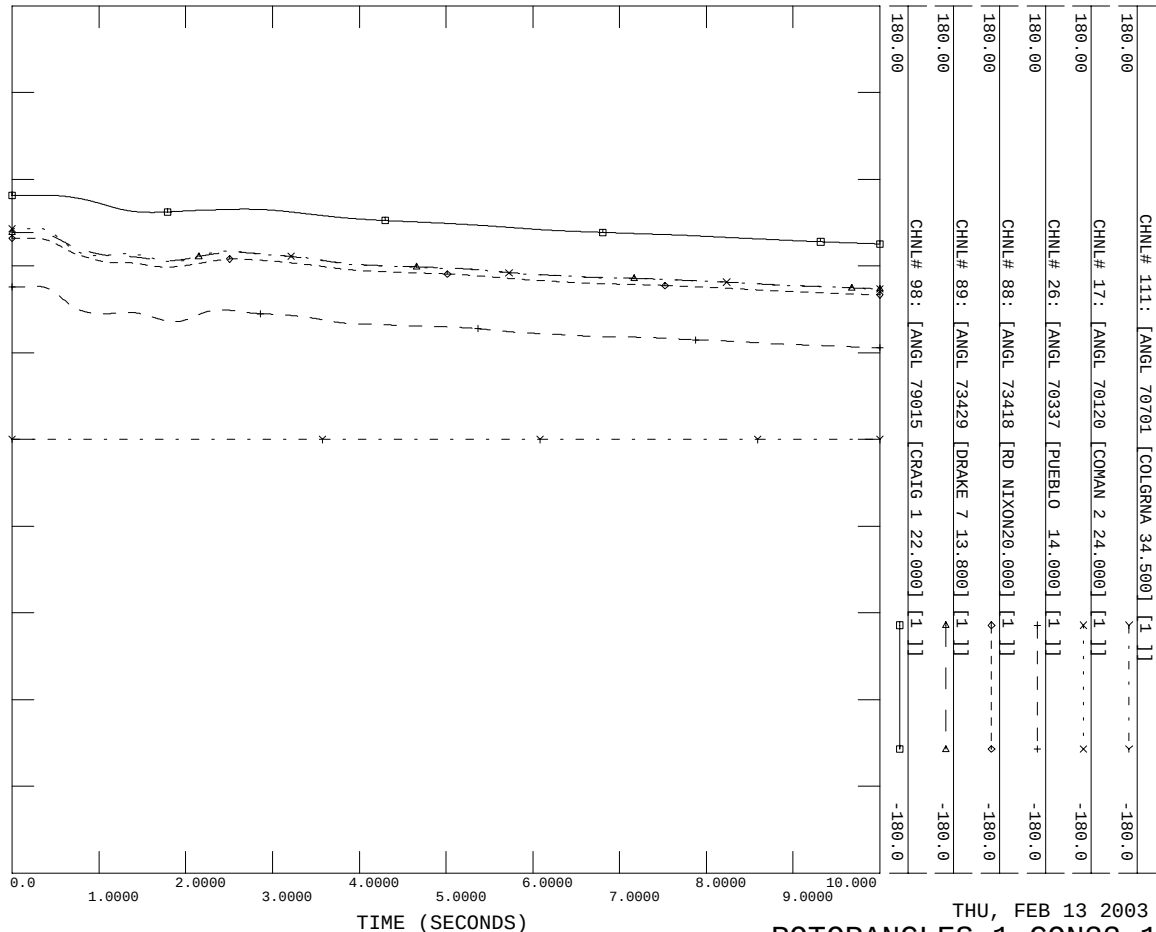
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON32 162MW



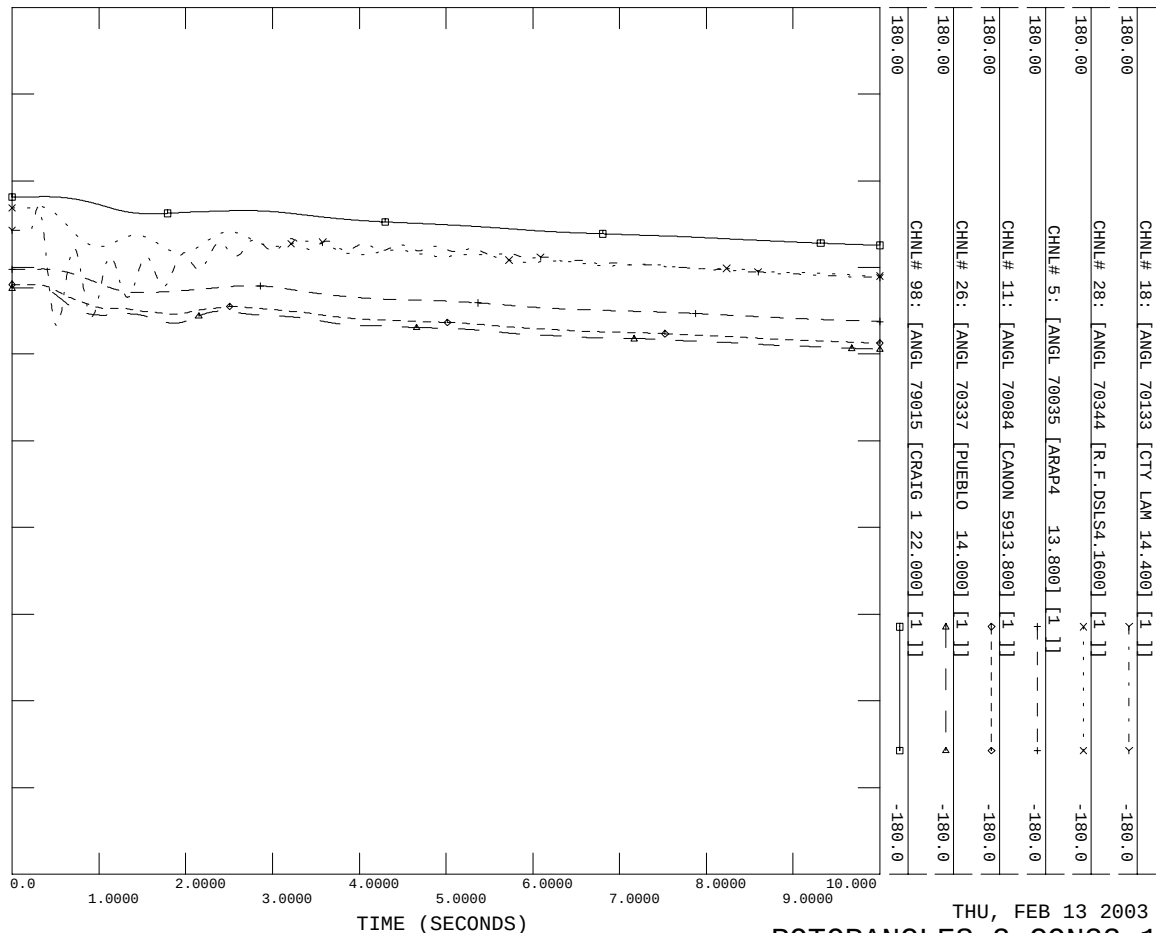
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT



THU, FEB 13 2003 16:26  
ROTORANGLES 1 CON33 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

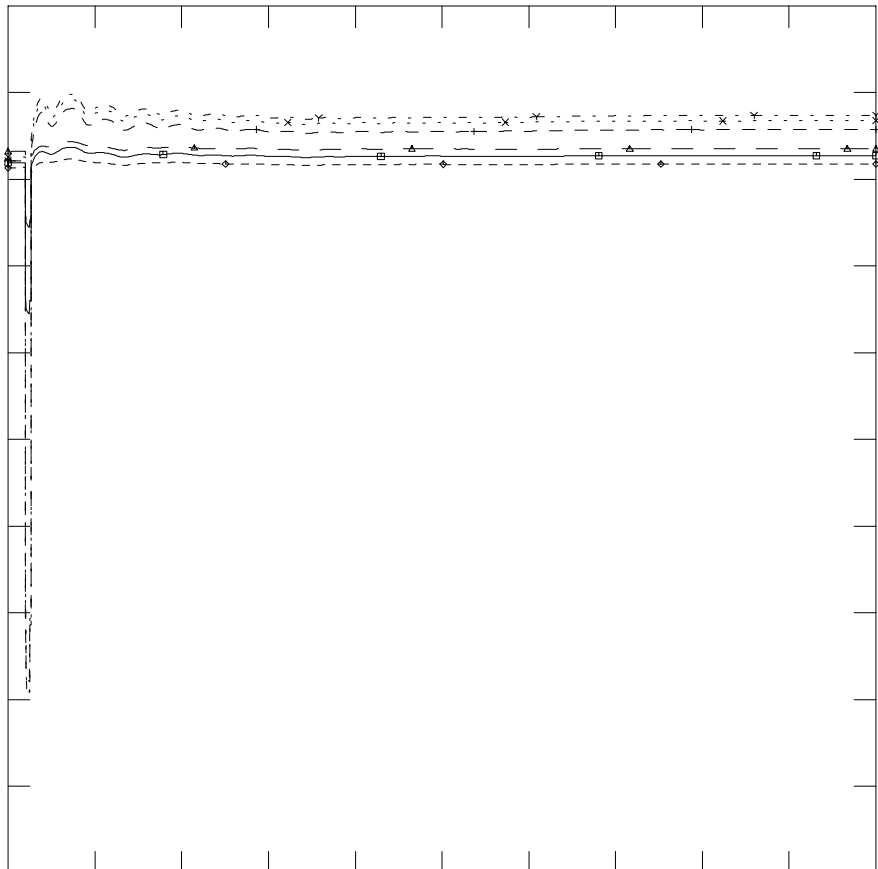


THU, FEB 13 2003 16:26  
ROTORANGLES 2 CON33 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRMA 34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

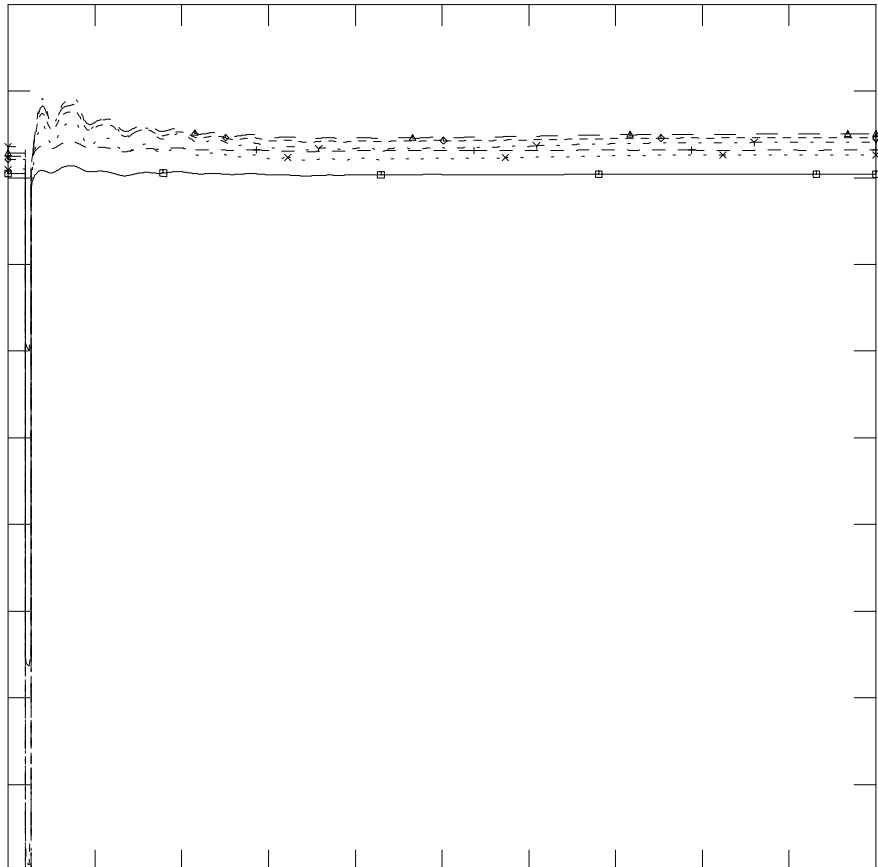


THU, FEB 13 2003 16:26  
VOLTAGE 1 CON33 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTA115.00]]   | 0.20000 |

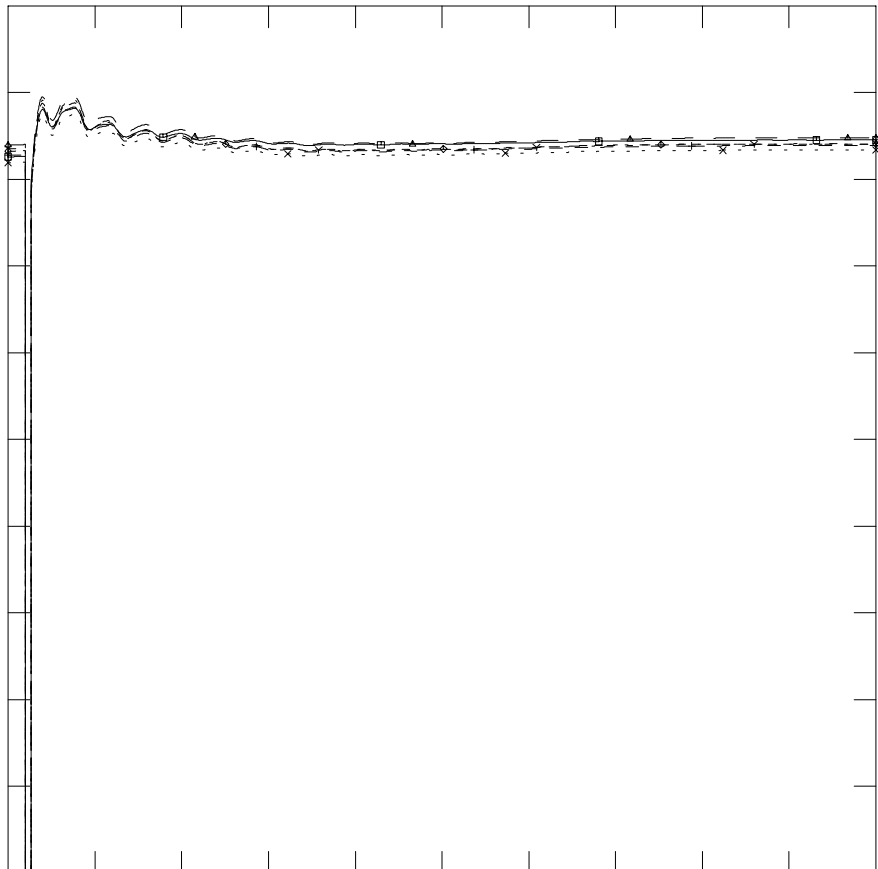


THU, FEB 13 2003 16:26  
VOLTAGE 2 CON33 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



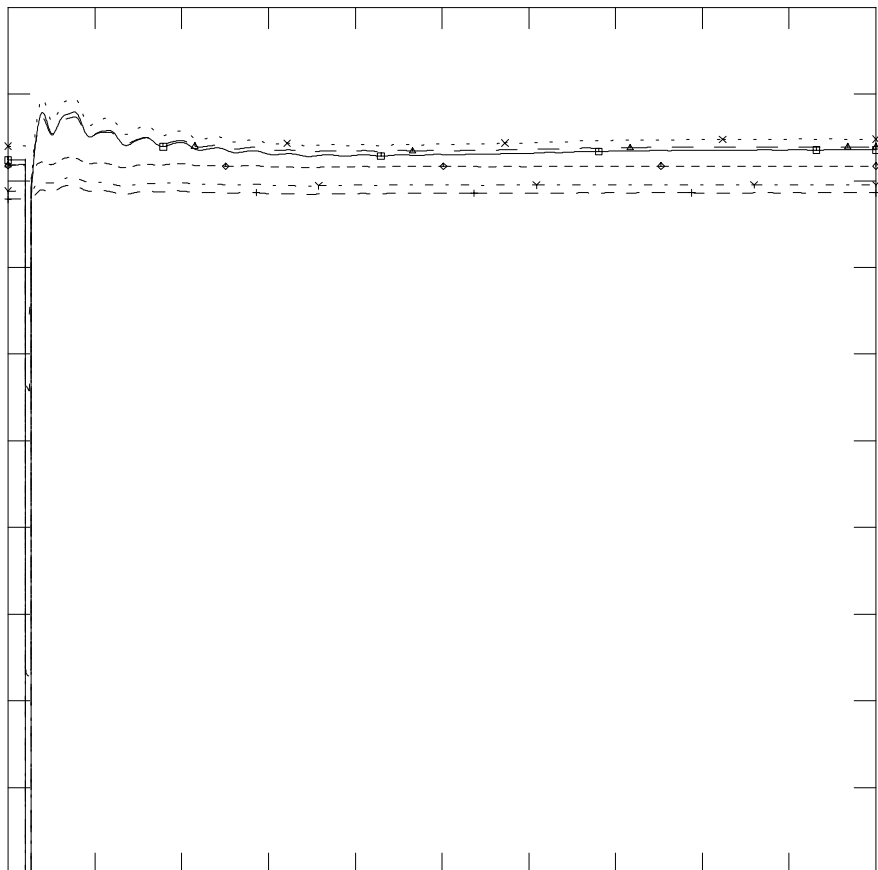
THU, FEB 13 2003 16:26

VOLTAGE 3 CON33 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |



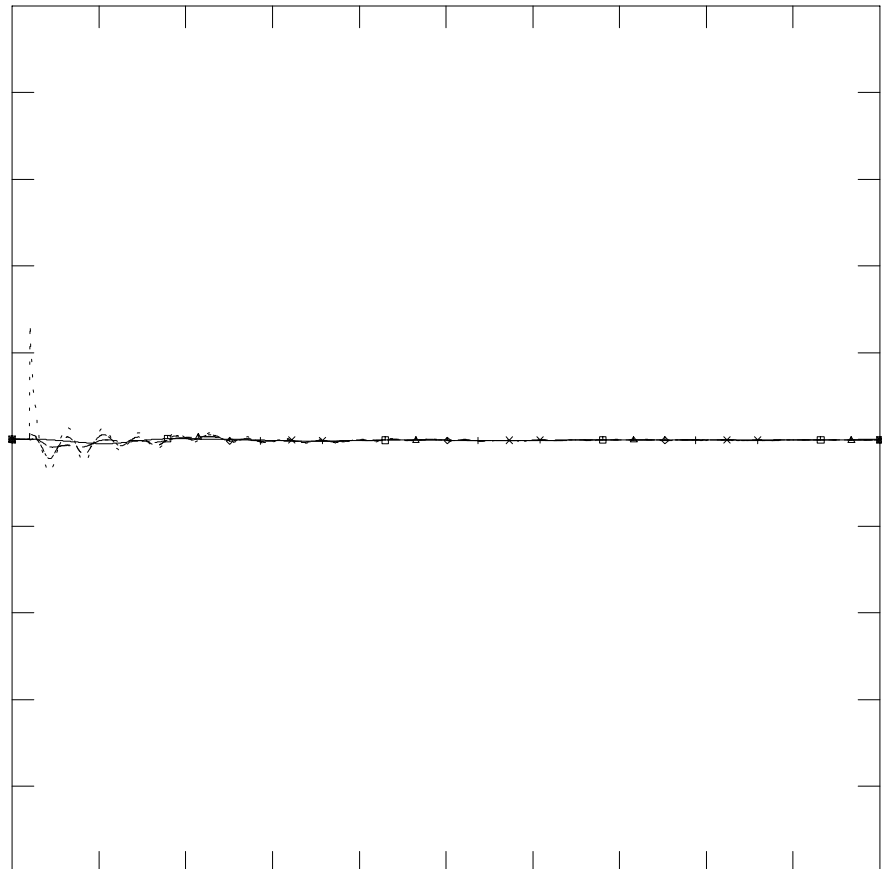
THU, FEB 13 2003 16:26

VOLTAGE 4 CON33 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

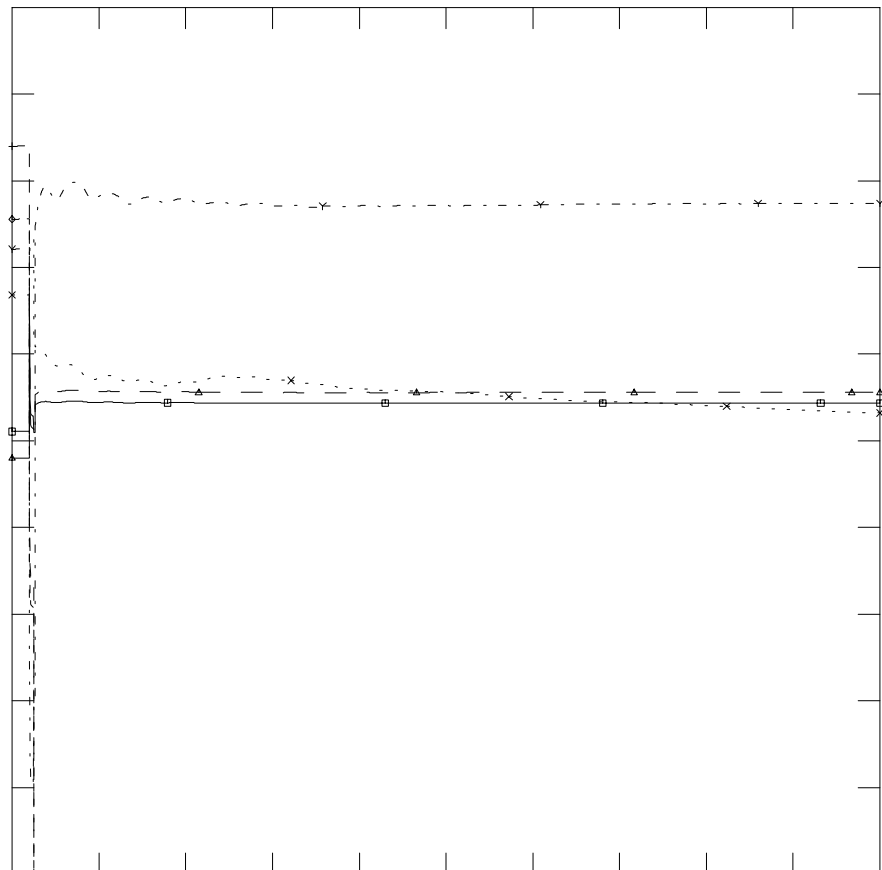


THU, FEB 13 2003 16:26  
FREQUENCY CON33 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON33 - FAULT ON LAJUNTA - WILLOWCREEK 115 [WILLOWCREEK END]  
FILE: CON33-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

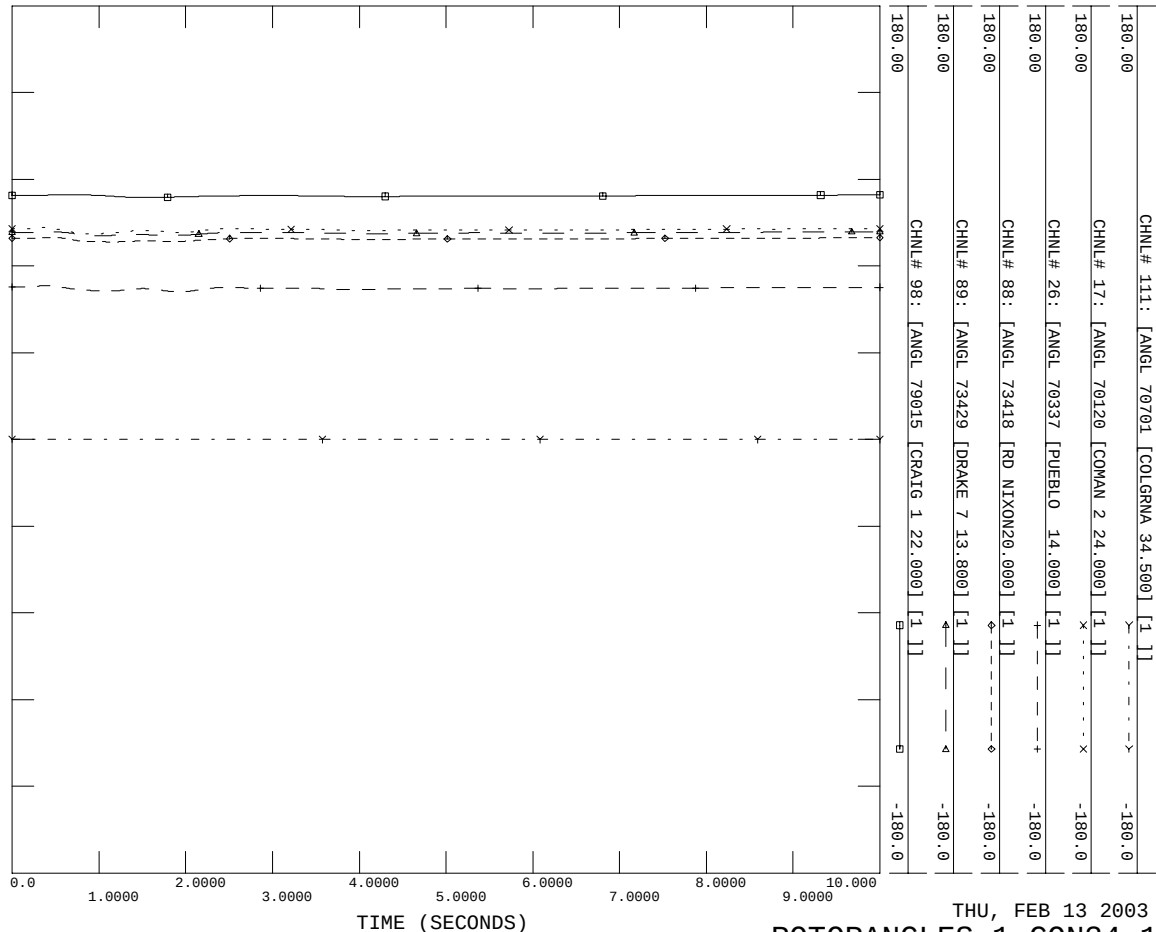


THU, FEB 13 2003 16:26  
WIND DATA CON33 162MW





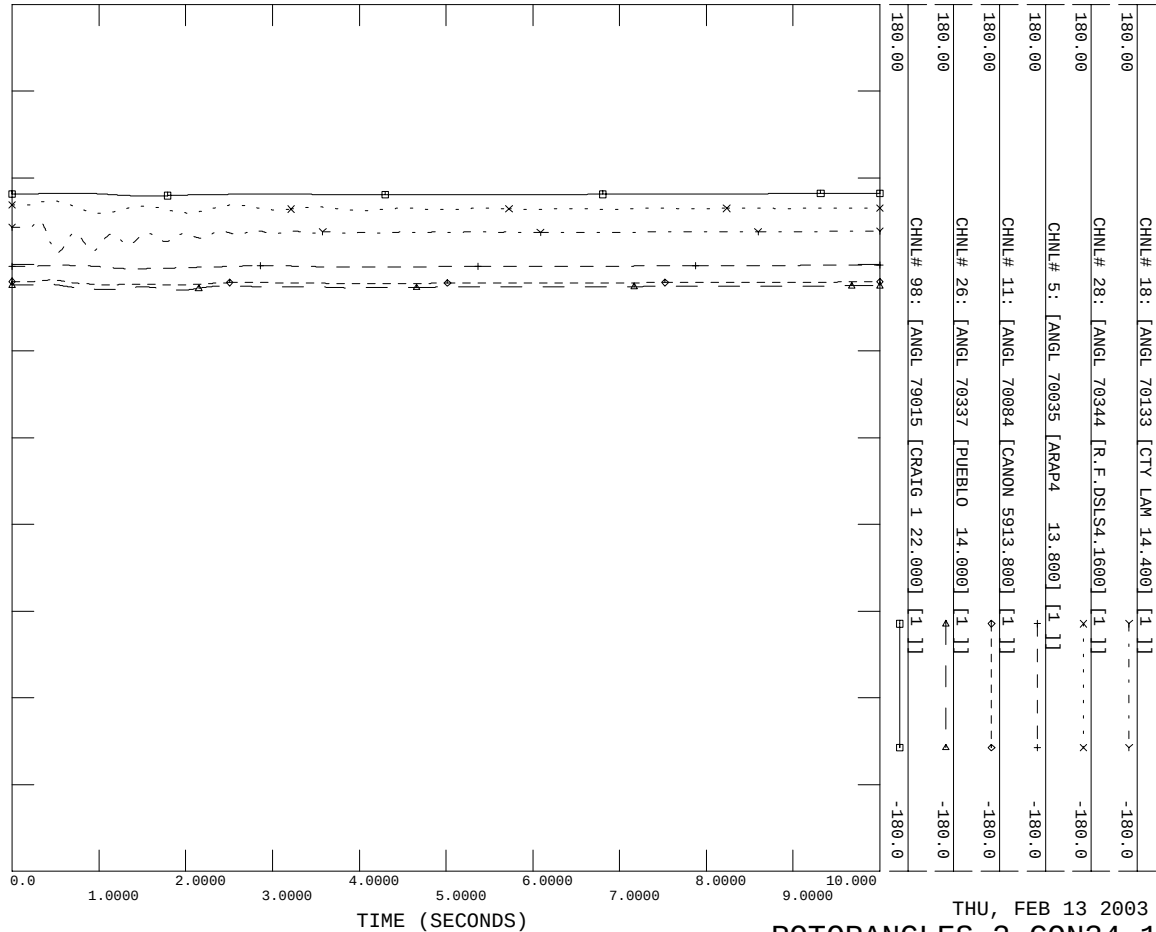
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]  
FILE: CON34-ON.OUT



THU, FEB 13 2003 16:26  
ROTORANGLES 1 CON34 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]  
FILE: CON34-ON.OUT

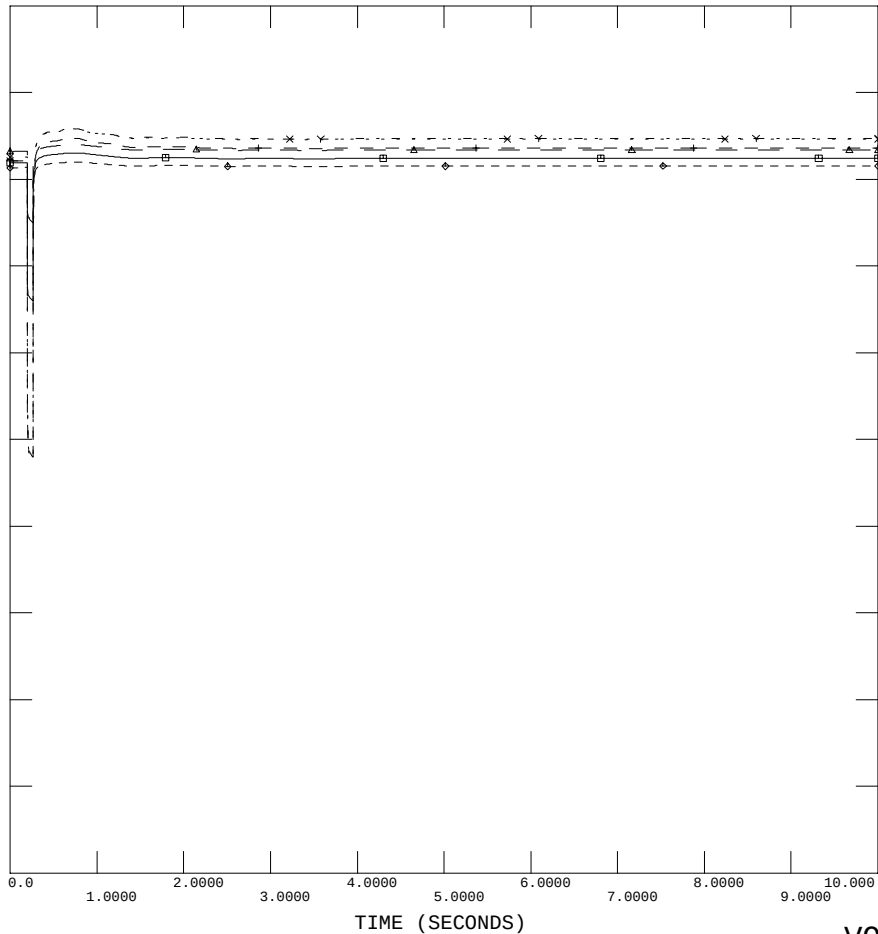


THU, FEB 13 2003 16:26  
ROTORANGLES 2 CON34 162MW

2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON34 - FAULT ON BOONE  
FILE: CON34-ON.OUT

FILE: CON34-ON.OUT

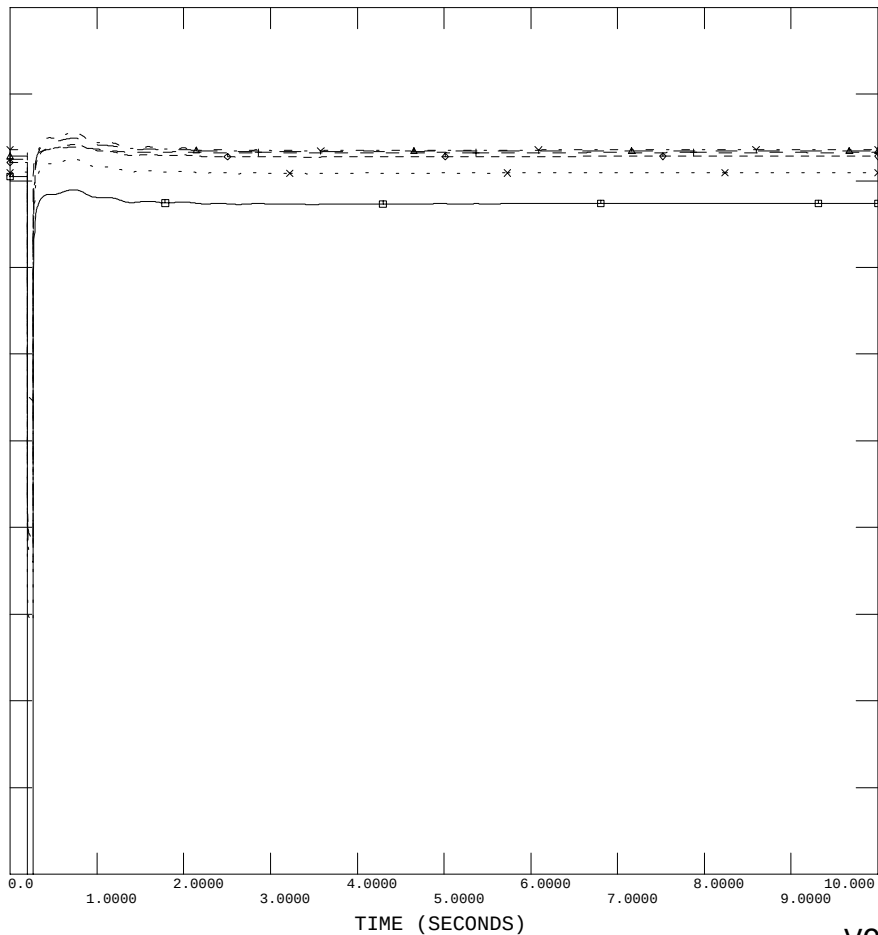
|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRN 34.500]]  | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON34 - FAULT ON BOONE  
FILE: CON34-ON.OUT

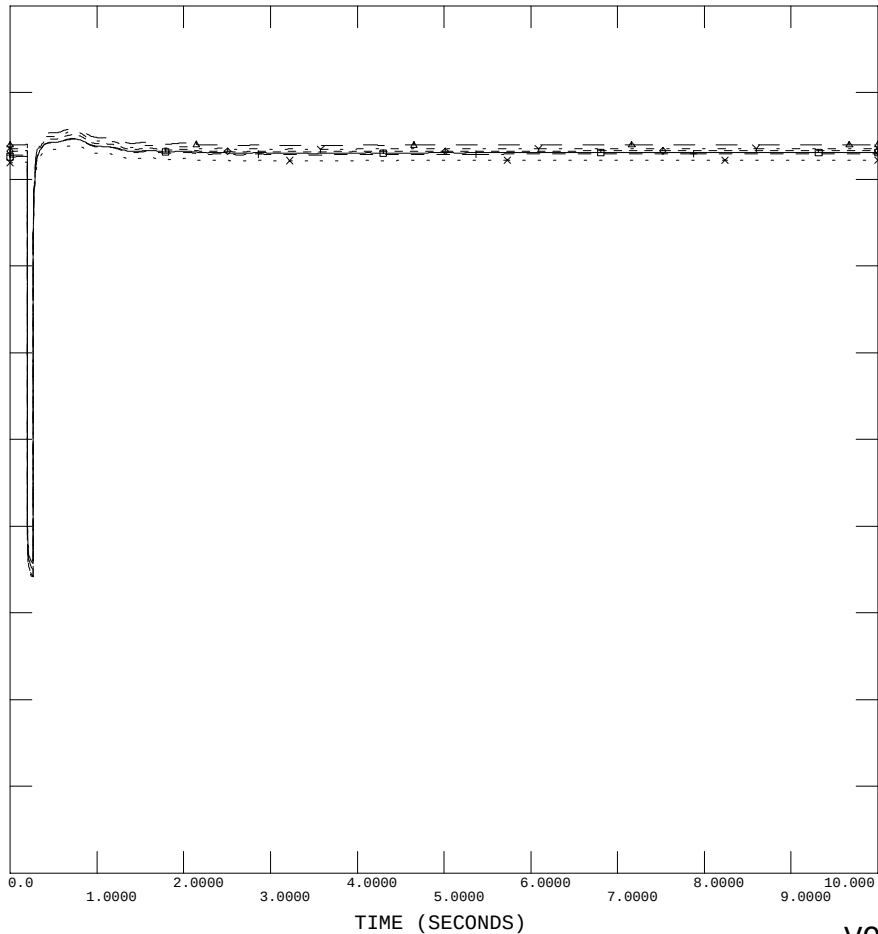
FILE: CON34-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTA115.00]]   | 0.20000 |



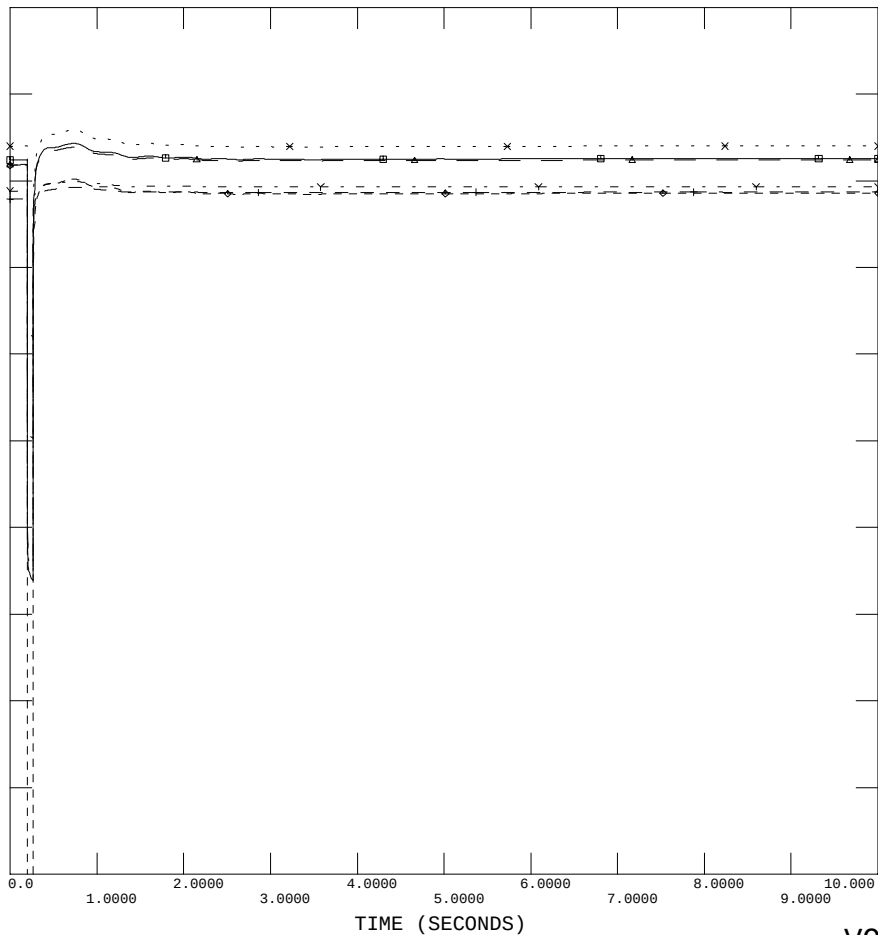
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]  
FILE: CON34-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON34 - FAULT ON BOONE - LAJUNTA 115 [LAJUNTA END]  
FILE: CON34-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

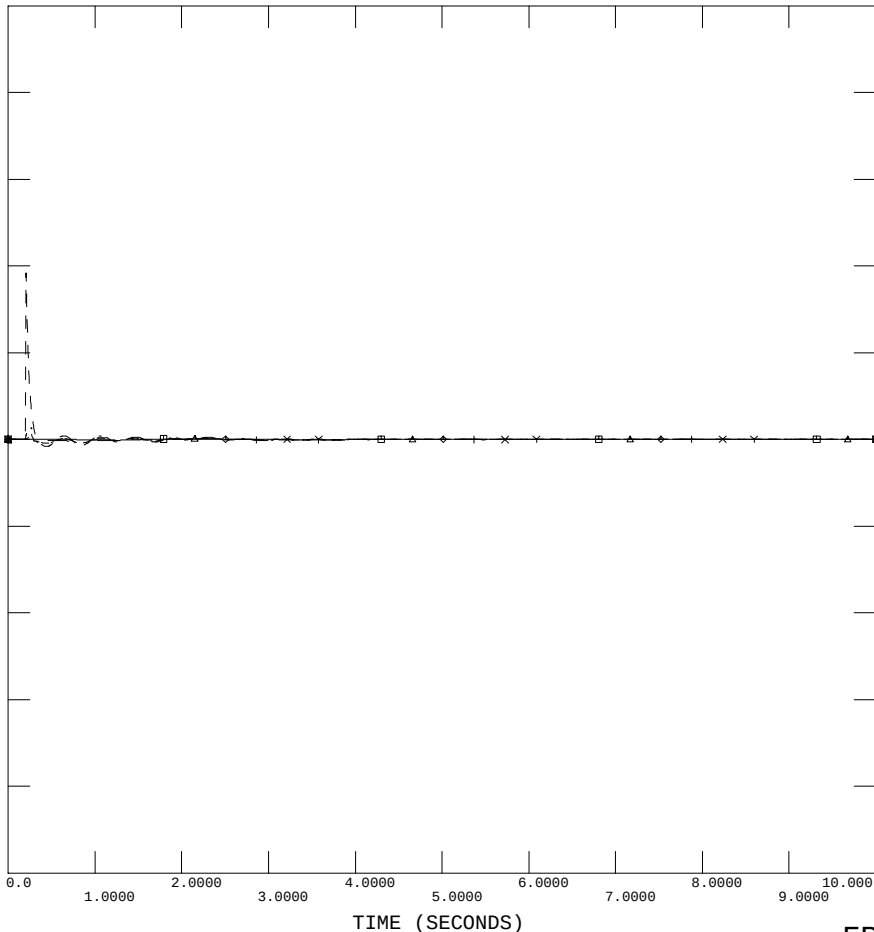




2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON34 - FAULT ON BOONE  
FILE: CON34-ON.OUT

FILE: CON34-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |



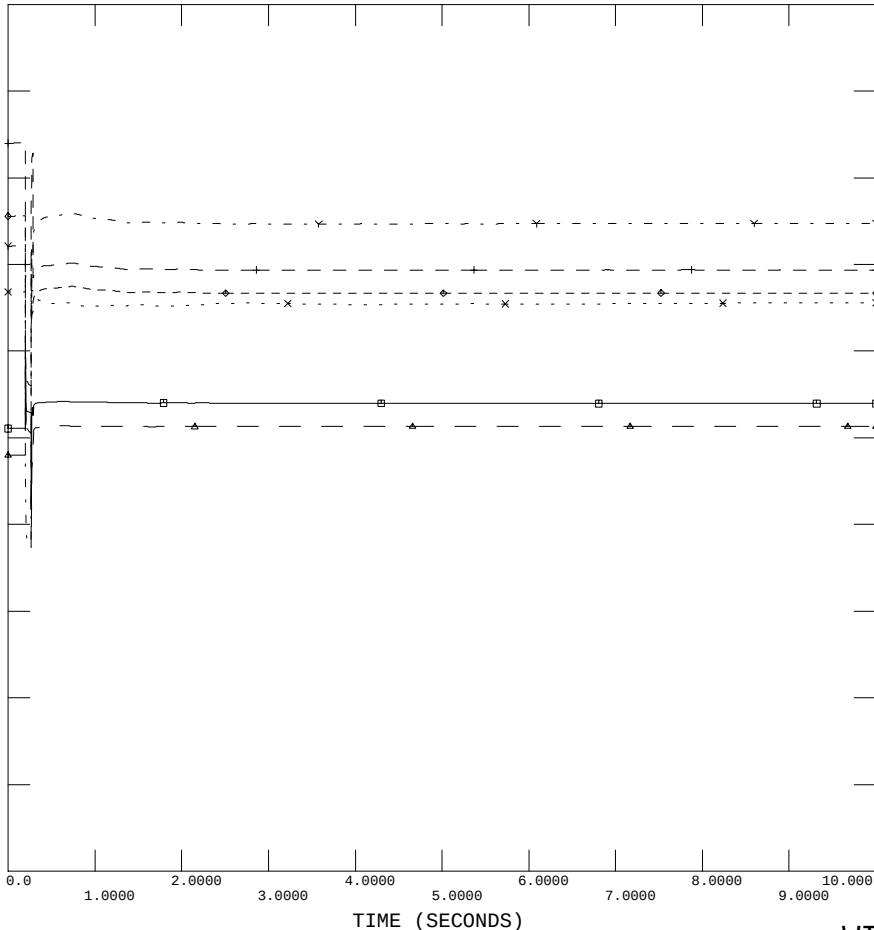
THU, FEB 13 2003 16:26  
FREQUENCY CON34 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON34 - FAULT ON BOONE  
FILE: CON34-ON.OUT

FILE: CON34-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANG 70701 [COLGRNA 34.500]]  | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



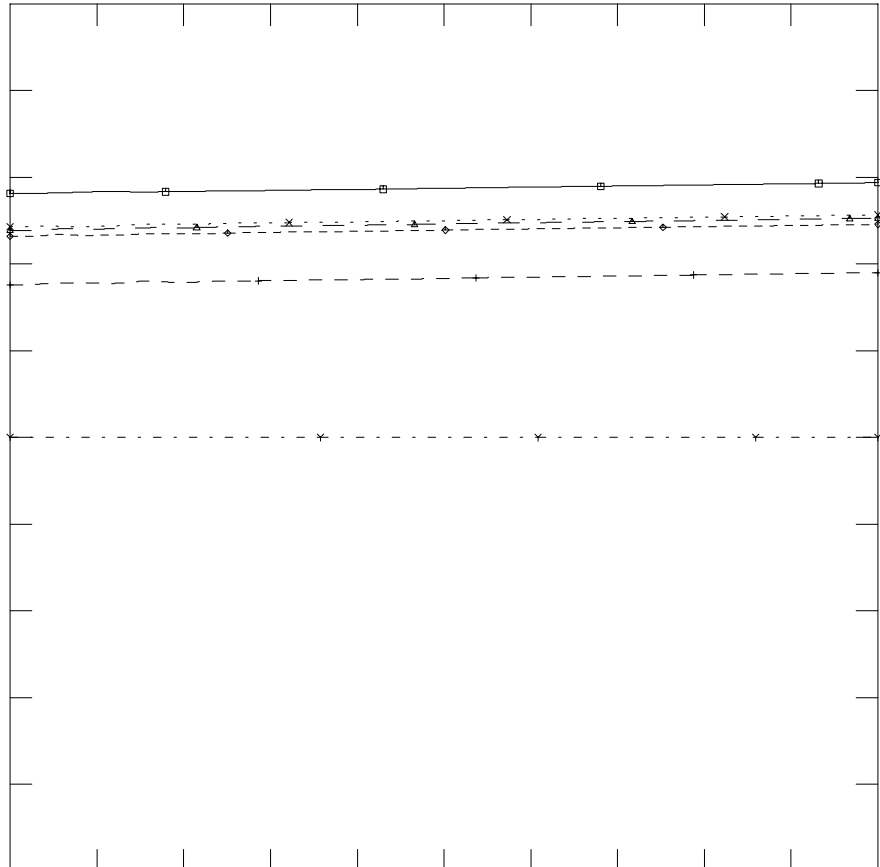
THU, FEB 13 2003 16:26  
WIND DATA CON34 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]

FILE: CON35-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 111: [ANGL 70701 [COLGRN 34.500] [1.]] | -180.0 |
| 180.00 | CHNL# 17: [ANGL 70120 [COMAN 2 24.000] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 88: [ANGL 73418 [RD NIXON20.000] [1.]] | -180.0 |
| 180.00 | CHNL# 89: [ANGL 73429 [DRAKE 7 13.800] [1.]] | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



TIME (SECONDS)

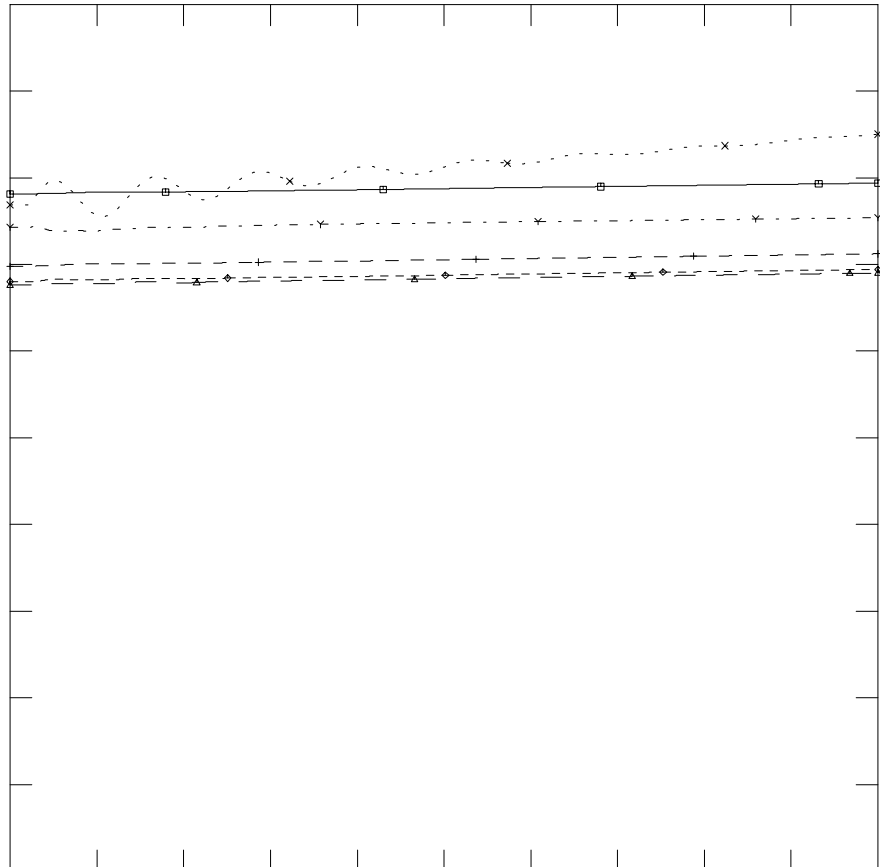
THU, FEB 13 2003 16:26  
ROTORANGLES 1 CON35 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]

FILE: CON35-ON.OUT

|        |                                              |        |
|--------|----------------------------------------------|--------|
| 180.00 | CHNL# 18: [ANGL 70133 [CTY LAM 14.400] [1.]] | -180.0 |
| 180.00 | CHNL# 28: [ANGL 70344 [R.F.DLS4.1600] [1.]]  | -180.0 |
| 180.00 | CHNL# 5: [ANGL 70035 [ARAP4 13.800] [1.]]    | -180.0 |
| 180.00 | CHNL# 11: [ANGL 70084 [CANON 5913.800] [1.]] | -180.0 |
| 180.00 | CHNL# 26: [ANGL 70337 [PUEBLO 14.000] [1.]]  | -180.0 |
| 180.00 | CHNL# 98: [ANGL 79015 [CRAIG 1 22.000] [1.]] | -180.0 |



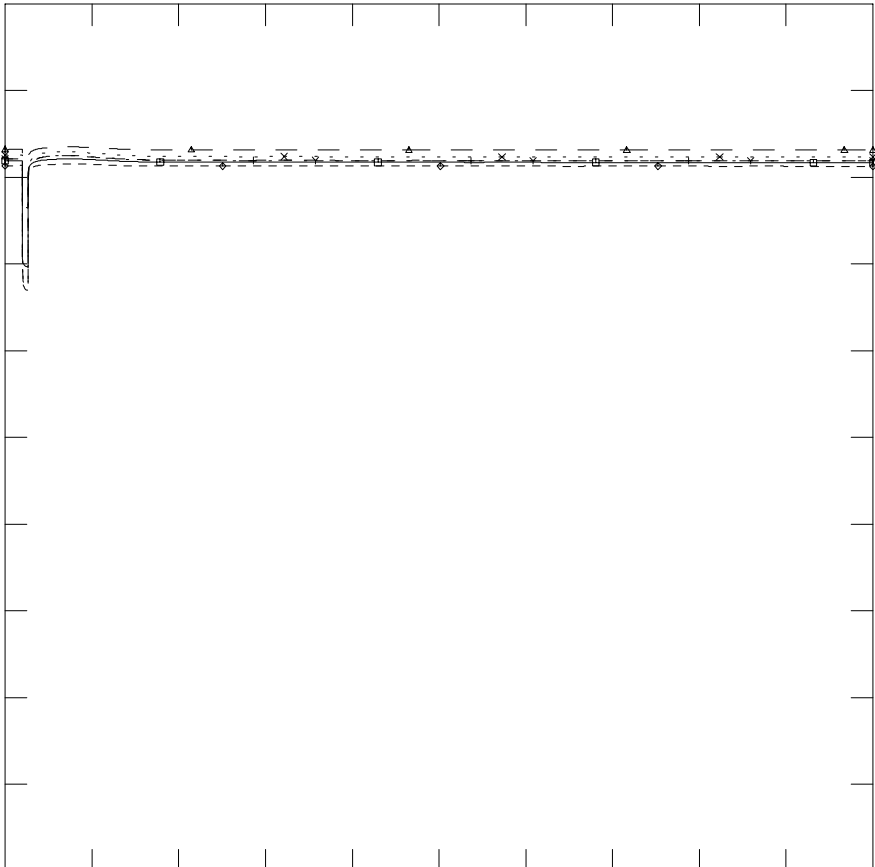
TIME (SECONDS)

THU, FEB 13 2003 16:26  
ROTORANGLES 2 CON35 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.2000 | CHNL# 220: [VOLT 70701 [COLGRMA 34.500]] | 0.20000 |
| 1.2000 | CHNL# 218: [VOLT 70700 [COLGRN 230.00]]  | 0.20000 |
| 1.2000 | CHNL# 205: [VOLT 70254 [LAMAR C0230.00]] | 0.20000 |
| 1.2000 | CHNL# 214: [VOLT 70286 [MIDWAYPS230.00]] | 0.20000 |
| 1.2000 | CHNL# 213: [VOLT 70122 [COMANCHE230.00]] | 0.20000 |
| 1.2000 | CHNL# 207: [VOLT 70061 [BOONE 230.00]]   | 0.20000 |

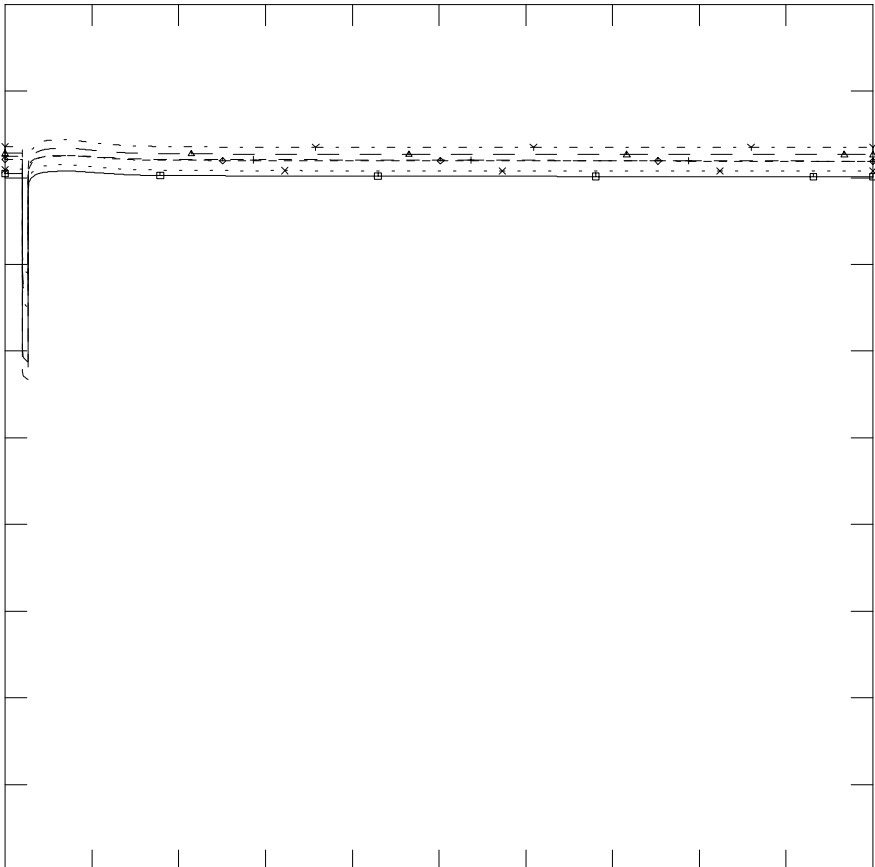


THU, FEB 13 2003 16:26  
VOLTAGE 1 CON35 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 219: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 209: [VOLT 70472 [WILLOW CK115.00]] | 0.20000 |
| 1.2000 | CHNL# 208: [VOLT 70060 [BOONE 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 206: [VOLT 70253 [LAMAR C0115.00]]  | 0.20000 |
| 1.2000 | CHNL# 212: [VOLT 70452 [VILAS 115.00]]    | 0.20000 |
| 1.2000 | CHNL# 210: [VOLT 70247 [LAJUNTA115.00]]   | 0.20000 |

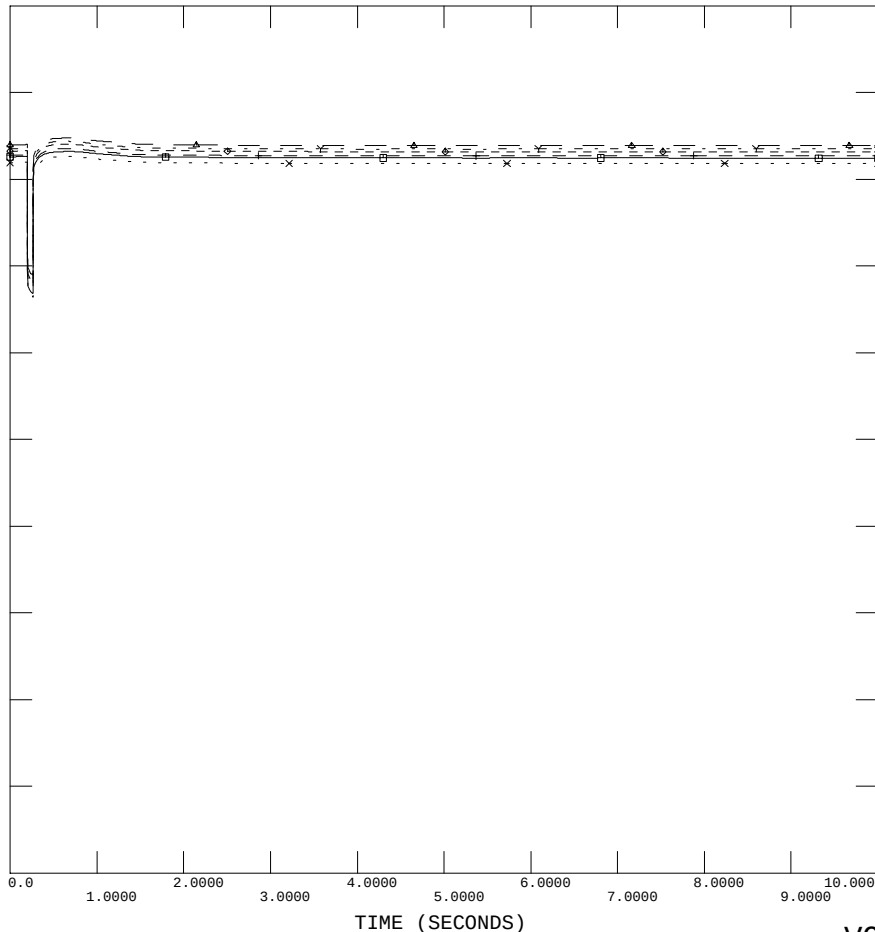


THU, FEB 13 2003 16:26  
VOLTAGE 2 CON35 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

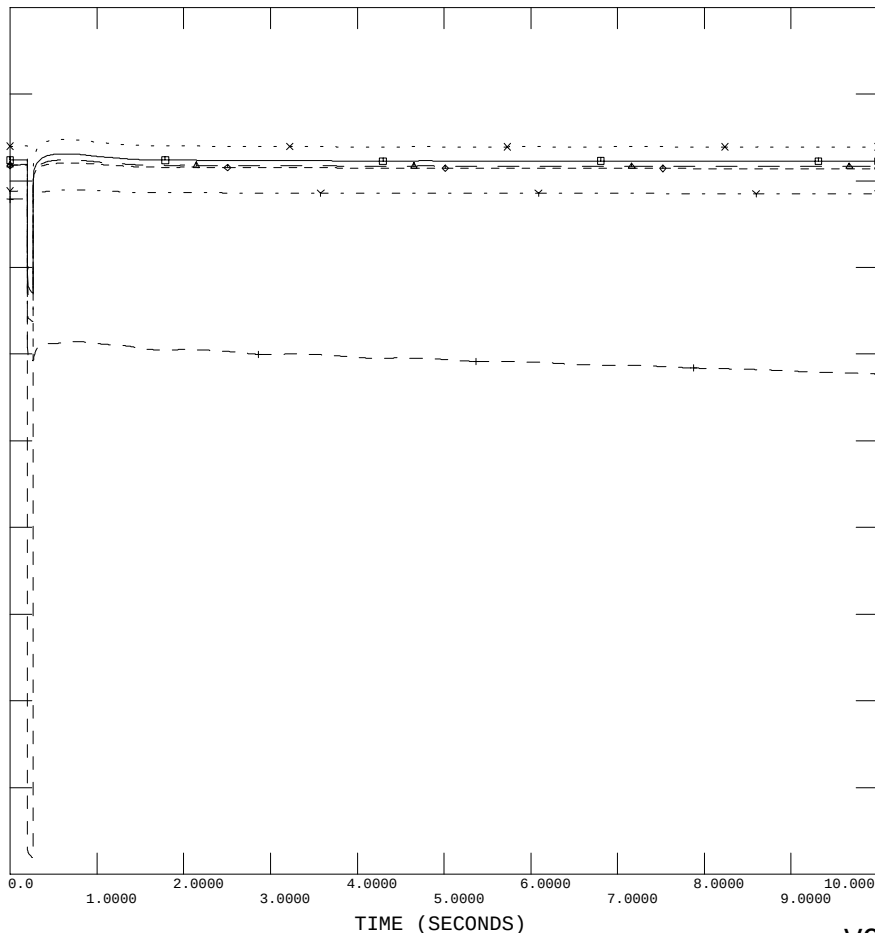


THU, FEB 13 2003 16:26  
VOLTAGE 3 CON35 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

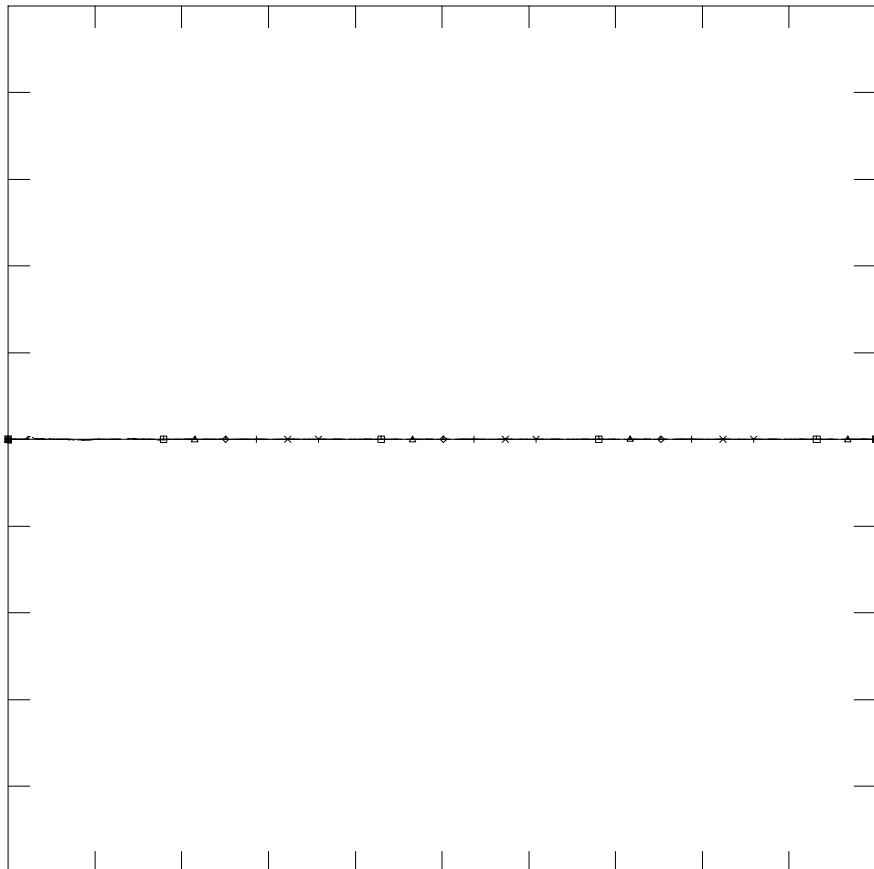


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VOLTAGE 4 CON35 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTA115.00]]   | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 70015 [CRAIG 1 22.000]]  | -0.0500 |

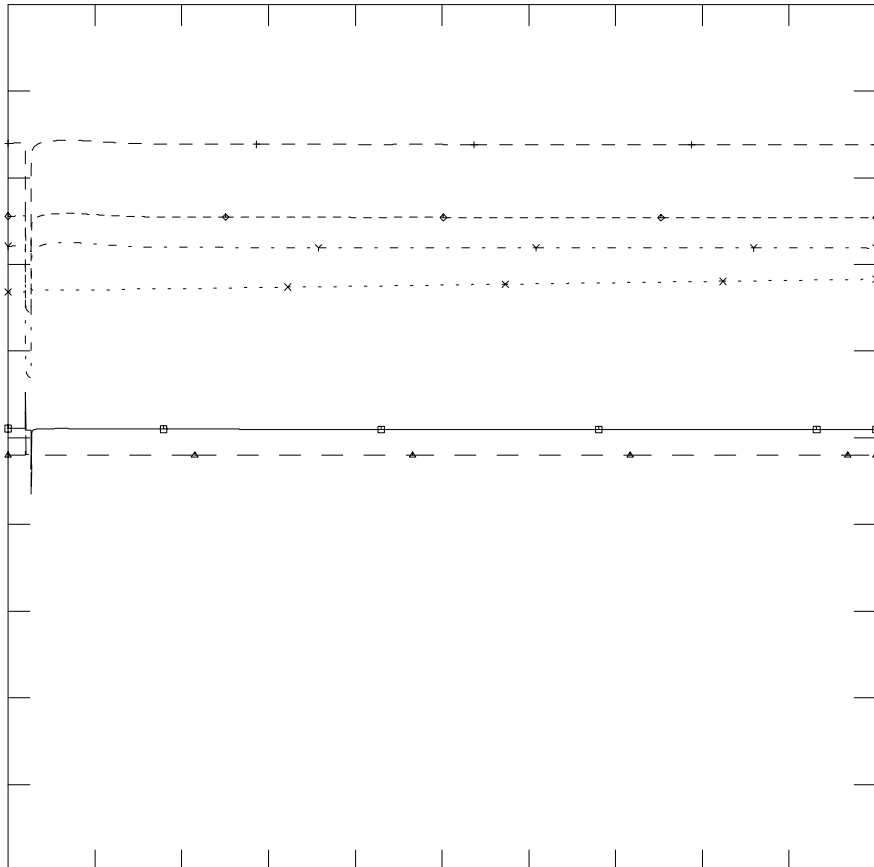


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FREQUENCY CON35 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON35 - FAULT ON BOONE - LAJUNTA WEST 115 [LAJUNTA WEST END]  
FILE: CON35-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [POWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [POWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |

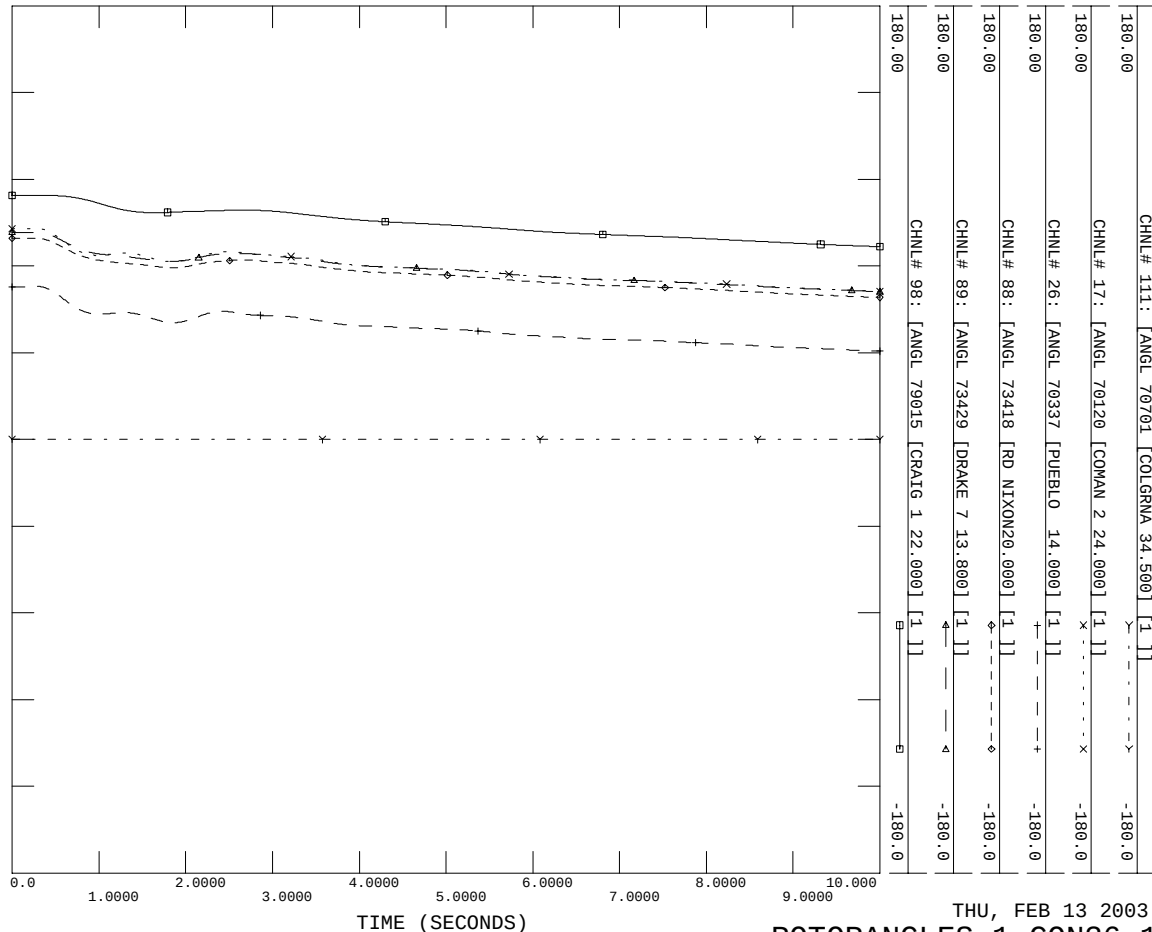


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WIND DATA CON35 162MW





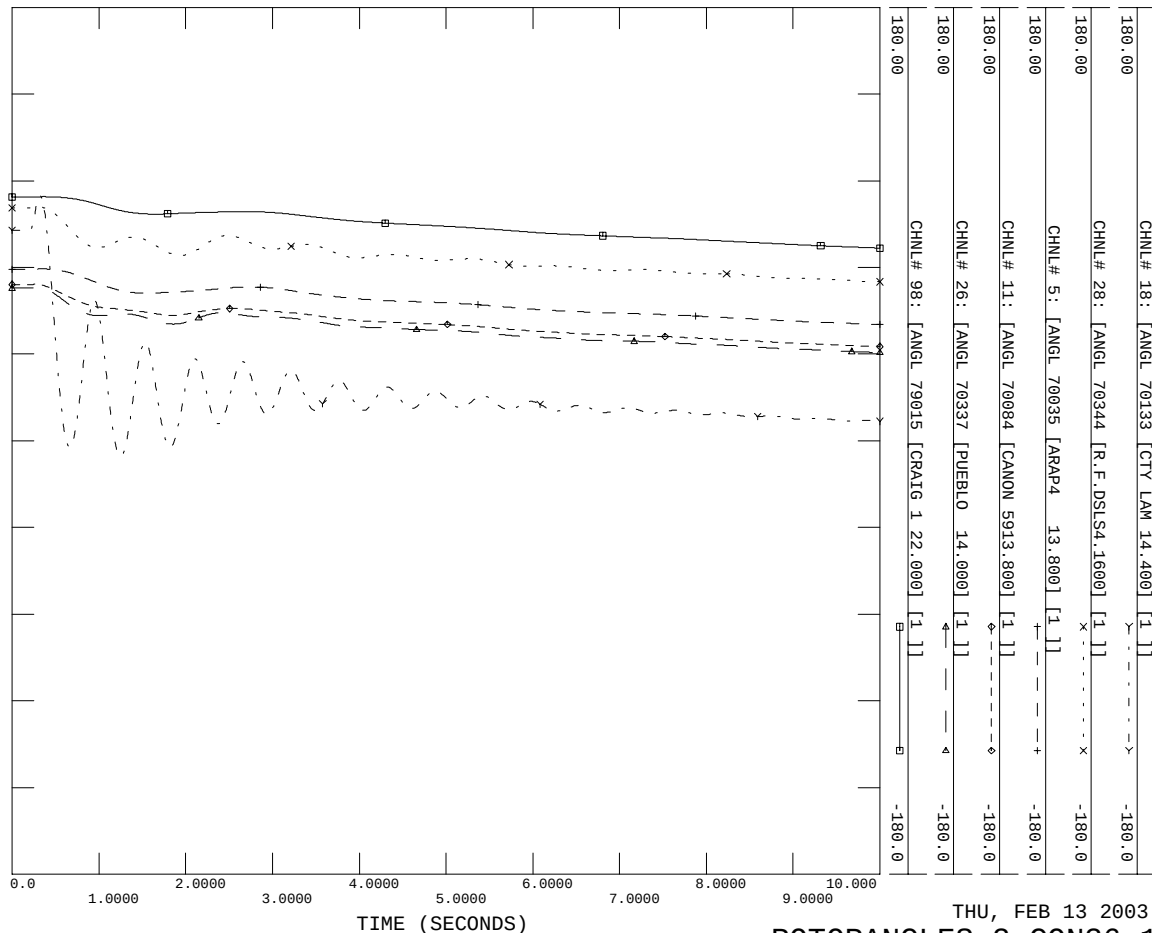
2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT



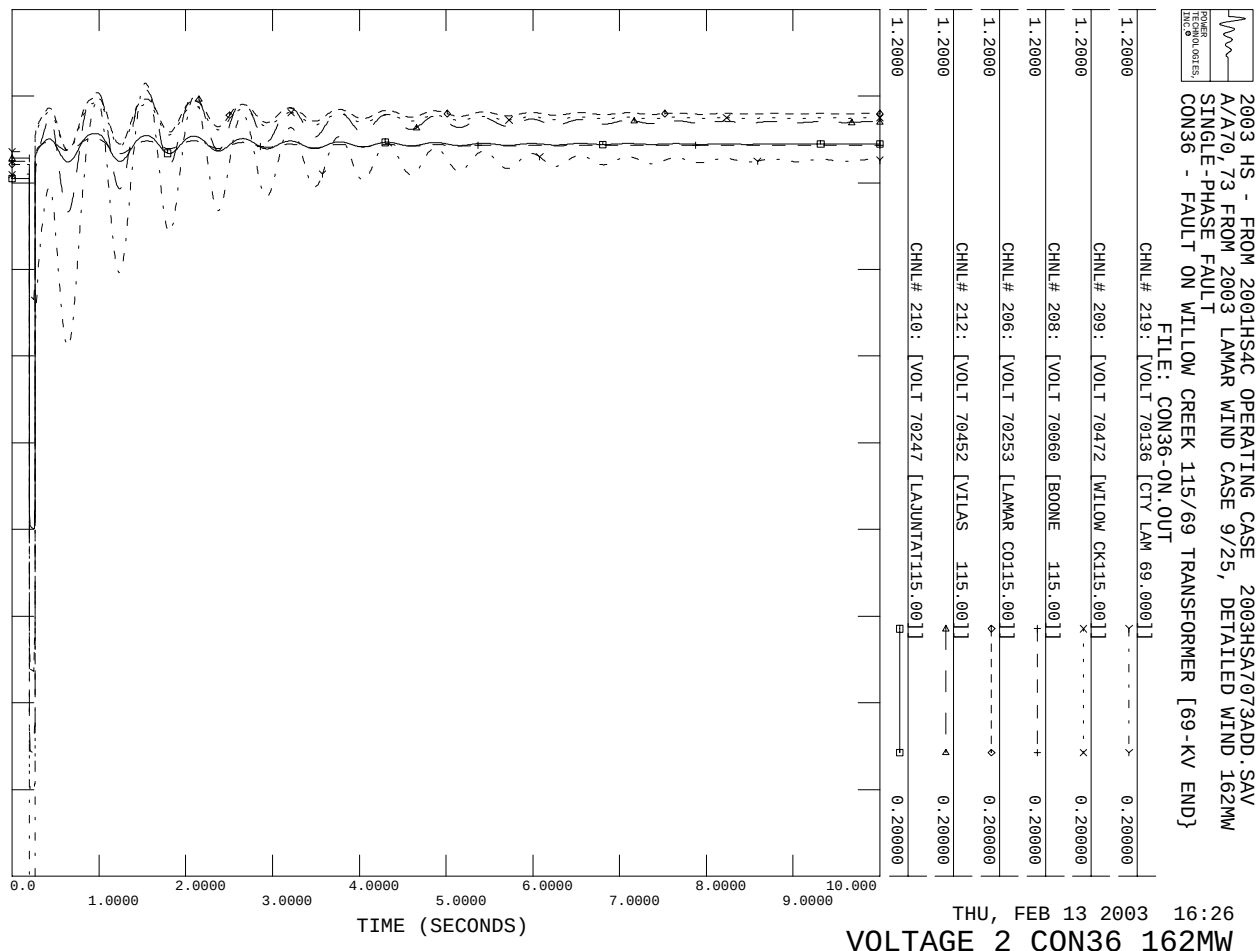
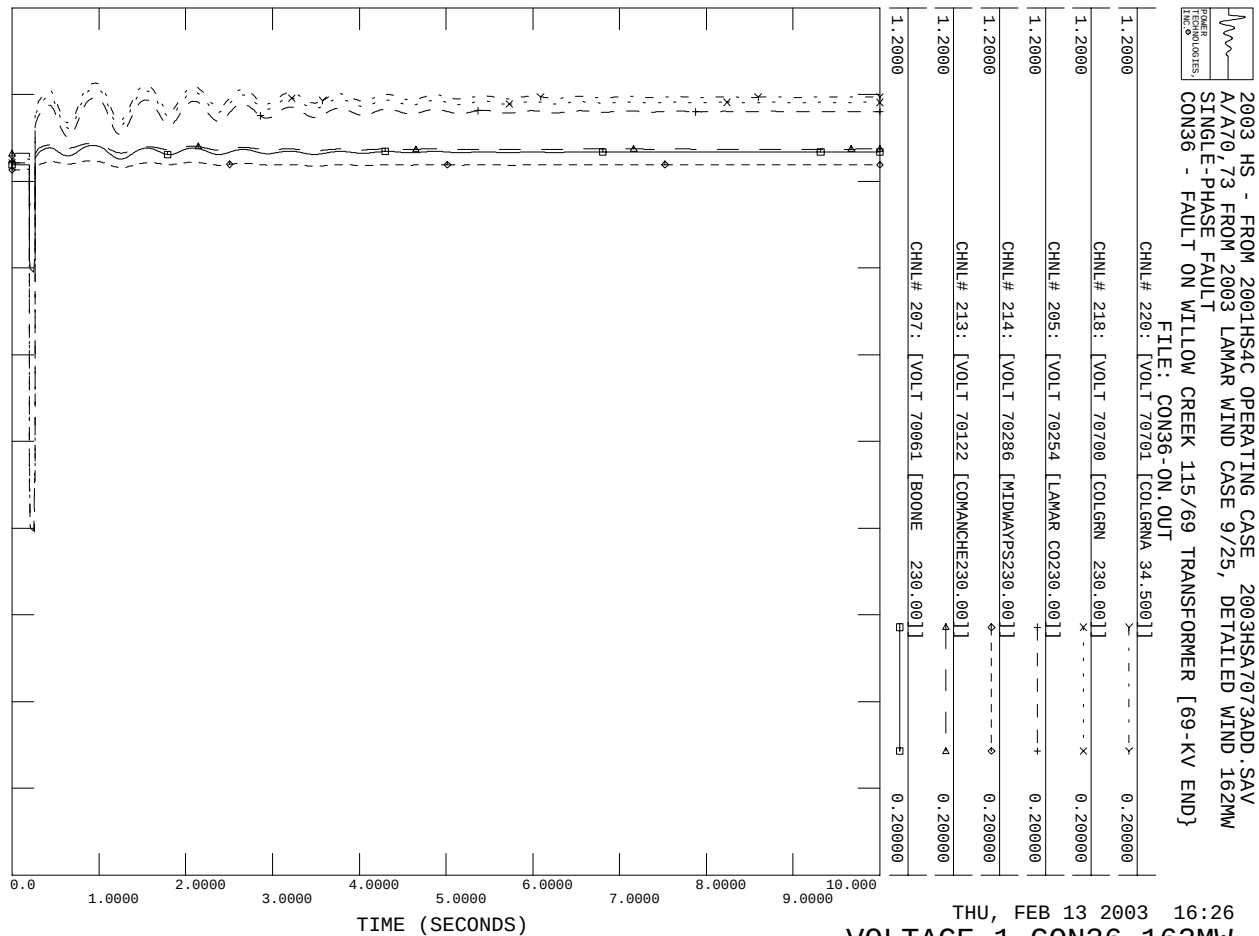
THU, FEB 13 2003 16:26  
ROTORANGLES 1 CON36 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT



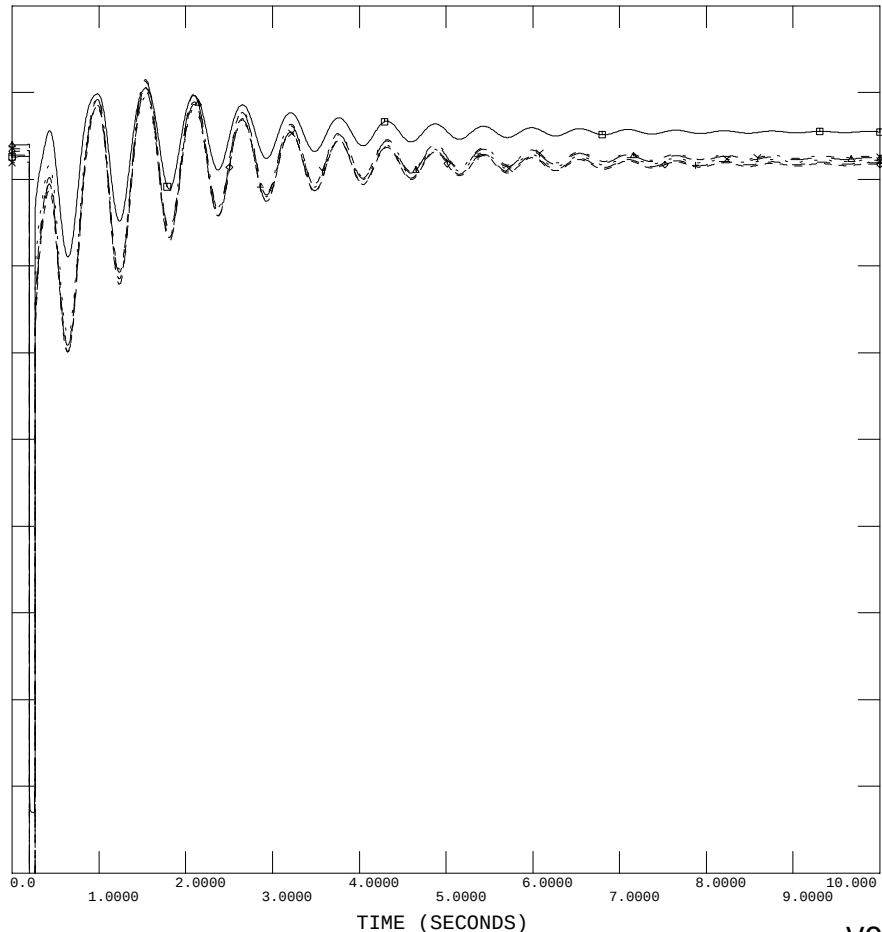
THU, FEB 13 2003 16:26  
ROTORANGLES 2 CON36 162MW





2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

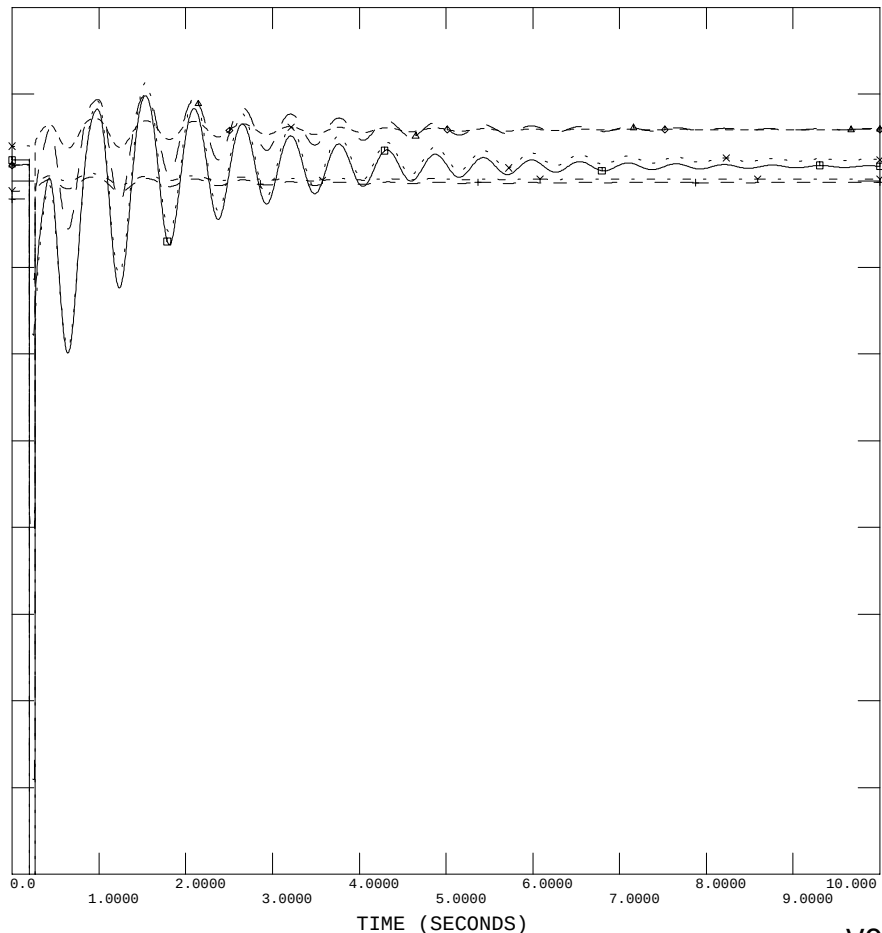


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VOLTAGE 3 CON36 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

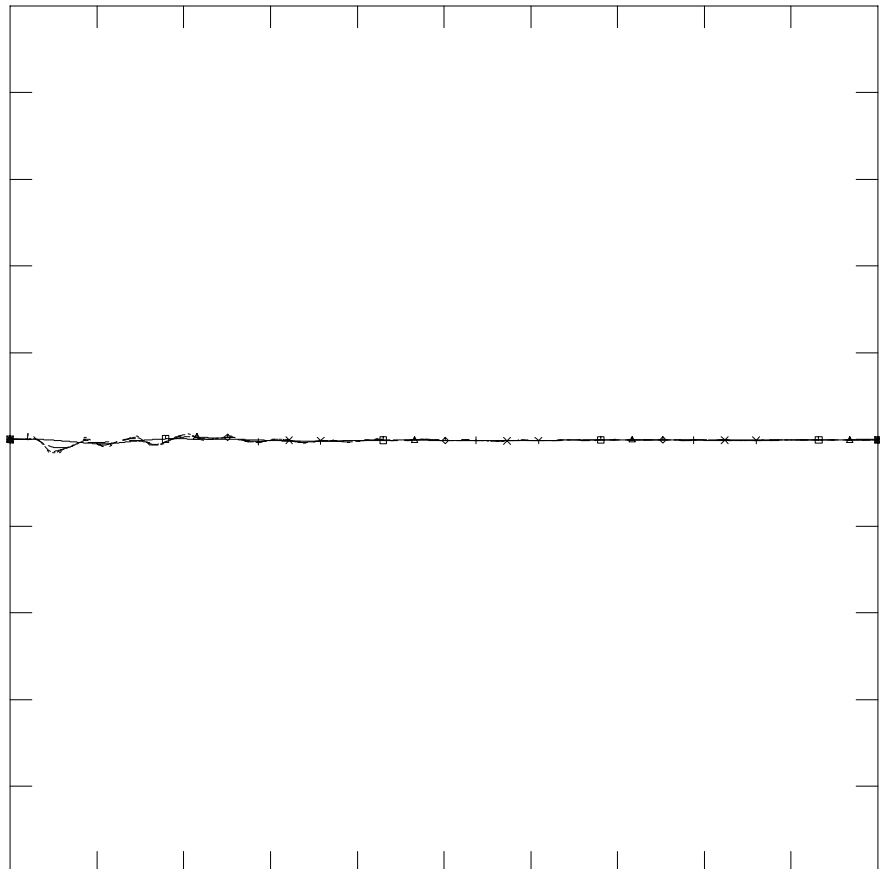


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VOLTAGE 4 CON36 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

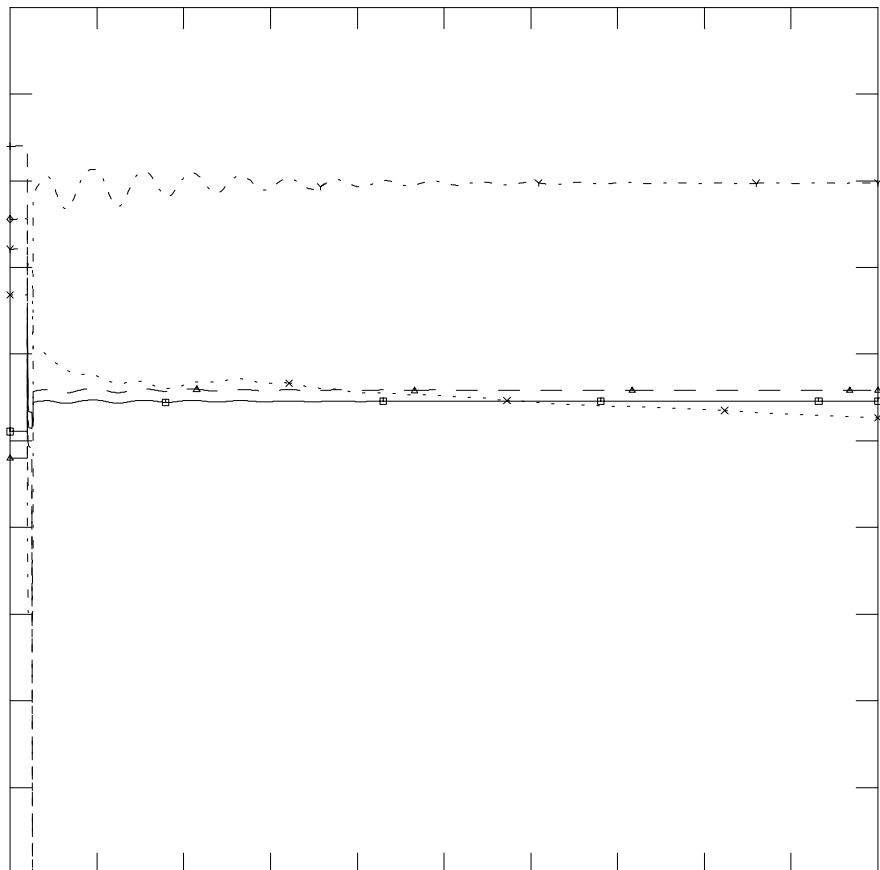


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FREQUENCY CON36 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON36 - FAULT ON WILLOW CREEK 115/69 TRANSFORMER [69-KV END]  
FILE: CON36-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGI 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PWR 70701 TO 70700 CKT 1]    | 0.0     |
| 100.00 | CHNL# 358: [PWR 70702 TO 70700 CKT 2]    | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON36 162MW

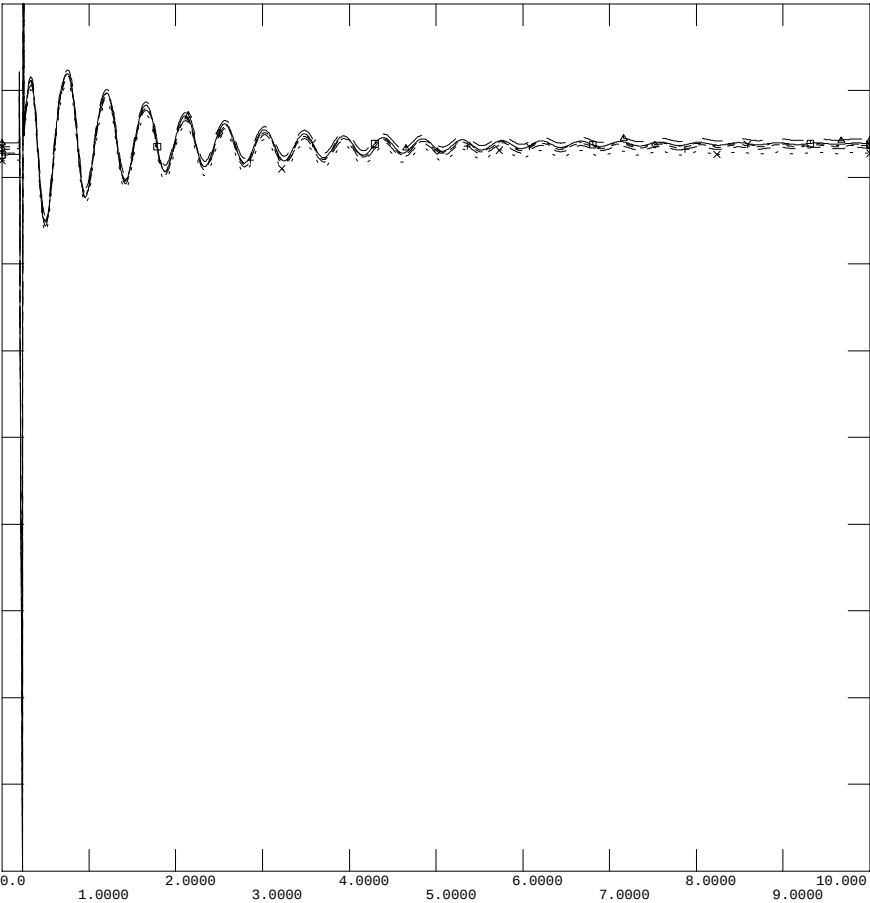






2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON37 - OPEN BOONE - LAMAR 230-KV CIRCUIT  
FILE: CON37-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 364: [VOLT 70136 [CTY LAM 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 397: [VOLT 70102 [CHENEY 69.000]]   | 0.20000 |
| 1.2000 | CHNL# 396: [VOLT 70204 [GRAMADA 69.000]]  | 0.20000 |
| 1.2000 | CHNL# 395: [VOLT 70161 [EADS 69.000]]     | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 393: [VOLT 70460 [WALSH 69.000]]    | 0.20000 |

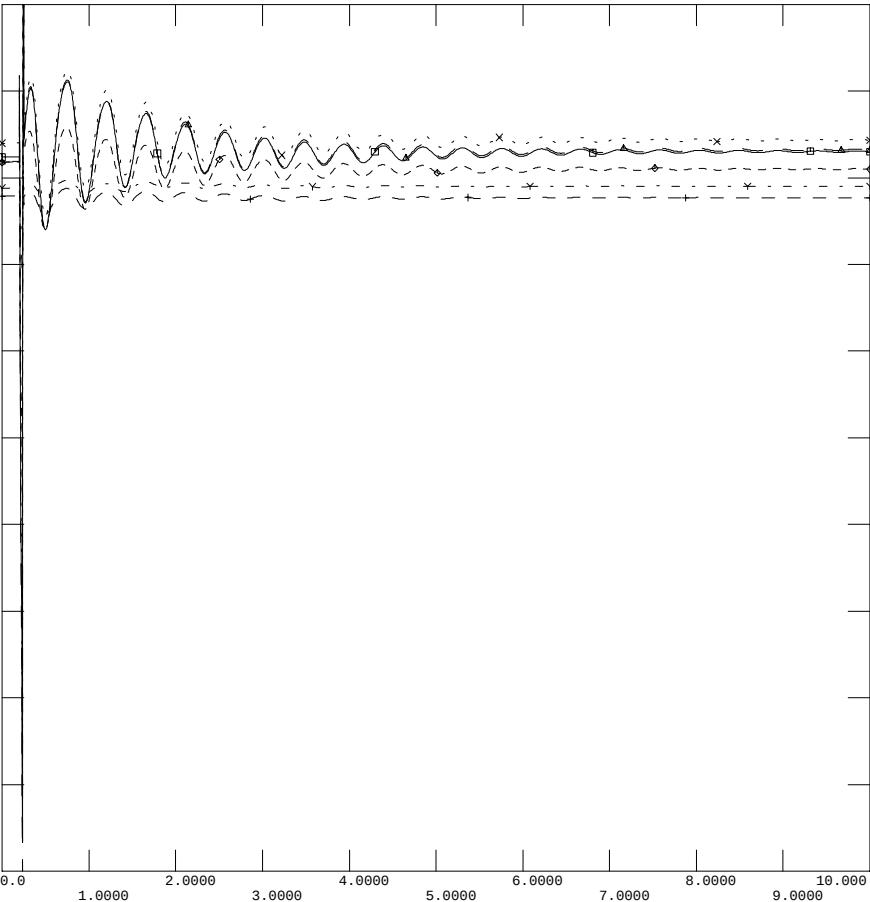


THU, FEB 13 2003 16:26  
VOLTAGE 3 CON37 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON37 - OPEN BOONE - LAMAR 230-KV CIRCUIT  
FILE: CON37-ON.OUT

|        |                                           |         |
|--------|-------------------------------------------|---------|
| 1.2000 | CHNL# 402: [VOLT 70301 [NTHRIDGE115.00]]  | 0.20000 |
| 1.2000 | CHNL# 394: [VOLT 70473 [WILLOW CK69.000]] | 0.20000 |
| 1.2000 | CHNL# 401: [VOLT 70275 [MANZANOL69.000]]  | 0.20000 |
| 1.2000 | CHNL# 400: [VOLT 70243 [LA SECPA69.000]]  | 0.20000 |
| 1.2000 | CHNL# 399: [VOLT 70404 [SPRNGFLD69.000]]  | 0.20000 |
| 1.2000 | CHNL# 398: [VOLT 70184 [FT HOLLY69.000]]  | 0.20000 |

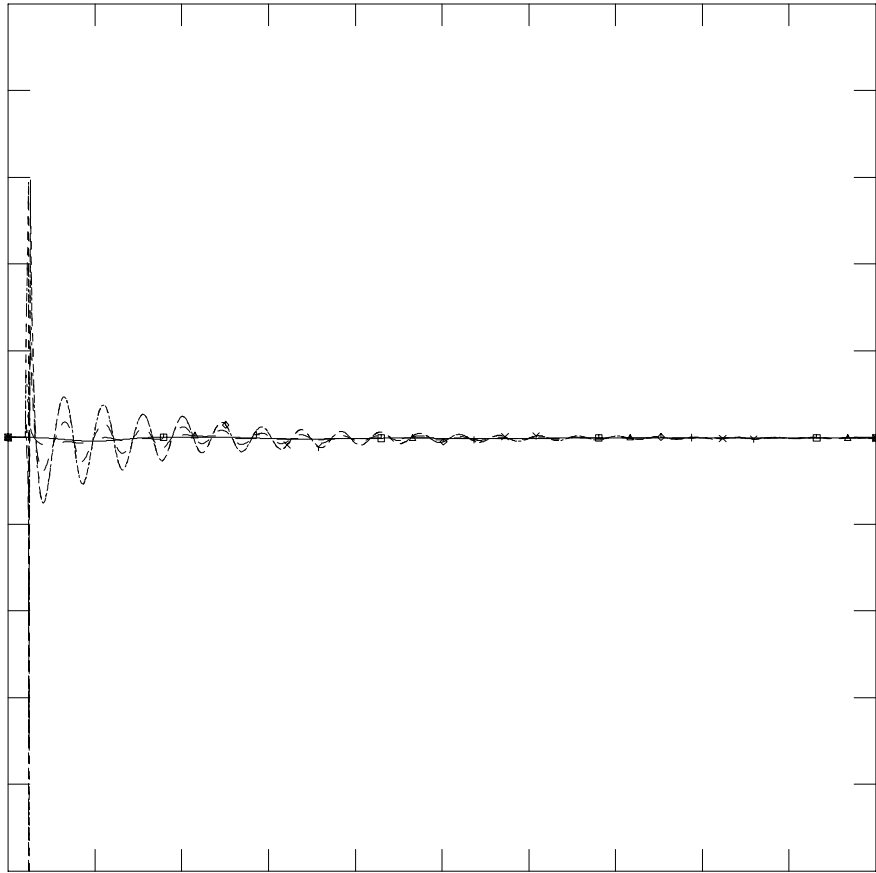


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VOLTAGE 4 CON37 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON37 - OPEN BOONE - LAMAR 230-KV CIRCUIT  
FILE: CON37-ON.OUT

|         |                                           |         |
|---------|-------------------------------------------|---------|
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 318: [FREQ 70472 [WILLOW CK115.00]] | -0.0500 |
| 0.05000 | CHNL# 319: [FREQ 70247 [LAJUNTATI115.00]] | -0.0500 |
| 0.05000 | CHNL# 314: [FREQ 70254 [LAMAR C0230.00]]  | -0.0500 |
| 0.05000 | CHNL# 316: [FREQ 70061 [BOONE 230.00]]    | -0.0500 |
| 0.05000 | CHNL# 327: [FREQ 79015 [CRAIG 1 22.000]]  | -0.0500 |

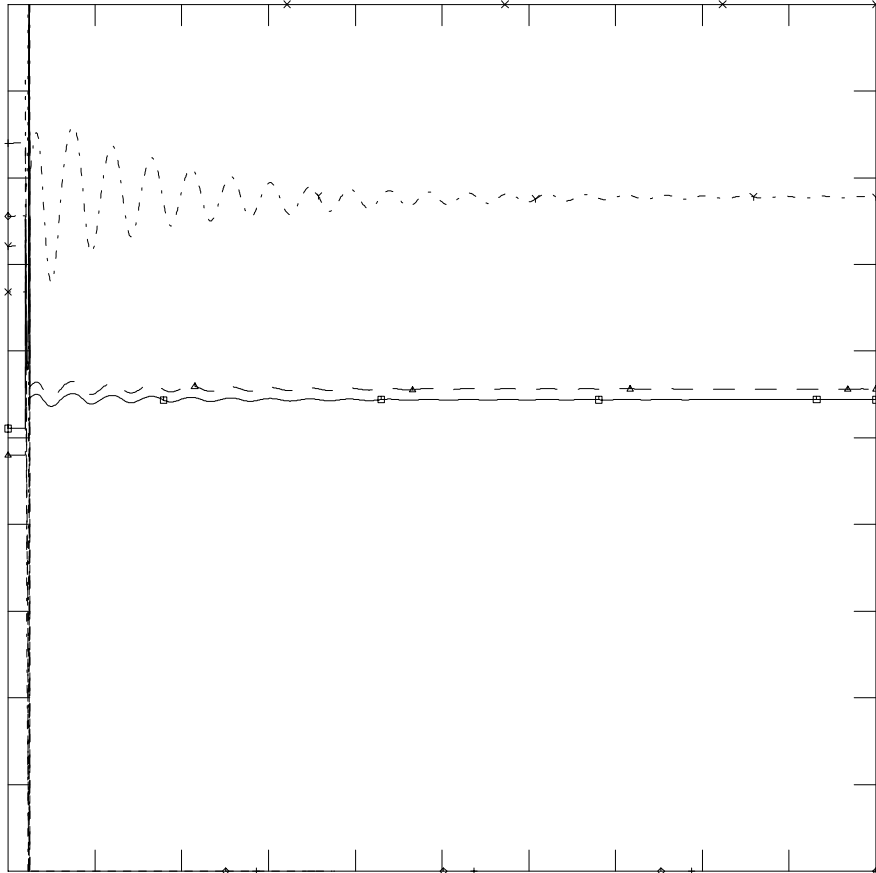


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FREQUENCY CON37 162MW



2003 HS - FROM 2001HS4C OPERATING CASE 2003HSA7073ADD.SAV  
A/A70,73 FROM 2003 LAMAR WIND CASE 9/25, DETAILED WIND 162MW  
SINGLE-PHASE FAULT  
CON37 - OPEN BOONE - LAMAR 230-KV CIRCUIT  
FILE: CON37-ON.OUT

|        |                                          |         |
|--------|------------------------------------------|---------|
| 1.3000 | CHNL# 360: [VOLT 70701 [COLGRNA 34.500]] | 0.30000 |
| 180.00 | CHNL# 361: [ANGL 70701 [COLGRNA 34.500]] | -180.0  |
| 100.00 | CHNL# 356: [PMWR 70701 TO 70700 CKT 1]   | 0.0     |
| 100.00 | CHNL# 358: [PMWR 70702 TO 70700 CKT 2]   | 0.0     |
| 50.000 | CHNL# 357: [VARS 70701 TO 70700 CKT 1]   | -50.00  |
| 50.000 | CHNL# 359: [VARS 70702 TO 70700 CKT 2]   | -50.00  |



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WIND DATA CON37 162MW



