Appendix A

System Impact Study

A division of
Imperial Irrigation District

P. O. Box 937 • 333 E. Barioni Blvd. • Imperial, CA 92251 • www.iid.com

February 21, 2006

Dana Diller
High Energy Resource Services
6410 E. Everett Drive
Scottsdale, AZ 85254

VIA: Electronic Mail

Dear Ms. Diller,

Attached, please find "Niland 100 MW Generating Plant" System Impact Study dated February 16, 2006.

Three (3) hardcopies will be delivered to Generation Steam Plant by today's close of business day and three (3) additional to be delivered by the end of this week.

Should you have any questions or comments, please feel free to contact Jorge Barrientos, Superintendent, System Planning via telephone at (760) 482-3443 or e-mail at jlbarrientos@iid.com.

Sincerely,

David L. Barajas

David L. Barajas
General Superintendent,
System Planning and Engineering

Cc: J. C. Sandoval
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J. Montano

Niland System Impact Study

Investigating the impact of
100MW peaking generation
at the Niland substation in 2008

February 16, 2006

Completed by:
K.R. Saline & Associates, PLC

An Analysis for:
Imperial Irrigation District, "IID"

K. R. Saline & Associates, PLC

EXECUTIVE SUMMARY

The Imperial Irrigation District, "IID", in response to an OATT request (GI-2005-7), contracted with K.R. Saline & Associates, PLC to perform a System Impact Study ("SIS") to investigate the addition of two 50MW LM6000 peaking generators (maximum interconnection of 100MW) connected to the existing IID Niland substation by Summer 2008. The study investigated the impact of the proposed generation interconnected to the Niland 92kV substation. Sensitivity cases were conducted to review the maximum existing and queue generation interconnected to the IID transmission system.

This SIS included power flow, stability, and short circuit impacts to both the IID transmission system and the interconnected transmission system. The Niland generation facility, proposed as a peaking facility, was scheduled directly to IID as a network resource (i.e. reducing other higher cost network resources) serving IID loads.

The interconnection of the proposed generating facility to the Niland 92kV transmission system was found to have no adverse impact on the IID transmission system. The addition of the facility had the effect of substantially reducing the impact of the Blythe generation loading on the Niland 161/92kV transformer under continuous and contingency conditions. The tie-line flow impact was minimal showing that neighboring utilities would not be impacted by the addition of the project.

The stability analysis showed for the models provided that there were no significant impacts to the IID or neighboring transmission systems.

The short circuit analysis found that no interrupting rating violations would occur due to the increase in short circuit duties resulting from the generator addition. The impact of the facility on short circuit levels at the interconnection busses was minimal and no criteria violations are anticipated on neighboring utility systems.

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INTRODUCTION

The Imperial Irrigation District, "IID", in response to an OATT request (GI-2005-7), contracted with K.R. Saline & Associates, PLC to perform a system impact study to investigate the addition of two 50MW LM6000 peaking generators connected to the existing IID Niland substation by 2008. The study investigated the impact of the generation connected at the Niland substation 92kV bus. Sensitivity cases investigated connecting the project to the 92kV system with all IID's generating resources dispatched (maximum generation).

The 100MW Niland facility was reviewed for power flow, stability, and short circuit impacts under pre and post contingency analysis.

The Niland one-line diagram below shows the 92kV and 161kV busses and connections for the proposed facilities to the existing 92kV system.

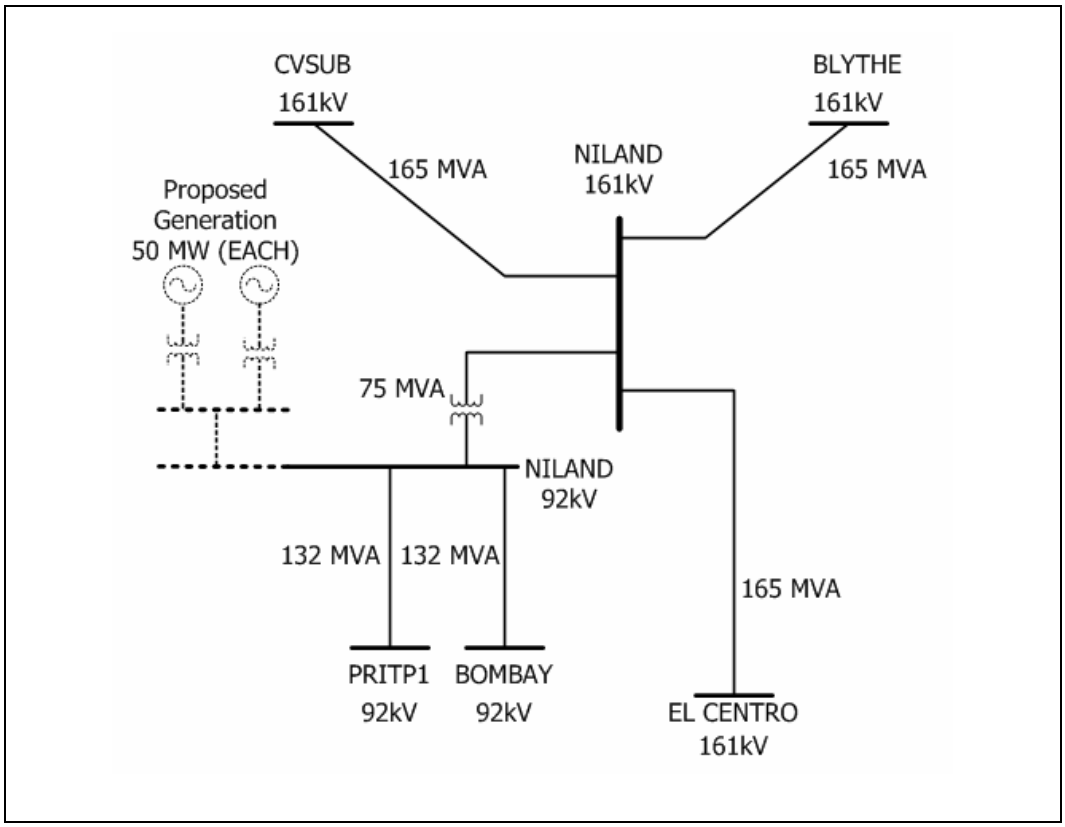

Figure 1 - Niland One-Line Diagram

MODELING ASSUMPTIONS

The study was conducted using General Electric's Positive Sequence Load Flow (PSLF) version 13.1 for both power flow and stability analysis.

The base case for this study was developed from the 2008 WECC Heavy Summer Approved case with changes to the system to reflect IID's detailed system and forecasted 2008 IID load.

Generation projects higher in IID's queue, including 25MW along the L-line, 15MW along the J-line, 16MW at SIGC, and 200MW between Midway and Bannister substations were added and assumed to be operating.

The IID detailed system was upgraded to include the following changes:

- Highline & Pruett 92kV upgrades
  - Highline-Drop 4 92kV line
  - Highline-Holtville 92kV line
  - Pruettap 92kV bus added to loop in the Pruett-El Centro 92kV line
  - SIGCtap-Pruettap 92kV jumper added
  - Pruettap-Highline 92kV line added (formerly the Highline-SIGCtap 92kV line)
- El Centro 230/161kV transformer removed and relocated at Bannister
- E-O 92kV line (El Centro-Imperial-Panno-Brawley) added
- Moved Jefferson 92kV load and bus to the Avenue 58-Avenue 48 92kV line
- Coachella Valley 161/92kV transformer upgraded to 225MVA
- Added second Avenue 58 161/92kV 125MVA transformer
- Added 230/92kV 300MVA transformer at El Centro
- Capacitor Additions:
  - Avenue 58 92kV: 24.5MVAR
  - Avenue 42 92kV: 24.5MVAR
  - Coachella Switching Station 92kV: 9.6MVAR
  - El Centro Terminal 92kV: 24.5MVAR

The Niland project would be added to IID's system at the 92kV Niland substation and would offset existing network resources.

GENERATION DISPATCH

The study reviewed the impact of the project under anticipated generation dispatch conditions and a maximum IID generation dispatch condition.

	Base Cases		Maximum Generation Sensitivity Cases	
Generator Name	**Niland Pre**	**Niland Post 92kV**	**Max Pre**	**Max Post**
Niland (project)	Off	100MW	Off	100MW
El Centro Generation	165MW	65MW	240MW	240MW
Peaking Gas Turbines	Off	Off	148MW	48MW

STUDY EVALUATION CRITERIA

POWER FLOW

The following load-flow related criteria were used:

- Pre-disturbance bus voltage must be between 0.95 per unit and 1.05 per unit. (IID requirement that is not included in the WECC criteria)
- Allowable voltage deviation of five (5) percent for N-1 Contingencies (deviation from pre-disturbance voltage).
- Allowable voltage deviation of ten (10) percent for N-2 contingencies (deviation from pre disturbance voltage).
- Post transient bus voltage must be at least 0.90 per unit (IID requirement that is not included in the WECC criteria)
- Pre and post disturbance loading to remain within the emergency ratings of all equipment and line conductors. The emergency ratings are determined by the owner/operator of each equipment item.

In clarification of the above list, all tables and results for loading criteria were based on the normal or continuous rating (Rating 1) as identified in the cases.

TRANSIENT STABILITY

The following stability criteria, per NERC/WECC criteria were used to evaluate the impact of the project:

WECC DISTURBANCE-PERFORMANCE TABLE OF ALLOWABLE EFFECTS ON OTHER SYSTEMS

NERC and WECC Categories	Outage Frequency Associated with the Performance Category (outage/year)	Transient Voltage Dip Standard	Minimum Transient Frequency Standard	Post Transient Voltage Deviation Standard (See Note 2)
A	Not Applicable	Nothing in addition to NERC		
B	≥ 0.33	Not to exceed **25%** at load buses or **30%** at non-load buses. Not to exceed **20% for more than 20 cycles** at load buses.	Not below **59.6** Hz for 6 cycles or more at a load bus.	Not to exceed **5%** at any bus.
C	0.033 – 0.33	Not to exceed **30%** at any bus. Not to exceed **20% for more than 40 cycles** at load buses.	Not below **59.0** Hz for 6 cycles or more at a load bus.	Not to exceed **10%** at any bus.
D	< 0.033	Nothing in addition to NERC		

[1]

[1] (Reference: Western Electricity Coordinating Council NERC/WECC Planning Standards, Revised August 9, 2002, page 12-13)

POWER FLOW RESULTS

The following text highlights some of the major findings, due to outages, related to the power flow analysis.

POST PROJECT ANALYSIS

The post-project analysis with the addition of the 100MW interconnected at the Niland 92kV bus and displacement of internal generation resulted in no voltage deviation violations under normal or contingency analysis. The incremental flow comparison tables and "difference" map show that the addition of the project generally **reduces** overloads found in the pre-project case by a minimum of 5% and up to a maximum of 25% under N-1 and N-2 outage conditions including:

- Coachella Valley-Coachella 92kV line for loss of the parallel circuit (-5%)
- Dixieland-DixiePrison 92kV line for loss of the USNAF-El Centro Terminal 92kV line (-6%)
- Niland 161/92kV transformer for loss of the Niland-Coachella Valley 161kV line (-25%)
- Niland-Blythe 161kV line for loss of the North Gila – Imperial Valley 500kV line (-5%)

The analysis also showed an increase loading on the El Centro 161/92kV transformer (by approximately 20%) with the addition of the project for loss of the North Gila – Imperial Valley 500kV line. However, this overload has been found to be a function of multiple variables, including San Diego Imports, El Centro generation, Imperial Valley/Mexicali generation, and Blythe generation. For this analysis, the increased loading (up to 110% of the continuous rating or at 100% of the emergency rating) is attributable to the reduction in El Centro generation for the post-project to maintain schedules to San Diego loads under this critical contingency. Additional generation at El Centro (as the sensitivity analysis will show) will significantly reduce the loading on this transformer for the loss of the North Gila-Imperial Valley 500kV line. Also, a Remedial Action Scheme ("RAS") to protect IID facilities for this critical contingency is currently under review by the regional transmission providers. The conclusion from this analysis finds that the interconnection of the Niland generation does not in itself impact the loading on the El Centro 161/92kV transformer.

SENSITIVITY CASE ANALYSIS

Interconnection at Niland 92kV with Maximum IID Generation

The IID maximum generation cases were developed to investigate the impact to the IID system under a condition where all IID generation was operating and the project was added to the 92kV substation. When the project was added, internal IID peaking gas turbine generation was reduced. The analysis concluded that no facilities were found to experience low voltages or exceed the emergency rating under N-1 or N-2 outage conditions.

Off Peak Analysis

This unit is not anticipated to be operated under off peak conditions; however there is a possibility that due to quick start capability it may be operated. A review of the lines connected to the 92kV station with simple n-1 contingency analysis showed no overload issues on the remaining lines for the off-peak condition tested.

POWER FLOW COMPARISONS

FLOW COMPARISON

The tables below compare the loading on elements for the cases studied. Yellow highlighting indicates a loading greater than 110% of the continuous rating (rating 1). A cell with a dash ("-") indicates the loading was less than 75% of the continuous rating. Please refer to the appendix for complete overload tables as these table only show loading increases or decreases greater than 5% (as compared to the base case) and loadings at or greater than 100% of the continuous rating (rating 1). Loading 110% of the continuous rating is assumed to be approximately the emergency rating of the element, loading at or greater than 100% violates the monitoring criteria.

The table shows the El Centro 161/92kV transformer overloads 110% in the post project case due to the addition of the project (and resulting reduction of El Centro generation) combined with the outage of the North Gila-Imperial Valley 500kV line. This overload is NOT attributable to the project, but attributable to the reduction of El Centro generation as shown by the lack of overloading in the maximum generation cases.

N-1 Flow Comparison Table

Overloaded Element	Rated Mva	Pre Project	Post Project 92kV	Sensitivity Max Gen Pre	Sensitivity Max Gen Post 92kV	Outage description
CVSUB -COACHELA 92 ck 1 line	132	105%	100%	-	94%	line CVSUB to COACHELA 92 ck 2
DIXIELAN-DIXPRI2 92 ck 1 line	54	94%	88%	99%	104%	line USNAF to ELTERMIN 92 ck 1
ELCENTSW 161/ 92 ck 1 tran	125	90%	110%	-	-	line N.GILA to IMPRLVLY 500 ck 1
ELSTEAMP-ELTERMIN 92 ck 1 line	132	98%	96%	99%	100%	line ELSTEAMP to ELTERMIN 92 ck 2
NILAND 161/ 92 ck 1 tran	75	100%	-	79%	-	line NILAND to CVSUB161 161 ck 1
NILAND -BLYTHE 161 ck 1 line	165	105%	100%	93%	89%	line BLYTHESC to BLYTHE 161 ck 1

N-2 Flow Comparison Table

This N-2 comparison table shows that addition of the project impacts overloads by less than 5% and in some outage conditions reduces the overload on the monitored element.

Overloaded Element	Rated Mva	Pre Project	Post Project 92kV	Sensitivity Max Gen Pre	Sensitivity Max Gen Post 92kV	Outage description
CITAP1 -COACHELA 92 ck 1 line	152	93%	95%	114%	108%	**N2-line COACHELA to DEVERS 230, 4 ck 1** line COACHELA-DEVERS 230 line COACHELA-RAMON 230
CITAP1 -VANBUREN 92 ck 1 line	152	93%	95%	114%	108%	**N2-line COACHELA to DEVERS 230, 4 ck 1** line COACHELA-DEVERS 230 line COACHELA-RAMON 230
CMTAP2 -AVE42 92 ck 1 line	132	87%	89%	110%	103%	**N2-line COACHELA to DEVERS 230, 4 ck 1** line COACHELA-DEVERS 230 line COACHELA-RAMON 230
CMTAP2 -VANBUREN 92 ck 1 line	132	87%	89%	110%	-	**N2-line COACHELA to DEVERS 230, 4 ck 1** line COACHELA-DEVERS 230 line COACHELA-RAMON 230
NILAND 161/ 92 ck 1 tran	75	121%	92%	97%	-	**CV-Niland & EC-Niland 161kV** line COACHELA-NILAND 161kV line EL CENTRO-NILAND 161kV
NILAND -BLYTHE 161 ck 1 line	165	119%	115%	105%	102%	**N2-line BLYTHE to KNOB 161, 4 ck 1** line BLYTHE - KNOB 161 line EAGLEMTN -BLYTHESC 161

IMPACT TO NEIGHBORING UTILITIES

The impact to neighboring utilities due to the addition of the 100MW facility was found to be minimal with the interconnection to the IID 92kV system and scheduled to IID as a network resource. The addition of the facility is intended to offset more expensive internal generation with higher heat rates for both the post-project cases and sensitivity cases, therefore as the table shows below there is very little impact to the neighboring utilities based on the tie-line flow.

IID Tie-line & Path flows (MW)	Utility	Pre Project	Post Project 92kV	Sensitivity Max Gen–Pre	Sensitivity Max Gen– 92kV
Path 42	SCE	156	162	277	257
Coachella-Devers 230kV	SCE	82	84	146	124
Ramon-Mirage 230kV	SCE	74	78	131	133
Imperial Valley–El Centro 230kV	SDGE	80	92	19	13
Blythe-Niland 161kV	WAPA	122	115	109	101
Pilot Knob-Knob	WAPA	77	81	51	49
Pilot Knob-Yucca 161kV	APS	37	37	29	31

LOADS AND RESOURCES COMPARISON

The table below shows the loads, losses, generation, and area interchange for the cases studied.

Loads and Resources		Pre Project	Post Project 92kV	Sensitivity Max Gen – Pre Project	Sensitivity Max Gen – Post 92kV
Load (MW)	**IID load**	1095	1095	1095	1095
	IID losses	49	48	49	51
Generation (MW)	**Niland (The Project)**	Off	100	Off	100
	IID GEN (Zone 30)	428	328	671	671
	IID IPP (Zone 45)	620	620	620	620
	Imperial Valley (Zone 227)	750	750	750	750
	Blythe	490	490	490	490
Area Interchange (MW)	**IID**	-96	-96	147	144
	AZ	6778	6778	6571	6571
	SDGE	-2411	-2411	-2447	-2444

STABILITY RESULTS

The stability analysis showed the proposed Niland dynamics models (including generator, exciter, governor, and power system stabilizer) did not cause an unstable condition prior to, or during the ten seconds following a system fault and facility outage. The proposed model was stable for the outages tested and busses monitored.

The busses monitored:
El Centro 230kV, 161kV, 92kV
Coachella 230kV, 161kV, 92kV
Ramon 230kV
Imperial Valley 230kV
Avenue 58 161kV
Niland 161kV, 92kV
Mirage 92kV
Project bus (Nilgen and Nilgen2) 13.8 kV

WECC/NERC Category B: Loss of a single Element
No outage
Niland-Bombay 92kV
Niland-Prison 92kV
Niland 161/92kV transformer
Niland-Blythe 161kV
Niland-El Centro 161kV
Niland-Coachella Valley 161kV
Blythe-Eagle Mountain 161kV
Blythe – Knob 161kV line
El Centro-Ave 58 161kV
Ramon 230/92kV transformer
Palo Verde-Devers 500kV
Imperial Valley – Miguel 500kV
Hassyampa – North Gila 500kV

WECC/NERC Category C: Loss of Two or more Elements
Niland Generator step-up transformers
Path 42 with approximately 200MW of geothermal tripping
Niland-Coachella & Niland-Blythe 161kV
Niland-El Centro & Niland-Coachella Valley 161kV
Niland-El Centro & Niland-Blythe 161k
Niland-Prison & Niland-Bombay 92kV
Midway-Coachella Valley dbl ckt 230kV

SHORT CIRCUIT RESULTS

The short circuit analysis found that no interrupting rating violations would occur due to the increase in short circuit duties resulting from the generator addition.

The net change in short circuit levels on the Niland 92kV bus was approximately 53.25%. The short circuit duty contribution from each generator was 2,029A for three phase faults and 4,855 A for phase to ground faults.

No interrupting rating violations were found for IID equipment due to the incremental impact of the facility (pre to post project comparisons).

No criteria violations are anticipated on the neighboring utility systems due to minimal impact to the short circuit levels at the interconnection busses and low fault duty levels at the Niland 161kV bus.

APPENDICES

Appendix A – Contingency List

Appendix B – Power Flow Results – Pre Project
Appendix C – Power Flow Results – Post Project @ 92kV
Appendix D – Power Flow Results – Pre Project Sensitivity Maxgen 92kV
Appendix E – Power Flow Results – Post Project Sensitivity Maxgen 92kV

Appendix F – Stability Switch Decks
Appendix G – Stability – Pre Project 92kV Maxgen Plots
Appendix H – Stability – Post Project 92kV Maxgen Plots

Appendix I – Short Circuit Analysis

Appendix J – Off Peak analysis

Niland System Impact Study

Appendix A
Contingency List

February 2006

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# contingency selection : from area 8 to 8; 90 kV to 999 kV
C_1             "C-AVE58-DESERTSHORES 92KV      "
   line "AVE58     92.00"  "RTP6OASS  92.00"  "1 "  1 0
   line "OASIS     92.00"  "RTP6OASS  92.00"  "1 "  1 0
   line "RTP5DSTS  92.00"  "RTP6OASS  92.00"  "1 "  1 0
0
C_2             "C-COACHELLA VALLEY-AVE58 92KV   "
   line "AVE58     92.00"  "RTAP8     92.00"  "1 "  1 0
   line "RTAP8     92.00"  "COACHELA  92.00"  "1 "  1 0
0
C_3             "C-COACHELLA VALLEY-AVE58 161KV "
   line "AV58     161.00"  "AV58TP2  161.00"  "1 "  1 0
   line "AV58TP2  161.00"  "CVSUB161 161.00"  "1 "  1 0
0
C_4pst          "C-ELCENTRO-AVE58  161KV       "
   line "AV58     161.00"  "AV58TP1  161.00"  "1 "  1 0
   line "AV58TP1  161.00"  "BANTP2   161.00"  "1 "  1 0
   line "BANISTER 161.00"  "BANTP2   161.00"  "1 "  1 0
   line "BANISTER 161.00"  "BANTP1   161.00"  "1 "  1 0
   line "BANTP1   161.00"  "ELCENTSW 161.00"  "1 "  1 0
0
C_4pre          "C-ELCENTRO-AVE58  161KV       "
   line "AV58     161.00"  "AV58TP1  161.00"  "1 "  1 0
   line "ELCENTSW 161.00"  "AV58TP1  161.00"  "1 "  1 0
0
C_5             "C-AVENUE 48-AVENUE 42  92KV   "
   line "AVE48     92.00"  "CWTAP2    92.00"  "1 "  1 0
   line "CWTAP2    92.00"  "SHIELDS   92.00"  "1 "  1 0
   line "AVE42     92.00"  "SHIELDS   92.00"  "1 "  1 0
0
C_6             "C-COACHELLA VALLEY-SKYVALLEY 92"
   line "SKY VLY   92.00"  "CMTAP1    92.00"  "1 "  1 0
   line "CMTAP1    92.00"  "COACHELA  92.00"  "1 "  1 0
0
C_7             "C-COACHELLA VALLEY-VANBUREN 92 "
   line "CITAP1    92.00"  "COACHELA  92.00"  "1 "  1 0
   line "CITAP1    92.00"  "VANBUREN  92.00"  "1 "  1 0
0
C_8             "C-VANBUREN-AVE 42 92KV         "
   line "CMTAP2    92.00"  "AVE42     92.00"  "1 "  1 0
   line "CMTAP2    92.00"  "VANBUREN  92.00"  "1 "  1 0
0
C_10            "C-DROP4 - ELSTEAM 92KV         "
   line "DROP4     92.00"  "ORMAT92   92.00"  "1 "  1 0
   line "ELSTEAMP  92.00"  "ORMAT92   92.00"  "1 "  1 0
0
C_11            "C-DIXILAN-CENTRAL  92KV                    "
   line "DIXIELAN  92.00"  "DIXPRI2   92.00"  "1 "  1 0
   line "DIXPRI    92.00"  "DIXPRI2   92.00"  "1 "  1 0
   line "DIXPRI1   92.00"  "DIXPRI    92.00"  "1 "  1 0
   line "RTAP1     92.00"  "DIXPRI1   92.00"  "1 "  1 0
   line "RTAP1     92.00"  "CENTRAL   92.00"  "1 "  1 0
0
C_12            "C-DIXILAN-RTPANZA 92KV         "
   line "DIXIELAN  92.00"  "RTP1      92.00"  "1 "  1 0
   line "RTAP2     92.00"  "RTP1      92.00"  "1 "  1 0
   line "RTAP2     92.00"  "RTP3ANZA  92.00"  "1 "  1 0
0
C_13            "C-ANZA-DESERT SHORES 92KV      "
   line "RTP3ANZA  92.00"  "RTP4SLTN  92.00"  "1 "  1 0
   line "RTP4SLTN  92.00"  "RTP5DSTS  92.00"  "1 "  1 0
0
C_14            "C-MECCA-NILAND 92KV            "
   line "MECCA     92.00"  "NORTHSHR  92.00"  "1 "  1 0
   line "BOMBAY    92.00"  "NILAND    92.00"  "1 "  1 0
   line "BOMBAY    92.00"  "NORTHSHR  92.00"  "1 "  1 0
0
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C_15            "C-MECCA-AVE52 92KV             "
   line "MECCA     92.00"  "KTP2      92.00"  "1 "  1 0
   line "THERMAL   92.00"  "KTP2      92.00"  "1 "  1 0
   line "AVE 52    92.00"  "THERMAL   92.00"  "1 "  1 0
0
line 1            "line YUCCA161 to PILOTKNB 161 ck 1"
 line "YUCCA161 161.00"  "PILOTKNB 161.00"  "1 "  1 0
0
line 2            "line CVSUB    to COACHELA  92 ck 1"
 line "CVSUB     92.00"  "COACHELA  92.00"  "1 "  1 0
0
line 3            "line CVSUB    to COACHELA  92 ck 2"
 line "CVSUB     92.00"  "COACHELA  92.00"  "2 "  1 0
0
line 4            "line CVSUB    to JACKSON   92 ck 1"
 line "CVSUB     92.00"  "JACKSON   92.00"  "1 "  1 0
0
line 5            "line CVSUB    to COLMAC    92 ck 1"
 line "CVSUB     92.00"  "COLMAC    92.00"  "1 "  1 0
0
line 6            "line AVE58    to JEFERSN   92 ck 1"
 line "AVE58     92.00"  "JEFERSN   92.00"  "1 "  1 0
0
line 8            "line AVE58    to MARSHALL  92 ck 1"
 line "AVE58     92.00"  "MARSHALL  92.00"  "1 "  1 0
0
line 10           "line USNAF    to DIXIELAN  92 ck 1"
 line "USNAF     92.00"  "DIXIELAN  92.00"  "1 "  1 0
0
line 11           "line USNAF    to ELTERMIN  92 ck 1"
 line "USNAF     92.00"  "ELTERMIN  92.00"  "1 "  1 0
0
line 12           "line JEFERSN  to MARSHALL  92 ck 1"
 line "JEFERSN   92.00"  "MARSHALL  92.00"  "1 "  1 0
0
line 13           "line LAQUINTA to N.LAQUIN  92 ck 1"
 line "LAQUINTA  92.00"  "N.LAQUIN  92.00"  "1 "  1 0
0
line 14           "line LAQUINTA to MARSHALL  92 ck 1"
 line "LAQUINTA  92.00"  "MARSHALL  92.00"  "1 "  1 0
0
line 16           "line RTAP8    to COACHELA  92 ck 2"
 line "RTAP8     92.00"  "COACHELA  92.00"  "2 "  1 0
0
line 17           "line N.VIEW   to AVE42     92 ck 1"
 line "N.VIEW    92.00"  "AVE42     92.00"  "1 "  1 0
0
line 18           "line N.VIEW   to MIRAGTIE  92 ck 1"
 line "N.VIEW    92.00"  "MIRAGTIE  92.00"  "1 "  1 0
0
line 20           "line N.LAQUIN to AVE42     92 ck 1"
 line "N.LAQUIN  92.00"  "AVE42     92.00"  "1 "  1 0
0
line 23           "line CITAP1   to CITP2     92 ck 1"
 line "CITAP1    92.00"  "CITP2     92.00"  "1 "  1 0
0
line 26           "line CARREON  to CITP4     92 ck 1"
 line "CARREON   92.00"  "CITP4     92.00"  "1 "  1 0
0
line 27           "line CARREON  to MONROE    92 ck 1"
 line "CARREON   92.00"  "MONROE    92.00"  "1 "  1 0
0
line 29           "line CITP2    to CITP4     92 ck 1"
 line "CITP2     92.00"  "CITP4     92.00"  "1 "  1 0
0
line 30           "line CITP2    to JACKSON   92 ck 1"
 line "CITP2     92.00"  "JACKSON   92.00"  "1 "  1 0
```

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0
line_31           "line CMTAP1   to CMTAP2    92 ck 1"
 line "CMTAP1    92.00"  "CMTAP2    92.00"  "1 "  1 0
0
line 36           "line AVE42    to EDOM      92 ck 1"
 line "AVE42     92.00"  "EDOM      92.00"  "1 "  1 0
0
line_37           "line AVE42    to FRANWAY   92 ck 1"
 line "AVE42     92.00"  "FRANWAY   92.00"  "1 "  1 0
0
line 38           "line FRANWAY  to EDOM      92 ck 1"
 line "FRANWAY   92.00"  "EDOM      92.00"  "1 "  1 0
0
line_39           "line AVE42    to MONROE    92 ck 1"
 line "AVE42     92.00"  "MONROE    92.00"  "1 "  1 0
0
line 40           "line COACHELA to RAMON    230 ck 1"
 line "COACHELA 230.00"  "RAMON    230.00"  "1 "  1 0
0
line_41           "line MECCA    to OASIS     92 ck 1"
 line "MECCA     92.00"  "OASIS     92.00"  "1 "  1 0
0
line 42           "line MECCA    to CVSUB     92 ck 1"
 line "MECCA     92.00"  "CVSUB     92.00"  "1 "  1 0
0
line_43           "line OASIS    to RTP6OASS  92 ck 2"
 line "OASIS     92.00"  "RTP6OASS  92.00"  "2 "  1 0
0
line 44           "line COACHELA to MIDWAY   230 ck 1"
 line   8311  8699  "1 "  1 0
0
line_45           "line COACHELA to MIDWAY   230 ck 2"
 line   8311  8699  "2 "  1 0
0
line 46           "line COACHELA to DEVERS   230 ck 1"
 line "COACHELA 230.00"  "DEVERS   230.00"  "1 "  1 0
0
line_47           "line COACHELA to JACKSON   92 ck 1"
 line "COACHELA  92.00"  "JACKSON   92.00"  "1 "  1 0
0
line 48           "line COACHELA to AVE 52    92 ck 1"
 line "COACHELA  92.00"  "AVE 52    92.00"  "1 "  1 0
0
line_51           "line DROP2    to DROP4     92 ck 1"
 line "DROP2     92.00"  "DROP4     92.00"  "1 "  1 0
0
line 52           "line DROP3    to DROP4     92 ck 1"
 line "DROP3     92.00"  "DROP4     92.00"  "1 "  1 0
0
line_53           "line DROP4    to BRAVO     92 ck 1"
 line "DROP4     92.00"  "BRAVO     92.00"  "1 "  1 0
0
line 54           "line DROP4    to PILOTKNB  92 ck 1"
 line "DROP4     92.00"  "PILOTKNB  92.00"  "1 "  1 0
0
line_56           "line DROP4    to HIGHLINE  92 ck 1"
 line "8326"  "8691"  "1 "  1 0
0
line 57           "line EDOM     to MIRAGTIE  92 ck 1"
 line "EDOM      92.00"  "MIRAGTIE  92.00"  "1 "  1 0
0
line 58           "line ELCENTSW to PILOTKNB 161 ck 1"
 line "ELCENTSW 161.00"  "PILOTKNB 161.00"  "1 "  1 0
0
line 62           "line ELSTEAMP to ELTERMIN  92 ck 1"
 line "ELSTEAMP  92.00"  "ELTERMIN  92.00"  "1 "  1 0
0
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line 63           "line ELSTEAMP to ELTERMIN  92 ck 2"
 line "ELSTEAMP  92.00"  "ELTERMIN  92.00"  "2 "  1 0
0
line 64           "line ELSTEAMP to HEBERSCE  92 ck 1"
 line "ELSTEAMP  92.00"  "HEBERSCE  92.00"  "1 "  1 0
0
line 65           "line ELSTEAMP to HOLTVILL  92 ck 1"
 line "ELSTEAMP  92.00"  "HOLTVILL  92.00"  "1 "  1 0
0
line 66           "line ELSTEAMP to CLARK     92 ck 1"
 line "ELSTEAMP  92.00"  "CLARK     92.00"  "1 "  1 0
0
line 68           "line ELSTEAMP to WSTBIOTP  92 ck 2"
 line "ELSTEAMP  92.00"  "WSTBIOTP  92.00"  "2 "  1 0
0
line 69           "line ELSTEAMP to ATEN      92 ck 1"
 line "ELSTEAMP  92.00"  "ATEN      92.00"  "1 "  1 0
0
line 70           "line ELSTEAMP to PRUETT    92 ck 1"
 line "ELSTEAMP  92.00"  "PRUETT    92.00"  "1 "  1 0
0
line 71           "line ELSTEAMP to IMPERIAL  92 ck 1"
 line "ELSTEAMP  92.00"  "IMPERIAL  92.00"  "1 "  1 0
0
line 72           "line ELSTEAMP to CENTRAL   92 ck 1"
 line "ELSTEAMP  92.00"  "CENTRAL   92.00"  "1 "  1 0
0
line 73           "line ELTERMIN to EUCLID    92 ck 1"
 line "ELTERMIN  92.00"  "EUCLID    92.00"  "1 "  1 0
0
line_74           "line EUCLID   to DAHLIA    92 ck 1"
 line "EUCLID    92.00"  "DAHLIA    92.00"  "1 "  1 0
0
line 75           "line HEBERSCE to PERRY     92 ck 1"
 line "HEBERSCE  92.00"  "PERRY     92.00"  "1 "  1 0
0
line_76           "line HOLTVILL to HIGHLINE  92 ck 1"
 line "8345"  "8691"  "2 "  1 0
0
line 77           "line HOLTVILL to ATEN      92 ck 1"
 line "HOLTVILL  92.00"  "ATEN      92.00"  "1 "  1 0
0
line_78           "line CLARK    to DAHLIA    92 ck 1"
 line "CLARK     92.00"  "DAHLIA    92.00"  "1 "  1 0
0
line 83           "line NILAND   to CVSUB161 161 ck 1"
 line "NILAND   161.00"  "CVSUB161 161.00"  "1 "  1 0
0
line_84           "line NILAND   to BLYTHE   161 ck 1"
 line "NILAND   161.00"  "BLYTHE   161.00"  "1 "  1 0
0
line 85           "line BRAVO    to PERRY     92 ck 1"
 line "BRAVO     92.00"  "PERRY     92.00"  "1 "  1 0
0
line_86           "line BRAVO    to CLX92     92 ck 1"
 line "BRAVO     92.00"  "CLX92     92.00"  "1 "  1 0
0
line 87           "line NILAND   to PRITP1    92 ck 1"
 line "NILAND    92.00"  "PRITP1    92.00"  "1 "  1 0
0
line_89           "line OASIS    to KTP2      92 ck 1"
 line "OASIS     92.00"  "KTP2      92.00"  "1 "  1 0
0
line 90           "line PERRY    to PRUETT    92 ck 1"
 line "PERRY     92.00"  "PRUETT    92.00"  "1 "  1 0
0
line_91           "line DESRTPWR to UNIT5     92 ck 1"
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 line "DESRTPWR  92.00"  "UNIT5     92.00"  "1 "  1 0
0
line 92           "line ROCKWOOD to WSTBIOTP  92 ck 2"
 line "ROCKWOOD  92.00"  "WSTBIOTP  92.00"  "2 "  1 0
0
line 93           "line ROCKWOOD to BRAW92    92 ck 1"
 line "ROCKWOOD  92.00"  "BRAW92    92.00"  "1 "  1 0
0
line 97           "line RTAP2    to SANFELIP  92 ck 1"
 line "RTAP2     92.00"  "SANFELIP  92.00"  "1 "  1 0
0
line 100          "line RTP3ANZA to WESTMORL  92 ck 1"
 line "RTP3ANZA  92.00"  "WESTMORL  92.00"  "1 "  1 0
0
line 104          "line CLX92    to MALL      92 ck 1"
 line "CLX92     92.00"  "MALL      92.00"  "1 "  1 0
0
line 105          "line ELSTEAMP to MALL      92 ck 1"
 line "ELSTEAMP  92.00"  "MALL      92.00"  "1 "  1 0
0
line 106          "line CALPTTAP to CALIPAT   92 ck 1"
 line "CALPTTAP  92.00"  "CALIPAT   92.00"  "1 "  1 0
0
line 107          "line CALPTTAP to PRITP2    92 ck 1"
 line "CALPTTAP  92.00"  "PRITP2    92.00"  "1 "  1 0
0
line 108          "line PRUETTAP to HIGHLINE  92 ck 1"
 line "8900"  "8691"  "1 "  1 0
0
line 109          "line SIGCTAP  to SIGC92    92 ck 1"
 line "SIGCTAP   92.00"  "SIGC92    92.00"  "1 "  1 0
0
line 110          "line JJELMORE to LEATHERS  92 ck 1"
 line "JJELMORE  92.00"  "LEATHERS  92.00"  "1 "  1 0
0
line 111          "line JJELMORE to DELRAN    92 ck 1"
 line "JJELMORE  92.00"  "DELRAN    92.00"  "1 "  1 0
0
line 112          "line LEATHERS to MIDWAY    92 ck 1"
 line "LEATHERS  92.00"  "MIDWAY    92.00"  "1 "  1 0
0
line 113          "line EARTHE2  to REG1EX    92 ck 1"
 line "EARTHE2   92.00"  "REG1EX    92.00"  "1 "  1 0
0
line 114          "line EARTHE2  to VULCAN    92 ck 1"
 line "EARTHE2   92.00"  "VULCAN    92.00"  "1 "  1 0
0
line 115          "line HIGHLINE to MIDWAY   230 ck 1"
 line   "8690"  "8699"  "1 "  1 0
0
line 116          "line HIGHLINE to MIDWAY   230 ck 2"
 line   "8690"  "8699"  "2 "  1 0
0
line 117          "line HIGHLINE to GEM23     92 ck 2"
 line "HIGHLINE  92.00"  "GEM23     92.00"  "2 "  1 0
0
line 118          "line RAMON    to MIRAGE   230 ck 1"
 line "RAMON    230.00"  "MIRAGE   230.00"  "1 "  1 0
0
line 119          "line MIRAGTIE to AVE42     92 ck 1"
 line "MIRAGTIE  92.00"  "AVE42     92.00"  "1 "  1 0
0
line 120          "line CALIPAT  to WESTMORL  92 ck 1"
 line "CALIPAT   92.00"  "WESTMORL  92.00"  "1 "  1 0
0
line 121          "line CALIPAT  to CALTP2    92 ck 1"
 line "CALIPAT   92.00"  "CALTP2    92.00"  "1 "  1 0
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0
line_122          "line MIDWAY   to MINPLNT   92 ck 1"
 line "MIDWAY    92.00"  "MINPLNT   92.00"  "1 "  1 0
0
line 123          "line MIDWAY   to VULCAN    92 ck 1"
 line "MIDWAY    92.00"  "VULCAN    92.00"  "1 "  1 0
0
line_124          "line MINPLNT  to UNIT5     92 ck 1"
 line "MINPLNT   92.00"  "UNIT5     92.00"  "1 "  1 0
0
line 125          "line WSTBIOTP to WESTBIO   92 ck 1"
 line "WSTBIOTP  92.00"  "WESTBIO   92.00"  "1 "  1 0
0
line_126          "line PARKVIEW to WESTMORL  92 ck 1"
 line "PARKVIEW  92.00"  "WESTMORL  92.00"  "1 "  1 0
0
line 127          "line PARKVIEW to CALIPAT   92 ck 1"
 line "PARKVIEW  92.00"  "CALIPAT   92.00"  "1 "  1 0
0
line_132          "line PRITP1   to PRISON    92 ck 1"
 line "PRITP1    92.00"  "PRISON    92.00"  "1 "  1 0
0
line 133          "line PRISON   to PRITP2    92 ck 1"
 line "PRISON    92.00"  "PRITP2    92.00"  "1 "  1 0
0
line_134          "line GEM92    to GEM23     92 ck 2"
 line "GEM92     92.00"  "GEM23     92.00"  "2 "  1 0
0
line 135          "line GEM23    to ORM2      92 ck 2"
 line "GEM23     92.00"  "ORM2      92.00"  "2 "  1 0
0
line_136          "line ORM2     to ORM1      92 ck 2"
 line "ORM2      92.00"  "ORM1      92.00"  "2 "  1 0
0
line 137          "line CALTP2   to BEEFPLNT  92 ck 1"
 line "CALTP2    92.00"  "BEEFPLNT  92.00"  "1 "  1 0
0
line_140          "line IMPERIAL to PANNO     92 ck 1"
 line "IMPERIAL  92.00"  "PANNO     92.00"  "1 "  1 0
0
line 141          "line IMPERIAL to BRAW92    92 ck 1"
 line "IMPERIAL  92.00"  "BRAW92    92.00"  "1 "  1 0
0
line_142          "line BRAW92   to PARKVIEW  92 ck 1"
 line "BRAW92    92.00"  "PARKVIEW  92.00"  "1 "  1 0
0
line 143          "line BRAW92   to PANNO     92 ck 1"
 line "BRAW92    92.00"  "PANNO     92.00"  "1 "  1 0
0
line_144          "line BRAW92   to BEEFPLNT  92 ck 1"
 line "BRAW92    92.00"  "BEEFPLNT  92.00"  "1 "  1 0
0
line 145          "line KNOB     to PILOTKNB 161 ck 1"
 line "KNOB     161.00"  "PILOTKNB 161.00"  "1 "  1 0
0
line_146          "line ELCENTSW to NILAND   161 ck 1"
 line "ELCENTSW 161.00"  "NILAND   161.00"  "1 "  1 0
0
line 148          "line BANISTER to BANTP2   161 ck 1"
 line "BANISTER 161.00"  "BANTP2   161.00"  "1 "  1 0
0
line 149          "line BANISTER to BANTP1   161 ck 1"
 line "BANISTER 161.00"  "BANTP1   161.00"  "1 "  1 0
0
line 150          "line AV58TP1  to BANTP2   161 ck 1"
 line "AV58TP1  161.00"  "BANTP2   161.00"  "1 "  1 0
0
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line 151          "line ELCENTSW to BANTP1   161 ck 1"
 line "ELCENTSW 161.00"  "BANTP1   161.00"  "1 "  1 0
0
line 154          "line AVE48    to AVE58     92 ck 1"
 line "AVE48     92.00"  "AVE58     92.00"  "1 "  1 0
0
line 155          "line AVE48    to JEFERSN   92 ck 1"
 line "AVE48     92.00"  "JEFERSN   92.00"  "1 "  1 0
0
line 157          "line ELSTEAMP to PRUETTAP  92 ck 1"
 line "ELSTEAMP  92.00"  "PRUETTAP  92.00"  "1 "  1 0
0
line 158          "line PRUETT   to PRUETTAP  92 ck 1"
 line "PRUETT    92.00"  "PRUETTAP  92.00"  "1 "  1 0
0
line 159          "line NILAND   to MW1TAP    92 ck 1"
 line "NILAND    92.00"  "MW1TAP    92.00"  "1 "  1 0
0
line 160          "line MW1TAP   to MIDWAY    92 ck 1"
 line "MW1TAP    92.00"  "MIDWAY    92.00"  "1 "  1 0
0
line 161          "line LEATHERS to MW1TAP    92 ck 1"
 line "LEATHERS  92.00"  "MW1TAP    92.00"  "1 "  1 0
0
line 162          "line SS6-230  to MIDWAY   230 ck 1"
 line   8600  8699  "1 "  1 0
0
line 163          "line SS6-230  to BANIS230 230 ck 1"
 line "SS6-230  230.00"  "BANIS230 230.00"  "1 "  1 0
0
tran_164          "tran CVSUB     92 to COACHELA  230 ck 1"
 tran "CVSUB     92.00"  "COACHELA 230.00"  "1 "  0
0
tran 165          "tran CVSUB     92 to COACHELA  230 ck 2"
 tran "CVSUB     92.00"  "COACHELA 230.00"  "2 "  0
0
tran_166          "tran CVSUB     92 to CVSUB161  161 ck 2"
 tran "CVSUB     92.00"  "CVSUB161 161.00"  "2 "  0
0
tran 167          "tran CVSUB     92 to CVSUB161  161 ck 1"
 tran "CVSUB     92.00"  "CVSUB161 161.00"  "1 "  0
0
tran_168          "tran AVE58     92 to AV58      161 ck 1"
 tran "AVE58     92.00"  "AV58     161.00"  "1 "  0
0
tran 169          "tran AVE58     92 to AV58      161 ck 2"
 tran "AVE58     92.00"  "AV58     161.00"  "2 "  0
0
tran_170          "tran BANISTER 161 to BANIS230  230 ck 1"
 tran "BANISTER 161.00"  "BANIS230 230.00"  "1 "  0
0
tran 171          "tran ELCENTSW 161 to ELCENTSW  230 ck 1"
 tran "ELCENTSW 161.00"  "ELCENTSW 230.00"  "1 "  0
0
tran_172          "tran ELCENTSW 161 to ELSTEAMP   92 ck 1"
 tran "ELCENTSW 161.00"  "ELSTEAMP  92.00"  "1 "  0
0
tran 173          "tran ELCENTSW 161 to ELSTEAMP   92 ck 2"
 tran "ELCENTSW 161.00"  "ELSTEAMP  92.00"  "2 "  0
0
tran_174          "tran NILAND   161 to NILAND     92 ck 2"
 tran "NILAND   161.00"  "NILAND    92.00"  "2 "  0
0
tran 175          "tran NILAND   161 to NILAND     92 ck 1"
 tran "NILAND   161.00"  "NILAND    92.00"  "1 "  0
0
tran_176          "tran PILOTKNB 161 to PILOTKNB   92 ck 1"
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 tran "PILOTKNB 161.00"  "PILOTKNB  92.00"  "1 "  0
0
tran 177          "tran MIRAGTIE  92 to RAMON     230 ck 1"
 tran "MIRAGTIE  92.00"  "RAMON    230.00"  "1 "  0
0
tran 178          "tran HIGHLINE 230 to HIGHLINE   92 ck 1"
 tran "HIGHLINE 230.00"  "HIGHLINE  92.00"  "1 "  0
0
tran 179          "tran ELCENTSW 230 to ELSTEAMP   92 ck 1"
 tran "ELCENTSW 230.00"  "ELSTEAMP  92.00"  "1 "  0
0
tran 180          "tran MIDWAY   230 to MIDWAY     92 ck 1"
 tran   8699  8700  "1 "  0
0
tran 181          "tran MIDWAY   230 to MIDWAY     92 ck 2"
 tran   8699  8700  "2 "  0
0
line 182        "line BANTP1 161 to ELCENTSW  161 ckt 1"
   line "BANTP1   161.00"  "ELCENTSW 161.00"  "1 "  1 0
0
line 183        "line BANTP1 161 to AV58TP1  161 ckt 1"
   line "BANTP2   161.00"  "AV58TP1 161.00"  "1 "  1 0
0
line 205        "line DEVERS   to VALLEYSC 500 ck 1"
 line    "DEVERS   500.00"  "VALLEYSC 500.00"   "1 "    1       0
0
line 206        "line HASSYAMP   to N.GILA 500 ck 1"
 line   "HASSYAMP   500.00"  "N.GILA 500.00"    "1 "    1       0
0
line 207        "line IMPRLVLY   to MIGUEL 500 ck 1"
 line   "IMPRLVLY   500.00"  "MIGUEL 500.00"    "1 "    1       0
0
line 208        "line MEAD   to MARKETPL 500 ck 1"
 line   "MEAD     500.00"  "MARKETPL 500.00"    "1 "    1       0
0
line 209        "line MEAD   to PERKINS 500 ck 1"
 line   "MEAD      500.00"  "PERKINS 500.00"    "1 "    1       0
0
line 210        "line N.GILA   to IMPRLVLY 500 ck 1"
 line   "N.GILA   500.00"  "IMPRLVLY 500.00"    "1 "    1       0
0
line 211        "line PALOVRDE   to DEVERS 500 ck 1"
 line   "PALOVRDE   500.00"  "DEVERS 500.00"    "1 "    1       0
0
tran 212        "tran DEVERS   to DEVERS 500/230 ck 1"
 tran   "DEVERS     500.00"  "DEVERS 230.00"    "1 "    1       0
0
tran 213        "tran MEAD   to MEAD N 500/230 ck 1"
 tran   "MEAD       500.00"  "MEAD N 230.00"    "1 "    1       0
0
tran 214        "tran N.GILA  to N.GILA 500/69 ck 1"
 tran   "N.GILA      500.00"  "N.GILA 69.00"    "1 "    1       0
0
line 215        "line BC TAP   to MEAD N 230 ck 1"
 line    "BC TAP   230.00"  "MEAD N   230.00"   "1 "    1       0
0
line 217        "line DAVIS   to MCCULLGH 230 ck 1"
 line    "DAVIS    230.00"  "MCCULLGH 230.00"   "1 "    1       0
0
line 218        "line DAVIS   to MEAD N 230 ck 1"
 line    "DAVIS      230.00"  "MEAD N 230.00"   "1 "    1       0
0
line 219        "line DAVIS   to TOPOCK 230 ck 1"
 line    "DAVIS      230.00"  "TOPOCK 230.00"   "1 "    1       0
0
line 220        "line DAVIS   to TOPOCK 230 ck 2"
 line    "DAVIS      230.00"  "TOPOCK 230.00"   "2 "    1       0
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0
line_221        "line DEVERS   to MIRAGE 230 ck 1"
 line    "DEVERS   230.00"  "MIRAGE 230.00"     "1 "    1       0
0
line 222        "line DEVERS   to SANBRDNO 230 ck 2"
 line    "DEVERS   230.00"  "SANBRDNO 230.00"   "2 "    1       0
0
line_223        "line DEVERS   to VSTA 230 ck 2"
 line    "DEVERS   230.00"  "VSTA 230.00"       "2 "    1       0
0
line 224        "line EAGLEMTN   to IRON MTN 230 ck 1"
 line    "EAGLEMTN 230.00"  "IRON MTN 230.00"   "1 "    1       0
0
line_226        "line ETIWANDA   to SANBRDNO 230 ck 1"
 line   "ETIWANDA 230.00"  "SANBRDNO 230.00"    "1 "    1       0
0
line 227        "line ETIWANDA   to VSTA 230 ck 1"
 line   "ETIWANDA     230.00"  "VSTA 230.00"    "1 "    1       0
0
line_228        "line GENE   to PARKER 230 ck 1"
 line   "GENE       230.00"  "PARKER 230.00"    "1 "    1       0
0
line 229        "line HILLTOP  to  MCCONICO     ck 1"
 line   "HILLTOP 230.00"  "MCCONICO 230.00"     "1 "    1       0
0
line_230        "line IRON MTN   to EAGLEMTN 230 ck 1"
 line   "IRON MTN 230.00"  "EAGLEMTN 230.00"    "1 "    1       0
0
line 231        "line J.HINDS   to EAGLEMTN 230 ck 1"
 line   "J.HINDS  230.00"  "EAGLEMTN 230.00"    "1 "    1       0
0
line_232        "line J.HINDS   to MIRAGE 230 ck 1"
 line   "J.HINDS    230.00"  "MIRAGE 230.00"    "1 "    1       0
0
line 233        "line LIBERTY  to  WESTWING ck 1"
 line   "LIBERTY 230.00"  "WESTWING 230.00"     "1 "    1       0
0
line_234        "line MCCONICO  to  DAVIS     ck 1"
 line   "MCCONICO 230.00"  "DAVIS   230.00"     "1 "    1       0
0
line 235        "line MCCONICO  to  GRIFFITH     ck 1"
 line   "MCCONICO 230.00" "GRIFFITH 230.00"     "1 "    1       0
0
line_236        "line MEAD   to IRON MTN ck 1"
 line   24019     25402 "1 "    1       0
 line   24019     19012 "E "    1       0
 line   24019     19012 "W "    1       0
 line   25405     24019 "1 "    1       0
0
line_237        "line MEAD S   to EQUEST 230 ck 1"
 line   "MEAD S     230.00"  "EQUEST 230.00"    "1 "    1       0
0
line 238        "line MEAD S   to MCCULLGH 230 ck 1"
 line   "MEAD S   230.00"  "MCCULLGH 230.00"    "1 "    1       0
0
line_239        "line MEAD S to GREENWAY ck 1"
 line   19012   18674   "1 "    1       0
0
line 240        "line MEAD S to PAHRUMP ck 1"
 line   "MEAD S   230.00"  "PAHRUMP 230.00"     "1 "    1       0
0
line 241        "line PARKER   to  BLK MESA ck 1"
 line   "PARKER  230.00"  "BLK MESA 230.00"     "1 "    1       0
0
line 242        "line PARKER   to  EAGLEYE  ck 1"
 line   "PARKER  230.00"  "EAGLEYE  230.00"     "1 "    1       0
0
```



```
line 243        "line PARKER   to  HARCUVAR ck 1"
 line   "PARKER  230.00"  "HARCUVAR 230.00"     "1 "    1       0
0
line 244        "line PEACOCK   to   HILLTOP   ck 1"
 line   "PEACOCK 230.00"  "HILLTOP  230.00"     "1 "    1       0
0
line 246        "line SANBRDNO   to DEVERS 230 ck 1"
 line   "SANBRDNO   230.00"  "DEVERS 230.00"    "1 "    1       0
0
line 247        "line TOPOCK   to   BLK MESA ck 1"
 line   "TOPOCK  230.00"  "BLK MESA 230.00"     "1 "    1       0
0
line 248        "line TOPOCK   to   SOPOINT ck 1"
 line   "TOPOCK  230.00"  "SOPOINT  230.00"     "1 "    1       0
0
line 249        "line TOPOCK   to   SOPOINT ck 2"
 line   "TOPOCK  230.00"  "SOPOINT  230.00"     "2 "    1       0
0
line 250        "line VSTA   to DEVERS 230 ck 1"
 line   "VSTA     230.00"  "DEVERS 230.00"      "1 "    1       0
0
line 251        "line VSTA   to SANBRDNO 230 ck 2"
 line   "VSTA     230.00"  "SANBRDNO 230.00"    "2 "    1       0
0
tran 252        "tran MEAD   to MEAD N 345/230 ck 1"
 tran   "MEAD       345.00"  "MEAD N 230.00"    "1 "    1       0
0
tran 253        "tran MEAD S   to MEAD 230/287 ck 1"
 tran   "MEAD S       230.00"  "MEAD 287.00"    "1 "    1       0
0
tran_254        "tran MEAD S   to MEAD A 230/69 ck 1"
 tran   "MEAD S      230.00"  "MEAD A 69.00"    "1 "    1       0
0
tran 255        "tran MEAD S   to MEAD B 230/69 ck 1"
 tran   "MEAD S      230.00"  "MEAD B 69.00"    "1 "    1       0
0
tran_256        "tran PARKER   to PARKER 161/230 ck 1"
 tran   "PARKER     161.00"  "PARKER 230.00"    "1 "    1       0
0
tran 257        "tran PARKER   to PARKER 161/230 ck 2"
 tran   "PARKER     161.00"  "PARKER 230.00"    "2 "    1       0
0
line_259        "line LIBERTY   to PEACOCK 345 ck 1"
 line   "LIBERTY   345.00"  "PEACOCK 345.00"    "1 "    1       0
0
line 260        "line PEACOCK   to MEAD 345 ck 1"
 line   "PEACOCK      345.00"  "MEAD 345.00"    "1 "    1       0
0
line_261        "line ELCENT   to IVPS 230 ck 2"
 line   "8332"  "22357" "2 "    1       0
0
tran 262        "tran IVPS   to IMPERVLY PS ck 1"
 tran   "22356"  "22357"        1       0
0
line_263        "line GLT TAP   to BLYTHE   161 ck 1"
 line "19105"  "19020"  "1 "  1 0
 line "19105"  "19051"  "1 "  1 0
0
line 264        "line BUCKBLVD   to BLYTHE   161 ck 1"
 line "19101"  "19020"  "1 "  1 0
0
line 265        "line BLYTHESC   to BLYTHE   161 ck 1"
 line "24017"  "19020"  "1 "  1 0
0
line 266        "line HEADGATE   to BLYTHE   161 ck 1"
 line "19206"  "19020"  "1 "  1 0
0
```

```
line 267        "line PARKER   to BLYTHE   161 ck 1"
 line "19041"  "19020"  "1 "  1 0
0
tran 268          "tran SS6 16/230kV  ck 1"
 tran "8686"  "8600"  "1 "  0
0
line 269        "Line AVE58TP1 - ESM161 161kV"
 line "8806"  "8400"  "1 " 1 0
0
line 270        "Line BANTP2 - ESM161  161kV"
 line "8200"  "8400"  "1 " 1 0
0
tran 271        "tran ESM 161 - ESM13.8"
  tran "8400"  "8450"  "1 " 0
0
line 272       "Line ELSTEAMP - LIBTAP 92kV"
  line "8335"  "8725"  "2 " 1 0
0
line 273        "line LIBTAP-WSTBIOTP 92kV"
  line "8725"  "8720"  "2 " 1 0
0
line 274        "line LIBTAP-LIB92 92kV"
  line "8725"  "8726"  "2 " 1 0
0
tran 275        "tran LIBG1 - LIB92 13.8/92kV"
  tran "8727"  "8726"  "1 " 0
0
tran 276        "tran LIBG2 - LIB92 13.8/92kV"
  tran "8728"  "8726"  "1 " 0
0
tran_277        "tran LIBG3 - LIB92 13.8/92kV"
  tran "8728"  "8726"  "1 " 0
0
tran 278        "tran SIGC - ORCAL 13.8/92kV"
  tran "8960"  "8961" "1 " 0
0
tran_279A       "tran Niland 161/13.8kV"
  tran  "8359"  "8000"  "1 " 0
0
tran 279B       "tran Niland 161/13.8kV"
  tran  "8359"  "8050"  "1 " 0
0
tran_279C       "tran Niland 92/13.8kV"
  tran  "8361"  "8000"  "1 " 0
0
tran 279D       "tran Niland 92/13.8kV"
  tran  "8361"  "8050"  "1 " 0
0
line_283        "PRUETTAP - SIGCTAP"
  line  "8900"  "8652"  "1 " 1 0
0
line 284        "ELCENTSW - IVPS"
  line "8332"   "22357" "2 " 1 0
0
tran_285        "IVPS - IMPRLVLY"
  tran "22357"  "22356" "1 "  0
0
tran 286        "tran REPU3 - ELSTEAMP"
  tran "8100"   "8335" "2 "  0
end
# End of contingency list, 184 continegncies added to list
```

```
# N-2 contingency selection
N2otg_100       "CV-Niland & Blythe-Niland 161kV"
 line "NILAND   161.00"  "CVSUB161 161.00"  "1 "  1 0
 line "NILAND   161.00"  "BLYTHE   161.00"  "1 "  1 0
0
N2otg_101       "CV-Niland & EC-Niland 161kV"
 line "ELCENTSW 161.00"  "NILAND   161.00"  "1 "  1 0
 line "NILAND   161.00"  "CVSUB161 161.00"  "1 "  1 0
0
N2otg_102       "Blythe-Niland & EC-Niland 161kV"
 line "ELCENTSW 161.00"  "NILAND   161.00"  "1 "  1 0
 line "NILAND   161.00"  "BLYTHE   161.00"  "1 "  1 0
0
n2otg_194    "N2-line DEVERS   to MIRAGE 230 ck 1"
 line "DEVERS 230.00"  "MIRAGE 230.00"  "1 "  1 0
 line "ETIWANDA    230.00"  "VSTA  230.00"  "1 "  1 0
0
n2otg_195    "N2-line VSTA   to DEVERS 230, 1 ck 1"
 line "VSTA     230.00"  "DEVERS 230.00"  "1 "  1 0
 line "VSTA    230.00"  "SANBRDNO  230.00"  "2 "  1 0
0
n2otg_196    "N2-line VSTA   to DEVERS 230, 2 ck 1"
 line "VSTA    230.00"  "DEVERS 230.00"  "1 "  1 0
 line "SANBRDNO 230.00"  "DEVERS 230.00"  "1 "  1 0
0
n2otg_197    "N2-line VSTA   to DEVERS 230, 3 ck 1"
 line "VSTA    230.00"  "DEVERS  230.00"  "1 "  1 0
 line "DEVERS 230.00" "SANBRDNO  230.00"  "1 "  1 0
0
n2otg_198    "N2-line VSTA   to DEVERS 230, 4 ck 1"
 line "VSTA     230.00" "DEVERS  230.00"  "1 "  1 0
 line "DEVERS  230.00"  "MIRAGE  230.00"  "1 "  1 0
0
n2otg_199    "N2-line VSTA   to DEVERS 230, 5 ck 1"
 line "VSTA    230.00"  "DEVERS  230.00"  "1 "  1 0
 line "ETIWANDA 230.00"  "SANBRDNO 230.00"  "1 "  1 0
0
n2otg_200    "N2-line COACHELA   to DEVERS 230, 1 ck 1"
 line "COACHELA 230.00"  "DEVERS 230.00"  "1 "  1 0
 line "J.HINDS    230.00"  "MIRAGE 230.00"  "1 "  1 0
0
n2otg_201    "N2-line COACHELA   to DEVERS 230, 2 ck 1"
 line "COACHELA 230.00"  "DEVERS  230.00"  "1 "  1 0
 line "DEVERS 230.00"  "MIRAGE  230.00"  "1 "  1 0
 line "8700"  "8703"  "1 "  1 0
 line "8700"  "8723"  "1 "  1 0
 line "8691"  "8912"  "2 "  1 0
0
n2otg_202    "N2-line COACHELA   to DEVERS 230, 3 ck 1"
 line "COACHELA 230.00"  "DEVERS 230.00"  "1 "  1 0
 line "RAMON      230.00"  "MIRAGE 230.00"  "1 "  1 0
0
n2otg_203    "N2-line COACHELA   to DEVERS 230, 4 ck 1"
 line "COACHELA 230.00"  "DEVERS 230.00"  "1 "  1 0
 line "COACHELA    230.00"  "RAMON 230.00"  "1 "  1 0
0
n2otg_205    "N2-line COACHELA   to RAMON 230 ck 1"
 line "COACHELA  230.00"  "RAMON   230.00"  "1 "  1 0
 line "RAMON    230.00"  "MIRAGE 230.00"  "1 "  1 0
0
n2otg_206    "N2-line COACHELA   to DEVERS 230, 6 ck 1"
 line "COACHELA 230.00"  "DEVERS 230.00"  "1 "  1 0
 line "COACHELA    230.00"  "RAMON 230.00"  "1 "  1 0
 tran "CVSUB     92.00"  "COACHELA 230.00"  "1 "  0
0
n2otg_207    "N2-line BLYTHESC to EAGLEMTN 161, 1 ck 1"
 line "BLYTHESC 161.00"  "EAGLEMTN 161.00"  "1 "  1 0
```



```
 line "EAGLEMTN 230.00"  "IRON MTN 230.00"  "1 "  1 0
0
n2otg_208    "N2-line BLYTHESC to EAGLEMTN 161, 2 ck 1"
 line "BLYTHESC 161.00"  "EAGLEMTN 161.00"  "1 "  1 0
 line "J.HINDS  230.00"  "EAGLEMTN 230.00"  "1 "  1 0
0
n2otg_209    "N2-line BLYTHE   to BLYTHESC 161, 1 ck 1"
 line "BLYTHE   161.00"  "BLYTHESC 161.00"  "1 "  1 0
 line "EAGLEMTN 230.00"  "IRON MTN 230.00"  "1 "  1 0
0
n2otg_210    "N2-line BLYTHE   to BLYTHESC 161, 2 ck 1"
 line "BLYTHE   161.00"  "BLYTHESC 161.00"  "1 "  1 0
 line "J.HINDS  230.00"  "EAGLEMTN 230.00"  "1 "  1 0
0
n2otg_211    "N2-line BLYTHE   to BLYTHESC 161, 3 ck 1"
 line "BLYTHE   161.00"  "BLYTHESC 161.00"  "1 "  1 0
 line "BLYTHESC 161.00"  "EAGLEMTN 161.00"  "1 "  1 0
0
n2otg_212w    "N2-line BLYTHE   to KNOB 230, 1 ck 1"
 line "BLYTHE    161.00"  "GLT TAP 161.00"  "1 "  1 0
 line "GLT TAP   161.00"  "KNOB 161.00"     "1 "  1 0
 line "PARKER  161.00"  "BLYTHE    161.00"  "1 "  1 0
0
n2otg_213w    "N2-line BLYTHE   to KNOB 161, 2 ck 1"
 line "BLYTHE    161.00"  "GLT TAP 161.00"    "1 "  1 0
 line "GLT TAP   161.00"  "KNOB 161.00"       "1 "  1 0
 line "BLYTHE  161.00"    "HEADGATE  161.00"  "1 "  1 0
0
n2otg_214w    "N2-line BLYTHE   to KNOB 161, 3 ck 1"
 line "BLYTHE    161.00"  "GLT TAP 161.00"    "1 "  1 0
 line "GLT TAP   161.00"  "KNOB 161.00"       "1 "  1 0
 line "BLYTHE  161.00"  "NILAND    161.00"    "1 "  1 0
0
n2otg_215w    "N2-line BLYTHE   to KNOB 161, 4 ck 1"
 line "BLYTHE    161.00"  "GLT TAP 161.00"    "1 "  1 0
 line "GLT TAP   161.00"  "KNOB 161.00"       "1 "  1 0
 line "EAGLEMTN 161.00"  "BLYTHESC 161.00"  "1 "  1 0
0
n2otg_216    "N2-line BLYTHE   to PARKER 161, 1 ck 1"
 line "BLYTHE  161.00"  "PARKER    161.00"  "1 "  1 0
 line "BLYTHE   161.00"  "HEADGATE 161.00"  "1 "  1 0
0
n2otg_217    "N2-line BLYTHE   to PARKER 161, 2 ck 1"
 line "BLYTHE  161.00"  "PARKER    161.00"  "1 "  1 0
 line "BLYTHE   161.00"  "NILAND   161.00"  "1 "  1 0
0
n2otg_218    "N2-line BLYTHE   to PARKER 161, 3 ck 1"
 line "BLYTHE  161.00"  "PARKER    161.00"  "1 "  1 0
 line "EAGLEMTN 161.00"  "BLYTHESC 161.00"  "1 "  1 0
0
n2otg_219    "N2-line BLYTHE   to HEADGATE 161, 1 ck 1"
 line "BLYTHE  161.00"  "HEADGATE  161.00"  "1 "  1 0
 line "BLYTHE   161.00"  "NILAND   161.00"  "1 "  1 0
0
n2otg_220    "N2-line BLYTHE   to HEADGATE 161, 2 ck 1"
 line "BLYTHE  161.00"  "HEADGATE  161.00"  "1 "  1 0
 line "EAGLEMTN 161.00"  "BLYTHESC 161.00"  "1 "  1 0
0
n2otg_221    "N2-line BLYTHE   to NILAND 161 ck 1"
 line "BLYTHE  161.00"  "NILAND    161.00"  "1 "  1 0
 line "EAGLEMTN 161.00"  "BLYTHESC 161.00"  "1 "  1 0
0
n2otg_222    "N2-line PARKER   to BOUSE 161, 1 ck 1"
 line "PARKER   161.00"  "BOUSE    161.00"  "1 "  1 0
 line "PARKER 161.00"  "HEADGATE   161.00"  "1 "  1 0
0
n2otg_223    "N2-line PARKER   to BOUSE 161, 2 ck 1"
```

```
 line "PARKER   161.00"  "BOUSE    161.00"  "1 "  1 0
 line "BLYTHE   161.00"  "PARKER   161.00"  "1 "  1 0
0
n2otg_224    "N2-line PARKER   to HEADGATE 161 ck 1"
 line "PARKER   161.00"  "HEADGATE 161.00"  "1 "  1 0
 line "BLYTHE   161.00"  "PARKER   161.00"  "1 "  1 0
0
n2otg_225    "N2-line GENE   to PARKER 230, 1 ck 1"
 line "GENE       230.00"  "PARKER 230.00"  "1 "  1 0
 line "PARKER   230.00"  "EAGLEYE  230.00"  "1 "  1 0
0
n2otg_226    "N2-line GENE   to PARKER 230, 2 ck 1"
 line "GENE       230.00"  "PARKER 230.00"  "1 "  1 0
 line "PARKER   230.00"  "HARCUVAR 230.00"  "1 "  1 0
0
n2otg_227    "N2-line GENE   to PARKER 230, 3 ck 1"
 line "GENE       230.00"  "PARKER 230.00"  "1 "  1 0
 line "PARKER   230.00"  "HAVASU   230.00"  "1 "  1 0
0
n2otg_228    "N2-line GENE   to PARKER 230, 4 ck 1"
 line "GENE       230.00"  "PARKER 230.00"  "1 "  1 0
 tran "PARKER   161.00"    "PARKER 230.00"  "1 "  0
0
n2otg_229    "N2-line GENE   to PARKER 230, 5 ck 1"
 line "GENE       230.00"  "PARKER 230.00"  "1 "  1 0
 tran "PARKER   161.00"    "PARKER 230.00"  "2 "  0
0
n2otg_230    "N2-line PARKER   to EAGLEYE 230, 1 ck 1"
 line "PARKER    230.00"  "EAGLEYE 230.00"  "1 "  1 0
 line "PARKER   230.00"  "HARCUVAR 230.00"  "1 "  1 0
0
n2otg_231    "N2-line PARKER   to EAGLEYE 230, 2 ck 1"
 line "PARKER    230.00"  "EAGLEYE 230.00"  "1 "  1 0
 line "PARKER   230.00"  "HAVASU   230.00"  "1 "  1 0
0
n2otg_232    "N2-line PARKER   to EAGLEYE 230, 3 ck 1"
 line "PARKER    230.00"  "EAGLEYE 230.00"  "1 "  1 0
 tran "PARKER   161.00"    "PARKER 230.00"  "1 "  0
0
n2otg_233    "N2-line PARKER   to EAGLEYE 230, 4 ck 1"
 line "PARKER    230.00"  "EAGLEYE 230.00"  "1 "  1 0
 tran "PARKER   161.00"    "PARKER 230.00"  "2 "  0
0
n2otg_234    "N2-line PARKER   to HARCUVAR 230, 1 ck 1"
 line "PARKER   230.00"  "HARCUVAR 230.00"  "1 "  1 0
 line "PARKER   230.00"  "HAVASU   230.00"  "1 "  1 0
0
n2otg_235    "N2-line PARKER   to HARCUVAR 230, 2 ck 1"
 line "PARKER   230.00"  "HARCUVAR 230.00"  "1 "  1 0
 tran "PARKER   161.00"    "PARKER 230.00"  "1 "  0
0
n2otg_236    "N2-line PARKER   to HARCUVAR 230, 3 ck 1"
 line "PARKER   230.00"  "HARCUVAR 230.00"  "1 "  1 0
 tran "PARKER   161.00"    "PARKER 230.00"  "2 "  0
0
n2otg_237    "N2-line PARKER   to HAVASU 230, 1 ck 1"
 line "PARKER   230.00"  "HAVASU   230.00"  "1 "  1 0
 tran "PARKER   161.00"    "PARKER 230.00"  "1 "  0
0
n2otg_238    "N2-line PARKER   to HAVASU 230, 2 ck 1"
 line "PARKER   230.00"  "HAVASU   230.00"  "1 "  1 0
 tran "PARKER   161.00"    "PARKER 230.00"  "2 "  0
0
n2otg_239    "N2-tran PARKER to PARKER 161/230 ck 1 & 2"
 tran "PARKER   161.00"    "PARKER 230.00"  "1 "  0
 tran "PARKER   161.00"    "PARKER 230.00"  "2 "  0
0
```



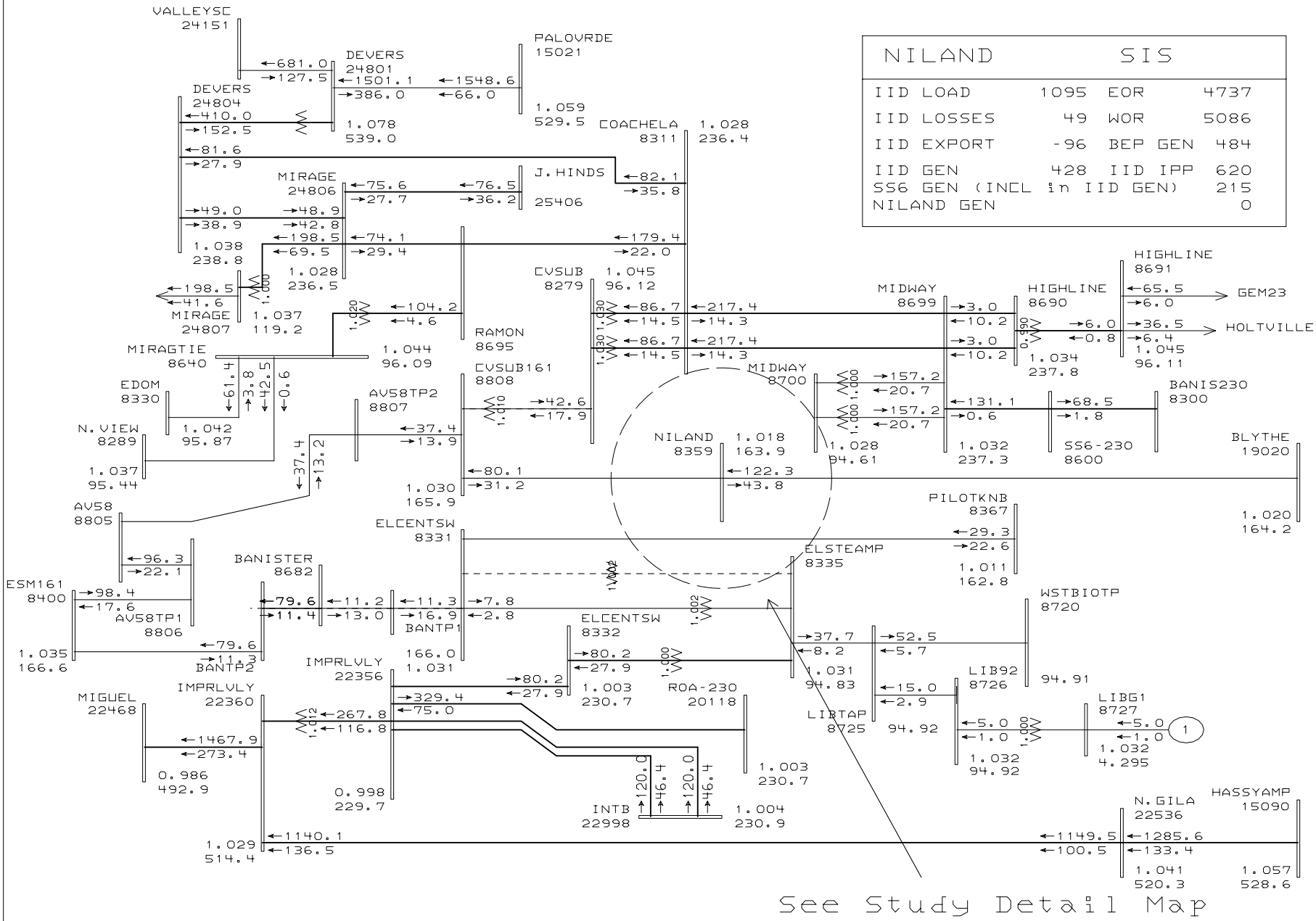
```
n2otg_261    "N2-line HIGHLINE   to MIDWAY  230 ck 1"
 line "8690"  "8699"  "1 "  1 0
 line "8690"  "8699"  "2 "  1 0
0
n2otg_262    "N2-line COACHELA to MIDWAY 230 ck 1"
 line "8311"  "8699"  "1 "  1 0
 line "8311"  "8699"  "2 "  1 0
 tran "8311"  "8279"  "1 "  0
 line "8700"  "8703"  "1 "  1 0
 line "8700"  "8723"  "1 "  1 0
0
n2otg_263    "N2-line AV58   to AV58TP2 161 ck 1"
 line "AV58    161.00"   "AV58TP2  161.00"  "1 "  1 0
 line "AV58    161.00"   "AV58TP1  161.00"  "1 "  1 0
0
n2otg_264    "N2-line BLYTHE   to BUCKBLVD 161 ck 1"
 line "BLYTHE 161.00"   "BUCKBLVD  161.00"  "1 "  1 0
 line "BLYTHE 161.00"   "HEADGATE  161.00"  "1 "  1 0
end

# End N-2 List

/*from ssg n2 r2.otg, from original n-2 from BARTn-2.otg.  S
aved and re-named, corrected bus names, removed duplicate outages*/
```

```
tran 279C       "tran Niland 92/13.8kV #1 and #2"
  tran  "8361"  "8000"  "1 " 0
  tran  "8361"  "8050"  "1 " 0
end
```

Niland System Impact Study

Appendix B
Niland Pre project power flow results

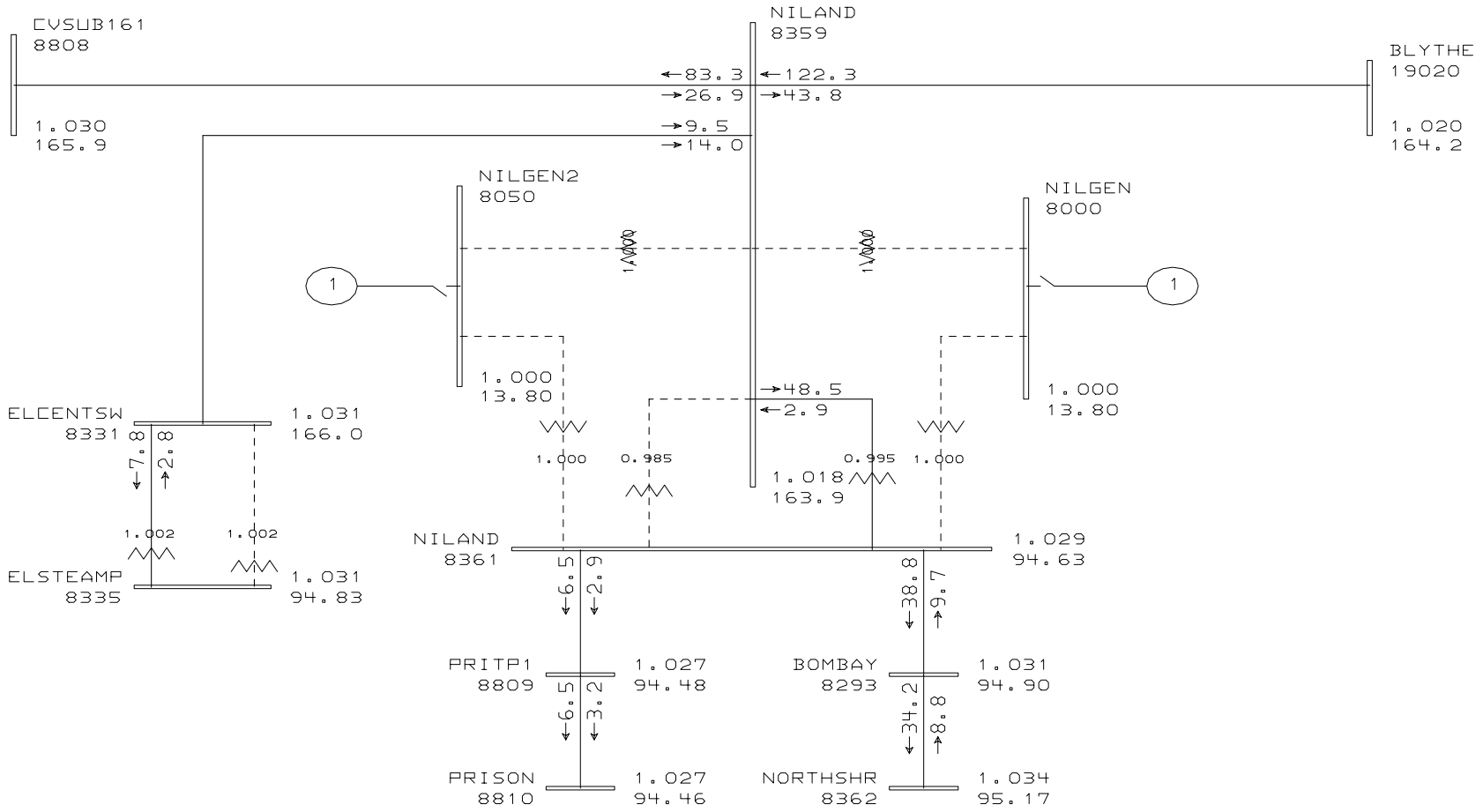
February 2006



General Electric International, Inc. PSLF Program MW/MVAR Mon Nov 07 07:51:15 2005

R2_NIL_Pre.sav 2008 HS 11-03-05 KRSA
Niland System Impact Study
Pre - Project

draw\nil_overview2.drw
cases\r2_nil_pre.sav
Rating = 1



NILAND SIS

General Electric International, Inc. PSLF Program MW/MVAR Mon Nov 07 07:51:03 2005

R2_NIL_Pre.sav 2008 HS 11-03-05 KRSA
Niland System Impact Study
Pre - Project

draw\nil_detailmap.drw
cases\r2_nil_pre.sav
Rating = 1

r2_nil_pre.sav
Voltage Summary
N-0 Outages

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
None Noted													

r2_nil_pre.sav
Flow Summary
N-0 Outages

LEGEND	% of RATING 1	
C_pu	100% - 110%	
C_pu	110% - 120%	P.U. of
C_pu	> 120%	Rate 1

FROM	FR	BKV	TO	TO	BKV	CK	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8342	HEBERSCE	92	8666	HEBERSCE	13.8	1	base	r2_NIL_pre	50	-47	10	292.8	48.1	0.96	0.96	Base system (n-0)

r2_nil_pre.sav
VOLTAGE Summary
N-1 Outages

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
None Noted													

r2_nil_pre.sav
FLOW Summary
N-1 Outages

LEGEND	% of RATING 1	
C_pu	100% - 110%	
C_pu	110% - 120%	P.U. of
C_pu	> 120%	Rate 1

FROM	FR	BKV	TO	TO	BKV	CK	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8699	MIDWAY	230	8700	MIDWAY	92	2	tran_180	r2_NIL_pre	225	-312.1	80.9	793.7	322.4	1.43	0.7	tran MIDWAY 230 to MIDWAY 92
8699	MIDWAY	230	8700	MIDWAY	92	1	tran_181	r2_NIL_pre	225	-312.1	80.9	793.7	322.4	1.43	0.7	tran MIDWAY 230 to MIDWAY 92
8279	CVSUB	92	8312	COACHELA	92	2	line_2	r2_NIL_pre	132	144.3	-0.2	868.4	144.3	1.048	0.62	line CVSUB to COACHELA 92 ck 1
8279	CVSUB	92	8312	COACHELA	92	1	line_3	r2_NIL_pre	132	144.3	-0.2	868.4	144.3	1.048	0.62	line CVSUB to COACHELA 92 ck 2
8359	NILAND	161	19020	BLYTHE	161	1	line_265	r2_NIL_pre	165	-161	58.4	613.3	171.3	1.047	0.786	line BLYTHESC to BLYTHE 161 ck
8672	LEATHERS	92	8051	LEATHERS	14.4	1	line_160	r2_NIL_pre	45	-40.7	-17.6	275	44.4	1.03	0.92	line MW1TAP to MIDWAY 92 ck 1
8672	LEATHERS	92	8051	LEATHERS	14.4	1	line_161	r2_NIL_pre	45	-40.7	-17.6	275	44.4	1.03	0.92	line LEATHERS to MW1TAP 92 ck
8671	JJELMORE	92	8054	JJELMORE	14.4	1	line_110	r2_NIL_pre	45	-40.4	-17.4	272.6	44	1.02	0.92	line JJELMORE to LEATHERS 92
8671	JJELMORE	92	8054	JJELMORE	14.4	1	line_160	r2_NIL_pre	45	-40.4	-17.4	272.6	44	1.02	0.92	line MW1TAP to MIDWAY 92 ck 1
8671	JJELMORE	92	8054	JJELMORE	14.4	1	line_161	r2_NIL_pre	45	-40.4	-17.4	272.6	44	1.02	0.92	line LEATHERS to MW1TAP 92 ck
8359	NILAND	161	19020	BLYTHE	161	1	line_210	r2_NIL_pre	165	-156.9	51.4	596	165.1	1.016	0.786	line N.GILA to IMPRLVLY 500 ck 1
8359	NILAND	161	8361	NILAND	92	1	line_83	r2_NIL_pre	75	74	-3.8	262.3	74.1	1	0.65	line NILAND to CVSUB161 161 ck
8723	VULCAN	92	8055	VULCAN1	14.4	1	line_123	r2_NIL_pre	50	-44.7	-15.7	291.9	47.4	0.99	0.9	line MIDWAY to VULCAN 92 ck 1
8335	ELSTEAMP	92	8337	ELTERMIN	92	2	line_62	r2_NIL_pre	132	132.5	-7.5	808.4	132.8	0.976	0.517	line ELSTEAMP to ELTERMIN 92
8335	ELSTEAMP	92	8337	ELTERMIN	92	1	line_63	r2_NIL_pre	132	132.5	-7.5	808.4	132.8	0.976	0.517	line ELSTEAMP to ELTERMIN 92
8359	NILAND	161	8361	NILAND	92	1	line_210	r2_NIL_pre	75	71	-5.5	257.1	71.2	0.96	0.65	line N.GILA to IMPRLVLY 500 ck 1

r2_nil_pre.sav
VOLTAGE Summary
N-2 Outages

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
8695	RAMON	230	8	162	n2otg_205	r2_NIL_pre	1.028	0.968	-0.06	0.9	1.05	0.05	N2-line COACHELA to RAMON 230 ck 1
8806	AV58TP1	161	8	162	n2otg_262	r2_NIL_pre	1.031	0.98	-0.051	0.9	1.05	0.05	N2-line COACHELA to MIDWAY 230 ck 1
8330	EDOM	92	8	162	n2otg_205	r2_NIL_pre	1.042	0.987	-0.055	0.9	1.05	0.05	N2-line COACHELA to RAMON 230 ck 1
8640	MIRAGTIE	92	8	162	n2otg_205	r2_NIL_pre	1.045	0.988	-0.057	0.9	1.05	0.05	N2-line COACHELA to RAMON 230 ck 1
8310	FRANWAY	92	8	162	n2otg_205	r2_NIL_pre	1.04	0.99	-0.05	0.9	1.05	0.05	N2-line COACHELA to RAMON 230 ck 1
8926	ORM1E	13.8	8	164	n2otg_201	r2_NIL_pre	0.985	1.036	0.052	0.9	1.05	0.05	N2-line COACHELA to DEVERS 230, 2 ck 1
8909	ORM22	13.8	8	164	n2otg_201	r2_NIL_pre	0.992	1.044	0.052	0.9	1.05	0.05	N2-line COACHELA to DEVERS 230, 2 ck 1
8908	ORM21	13.8	8	164	n2otg_201	r2_NIL_pre	0.992	1.044	0.052	0.9	1.05	0.05	N2-line COACHELA to DEVERS 230, 2 ck 1
8929	ORM1H	13.8	8	164	n2otg_201	r2_NIL_pre	0.994	1.046	0.052	0.9	1.05	0.05	N2-line COACHELA to DEVERS 230, 2 ck 1
8907	ORM12	13.8	8	164	n2otg_201	r2_NIL_pre	1.005	1.055	0.05	0.9	1.05	0.05	N2-line COACHELA to DEVERS 230, 2 ck 1

r2_nil_pre.sav
FLOW Summary
N-2 Outages

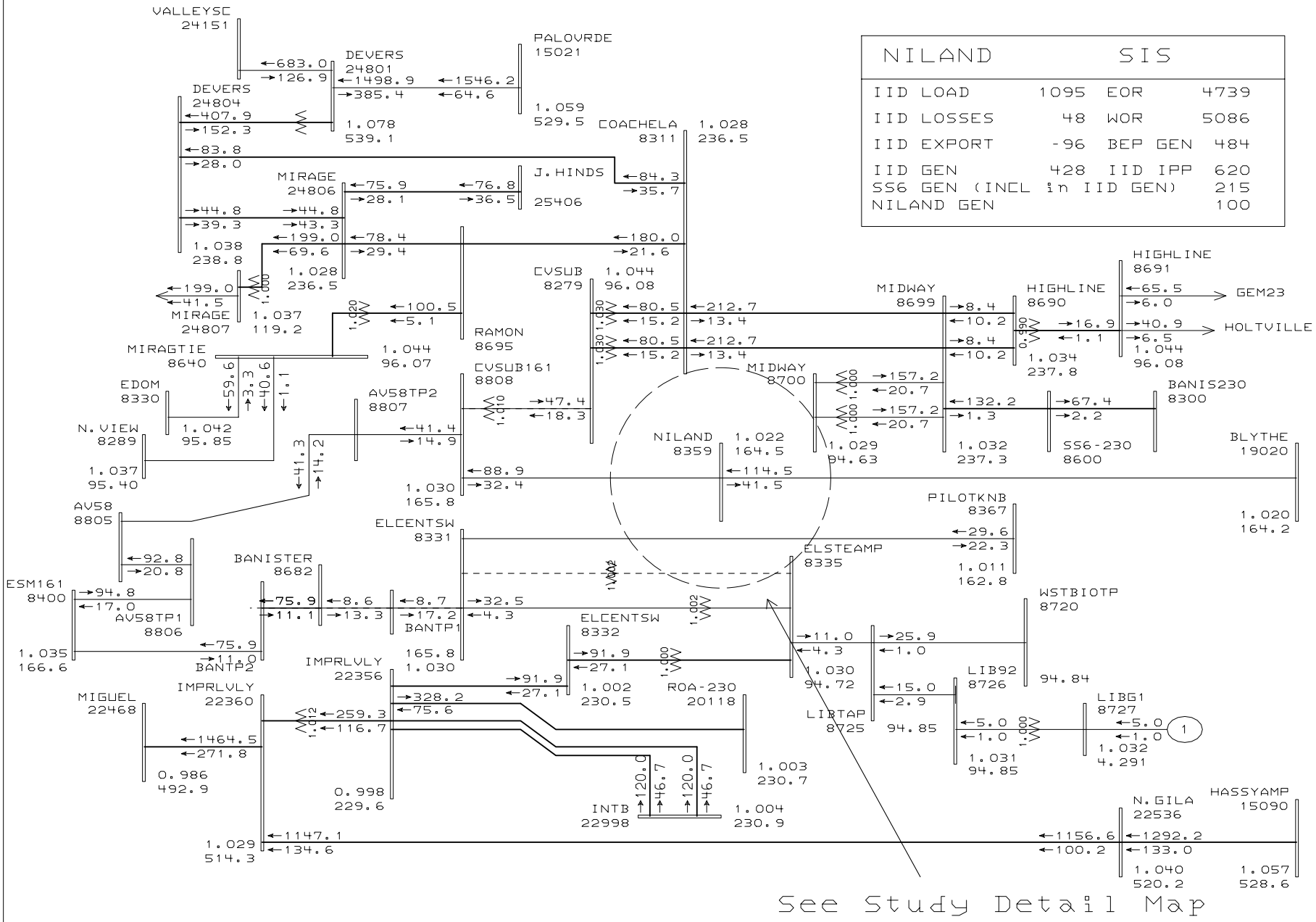
LEGEND	% of RATING 1	
C_pu	100% - 110%	
C_pu	110% - 120%	P.U. of
C_pu	> 120%	Rate 1

FROM	FR	BKV	TO	TO	BKV	CK	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8359	NILAND	161	8361	NILAND	92	1	N2otg_101	r2_NIL_pre	75	88.4	-11.2	322.9	89.1	1.21	0.65	CV-Niland & EC-Niland 161kV
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_215w	r2_NIL_pre	165	-180.9	71.3	697.8	194.4	1.189	0.786	N2-line BLYTHE to KNOB 161, 4 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_209	r2_NIL_pre	165	-169.2	58.7	648	179.1	1.104	0.786	N2-line BLYTHE to BLYTHESC 161, 1 ck 1
8279	CVSUB	92	8311	COACHELA	230	1	n2otg_203	r2_NIL_pre	150	-158.5	9.1	981.4	158.8	1.07	0.59	N2-line COACHELA to DEVERS 230, 4 ck 1
8279	CVSUB	92	8311	COACHELA	230	2	n2otg_203	r2_NIL_pre	150	-158.5	9.1	981.4	158.8	1.07	0.59	N2-line COACHELA to DEVERS 230, 4 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_210	r2_NIL_pre	165	-163.4	60.1	623.2	174.1	1.063	0.786	N2-line BLYTHE to BLYTHESC 161, 2 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_218	r2_NIL_pre	165	-162	59.9	617.7	172.7	1.054	0.786	N2-line BLYTHE to PARKER 161, 3 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_220	r2_NIL_pre	165	-161.3	59.6	614.7	172	1.049	0.786	N2-line BLYTHE to HEADGATE 161, 2 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_211	r2_NIL_pre	165	-160.6	59	611.6	171.1	1.044	0.786	N2-line BLYTHE to BLYTHESC 161, 3 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_212w	r2_NIL_pre	165	-160	61.5	609.4	171.4	1.041	0.786	N2-line BLYTHE to KNOB 230, 1 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_213w	r2_NIL_pre	165	-159.2	61.1	606.2	170.5	1.036	0.786	N2-line BLYTHE to KNOB 161, 2 ck 1
8806	AV58TP1	161	8400	ESM161	161	1	n2otg_262	r2_NIL_pre	165	-160	28.1	594.3	162.4	1.007	0.585	N2-line COACHELA to MIDWAY 230 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_207	r2_NIL_pre	165	-154.6	54.3	586.7	163.9	1.002	0.786	N2-line BLYTHESC to EAGLEMTN 161, 1 ck 1
8723	VULCAN	92	8055	VULCAN1	14.4	1	n2otg_201	r2_NIL_pre	50	-44.7	-15.7	291.9	47.4	0.99	0.9	N2-line COACHELA to DEVERS 230, 2 ck 1
8723	VULCAN	92	8055	VULCAN1	14.4	1	n2otg_262	r2_NIL_pre	50	-44.7	-15.7	291.9	47.4	0.99	0.9	N2-line COACHELA to MIDWAY 230 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_208	r2_NIL_pre	165	-151.3	54.8	573.1	160.9	0.979	0.786	N2-line BLYTHESC to EAGLEMTN 161, 2 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_216	r2_NIL_pre	165	-148.5	54.5	562.2	158.2	0.961	0.786	N2-line BLYTHE to PARKER 161, 1 ck 1

Niland System Impact Study

Appendix C
Niland Post project power flow results

February 2006



General Electric International, Inc. PSLF Program MW/MVAR Mon Nov 07 07:49:57 2005

r2_NIL_PST92.sav 2008 HS 11-03-05 KRSA
Niland System Impact Study
POST - Project

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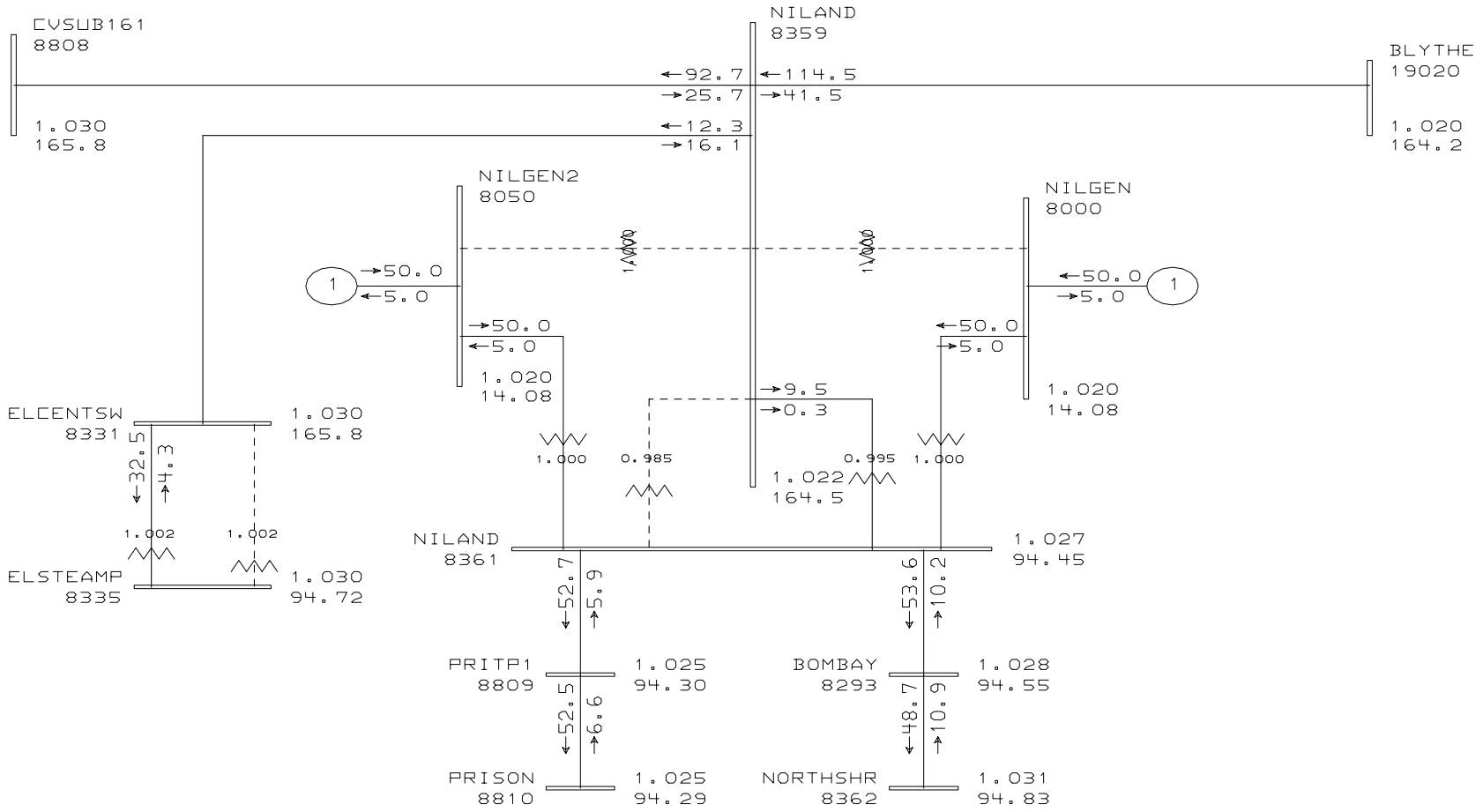

NILAND SIS

General Electric International, Inc. PSLF Program MW/MVAR Mon Nov 07 07:49:42 2005

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Niland System Impact Study
POST - Project

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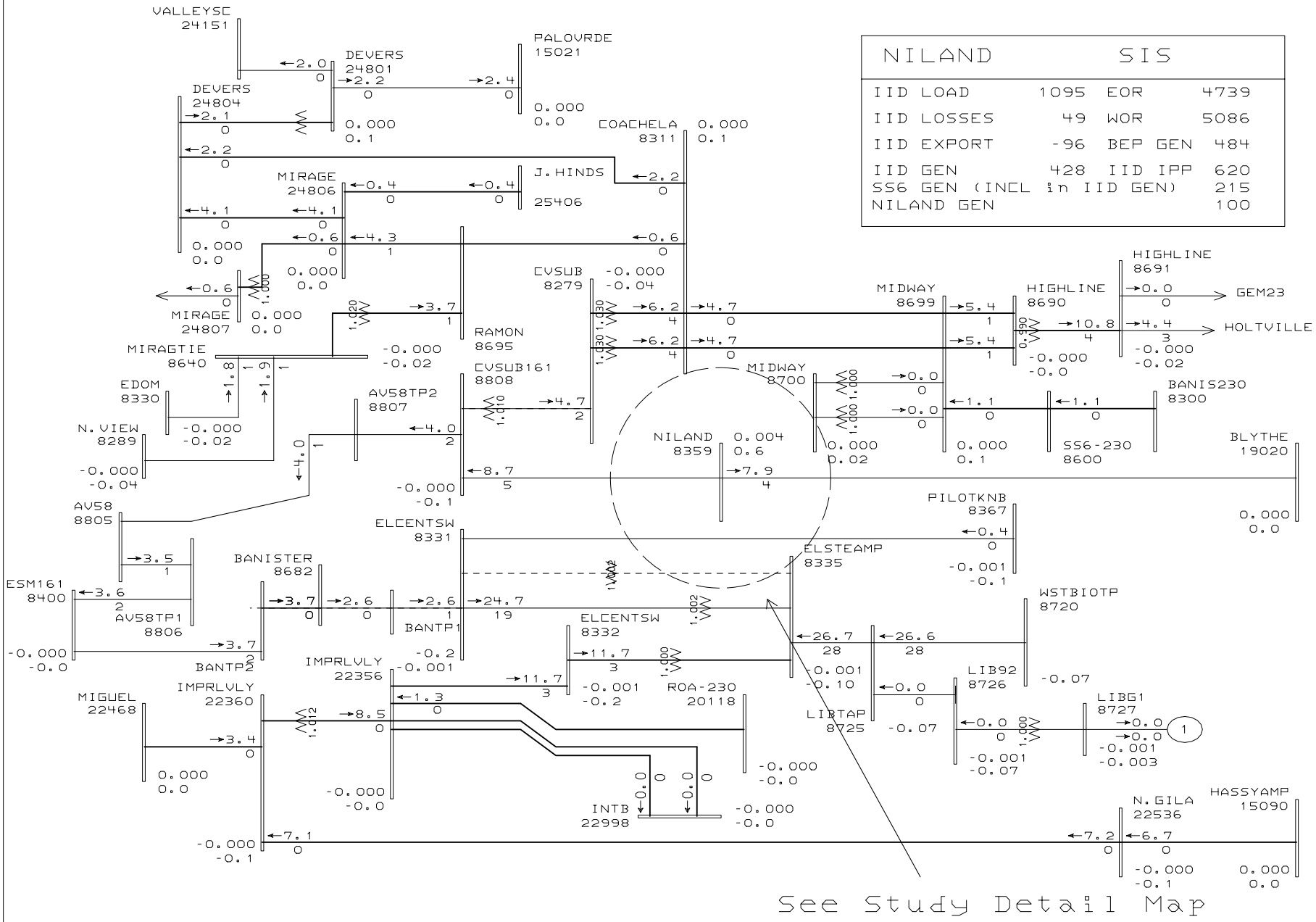
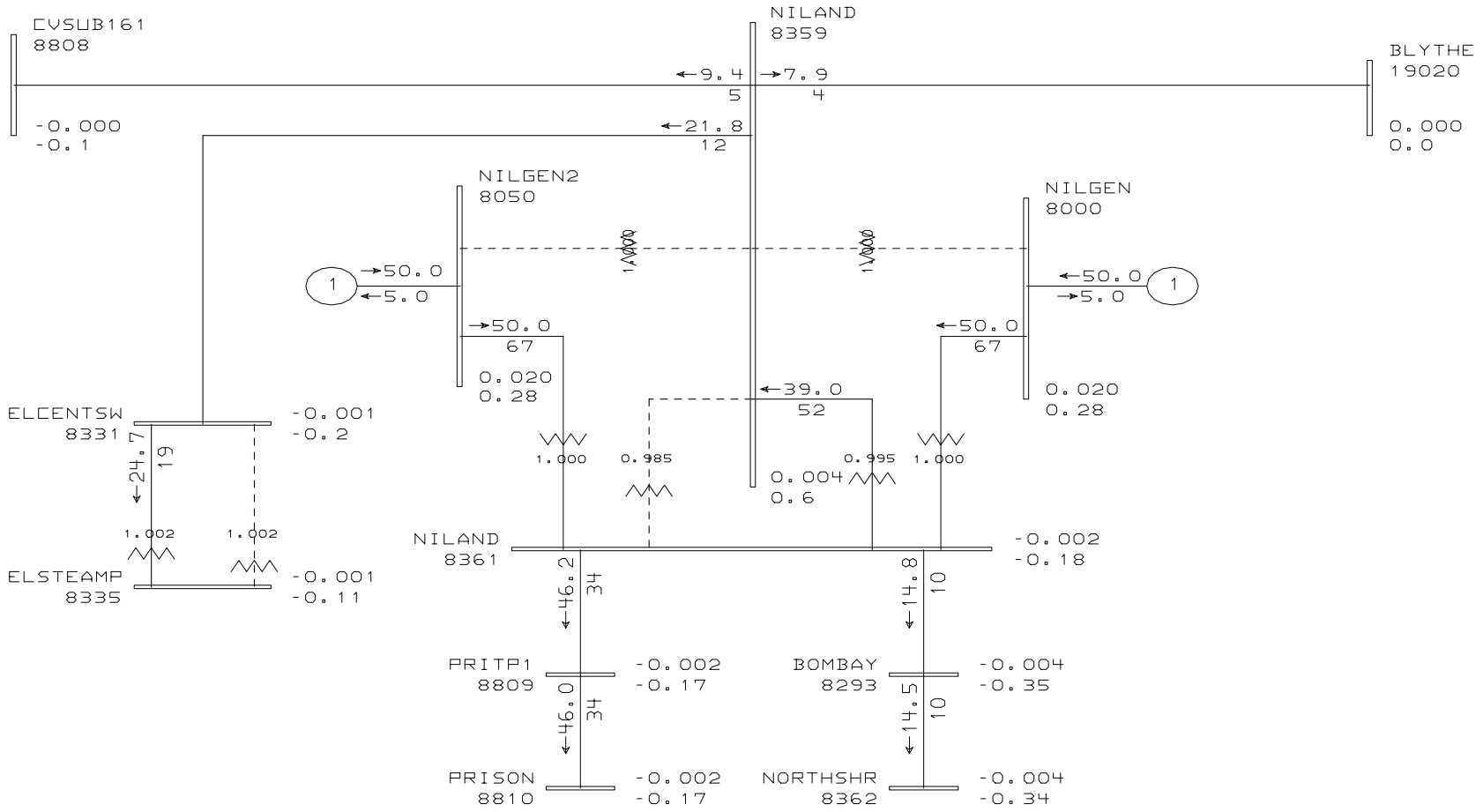


General Electric International, Inc. PSLF Program MW/Pct Mon Nov 07 10:50:59 2005

Differences between base case cases\r2_nil_pre.sav
and delta case cases\r2_nil_pst92kv.sav

draw\nil_overview2.drw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-0.1
NILAND
8359
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→7.9
4
←21.8
12
BLYTHE
19020
0.000
0.0
NILGEN2
8050
1
→50.0
←5.0
→50.0
67
0.020
0.28
NILGEN
8000
←50.0
→5.0
1
←50.0
67
0.020
0.28
←39.0
52
ELCENTSW
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19
1.002
1.002
ELSTEAMP
8335
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0.995
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0.004
0.6
NILAND
8361
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PRITP1
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BOMBAY
8293
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34
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10
PRISON
8810
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-0.17
NORTHSHR
8362
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-0.34

NILAND SIS

r2_nil_pst92kv.sav
Voltage Summary
N-0 Outages

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
None Noted													

r2_nil_pst92kv.sav
Flow Summary
N-0 Outages

LEGEND	% of RATING 1	
C_pu	100% - 110%	
C_pu	110% - 120%	P.U. of
C_pu	> 120%	Rate 1

FROM	FR	BKV	TO	TO	BKV	CK	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8342	HEBERSCE	92	8666	HEBERSCE	13.8	1	base	r2_NIL_pst92kV	50	-47	9.5	292.4	47.9	0.96	0.96	Base system (n-0)

r2_nil_pst92kv.sav
VOLTAGE Summary
N-1 Outages

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
None Noted													

r2_nil_pst92kv.sav
FLOW Summary
N-1 Outages

LEGEND	% of RATING 1	
C_pu	100% - 110%	
C_pu	110% - 120%	P.U. of
C_pu	> 120%	Rate 1

FROM	FR	BKV	TO	TO	BKV	CK	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8699	MIDWAY	230	8700	MIDWAY	92	2	tran_180	r2_NIL_pst92kV	225	-312.1	80.8	793.3	322.4	1.43	0.7	tran MIDWAY 230 to MIDWAY 92 ck 1
8699	MIDWAY	230	8700	MIDWAY	92	1	tran_181	r2_NIL_pst92kV	225	-312.1	80.8	793.3	322.4	1.43	0.7	tran MIDWAY 230 to MIDWAY 92 ck 2
8331	ELCENTSW	161	8335	ELSTEAMP	92	1	line_210	r2_NIL_pst92kV	125	135.1	-19.9	487.3	136.5	1.1	0.26	line N.GILA to IMPRLVLY 500 ck 1
8672	LEATHERS	92	8051	LEATHERS	14.4	1	line_160	r2_NIL_pst92kV	45	-40.7	-17.6	274.9	44.3	1.03	0.92	line MW1TAP to MIDWAY 92 ck 1
8672	LEATHERS	92	8051	LEATHERS	14.4	1	line_161	r2_NIL_pst92kV	45	-40.7	-17.6	274.9	44.3	1.03	0.92	line LEATHERS to MW1TAP 92 ck 1
8671	JJELMORE	92	8054	JJELMORE	14.4	1	line_110	r2_NIL_pst92kV	45	-40.4	-17.4	272.6	44	1.02	0.92	line JJELMORE to LEATHERS 92 ck 1
8671	JJELMORE	92	8054	JJELMORE	14.4	1	line_160	r2_NIL_pst92kV	45	-40.4	-17.4	272.6	44	1.02	0.92	line MW1TAP to MIDWAY 92 ck 1
8671	JJELMORE	92	8054	JJELMORE	14.4	1	line_161	r2_NIL_pst92kV	45	-40.4	-17.4	272.6	44	1.02	0.92	line LEATHERS to MW1TAP 92 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	line_265	r2_NIL_pst92kV	165	-154.2	57.5	585.6	164.6	1.001	0.736	line BLYTHESC to BLYTHE 161 ck 1
8279	CVSUB	92	8312	COACHELA	92	2	line_2	r2_NIL_pst92kV	132	137.5	1.8	827.2	137.5	0.999	0.591	line CVSUB to COACHELA 92 ck 1
8279	CVSUB	92	8312	COACHELA	92	1	line_3	r2_NIL_pst92kV	132	137.5	1.8	827.2	137.5	0.999	0.591	line CVSUB to COACHELA 92 ck 2
8723	VULCAN	92	8055	VULCAN1	14.4	1	line_123	r2_NIL_pst92kV	50	-44.7	-15.7	291.8	47.4	0.99	0.9	line MIDWAY to VULCAN 92 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	line_210	r2_NIL_pst92kV	165	-150.2	51.4	568.5	158.7	0.971	0.736	line N.GILA to IMPRLVLY 500 ck 1
8335	ELSTEAMP	92	8337	ELTERMIN	92	2	line_62	r2_NIL_pst92kV	132	130.6	-7.4	797.2	130.8	0.962	0.51	line ELSTEAMP to ELTERMIN 92 ck 1
8335	ELSTEAMP	92	8337	ELTERMIN	92	1	line_63	r2_NIL_pst92kV	132	130.6	-7.4	797.2	130.8	0.962	0.51	line ELSTEAMP to ELTERMIN 92 ck 2

r2_nil_pst92kv.sav
VOLTAGE Summary
N-2 Outages

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
8695	RAMON	230	8	162	n2otg_205	r2_NIL_pst92kV	1.028	0.973	-0.055	0.9	1.05	0.05	N2-line COACHELA to RAMON 230 ck 1
8640	MIRAGTIE	92	8	162	n2otg_205	r2_NIL_pst92kV	1.044	0.993	-0.052	0.9	1.05	0.05	N2-line COACHELA to RAMON 230 ck 1
8926	ORM1E	13.8	8	164	n2otg_201	r2_NIL_pst92kV	0.984	1.036	0.052	0.9	1.05	0.05	N2-line COACHELA to DEVERS 230, 2 ck 1
8909	ORM22	13.8	8	164	n2otg_201	r2_NIL_pst92kV	0.992	1.044	0.052	0.9	1.05	0.05	N2-line COACHELA to DEVERS 230, 2 ck 1
8908	ORM21	13.8	8	164	n2otg_201	r2_NIL_pst92kV	0.992	1.044	0.052	0.9	1.05	0.05	N2-line COACHELA to DEVERS 230, 2 ck 1
8929	ORM1H	13.8	8	164	n2otg_201	r2_NIL_pst92kV	0.994	1.046	0.052	0.9	1.05	0.05	N2-line COACHELA to DEVERS 230, 2 ck 1
8907	ORM12	13.8	8	164	n2otg_201	r2_NIL_pst92kV	1.004	1.055	0.051	0.9	1.05	0.05	N2-line COACHELA to DEVERS 230, 2 ck 1

r2_nil_pst92kv.sav
FLOW Summary
N-2 Outages

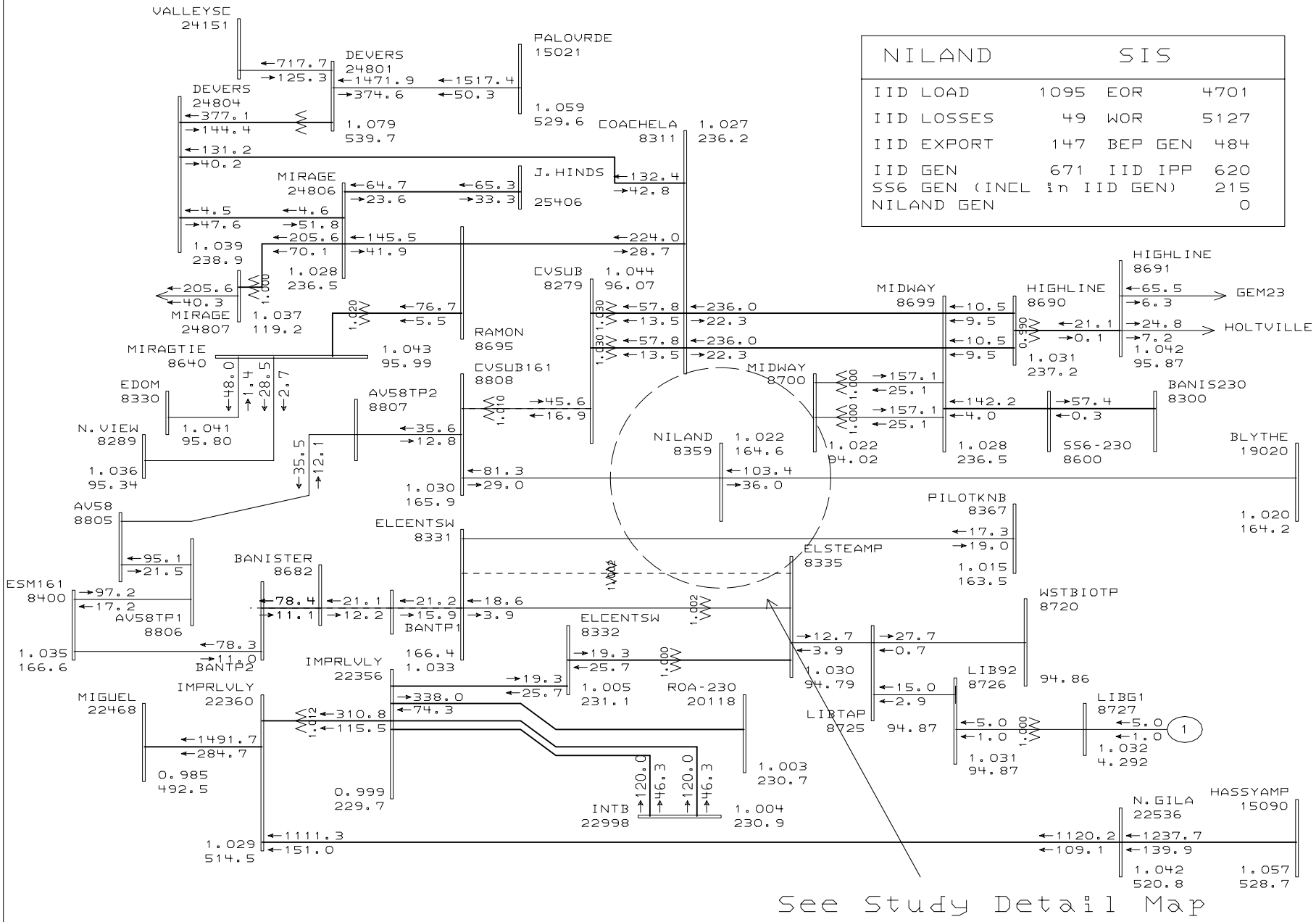
LEGEND	% of RATING 1	
C_pu	100% - 110%	
C_pu	110% - 120%	P.U. of
C_pu	> 120%	Rate 1

FROM	FR	BKV	TO	TO	BKV	CK	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_215w	r2_NIL_pst92kV	165	-175.5	70.7	674.8	189.2	1.151	0.736	N2-line BLYTHE to KNOB 161, 4 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_209	r2_NIL_pst92kV	165	-162.8	59	620.7	173.2	1.059	0.736	N2-line BLYTHE to BLYTHESC 161, 1 ck 1
8279	CVSUB	92	8311	COACHELA	230	1	n2otg_203	r2_NIL_pst92kV	150	-153.5	7.5	947.4	153.7	1.03	0.55	N2-line COACHELA to DEVERS 230, 4 ck 1
8279	CVSUB	92	8311	COACHELA	230	2	n2otg_203	r2_NIL_pst92kV	150	-153.5	7.5	947.4	153.7	1.03	0.55	N2-line COACHELA to DEVERS 230, 4 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_210	r2_NIL_pst92kV	165	-156.6	59	595.4	167.4	1.017	0.736	N2-line BLYTHE to BLYTHESC 161, 2 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_218	r2_NIL_pst92kV	165	-155.8	58.9	591.9	166.5	1.012	0.736	N2-line BLYTHE to PARKER 161, 3 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_220	r2_NIL_pst92kV	165	-155	58.5	588.6	165.7	1.006	0.736	N2-line BLYTHE to HEADGATE 161, 2 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_212w	r2_NIL_pst92kV	165	-154.2	60.2	586	165.5	1.002	0.736	N2-line BLYTHE to KNOB 230, 1 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_211	r2_NIL_pst92kV	165	-153.8	57.8	583.7	164.3	0.998	0.736	N2-line BLYTHE to BLYTHESC 161, 3 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_213w	r2_NIL_pst92kV	165	-153.4	59.8	582.6	164.6	0.997	0.736	N2-line BLYTHE to KNOB 161, 2 ck 1
8723	VULCAN	92	8055	VULCAN1	14.4	1	n2otg_201	r2_NIL_pst92kV	50	-44.7	-15.7	291.8	47.4	0.99	0.9	N2-line COACHELA to DEVERS 230, 2 ck 1
8723	VULCAN	92	8055	VULCAN1	14.4	1	n2otg_262	r2_NIL_pst92kV	50	-44.7	-15.7	291.8	47.4	0.99	0.9	N2-line COACHELA to MIDWAY 230 ck 1
8806	AV58TP1	161	8400	ESM161	161	1	n2otg_262	r2_NIL_pst92kV	165	-154.6	27.2	571	157	0.967	0.564	N2-line COACHELA to MIDWAY 230 ck 1
8359	NILAND	161	19020	BLYTHE	161	1	n2otg_207	r2_NIL_pst92kV	165	-147.7	53.6	558.7	157.2	0.955	0.736	N2-line BLYTHESC to EAGLEMTN 161, 1 ck 1

Niland System Impact Study

Appendix D
Niland Pre Project Maximum generation power flow results

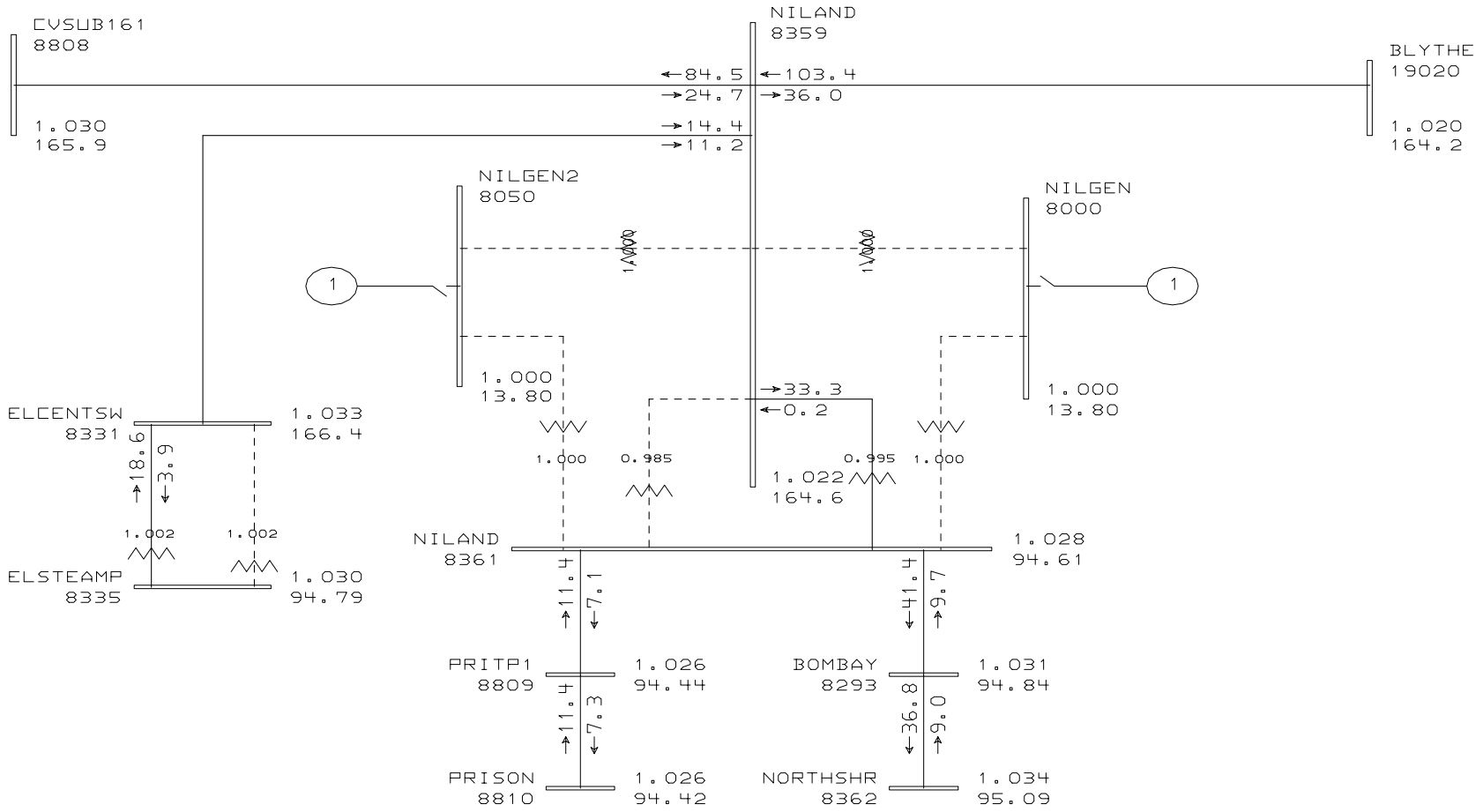
February 2006



General Electric International, Inc. PSLF Program MW/MVAR Tue Feb 14 13:52:26 2006

R32_S_NIL_Pre_maxgen.sav 2008 HS 02-14-06 KRSA
Niland System Impact Study
Pre - Project SENSITIVITY - IID Max Generation

draw\nil_overview2.drw
cases\r3_nil_pre_maxgen.sav
Rating = 1



NILAND SIS

General Electric International, Inc. PSLF Program MW/MVAR Tue Feb 14 13:34:06 2006

R32_S_NIL_Pre_maxgen.sav 2008 HS 02-14-06 KRSA
Niland System Impact Study
Pre - Project SENSITIVITY - IID Max Generation

draw\nil_detailmap.drw
cases\r3_nil_pre_maxgen.sav
Rating = 1

R3_nil_pre_maxgen.xls
Voltage Summary
N-0 Outages

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
8320	DROP1	34.5	8	163	base	r3_Nil_pre_maxge	1.05	1.05	0	0.95	1.05	0.05	Base system (n-0)
8973	A3B4	34.5	8	163	base	r3_Nil_pre_maxge	1.05	1.05	0	0.95	1.05	0.05	Base system (n-0)

R3_nil_pre_maxgen.xls
Flow Summary
N-0 Outages

LEGEND	% of RATING 1	
C_pu	100% - 110%	
C_pu	110% - 120%	P.U. of
C_pu	> 120%	Rate 1

FROM	FR	BKV	frar	frzo	TO	TO	BKV	toar	tozo	CK	TYPE	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8342	HEBERSCE	92	8	163	8666	HEBERSCE	13.8	8	163	1	tran	base	r3_Nil_pre_maxge	50	-47	9.7	292.5	48	0.96	0.96	Base system (n-0)

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
None													

R3_nil_pre_maxgen.xls
N1_flow

LEGEND	% of RATING 1
C_pu	100% - 110%
C_pu	110% - 120%
C_pu	> 120%

P.U. of Rate 1

FROM	FR	BKV	frar	frzo	TO	TO	BKV	toar	tozo	CK	TYPE	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8699	MIDWAY	230	8	164	8700	MIDWAY	92	8	164	2	tran	tran_180	r3_Nil_pre_maxge	225	-312.1	80.8	793.8	322.4	1.43	0.71	tran MIDWAY 230 to MIDWAY 92 ck 1
8699	MIDWAY	230	8	164	8700	MIDWAY	92	8	164	1	tran	tran_181	r3_Nil_pre_maxge	225	-312.1	80.8	793.8	322.4	1.43	0.71	tran MIDWAY 230 to MIDWAY 92 ck 2
8301	CITAP1	92	8	162	8312	COACHELA	92	8	162	1	line	line_4	r3_Nil_pre_maxge	152	-154.6	15.5	944.5	155.4	0.99	0.726	line CVSUB to JACKSON 92 ck 1
8301	CITAP1	92	8	162	8389	VANBUREN	92	8	162	1	line	line_4	r3_Nil_pre_maxge	152	154.6	-15.5	944.5	155.4	0.99	0.726	line CVSUB to JACKSON 92 ck 1
8335	ELSTEAMP	92	8	163	8337	ELTERMIN	92	8	163	2	line	line_62	r3_Nil_pre_maxge	132	134.3	-7.4	819.3	134.5	0.989	0.524	line ELSTEAMP to ELTERMIN 92 ck 1
8335	ELSTEAMP	92	8	163	8337	ELTERMIN	92	8	163	1	line	line_63	r3_Nil_pre_maxge	132	134.3	-7.4	819.3	134.5	0.989	0.524	line ELSTEAMP to ELTERMIN 92 ck 2
8319	DIXIELAN	92	8	163	8946	DIXPRI2	92	8	163	1	line	line_11	r3_Nil_pre_maxge	54	-53	11	334.6	54.2	0.988	0.308	line USNAF to ELTERMIN 92 ck 1
8374	ROCKWOOD	92	8	163	8373	ROCKWOOD	34.5	8	163	1	tran	line_273	r3_Nil_pre_maxge	25	-24	3.5	148.3	24.2	0.97	0.92	line LIBTAP-WSTBIOTP 92kV
8374	ROCKWOOD	92	8	163	8373	ROCKWOOD	34.5	8	163	2	tran	line_273	r3_Nil_pre_maxge	25	-24	3.5	148.3	24.2	0.97	0.92	line LIBTAP-WSTBIOTP 92kV
8374	ROCKWOOD	92	8	163	8373	ROCKWOOD	34.5	8	163	1	tran	line_71	r3_Nil_pre_maxge	25	-23.5	3.4	144.9	23.7	0.95	0.92	line ELSTEAMP to IMPERIAL 92 ck 1
8374	ROCKWOOD	92	8	163	8373	ROCKWOOD	34.5	8	163	2	tran	line_71	r3_Nil_pre_maxge	25	-23.5	3.4	144.9	23.7	0.95	0.92	line ELSTEAMP to IMPERIAL 92 ck 1

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
None													

R3_nil_pre_maxgen.xls
N2_flow

LEGEND	% of RATING 1
C_pu	100% - 110%
C_pu	110% - 120%
C_pu	> 120%

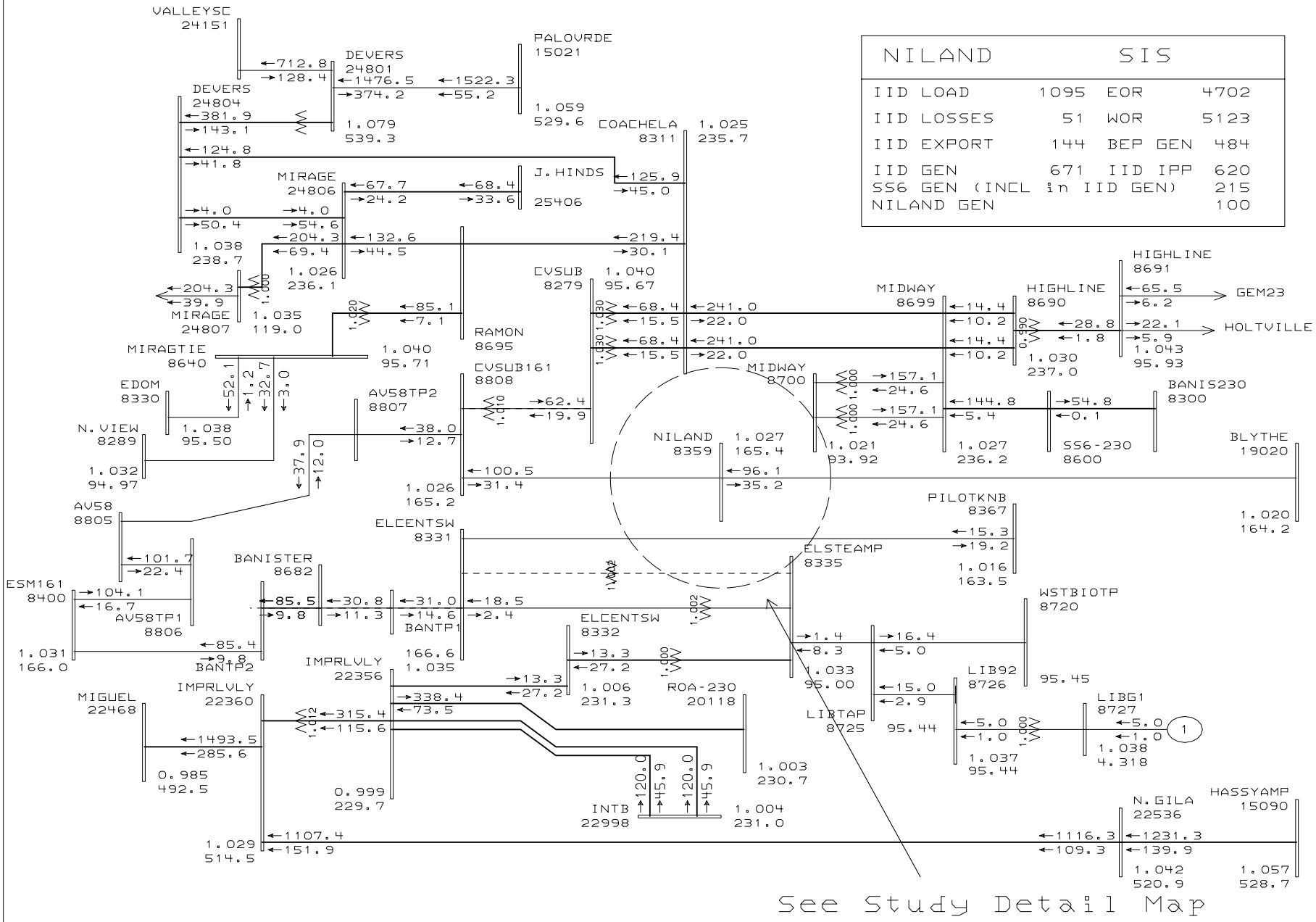
P.U. of Rate 1

FROM	FR	BKV	frar	frzo	TO	TO	BKV	toar	tozo	CK	TYPE	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8904	GEM92	92	8	164	8912	GEM23	92	8	164	2	line	n2otg_201	r3_nil_pre_maxge	132	-13.3	-213.1	1303.4	213.5	1.573	0.208	N2-line COACHELA to DEVERS 230, 2 ck 1
8673	EARTHE2	92	8	165	8702	REG1EX	92	8	165	1	line	n2otg_201	r3_nil_pre_maxge	132	3.3	216.3	1299.3	216.4	1.569	0.288	N2-line COACHELA to DEVERS 230, 2 ck 1
8673	EARTHE2	92	8	165	8702	REG1EX	92	8	165	1	line	n2otg_262	r3_nil_pre_maxge	132	3.3	216.3	1299.3	216.4	1.569	0.288	N2-line COACHELA to MIDWAY 230 ck 1
8301	CITAP1	92	8	162	8312	COACHELA	92	8	162	1	line	n2otg_203	r3_nil_pre_maxge	152	-174.1	17.8	1083.9	175.1	1.136	0.726	N2-line COACHELA to DEVERS 230, 4 ck 1
8301	CITAP1	92	8	162	8389	VANBUREN	92	8	162	1	line	n2otg_203	r3_nil_pre_maxge	152	174.1	-17.7	1083.9	175.1	1.136	0.726	N2-line COACHELA to DEVERS 230, 4 ck 1
8307	CMTAP2	92	8	162	8309	AVE42	92	8	162	1	line	n2otg_203	r3_nil_pre_maxge	132	145.7	-21.4	914.8	147.3	1.104	0.637	N2-line COACHELA to DEVERS 230, 4 ck 1
8307	CMTAP2	92	8	162	8389	VANBUREN	92	8	162	1	line	n2otg_203	r3_nil_pre_maxge	132	-145.7	21.4	914.8	147.3	1.104	0.637	N2-line COACHELA to DEVERS 230, 4 ck 1
8279	CVSUB	92	8	162	8311	COACHELA	230	8	164	1	tran	n2otg_203	r3_nil_pre_maxge	150	-157.4	9.6	970.7	157.7	1.06	0.4	N2-line COACHELA to DEVERS 230, 4 ck 1
8279	CVSUB	92	8	162	8311	COACHELA	230	8	164	2	tran	n2otg_203	r3_nil_pre_maxge	150	-157.4	9.6	970.7	157.7	1.06	0.4	N2-line COACHELA to DEVERS 230, 4 ck 1
8359	NILAND	161	8	163	19020	BLYTHE	161	14	191	1	line	n2otg_215w	r3_nil_pre_maxge	165	-161.9	61.8	617.4	173.3	1.054	0.663	N2-line BLYTHE to KNOB 161, 4 ck 1
8806	AV58TP1	161	8	162	8400	ESM161	161	8	163	1	line	n2otg_262	r3_nil_pre_maxge	165	-165.5	33.6	614.2	168.9	1.041	0.578	N2-line COACHELA to MIDWAY 230 ck 1
8279	CVSUB	92	8	162	8349	JACKSON	92	8	162	1	line	n2otg_203	r3_nil_pre_maxge	132	139.4	2.1	858.5	139.4	1.036	0.669	N2-line COACHELA to DEVERS 230, 4 ck 1
8371	DESRTPWR	92	8	165	8057	DPWR#3	13.8	8	163	1	tran	n2otg_201	r3_nil_pre_maxge	54	-50.3	-11.6	316.8	51.6	1	0.93	N2-line COACHELA to DEVERS 230, 2 ck 1
8371	DESRTPWR	92	8	165	8057	DPWR#3	13.8	8	163	1	tran	n2otg_262	r3_nil_pre_maxge	54	-50.3	-11.6	316.8	51.6	1	0.93	N2-line COACHELA to MIDWAY 230 ck 1
8359	NILAND	161	8	163	19020	BLYTHE	161	14	191	1	line	n2otg_209	r3_nil_pre_maxge	165	-152	51.8	575.6	160.6	0.983	0.663	N2-line BLYTHE to BLYTHESC 161, 1 ck 1
8359	NILAND	161	8	163	8361	NILAND	92	8	163	1	tran	N2otg_101	r3_nil_pre_maxge	75	71.3	-8.2	257.8	71.8	0.97	0.44	CV-Niland & EC-Niland 161kV
8374	ROCKWOOD	92	8	163	8373	ROCKWOOD	34.5	8	163	1	tran	N2otg_102	r3_nil_pre_maxge	25	-23.7	3.5	146.2	23.9	0.96	0.92	Blythe-Niland & EC-Niland 161kv
8374	ROCKWOOD	92	8	163	8373	ROCKWOOD	34.5	8	163	2	tran	N2otg_102	r3_nil_pre_maxge	25	-23.7	3.5	146.2	23.9	0.96	0.92	Blythe-Niland & EC-Niland 161kv
8374	ROCKWOOD	92	8	163	8373	ROCKWOOD	34.5	8	163	1	tran	n2otg_262	r3_nil_pre_maxge	25	-23.8	3.4	148.4	24	0.96	0.92	N2-line COACHELA to MIDWAY 230 ck 1
8374	ROCKWOOD	92	8	163	8373	ROCKWOOD	34.5	8	163	2	tran	n2otg_262	r3_nil_pre_maxge	25	-23.8	3.4	148.4	24	0.96	0.92	N2-line COACHELA to MIDWAY 230 ck 1
8359	NILAND	161	8	163	19020	BLYTHE	161	14	191	1	line	n2otg_218	r3_nil_pre_maxge	165	-148.2	53.5	560.6	157.5	0.958	0.663	N2-line BLYTHE to PARKER 161, 3 ck 1
8359	NILAND	161	8	163	19020	BLYTHE	161	14	191	1	line	n2otg_220	r3_nil_pre_maxge	165	-147.2	53.1	556.5	156.5	0.952	0.663	N2-line BLYTHE to HEADGATE 161, 2 ck 1

Niland System Impact Study

Appendix E
Niland Post Project Maximum generation power flow results

February 2006



General Electric International, Inc. PSLF Program MW/MVAR Tue Feb 14 13:36:44 2006

R3_NIL_pst_maxgen.sav 2008 HS 02-14-06 KRSA
Niland System Impact Study
POST - Project SENSITIVITY - IID Max Generation

From:r2_S_nil_pst_maxgen.sav

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cases\r3_nil_pst_maxgen.sav
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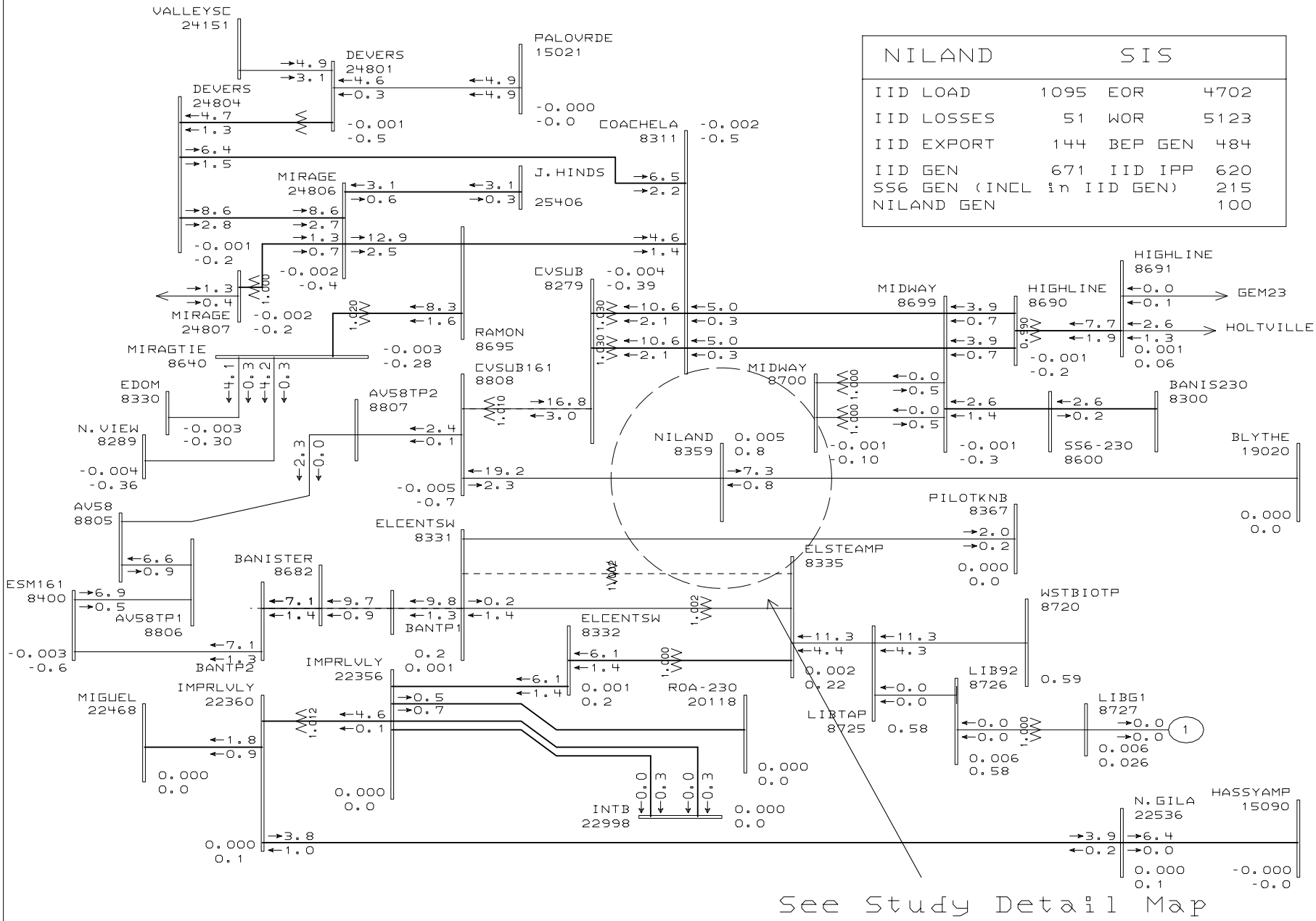
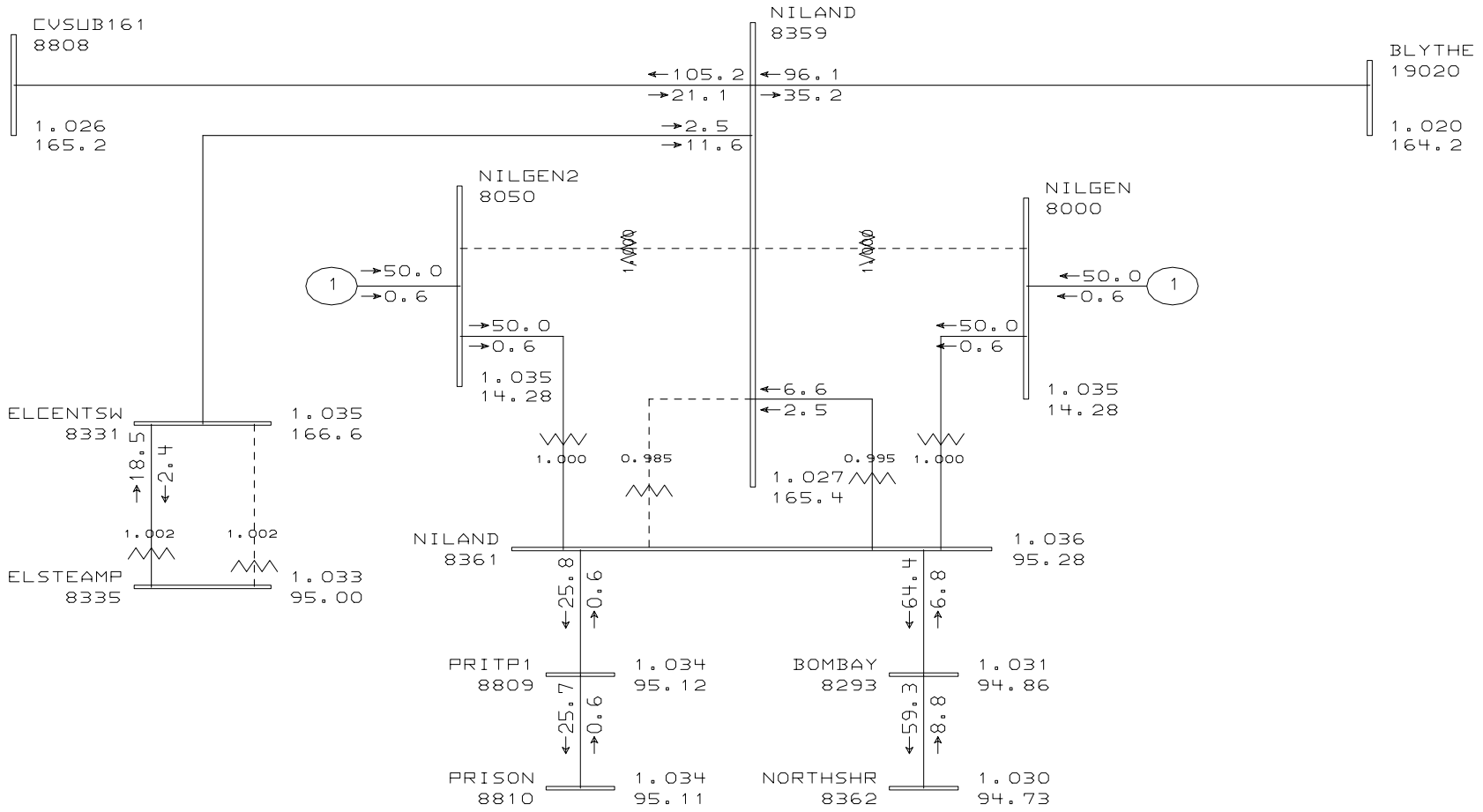


General Electric International, Inc. PSLF Program MW/MVAR Tue Feb 14 13:35:25 2006

Differences between base case cases\r3_nil_pre_maxgen.sav
and delta case cases\r3_nil_pst_maxgen.sav

draw\nil_overview2.drw



NILAND SIS

General Electric International, Inc. PSLF Program MW/MVAR Tue Feb 14 13:36:19 2006

R3_NIL_pst_maxgen.sav 2008 HS 02-14-06 KRSA
Niland System Impact Study
POST - Project SENSITIVITY - IID Max Generation

From:r2_S_nil_pst_maxgen.sav

draw\nil_detailmap.drw
cases\r3_nil_pst_maxgen.sav
Rating = 1

R3_nil_pst_maxgen.xls
Voltage Summary
N-0 Outages

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
8320	DROP1	34.5	8	163	base	r3_Nil_pst_maxge	1.051	1.051	0	0.95	1.05	0.05	Base system (n-0)
8973	A3B4	34.5	8	163	base	r3_Nil_pst_maxge	1.051	1.051	0	0.95	1.05	0.05	Base system (n-0)

R3_nil_pst_maxgen.xls
Flow Summary
N-0 Outages

LEGEND	% of RATING 1	
C_pu	100% - 110%	
C_pu	110% - 120%	P.U. of
C_pu	> 120%	Rate 1

FROM	FR	BKV	frar	frzo	TO	TO	BKV	toar	tozo	CK	TYPE	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8342	HEBERSCE	92	8	163	8666	HEBERSCE	13.8	8	163	1	tran	base	r3_Nil_pst_maxge	50	-47	10.8	293.5	48.2	0.96	0.96	Base system (n-0)

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
None													

R3_nil_pst_maxgen.xls
N1_flow

LEGEND	% of RATING 1
C_pu	100% - 110%
C_pu	110% - 120%
C_pu	> 120%

P.U. of Rate 1

FROM	FR	BKV	frar	frzo	TO	TO	BKV	toar	tozo	CK	TYPE	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8699	MIDWAY	230	8	164	8700	MIDWAY	92	8	164	2	tran	tran_180	r3_Nil_pst_maxge	225	-312.1	80.9	795.3	322.4	1.43	0.71	tran MIDWAY 230 to MIDWAY 92 ck 1
8699	MIDWAY	230	8	164	8700	MIDWAY	92	8	164	1	tran	tran_181	r3_Nil_pst_maxge	225	-312.1	80.9	795.3	322.4	1.43	0.71	tran MIDWAY 230 to MIDWAY 92 ck 2
8319	DIXIELAN	92	8	163	8946	DIXPRI2	92	8	163	1	line	line_11	r3_Nil_pst_maxge	54	-56.1	10.7	353.1	57.2	1.042	0.331	line USNAF to ELTERMIN 92 ck 1
8335	ELSTEAMP	92	8	163	8337	ELTERMIN	92	8	163	2	line	line_62	r3_Nil_pst_maxge	132	136.3	-7.1	829.6	136.5	1.001	0.53	line ELSTEAMP to ELTERMIN 92 ck 1
8335	ELSTEAMP	92	8	163	8337	ELTERMIN	92	8	163	1	line	line_63	r3_Nil_pst_maxge	132	136.3	-7.1	829.6	136.5	1.001	0.53	line ELSTEAMP to ELTERMIN 92 ck 2

Bus	Name	kV	Area	Zone	Outage	Case	Vbase	Vcont	DeltaV	Vmin	Vmax	Max-dv	Contingency Description
None													

R3_nil_pst_maxgen.xls
N2_flow

LEGEND	% of RATING 1
C_pu	100% - 110%
C_pu	110% - 120%
C_pu	> 120%

P.U. of Rate 1

FROM	FR	BKV	frar	frzo	TO	TO	BKV	toar	tozo	CK	TYPE	Outage_Name	Case	Rate-Mva	Pflow	Qflow	Amps	MVA	C_pu	B_pu	Contingency_Description
8904	GEM92	92	8	164	8912	GEM23	92	8	164	2	line	n2otg_201	r3_nil_pst_maxge	132	-13.3	-213.1	1303.4	213.5	1.573	0.208	N2-line COACHELA to DEVERS 230, 2 ck 1
8673	EARTHE2	92	8	165	8702	REG1EX	92	8	165	1	line	n2otg_201	r3_nil_pst_maxge	132	3.4	216.3	1299.2	216.3	1.569	0.288	N2-line COACHELA to DEVERS 230, 2 ck 1
8673	EARTHE2	92	8	165	8702	REG1EX	92	8	165	1	line	n2otg_262	r3_nil_pst_maxge	132	3.4	216.3	1299.2	216.3	1.569	0.288	N2-line COACHELA to MIDWAY 230 ck 1
8806	AV58TP1	161	8	162	8400	ESM161	161	8	163	1	line	n2otg_262	r3_nil_pst_maxge	165	-173.6	29.4	650.7	176.1	1.102	0.619	N2-line COACHELA to MIDWAY 230 ck 1
8279	CVSUB	92	8	162	8311	COACHELA	230	8	164	1	tran	n2otg_203	r3_nil_pst_maxge	150	-163	8.7	1024	163.3	1.1	0.47	N2-line COACHELA to DEVERS 230, 4 ck 1
8279	CVSUB	92	8	162	8311	COACHELA	230	8	164	2	tran	n2otg_203	r3_nil_pst_maxge	150	-163	8.7	1024	163.3	1.1	0.47	N2-line COACHELA to DEVERS 230, 4 ck 1
8301	CITAP1	92	8	162	8312	COACHELA	92	8	162	1	line	n2otg_203	r3_nil_pst_maxge	152	-161.4	20.5	1026.8	162.7	1.077	0.668	N2-line COACHELA to DEVERS 230, 4 ck 1
8301	CITAP1	92	8	162	8389	VANBUREN	92	8	162	1	line	n2otg_203	r3_nil_pst_maxge	152	161.4	-20.5	1026.8	162.7	1.076	0.668	N2-line COACHELA to DEVERS 230, 4 ck 1
8279	CVSUB	92	8	162	8349	JACKSON	92	8	162	1	line	n2otg_203	r3_nil_pst_maxge	132	136.8	0.9	858.1	136.8	1.036	0.669	N2-line COACHELA to DEVERS 230, 4 ck 1
8307	CMTAP2	92	8	162	8309	AVE42	92	8	162	1	line	n2otg_203	r3_nil_pst_maxge	132	133.1	-24	855.4	135.2	1.033	0.57	N2-line COACHELA to DEVERS 230, 4 ck 1
8307	CMTAP2	92	8	162	8389	VANBUREN	92	8	162	1	line	n2otg_203	r3_nil_pst_maxge	132	-133.1	24	855.4	135.2	1.033	0.571	N2-line COACHELA to DEVERS 230, 4 ck 1
8359	NILAND	161	8	163	19020	BLYTHE	161	14	191	1	line	n2otg_215w	r3_nil_pst_maxge	165	-156.6	61.6	595.8	168.3	1.019	0.619	N2-line BLYTHE to KNOB 161, 4 ck 1
8376	RTAP2	92	8	163	8974	RTP1	92	8	163	1	line	n2otg_262	r3_nil_pst_maxge	57	-54.3	12	360.6	55.6	1.011	0.702	N2-line COACHELA to MIDWAY 230 ck 1
8371	DESRTPWR	92	8	165	8057	DPWR#3	13.8	8	163	1	tran	n2otg_201	r3_nil_pst_maxge	54	-50.4	-11.6	317.3	51.7	1	0.93	N2-line COACHELA to DEVERS 230, 2 ck 1
8371	DESRTPWR	92	8	165	8057	DPWR#3	13.8	8	163	1	tran	n2otg_262	r3_nil_pst_maxge	54	-50.4	-11.6	317.3	51.7	1	0.93	N2-line COACHELA to MIDWAY 230 ck 1
8200	BANTP2	161	8	163	8400	ESM161	161	8	163	1	line	n2otg_262	r3_nil_pst_maxge	165	164.7	5.5	580.1	164.8	0.98	0.501	N2-line COACHELA to MIDWAY 230 ck 1

Niland System Impact Study

Appendix F
Stability Switchdecks

February 2006

NILAND SWITCH DECKS

```
=====================================================================
*   No Outage
=====================================================================


=====================================================================
*   Loss of NILAND-BOMBAY 92kV Line
=====================================================================
*   Fault bus at NILAND
FB   0.0 "NILAND  "   92.
*   Clear fault at NILAND
CFB  4.0 "NILAND   "  92.
*   Trip NILAND-BOMBAY 92kV Line
DL   4.0 "NILAND  "  92. "BOMBAY  "  92. "1 "


=====================================================================
*   Loss of NILAND-PRITP1 92kV Line
=====================================================================
*   Fault bus at NILAND
FB   0.0 "NILAND  "   92.
*   Clear fault at NILAND
CFB  4.0 "NILAND   "  92.
*   Trip NILAND-PRITP1 92kV Line
DL   4.0 "NILAND  "  92. "PRITP1  "  92. "1 "


=====================================================================
*   Loss of NILAND 161/92kV xfmr
=====================================================================
*   Fault bus at NILAND
FB   0.0 "NILAND  " 161.
*   Clear fault at NILAND
CFB  4.0 "NILAND   " 161.
*   Trip NILAND NILAND 161/92kV xfmr
DL   4.0 "NILAND  " 161. "NILAND  " 92. "1 "

=====================================================================
*   Loss of NILAND-BLYTHE 161 kV Line
=====================================================================
*   Fault bus at NILAND
FB   0.0 "NILAND  " 161.
*   Clear fault at NILAND
CFB  4.0 "NILAND   " 161.
*   Trip NILAND-BLYTHE 161 kV Line
DL   4.0 "NILAND  " 161. "BLYTHE  " 161. "1 "


=====================================================================
*   Loss of NILAND-ELCENTRO 161 kV Line
=====================================================================
*   Fault bus at NILAND
FB   0.0 "NILAND  " 161.
*   Clear fault at NILAND
CFB  4.0 "NILAND   " 161.
*   Trip NILAND-ELCENTSW 161 kV Line
DL   4.0 "NILAND  " 161. "ELCENTSW " 161. "1 "

=====================================================================
*   Loss of NILAND-CVSUB161 161 kV Line
=====================================================================
*   Fault bus at NILAND
FB   0.0 "NILAND  " 161.
*   Clear fault at NILAND
CFB  4.0 "NILAND   " 161.
*   Trip NILAND-CVSUB161 161 kV Line
DL   4.0 "NILAND  " 161. "CVSUB161" 161. "1 "


=====================================================================
*   Loss of BLYTHE-EAGLEMTN 161 kV Line
=====================================================================
*   Fault bus at BLYTHE
FB   0.0 "BLYTHE  " 161.
*   Clear fault at BLYTHE
CFB  4.0 "BLYTHE   " 161.
*   Trip BLYTHE-EAGLEMTN 161 kV Line
DL   4.0 "BLYTHE  " 161. "BLYTHESC" 161. "1 "
DL   4.0 "BLYTHESC" 161. "EAGLEMTN " 161. "1 "


=====================================================================
*   Loss of BLYTHE-KNOB 161 kV Line
=====================================================================
*   Fault bus at BLYTHE
FB   0.0 "BLYTHE  " 161.
*   Clear fault at BLYTHE
CFB  4.0 "BLYTHE   " 161.
*   Trip BLYTHE-KNOB 161 kV Line
DL   4.0 "BLYTHE  " 161. "GLT TAP " 161. "1 "
DL   4.0 "GLT TAP " 161. "KNOB    " 161. "1 "


=========================================================================
*   EC-AVE58 161kV line outage
=============================================================================
*   Fault Bus at EC 161kV bus
FB  0.0  "8331"   161.
*   Clear fault from EC 161kV bus
CFB 5.0  "8331"   161.
*   Switch out EC-AVE58 161kV line
DL  5.0  "8331"   161.   "8806"   161.  "1 "


=========================================================================
*    Trip Ramon-Mirage 230/92kV xfmr
=========================================================================
*   Bus fault at Ramon (MIRAGE) 92kV
FB   0.0 "MIRAGTIE"  92.
*   Clear bus fault at Ramon (MIRAGE) 92kV #8640
CFB  4.0 "MIRAGTIE"  92.
*   Trip Ramon-Mirage 230/92kV xfmr
DL   5.0 "8640"  92.  "8695"  230.  "1 "
```

```
==================================================================
*   Palo Verde - Devers 500kV line outage
*   including Generator fault damping at three PV units
=========================================================================
*   Fault Bus at Palo Verde
FB  0.0  "PALOVRDE"   500.

*   Generator Fault Damping at Palo Verde
GFD 0.0  "PALOVRD1"  24.0   "1 "   0.072
GFD 0.0  "PALOVRD2"  24.0   "1 "   0.072
GFD 0.0  "PALOVRD3"  24.0   "1 "   0.072
*
*   Flash Series Capacitors
FC  0.0  "PALOVRDE"   500.   "DEVERS"   500.  "1 "   2
FC  0.0  "PALOVRDE"   500.   "DEVERS"   500.  "1 "   4
FC  0.0  "HASSYAMP"   500.   "N.GILA"   500.  "1 "   2
FC  0.0  "N.GILA"     500.   "IMPRLVLY" 500.  "1 "   2
FC  0.0  "IMPRLVLY"   500.   "MIGUEL"   500.  "1 "   1
FC  0.0  "MEAD"       500.   "PERKINS" 500.  "1 "   1
FC  0.0  "MEAD"       500.   "PERKINS" 500.  "1 "   3
FC  0.0  "MOENKOPI"   500.   "YAVAPAI" 500.  "1 "   1
FC  0.0  "YAVAPAI"    500.   "WESTWING" 500.  "1 "   2
FC  0.0  "NAVAJO"     500.   "WESTWING" 500.  "1 "   1
FC  0.0  "NAVAJO"     500.   "WESTWING" 500.  "1 "   3
*
*   Clear fault from Palo Verde 500kV buss
CFB 4.0  "PALOVRDE"   500.
*
*   Switch out Hassy-NGILA 500kV line
DL  4.0  "PALOVRDE"   500.   "DEVERS"   500.  "1 "
*
*   Reinsert Series Capacitors
RC  4.0  "HASSYAMP"   500.   "N.GILA"   500.  "1 "   2
RC  4.0  "N.GILA"     500.   "IMPRLVLY" 500.  "1 "   2
RC  4.0  "IMPRLVLY"   500.   "MIGUEL"   500.  "1 "   1
RC  4.0  "MEAD"       500.   "PERKINS" 500.  "1 "   1
RC  4.0  "MEAD"       500.   "PERKINS" 500.  "1 "   3
*
*   Remove Generator Fault Damping at Palo Verde
GFD 4.0  "PALOVRD1"  24.0   "1 "   0.0
GFD 4.0  "PALOVRD2"  24.0   "1 "   0.0
GFD 4.0  "PALOVRD3"  24.0   "1 "   0.0
*
*   Reinsert Series Capacitors
RC  8.0   "MOENKOPI"   500.   "YAVAPAI"  500.  "1 "   1
RC  8.0     "YAVAPAI"    500.   "WESTWING" 500.  "1 "   2
RC  8.0     "NAVAJO"     500.   "WESTWING" 500.  "1 "   1
RC  8.0     "NAVAJO"     500.   "WESTWING" 500.  "1 "   3
```

```
==================================================================
*   IV - MIGUEL 500kV line outage
 ==================================================================
FB  0.0  "IMPRLVLY"   500.
*   Flash Series Capacitors
FC  0.0  "HASSYAMP"   500.   "N.GILA"   500.  "1 "   2
FC  0.0  "N.GILA"     500.   "IMPRLVLY" 500.  "1 "   2
FC  0.0  "IMPRLVLY"   500.   "MIGUEL"   500.  "1 "   1
*   Clear fault from IV 500kV buss
CFB 4.0  "IMPRLVLY"   500.
*   Switch out IV - MIGUEL 500kV line
DL  4.0  "IMPRLVLY"   500.   "MIGUEL"   500.  "1 "
*   Reinsert Series Capacitors
RC  4.0  "HASSYAMP"   500.   "N.GILA"   500.  "1 "   2
RC  4.0  "IMPRLVLY"   500.   "N.GILA"   500.  "1 "   2

*   ==================================================================
*   Hassyampa - North Gila 500kV line outage
*   including Generator fault damping at three PV units
*   ==========================================================================
*   Fault Bus at Palo Verde
FB  0.0  "HASSYAMP"   500.
*   Generator Fault Damping at Palo Verde
GFD 0.0  "PALOVRD1"  24.0   "1 "   0.072
GFD 0.0  "PALOVRD2"  24.0   "1 "   0.072
GFD 0.0  "PALOVRD3"  24.0   "1 "   0.072
*   Flash Series Capacitors
FC  0.0  "PALOVRDE"   500.   "DEVERS"   500.  "1 "   2
FC  0.0  "PALOVRDE"   500.   "DEVERS"   500.  "1 "   4
FC  0.0  "HASSYAMP"   500.   "N.GILA"   500.  "1 "   2
FC  0.0  "N.GILA"     500.   "IMPRLVLY" 500.  "1 "   2
FC  0.0  "IMPRLVLY"   500.   "MIGUEL"   500.  "1 "   1
FC  0.0  "MEAD"       500.   "PERKINS" 500.  "1 "   1
FC  0.0  "MEAD"       500.   "PERKINS" 500.  "1 "   3
FC  0.0  "MOENKOPI"   500.   "YAVAPAI" 500.  "1 "   1
FC  0.0  "YAVAPAI"    500.   "WESTWING" 500.  "1 "   2
FC  0.0  "NAVAJO"     500.   "WESTWING" 500.  "1 "   1
FC  0.0  "NAVAJO"     500.   "WESTWING" 500.  "1 "   3
*   Clear fault from Palo Verde 500kV buss
CFB 4.0  "HASSYAMP"   500.
*   Switch out Hassy-NGILA 500kV line
DL  4.0  "HASSYAMP"   500.   "N.GILA"   500.  "1 "
*   Reinsert Series Capacitors
RC  4.0  "HASSYAMP"   500.   "N.GILA"   500.  "1 "   2
RC  4.0  "N.GILA"     500.   "IMPRLVLY" 500.  "1 "   2
RC  4.0  "IMPRLVLY"   500.   "MIGUEL"   500.  "1 "   1
RC  4.0  "MEAD"       500.   "PERKINS" 500.  "1 "   1
RC  4.0  "MEAD"       500.   "PERKINS" 500.  "1 "   3
*   Remove Generator Fault Damping at Palo Verde
GFD 4.0  "PALOVRD1"  24.0   "1 "   0.0
GFD 4.0  "PALOVRD2"  24.0   "1 "   0.0
GFD 4.0  "PALOVRD3"  24.0   "1 "   0.0
*   Reinsert Series Capacitors
RC  8.0   "MOENKOPI"   500.   "YAVAPAI"  500.  "1 "   1
RC  8.0     "YAVAPAI"    500.   "WESTWING" 500.  "1 "   2
RC  8.0     "NAVAJO"     500.   "WESTWING" 500.  "1 "   1
RC  8.0     "NAVAJO"     500.   "WESTWING" 500.  "1 "   3
```

```
*   ==========================================================================
*   Trip Niland generator step up transformers
*   ==========================================================================
*   Fault bus at NILAND
FB   0.0 "NILAND  " 92.
*   Clear fault at NILAND
CFB  4.0 "NILAND   " 92.
*   Trip NILAND GEN STEP-UP XFMRS.
DL   4.0 "8361 " 92. "NILGEN  " 13.8. "1 "
DL   4.0 "8361 " 92. "NILGEN2 " 13.8. "1 "


*   ==========================================================================
*   Path 42 Line trip with RAS
*   ==========================================================================
*   Fault Bus - Mirage 230kV
FB  0.0 "MIRAGE" 230.
*   Clear Fault
CFB 5 "MIRAGE" 230.
*   Trip Path 42 Elements
DL  5  "COACHELA " 230.  "DEVERS " 230.  "1 "
DL  5  "RAMON "    230.  "MIRAGE " 230.  "1 "
*   Trip 92kV ties and Generation as part of RAS (approx 200MW)
DL  8  "MIDWAY "   92.   "VULCAN "  92.  "1 "
DL  8  "MIDWAY "   92.   "LEATHERS "  92.  "1 "
TG  8  "VULCAN1 "  14.4 "1 "
TG  8  "VULCAN1 "  14.4 "2 "
TG  8  "EARTHE2 "  92 "1 "
TG  8  "LEATHERS "  14.4 "1 "
TG  8  "JJELMORE "  14.4 "1 "
TG  8  "DELRANCH "  14.4 "1 "

*   ==========================================================================
*   Loss of NILAND-CV 161 kV Line
*   ==========================================================================
*   Fault bus at NILAND
FB   0.0 "NILAND  " 161.
*   Clear fault at NILAND
CFB  4.0 "NILAND   " 161.
*   Trip NILAND-BLYTHE 161 kV Line
*   followed by trip of NILAND-CV
DL   4.0 "NILAND  " 161. "BLYTHE  " 161. "1 "
DL   4.0 "NILAND  " 161. "CVSUB161" 161. "1 "

*   ==========================================================================
*   Loss of NILAND AND NILAND CVSUB 161 kV Line
*   ==========================================================================
*   Fault bus at ELCNTSW
FB   0.0 "ELCENTSW  " 161.
*   Clear fault at ELCNTSW
CFB  4.0 "ELCENTSW   " 161.
*   Trip NILAND - CVSUB 161 kV Line
*   followed by trip of NILAND-CV
DL   4.0 "ELCENTSW  " 161. "NILAND  " 161. "1 "
DL   4.0 "NILAND  " 161. "CVSUB161" 161. "1 "
```

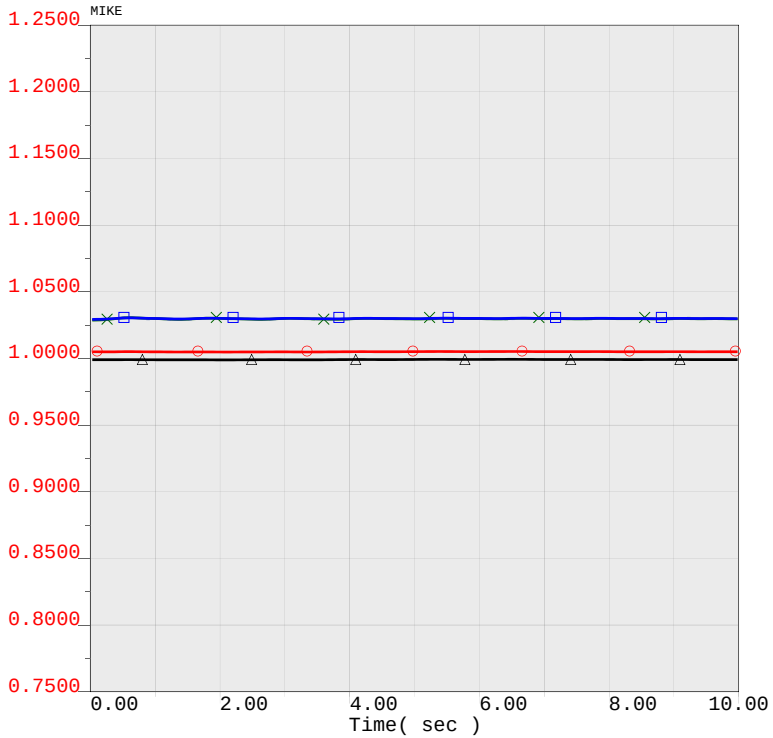
```
*   ==========================================================================
*   Loss of Niland-El Centro and Niland-Blythe 161kV lines
*   ==========================================================================
FB   0.0 "NILAND  " 161.
*   Clear fault at ELCNTSW
CFB  4.0 "NILAND   " 161.
*   Trip ELCENTRO-NILAND 161 kV Line
*   followed by trip of BLYTHE-NILAND 161 kV Line
DL   4.0 "ELCENTSW " 161. "NILAND  " 161. "1 "
DL   4.0 "BLYTHE  " 161. "NILAND  " 161. "1 "


*   ==========================================================================
*   Loss of NILAND-PRITP1/NILAND-BOMBAY 92kV Line
*   ==========================================================================
*   Fault bus at NILAND
FB   0.0 "NILAND  "   92.
*   Clear fault at NILAND
CFB  4.0 "NILAND   "  92.
*   Trip NILAND-PRITP1 92kV Line
DL   4.0 "NILAND  "  92. "PRITP1  "  92. "1 "
DL   4.0 "NILAND  "  92. "BOMBAY  "  92. "1 "


*   ==========================================================================
*   MIDWAY - CV 230kV DOUBLE line outage
*   ==========================================================================
*   Fault Bus at MIDWAY
FB  0.0  "MIDWAY"   230.
*   Clear fault from MIDWAY-230kV buss
CFB 5.0  "MIDWAY"   230.
*   Switch out MIDWAY 230kV line
DL  5.0  "8311"   230.   "8699"   230.  "1 "
DL  5.0  "8311"   230.   "8699"   230.  "2 "
```

Niland System Impact Study

Appendix G
Niland Pre Project Maximum generation Stability Plots

February 2006

IID 230kV Voltage plots EC, CV, RMN, IV

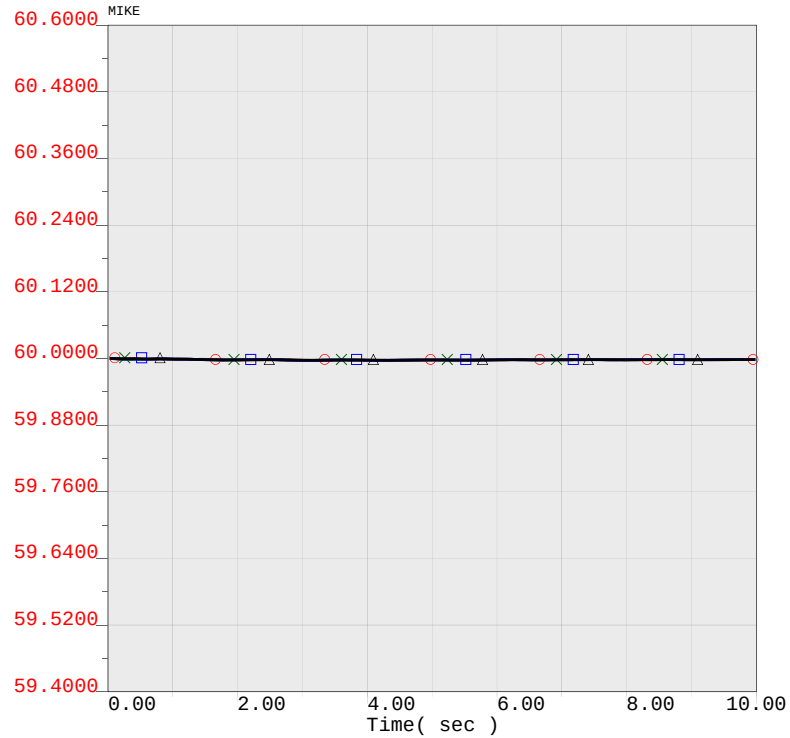


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_no_otg.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:10:15 2006

IID 230kV Frequency plots EC, CV, RMN, IV

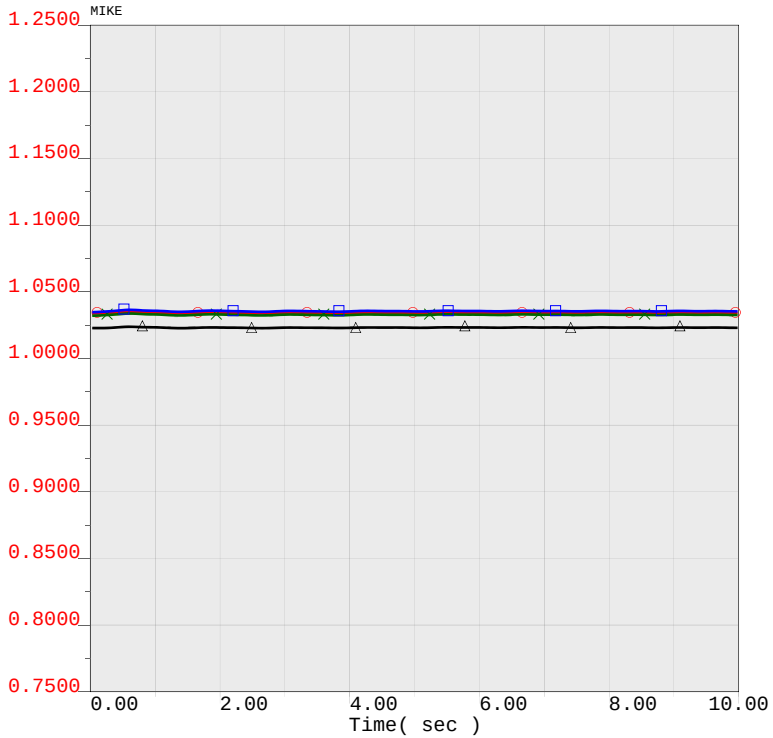


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_no_otg.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:10:15 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

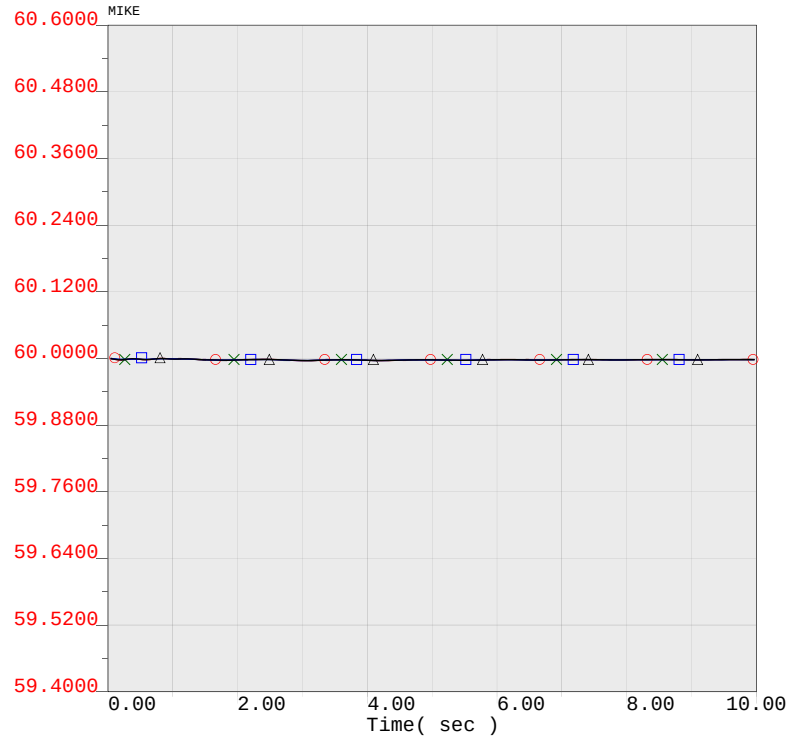


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_no_otg.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:10:15 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

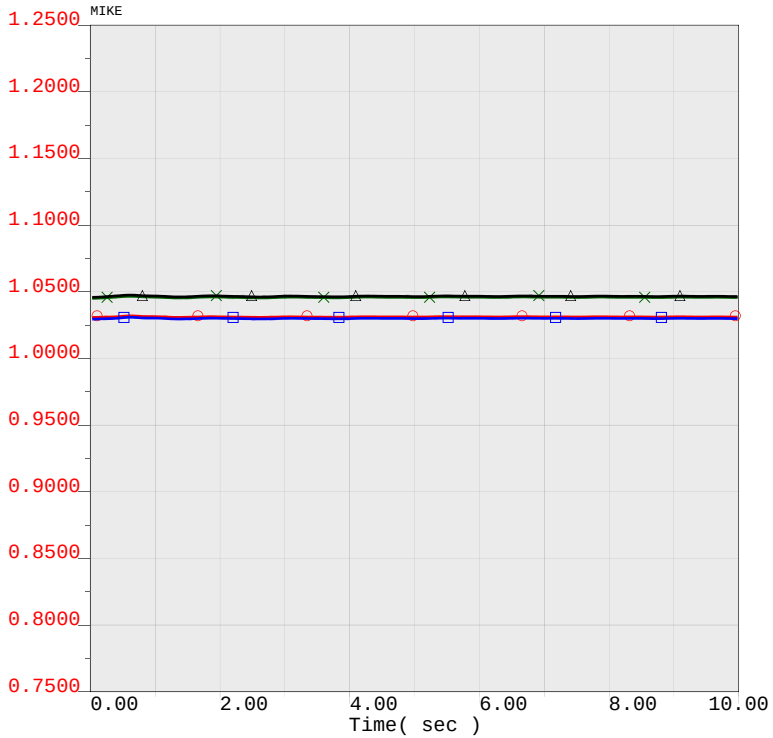


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_no_otg.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:10:15 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

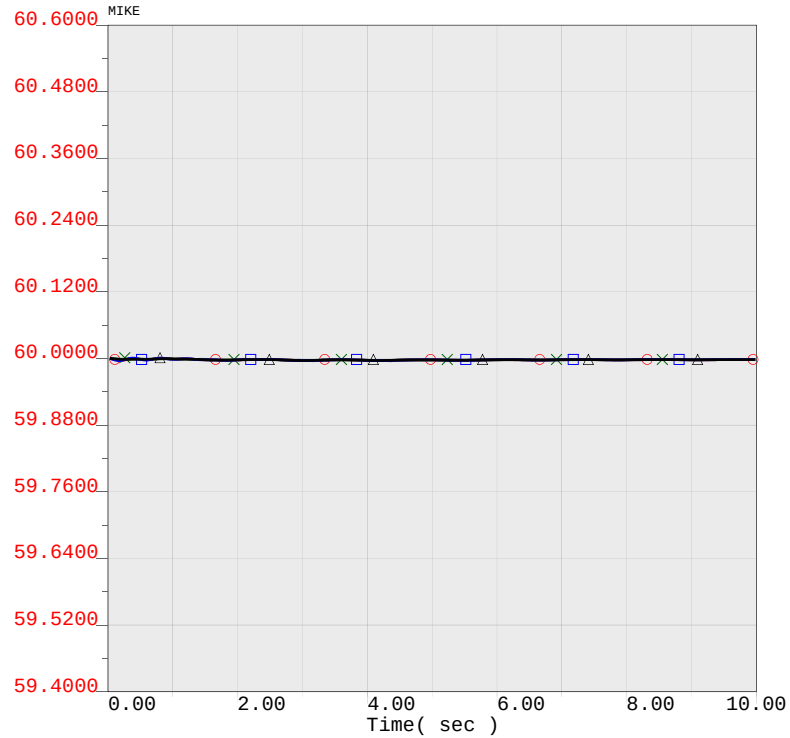


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_no_otg.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:10:15 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

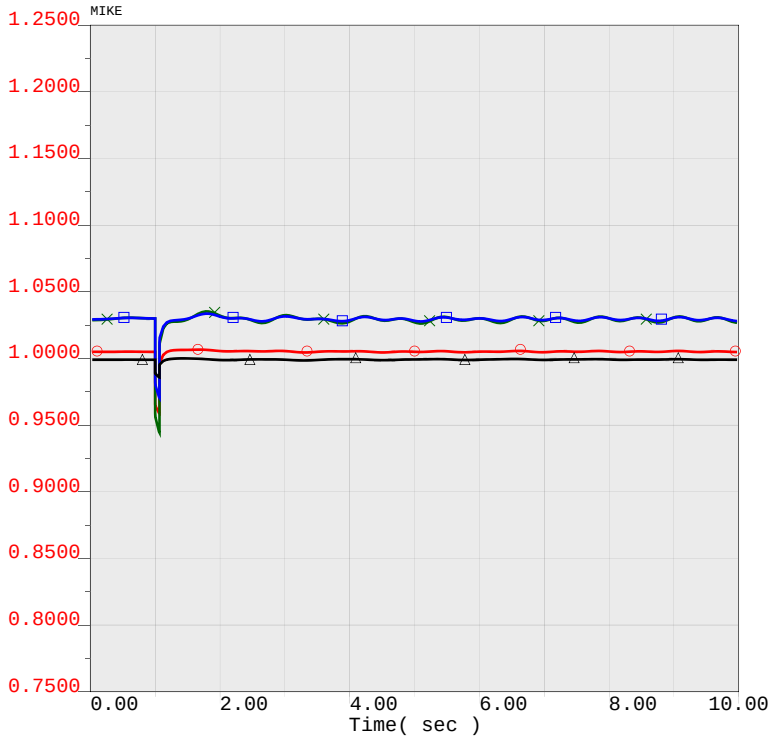


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_no_otg.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:10:15 2006

IID 230kV Voltage plots EC, CV, RMN, IV

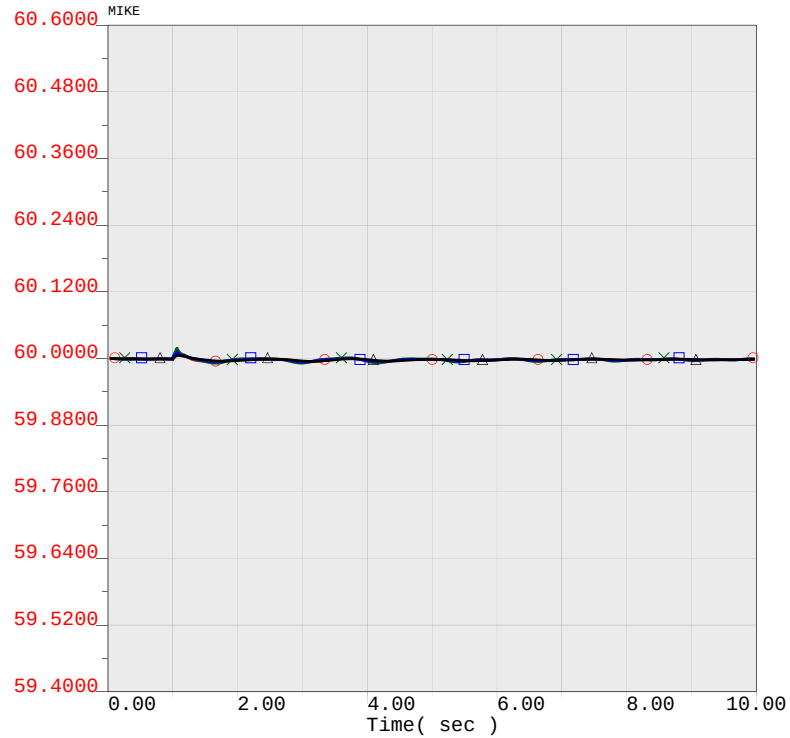


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bom.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:06:52 2006

IID 230kV Frequency plots EC, CV, RMN, IV

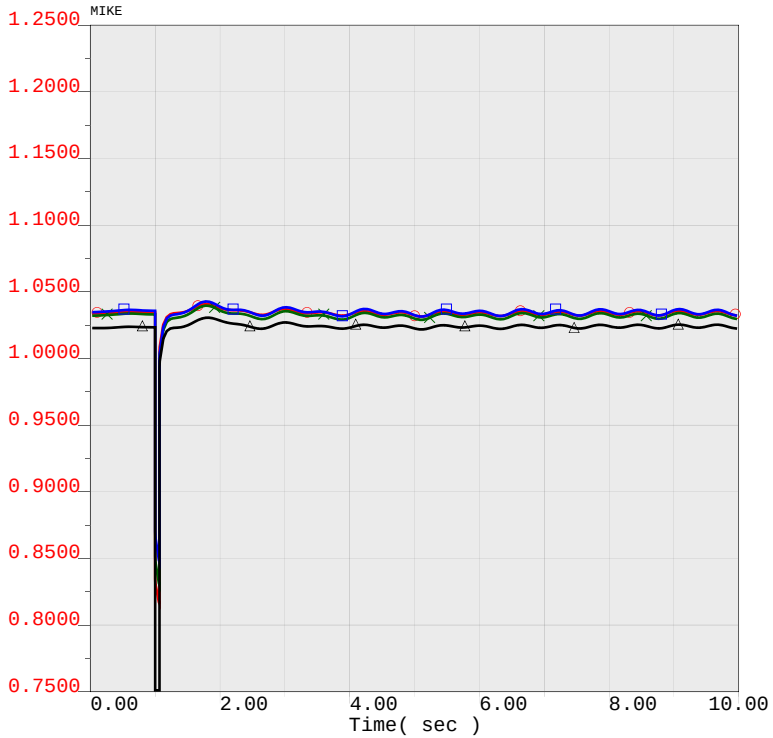


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bom.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:06:52 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

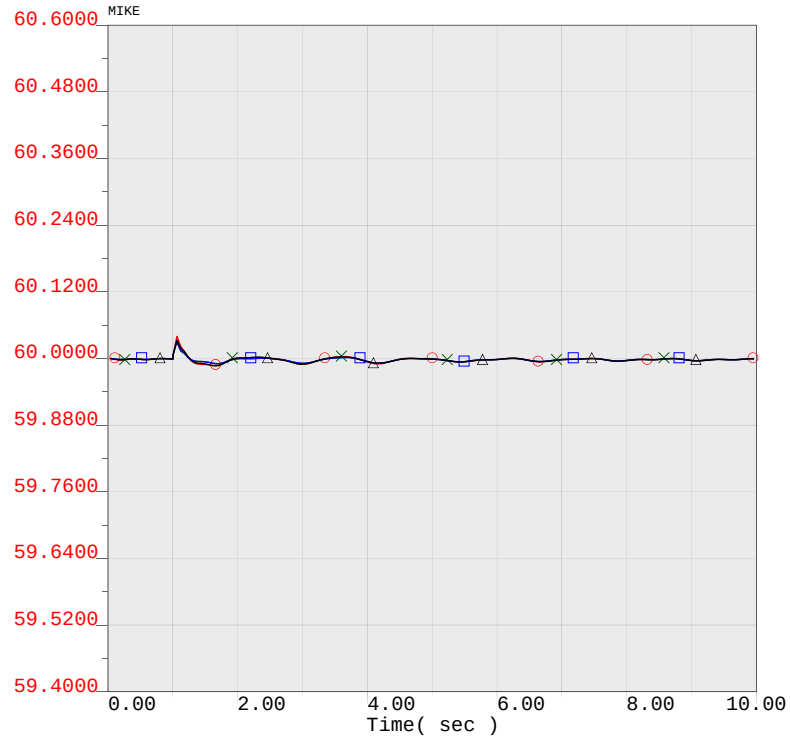


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bom.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:06:52 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

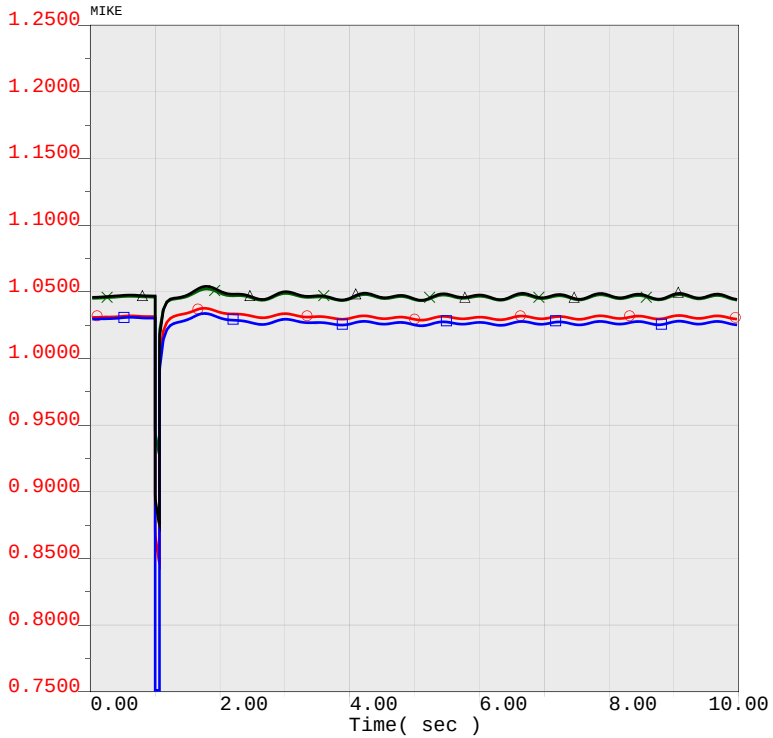


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bom.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:06:52 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

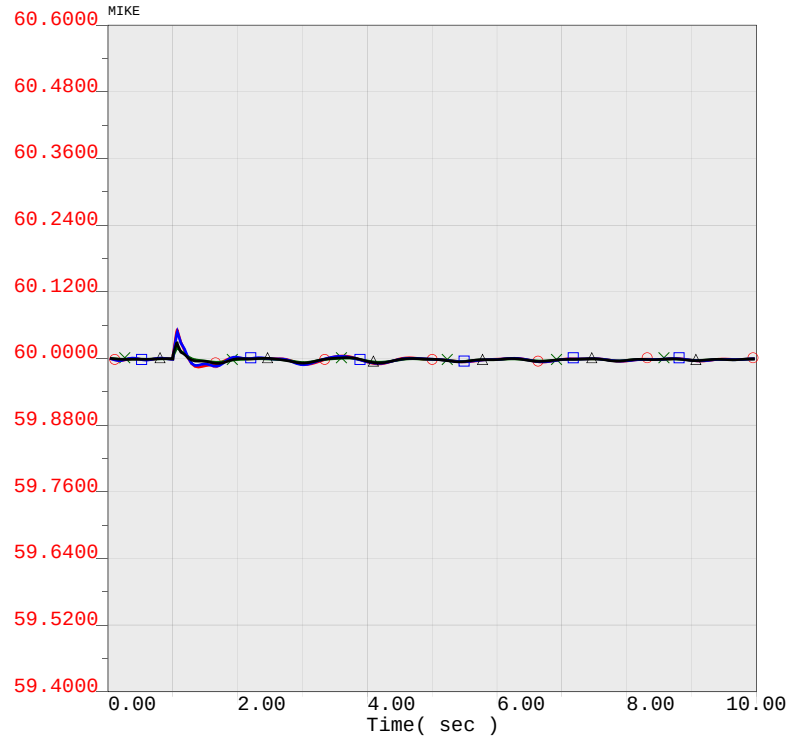


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bom.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:06:52 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

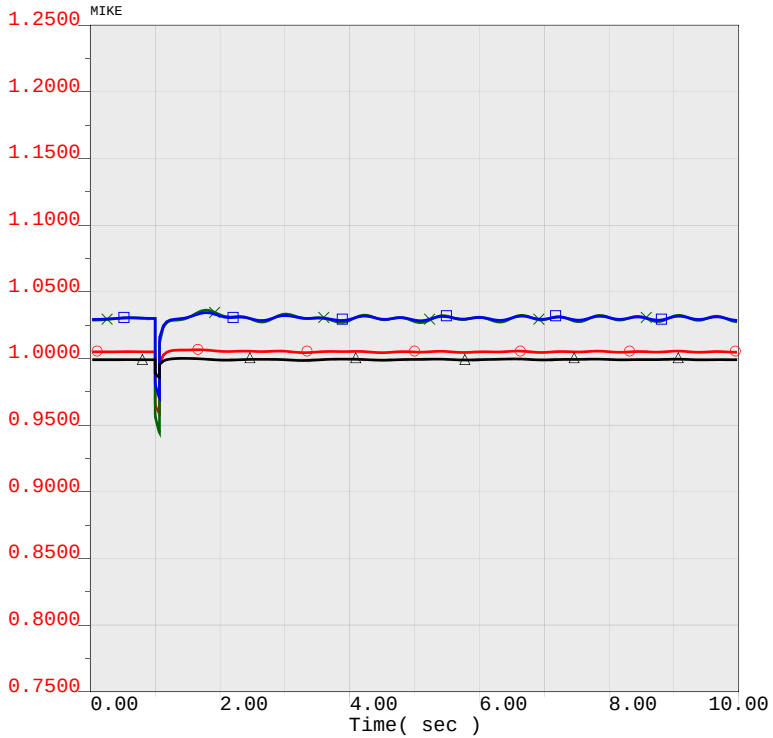


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bom.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:06:52 2006

IID 230kV Voltage plots EC, CV, RMN, IV

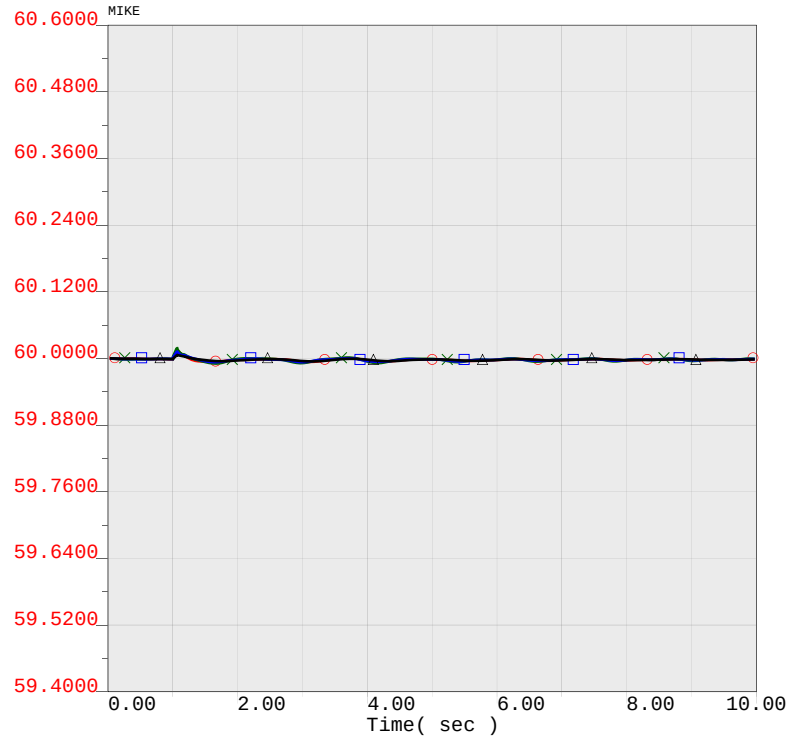


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:08:23 2006

IID 230kV Frequency plots EC, CV, RMN, IV

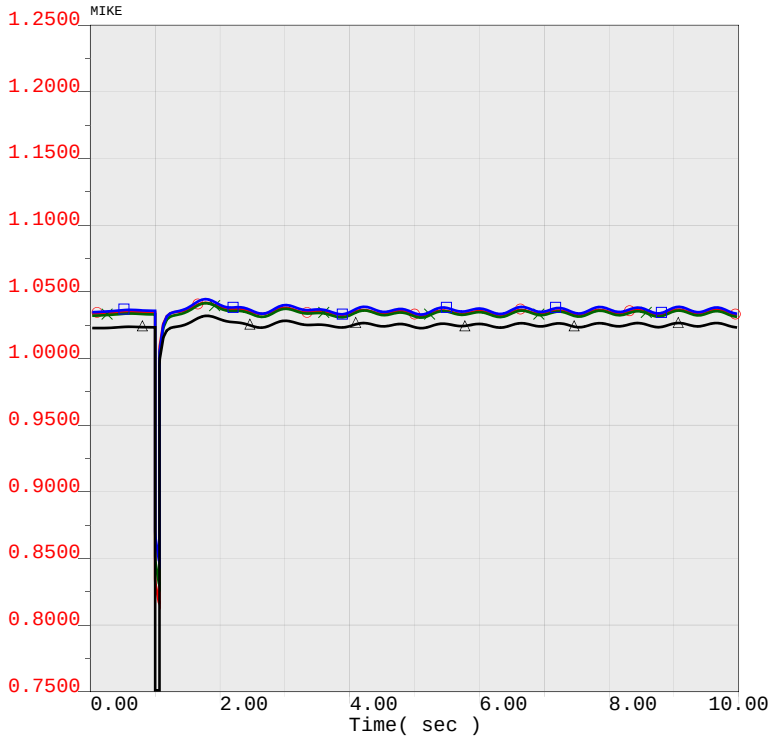


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:08:23 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

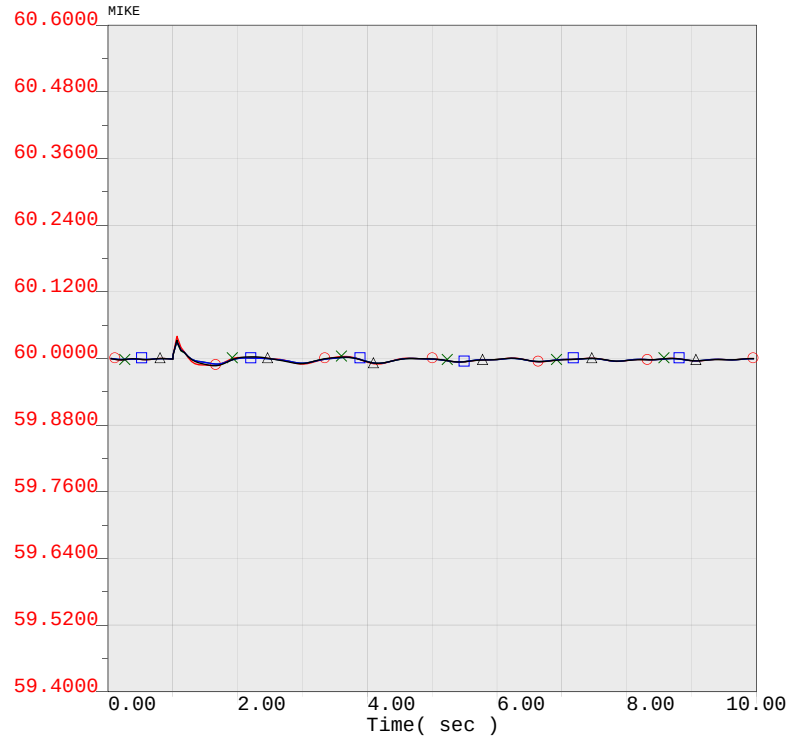


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:08:23 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

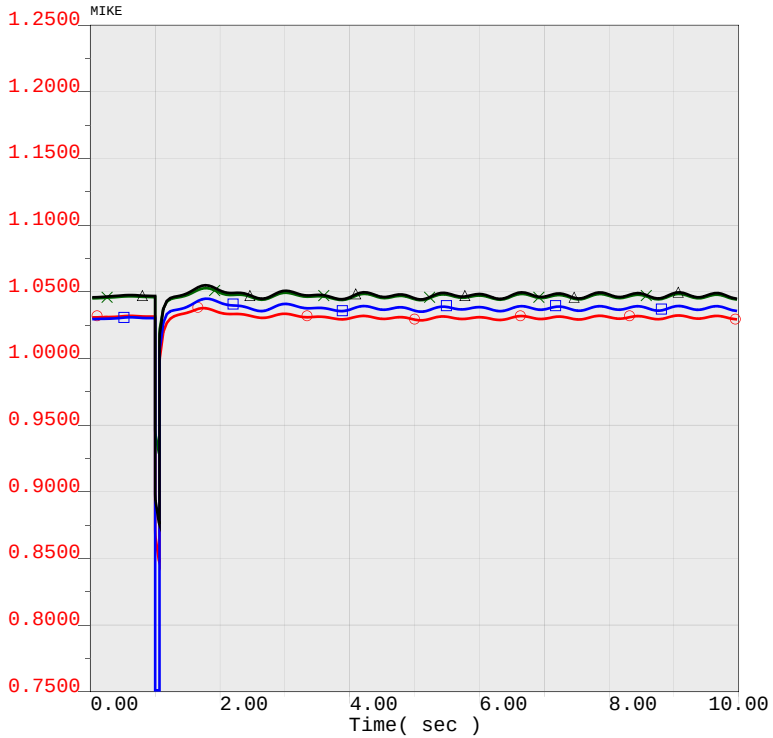


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:08:23 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

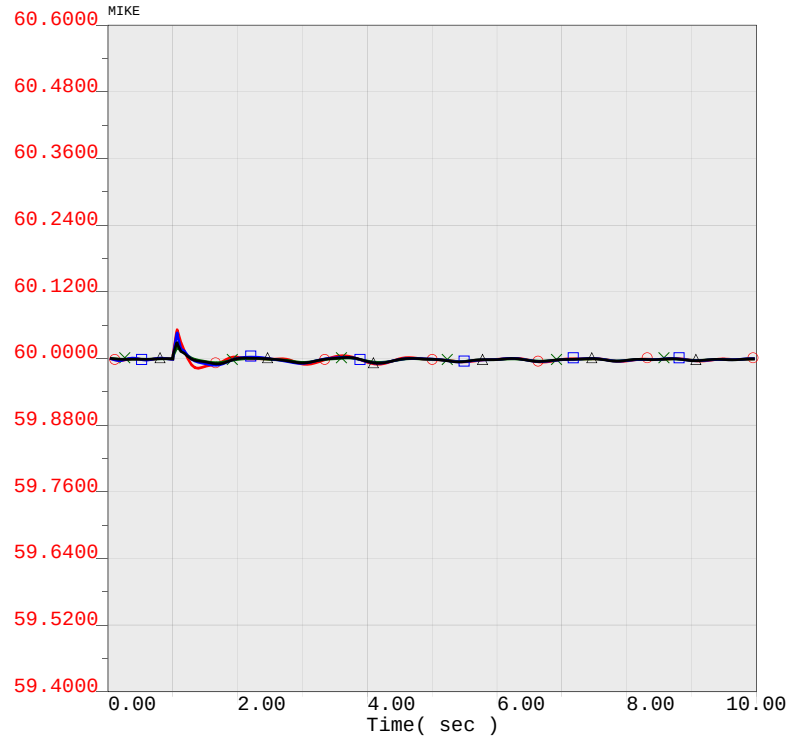


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:08:23 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

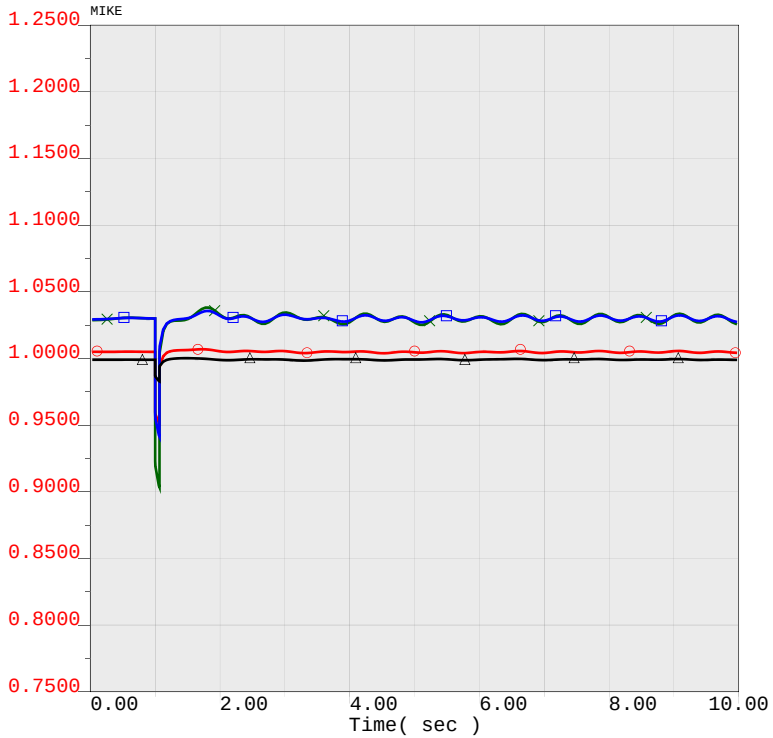


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:08:23 2006

IID 230kV Voltage plots EC, CV, RMN, IV

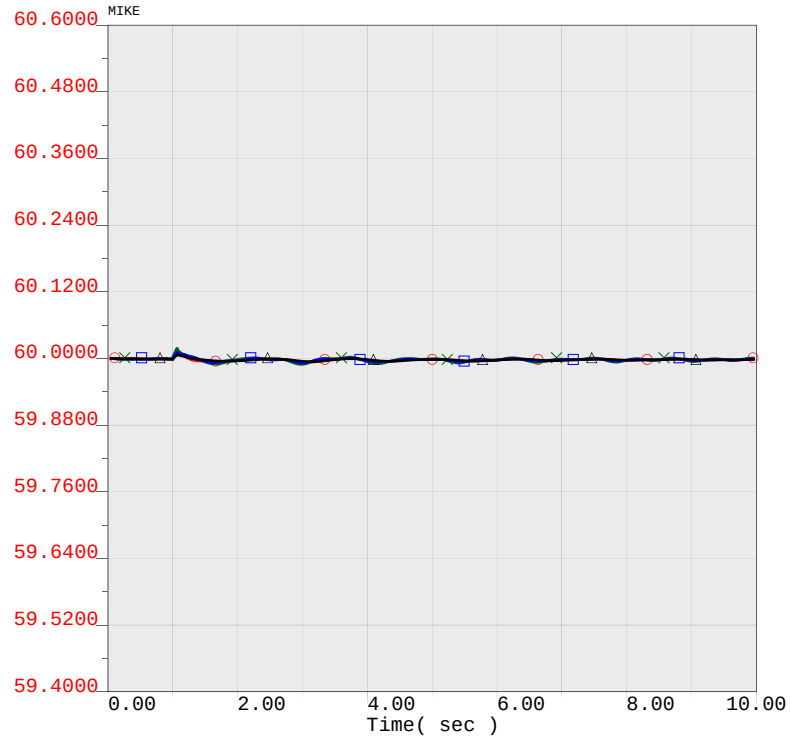


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pre_maxgen.sav

pre_nil161-92_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:21:49 2006

IID 230kV Frequency plots EC, CV, RMN, IV

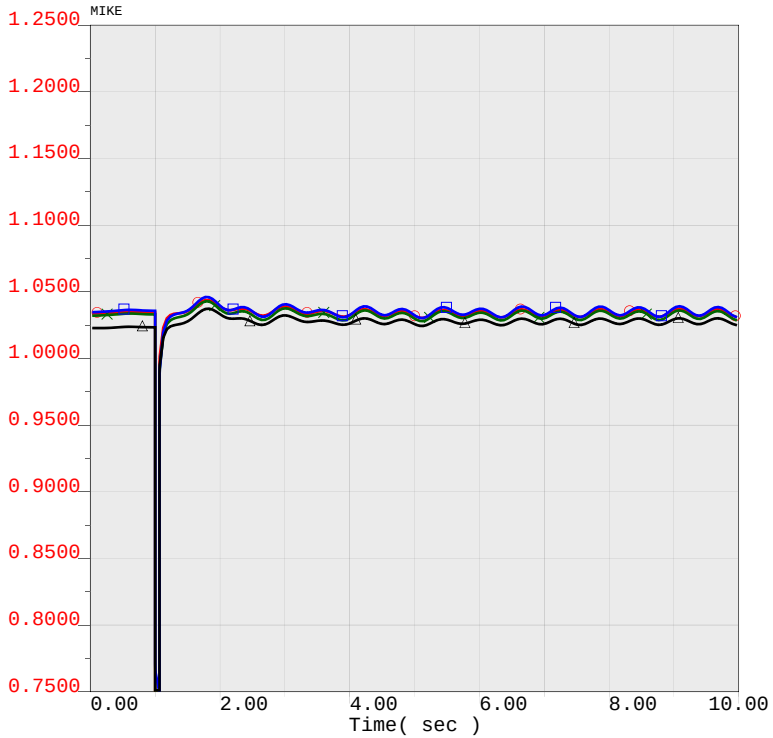


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pre_maxgen.sav

pre_nil161-92_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:21:49 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

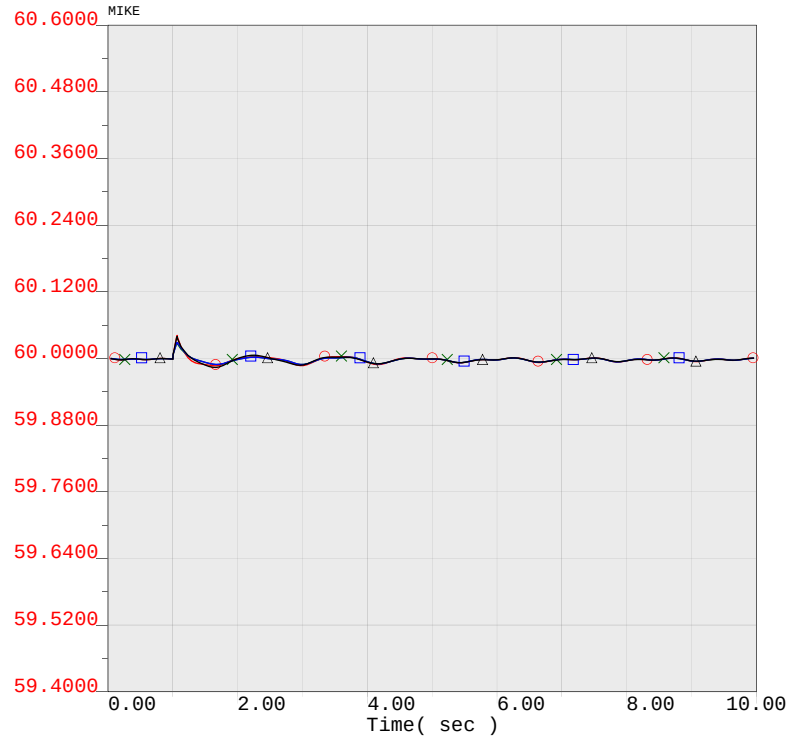


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pre_maxgen.sav

pre_nil161-92_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:21:49 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

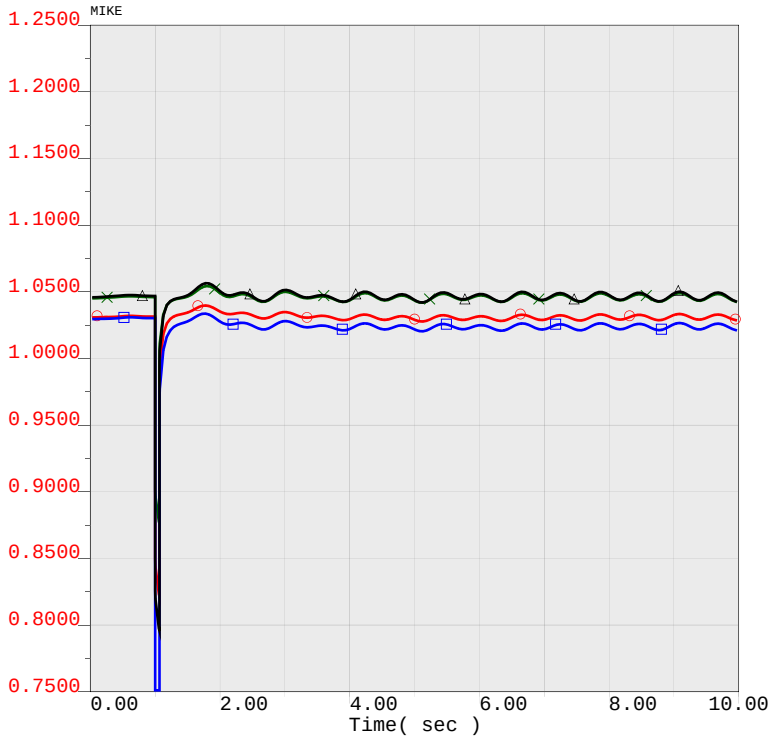


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pre_maxgen.sav

pre_nil161-92_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:21:49 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

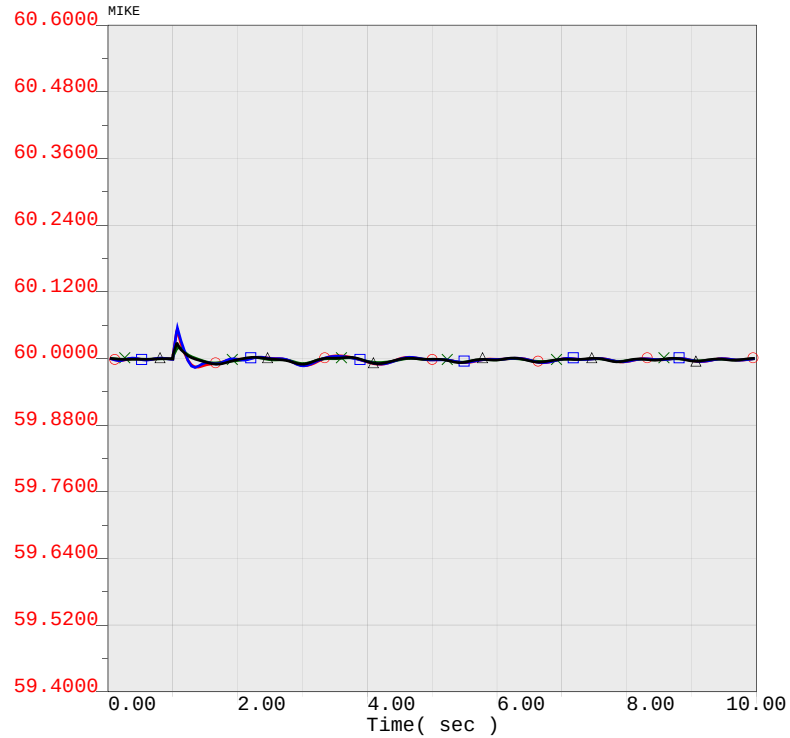


○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pre_maxgen.sav

pre_nil161-92_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:21:49 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

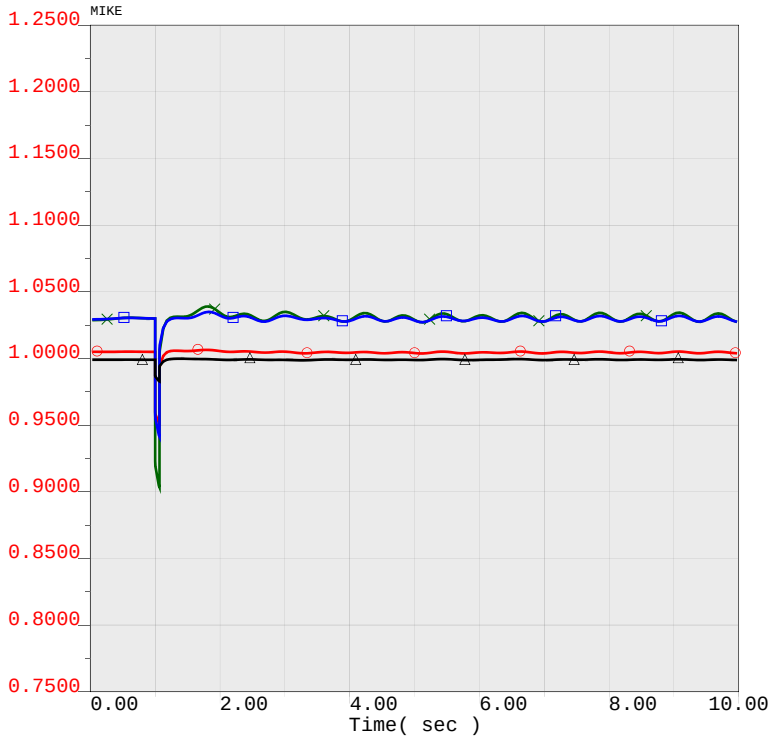


○ 59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
× 59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pre_maxgen.sav

pre_nil161-92_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:21:49 2006

IID 230kV Voltage plots EC, CV, RMN, IV

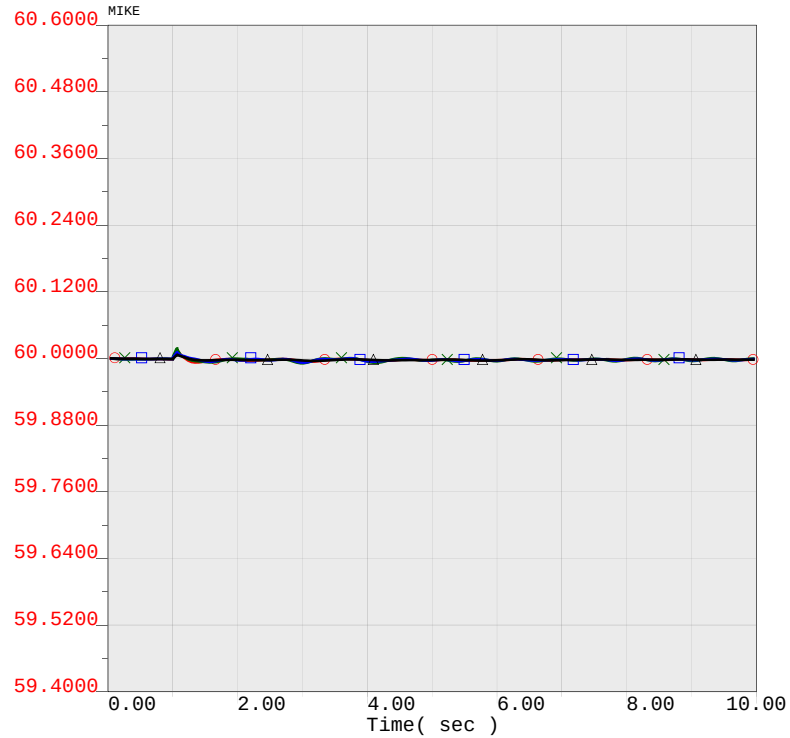


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly-n1.chf
g:\iid\2005\sis\niland
Thu Jan 19 16:04:58 2006

IID 230kV Frequency plots EC, CV, RMN, IV

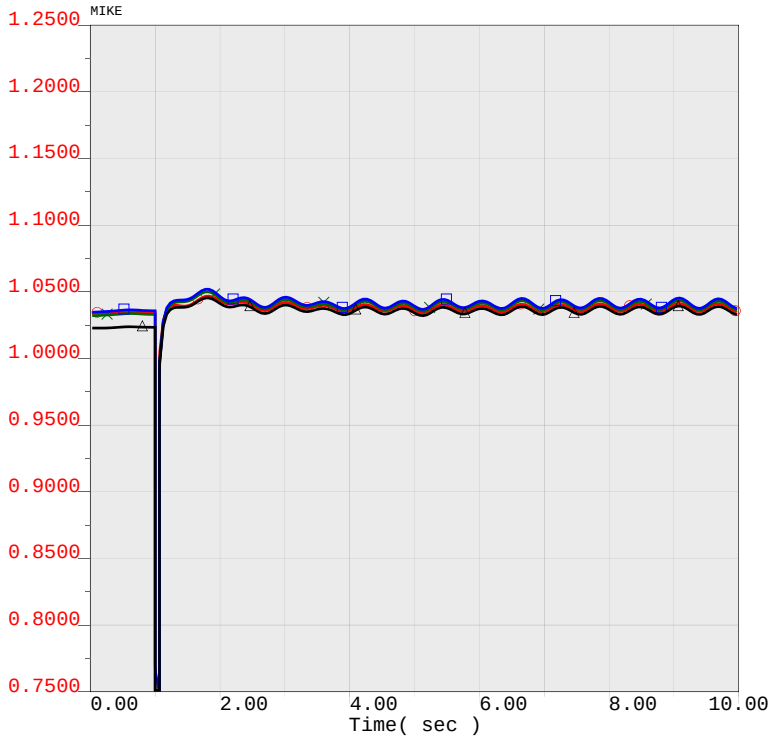


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly-n1.chf
g:\iid\2005\sis\niland
Thu Jan 19 16:04:58 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

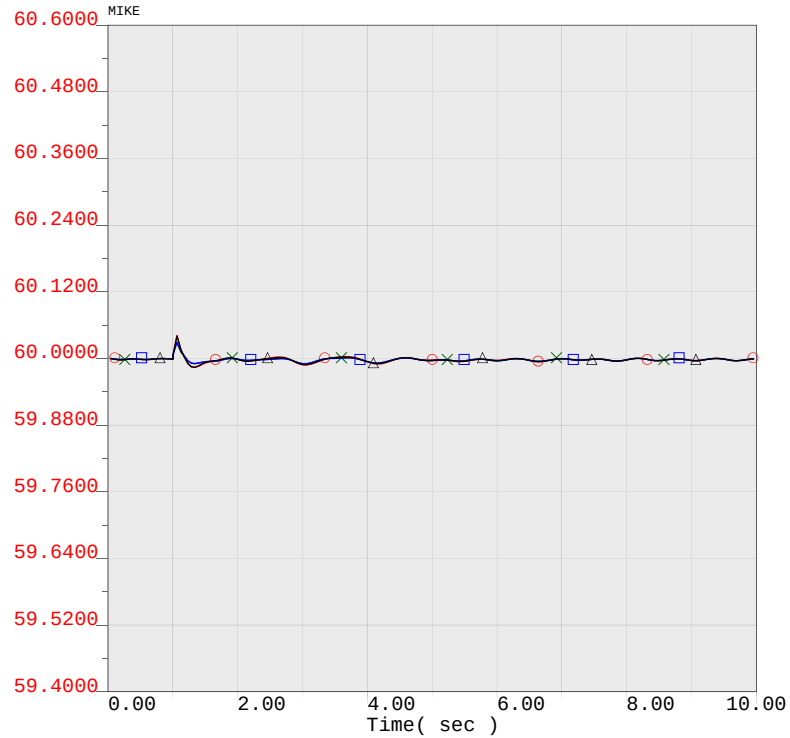


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly-n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:04:58 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

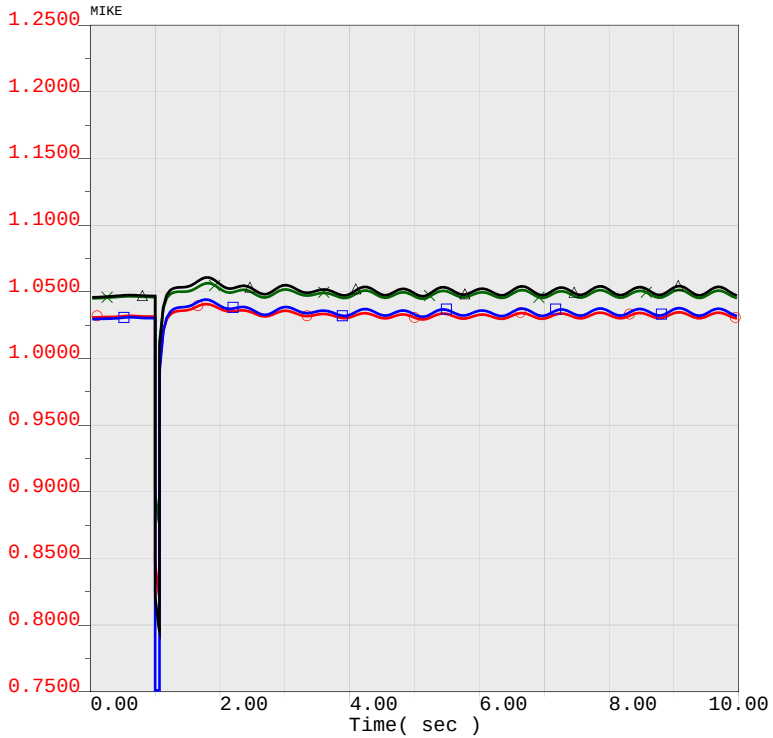


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly-n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:04:58 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

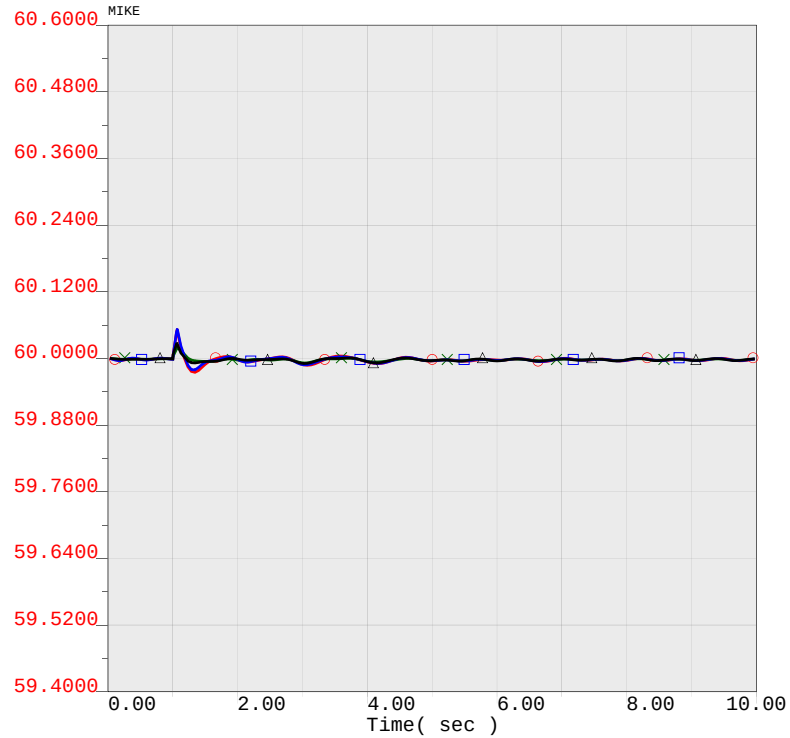


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly-n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:04:58 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

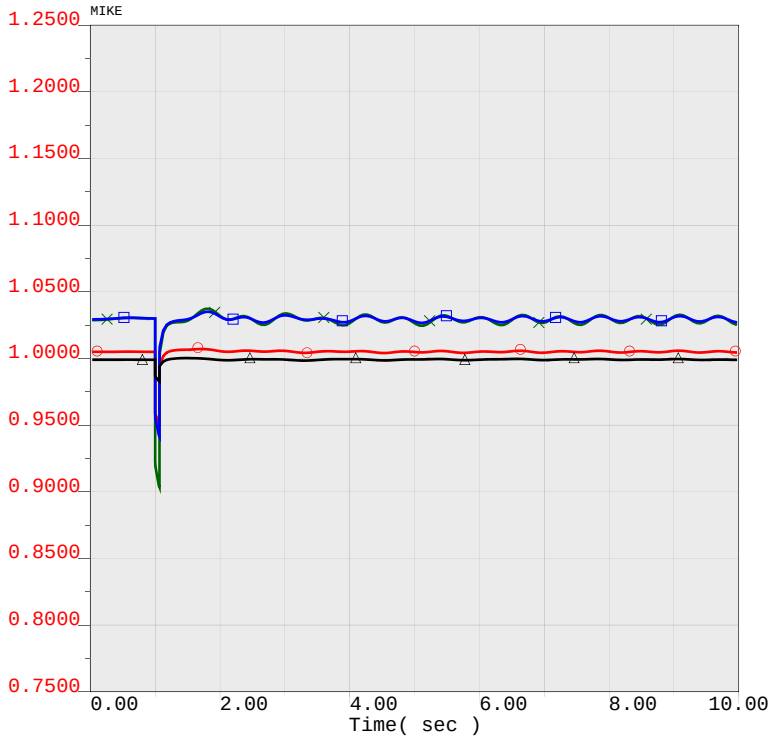


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly-n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:04:58 2006

IID 230kV Voltage plots EC, CV, RMN, IV

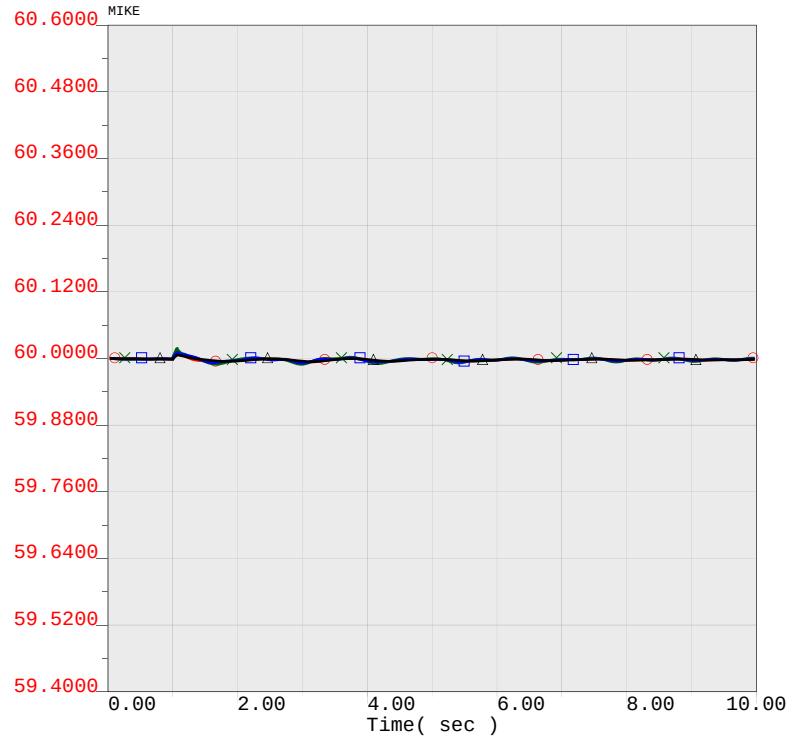


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pre_maxgen.sav

pre-ec-nil_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:19:32 2006

IID 230kV Frequency plots EC, CV, RMN, IV

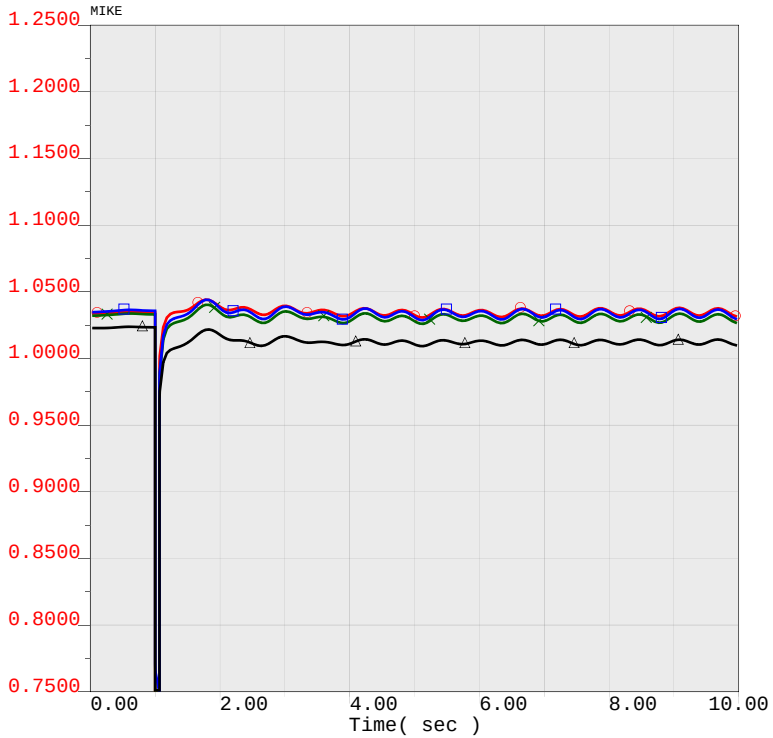


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pre_maxgen.sav

pre-ec-nil_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:19:32 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

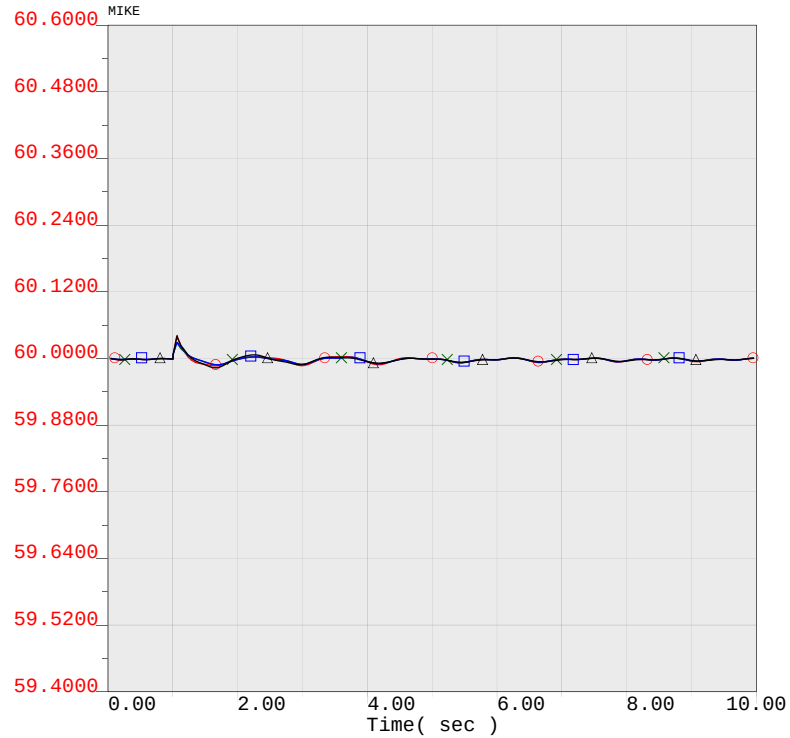


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pre_maxgen.sav

pre-ec-nil_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:19:32 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

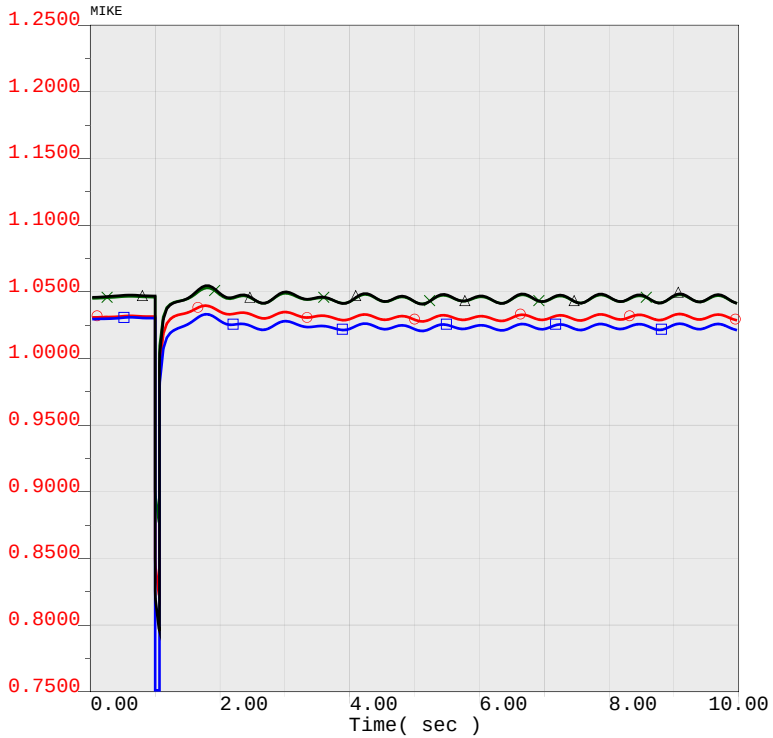


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pre_maxgen.sav

pre-ec-nil_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:19:32 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

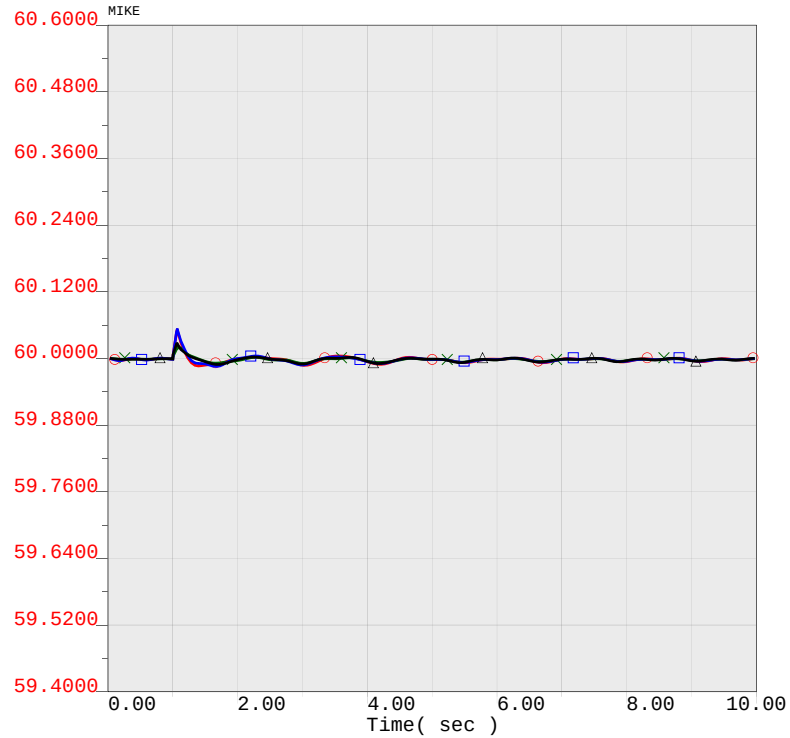


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pre_maxgen.sav

pre-ec-nil_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:19:32 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

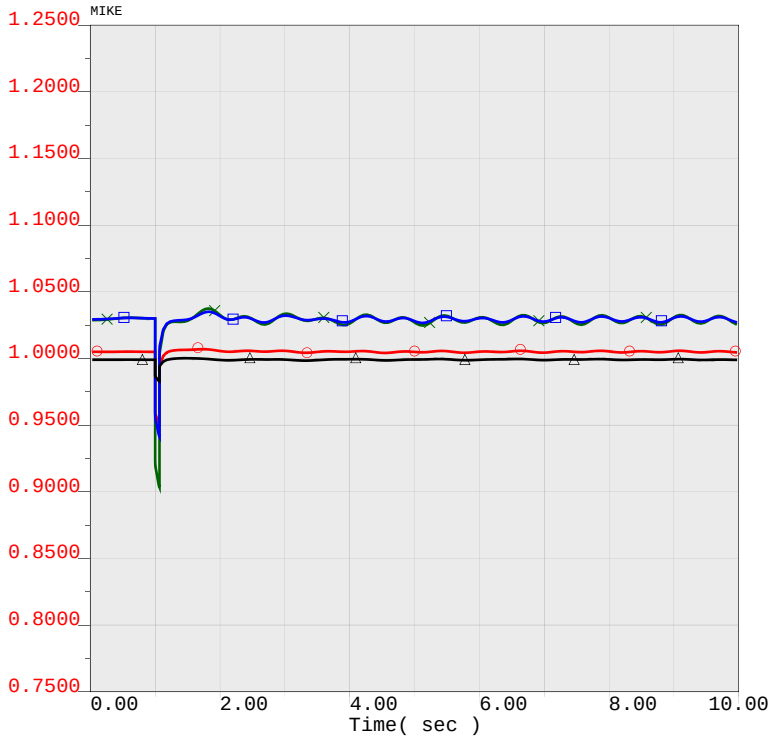


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pre_maxgen.sav

pre-ec-nil_n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:19:32 2006

IID 230kV Voltage plots EC, CV, RMN, IV

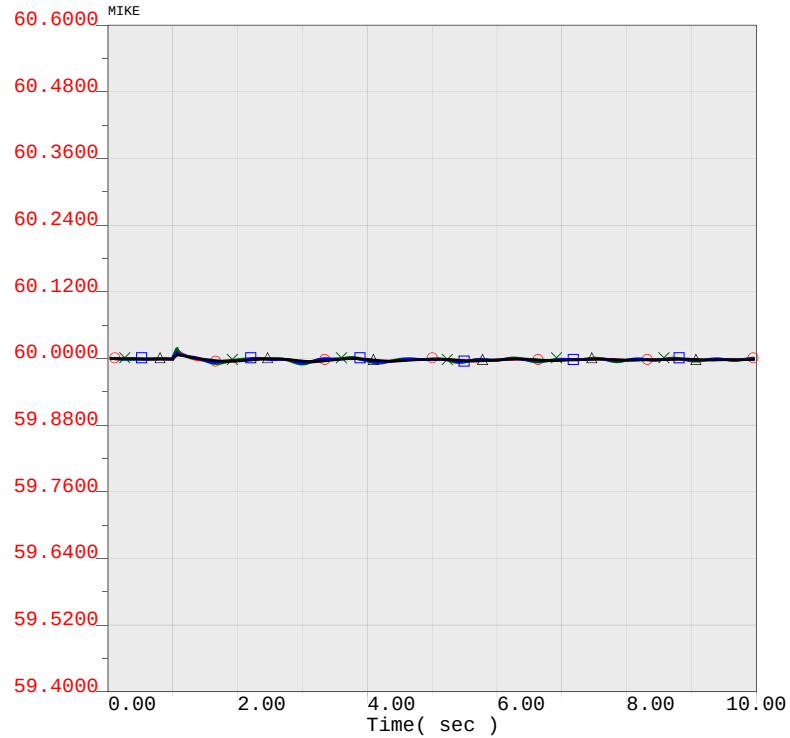


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-cv-n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:07:36 2006

IID 230kV Frequency plots EC, CV, RMN, IV

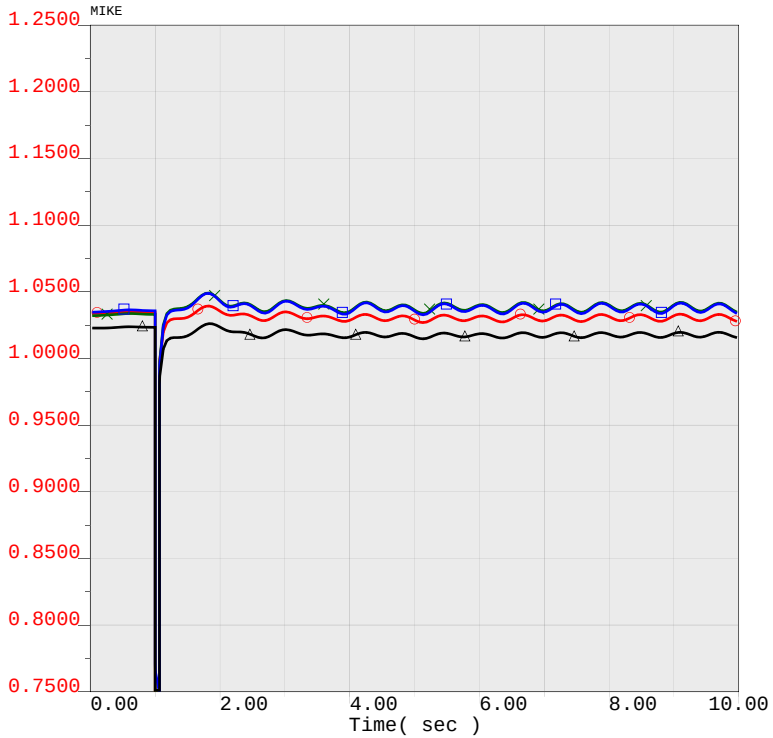


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-cv-n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:07:36 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

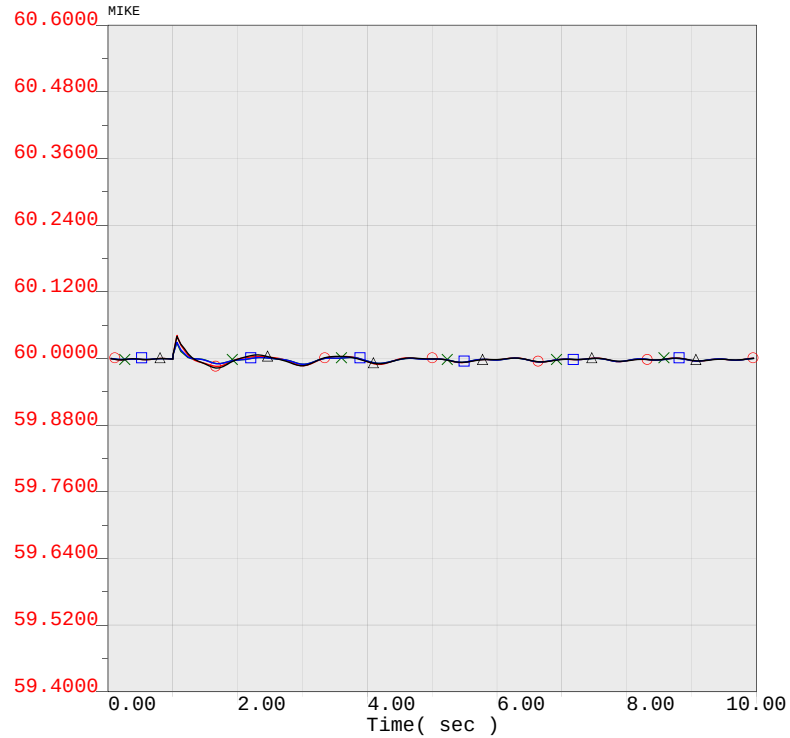


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-cv-n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:07:36 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

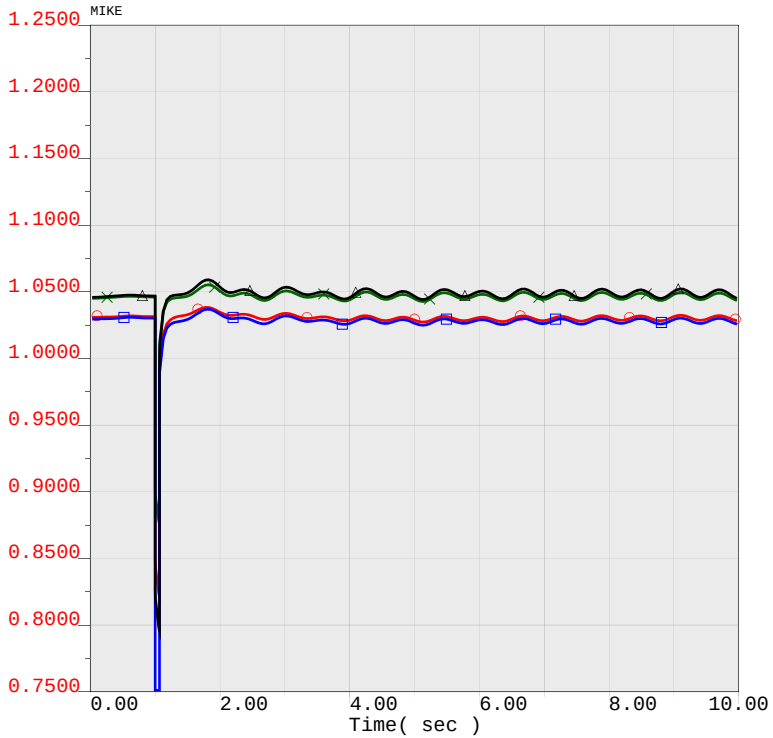


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-cv-n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:07:36 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

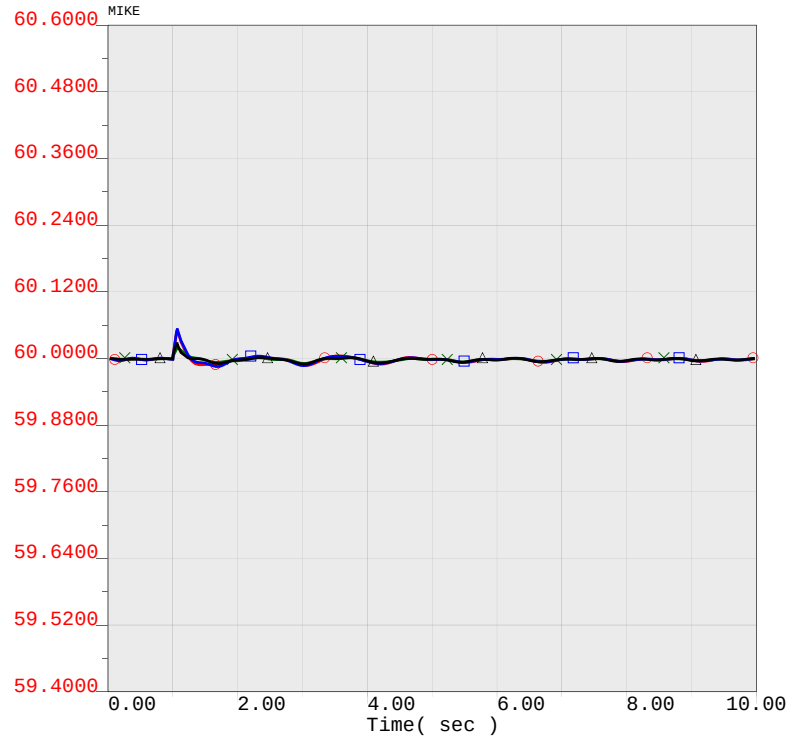


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-cv-n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:07:36 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

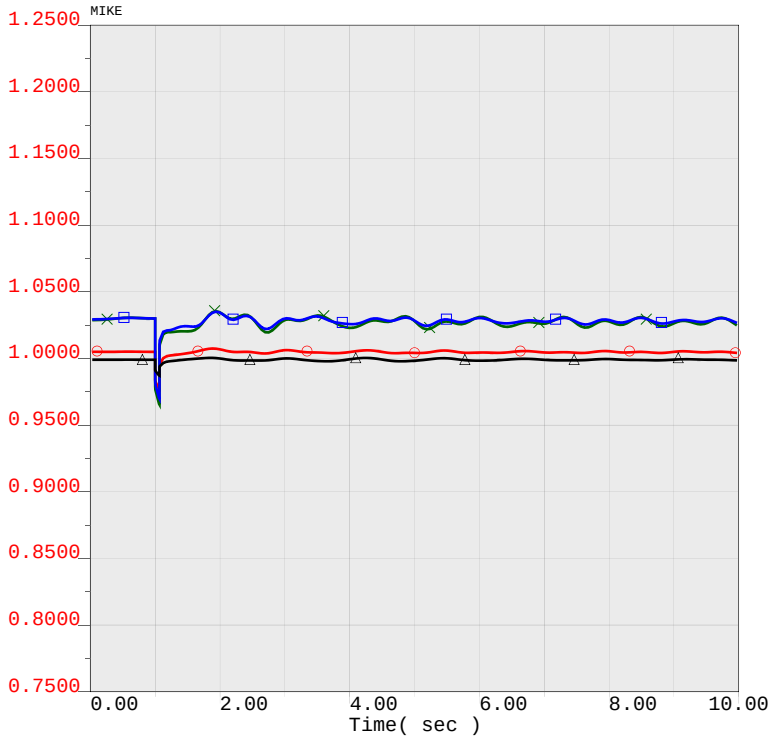


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-cv-n1.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:07:36 2006

IID 230kV Voltage plots EC, CV, RMN, IV

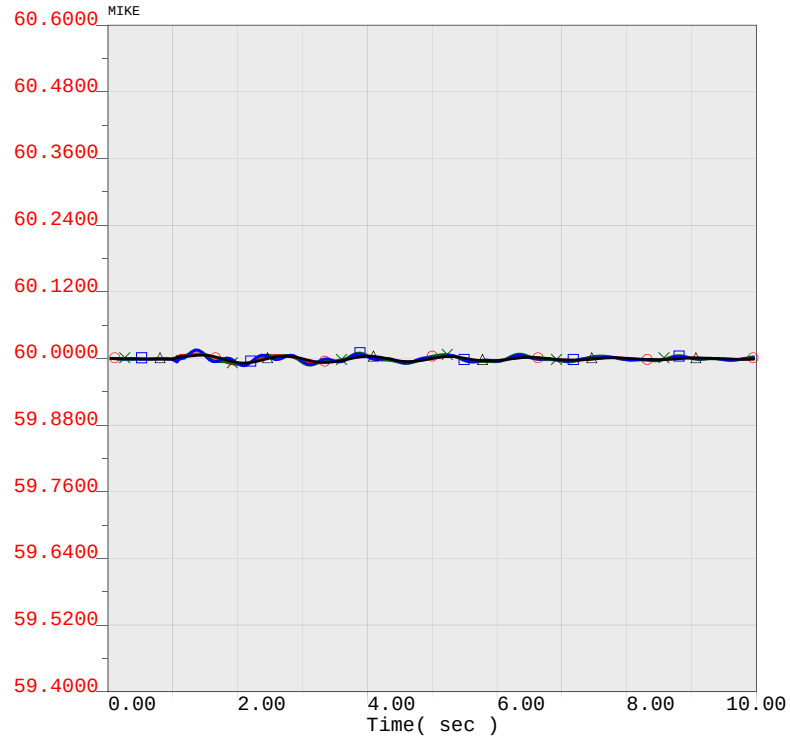


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_bly-eaglemtn.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:57:08 2006

IID 230kV Frequency plots EC, CV, RMN, IV

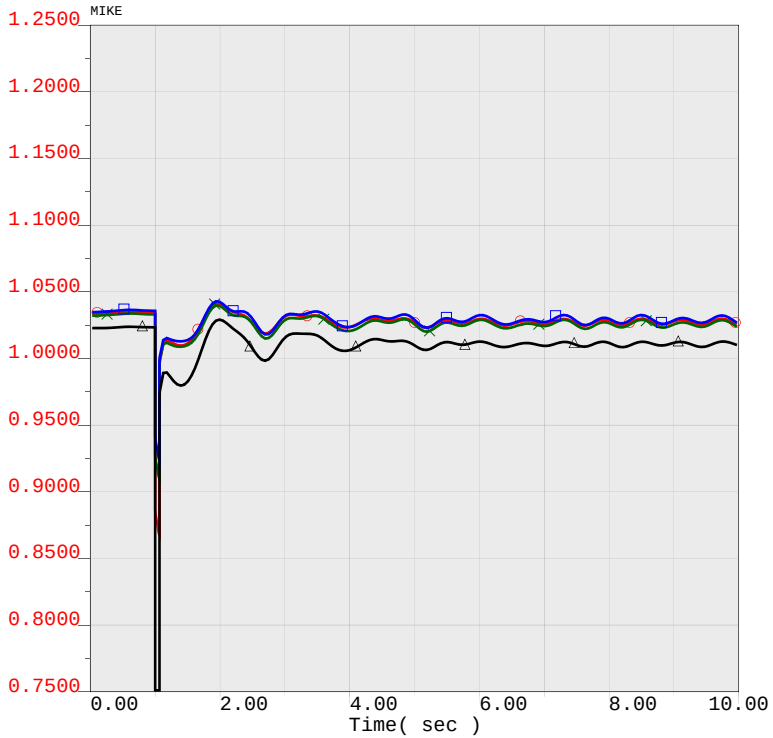


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_bly-eaglemtn.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:57:08 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

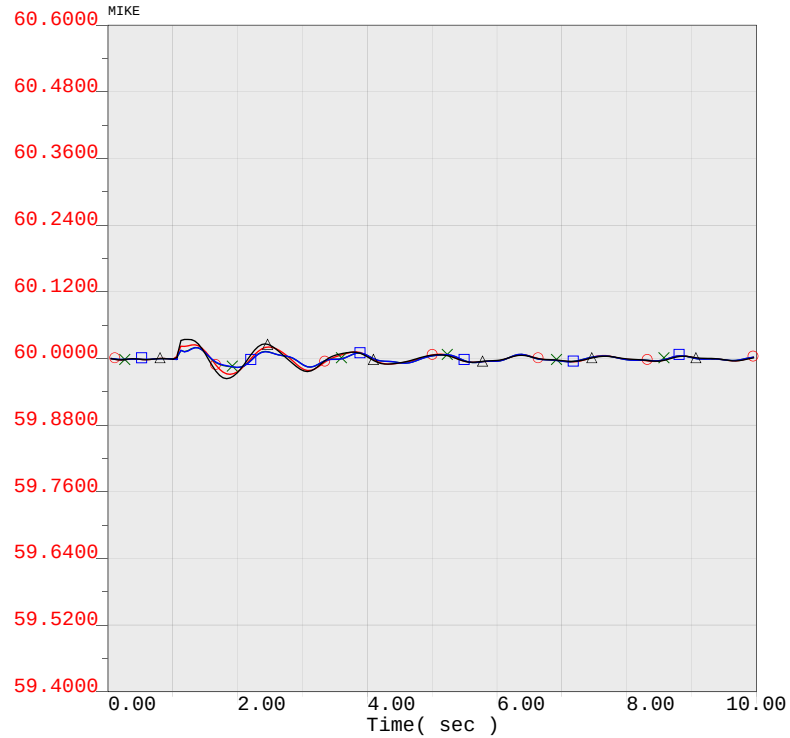


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_bly-eaglemtn.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:57:08 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

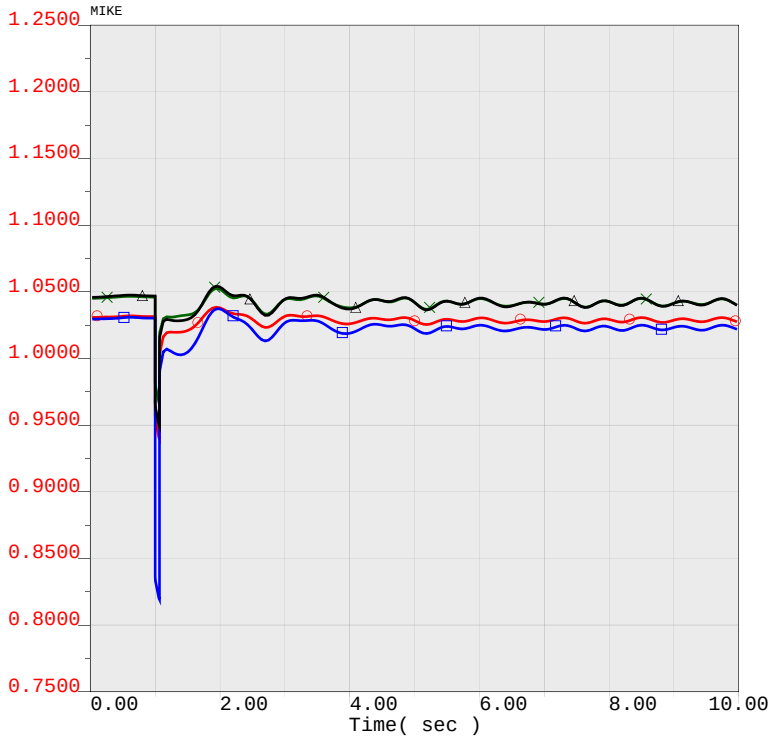


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_bly-eaglemtn.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:57:08 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

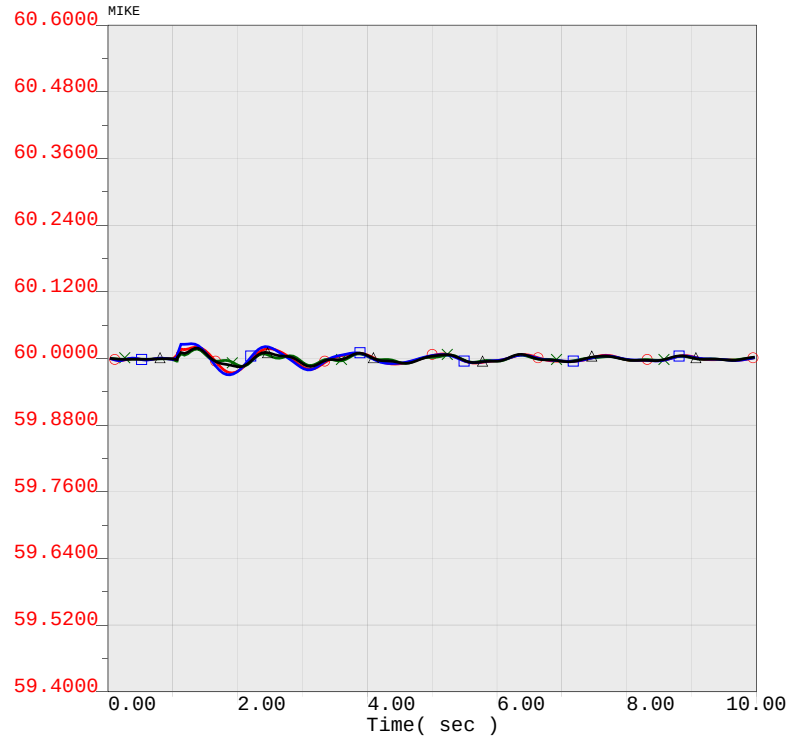


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_bly-eaglemtn.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:57:08 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

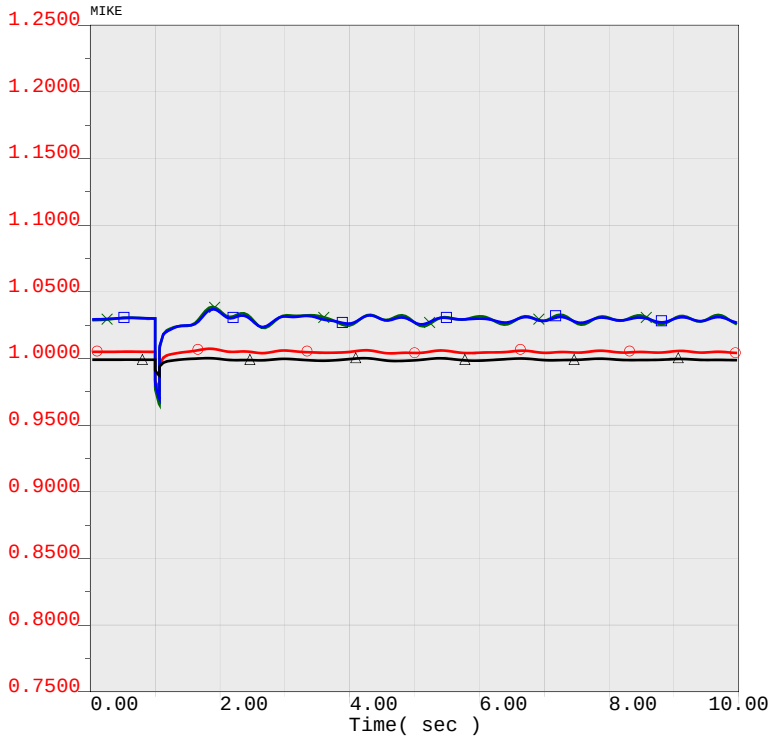


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_bly-eaglemtn.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:57:08 2006

IID 230kV Voltage plots EC, CV, RMN, IV

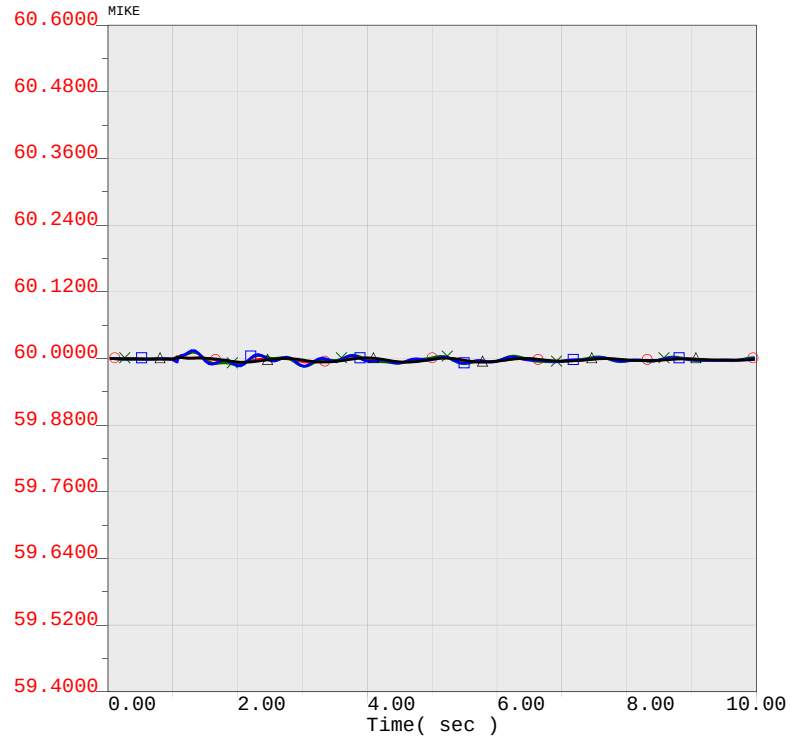


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pre_maxgen.sav

pre_bly-knob.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:58:11 2006

IID 230kV Frequency plots EC, CV, RMN, IV

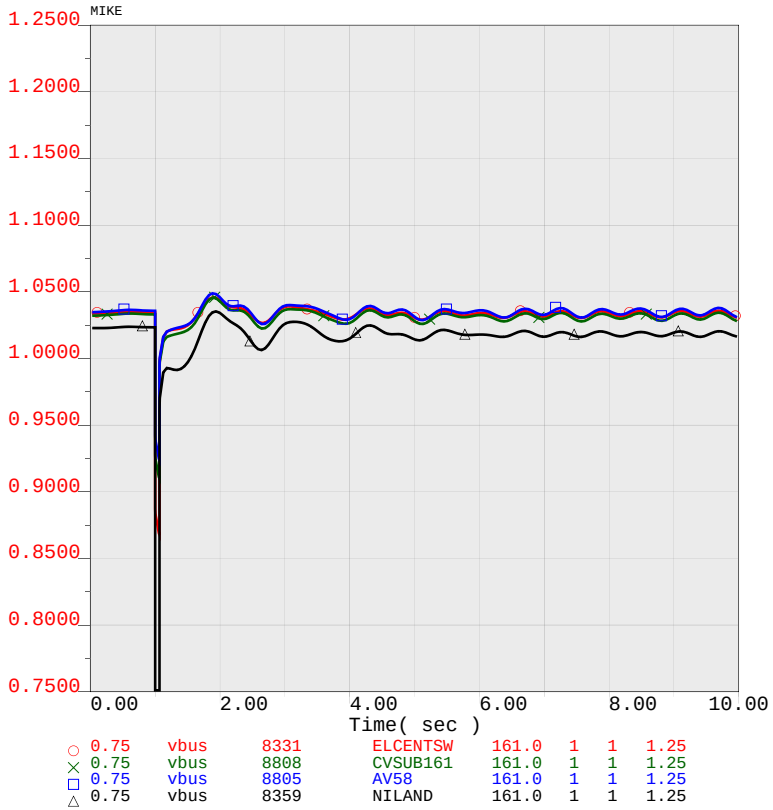


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pre_maxgen.sav

pre_bly-knob.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:58:12 2006

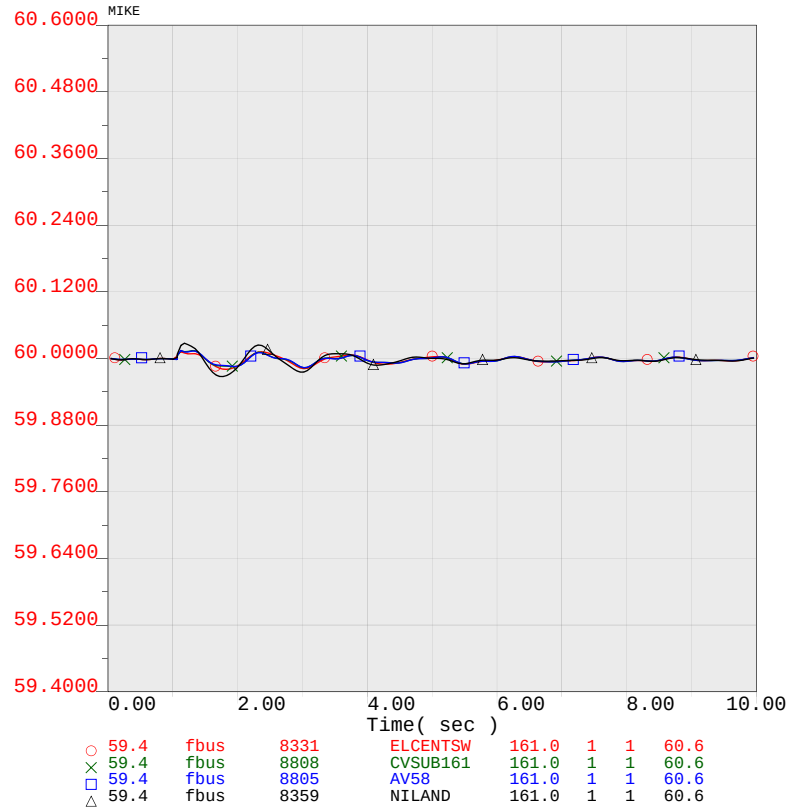
IID 161kV Voltage plots EC, CV, AV58, NIL



SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pre_maxgen.sav

pre_bly-knob.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:58:12 2006

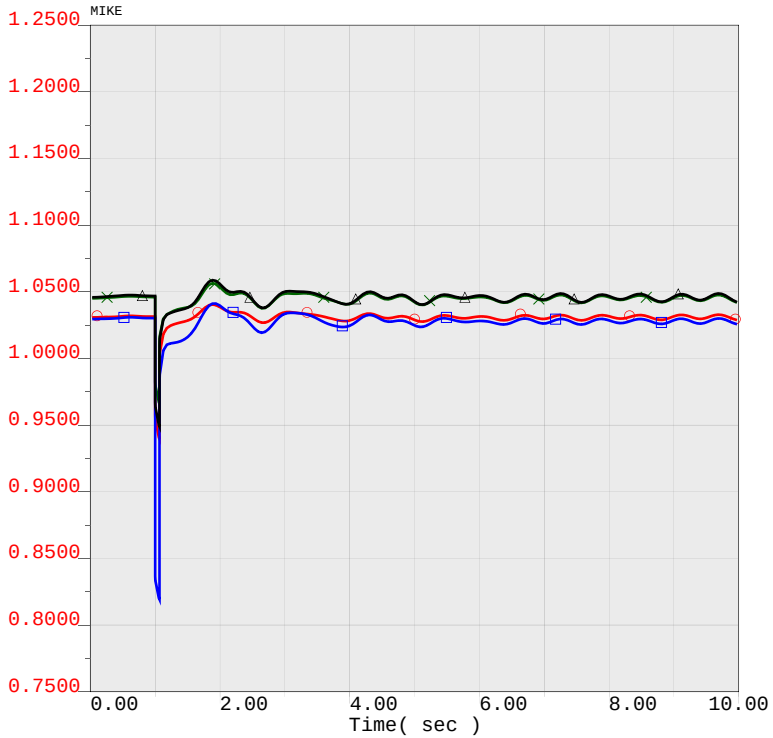
IID 161kV Frequncy plots EC, CV, AV58, NIL



SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pre_maxgen.sav

pre_bly-knob.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:58:12 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

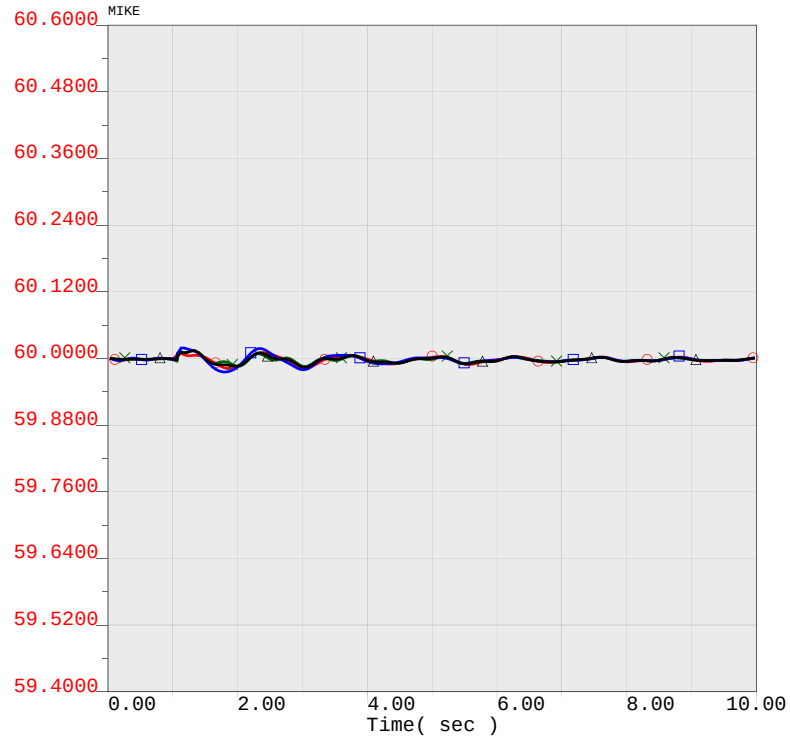


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pre_maxgen.sav

pre_bly-knob.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:58:12 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

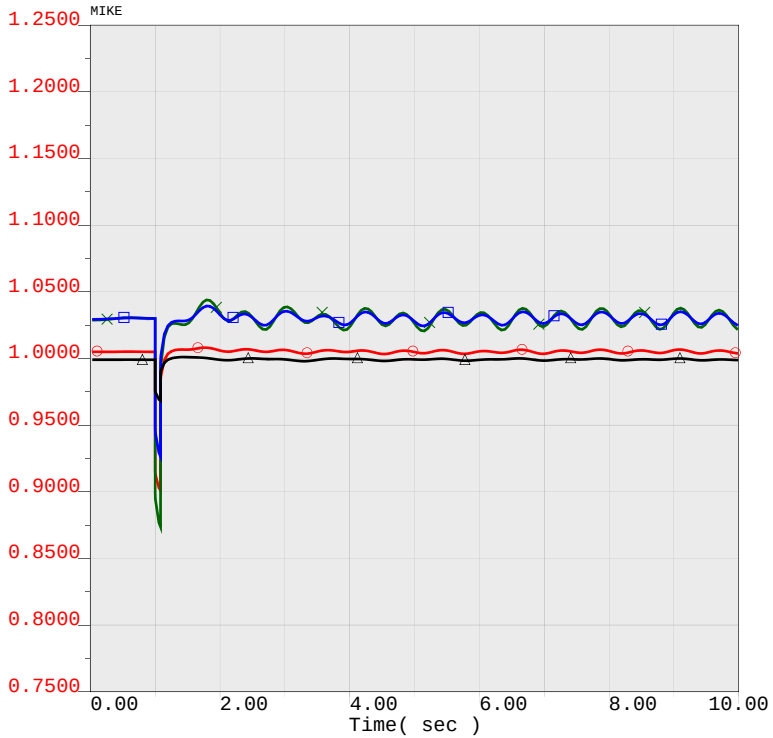


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pre_maxgen.sav

pre_bly-knob.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:58:12 2006

IID 230kV Voltage plots EC, CV, RMN, IV

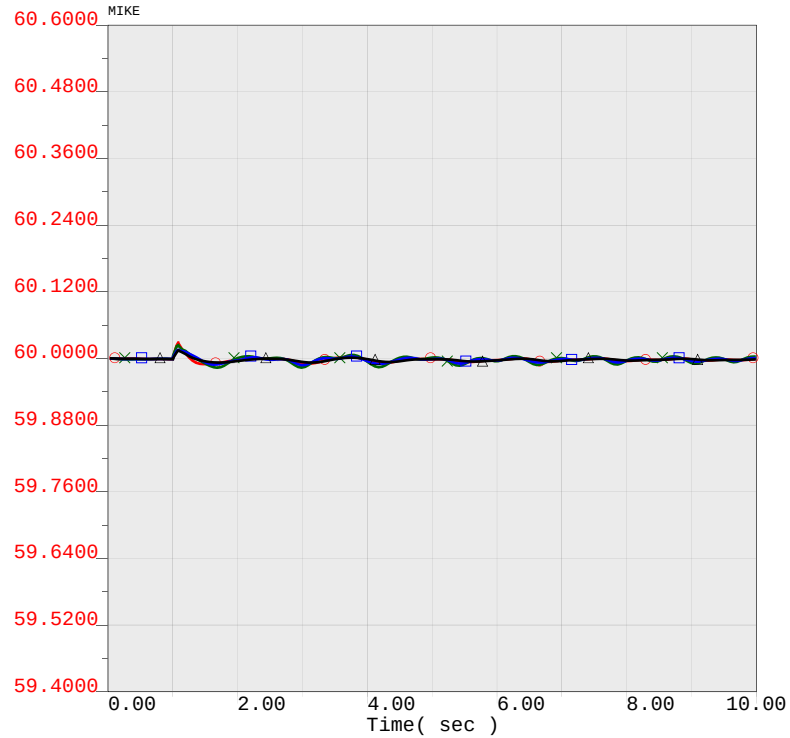


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pre_maxgen.sav

pre_ec_ave58.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:59:16 2006

IID 230kV Frequency plots EC, CV, RMN, IV

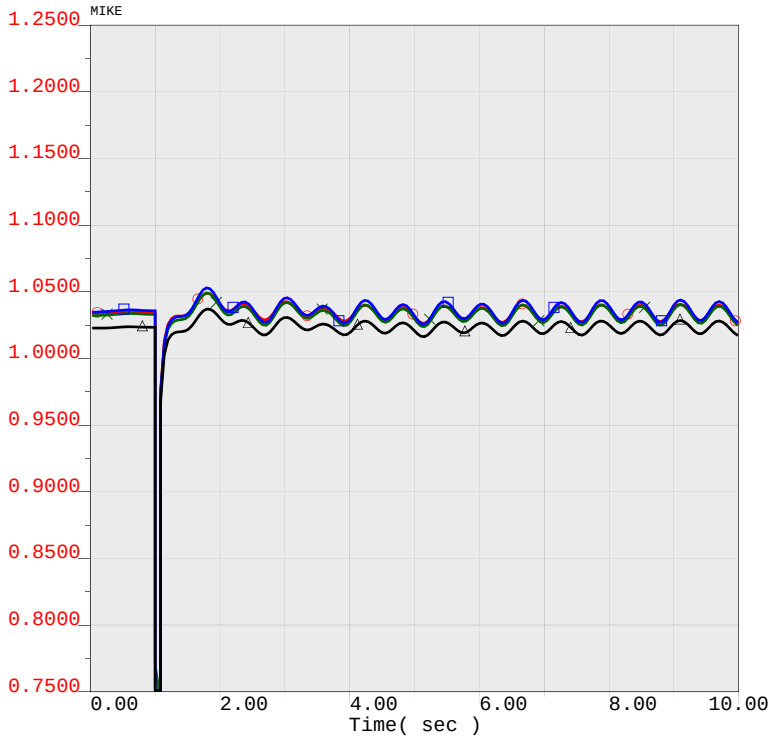


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pre_maxgen.sav

pre_ec_ave58.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:59:16 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

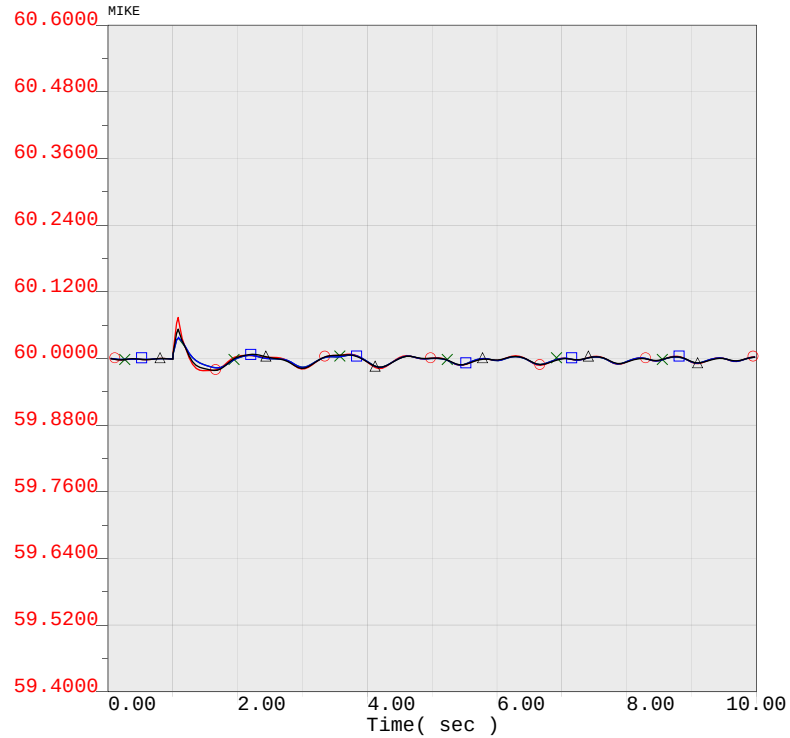


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pre_maxgen.sav

pre_ec_ave58.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:59:17 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

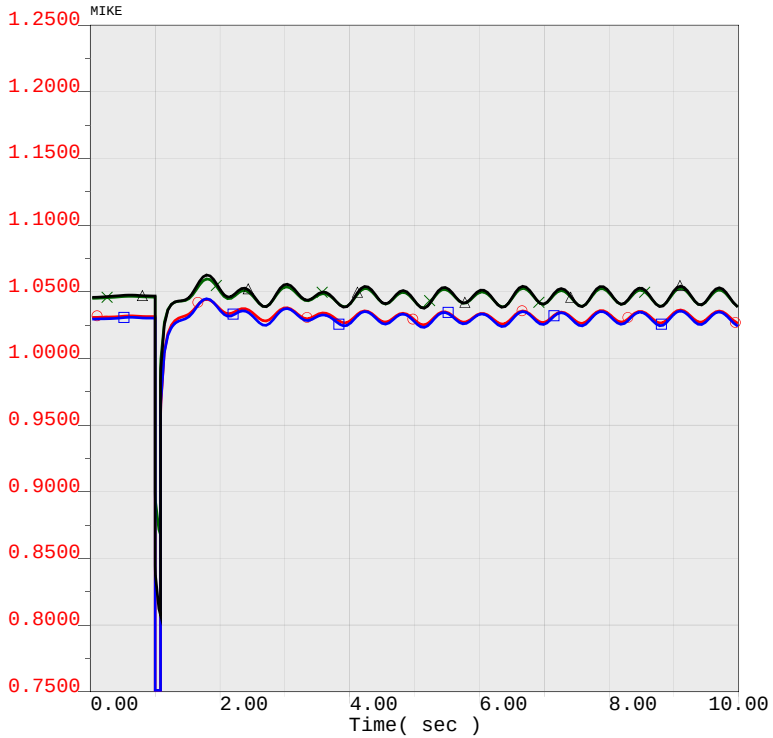


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pre_maxgen.sav

pre_ec_ave58.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:59:17 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

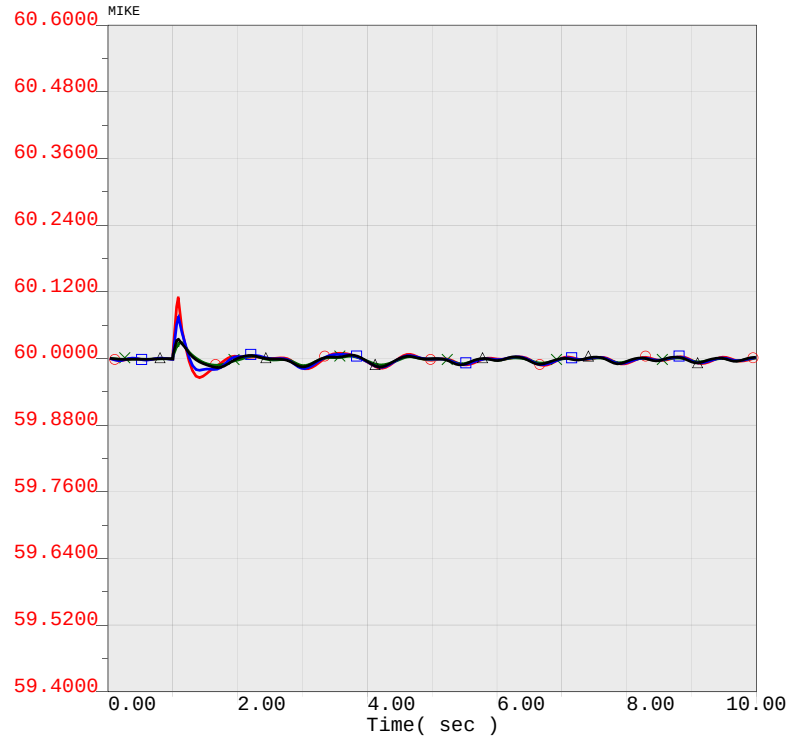


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pre_maxgen.sav

pre_ec_ave58.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:59:17 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

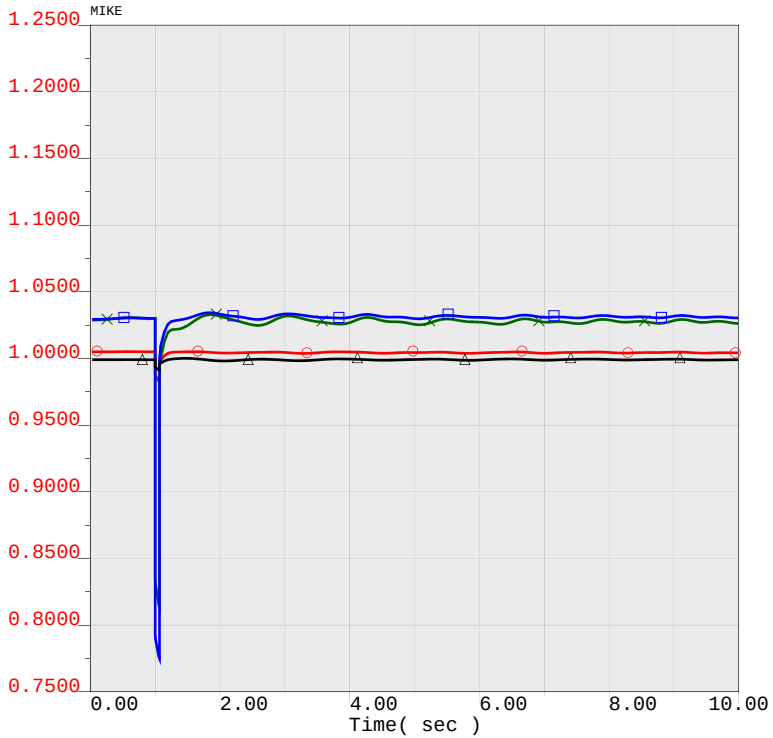


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pre_maxgen.sav

pre_ec_ave58.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:59:17 2006

IID 230kV Voltage plots EC, CV, RMN, IV

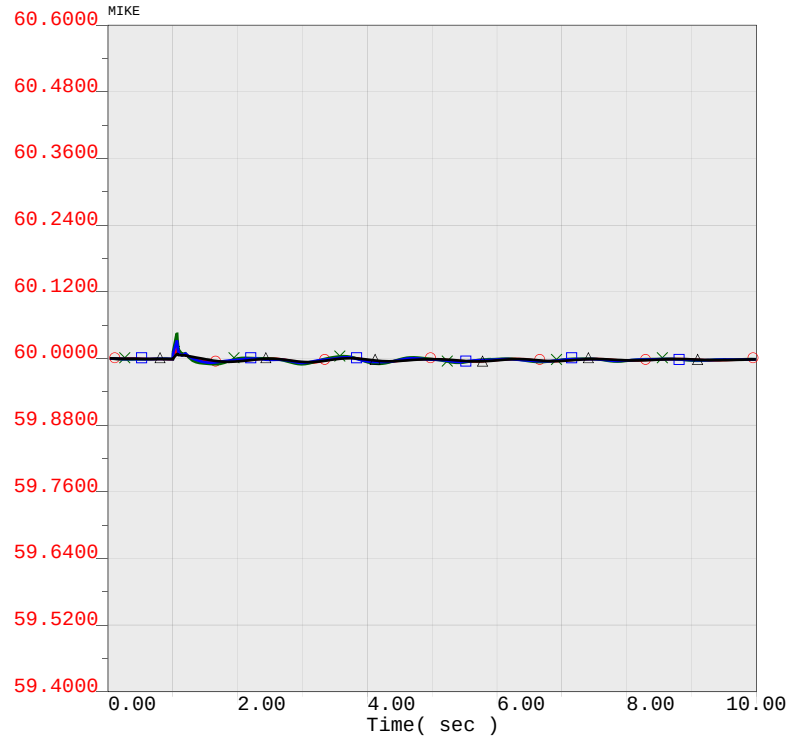


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_rmnmir.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:18:19 2006

IID 230kV Frequency plots EC, CV, RMN, IV

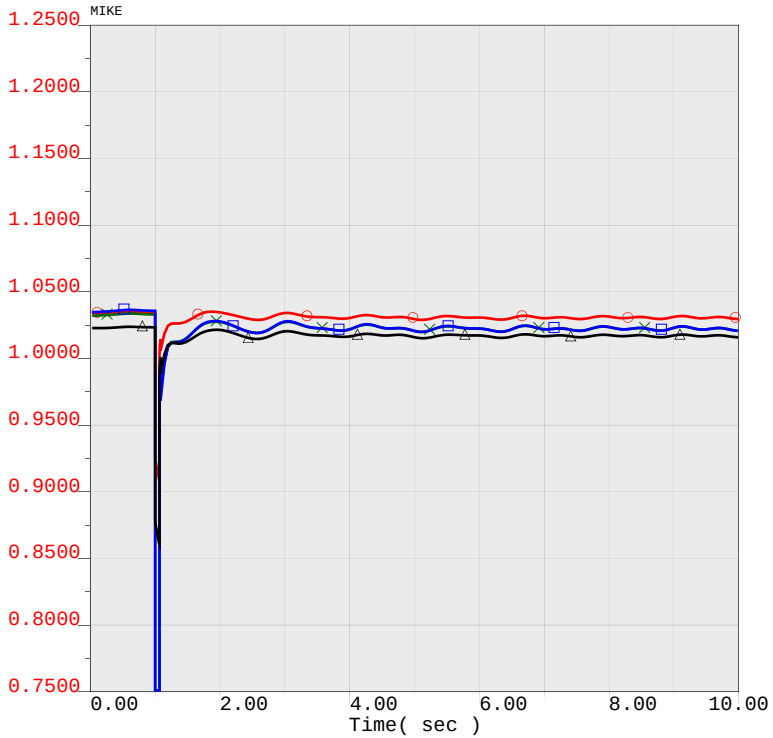


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_rmnmir.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:18:19 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

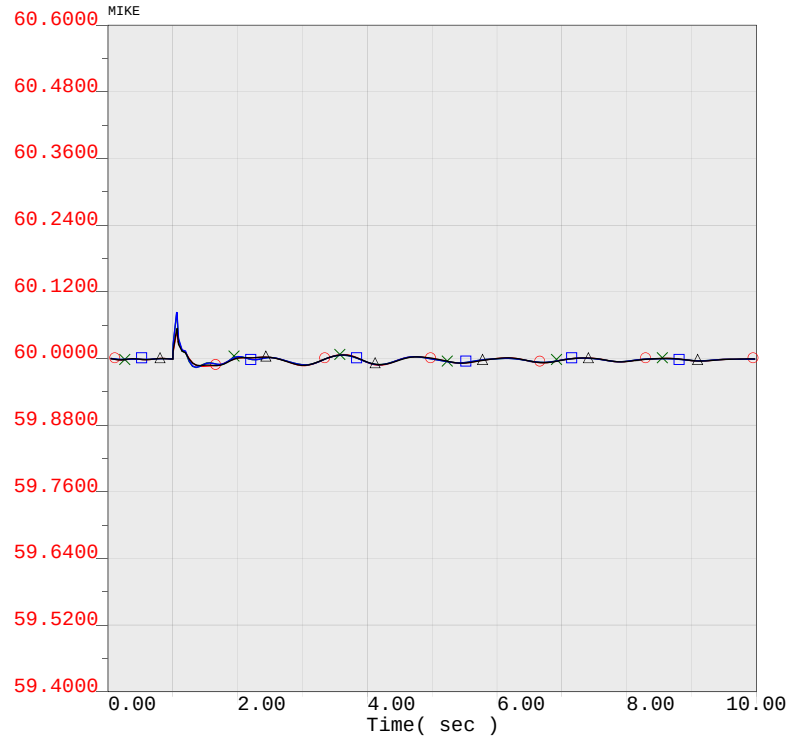


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_rmnmir.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:18:19 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

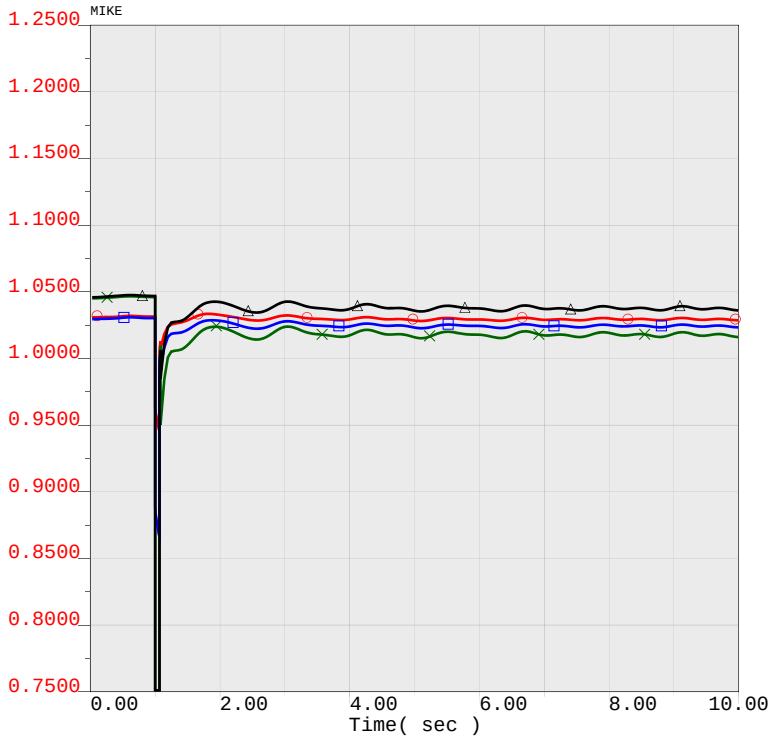


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_rmnmir.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:18:19 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

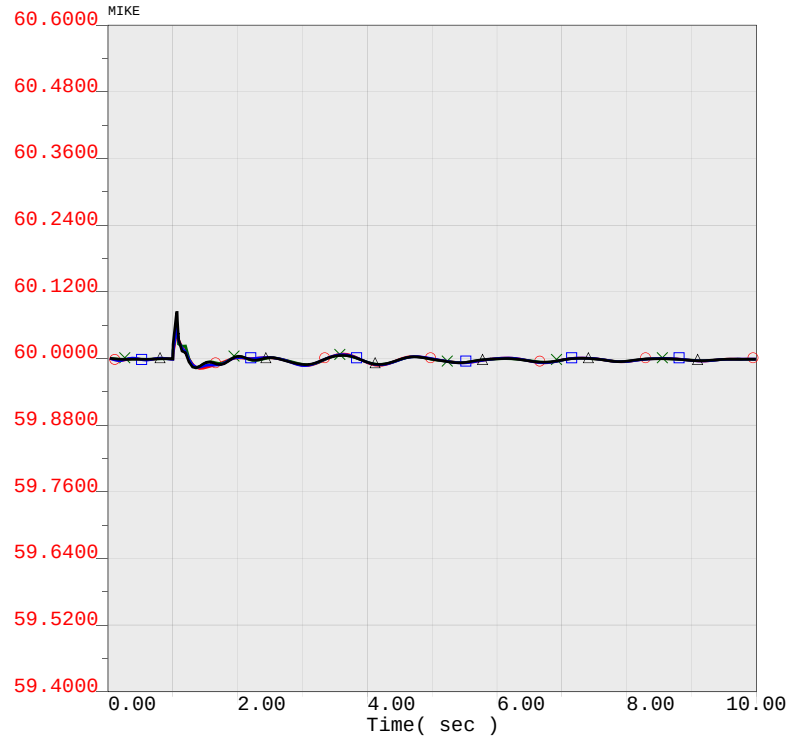


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_rmnmir.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:18:19 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

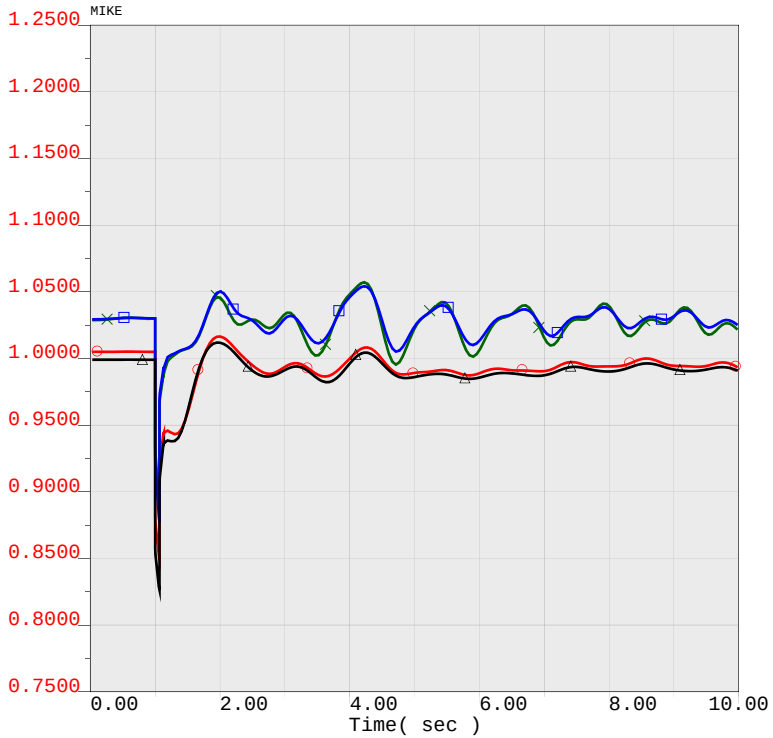


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_rmnmir.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:18:19 2006

IID 230kV Voltage plots EC, CV, RMN, IV

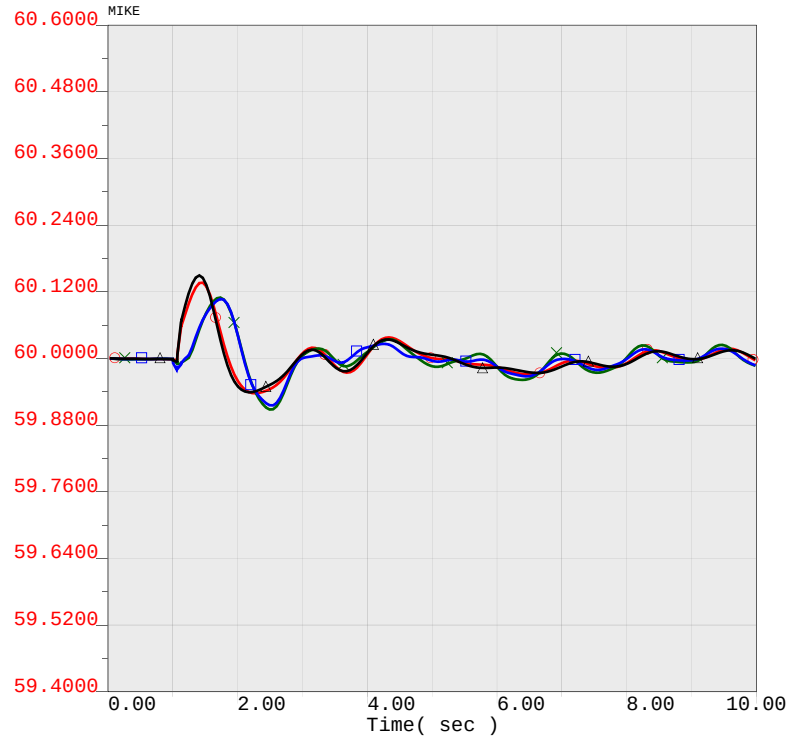


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_pvdev2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:17:27 2006

IID 230kV Frequency plots EC, CV, RMN, IV

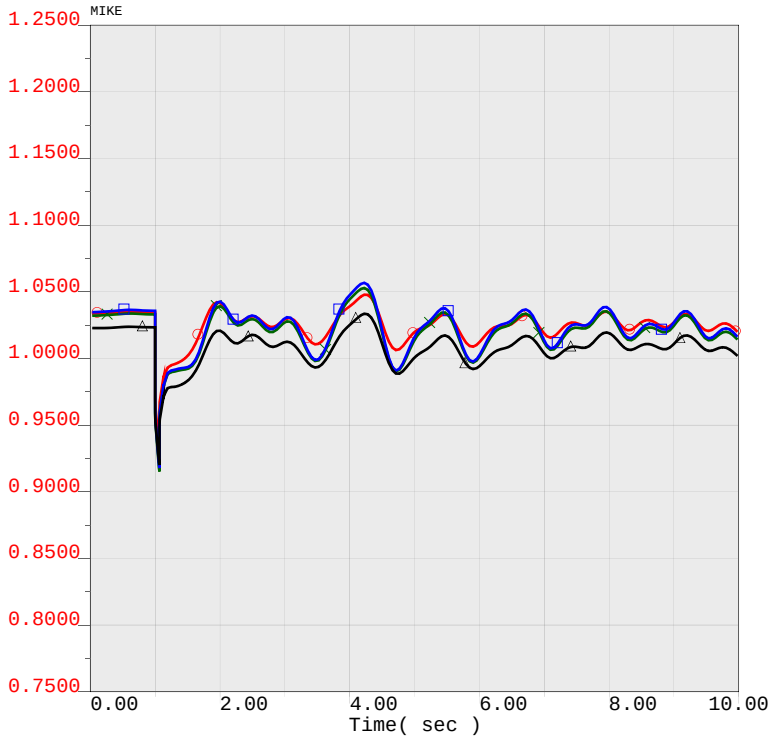


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_pvdev2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:17:27 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

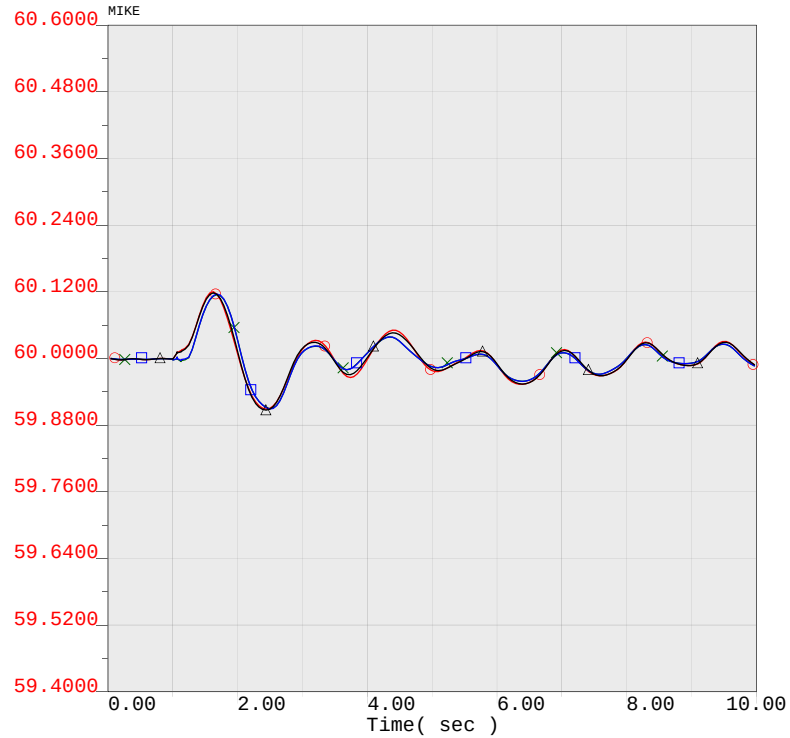


○	0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
×	0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□	0.75	vbus	8805	AV58	161.0	1	1	1.25
△	0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_pvdev2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:17:27 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

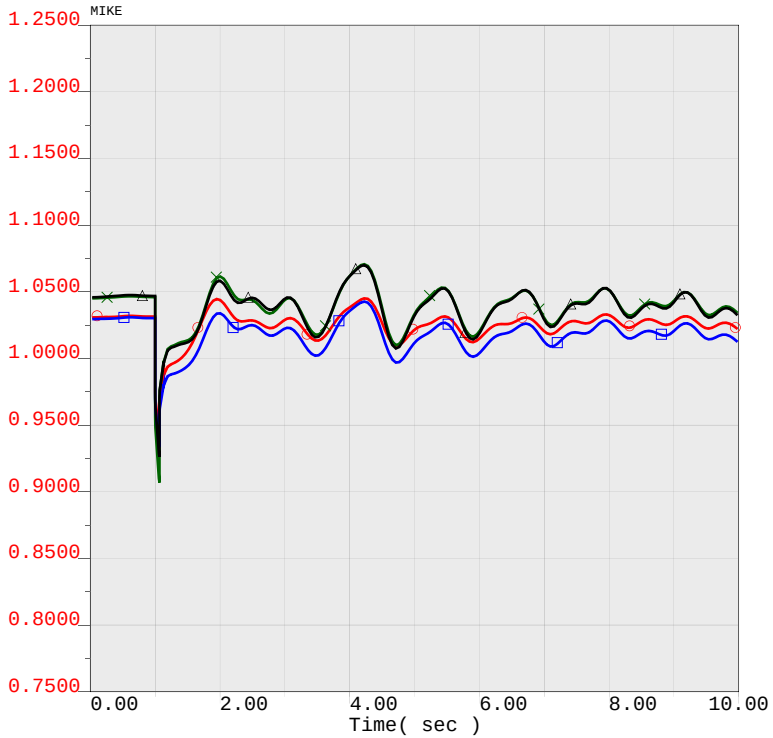


○	59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
×	59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□	59.4	fbus	8805	AV58	161.0	1	1	60.6
△	59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_pvdev2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:17:27 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

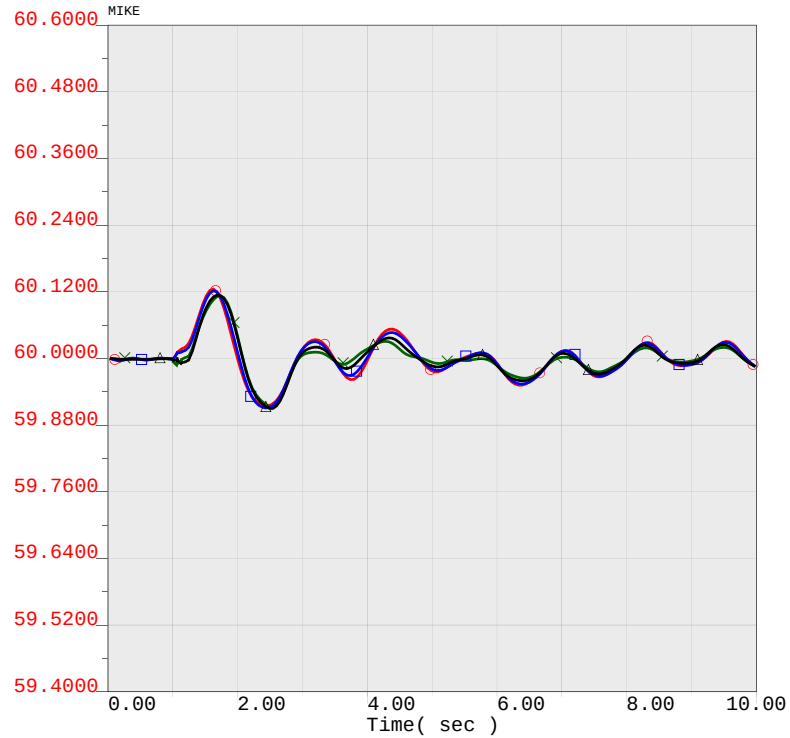


○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_pvdev2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:17:27 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

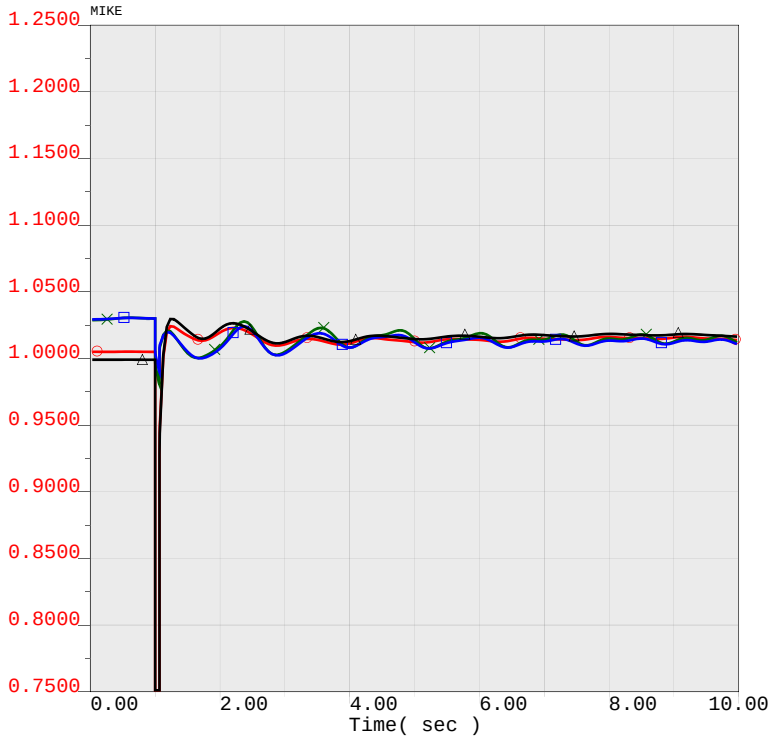


○ 59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
× 59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_pvdev2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:17:27 2006

IID 230kV Voltage plots EC, CV, RMN, IV

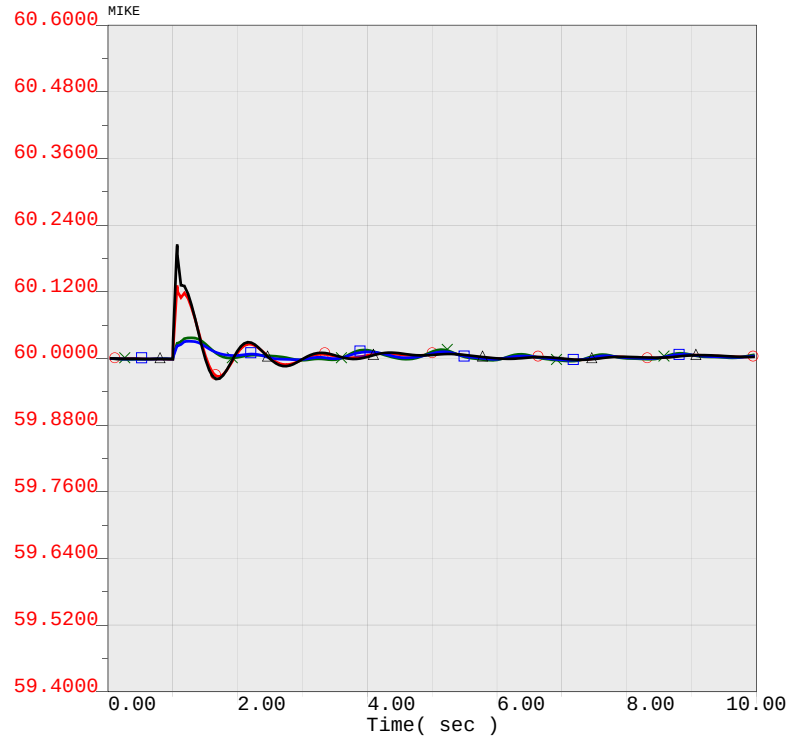


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_iv_miguel.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:00:12 2006

IID 230kV Frequency plots EC, CV, RMN, IV

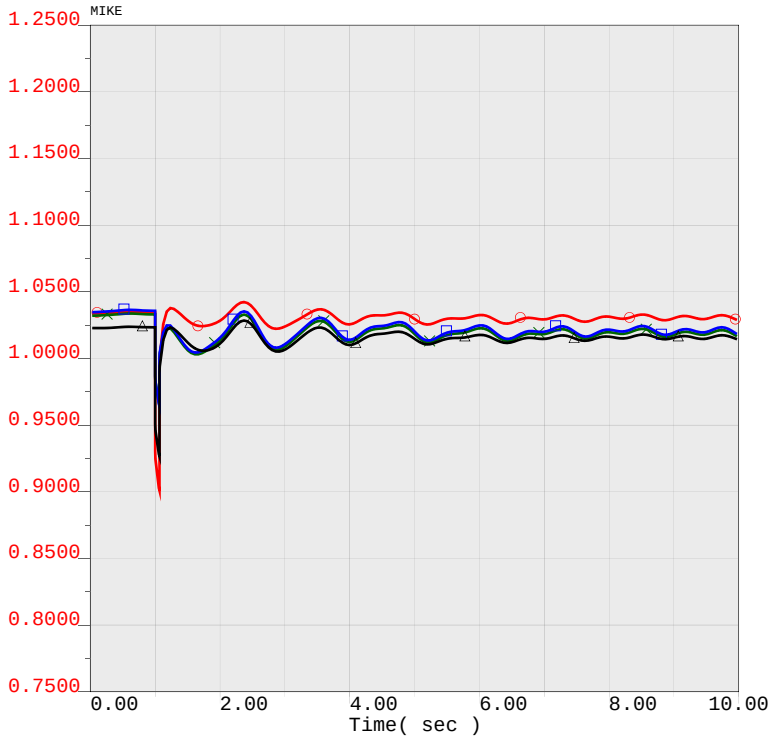


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_iv_miguel.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:00:12 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

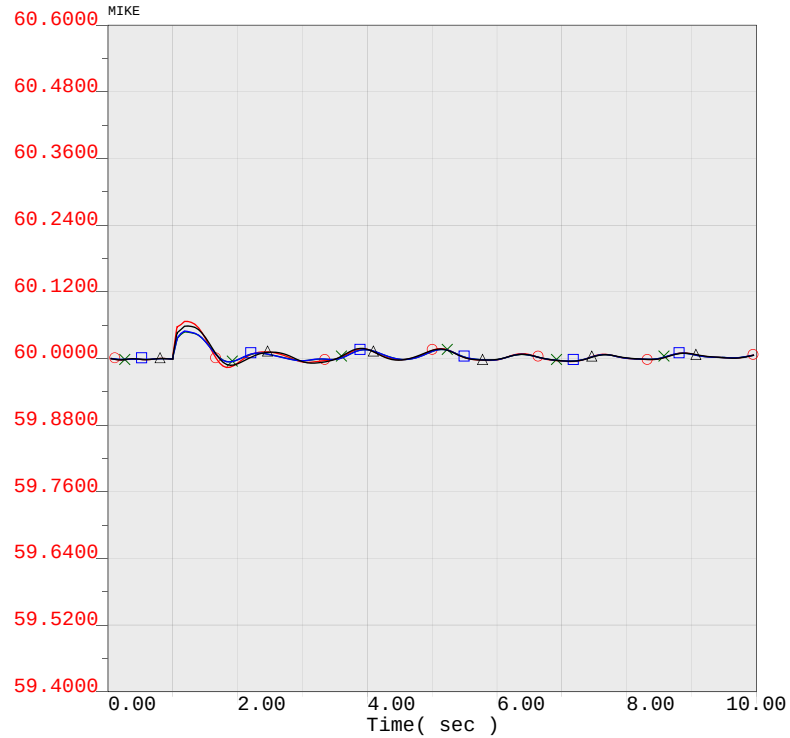


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_iv_miguel.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:00:12 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

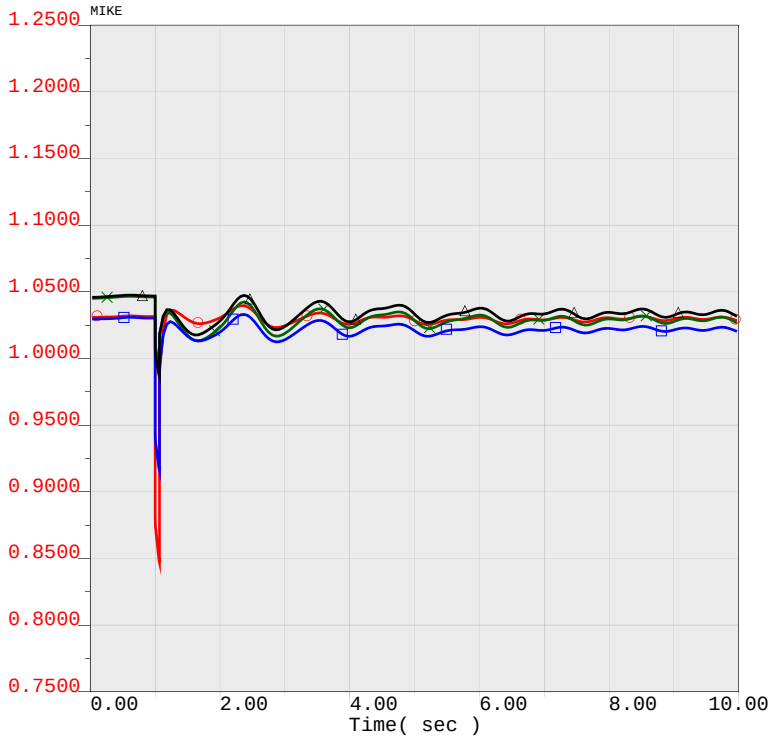


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_iv_miguel.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:00:12 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

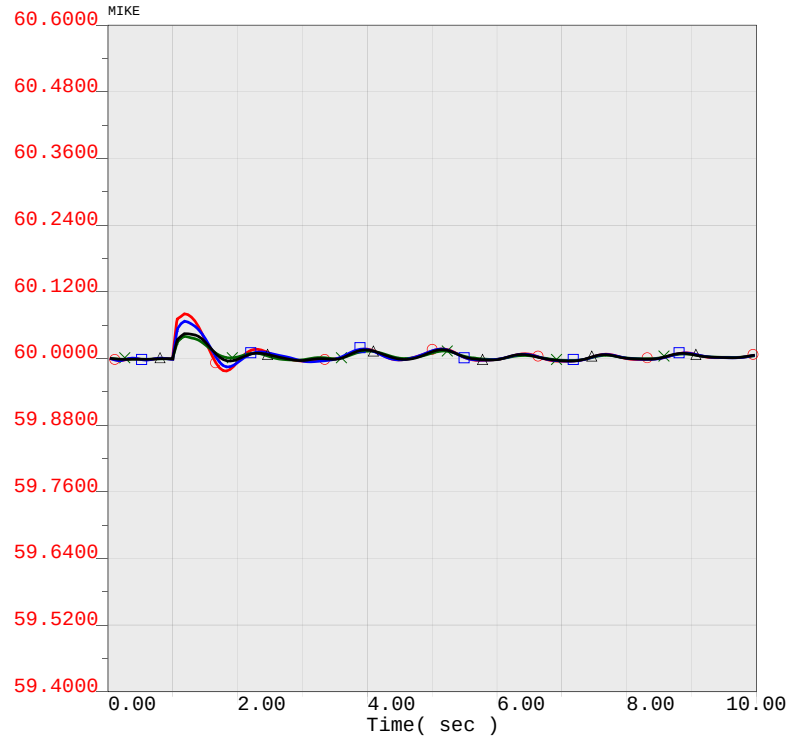


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_iv_miguel.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:00:12 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

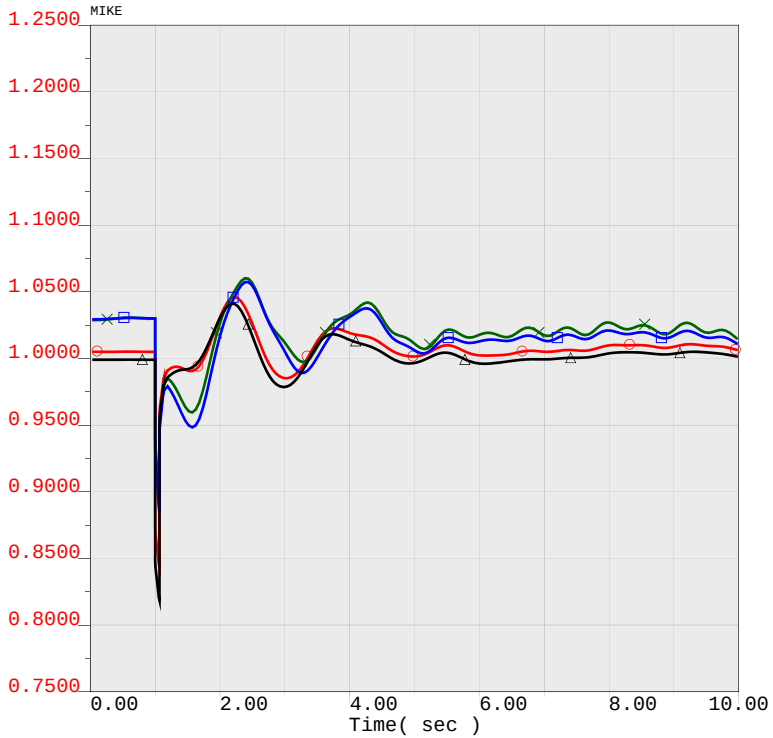


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_iv_miguel.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:00:13 2006

IID 230kV Voltage plots EC, CV, RMN, IV

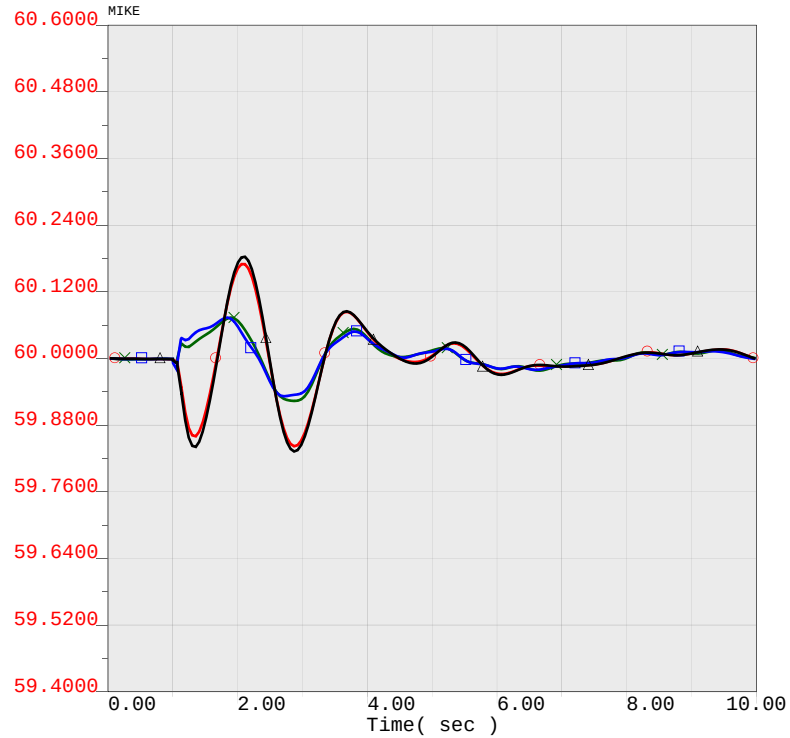


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_hassy_ng.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:44:37 2006

IID 230kV Frequency plots EC, CV, RMN, IV

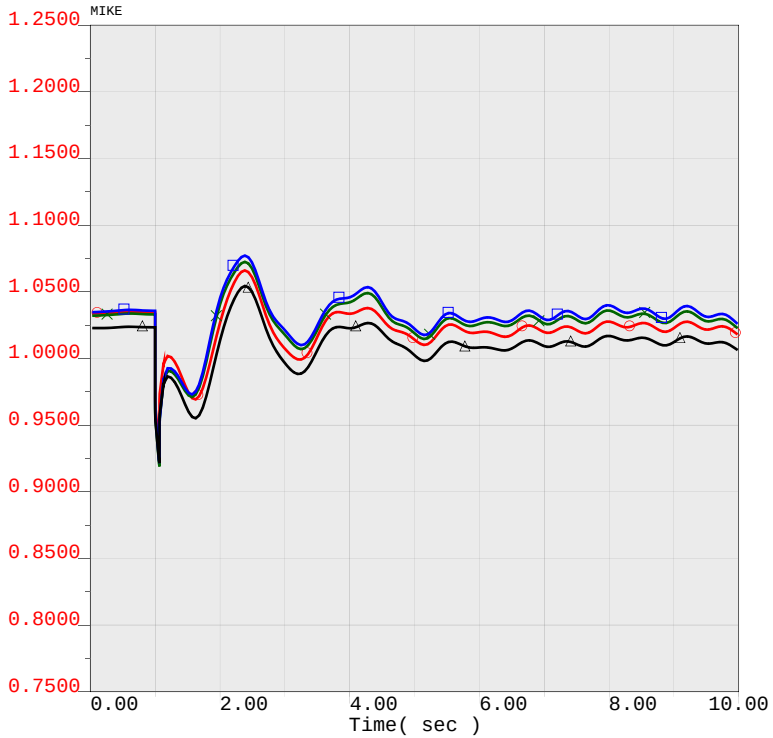


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_hassy_ng.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:44:37 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

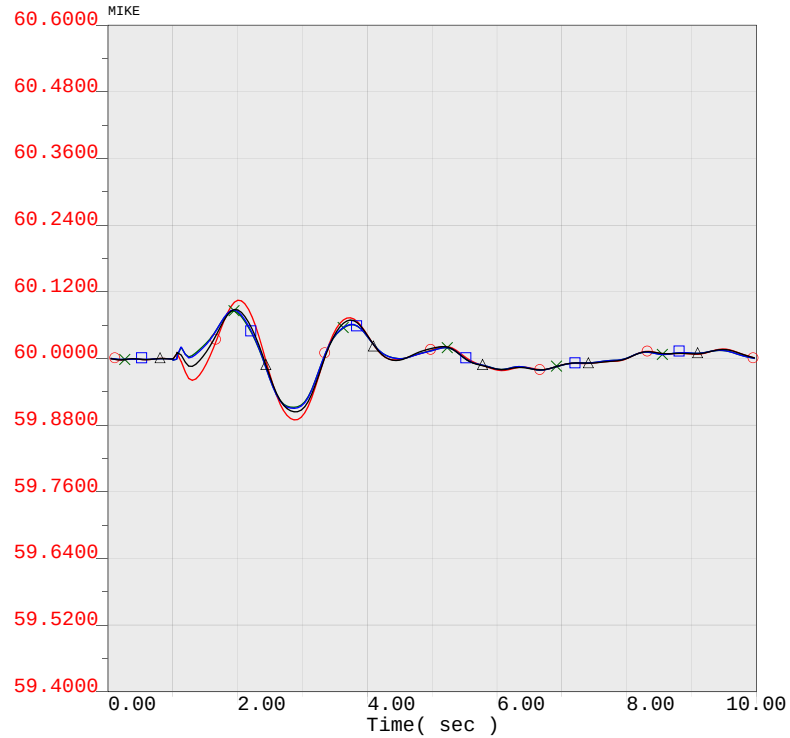


○	0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
×	0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□	0.75	vbus	8805	AV58	161.0	1	1	1.25
△	0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_hassy_ng.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:44:37 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

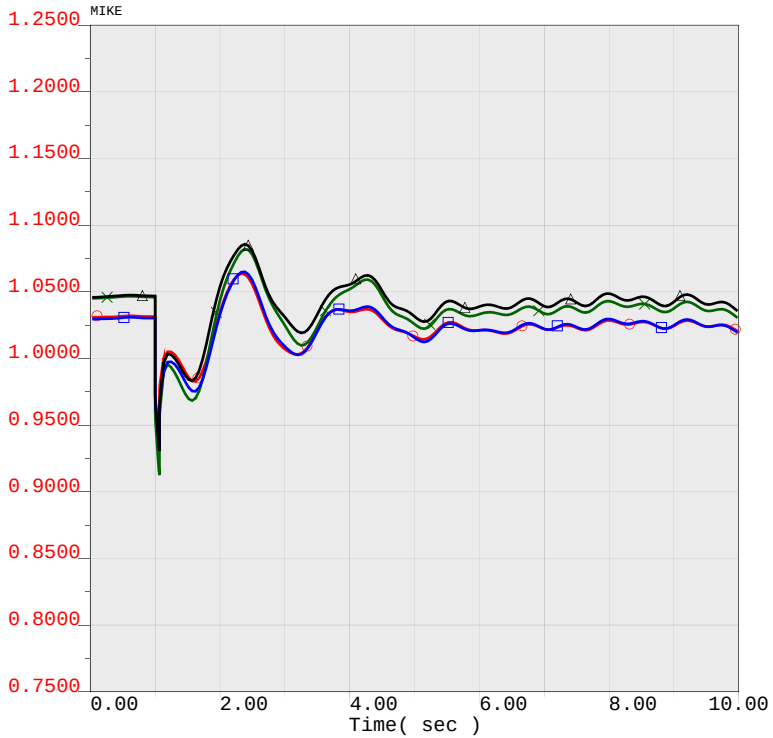


○	59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
×	59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□	59.4	fbus	8805	AV58	161.0	1	1	60.6
△	59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_hassy_ng.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:44:37 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

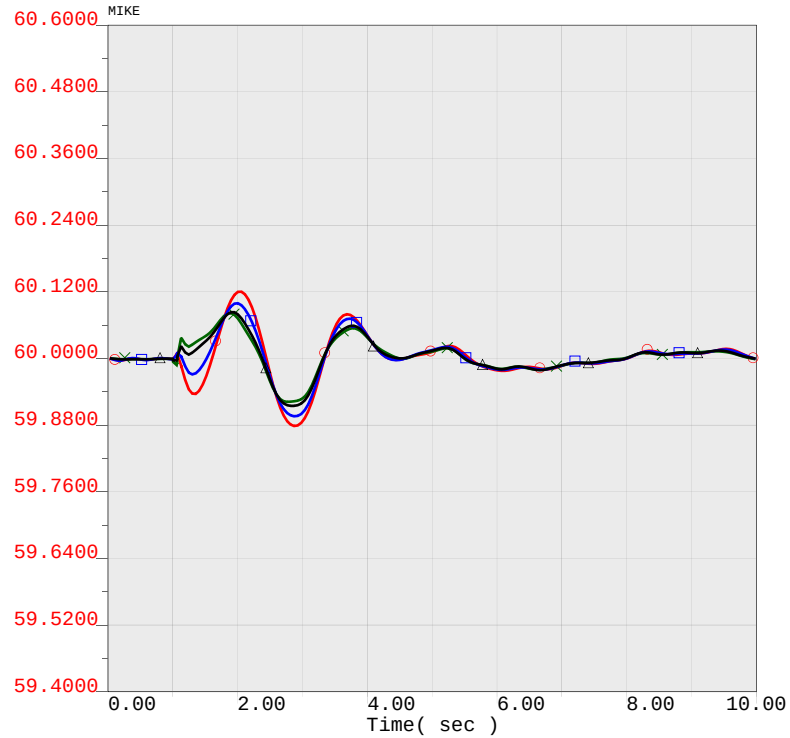


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_hassy_ng.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:44:38 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

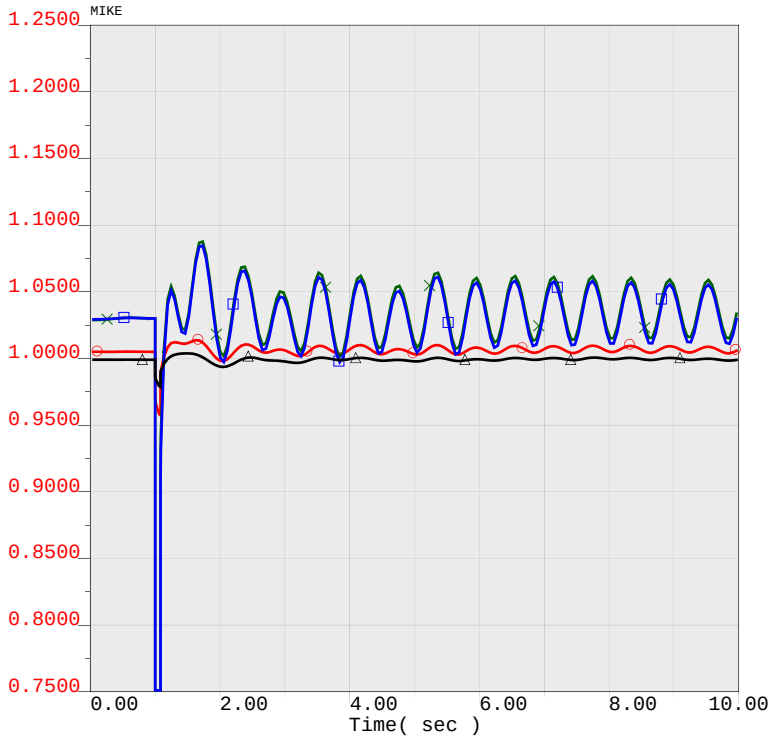


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pre_maxgen.sav

pre_hassy_ng.chf | g:\iid\2005\sis\niland | Thu Jan 19 15:44:38 2006

IID 230kV Voltage plots EC, CV, RMN, IV

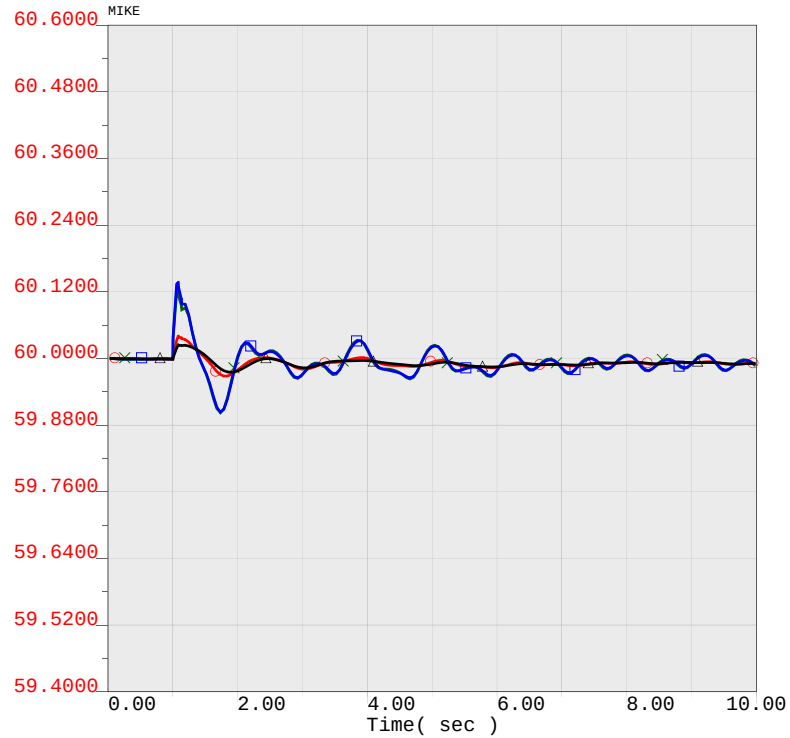


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Path 42 with IID RAS SCHEME
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_p42_ras.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:16:34 2006

IID 230kV Frequency plots EC, CV, RMN, IV

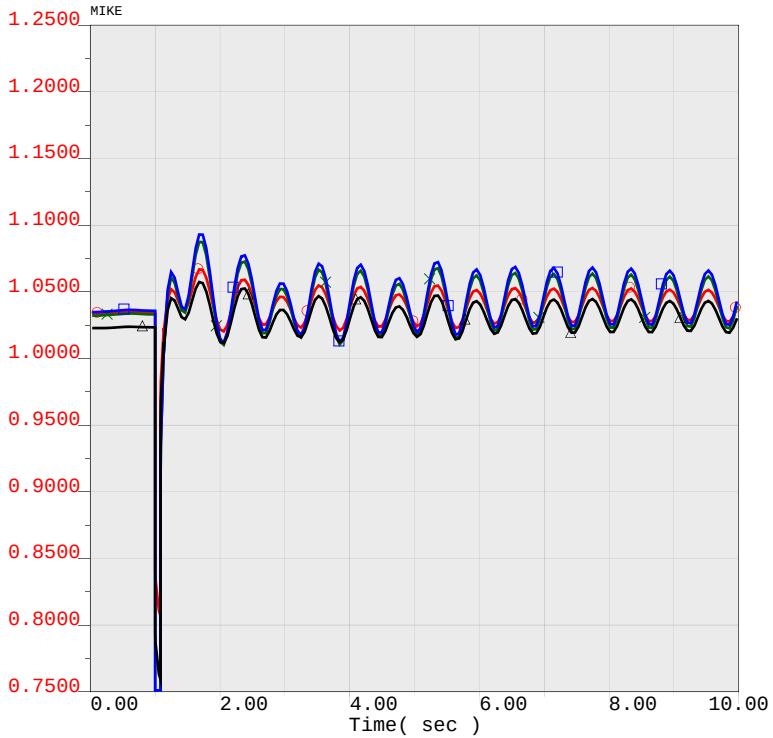


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Path 42 with IID RAS SCHEME
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_p42_ras.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:16:34 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

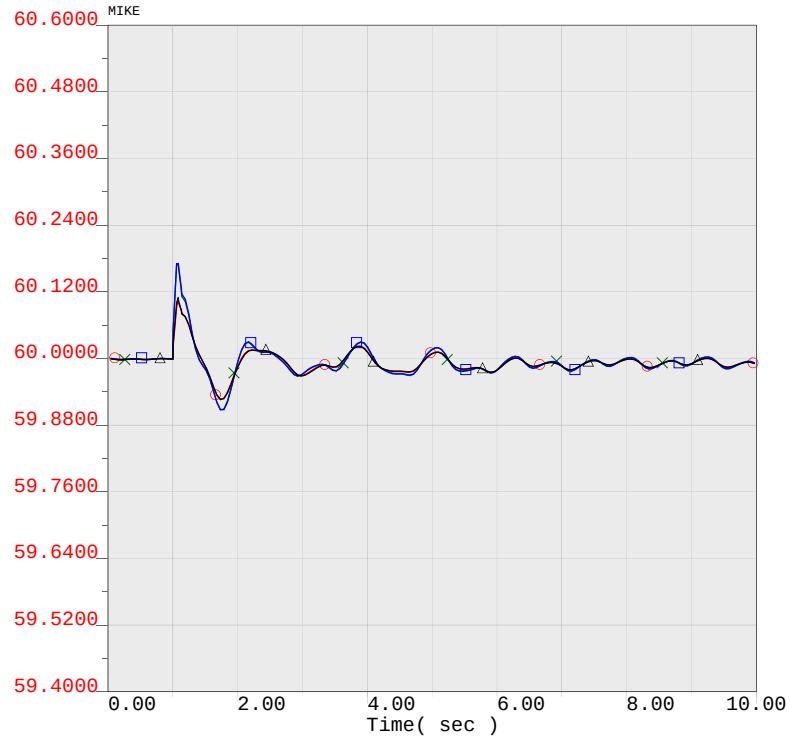


○	0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
×	0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□	0.75	vbus	8805	AV58	161.0	1	1	1.25
△	0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Path 42 with IID RAS SCHEME
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_p42_ras.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:16:34 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

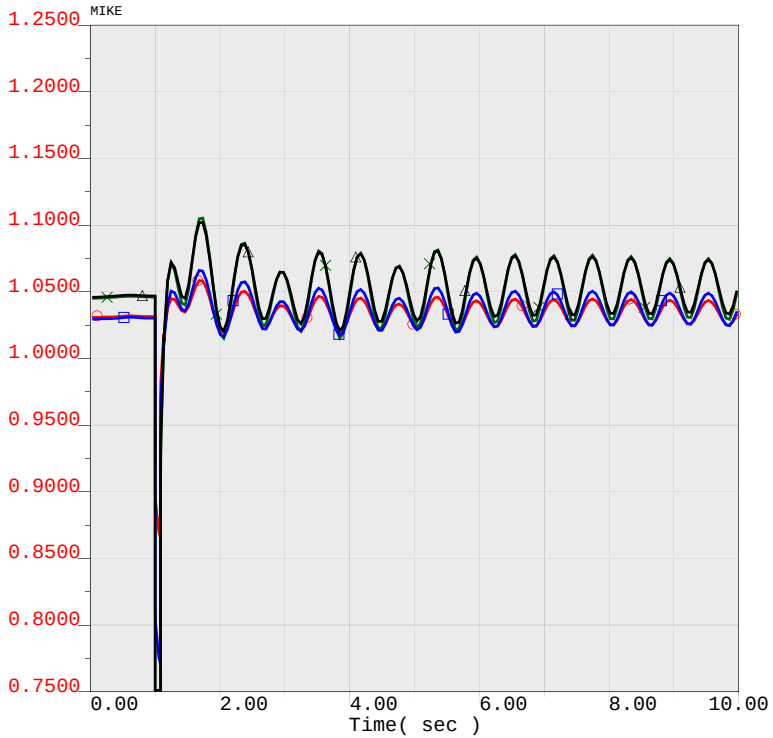


○	59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
×	59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□	59.4	fbus	8805	AV58	161.0	1	1	60.6
△	59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Path 42 with IID RAS SCHEME
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_p42_ras.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:16:34 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

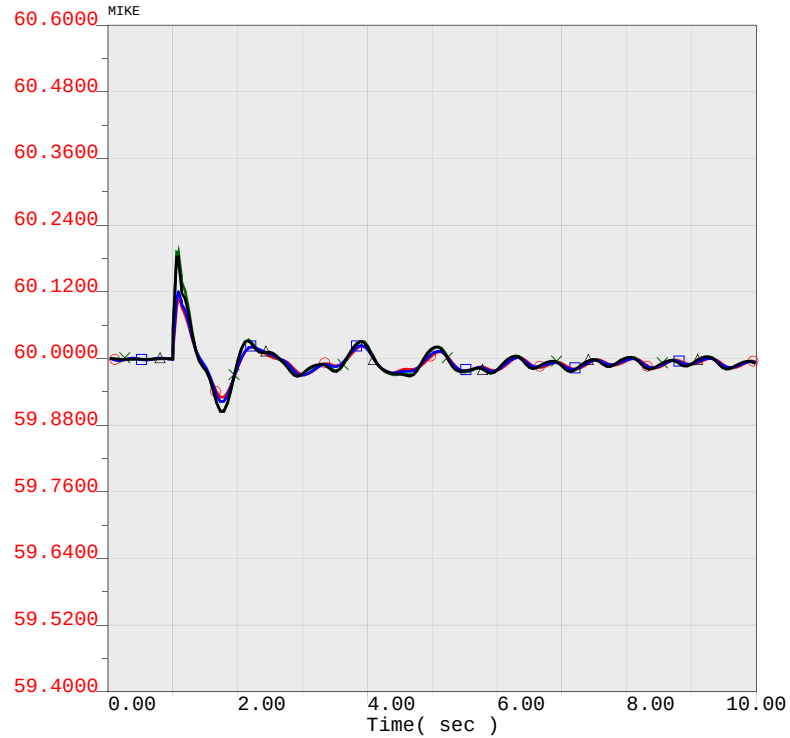


○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Path 42 with IID RAS SCHEME
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_p42_ras.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:16:34 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

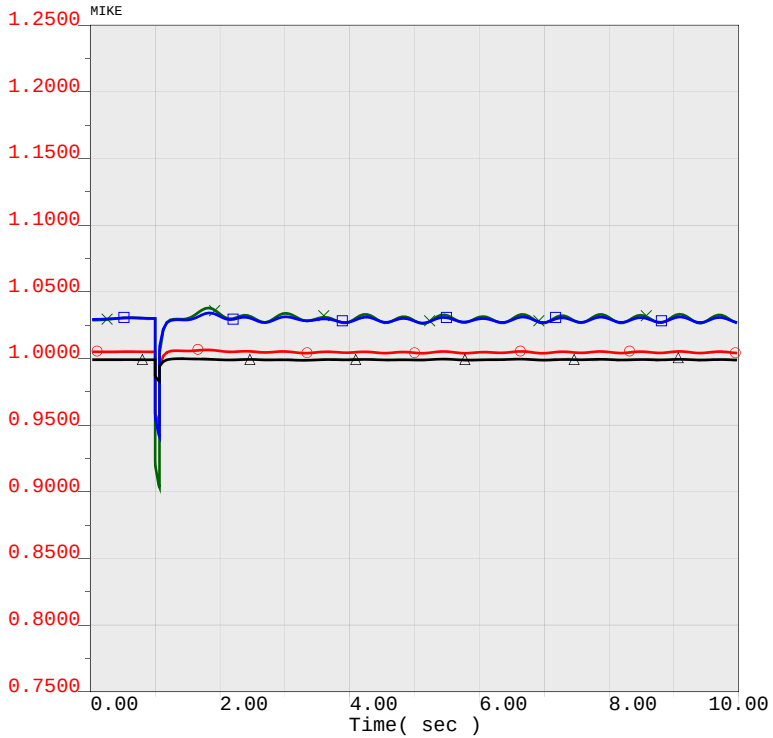


○ 59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
× 59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip Path 42 with IID RAS SCHEME
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_p42_ras.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:16:34 2006

IID 230kV Voltage plots EC, CV, RMN, IV

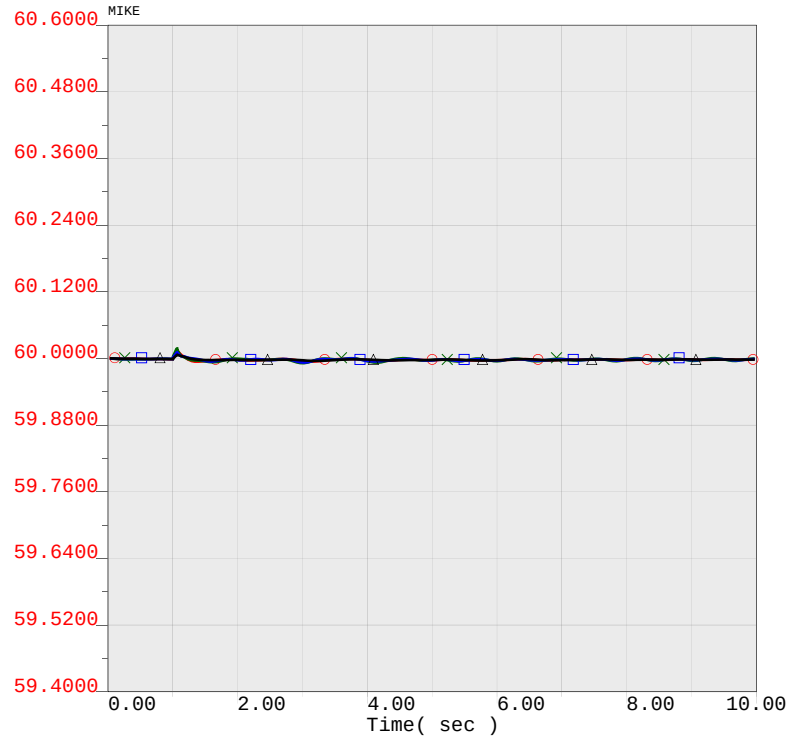


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB NILAND-BLYTHE 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-bly-cv-n1.chf
g:\iid\2005\sis\niland
Thu Jan 19 16:03:47 2006

IID 230kV Frequency plots EC, CV, RMN, IV

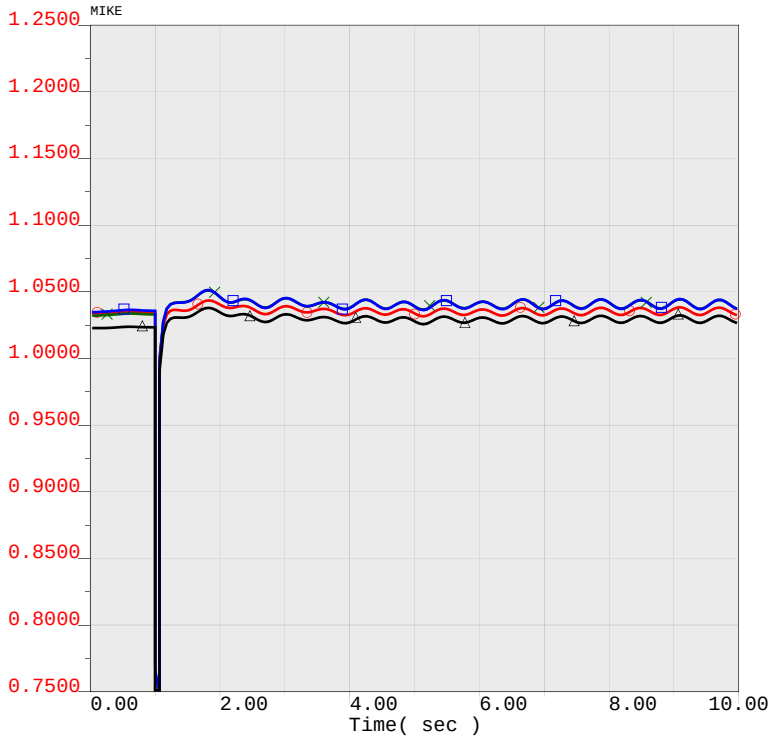


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB NILAND-BLYTHE 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-bly-cv-n1.chf
g:\iid\2005\sis\niland
Thu Jan 19 16:03:47 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

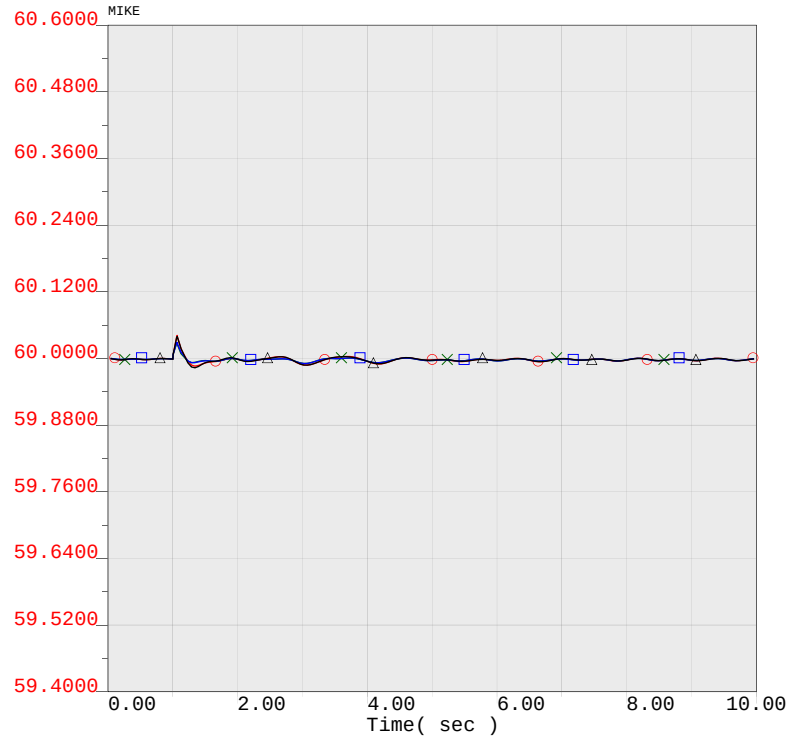


○	0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
×	0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□	0.75	vbus	8805	AV58	161.0	1	1	1.25
△	0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB NILAND-BLYTHE 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-bly-cv-n1.chf
g:\iid\2005\sis\niland
Thu Jan 19 16:03:47 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

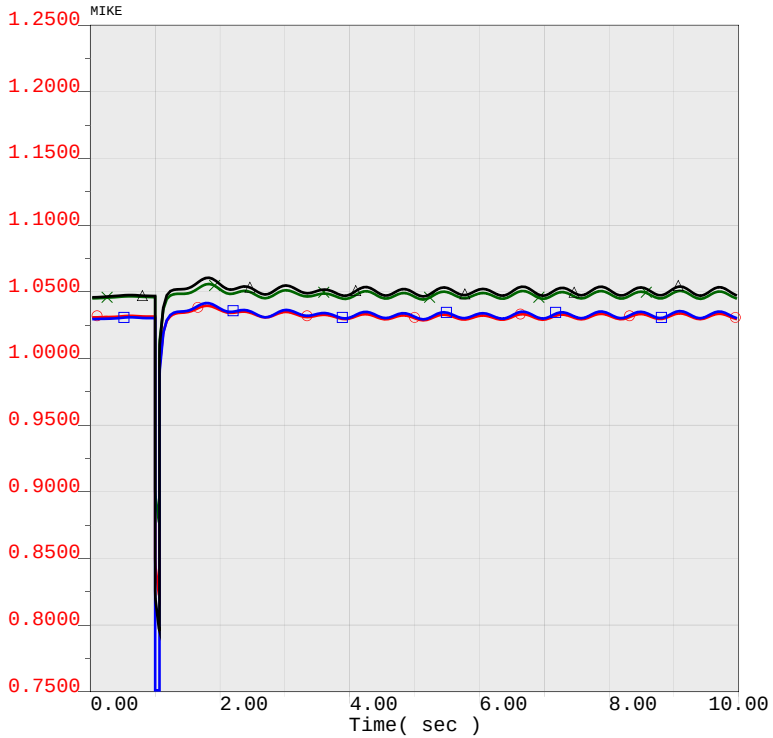


○	59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
×	59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□	59.4	fbus	8805	AV58	161.0	1	1	60.6
△	59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB NILAND-BLYTHE 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-bly-cv-n1.chf
g:\iid\2005\sis\niland
Thu Jan 19 16:03:47 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

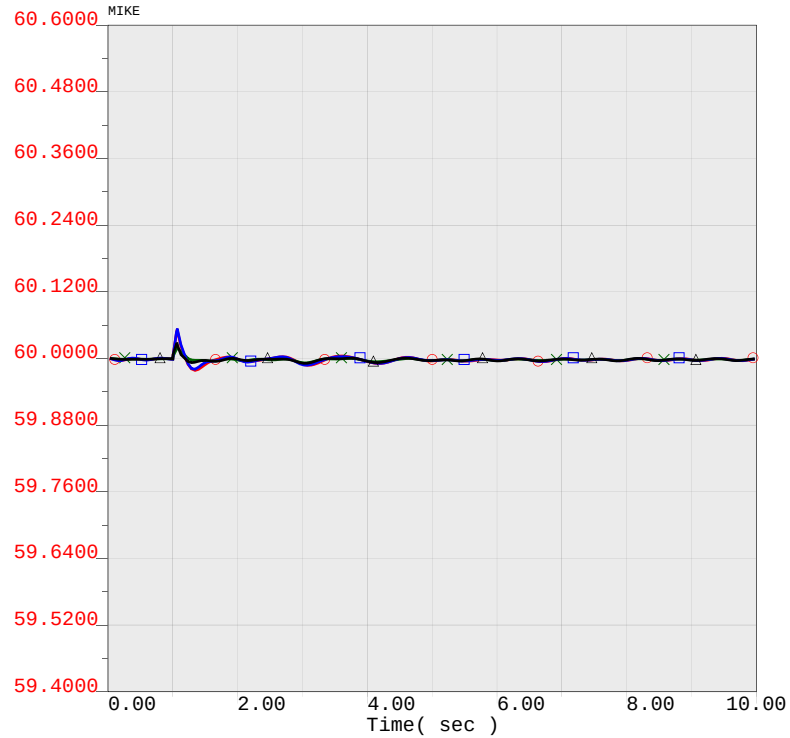


○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB NILAND-BLYTHE 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-bly-cv-n1.chf
g:\iid\2005\sis\niland
Thu Jan 19 16:03:47 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

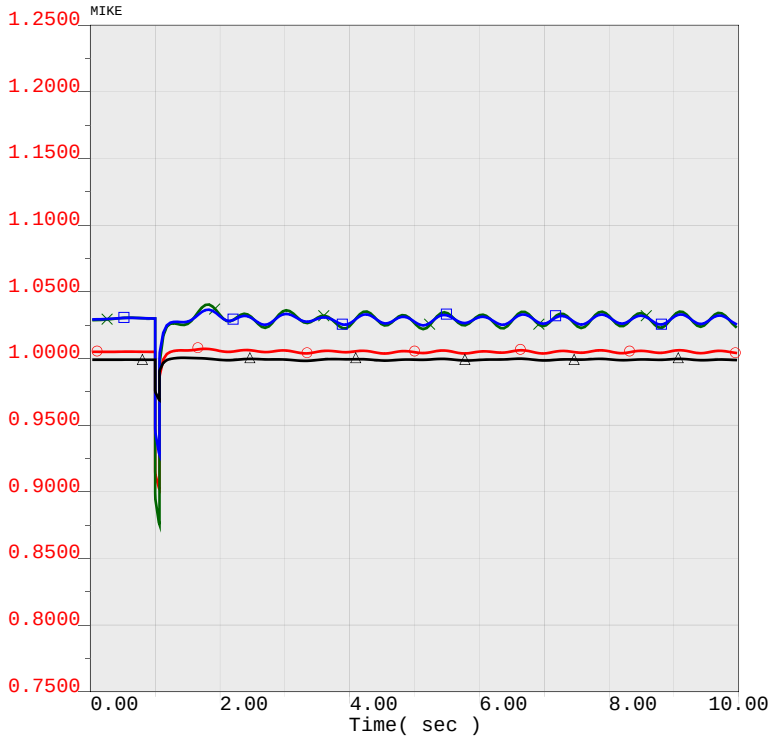


○ 59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
× 59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB NILAND-BLYTHE 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-bly-cv-n1.chf
g:\iid\2005\sis\niland
Thu Jan 19 16:03:47 2006

IID 230kV Voltage plots EC, CV, RMN, IV

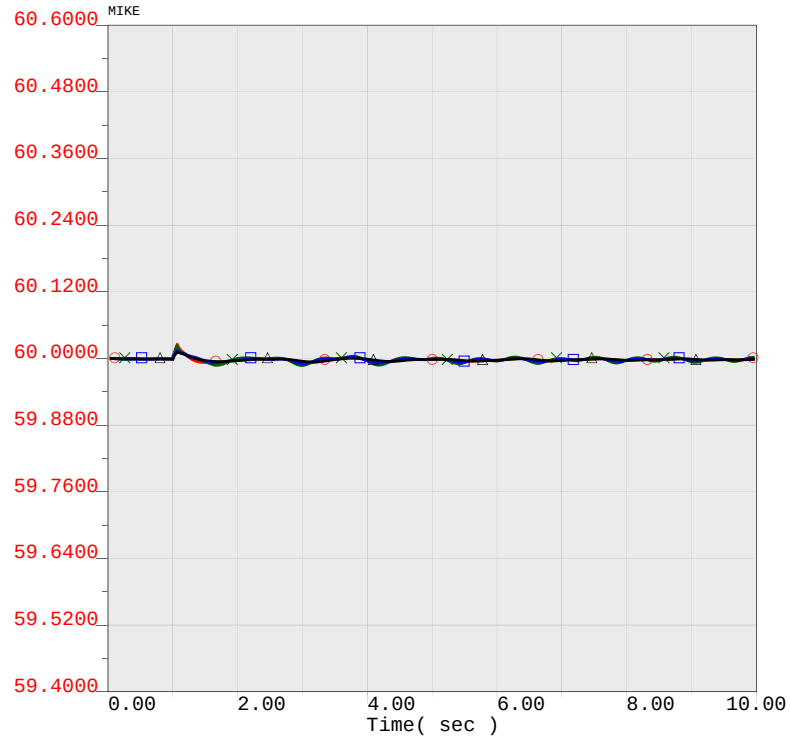


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-ELCENTRO NILAND-CVSUB 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-ec_cv_n2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:29:16 2006

IID 230kV Frequency plots EC, CV, RMN, IV

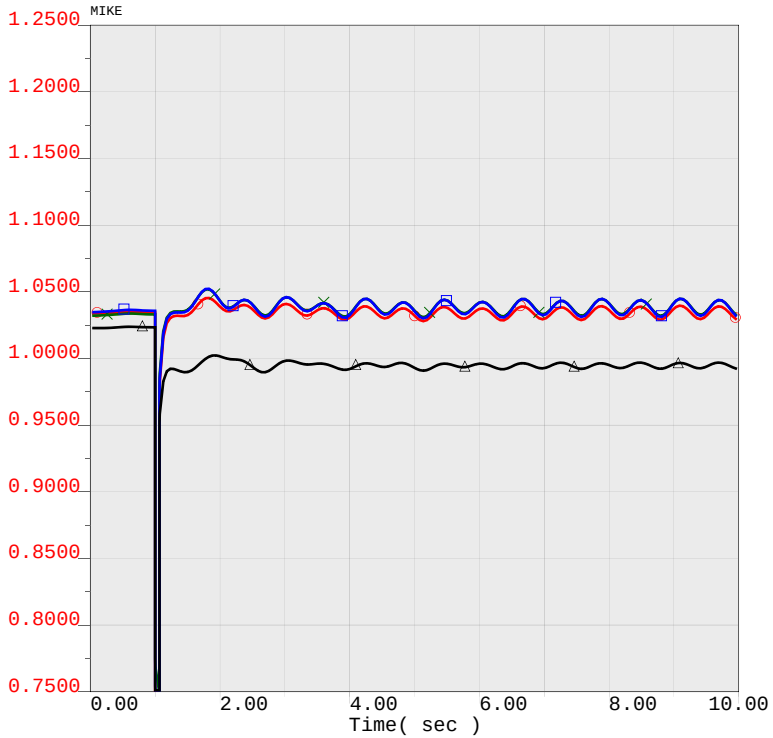


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-ELCENTRO NILAND-CVSUB 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-ec_cv_n2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:29:16 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

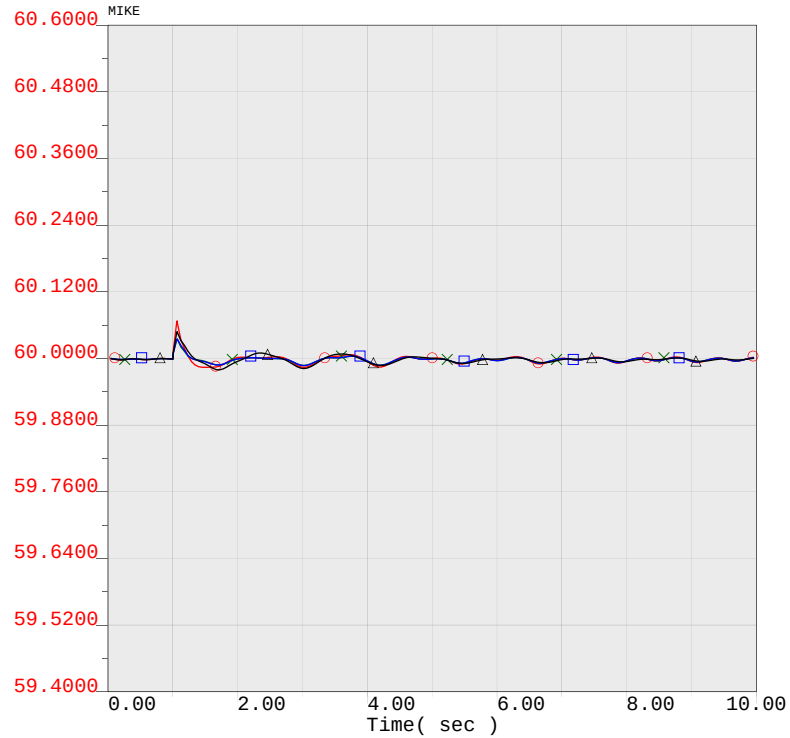


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-ELCENTRO NILAND-CVSUB 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-ec_cv_n2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:29:16 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

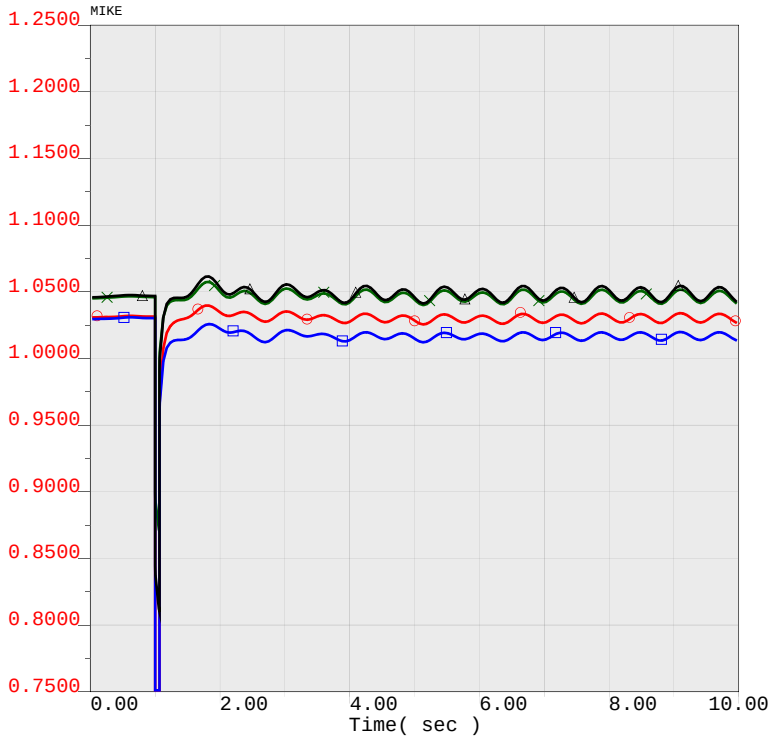


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-ELCENTRO NILAND-CVSUB 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-ec_cv_n2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:29:16 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

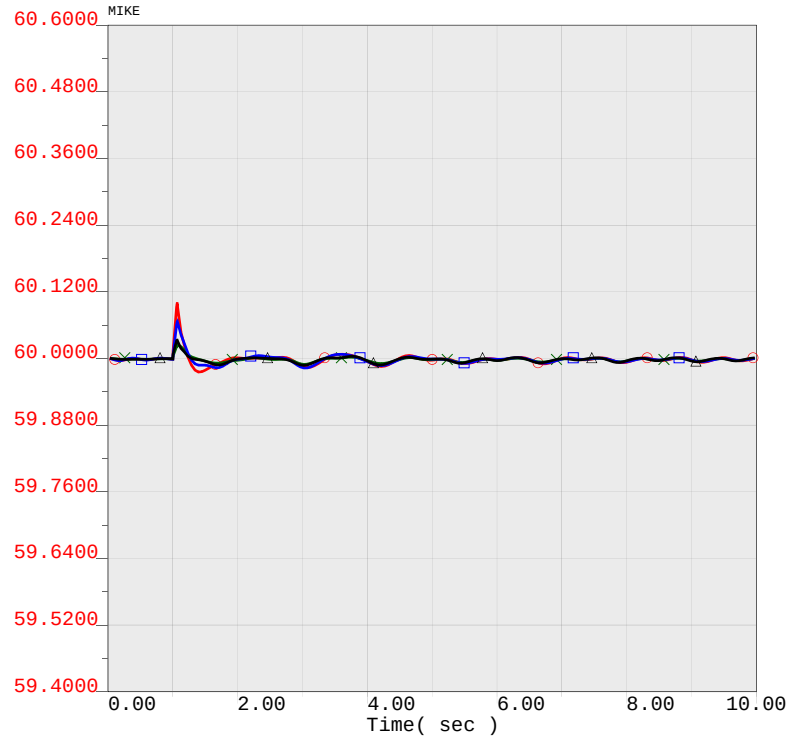


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-ELCENTRO NILAND-CVSUB 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-ec_cv_n2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:29:16 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

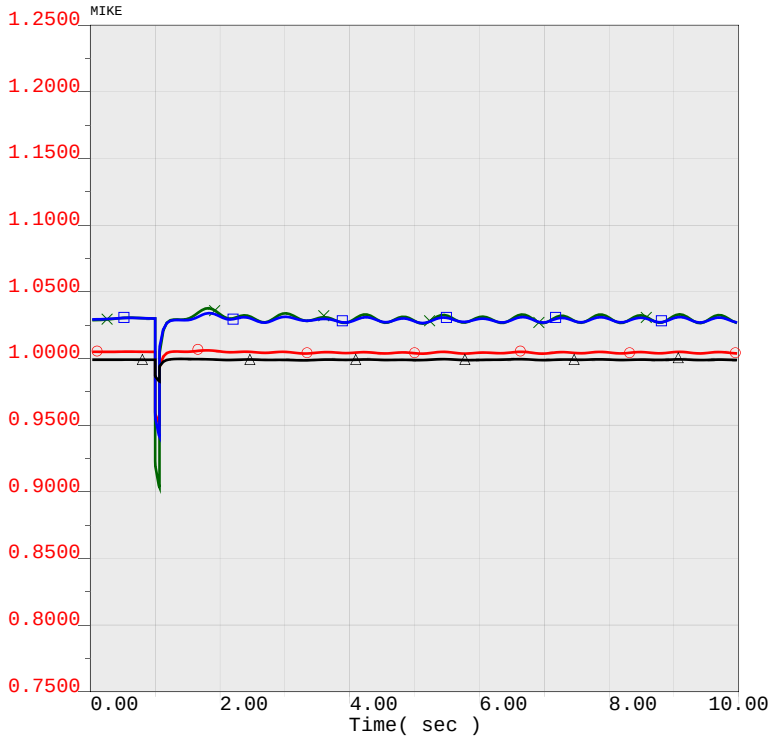


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip NILAND-ELCENTRO NILAND-CVSUB 161kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-ec_cv_n2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:29:17 2006

IID 230kV Voltage plots EC, CV, RMN, IV

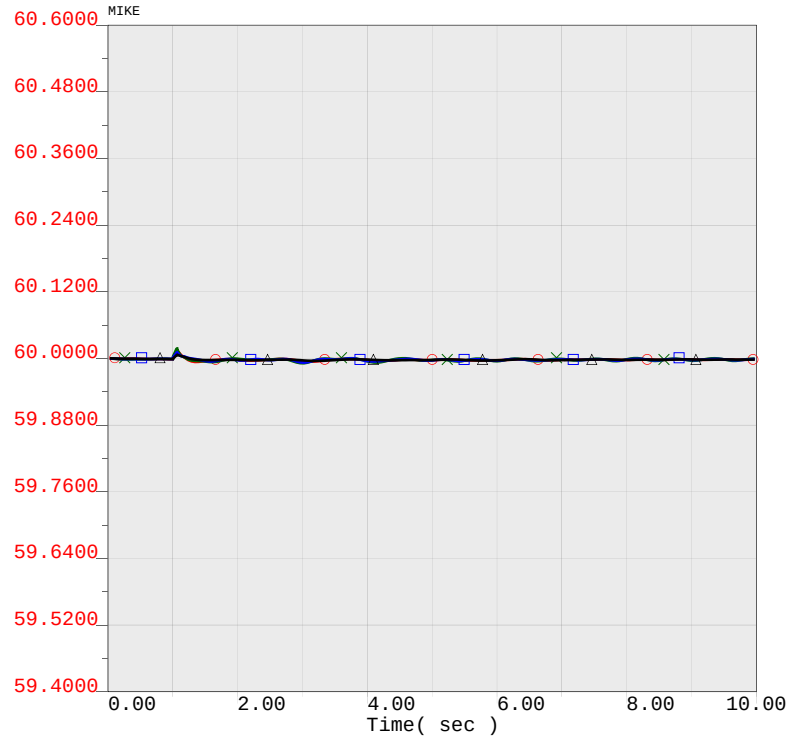


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly_ec-nil_n2.chf
g:\iid\2005\sis\niland
Thu Jan 19 16:02:13 2006

IID 230kV Frequency plots EC, CV, RMN, IV

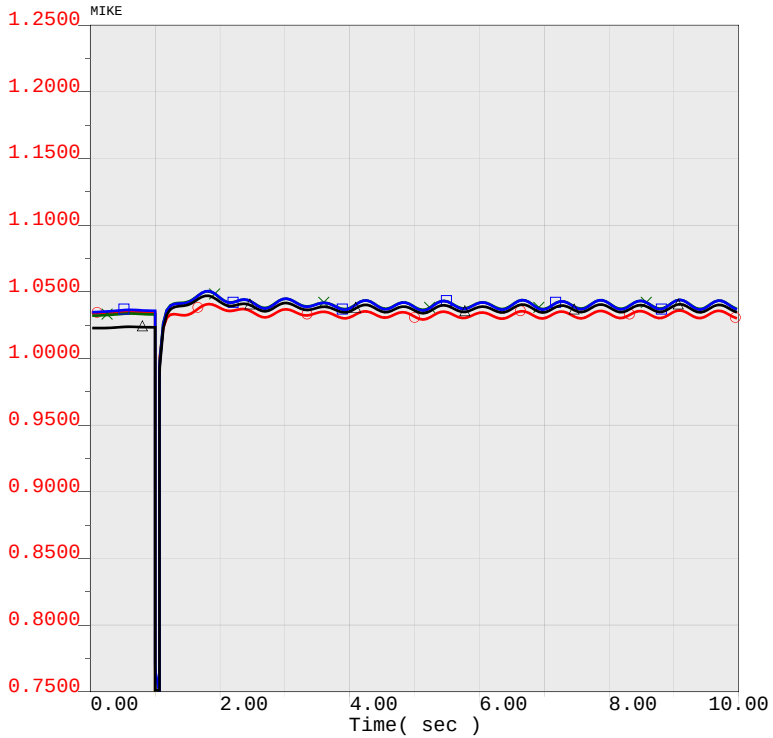


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly_ec-nil_n2.chf
g:\iid\2005\sis\niland
Thu Jan 19 16:02:13 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

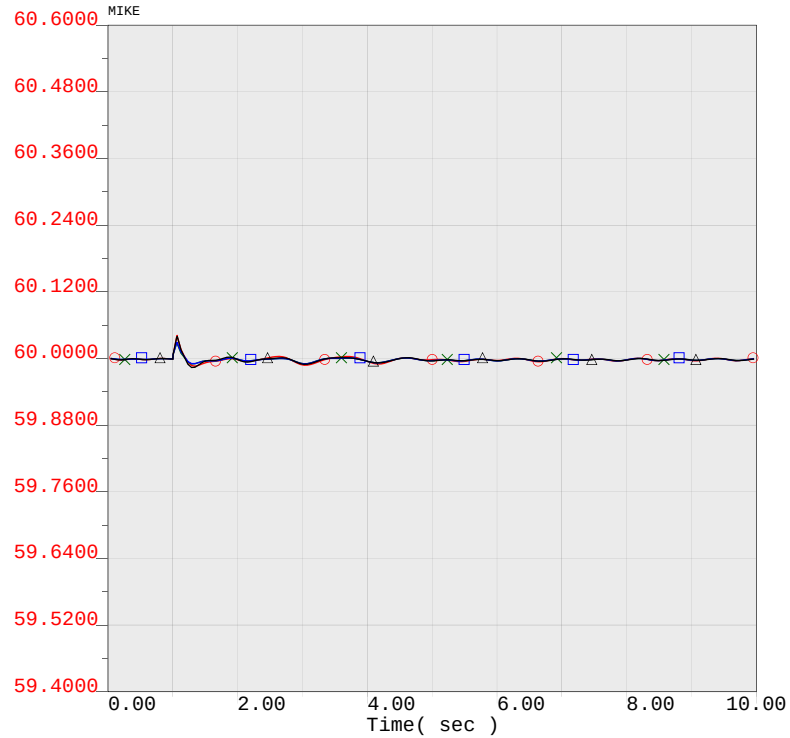


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly_ec-nil_n2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:02:13 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

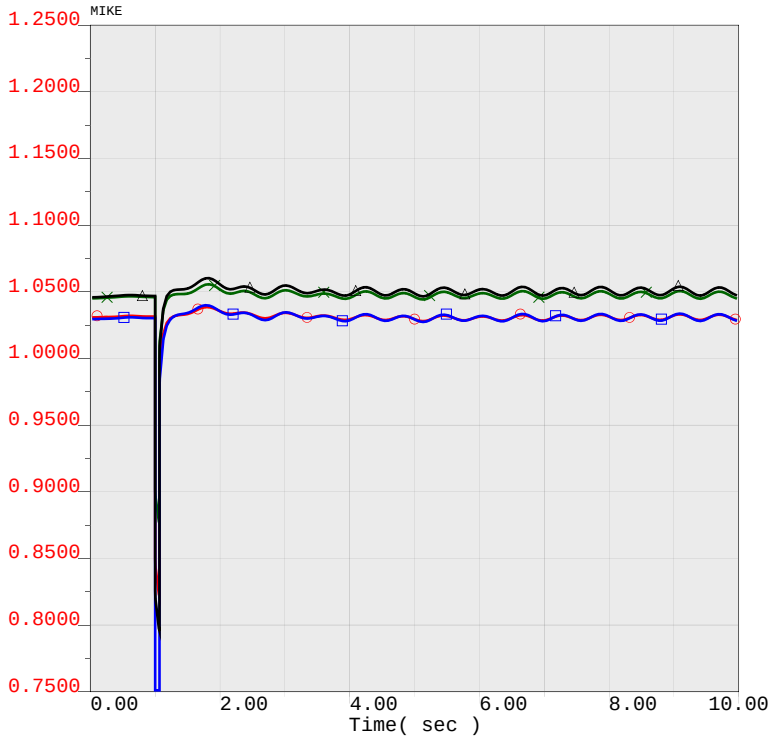


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly_ec-nil_n2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:02:13 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

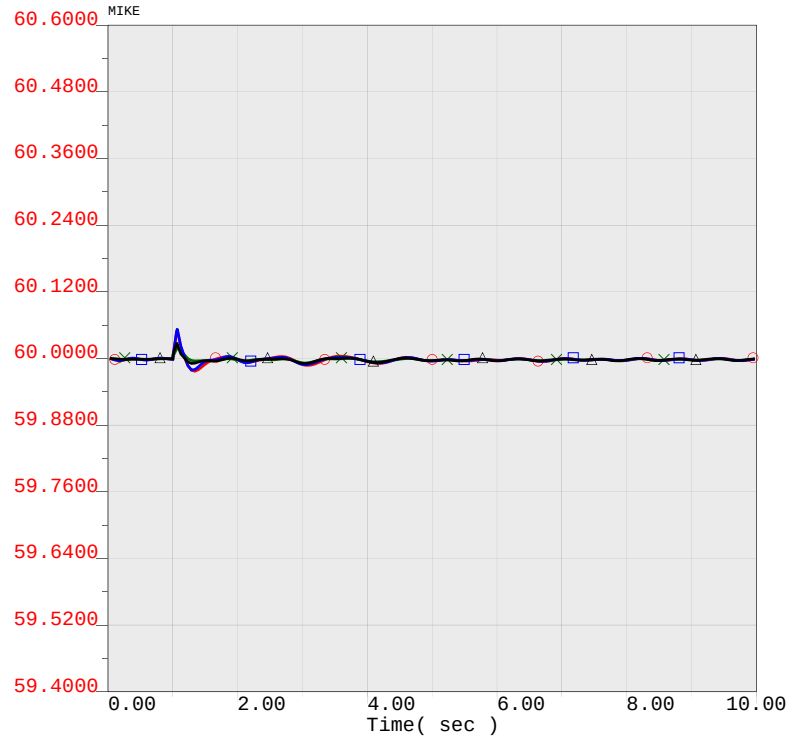


○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly_ec-nil_n2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:02:13 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

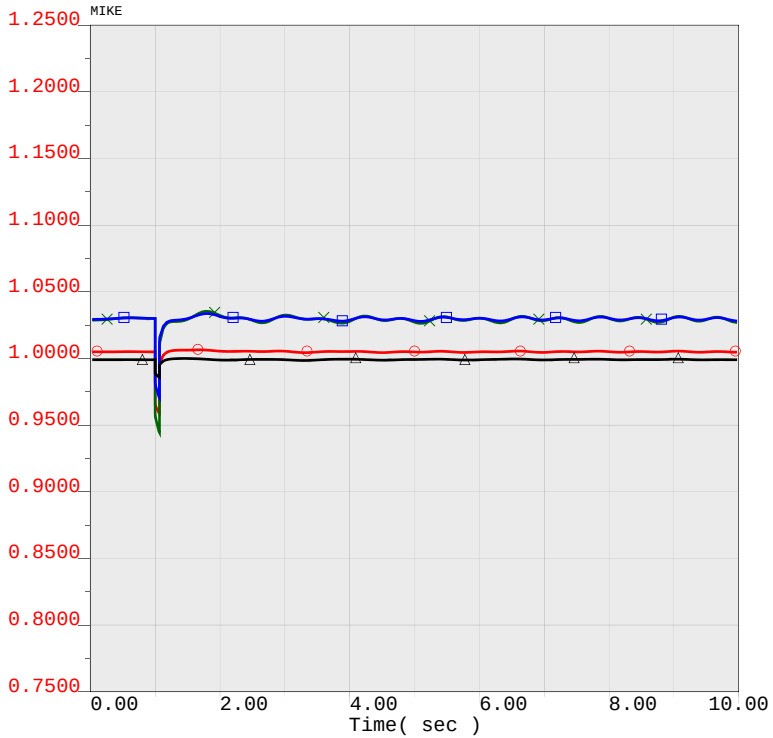


○ 59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
× 59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pre_maxgen.sav

pre_nil-bly_ec-nil_n2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:02:13 2006

IID 230kV Voltage plots EC, CV, RMN, IV

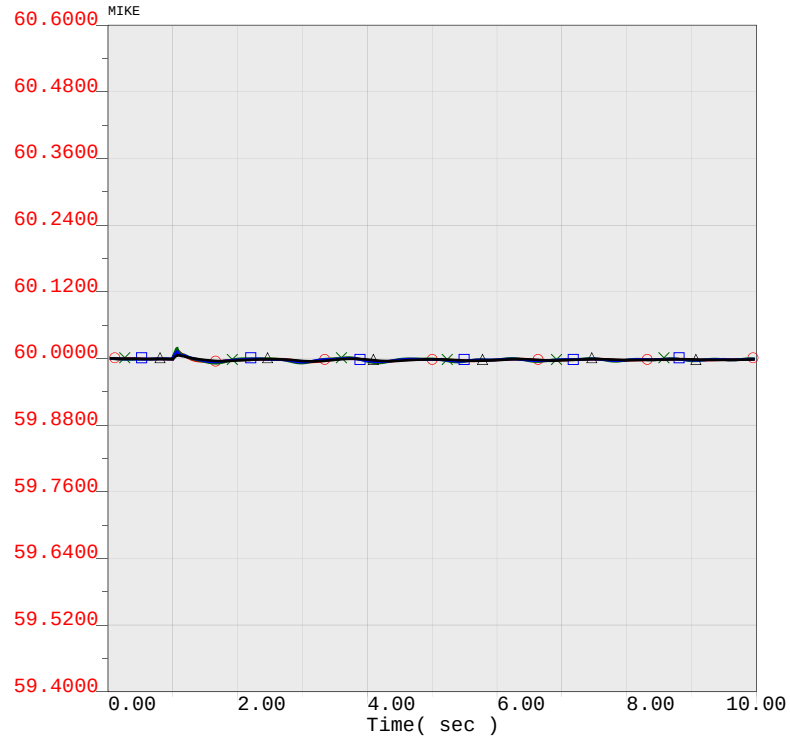


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri-bomn2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:09:19 2006

IID 230kV Frequency plots EC, CV, RMN, IV

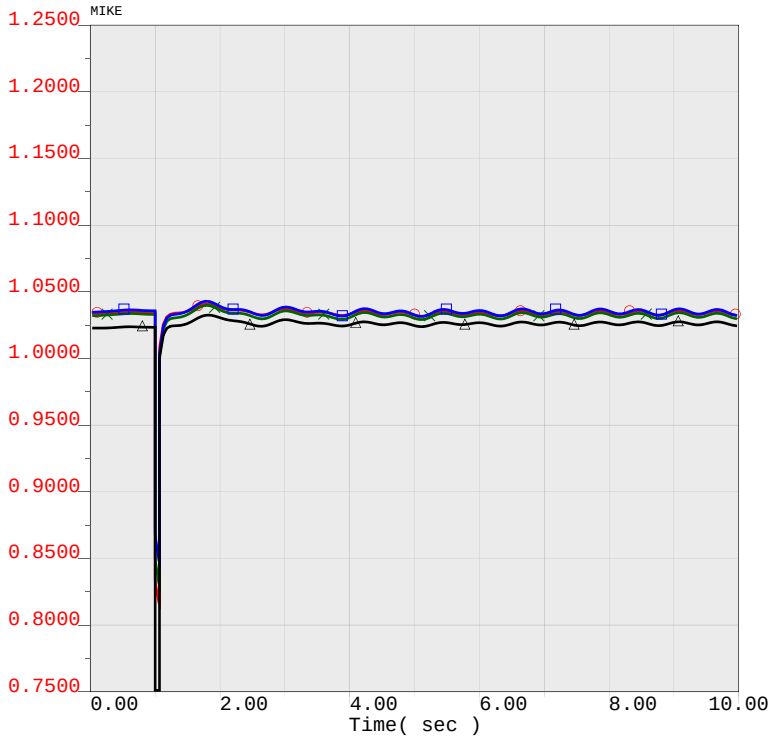


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri-bomn2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:09:19 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

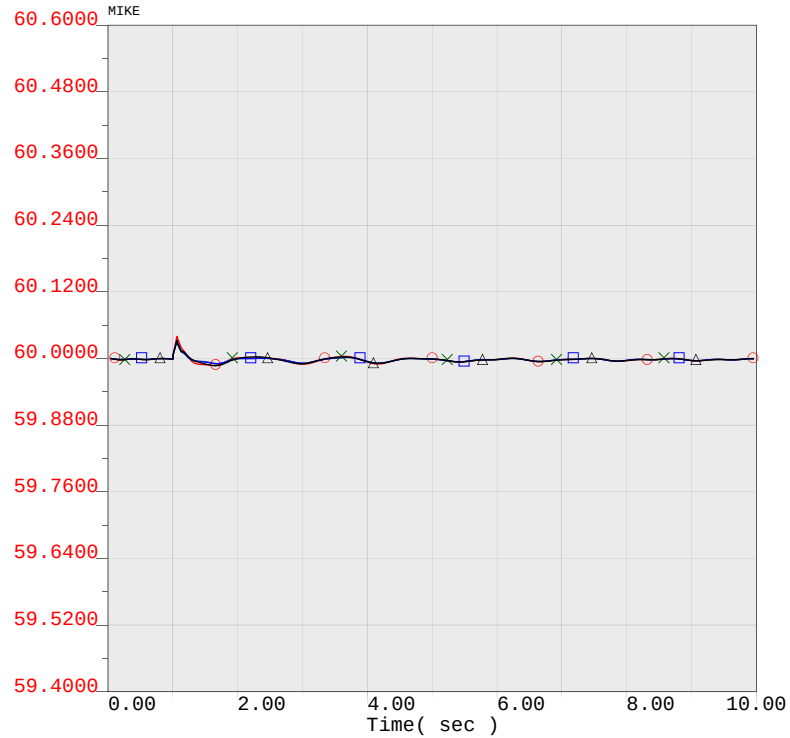


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri-bomn2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:09:19 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

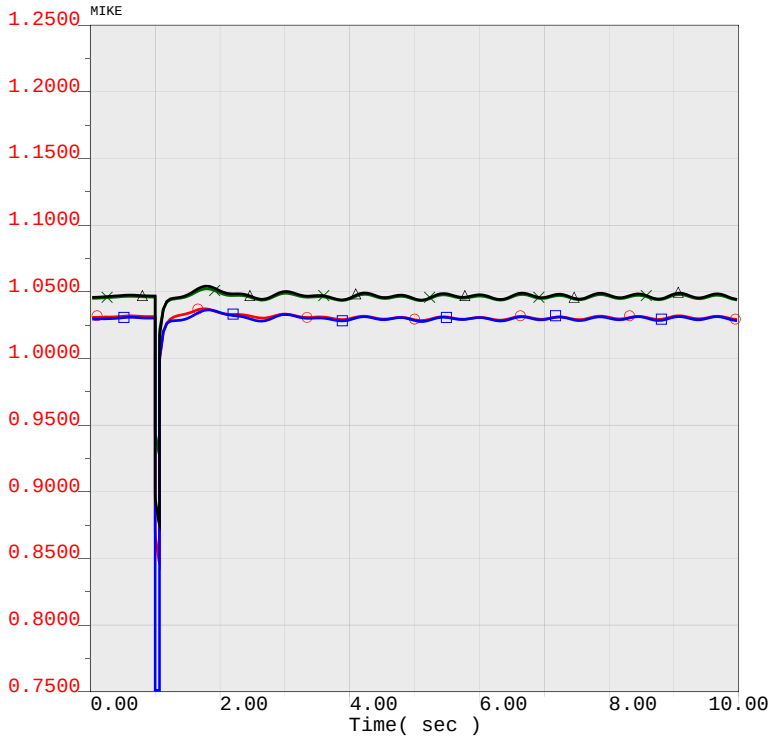


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri-bomn2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:09:19 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

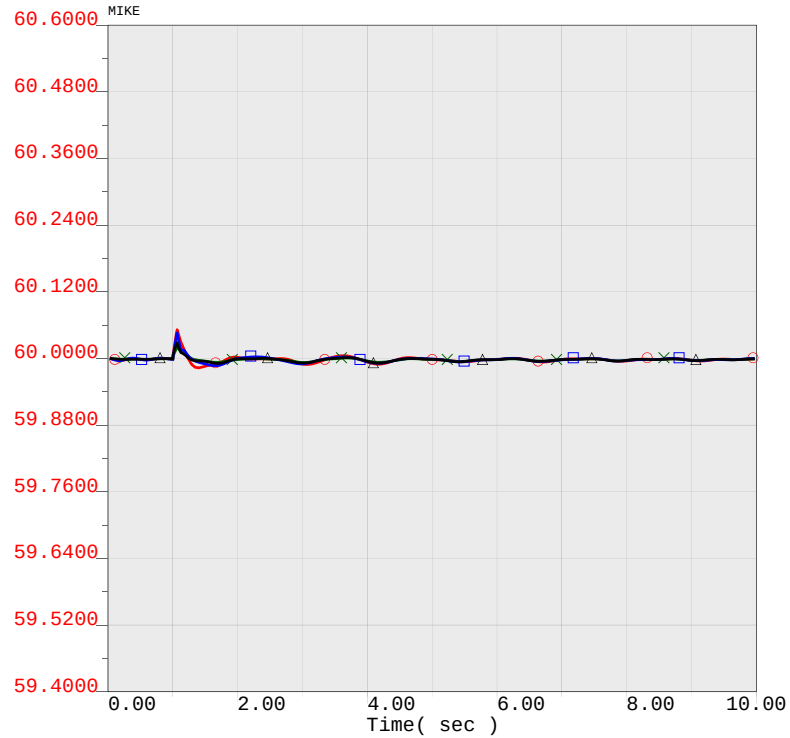


○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri-bomn2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:09:19 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

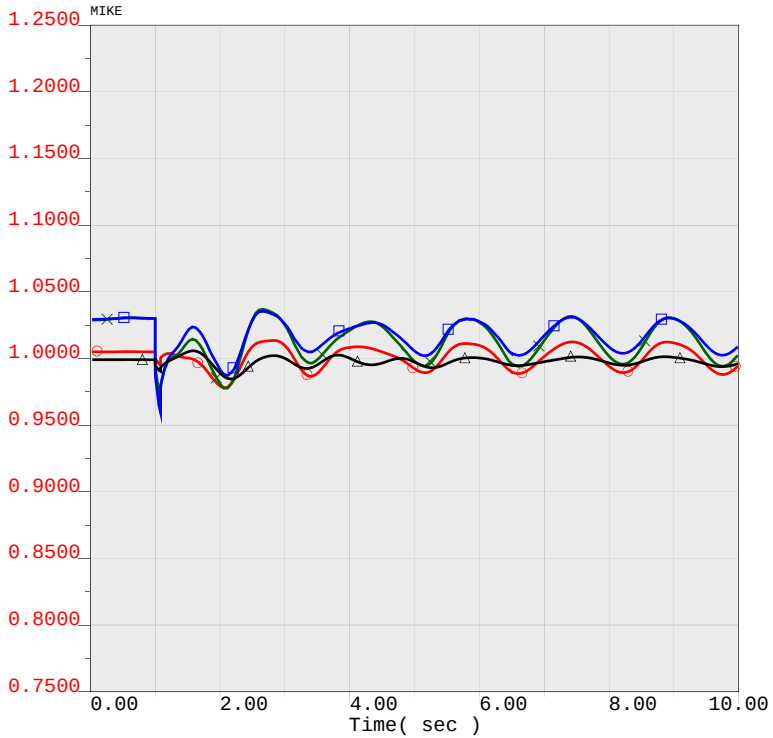


○ 59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
× 59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case R2_S_NIL_PRE_MAXGEN.SAV

pre_nil-pri-bomn2.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:09:19 2006

IID 230kV Voltage plots EC, CV, RMN, IV

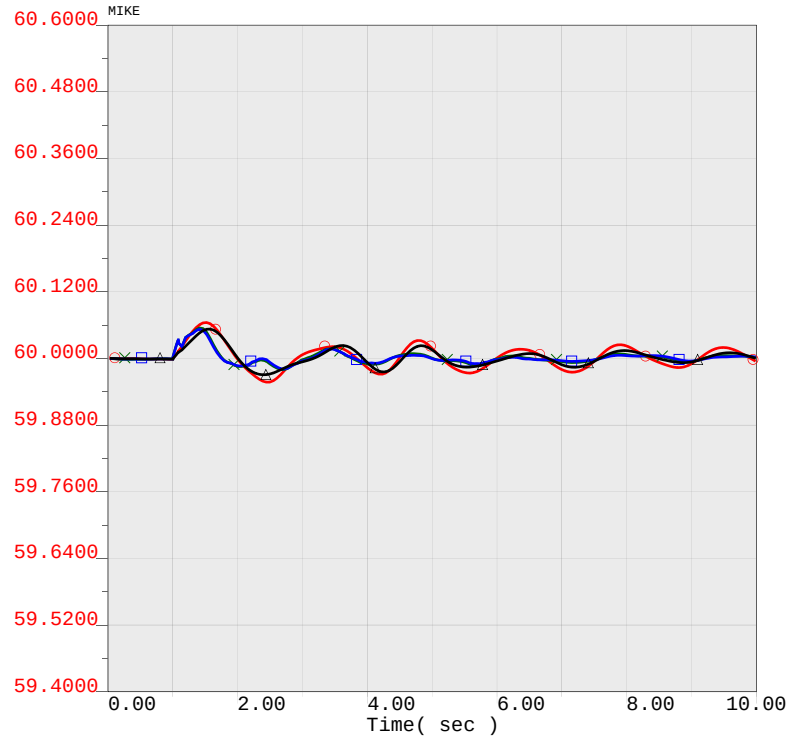


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pre_maxgen.sav

pre_midway_cv_dbl.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:01:10 2006

IID 230kV Frequency plots EC, CV, RMN, IV

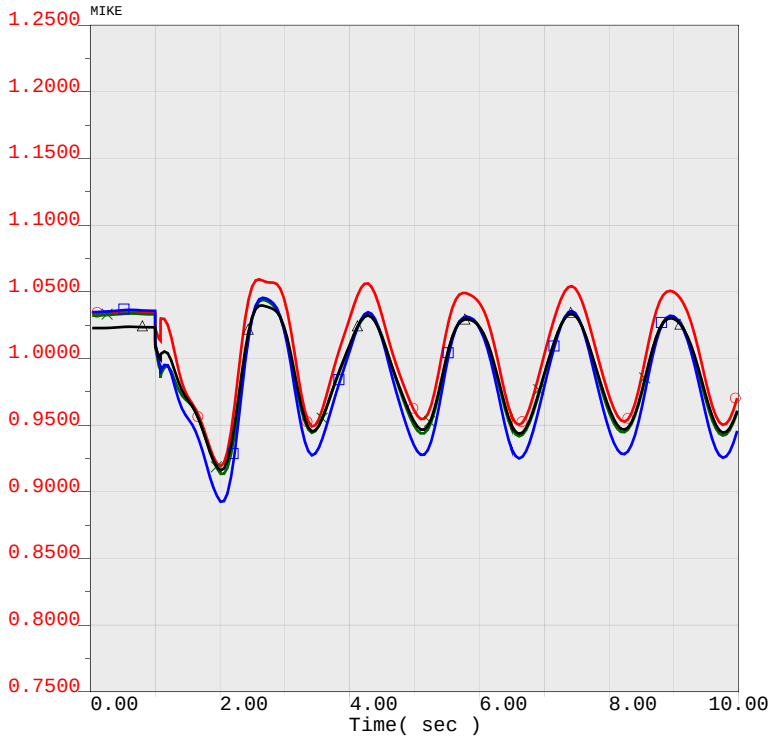


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pre_maxgen.sav

pre_midway_cv_dbl.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:01:10 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

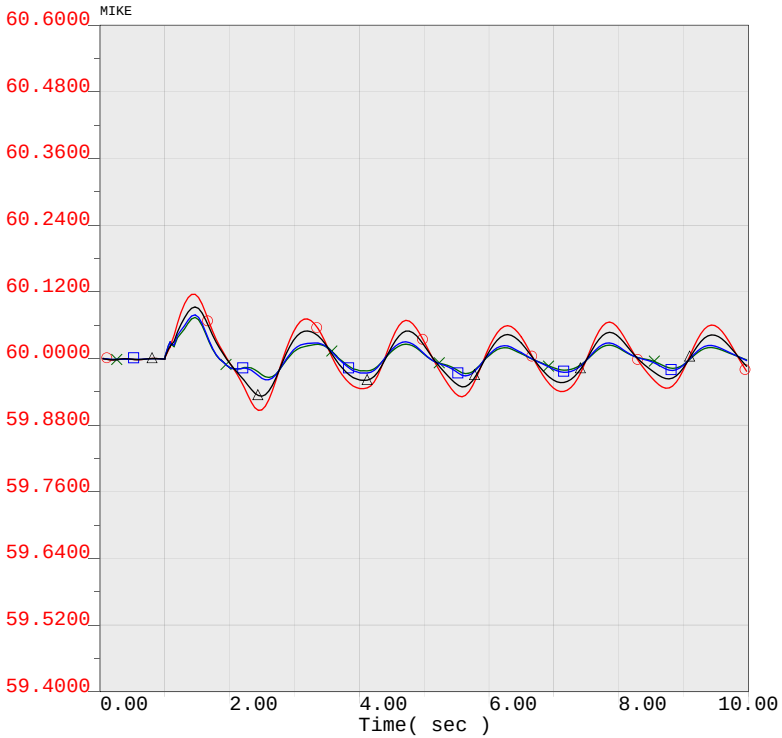


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pre_maxgen.sav

pre_midway_cv_dbl.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:01:10 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

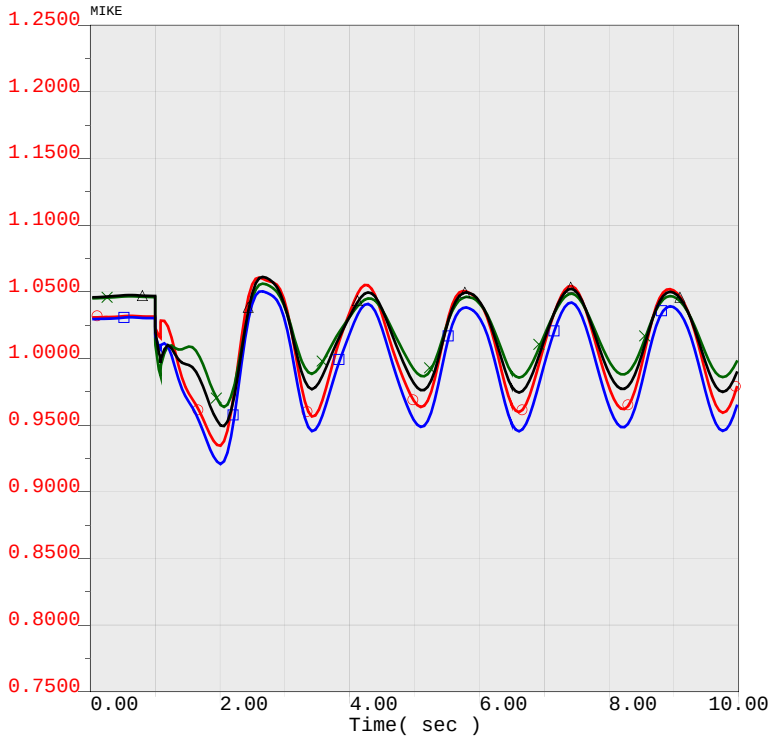


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pre_maxgen.sav

pre_midway_cv_dbl.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:01:10 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

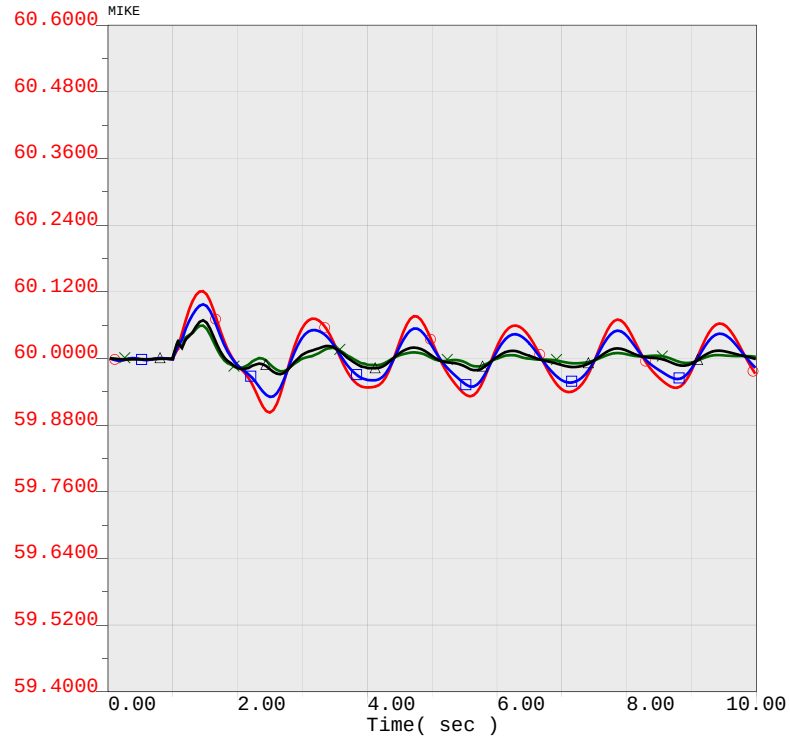


○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pre_maxgen.sav

pre_midway_cv_dbl.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:01:10 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV



○ 59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
× 59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case-SENSITIVITY
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pre_maxgen.sav

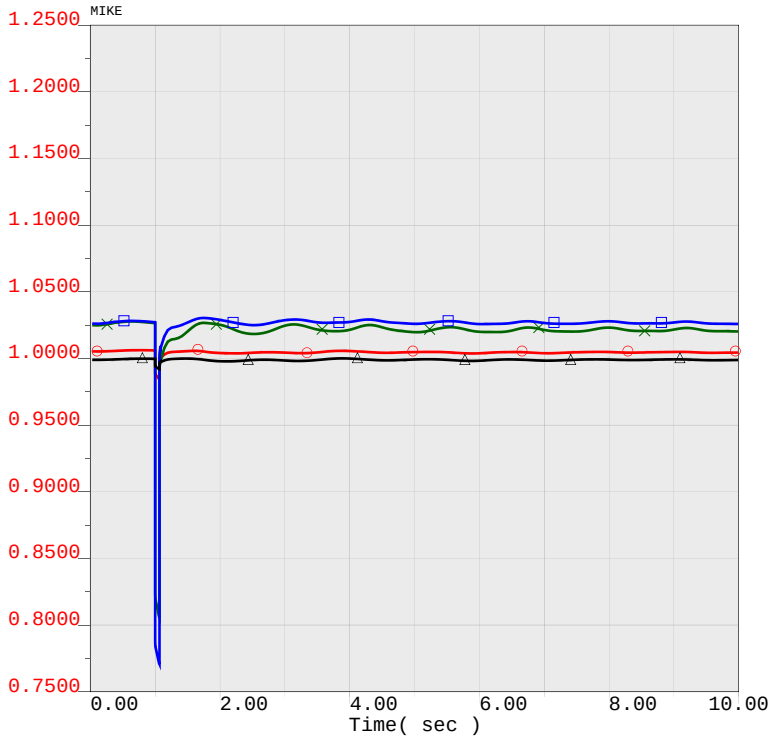
pre_midway_cv_dbl.chf | g:\iid\2005\sis\niland | Thu Jan 19 16:01:10 2006

Niland System Impact Study

Appendix H
Niland Post Project Maximum generation Stability Plots

January 2006

IID 230kV Voltage plots EC, CV, RMN, IV

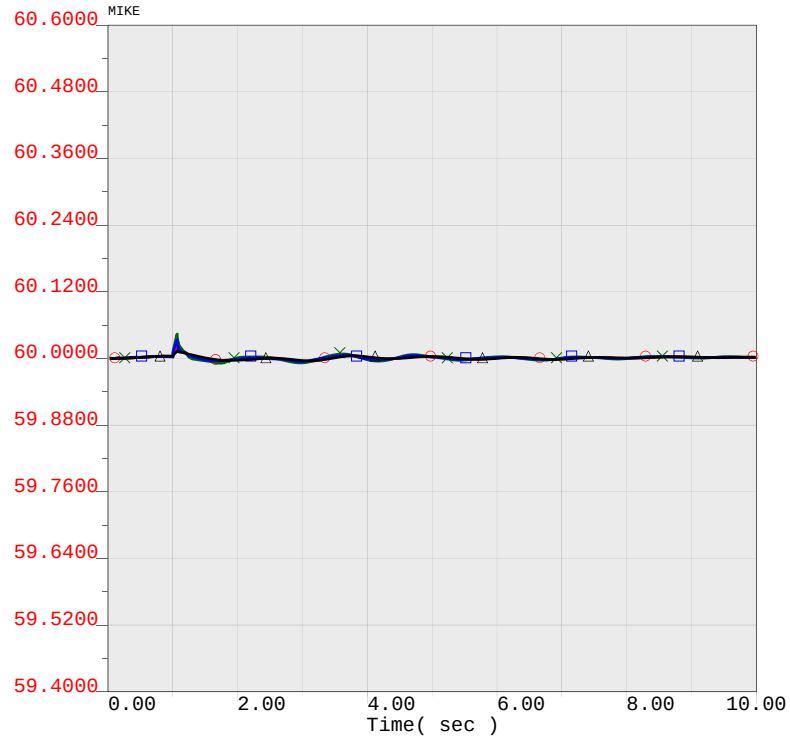


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

rmnmir.chf
c:\upslf15\samples\plot15
Wed Jan 11 16:49:48 2006

IID 230kV Frequency plots EC, CV, RMN, IV

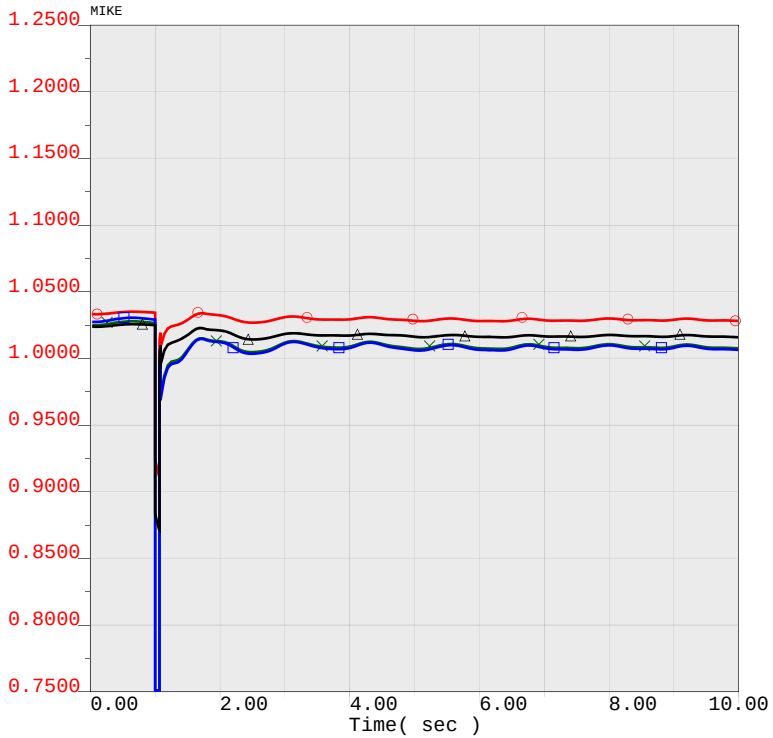


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

rmnmir.chf
c:\upslf15\samples\plot15
Wed Jan 11 16:49:48 2006

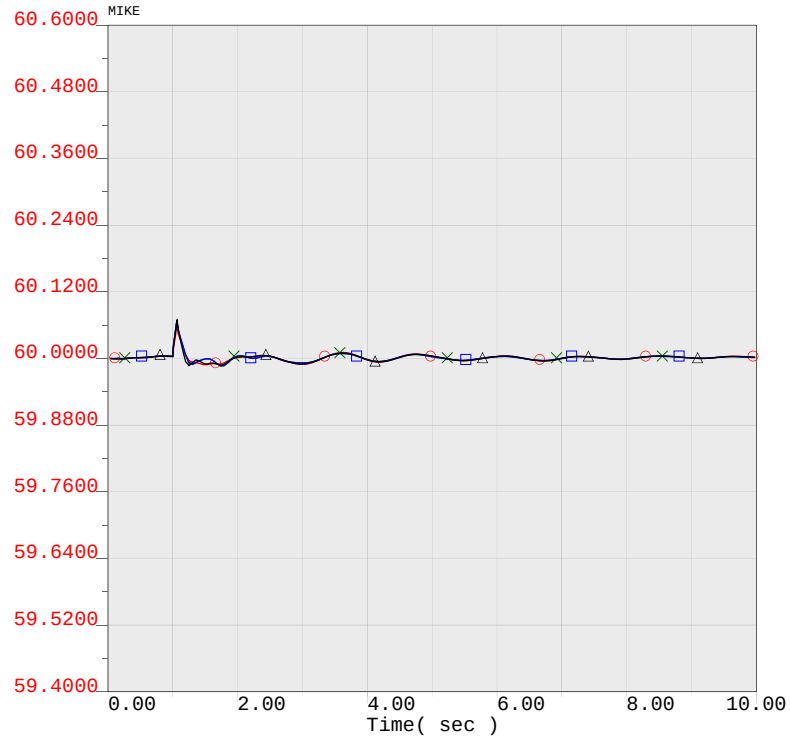
IID 161kV Voltage plots EC, CV, AV58, NIL



○	0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
×	0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□	0.75	vbus	8805	AV58	161.0	1	1	1.25
△	0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

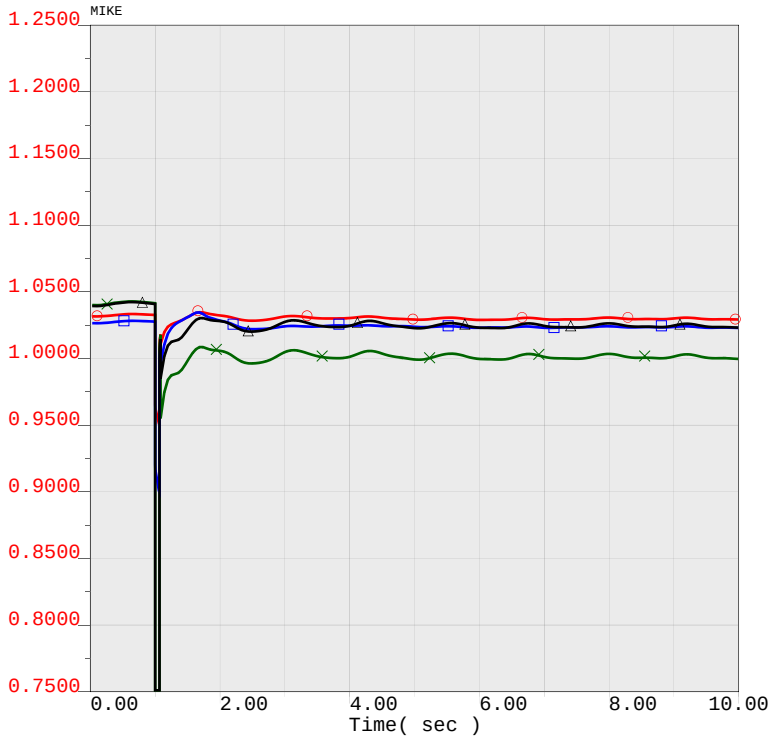
IID 161kV Frequncy plots EC, CV, AV58, NIL



○	59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
×	59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□	59.4	fbus	8805	AV58	161.0	1	1	60.6
△	59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

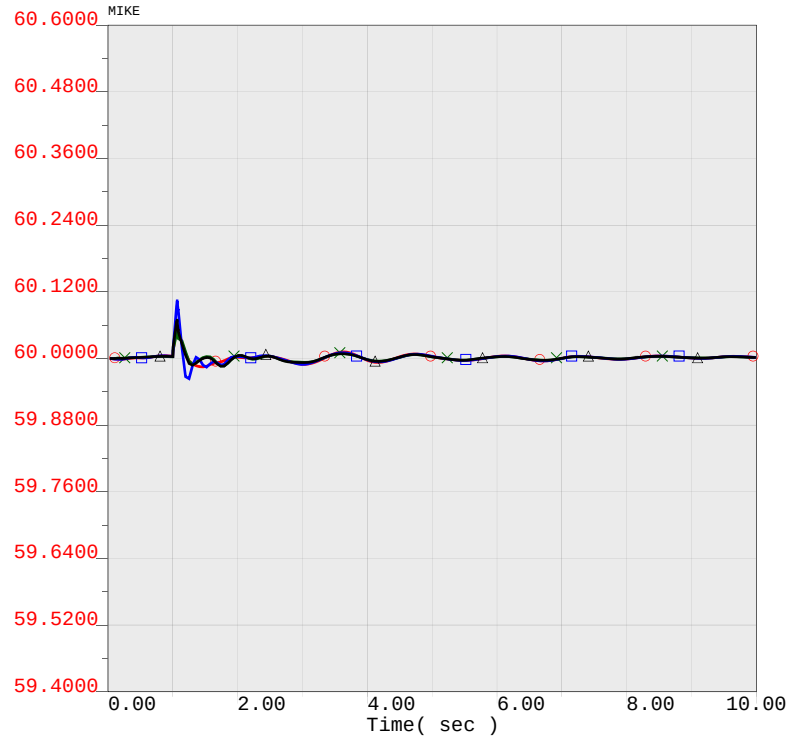
IID 92kV Voltage plots EC, MIR, NIL, CV



○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

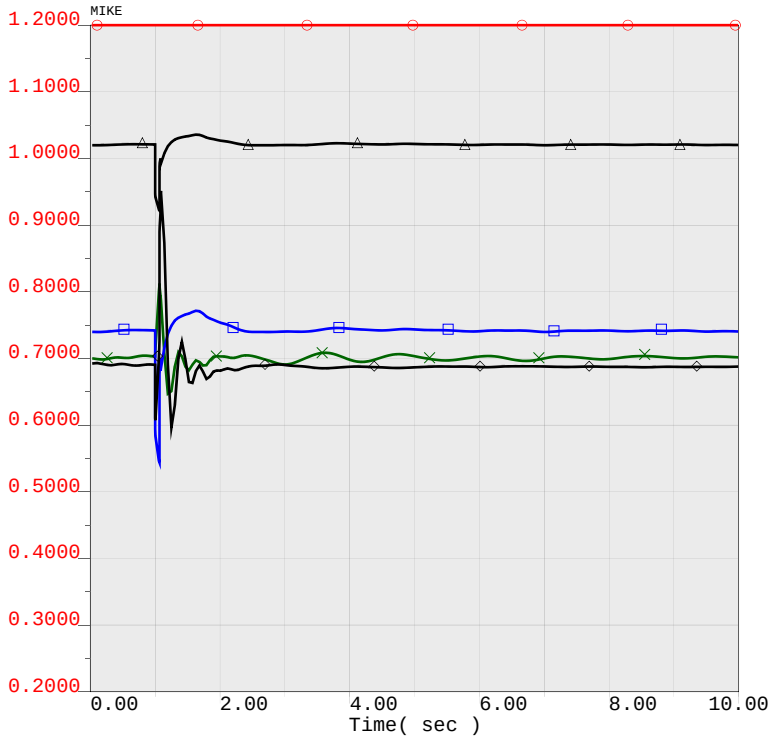
IID 92kV Frequncy plots EC, MIR, NIL, CV



○ 59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
× 59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

Niland Generator Bus 8000

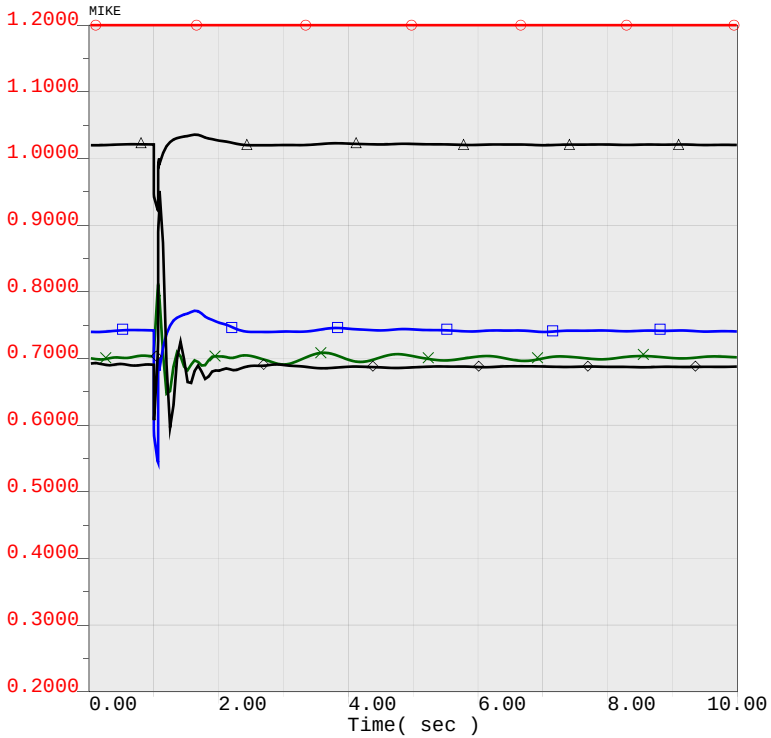


○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

rmnmir.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:49:48 2006

Niland Generator Bus 8050

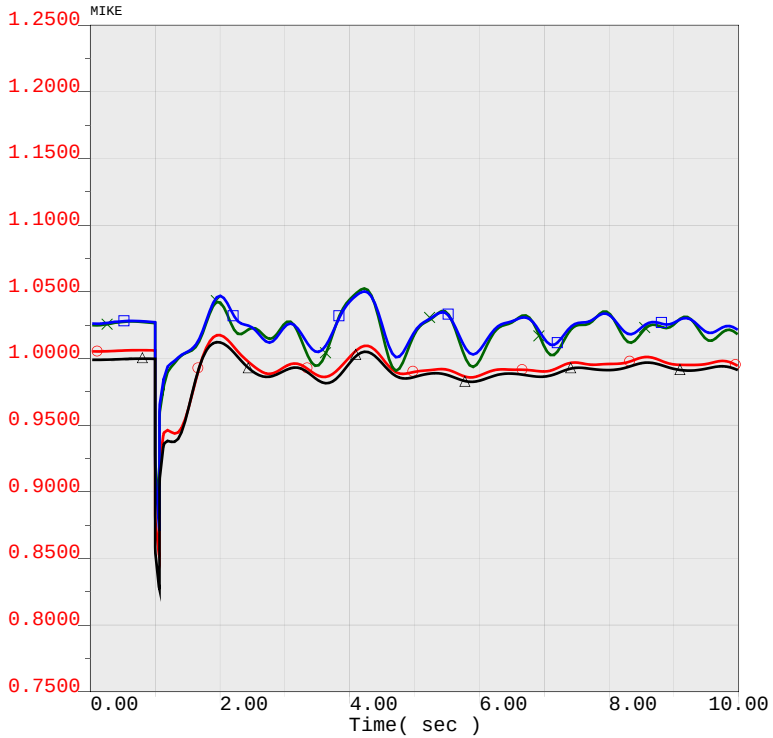


○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Ramon-Mirage 230/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

rmnmir.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:49:48 2006

IID 230kV Voltage plots EC, CV, RMN, IV

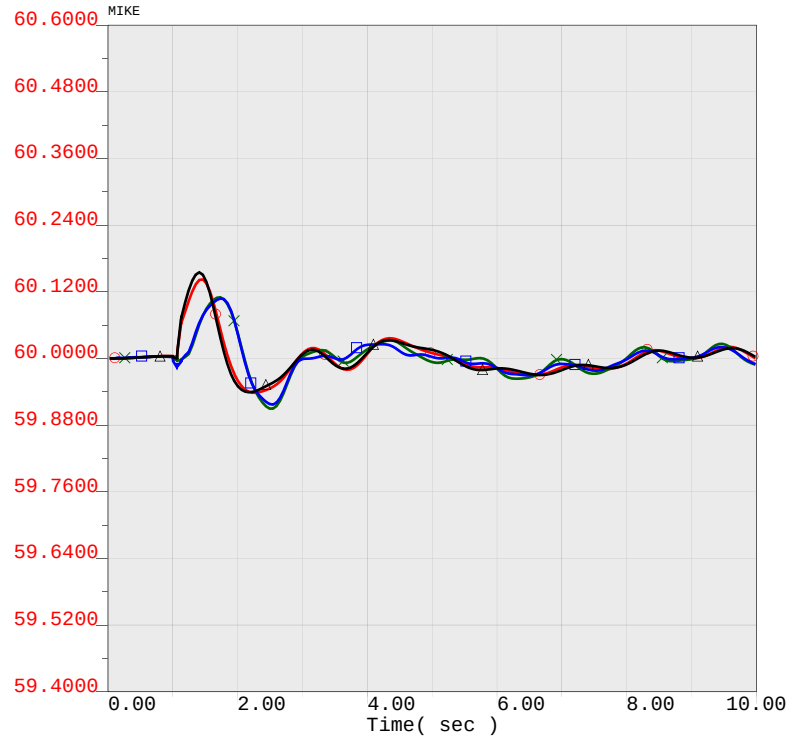


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

pvdev2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:05:43 2006

IID 230kV Frequency plots EC, CV, RMN, IV

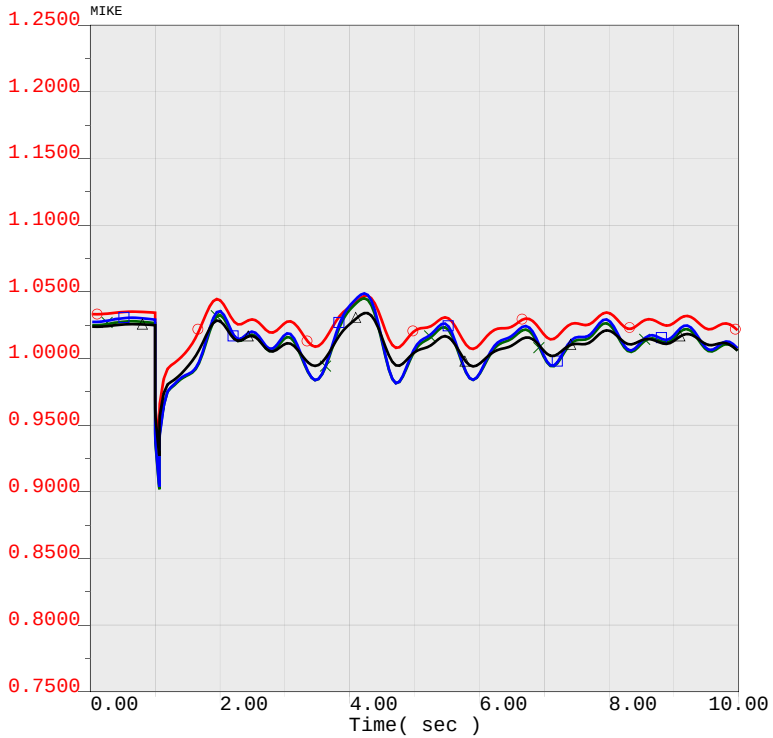


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

pvdev2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:05:43 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

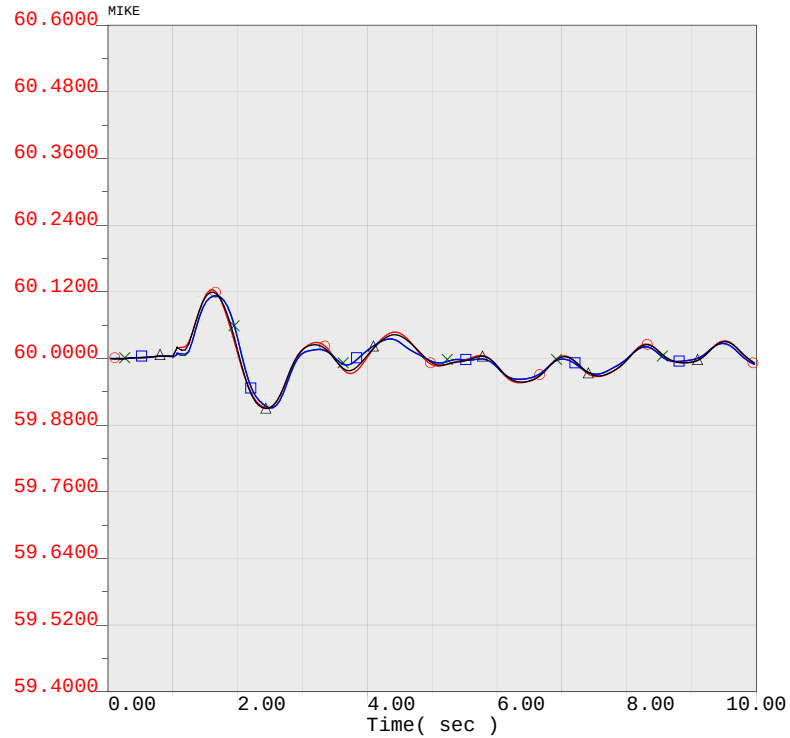


○	0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
×	0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□	0.75	vbus	8805	AV58	161.0	1	1	1.25
△	0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

pvdev2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:05:43 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

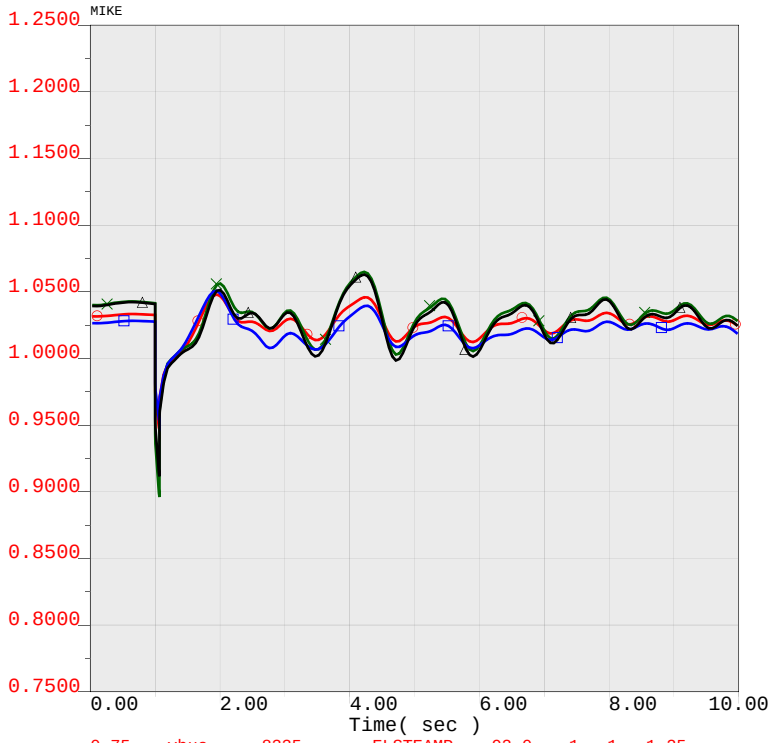


○	59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
×	59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□	59.4	fbus	8805	AV58	161.0	1	1	60.6
△	59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

pvdev2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:05:44 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

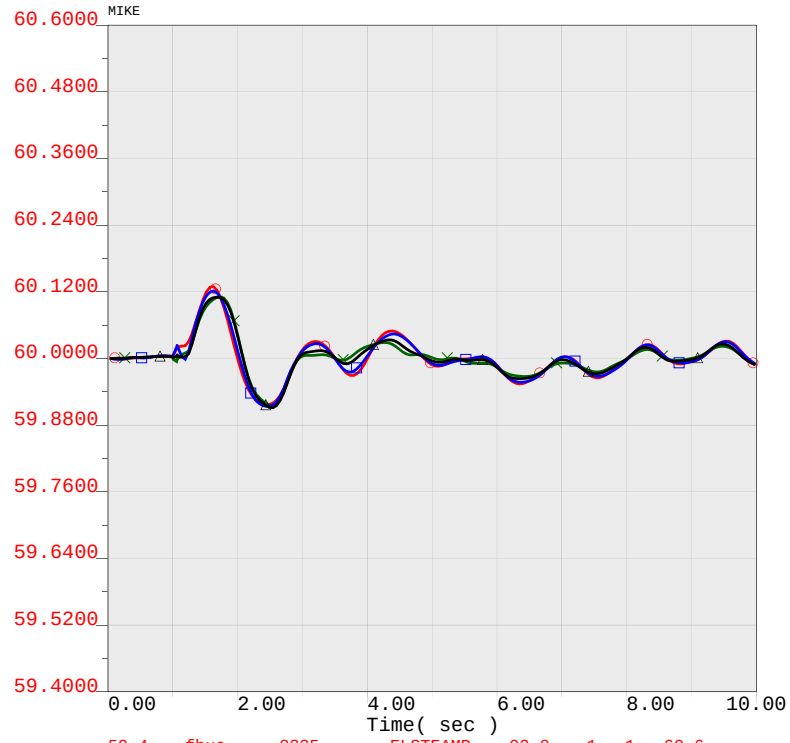


○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

pvdev2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:05:44 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

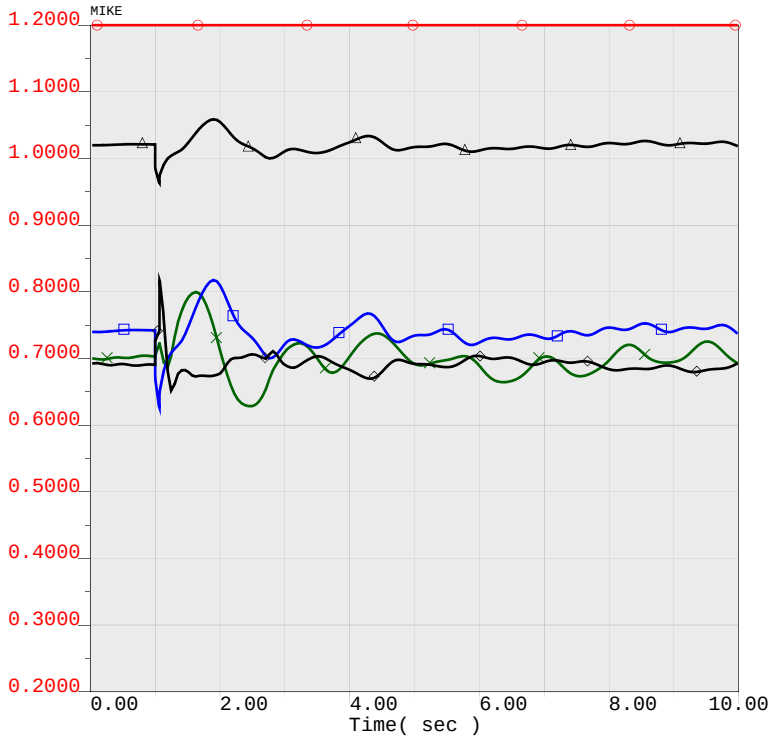


○ 59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
× 59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

pvdev2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:05:44 2006

Niland Generator Bus 8000

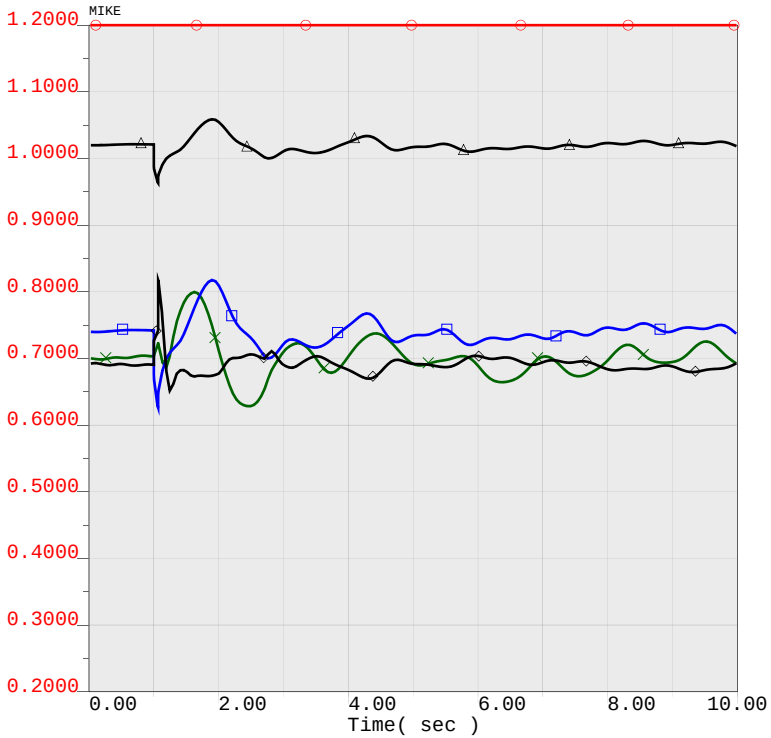


○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

pvdev2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:05:44 2006

Niland Generator Bus 8050

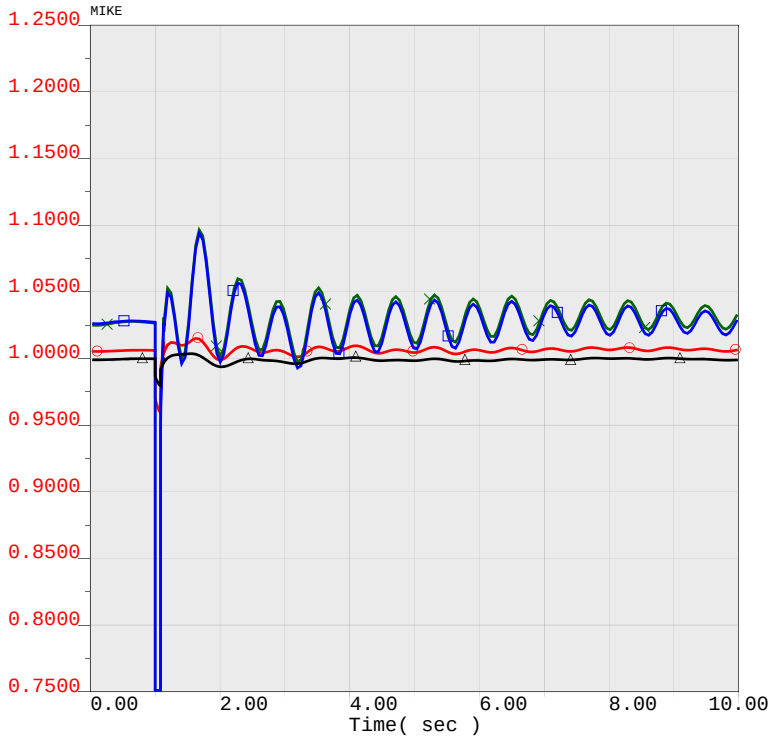


○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip PV-Devers 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

pvdev2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:05:44 2006

IID 230kV Voltage plots EC, CV, RMN, IV

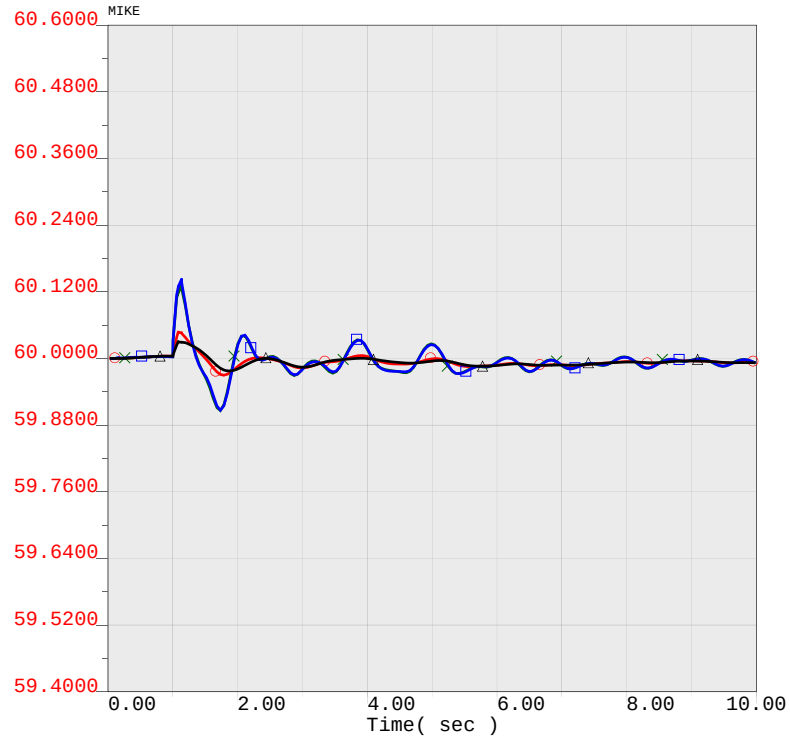


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Path 42 with IID RAS SCHEME
Case r2_s_nil_pst_maxgen_v15.SAV

p42_ras.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:54:43 2006

IID 230kV Frequency plots EC, CV, RMN, IV

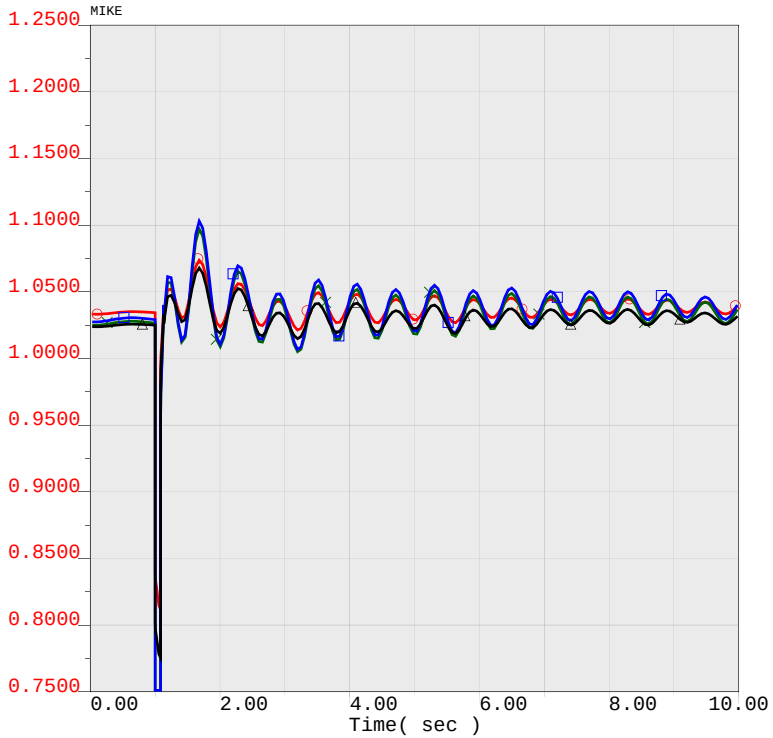


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Path 42 with IID RAS SCHEME
Case r2_s_nil_pst_maxgen_v15.SAV

p42_ras.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:54:43 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

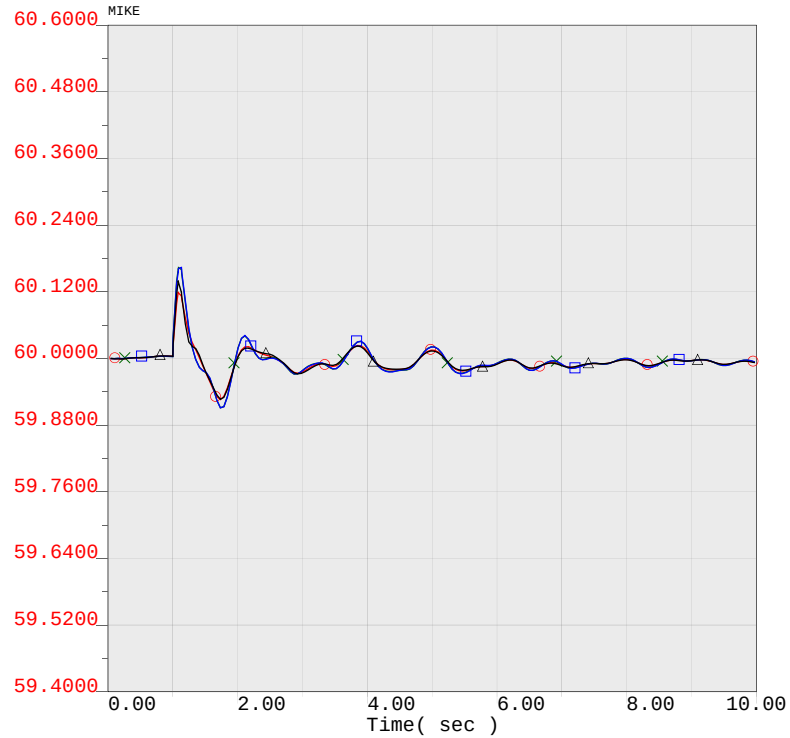


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Path 42 with IID RAS SCHEME
Case r2_s_nil_pst_maxgen_v15.SAV

p42_ras.chf
c:\upslf15\samples\plot15
Wed Jan 11 15:54:43 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

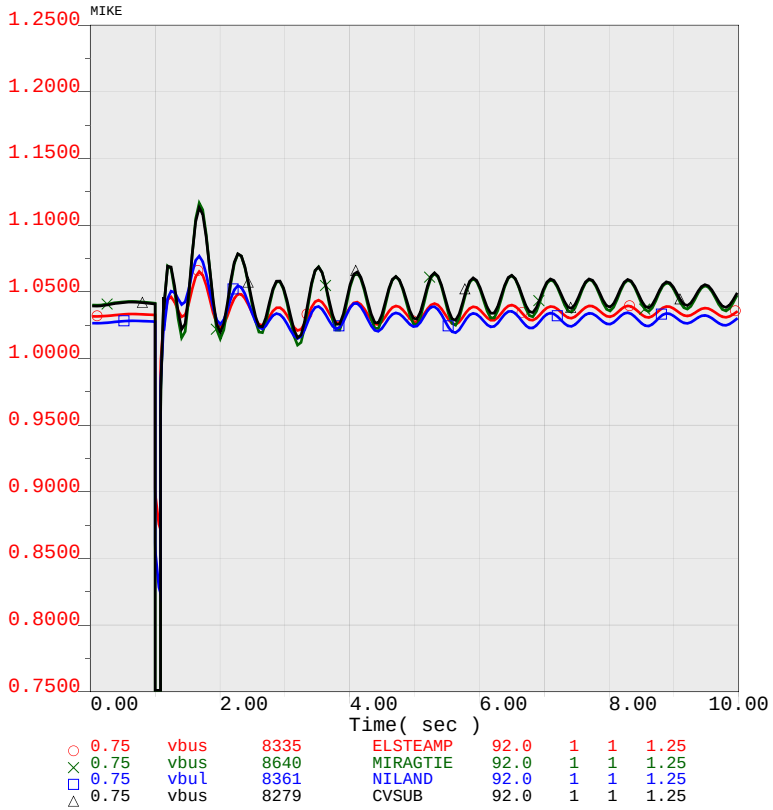


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Path 42 with IID RAS SCHEME
Case r2_s_nil_pst_maxgen_v15.SAV

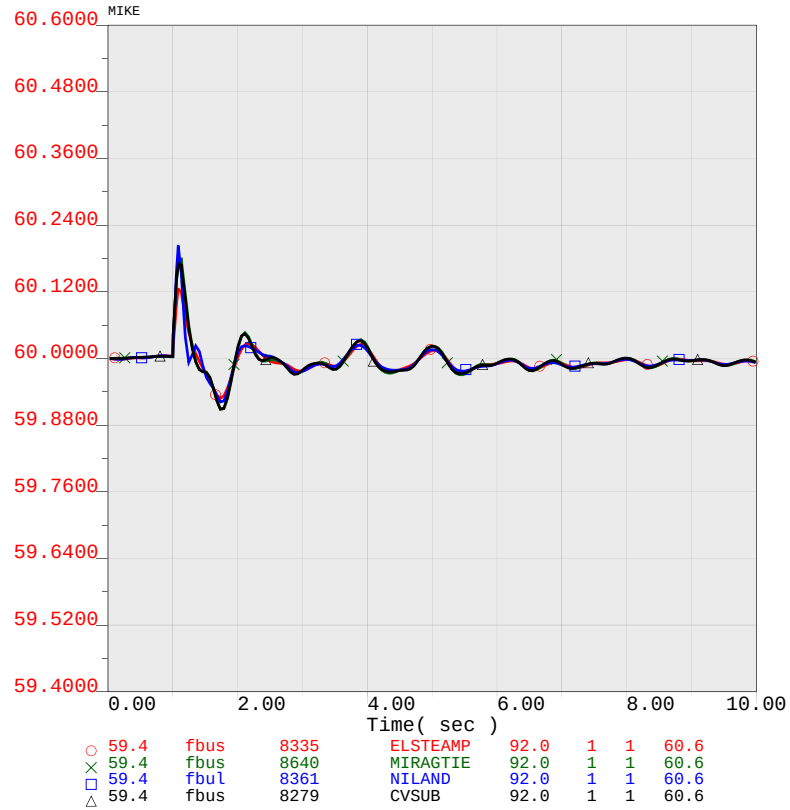
p42_ras.chf
c:\upslf15\samples\plot15
Wed Jan 11 15:54:43 2006

IID 92kV Voltage plots EC, MIR, NIL, CV



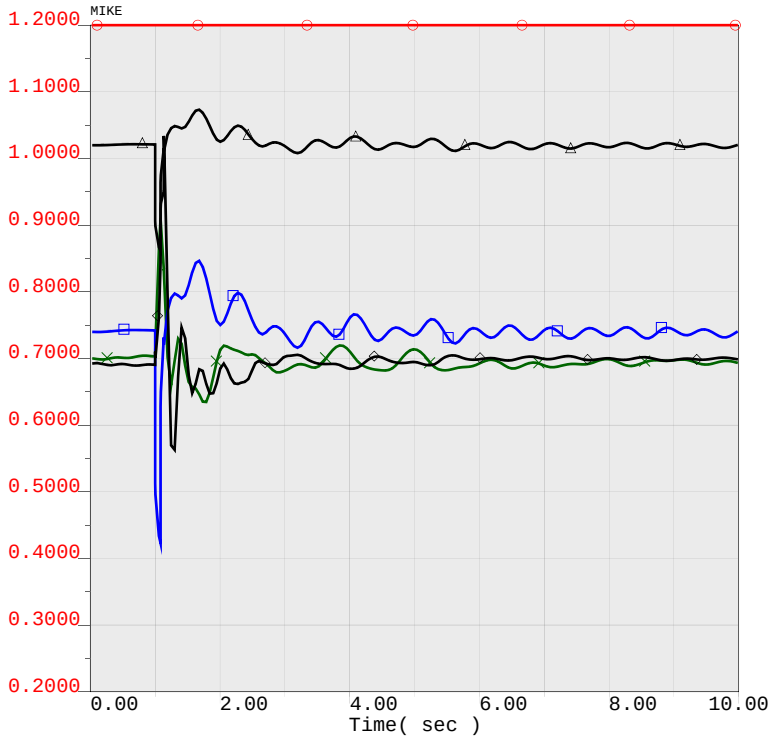
SIS NILAND STUDY
2008 Heavy Summer Case
Trip Path 42 with IID RAS SCHEME
Case r2_s_nil_pst_maxgen_v15.SAV

IID 92kV Frequncy plots EC, MIR, NIL, CV



SIS NILAND STUDY
2008 Heavy Summer Case
Trip Path 42 with IID RAS SCHEME
Case r2_s_nil_pst_maxgen_v15.SAV

Niland Generator Bus 8000

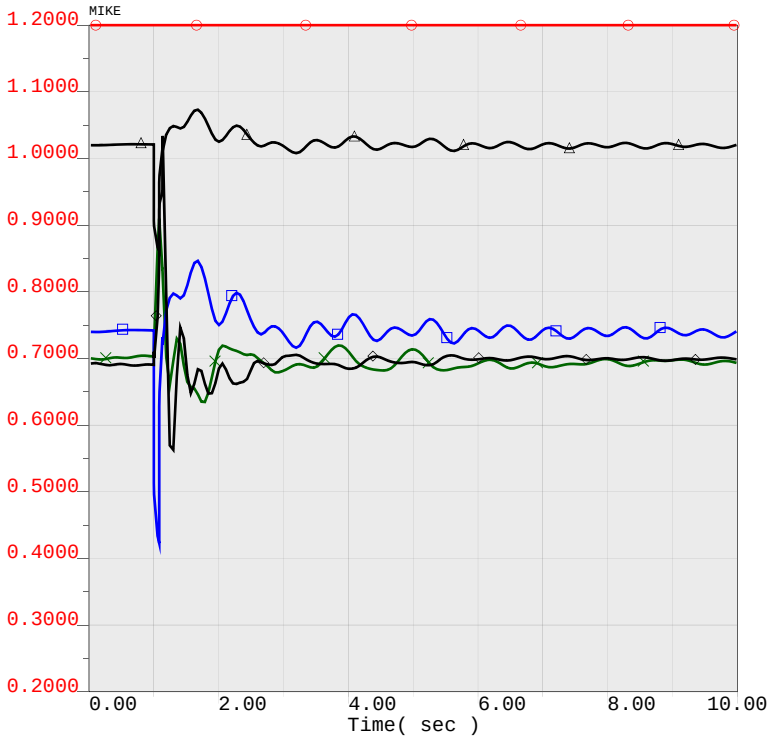


○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Path 42 with IID RAS SCHEME
Case r2_s_nil_pst_maxgen_v15.SAV

p42_ras.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:54:44 2006

Niland Generator Bus 8050

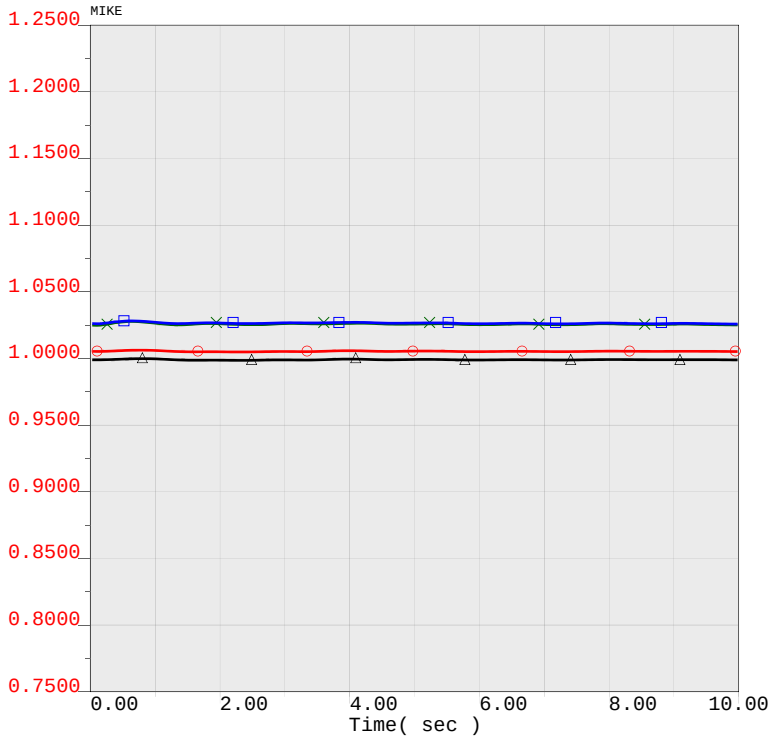


○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Path 42 with IID RAS SCHEME
Case r2_s_nil_pst_maxgen_v15.SAV

p42_ras.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:54:44 2006

IID 230kV Voltage plots EC, CV, RMN, IV



○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

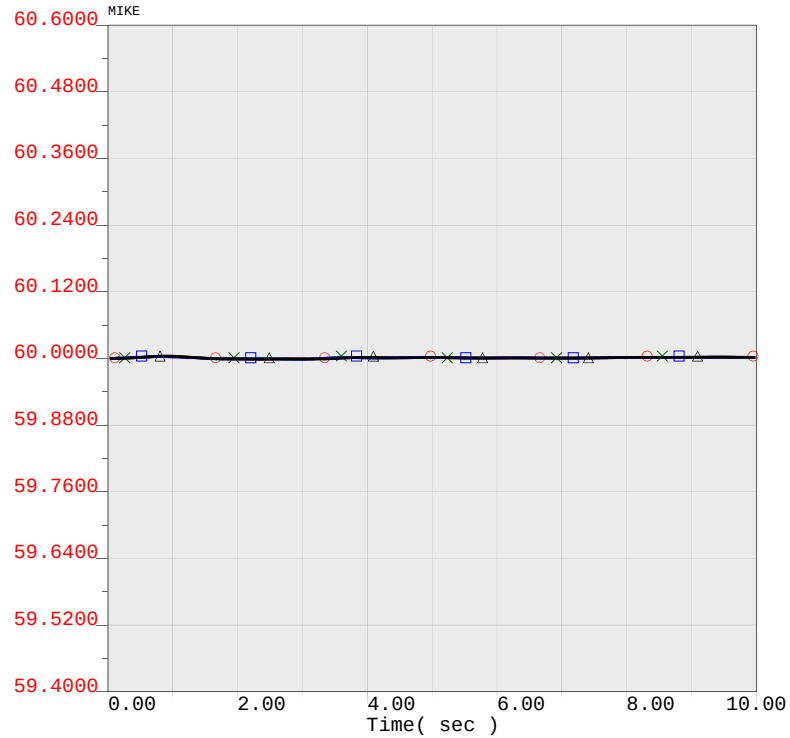
SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case r2_s_nil_pst_maxgen_v15.SAV

no_otg.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:35:32 2006

IID 230kV Frequency plots EC, CV, RMN, IV



○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

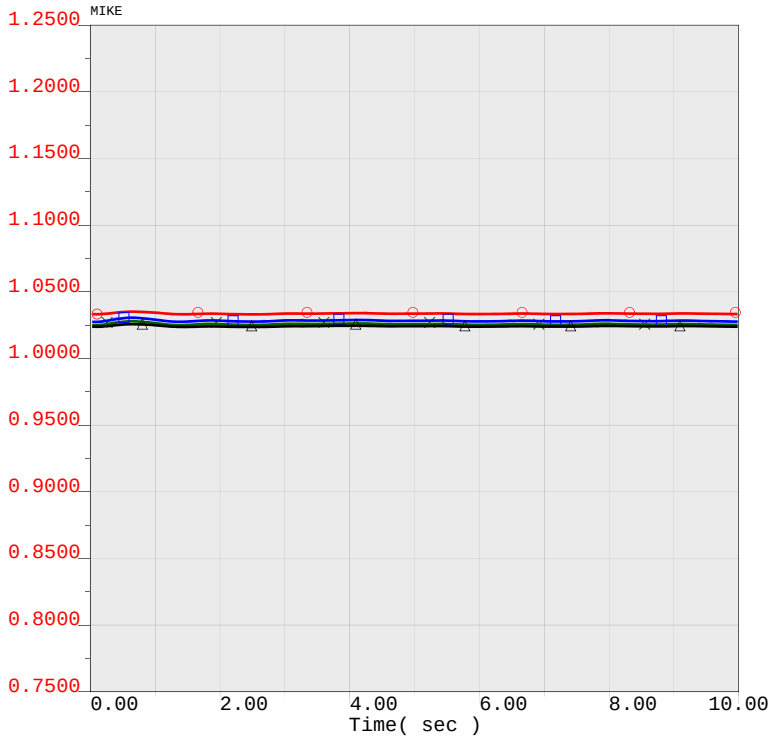
SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case r2_s_nil_pst_maxgen_v15.SAV

no_otg.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:35:32 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

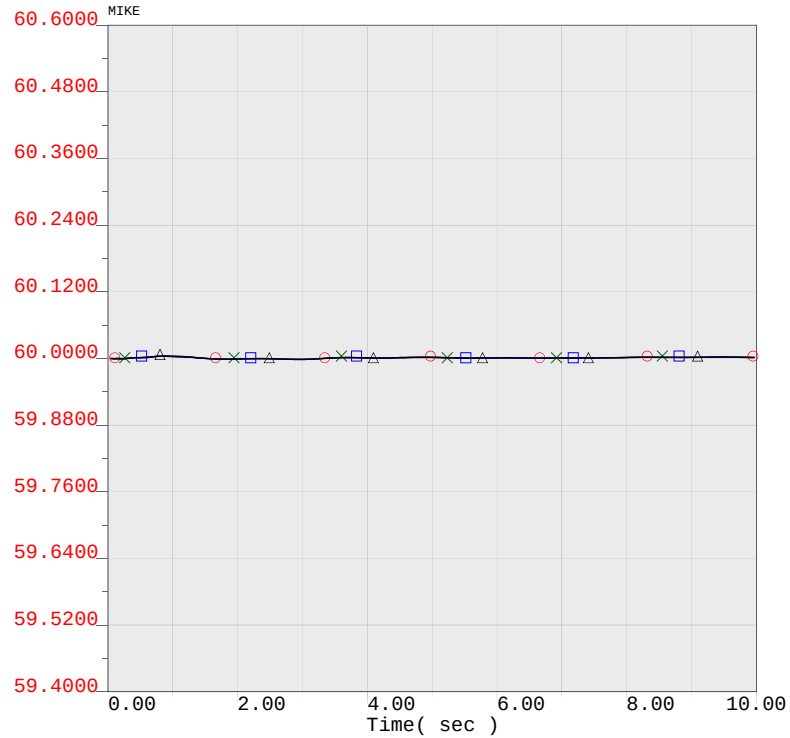


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case r2_s_nil_pst_maxgen_v15.SAV

no_otg.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:35:32 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

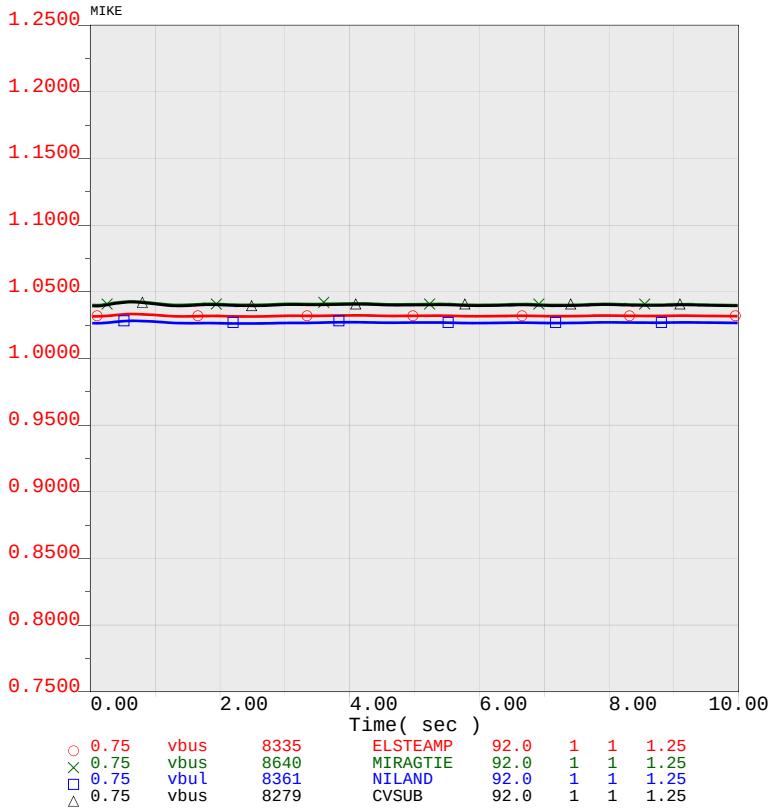


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case r2_s_nil_pst_maxgen_v15.SAV

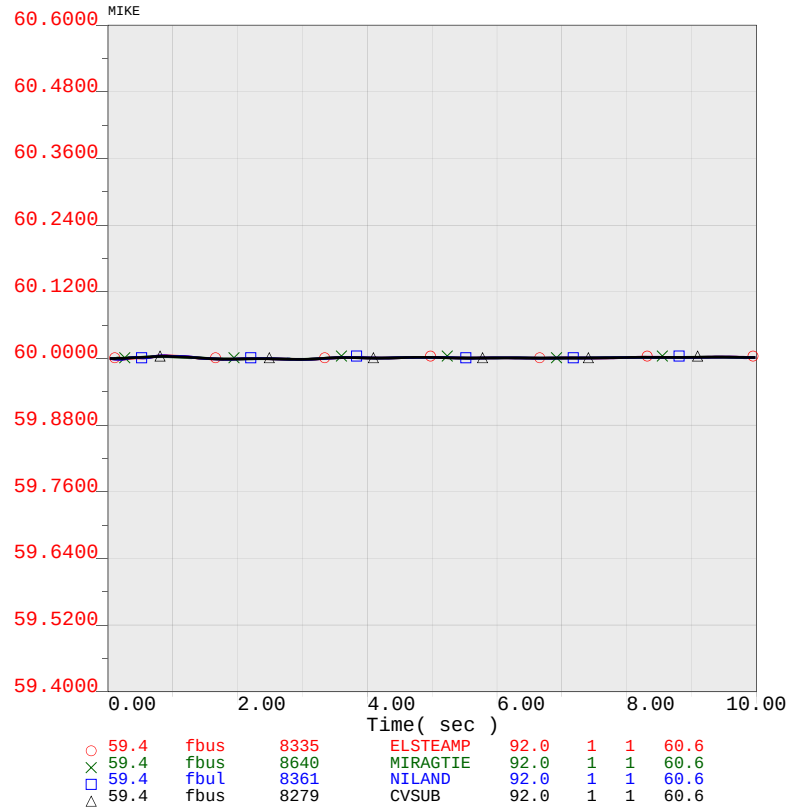
no_otg.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:35:32 2006

IID 92kV Voltage plots EC, MIR, NIL, CV



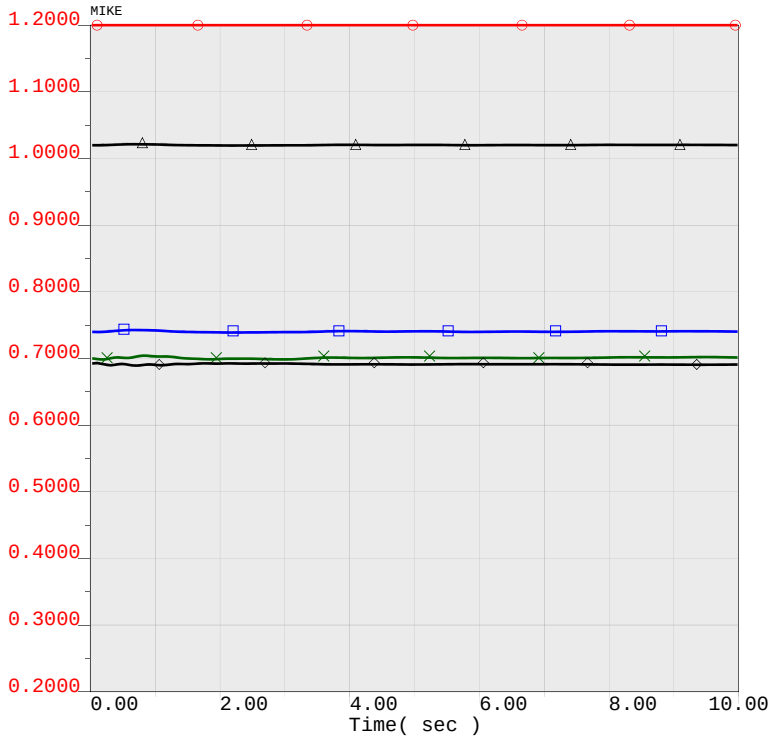
SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case r2_s_nil_pst_maxgen_v15.SAV

IID 92kV Frequncy plots EC, MIR, NIL, CV



SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case r2_s_nil_pst_maxgen_v15.SAV

Niland Generator Bus 8000

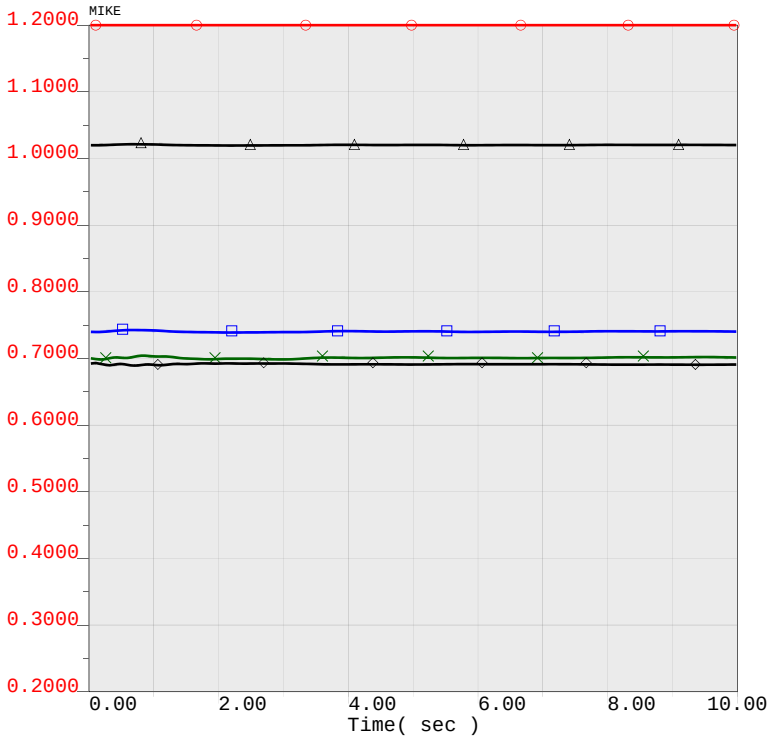


0.2	pg	8000	NILGEN	13.8	1	1	1.2
59.4	fbug	8000	NILGEN	13.8	1	1	60.6
0.75	vbug	8000	NILGEN	13.8	1	1	1.25
0.2	vt	8000	NILGEN	13.8	4	1	1.2
0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case r2_s_nil_pst_maxgen_v15.SAV

no_otg.chf
c:\upslf15\samples\plot15
Wed Jan 11 17:35:32 2006

Niland Generator Bus 8050

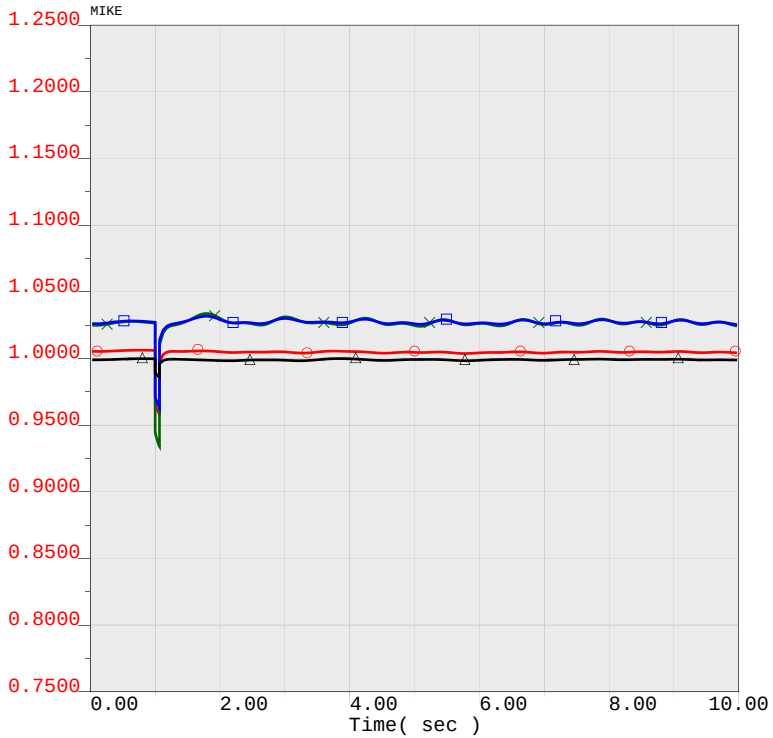


0.2	pg	8050	NILGEN2	13.8	1	1	1.2
59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
0.2	vt	8050	NILGEN2	13.8	4	1	1.2
0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip No Outage
Case r2_s_nil_pst_maxgen_v15.SAV

no_otg.chf
c:\upslf15\samples\plot15
Wed Jan 11 17:35:33 2006

IID 230kV Voltage plots EC, CV, RMN, IV

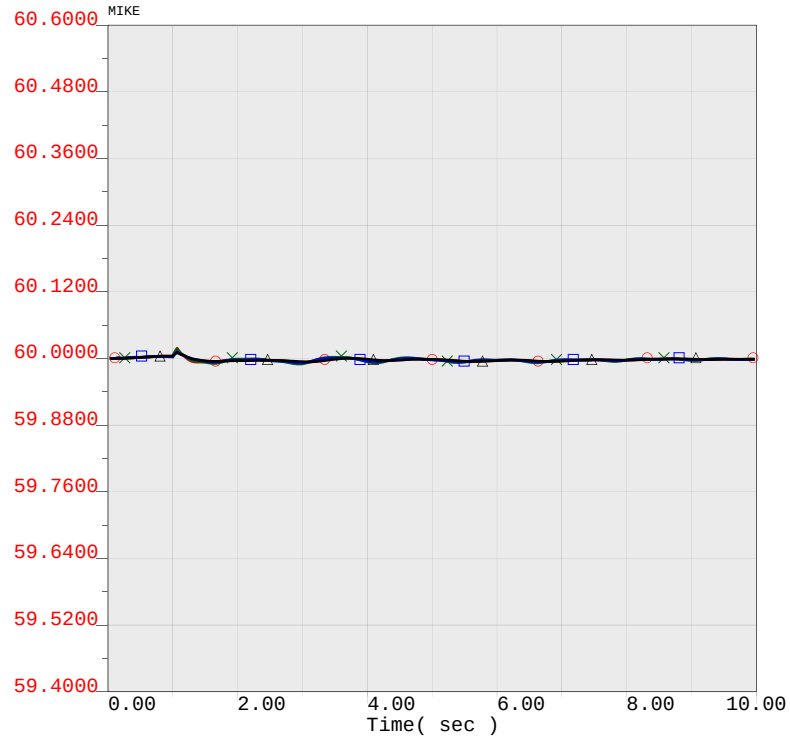


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland step-up transformers
Case r2_s_nil_pst_maxgen_v15.SAV

nixfmr92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:39:18 2006

IID 230kV Frequency plots EC, CV, RMN, IV

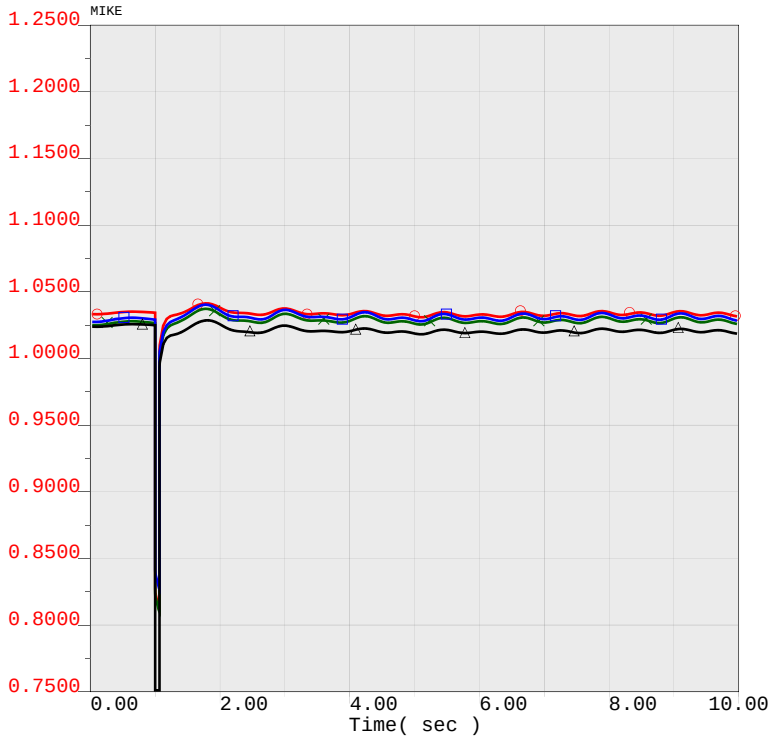


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland step-up transformers
Case r2_s_nil_pst_maxgen_v15.SAV

nixfmr92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:39:18 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

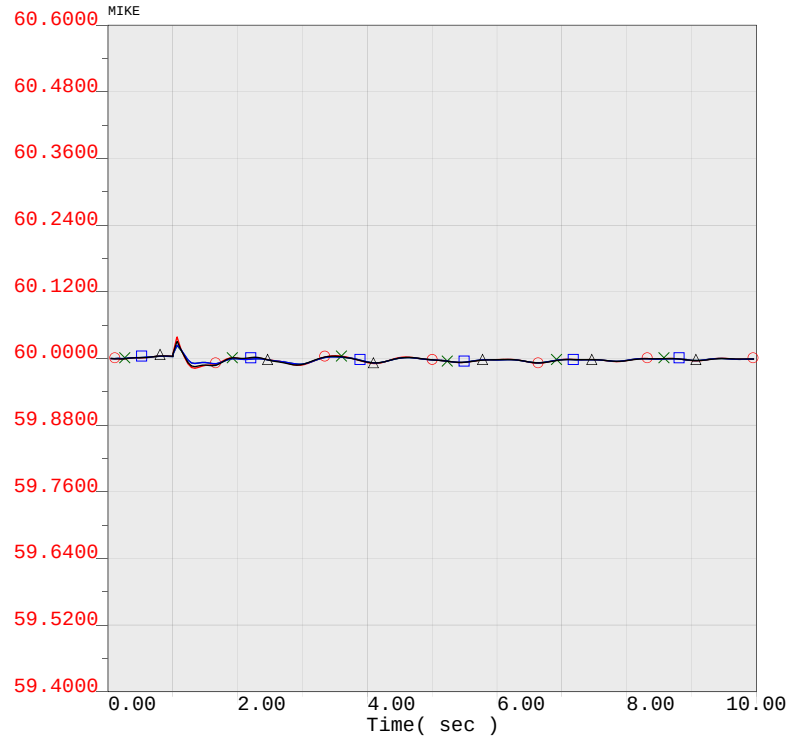


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland step-up transformers
Case r2_s_nil_pst_maxgen_v15.SAV

nixfmr92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:39:18 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

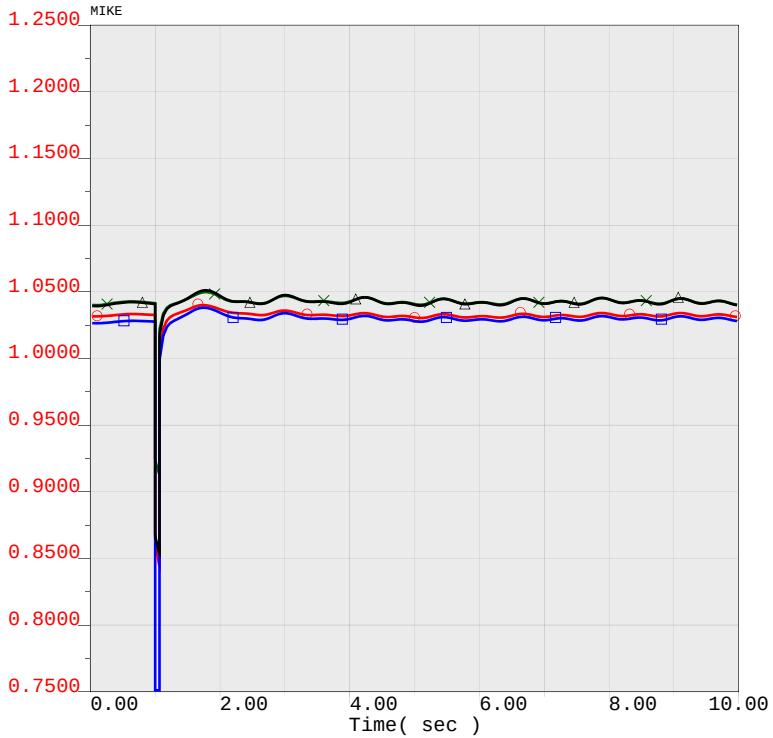


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland step-up transformers
Case r2_s_nil_pst_maxgen_v15.SAV

nixfmr92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:39:19 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

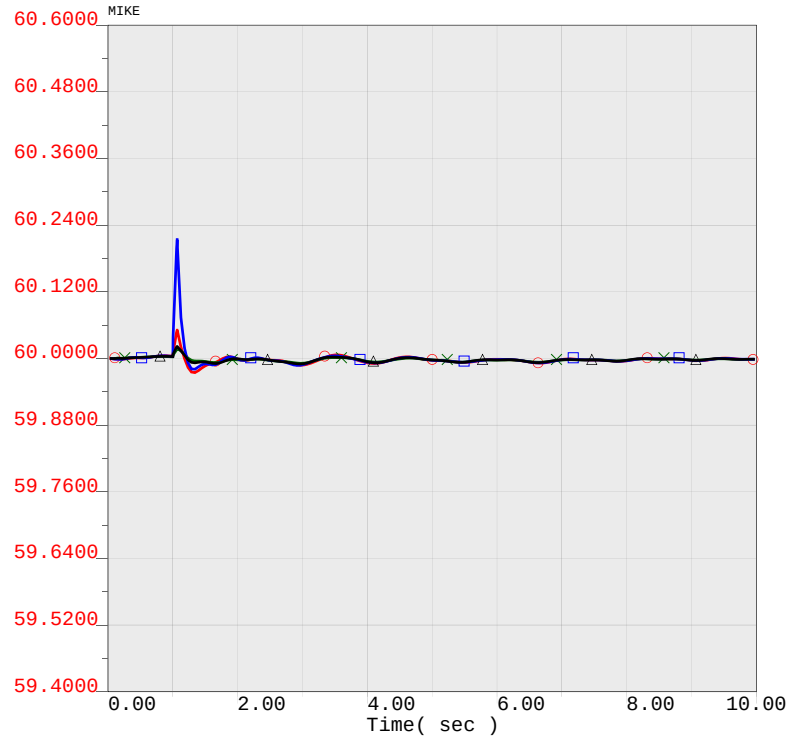


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland step-up transformers
Case r2_s_nil_pst_maxgen_v15.SAV

nixfmr92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:39:19 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

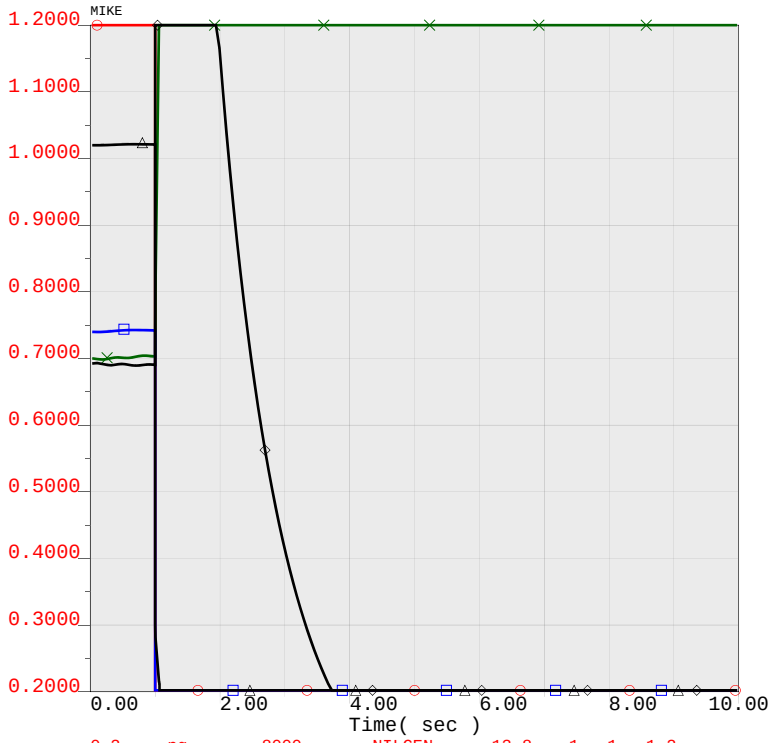


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland step-up transformers
Case r2_s_nil_pst_maxgen_v15.SAV

nixfmr92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:39:19 2006

Niland Generator Bus 8000

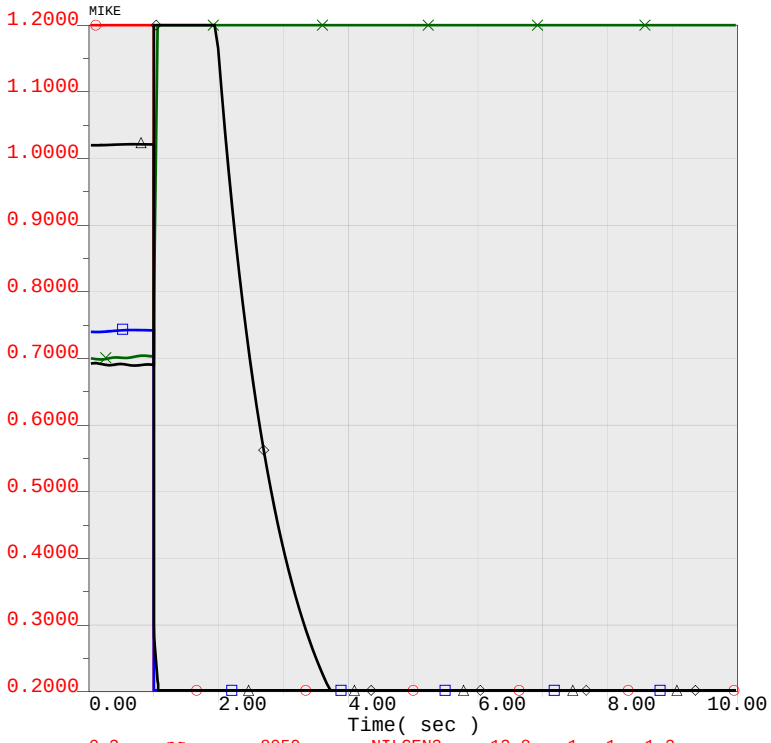


○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland step-up transformers
Case r2_s_nil_pst_maxgen_v15.SAV

nixfmr92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:39:19 2006

Niland Generator Bus 8050

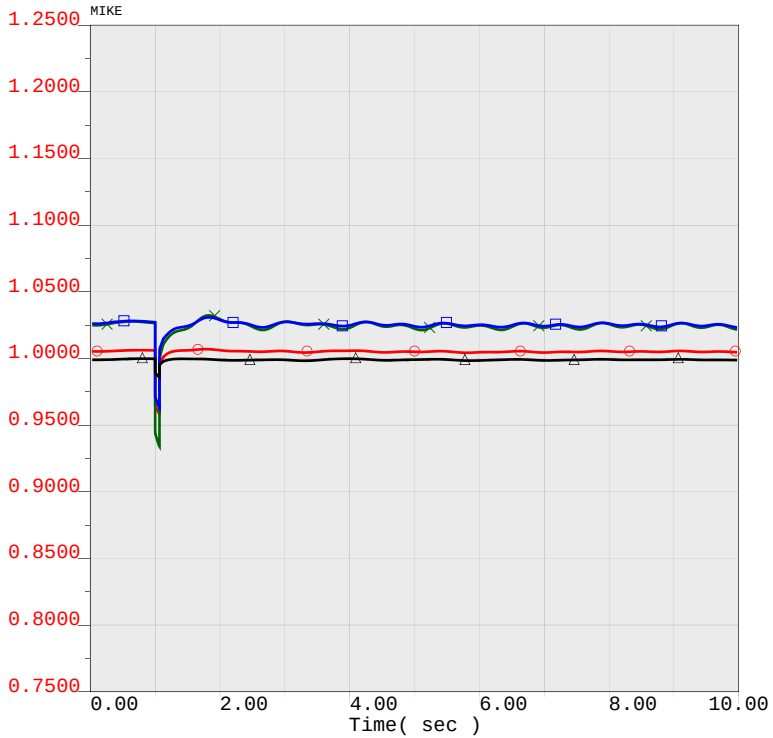


○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland step-up transformers
Case r2_s_nil_pst_maxgen_v15.SAV

nixfmr92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:39:19 2006

IID 230kV Voltage plots EC, CV, RMN, IV

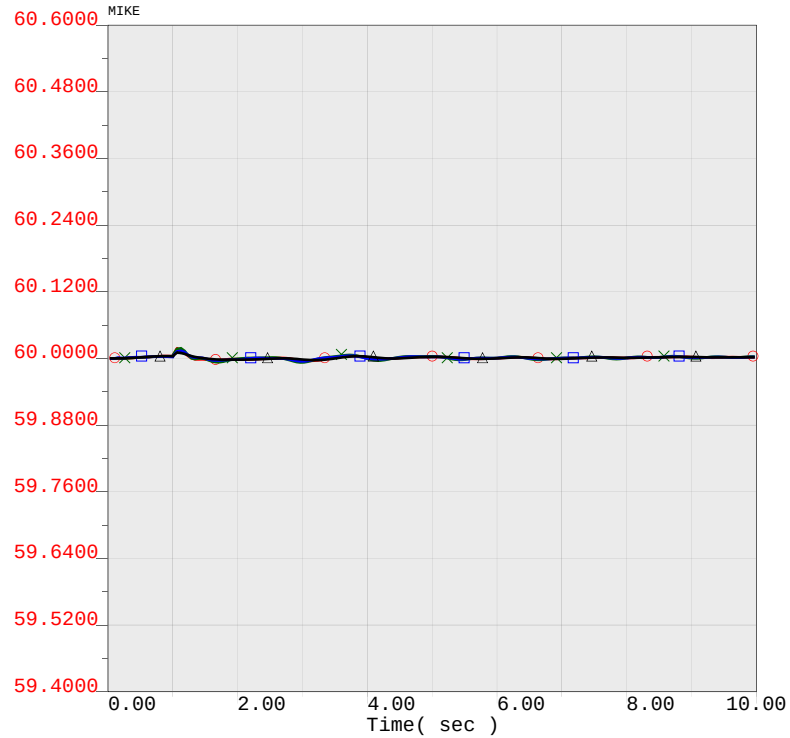


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-pr-bm.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:43:57 2006

IID 230kV Frequency plots EC, CV, RMN, IV

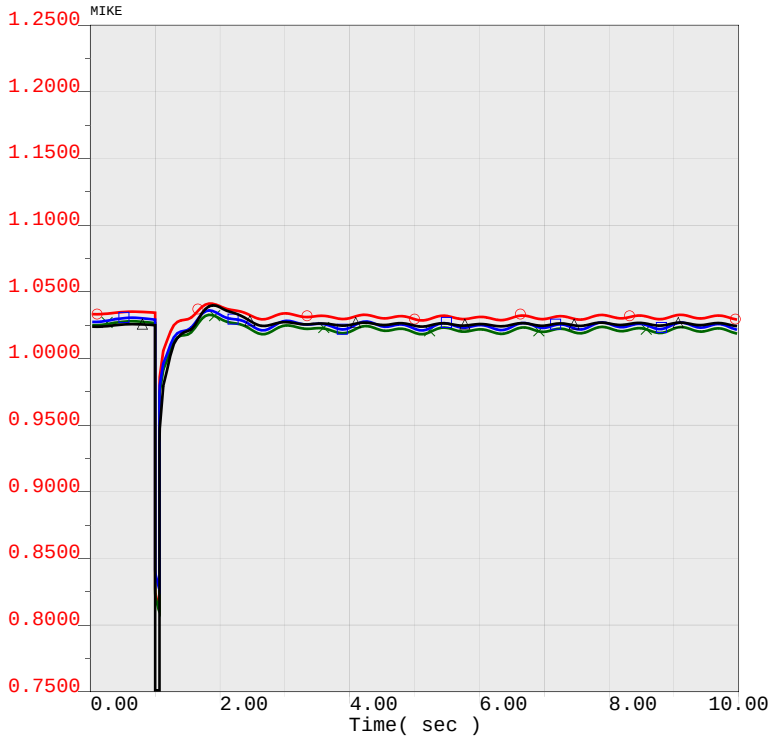


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-pr-bm.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:43:58 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

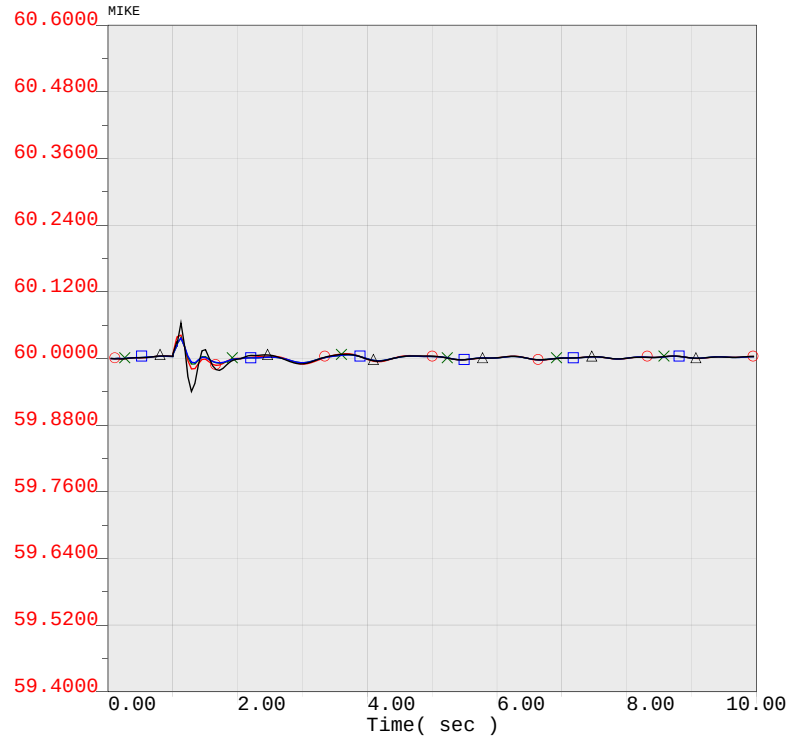


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-pr-bm.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:43:58 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

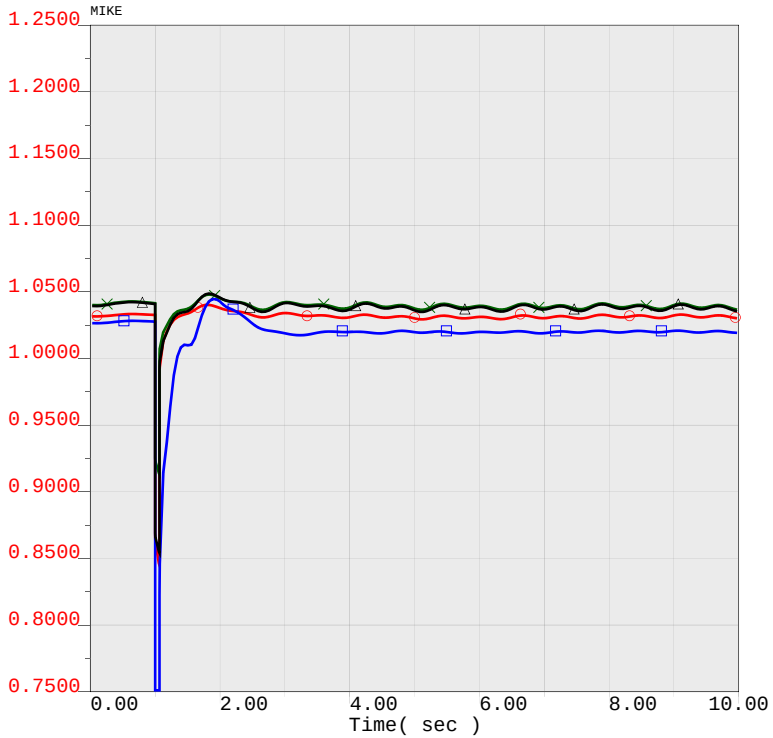


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-pr-bm.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:43:58 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

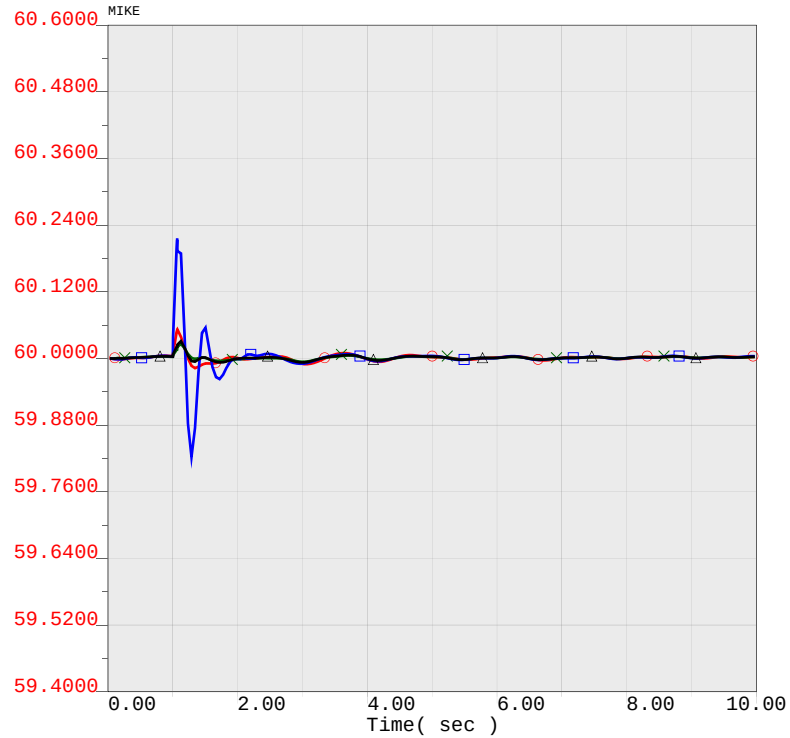


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-pr-bm.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:43:58 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

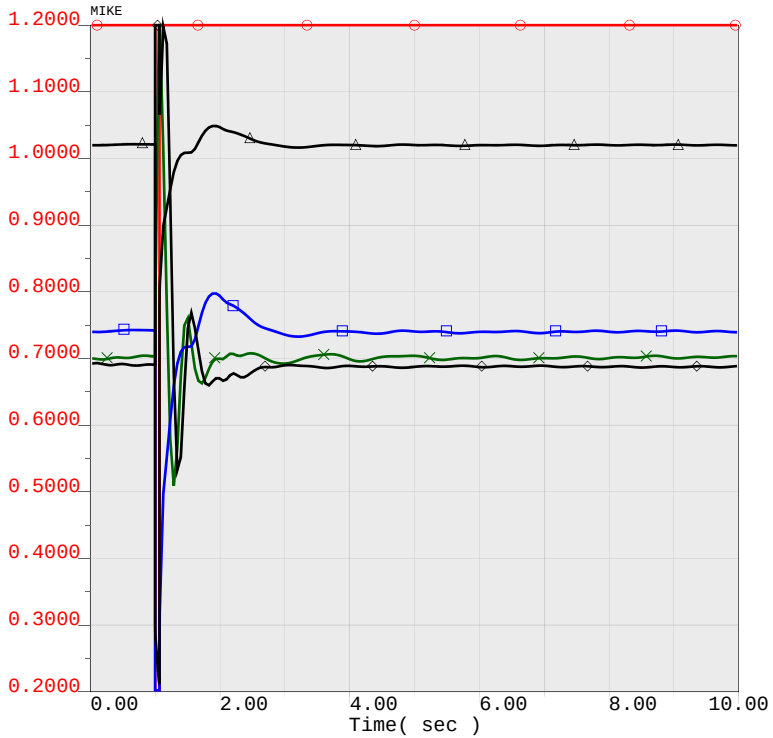


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-pr-bm.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:43:58 2006

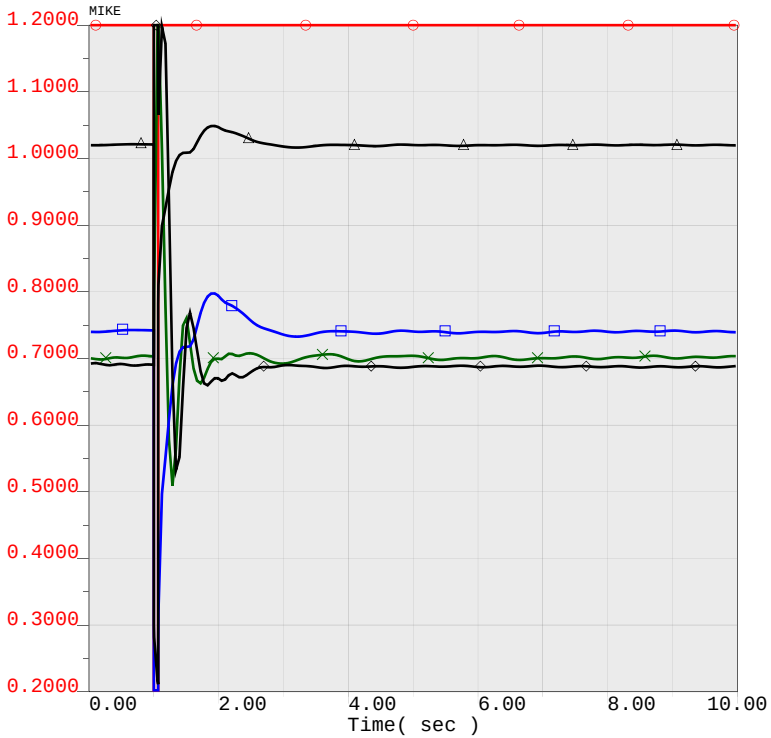
Niland Generator Bus 8000



○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

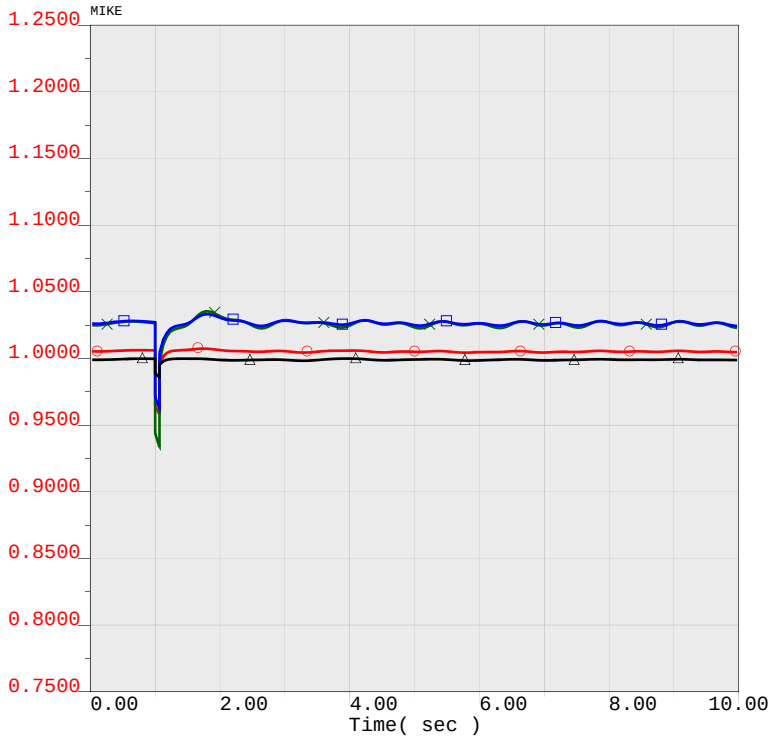
Niland Generator Bus 8050



○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1/NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

IID 230kV Voltage plots EC, CV, RMN, IV

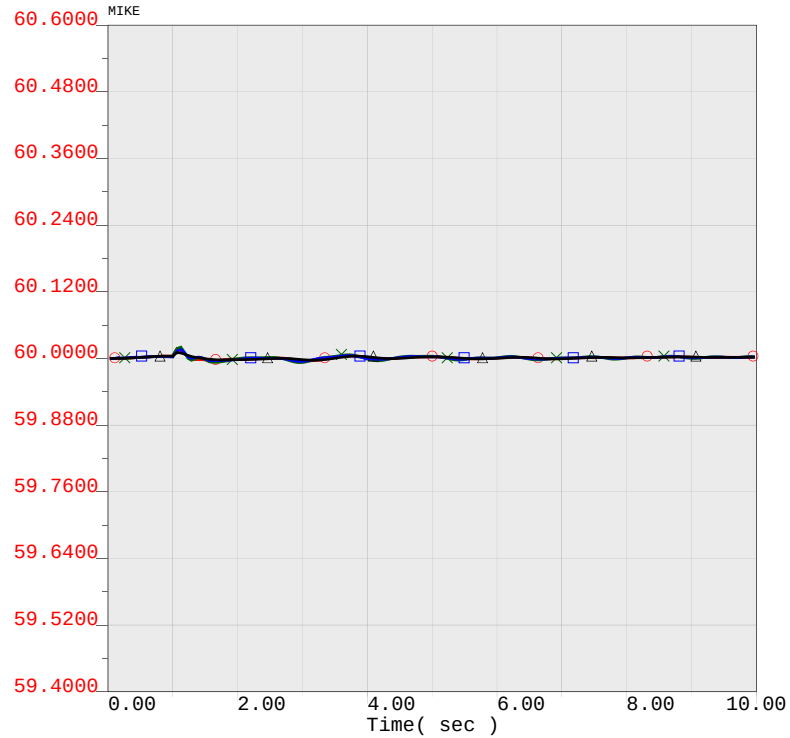


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-pri.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:52:01 2006

IID 230kV Frequency plots EC, CV, RMN, IV

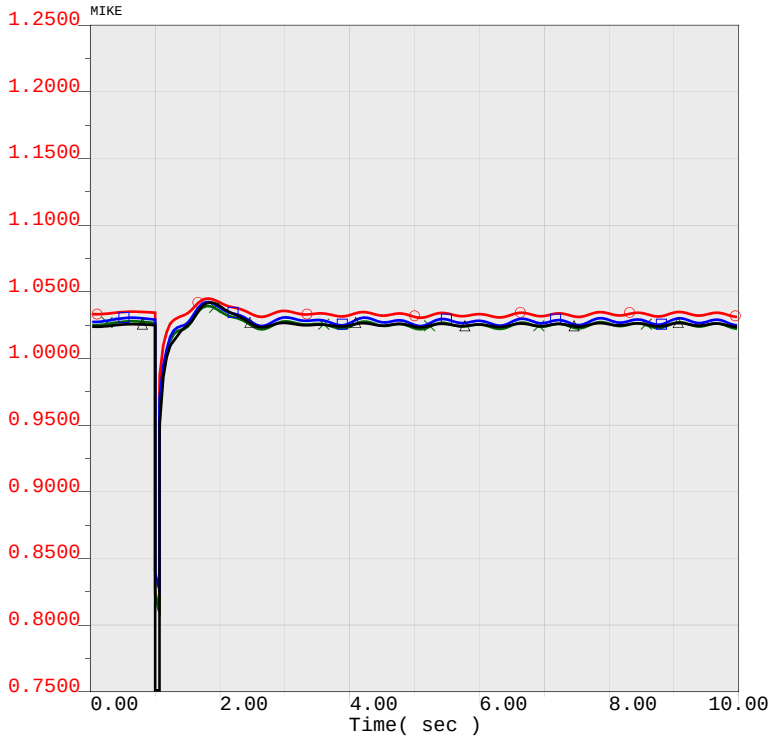


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-pri.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:52:01 2006

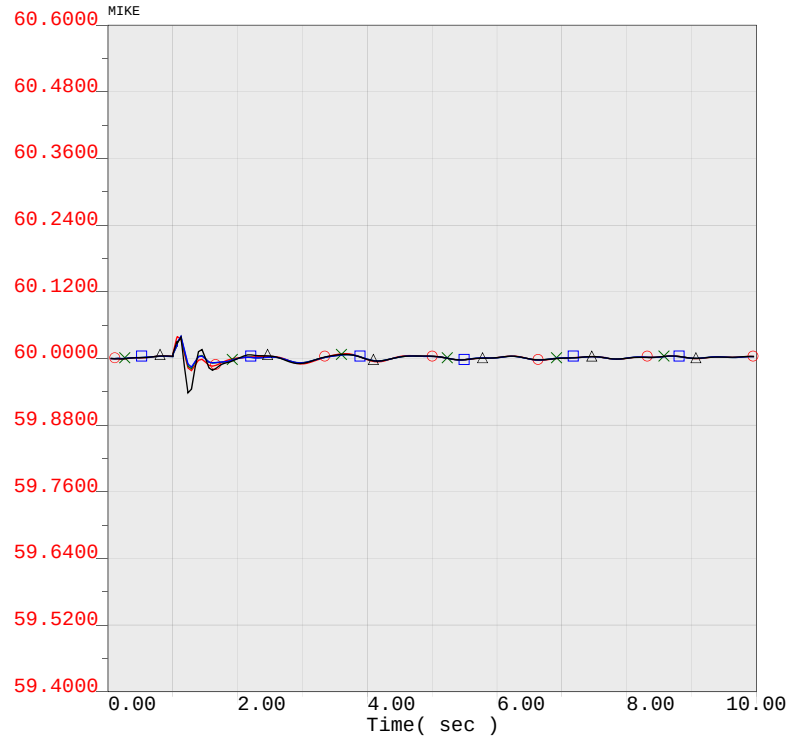
IID 161kV Voltage plots EC, CV, AV58, NIL



○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

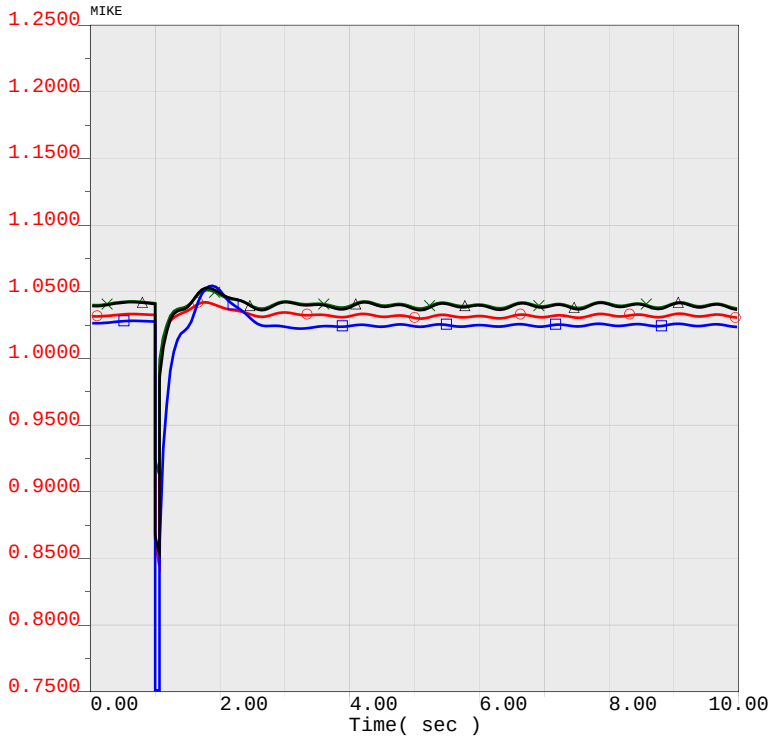
IID 161kV Frequncy plots EC, CV, AV58, NIL



○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

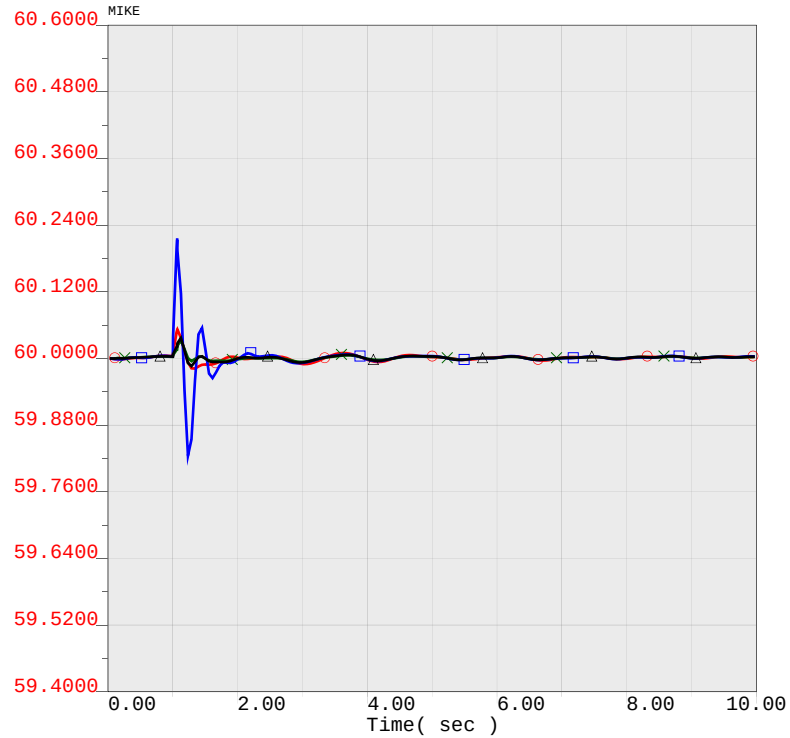
IID 92kV Voltage plots EC, MIR, NIL, CV



○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

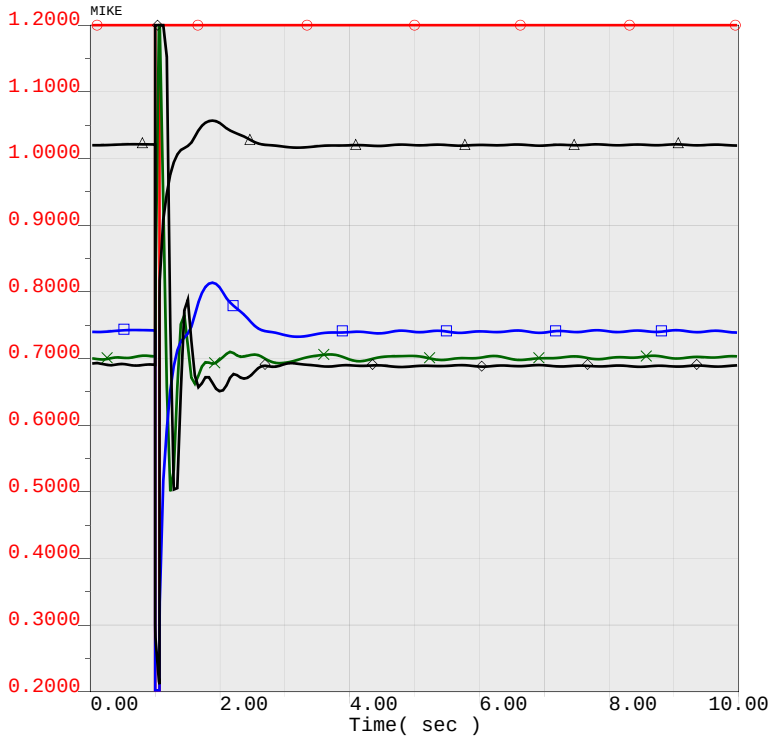
IID 92kV Frequncy plots EC, MIR, NIL, CV



○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

Niland Generator Bus 8000

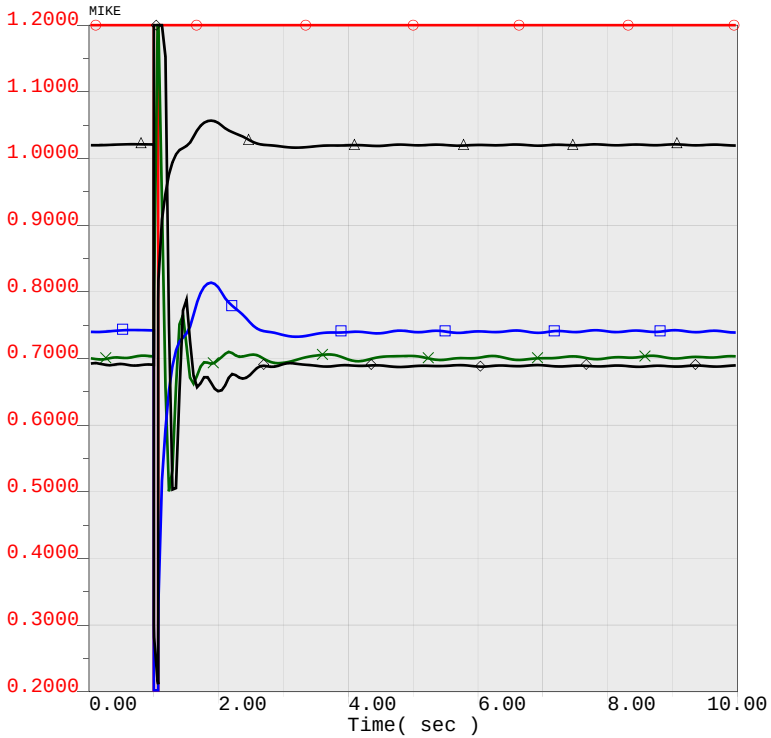


○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-pri.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:52:02 2006

Niland Generator Bus 8050

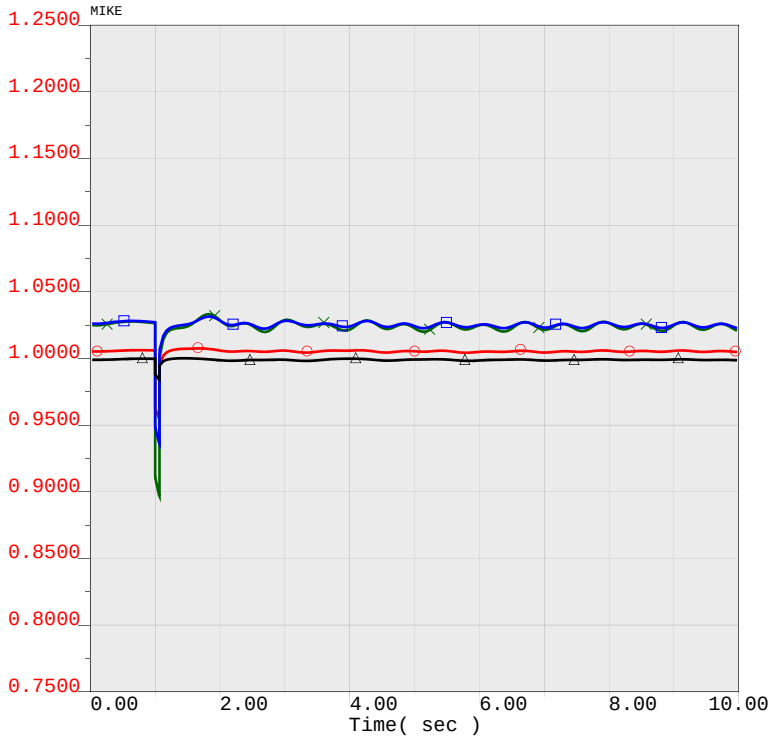


○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-PRITP1 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-pri.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:52:02 2006

IID 230kV Voltage plots EC, CV, RMN, IV



○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

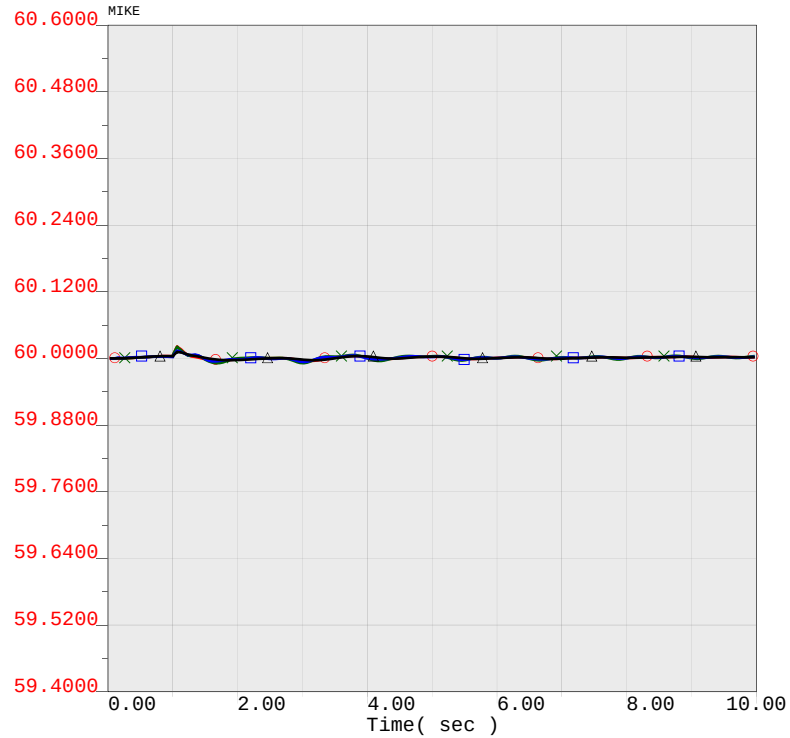
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-cvn1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:02:14 2006

IID 230kV Frequency plots EC, CV, RMN, IV



○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

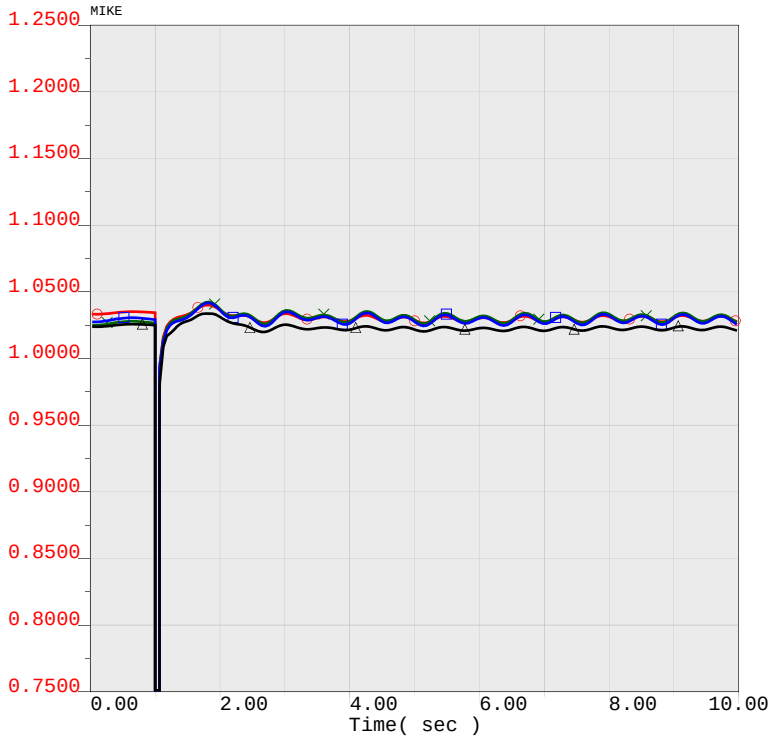
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-cvn1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:02:14 2006

IID 161kV Voltage plots EC, CV, AV58, NIL



○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

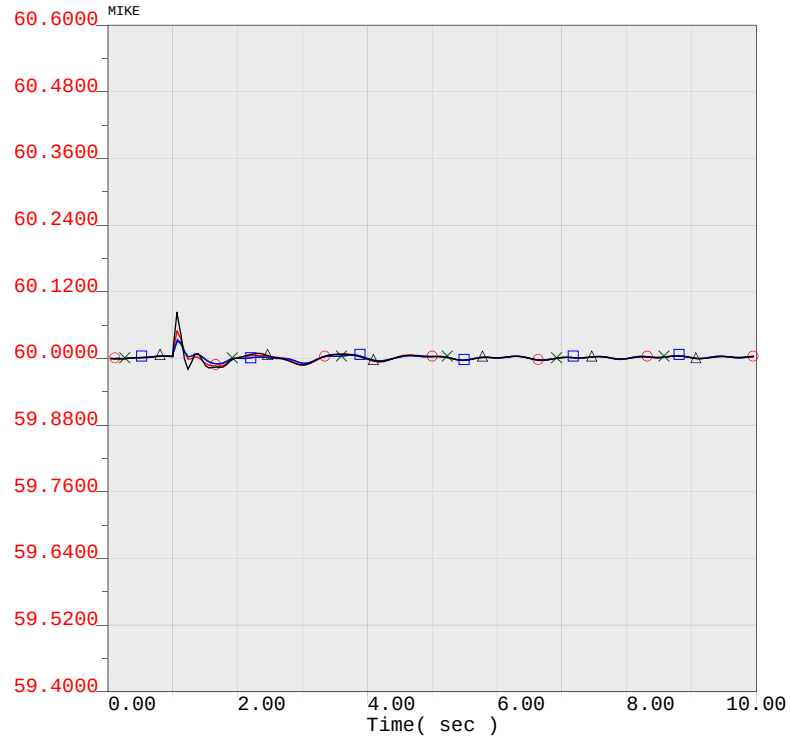
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-cvn1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:02:14 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL



○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

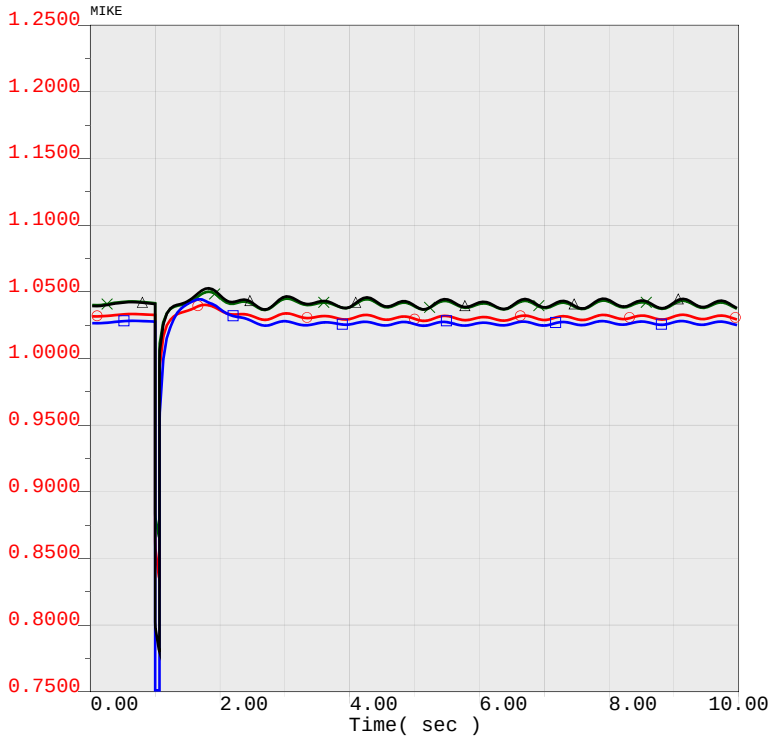
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-cvn1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:02:14 2006

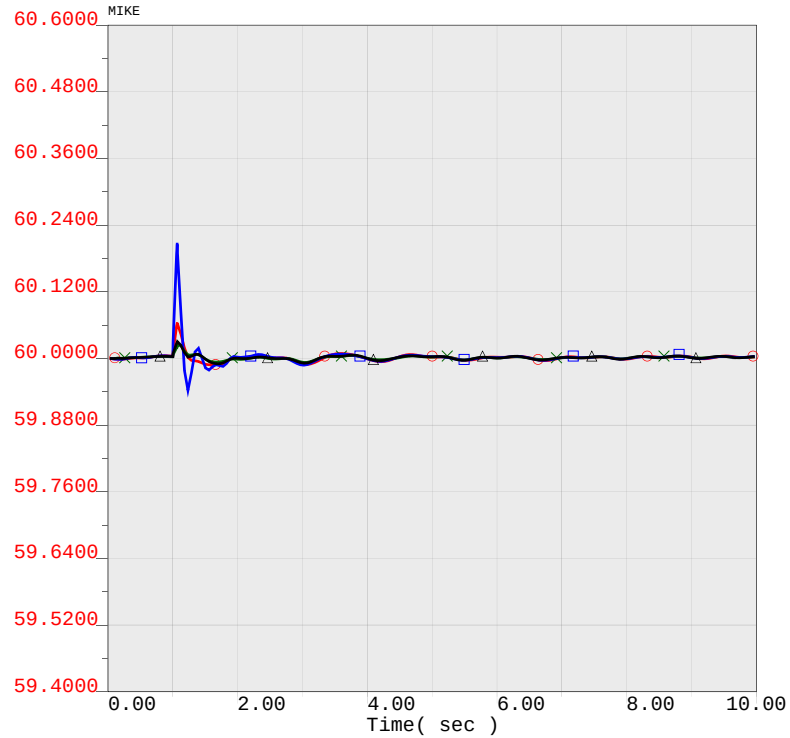
IID 92kV Voltage plots EC, MIR, NIL, CV



○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

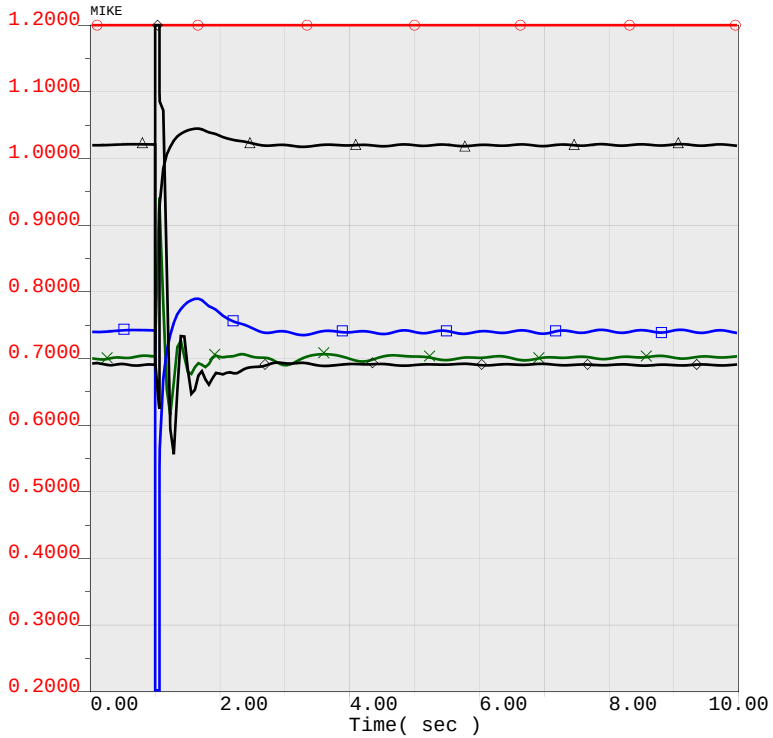
IID 92kV Frequncy plots EC, MIR, NIL, CV



○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

Niland Generator Bus 8000

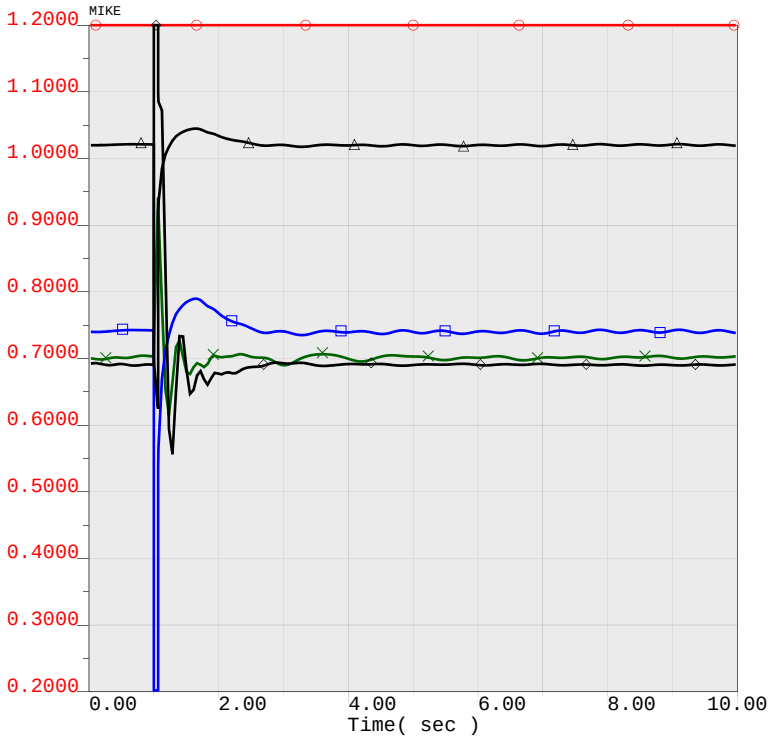


○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-cvn1.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:02:15 2006

Niland Generator Bus 8050

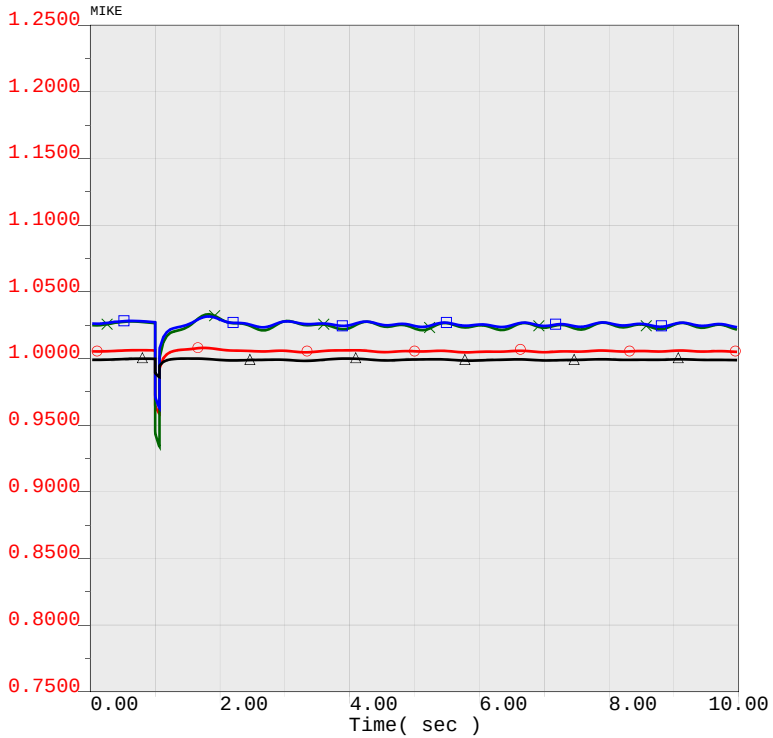


○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-CVSUB161 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-cvn1.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:02:15 2006

IID 230kV Voltage plots EC, CV, RMN, IV

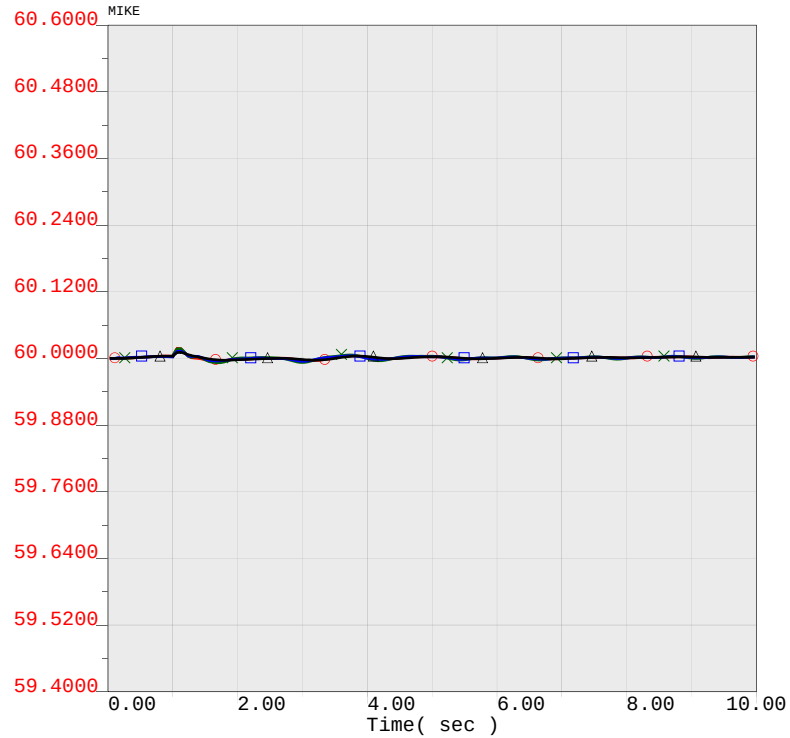


○ 0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
× 0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□ 0.75	vbus	8695	RAMON	230.0	1	1	1.25
△ 0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bom.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:47:52 2006

IID 230kV Frequency plots EC, CV, RMN, IV

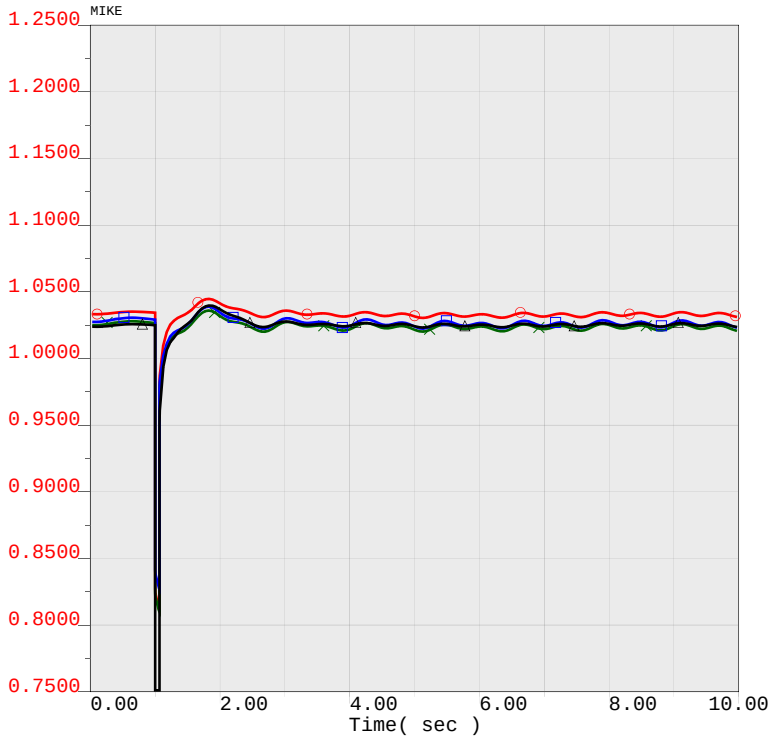


○ 59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
× 59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□ 59.4	fbus	8695	RAMON	230.0	1	1	60.6
△ 59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bom.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:47:52 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

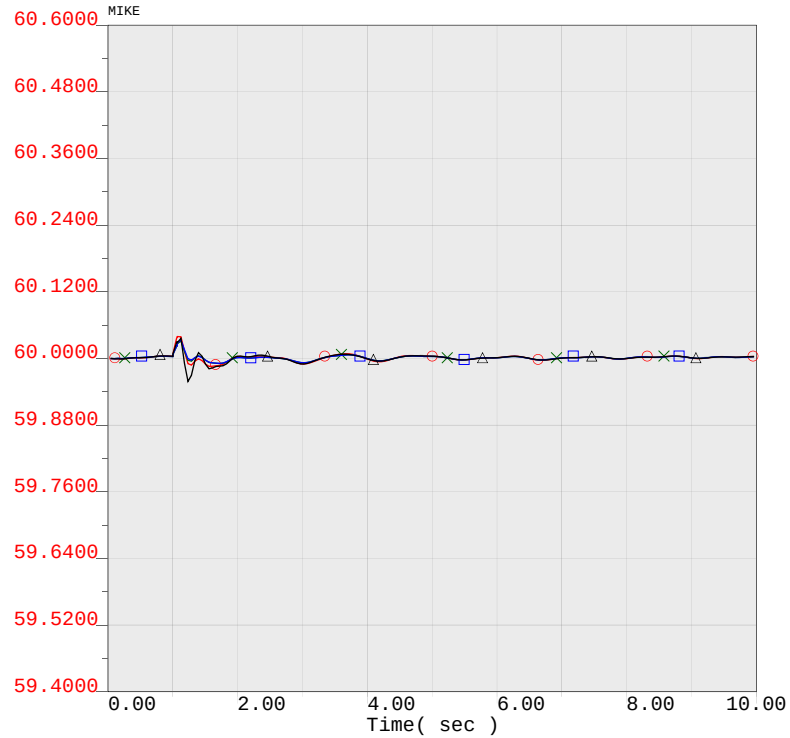


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bom.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:47:52 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

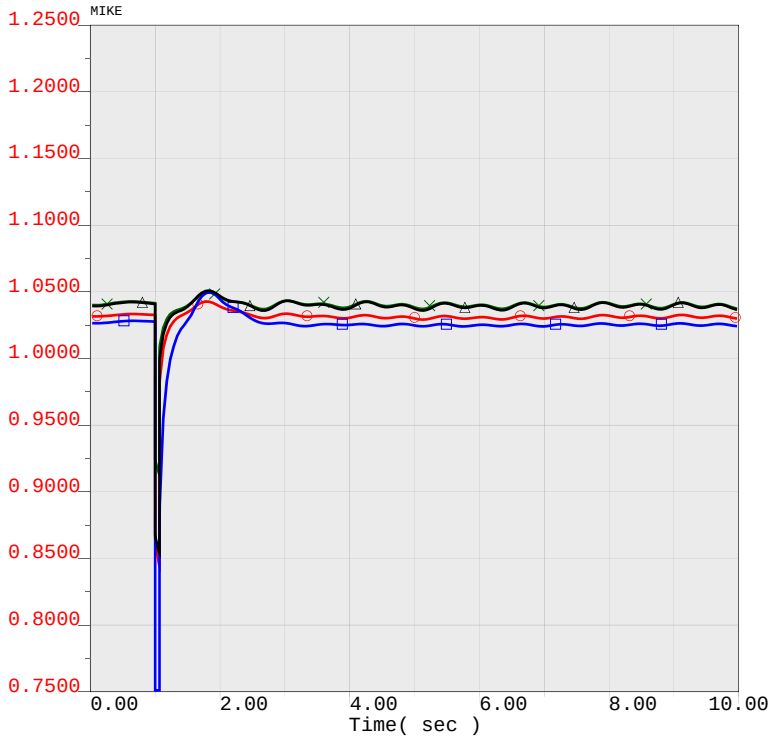


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bom.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:47:52 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

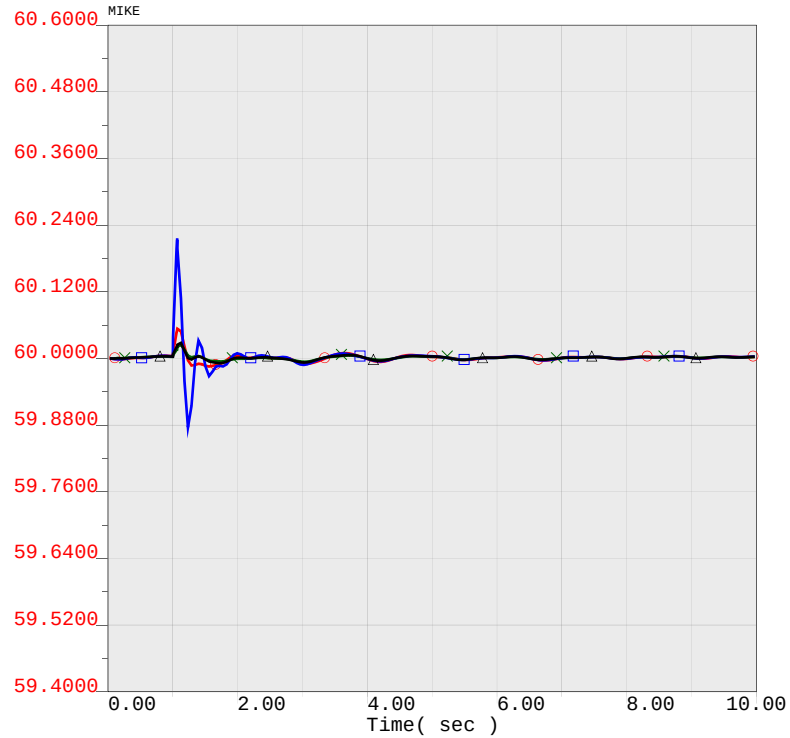


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bom.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:47:52 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

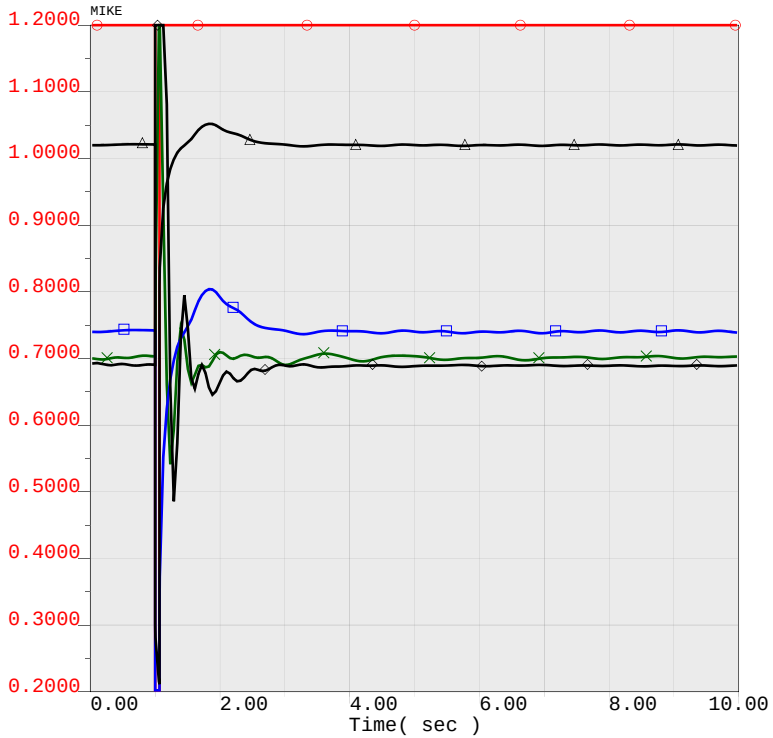


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bom.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:47:53 2006

Niland Generator Bus 8000

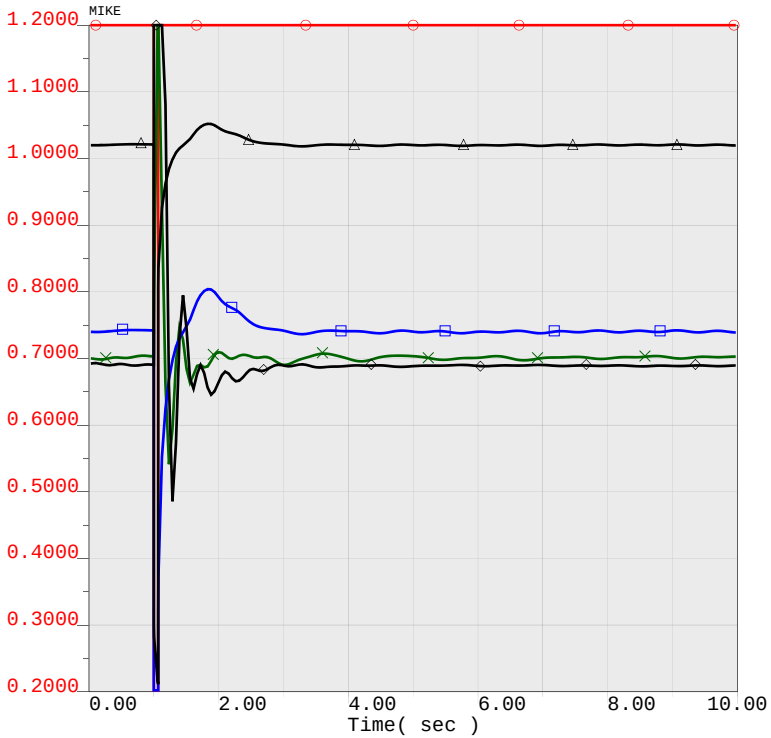


○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bom.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:47:53 2006

Niland Generator Bus 8050

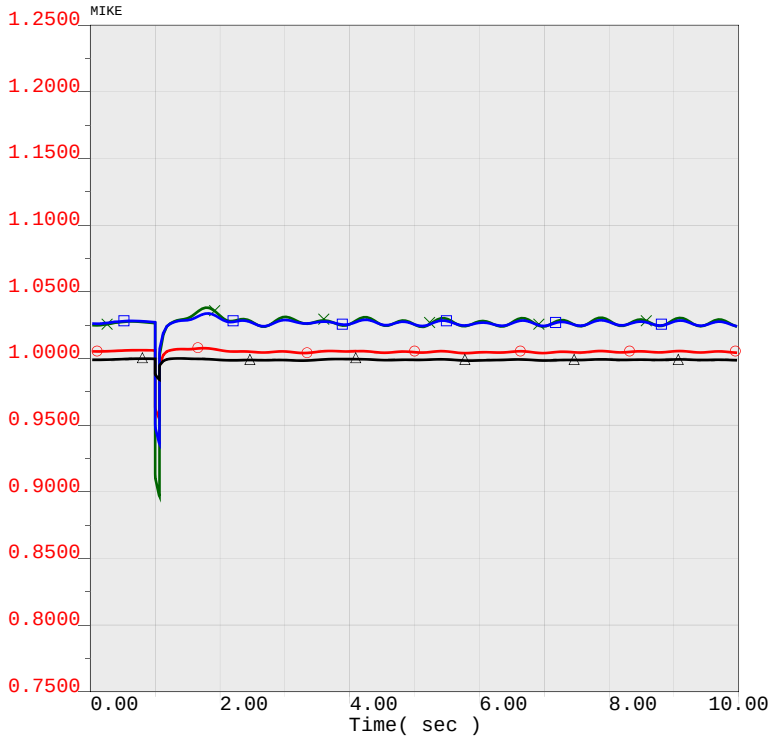


○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BOMBAY 92kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bom.chf | c:\upslf15\samples\plot15 | Wed Jan 11 15:47:53 2006

IID 230kV Voltage plots EC, CV, RMN, IV



○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

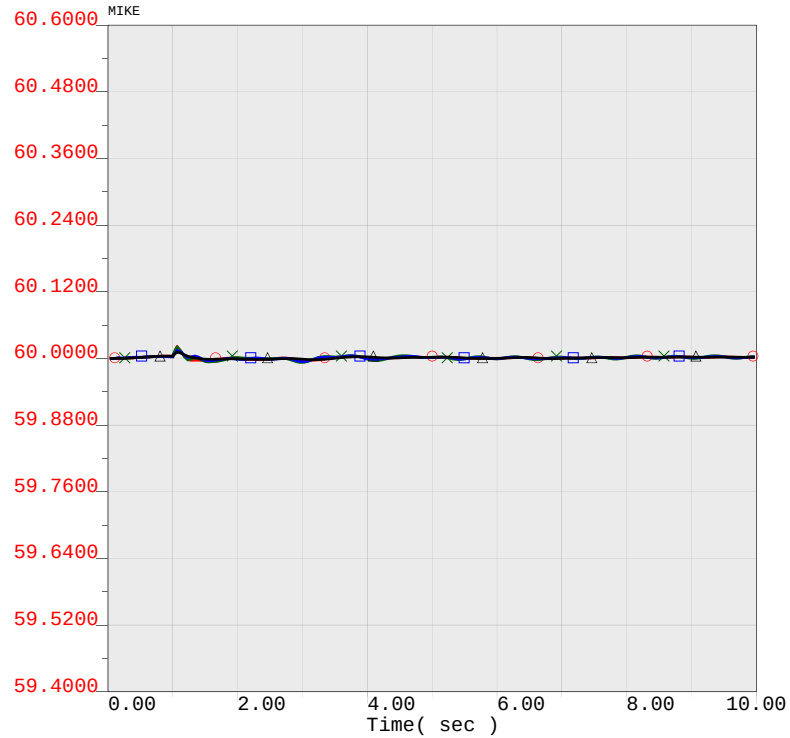
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bly1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:40:52 2006

IID 230kV Frequency plots EC, CV, RMN, IV



○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

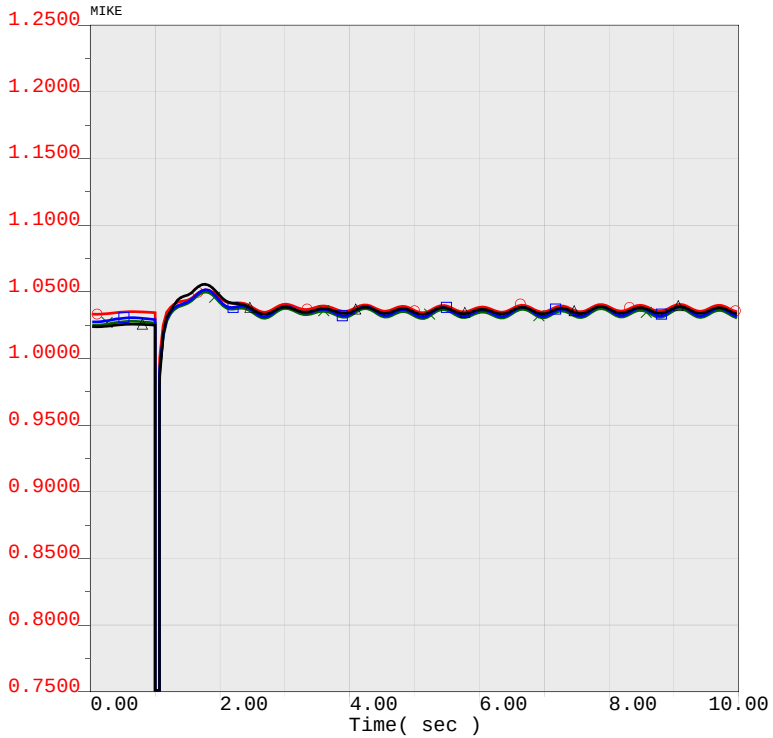
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bly1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:40:53 2006

IID 161kV Voltage plots EC, CV, AV58, NIL



○	0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
×	0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□	0.75	vbus	8805	AV58	161.0	1	1	1.25
△	0.75	vbus	8359	NILAND	161.0	1	1	1.25

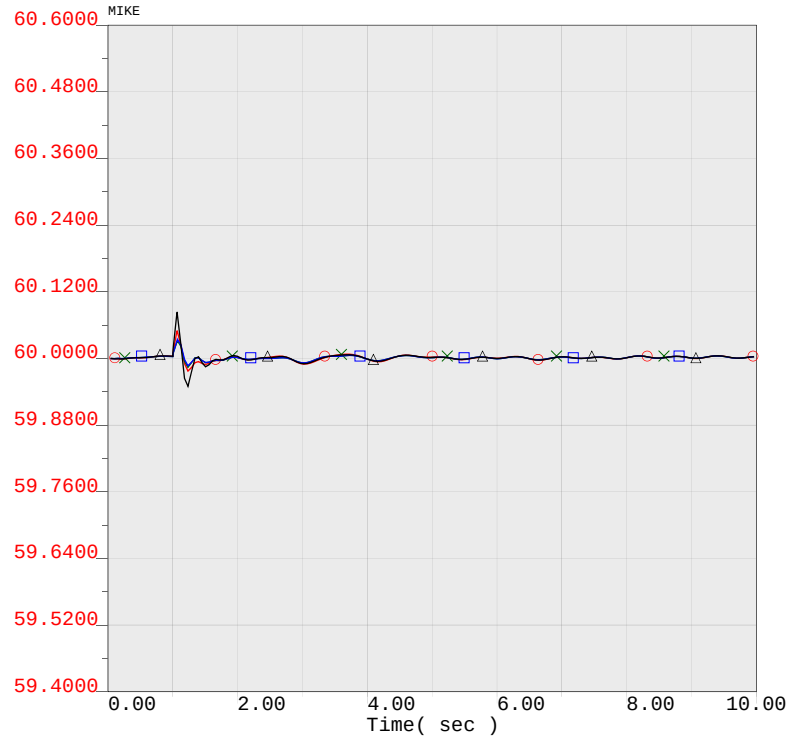
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bly1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:40:53 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL



○	59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
×	59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□	59.4	fbus	8805	AV58	161.0	1	1	60.6
△	59.4	fbus	8359	NILAND	161.0	1	1	60.6

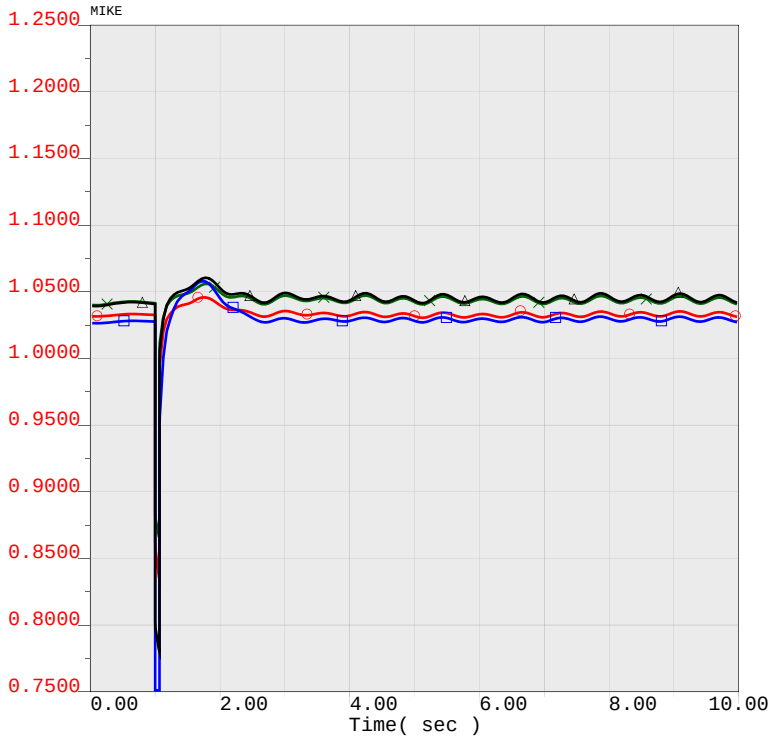
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bly1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:40:53 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

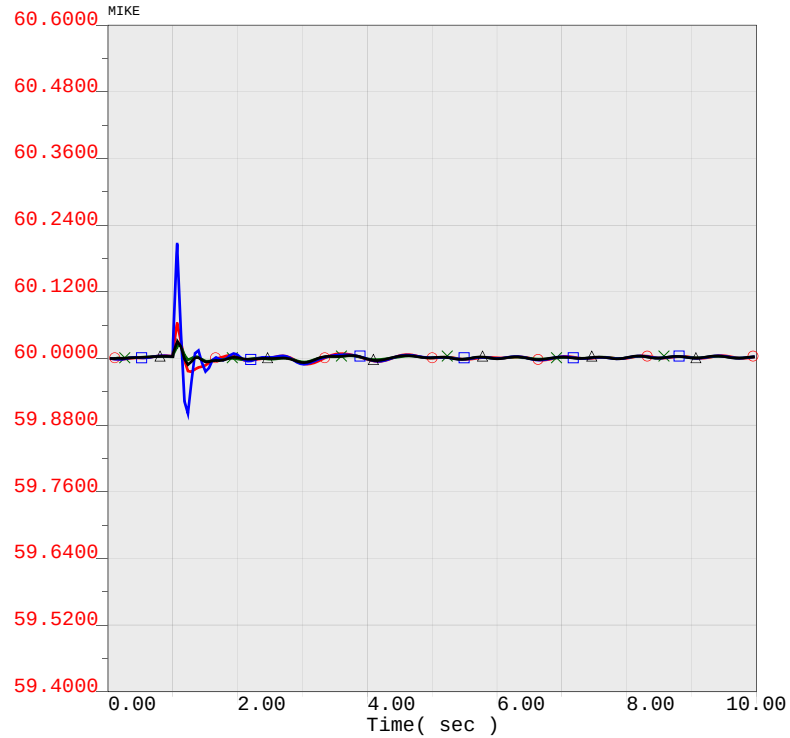


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bly1.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:40:53 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

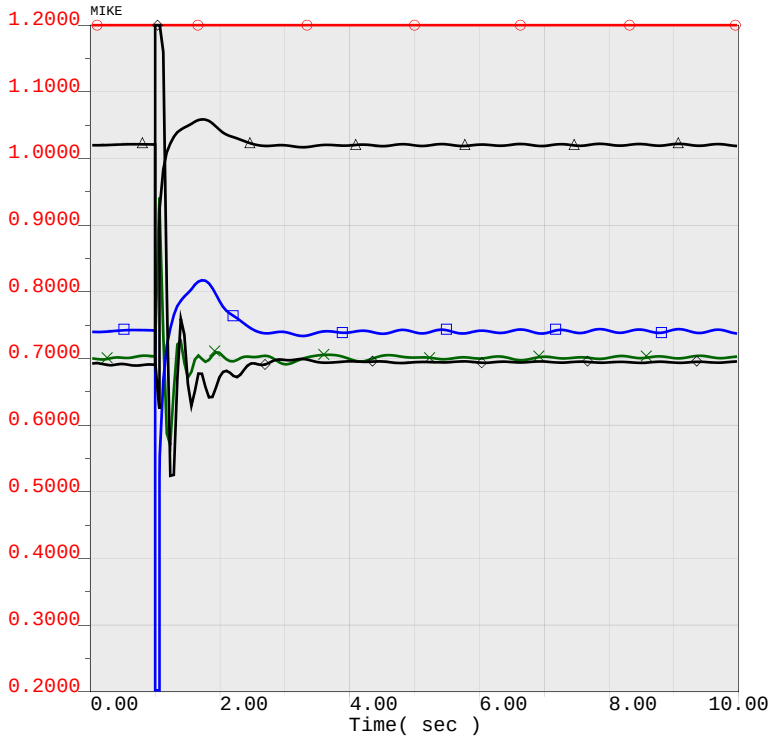


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bly1.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:40:53 2006

Niland Generator Bus 8000

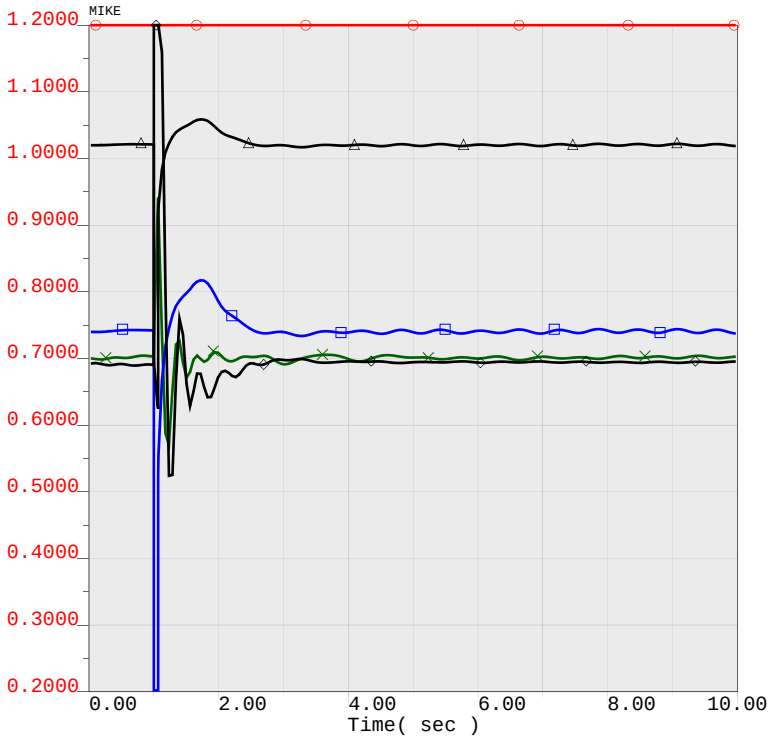


○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bly1.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:40:53 2006

Niland Generator Bus 8050

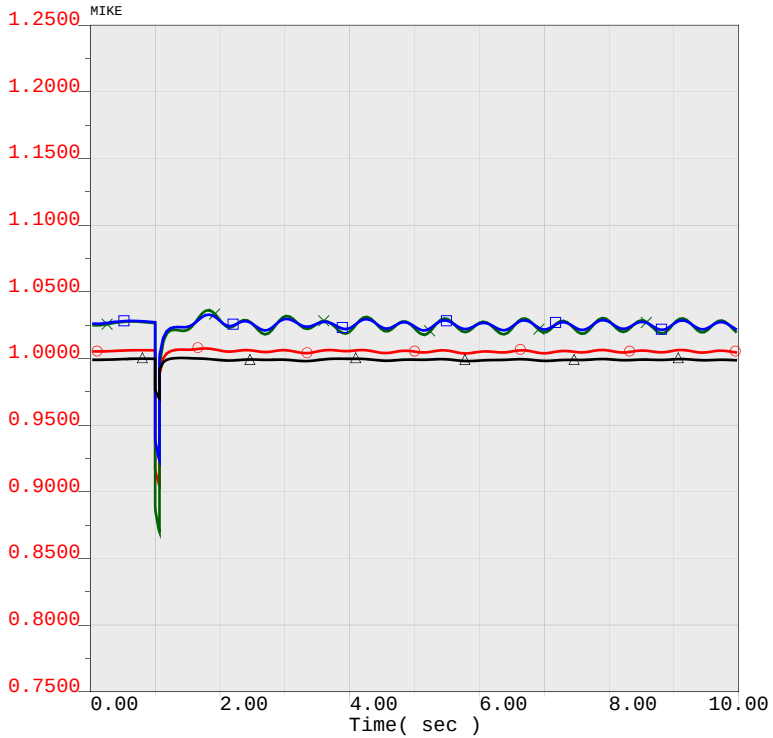


○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

nil-bly1.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:40:53 2006

IID 230kV Voltage plots EC, CV, RMN, IV

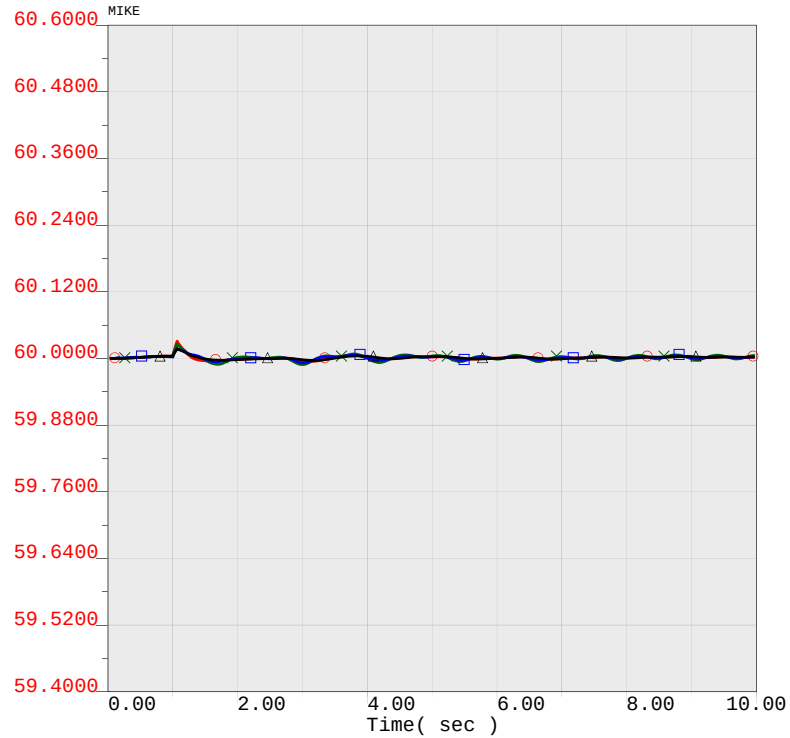


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-EL CENTRO NILAND-CVSUB 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-ec-cv2.chf | c:\upslf15\samples\plot15 | Thu Jan 12 09:08:13 2006

IID 230kV Frequency plots EC, CV, RMN, IV

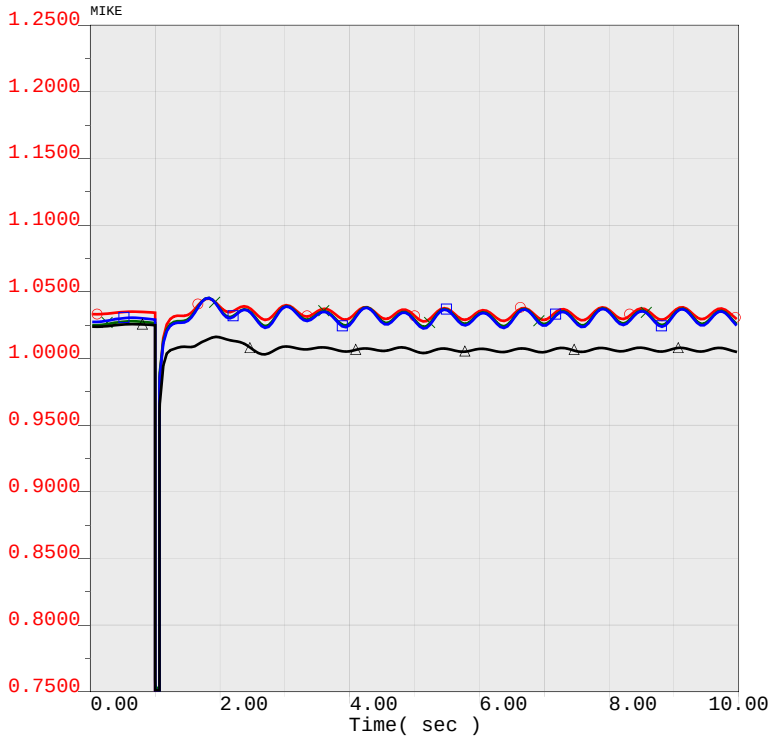


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-EL CENTRO NILAND-CVSUB 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-ec-cv2.chf | c:\upslf15\samples\plot15 | Thu Jan 12 09:08:13 2006

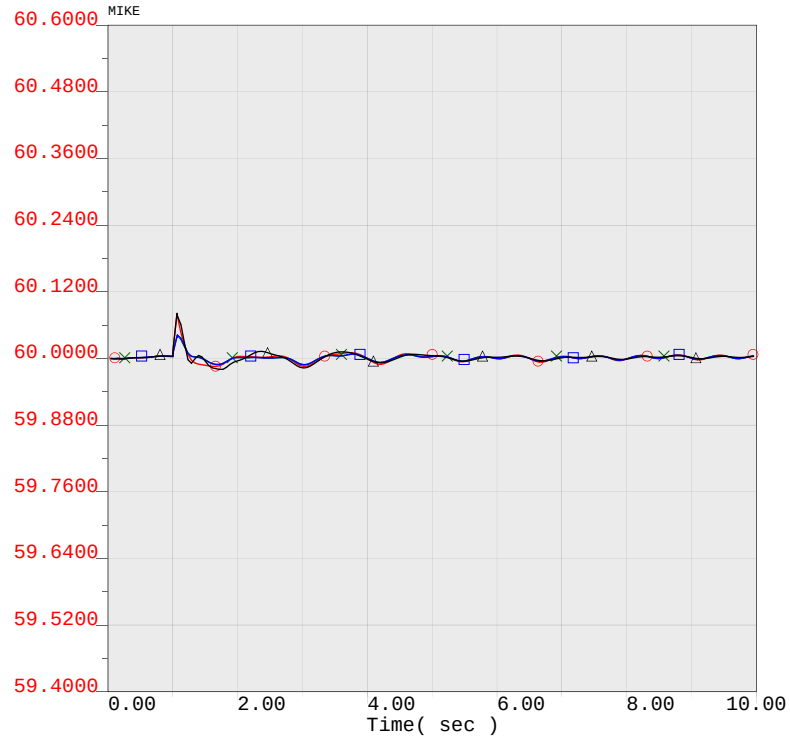
IID 161kV Voltage plots EC, CV, AV58, NIL



○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-EL CENTRO NILAND-CVSUB 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

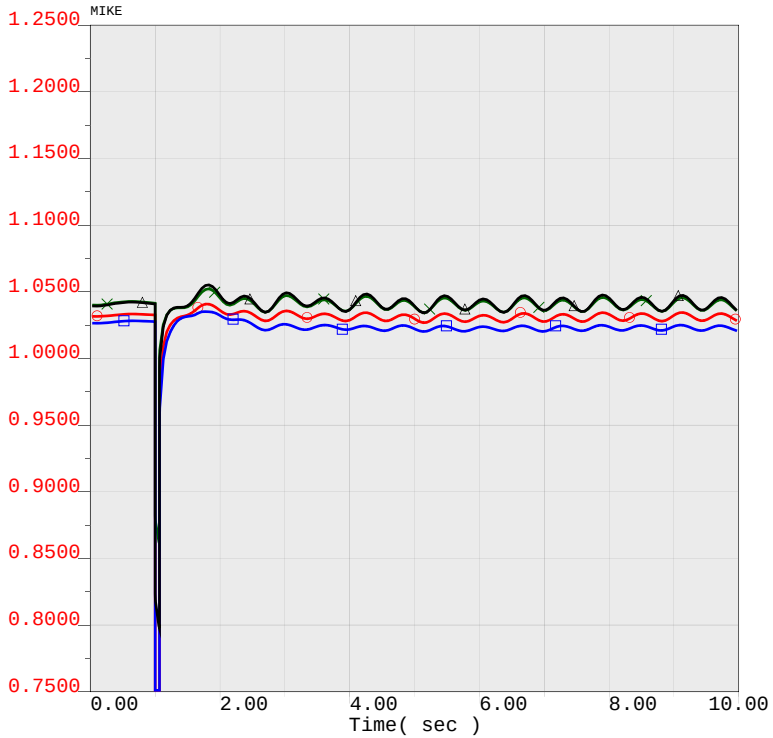
IID 161kV Frequncy plots EC, CV, AV58, NIL



○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-EL CENTRO NILAND-CVSUB 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

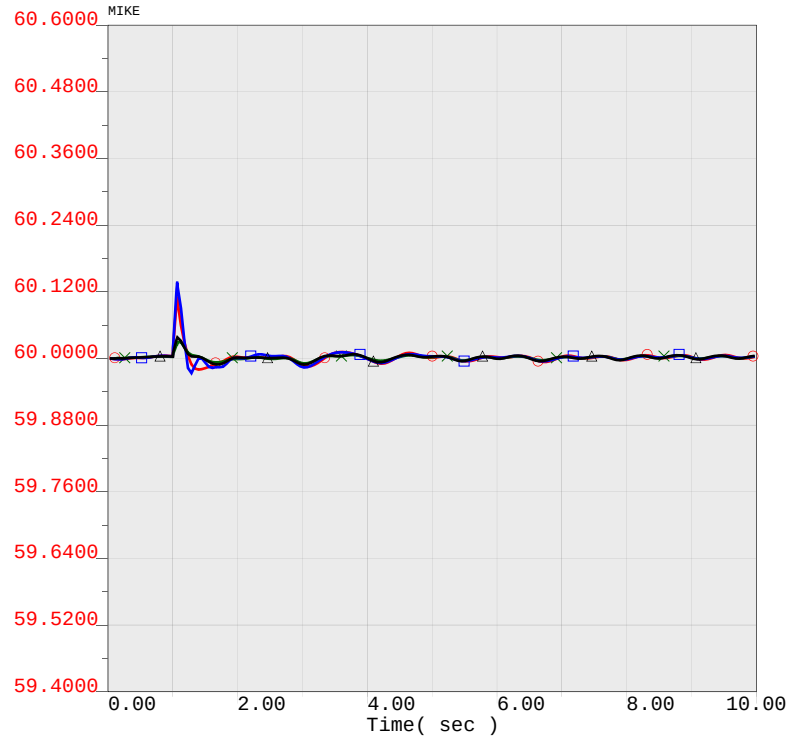
IID 92kV Voltage plots EC, MIR, NIL, CV



○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-EL CENTRO NILAND-CVSUB 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

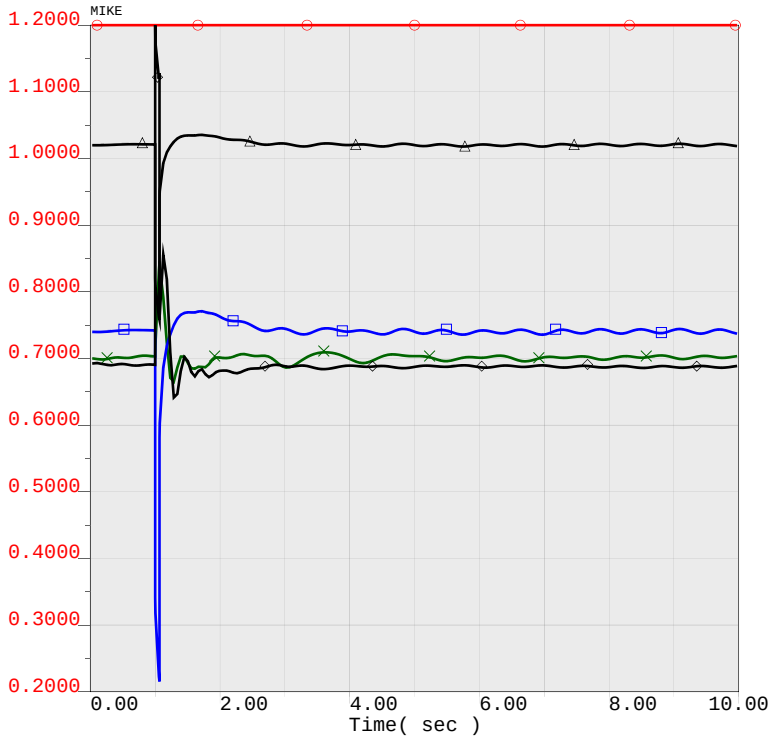
IID 92kV Frequncy plots EC, MIR, NIL, CV



○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-EL CENTRO NILAND-CVSUB 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

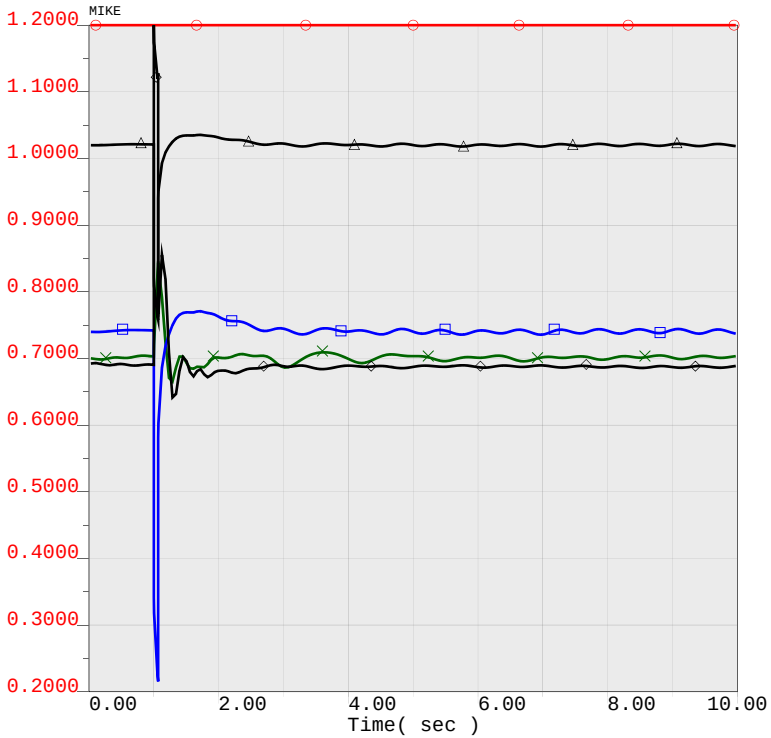
Niland Generator Bus 8000



○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-EL CENTRO NILAND-CVSUB 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

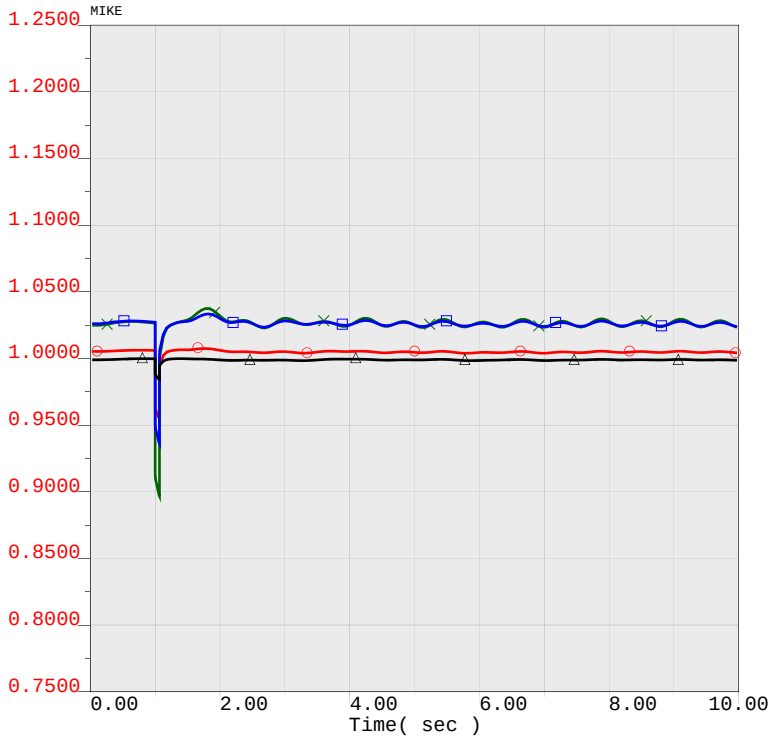
Niland Generator Bus 8050



○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-EL CENTRO NILAND-CVSUB 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

IID 230kV Voltage plots EC, CV, RMN, IV

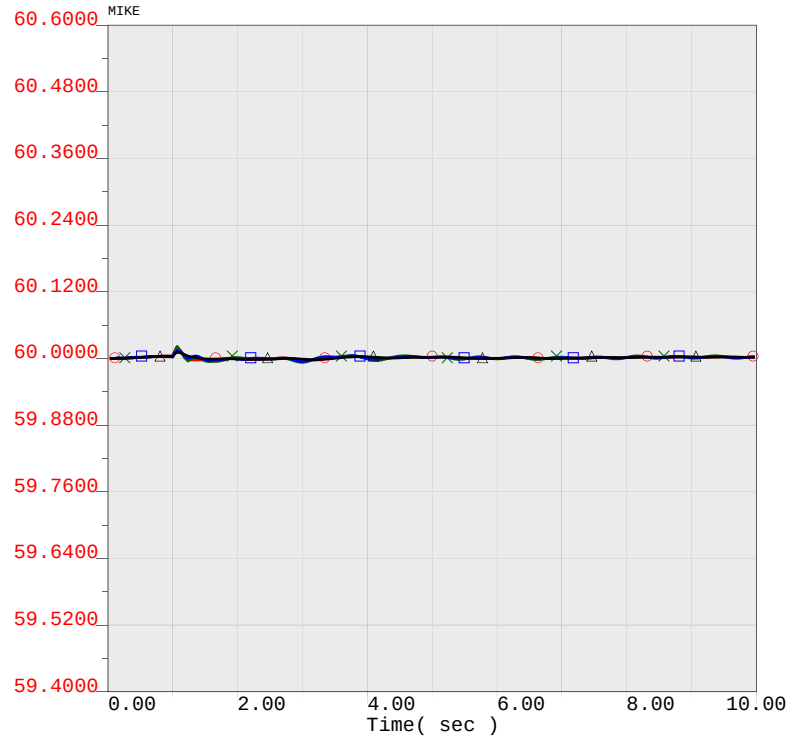


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-ec-bl2.chf | c:\upslf15\samples\plot15 | Thu Jan 12 08:49:33 2006

IID 230kV Frequency plots EC, CV, RMN, IV

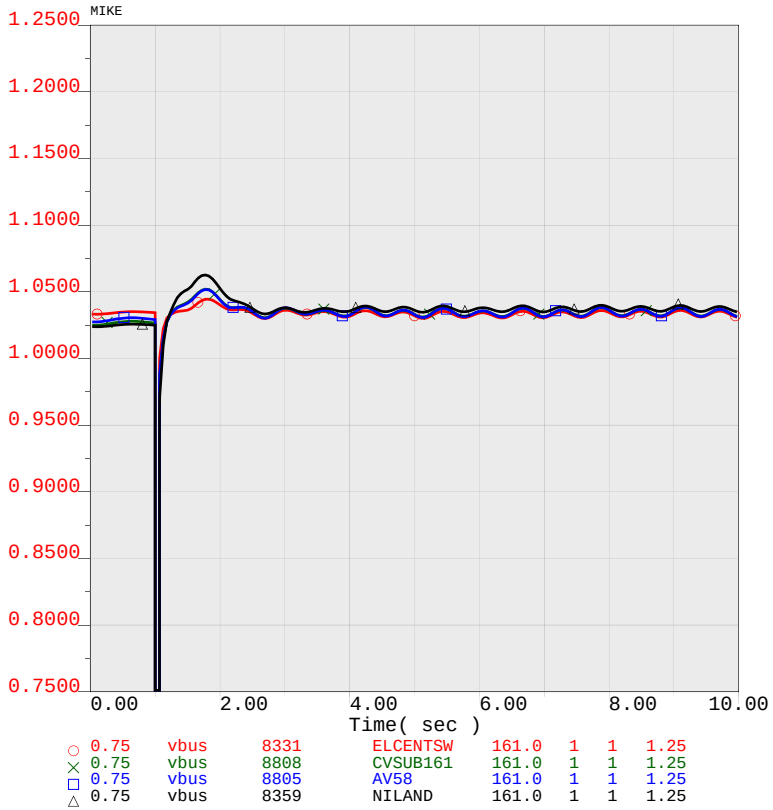


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-ec-bl2.chf | c:\upslf15\samples\plot15 | Thu Jan 12 08:49:33 2006

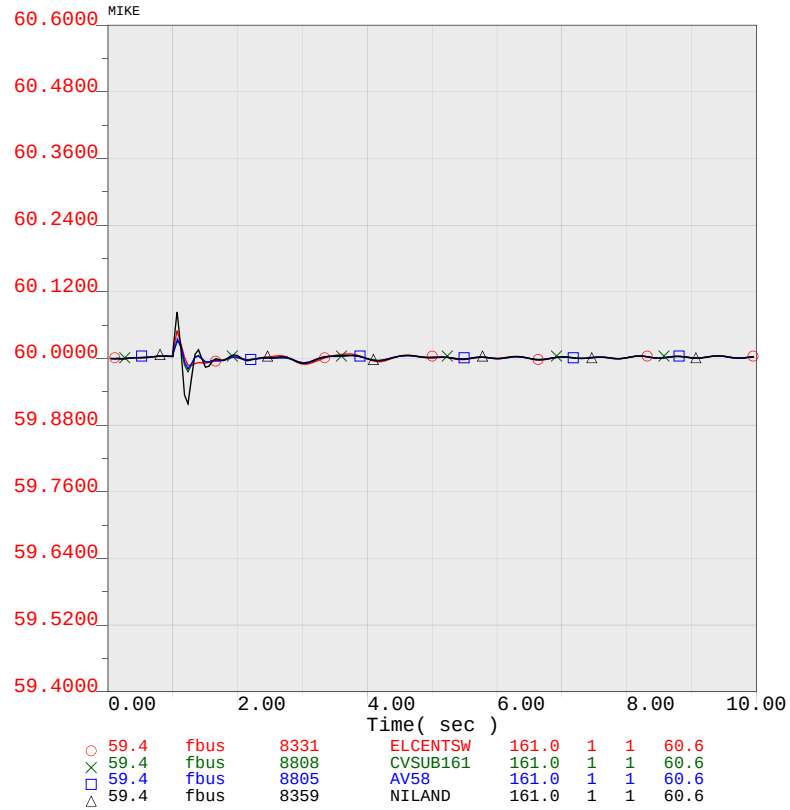
IID 161kV Voltage plots EC, CV, AV58, NIL



SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-ec-bl2.chf | c:\upslf15\samples\plot15 | Thu Jan 12 08:49:33 2006

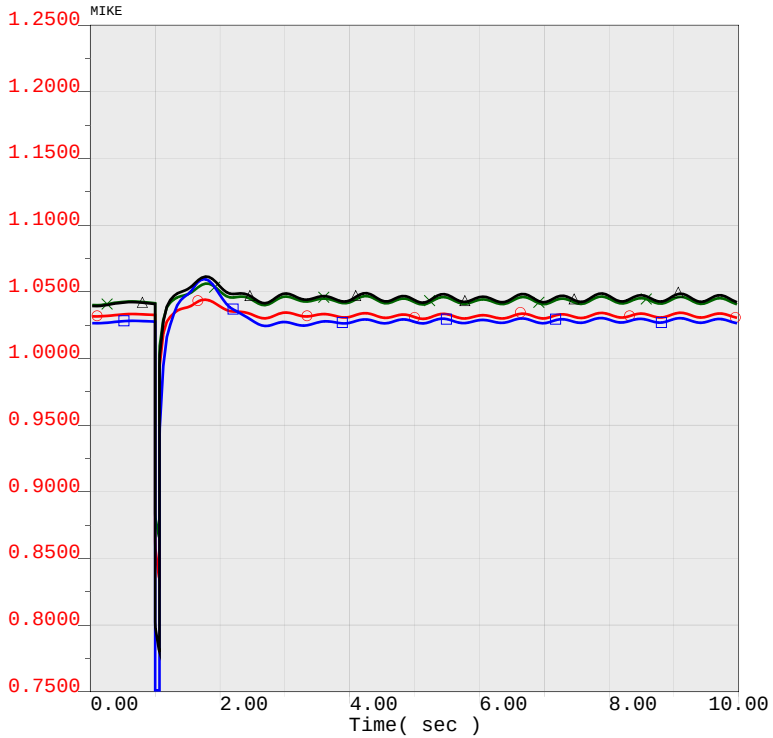
IID 161kV Frequncy plots EC, CV, AV58, NIL



SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-ec-bl2.chf | c:\upslf15\samples\plot15 | Thu Jan 12 08:49:33 2006

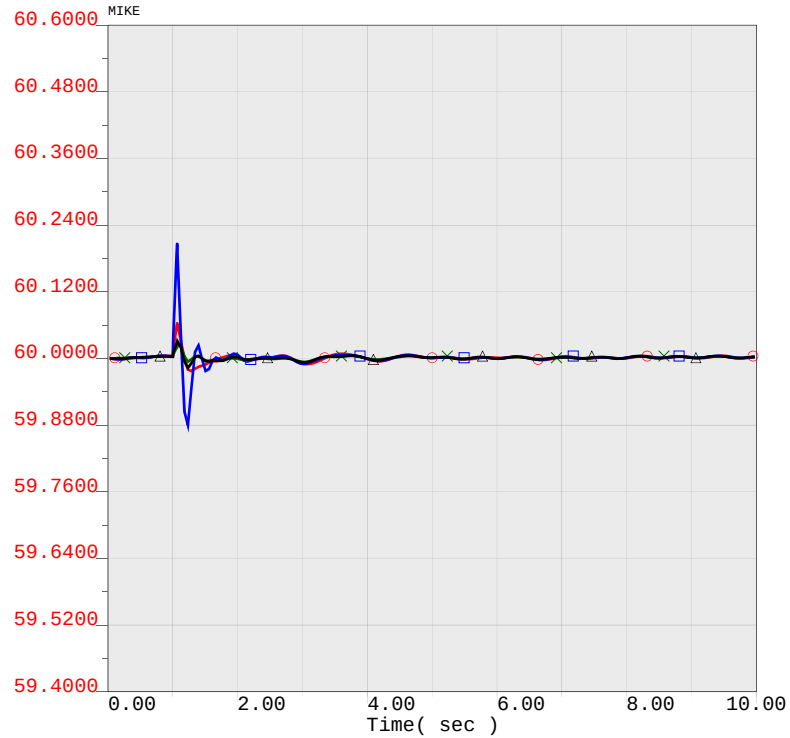
IID 92kV Voltage plots EC, MIR, NIL, CV



○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

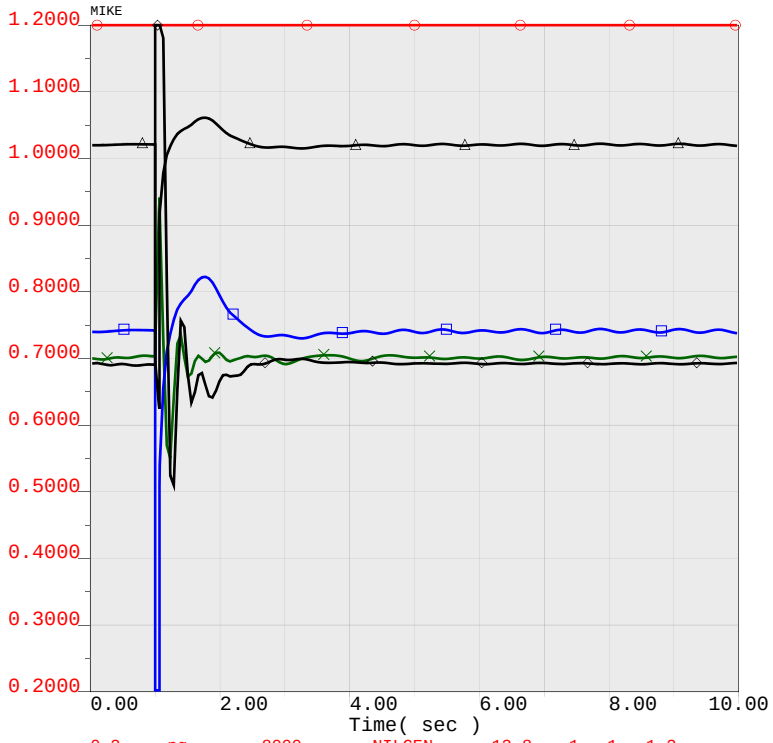
IID 92kV Frequncy plots EC, MIR, NIL, CV



○ 59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
× 59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

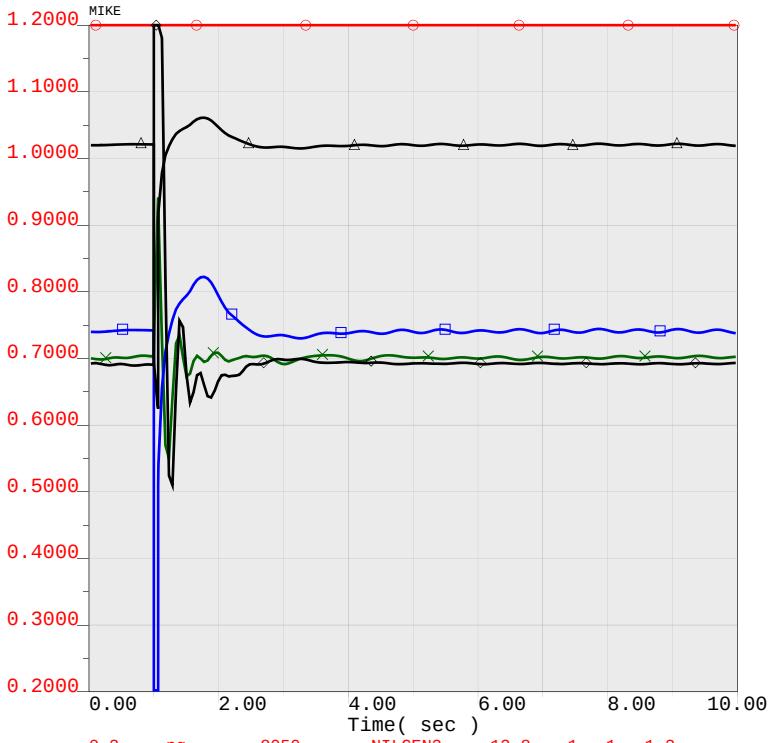
Niland Generator Bus 8000



○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

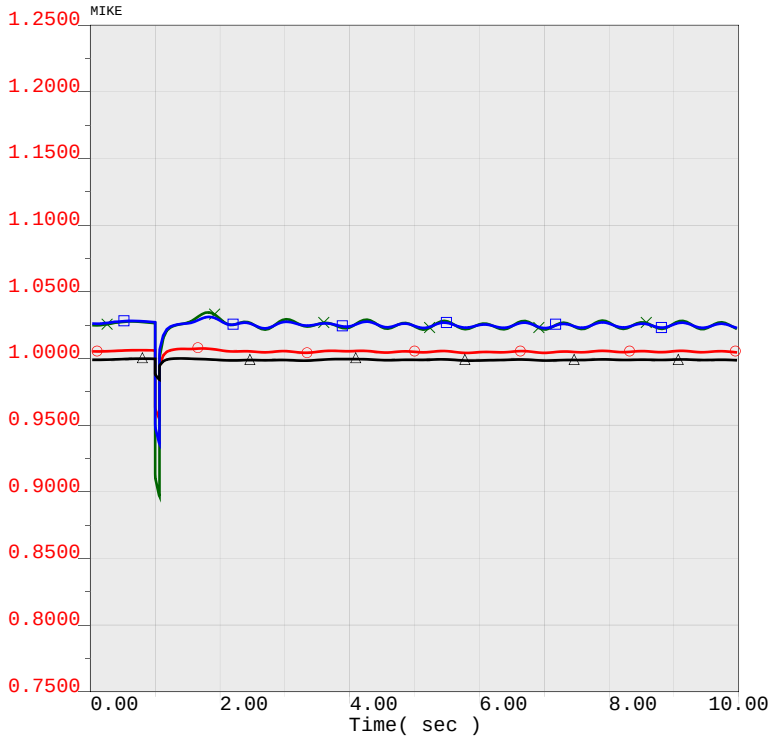
Niland Generator Bus 8050



○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Niland-Blythe & El Centro-Niland 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

IID 230kV Voltage plots EC, CV, RMN, IV

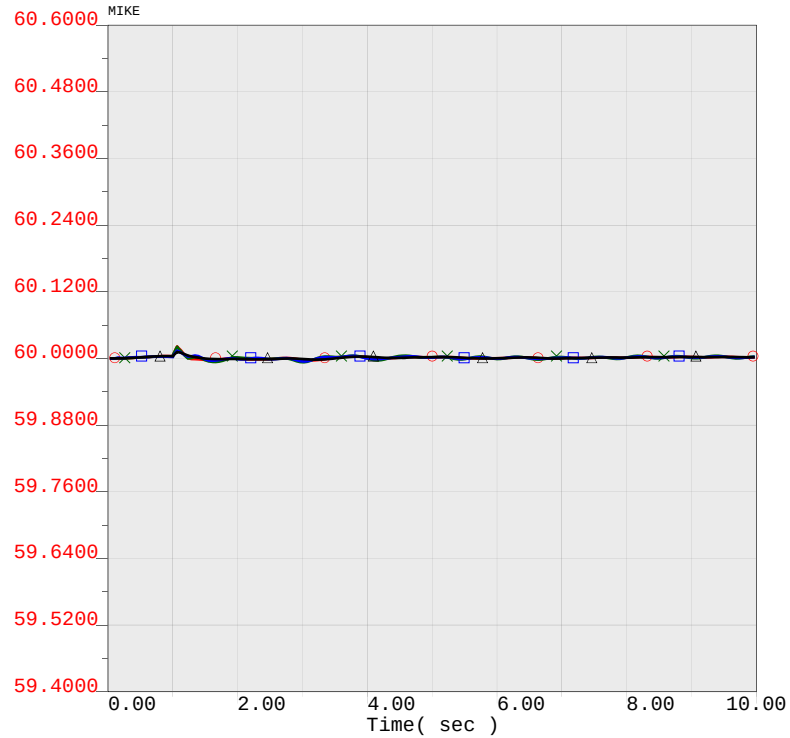


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE NILAND-CV 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-cv-bl2.chf | g:\iid\2005\sis\niland\dl | Thu Jan 12 09:31:13 2006

IID 230kV Frequency plots EC, CV, RMN, IV

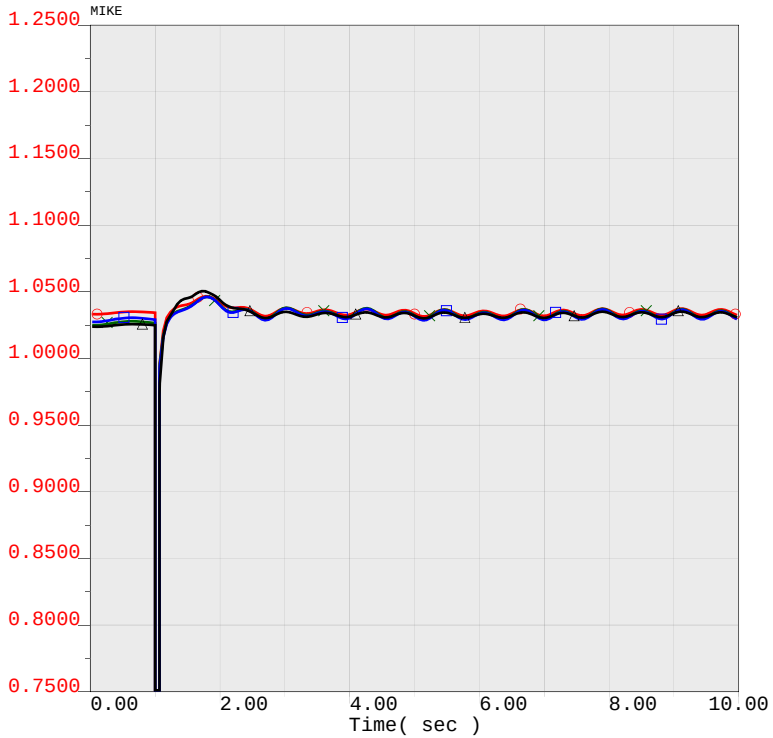


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE NILAND-CV 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-cv-bl2.chf | g:\iid\2005\sis\niland\dl | Thu Jan 12 09:31:15 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

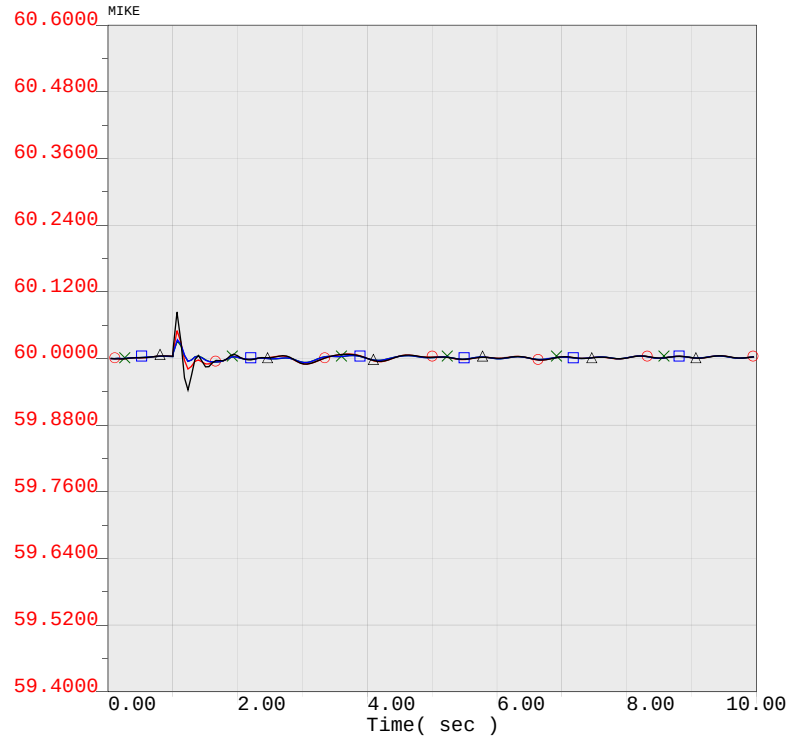


○	0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
×	0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□	0.75	vbus	8805	AV58	161.0	1	1	1.25
△	0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE NILAND-CV 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-cv-bl2.chf | g:\iid\2005\sis\niland\dl | Thu Jan 12 09:31:16 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

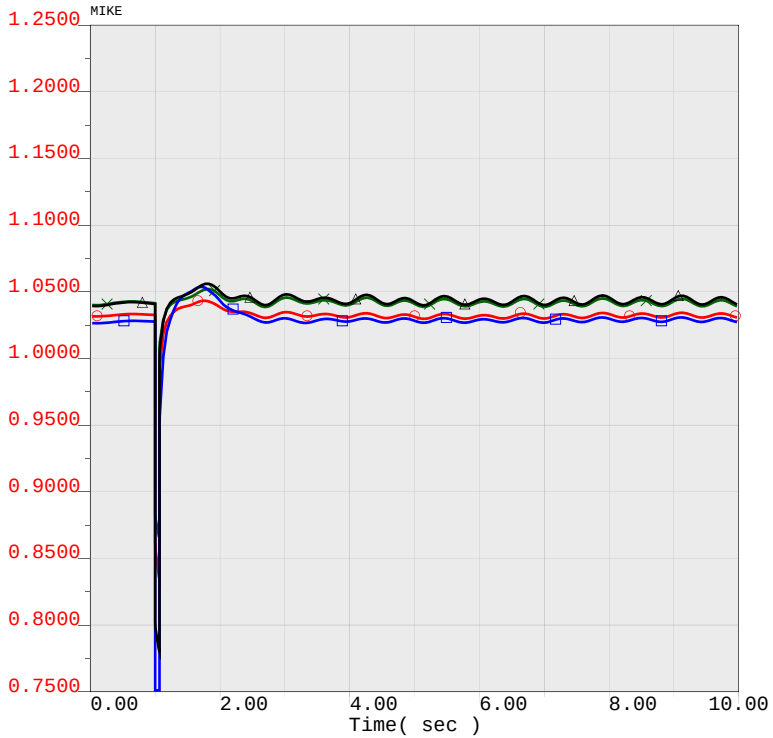


○	59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
×	59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□	59.4	fbus	8805	AV58	161.0	1	1	60.6
△	59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE NILAND-CV 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-cv-bl2.chf | g:\iid\2005\sis\niland\dl | Thu Jan 12 09:31:16 2006

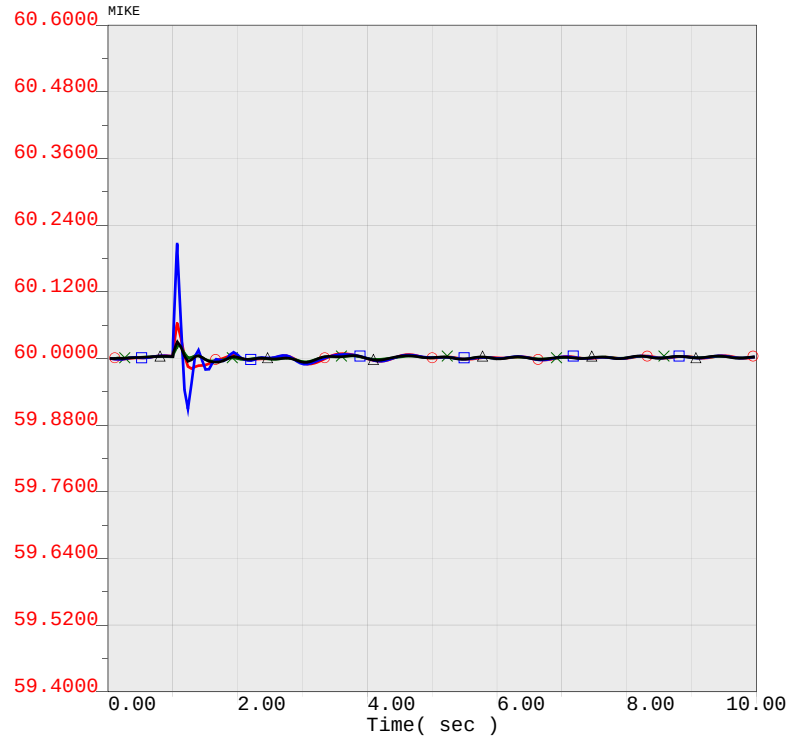
IID 92kV Voltage plots EC, MIR, NIL, CV



○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE NILAND-CV 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

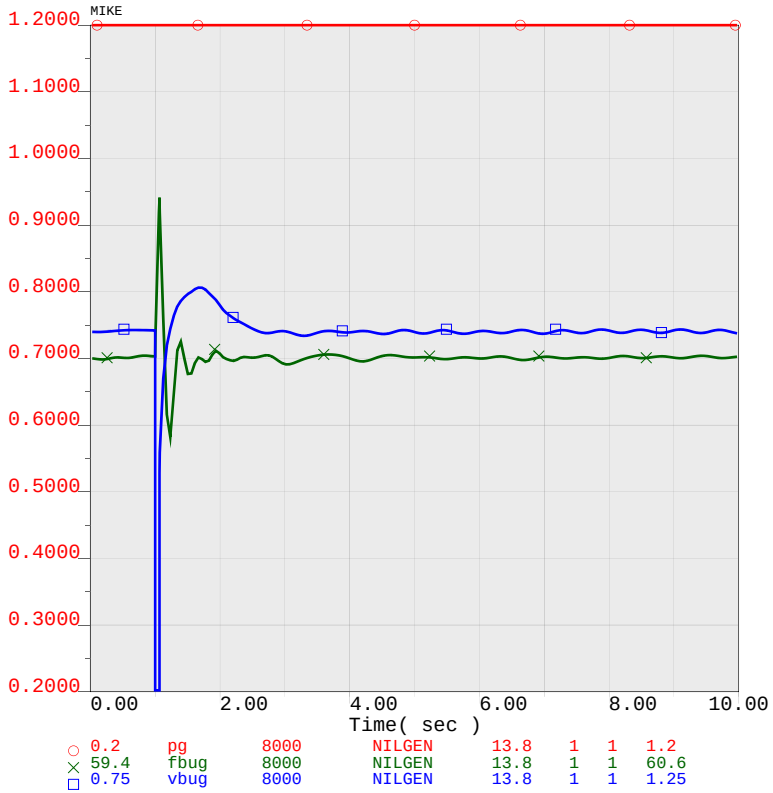
IID 92kV Frequncy plots EC, MIR, NIL, CV



○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE NILAND-CV 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

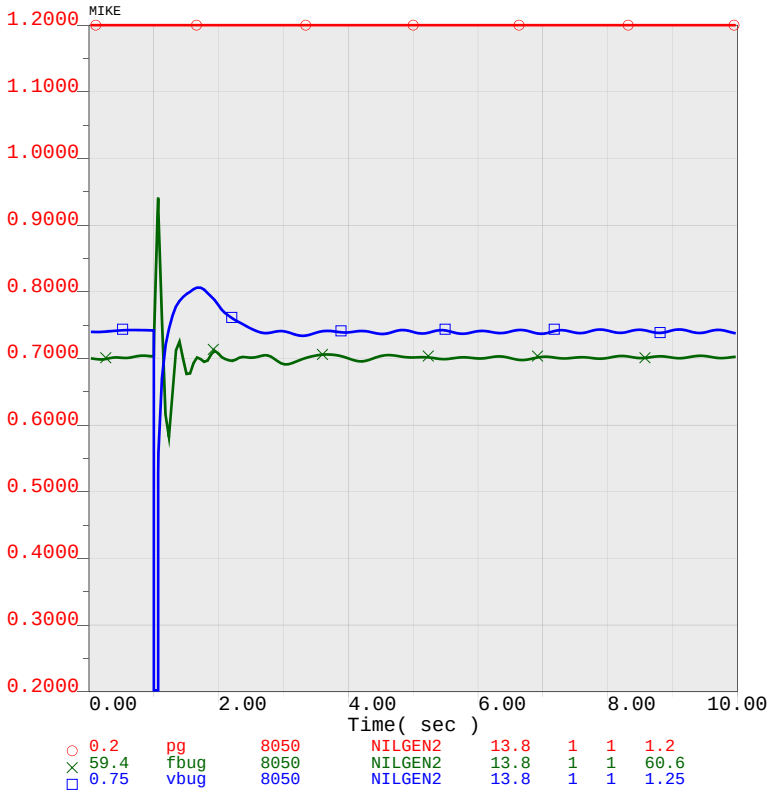
Niland Generator Bus 8000



SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE NILAND-CV 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-cv-bl2.chf | g:\iid\2005\sis\niland\dl | Thu Jan 12 09:31:17 2006

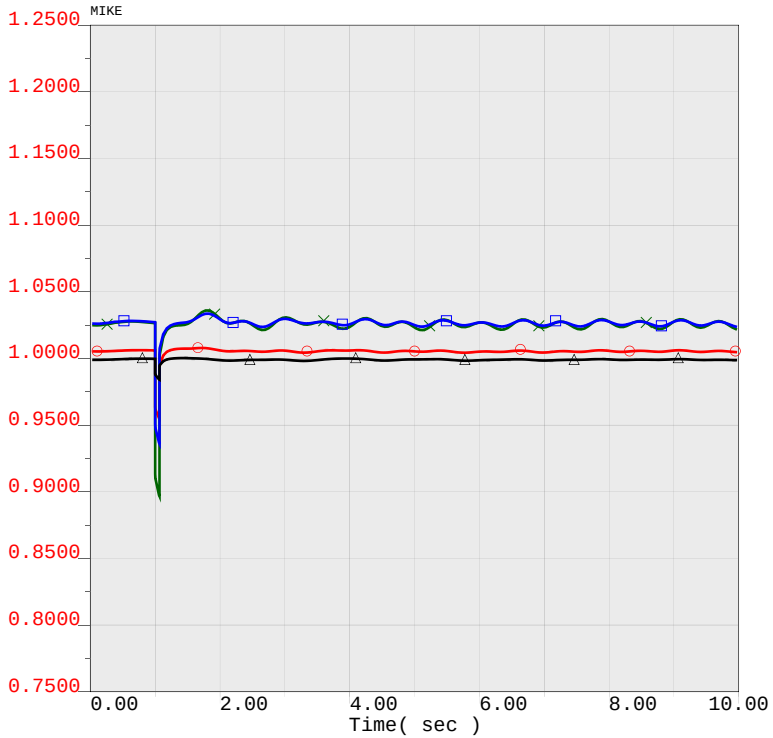
Niland Generator Bus 8050



SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-BLYTHE NILAND-CV 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ni-cv-bl2.chf | g:\iid\2005\sis\niland\dl | Thu Jan 12 09:31:17 2006

IID 230kV Voltage plots EC, CV, RMN, IV

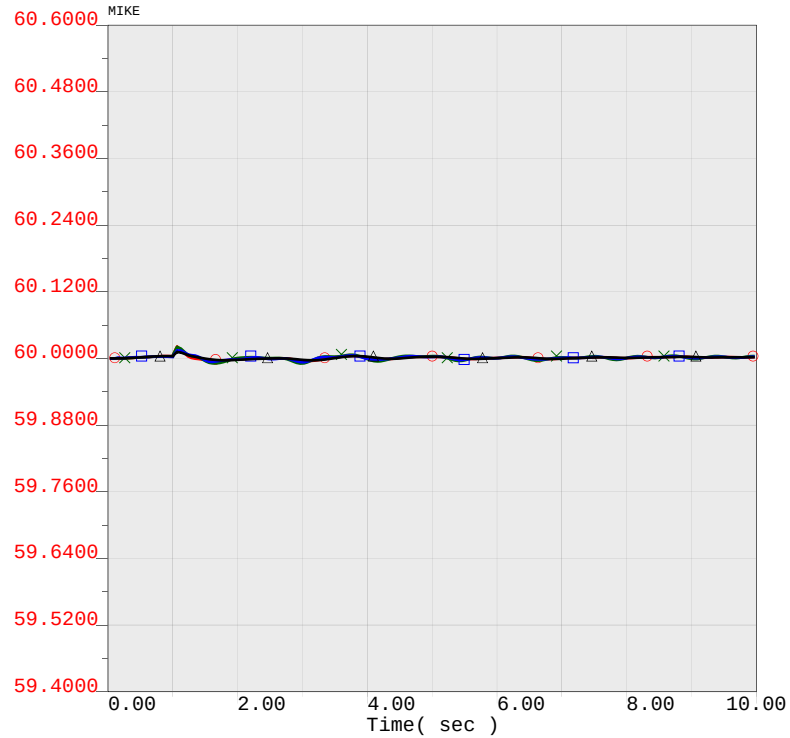


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

ni161-92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:56:41 2006

IID 230kV Frequency plots EC, CV, RMN, IV

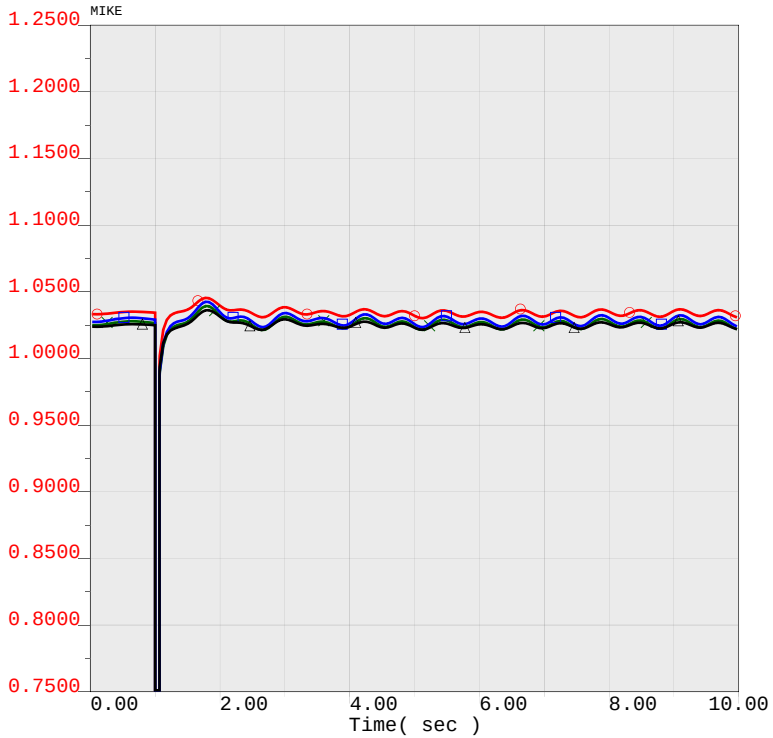


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

ni161-92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:56:41 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

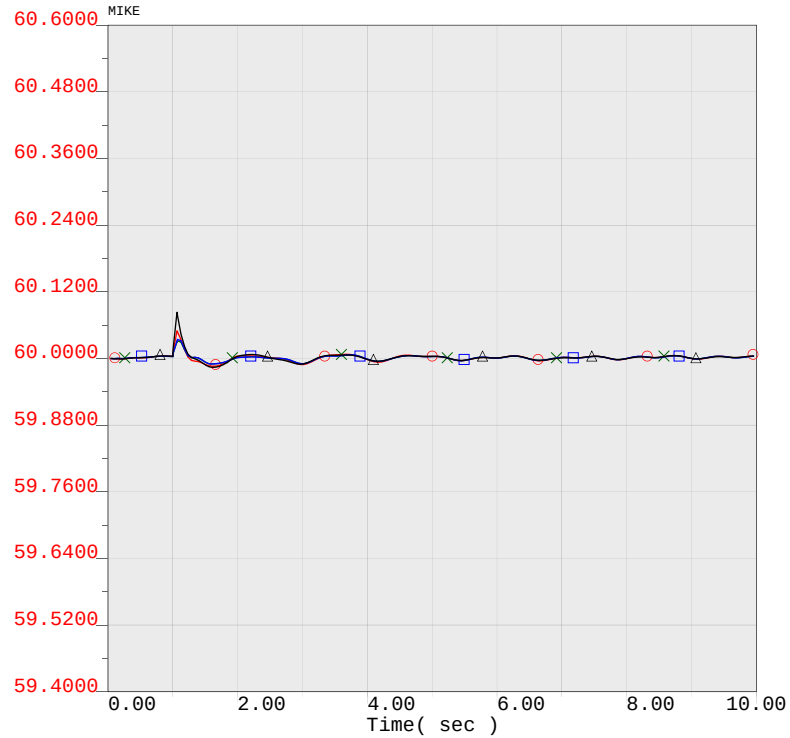


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

ni161-92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:56:41 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

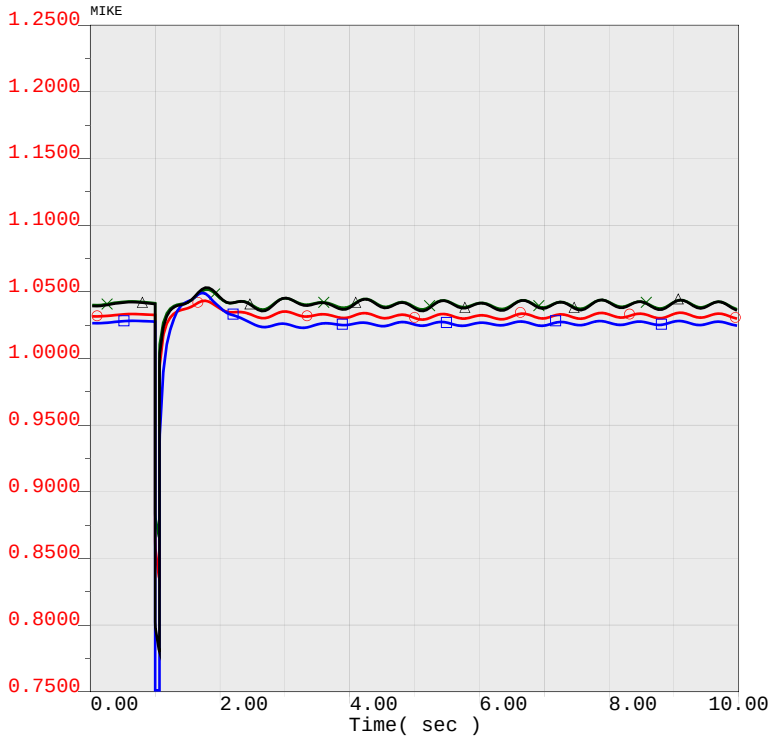


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

ni161-92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:56:41 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

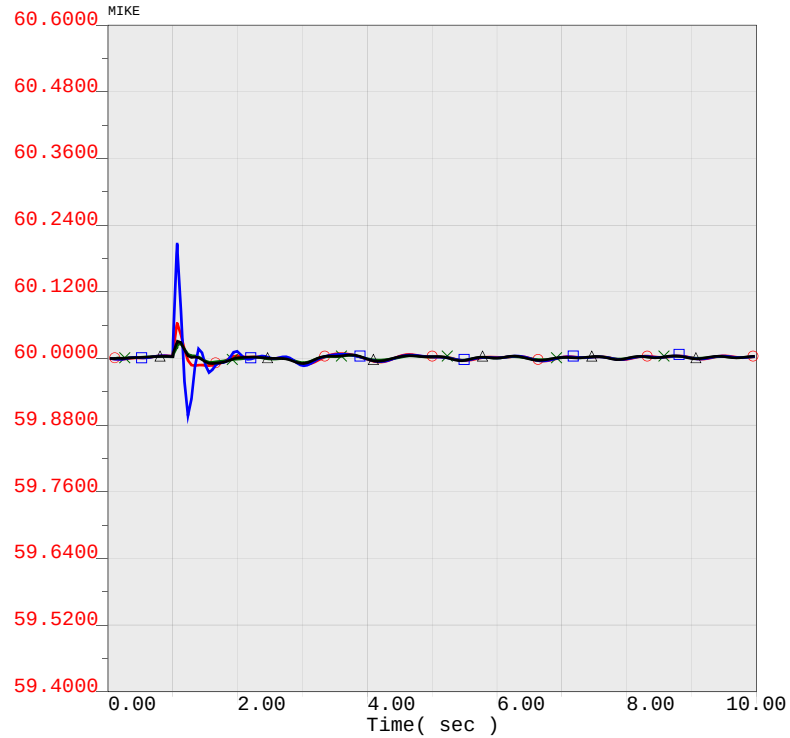


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

ni161-92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:56:41 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

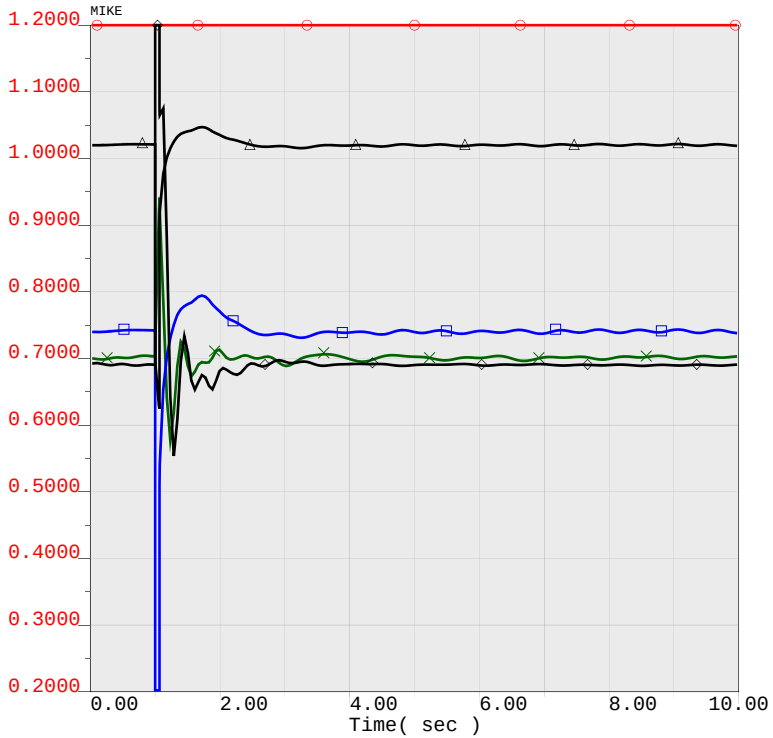


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

ni161-92.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:56:42 2006

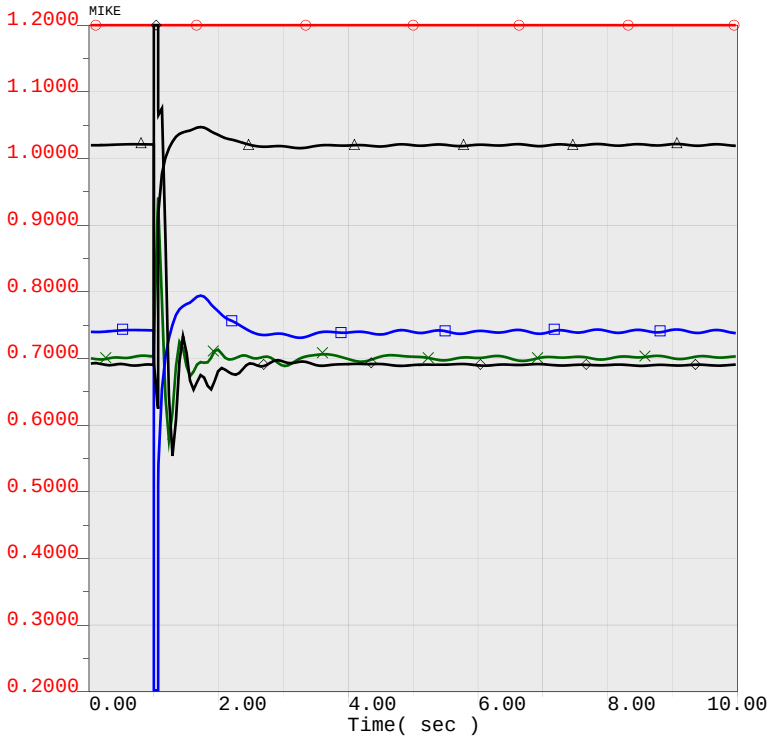
Niland Generator Bus 8000



○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

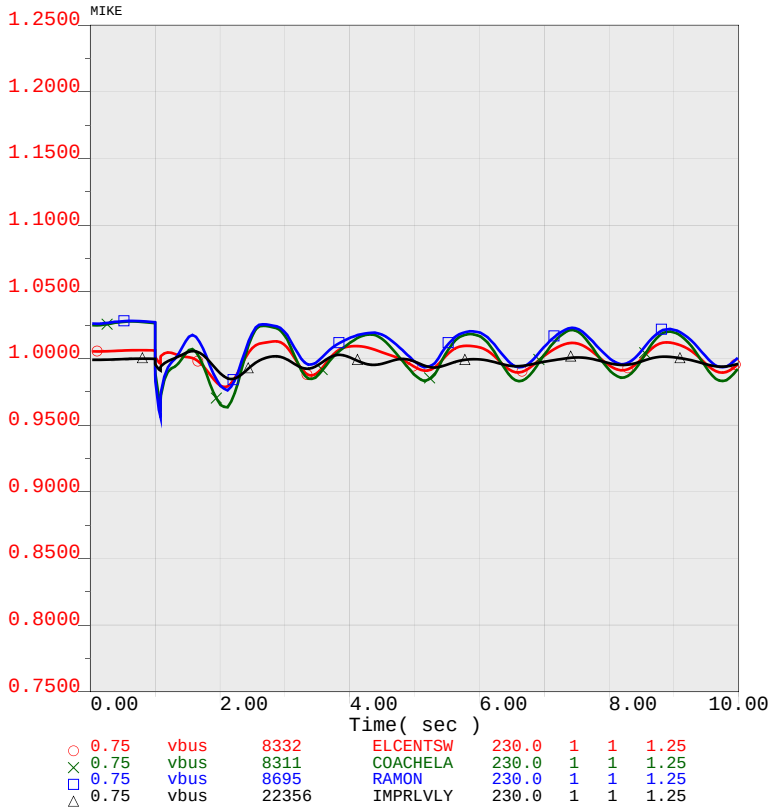
Niland Generator Bus 8050



○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND 161/92kV xfmr
Case r2_s_nil_pst_maxgen_v15.SAV

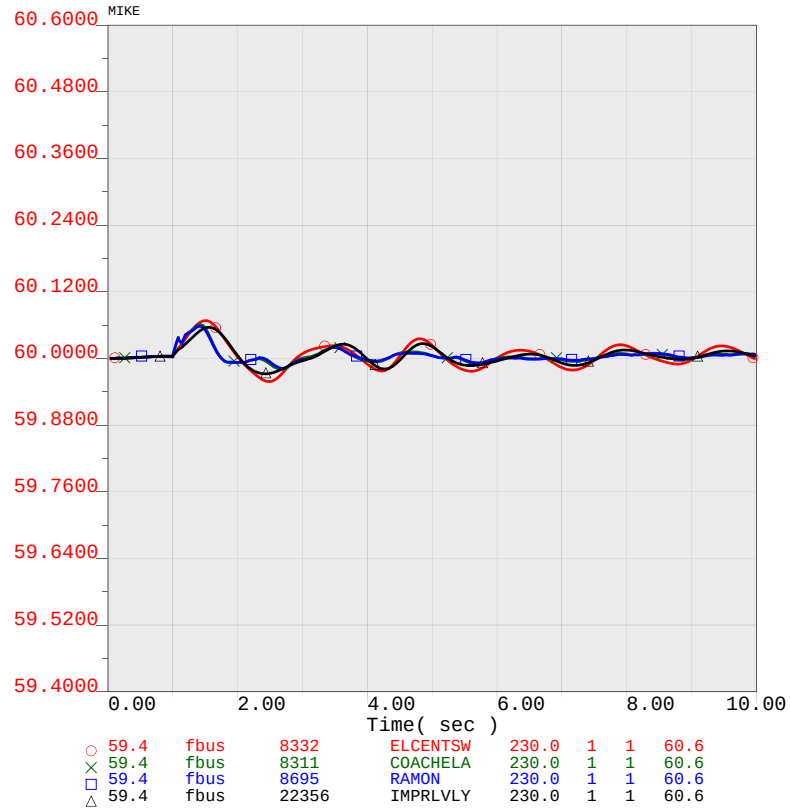
IID 230kV Voltage plots EC, CV, RMN, IV



SIS NILAND STUDY
2008 Heavy Summer Case
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pst_maxgen_v15.SAV

mdwy-cv2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:37:18 2006

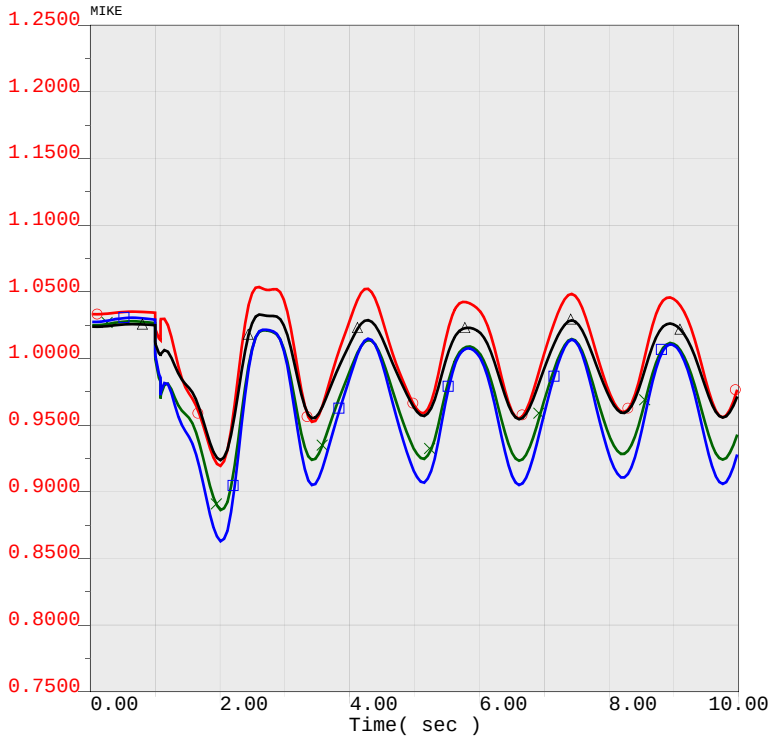
IID 230kV Frequency plots EC, CV, RMN, IV



SIS NILAND STUDY
2008 Heavy Summer Case
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pst_maxgen_v15.SAV

mdwy-cv2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:37:18 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

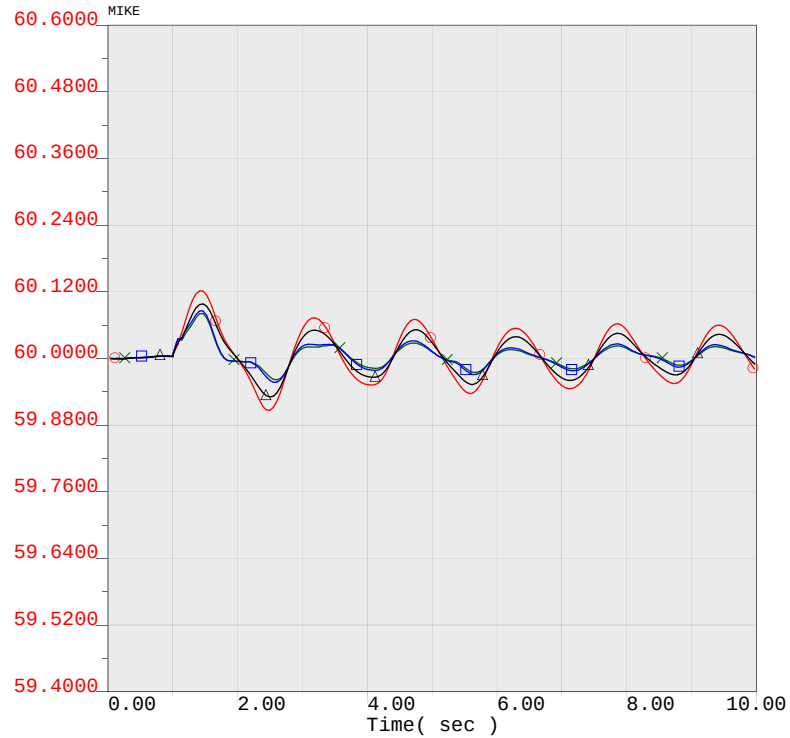


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pst_maxgen_v15.SAV

mdwy-cv2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:37:18 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

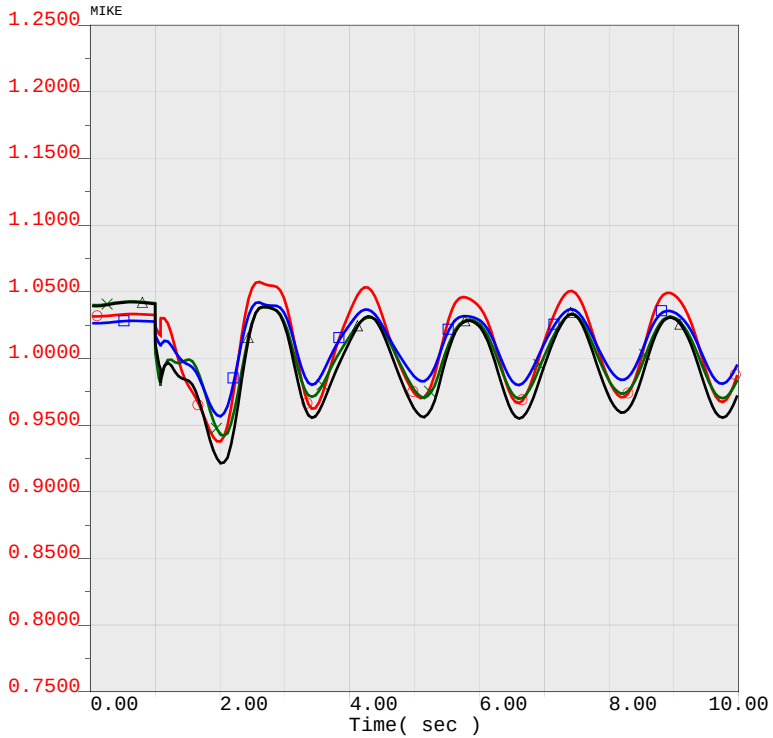


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pst_maxgen_v15.SAV

mdwy-cv2.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:37:18 2006

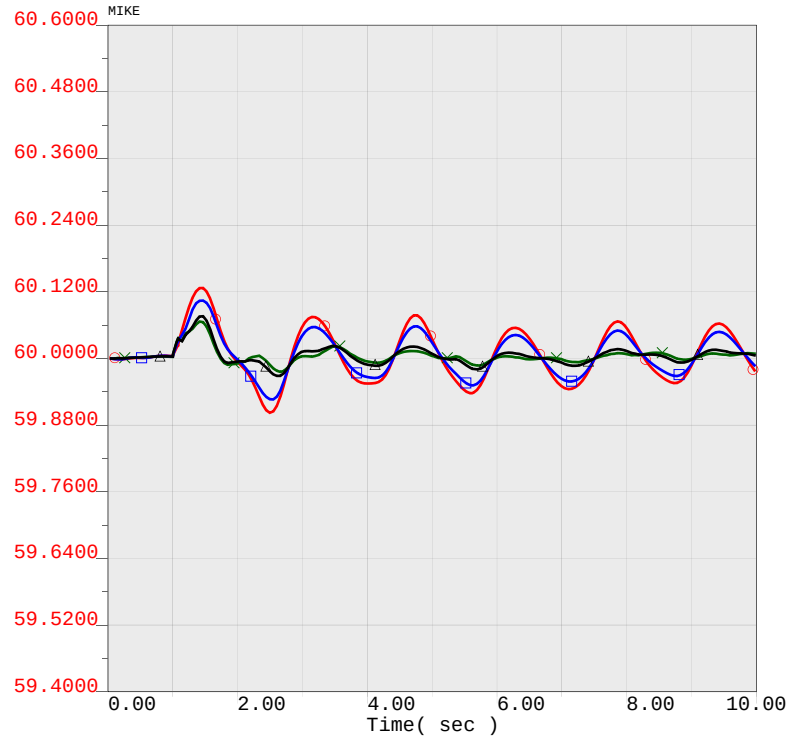
IID 92kV Voltage plots EC, MIR, NIL, CV



○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pst_maxgen_v15.SAV

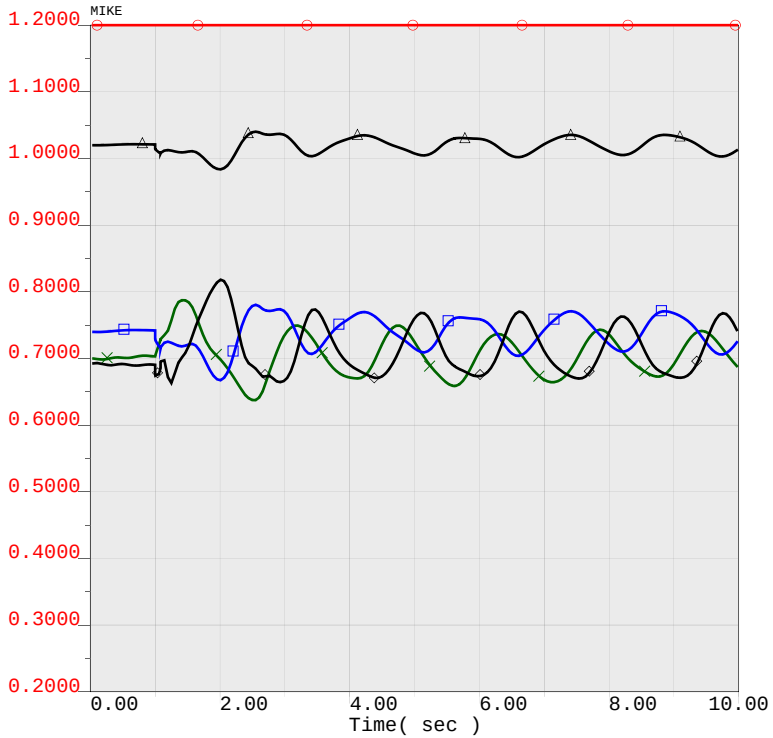
IID 92kV Frequncy plots EC, MIR, NIL, CV



○ 59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
× 59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pst_maxgen_v15.SAV

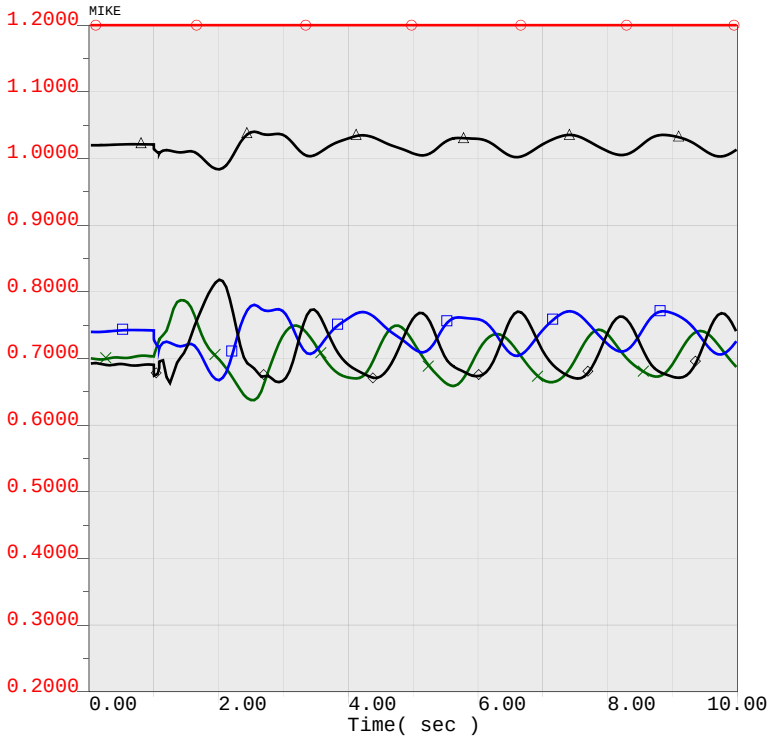
Niland Generator Bus 8000



○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pst_maxgen_v15.SAV

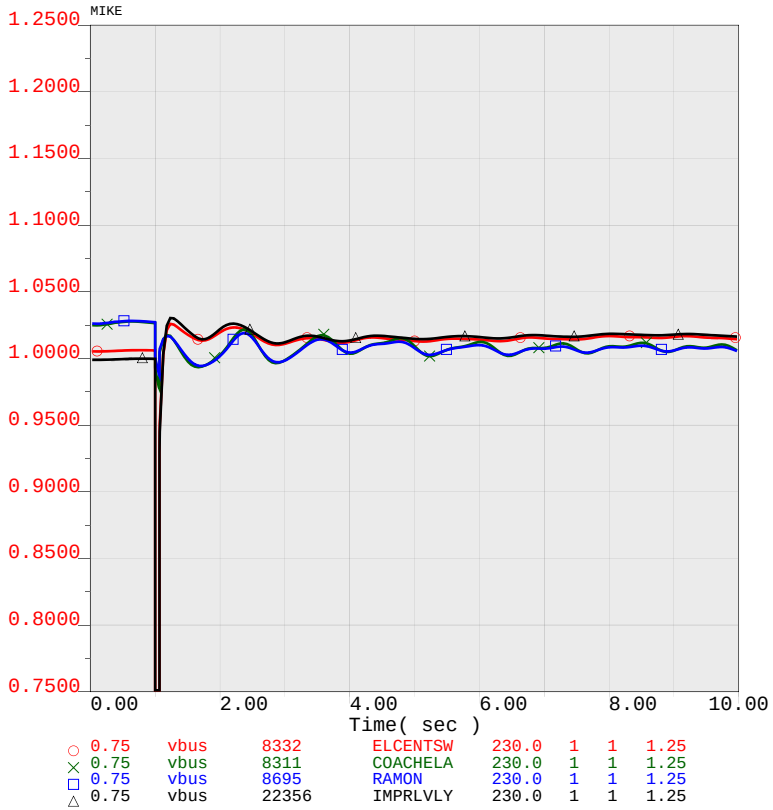
Niland Generator Bus 8050



○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip MIDWAY - CV 230kV line BOTH CIRCUITS
Case r2_s_nil_pst_maxgen_v15.SAV

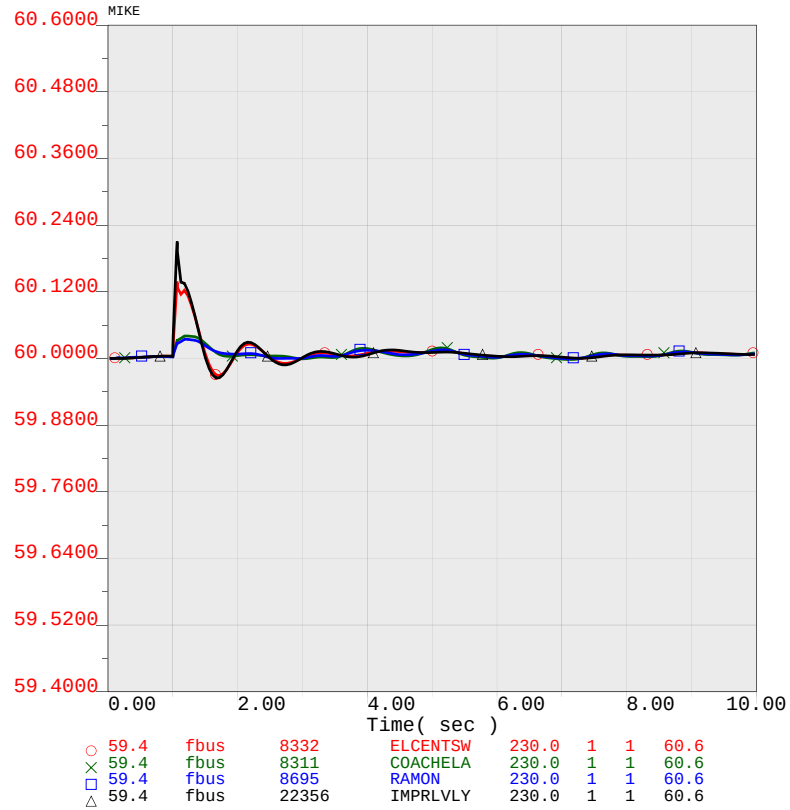
IID 230kV Voltage plots EC, CV, RMN, IV



SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

iv-migel.chf
c:\upslf15\samples\plot15
Wed Jan 11 17:52:29 2006

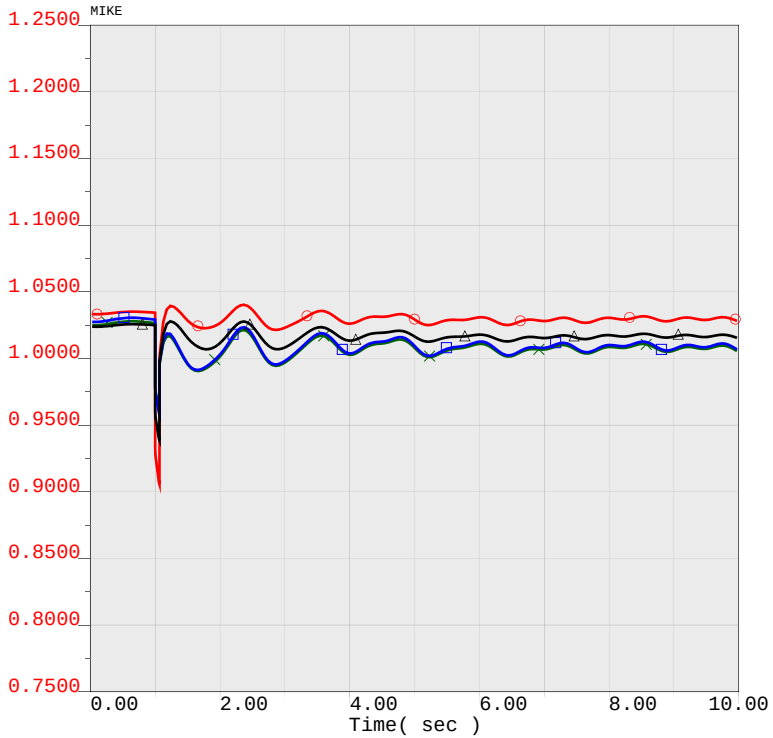
IID 230kV Frequency plots EC, CV, RMN, IV



SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

iv-migel.chf
c:\upslf15\samples\plot15
Wed Jan 11 17:52:29 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

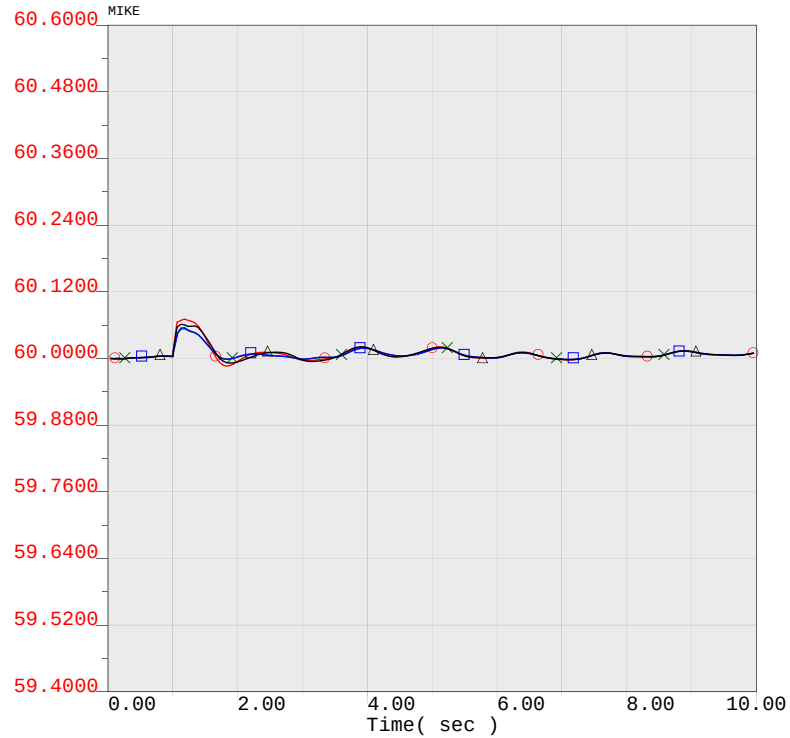


○	0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
×	0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□	0.75	vbus	8805	AV58	161.0	1	1	1.25
△	0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

iv-migel.chf
c:\upslf15\samples\plot15
Wed Jan 11 17:52:29 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

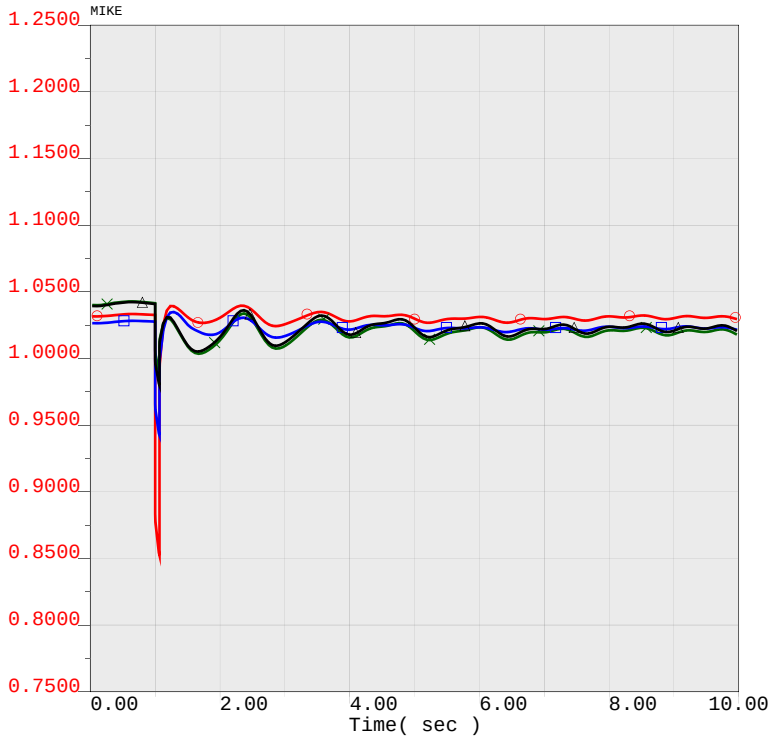


○	59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
×	59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□	59.4	fbus	8805	AV58	161.0	1	1	60.6
△	59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

iv-migel.chf
c:\upslf15\samples\plot15
Wed Jan 11 17:52:30 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

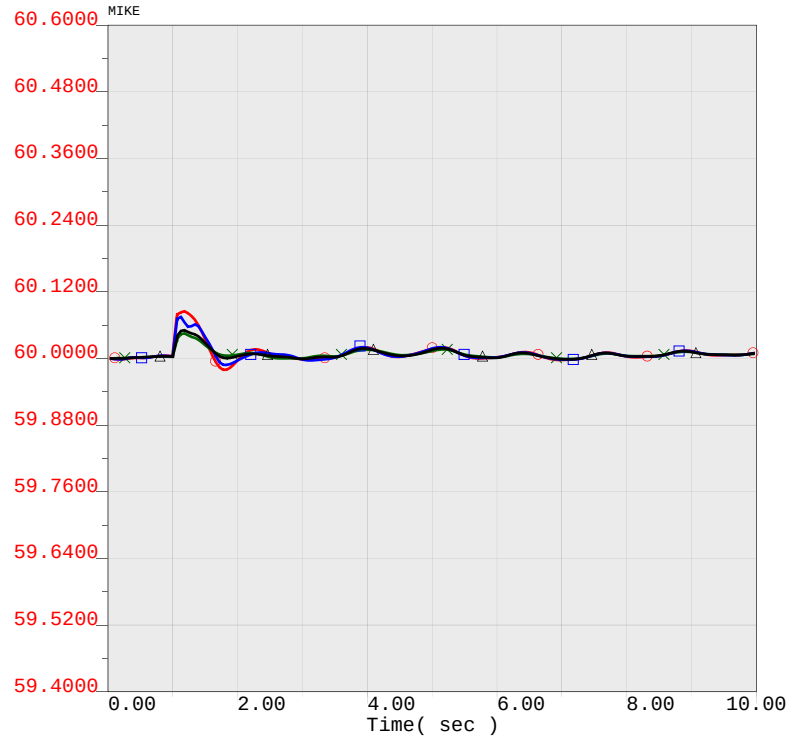


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

iv-migel.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:52:30 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

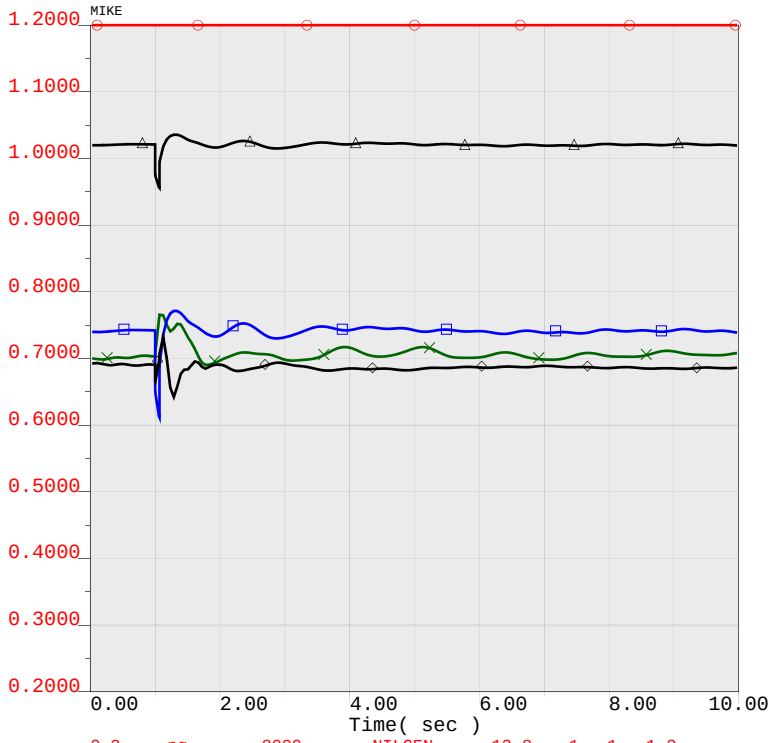


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

iv-migel.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:52:30 2006

Niland Generator Bus 8000

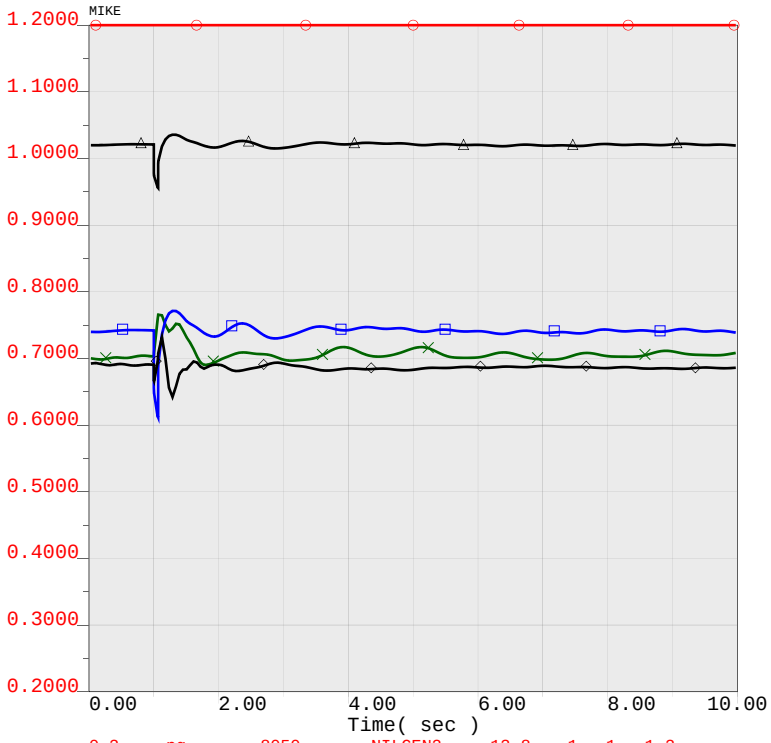


○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

iv-migel.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:52:30 2006

Niland Generator Bus 8050

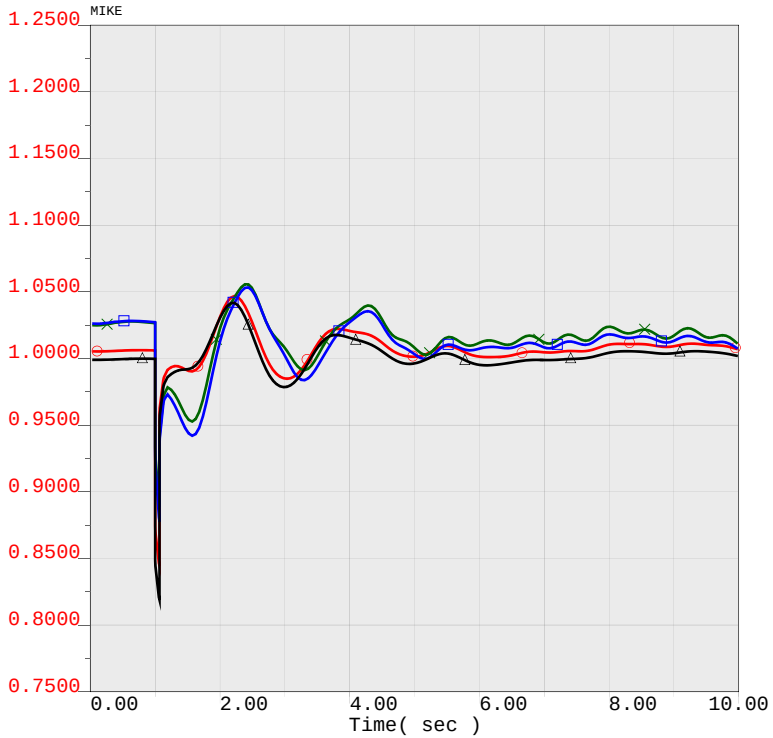


○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip IV-MIGUEL 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

iv-migel.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:52:30 2006

IID 230kV Voltage plots EC, CV, RMN, IV

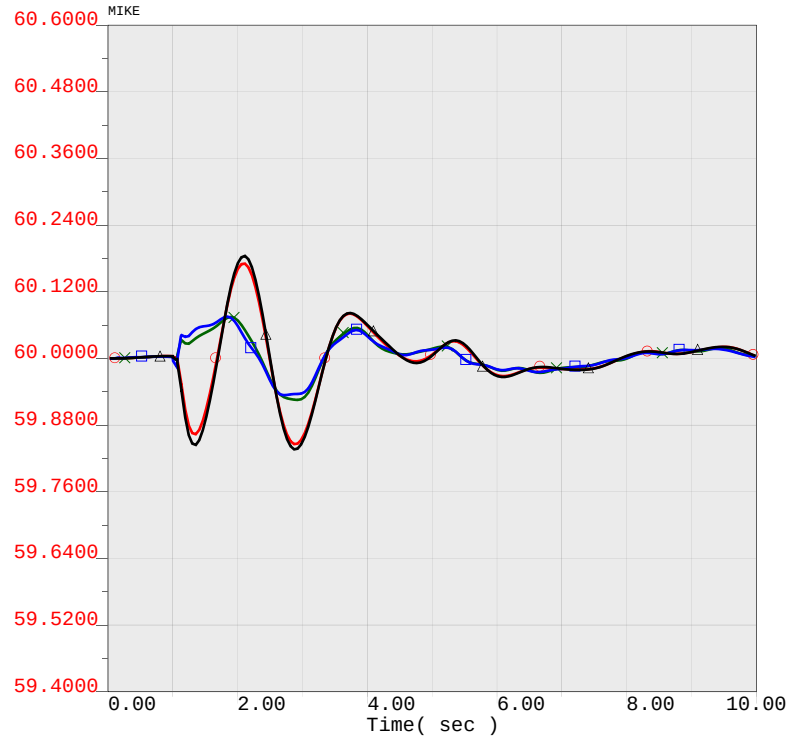


○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

hassy-ng.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:33:31 2006

IID 230kV Frequency plots EC, CV, RMN, IV

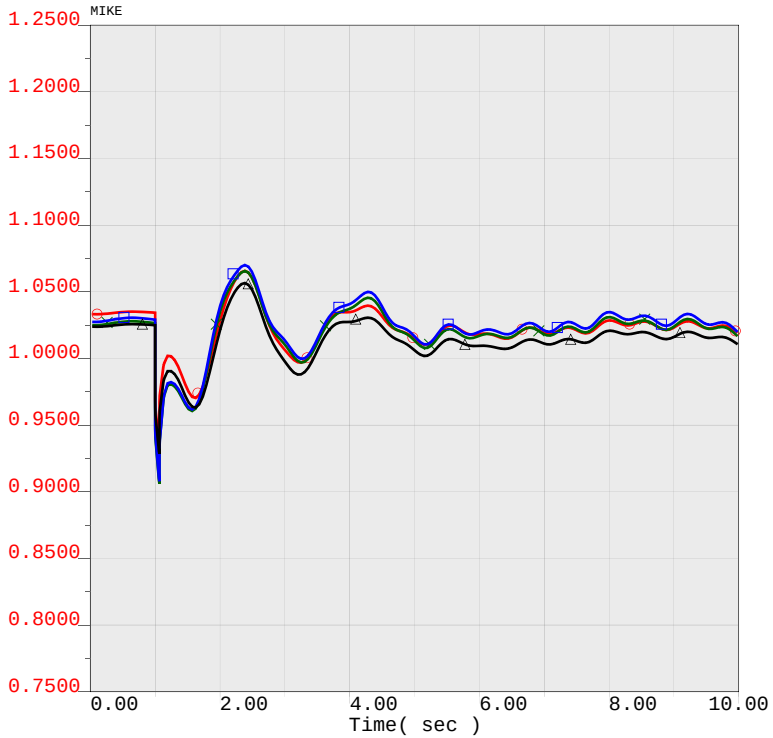


○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

hassy-ng.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:33:32 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

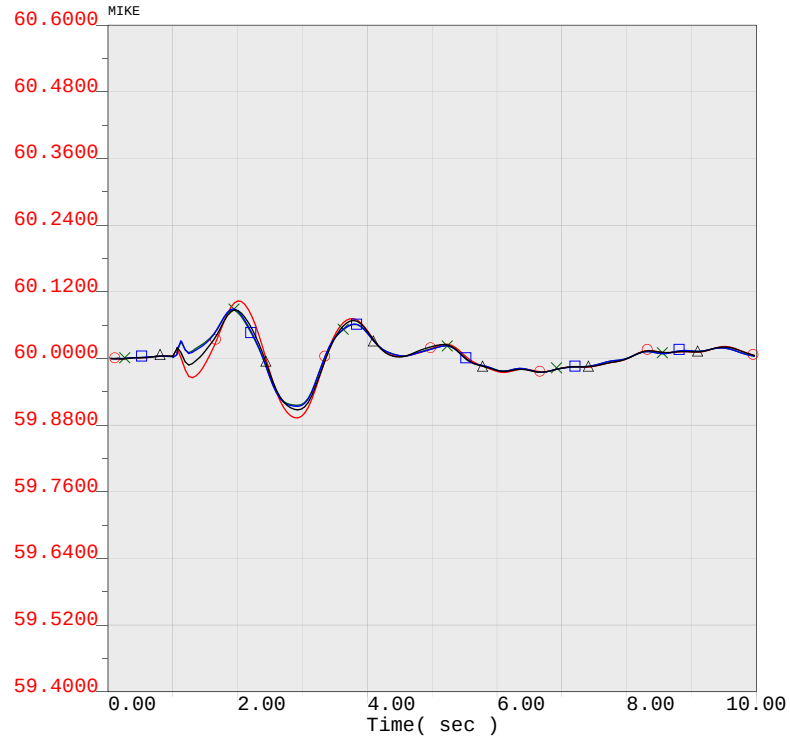


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

hassy-ng.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:33:32 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL

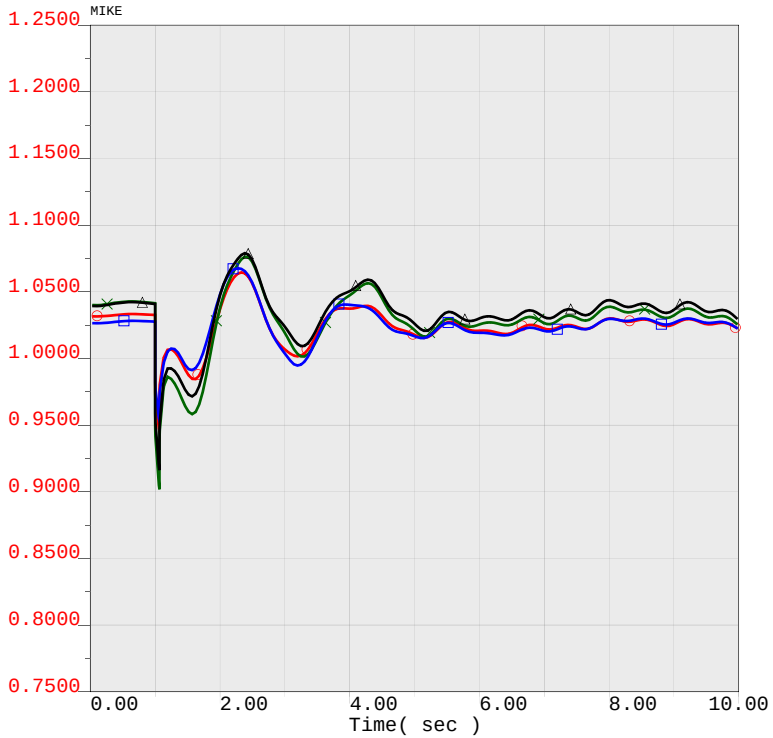


○ 59.4	fbus	8331	ELCENTSW	161.0	1	1	60.6
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

hassy-ng.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:33:32 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

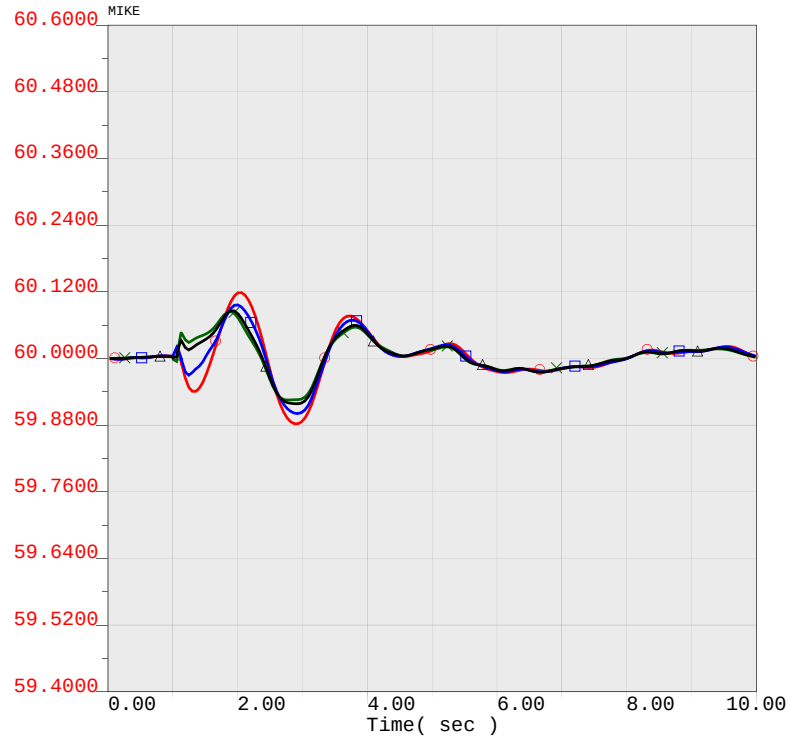


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

hassy-ng.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:33:32 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

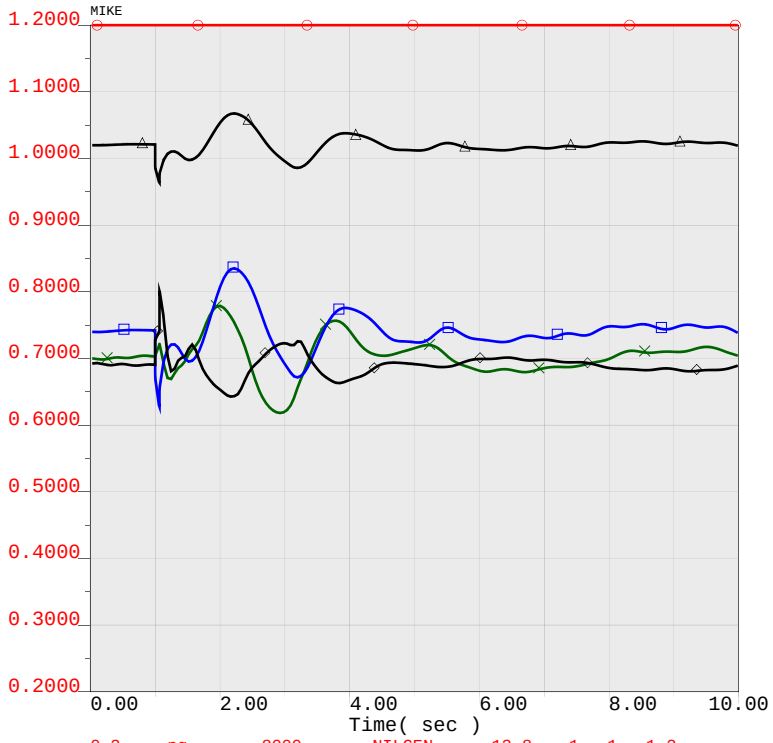


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

hassy-ng.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:33:32 2006

Niland Generator Bus 8000

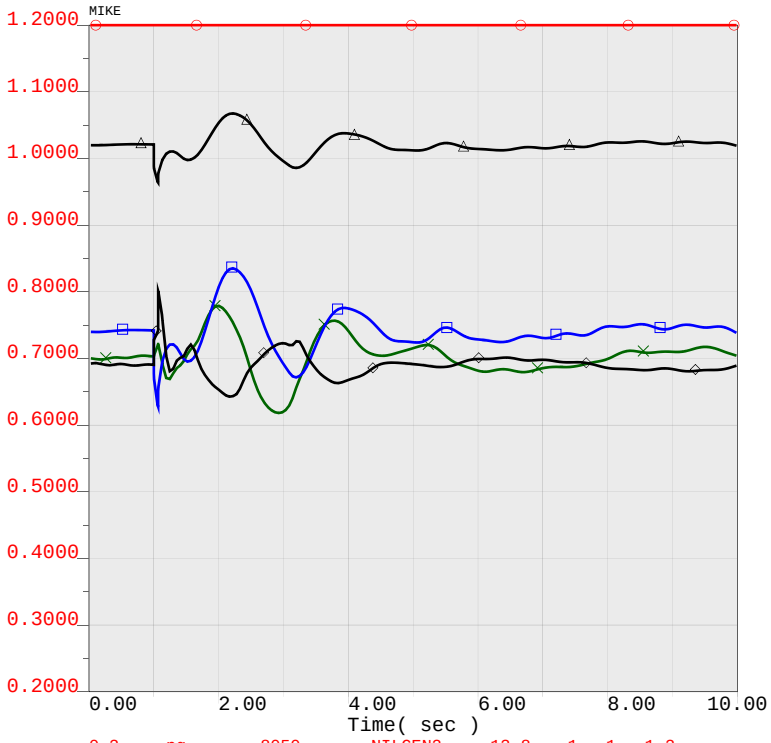


0.2	pg	8000	NILGEN	13.8	1	1	1.2
59.4	fbug	8000	NILGEN	13.8	1	1	60.6
0.75	vbug	8000	NILGEN	13.8	1	1	1.25
0.2	vt	8000	NILGEN	13.8	4	1	1.2
0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

hassy-ng.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:33:32 2006

Niland Generator Bus 8050

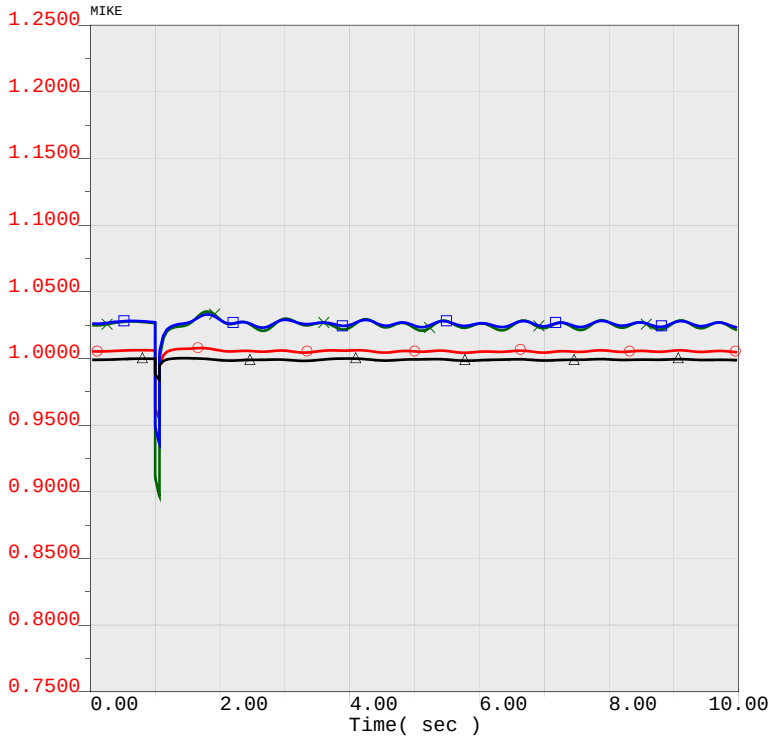


0.2	pg	8050	NILGEN2	13.8	1	1	1.2
59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
0.2	vt	8050	NILGEN2	13.8	4	1	1.2
0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip Hassyampa-North Gila 500kV line
Case r2_s_nil_pst_maxgen_v15.SAV

hassy-ng.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:33:32 2006

IID 230kV Voltage plots EC, CV, RMN, IV



○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

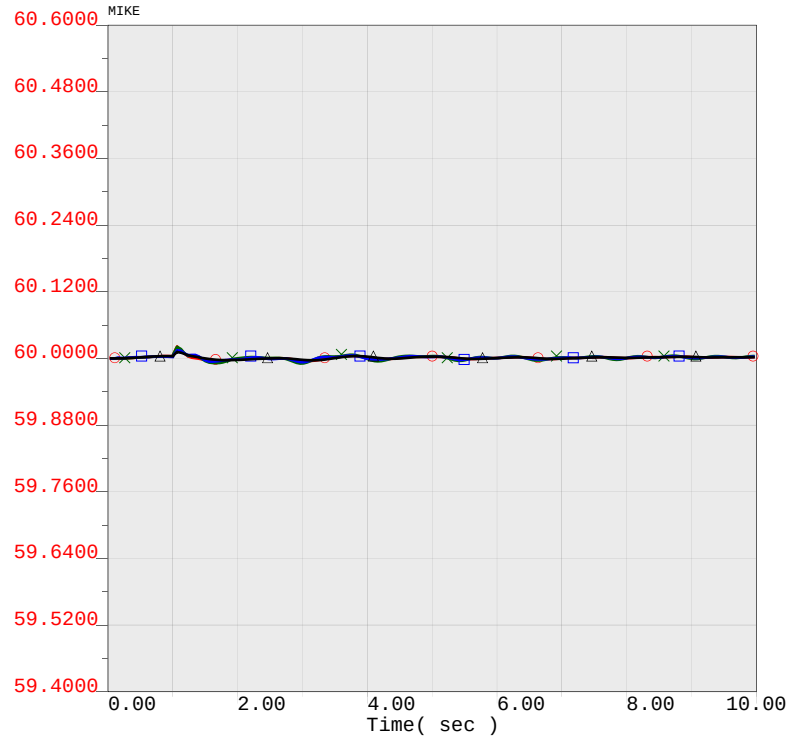
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec-nil1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:13:35 2006

IID 230kV Frequency plots EC, CV, RMN, IV



○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

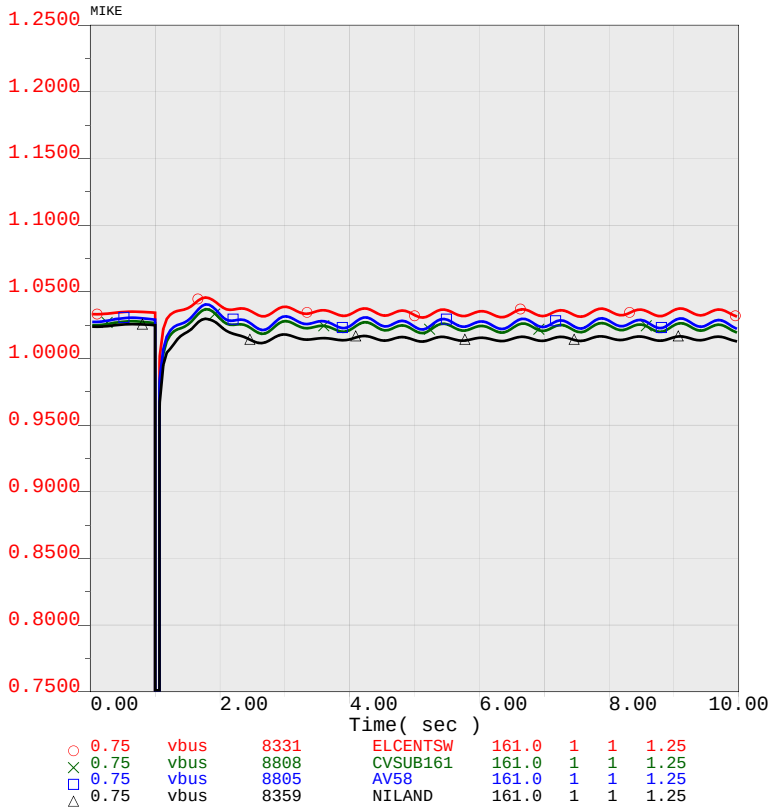
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec-nil1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:13:35 2006

IID 161kV Voltage plots EC, CV, AV58, NIL



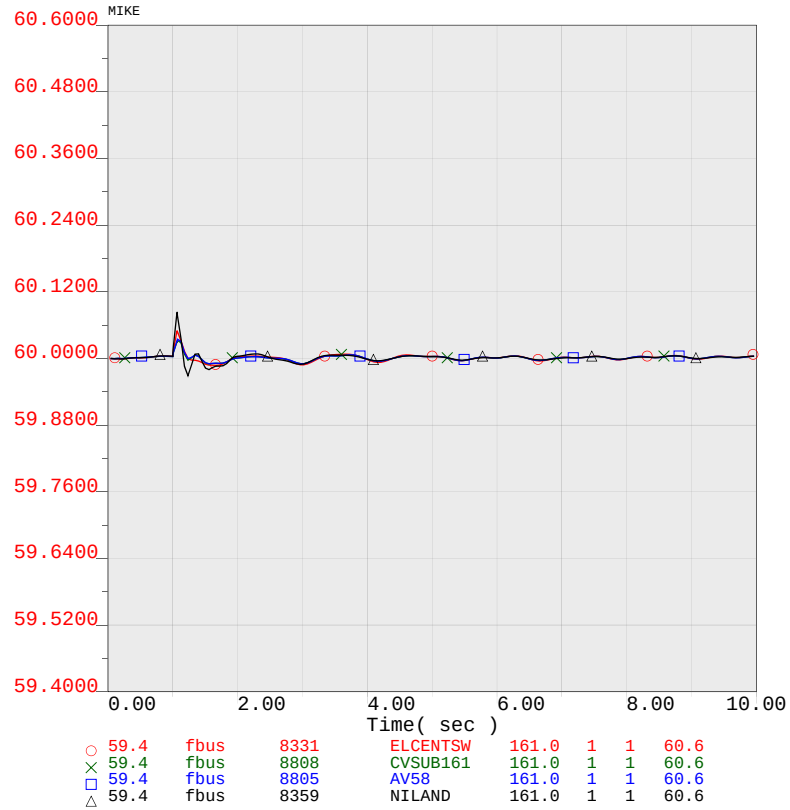
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec-nil1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:13:35 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL



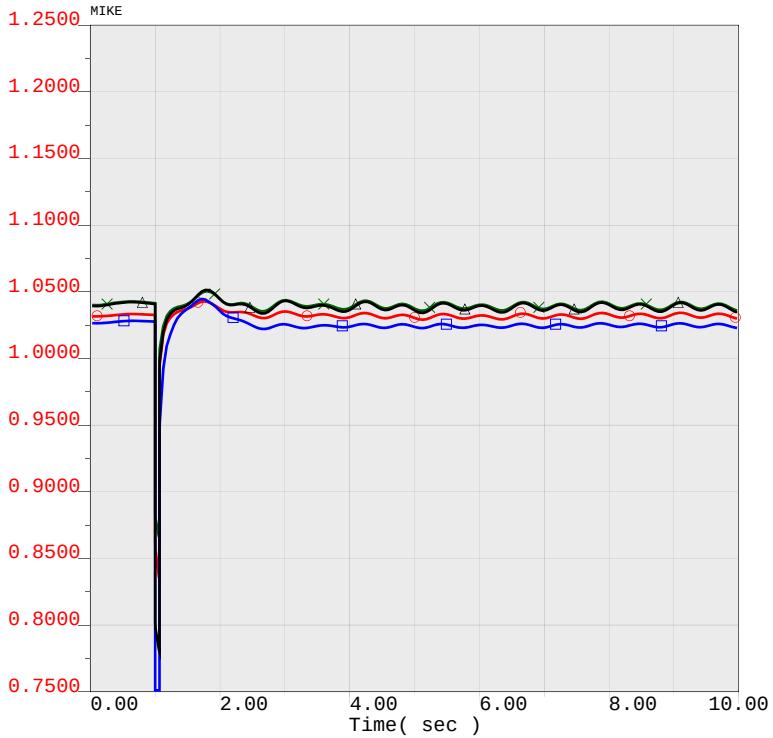
SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec-nil1.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:13:35 2006

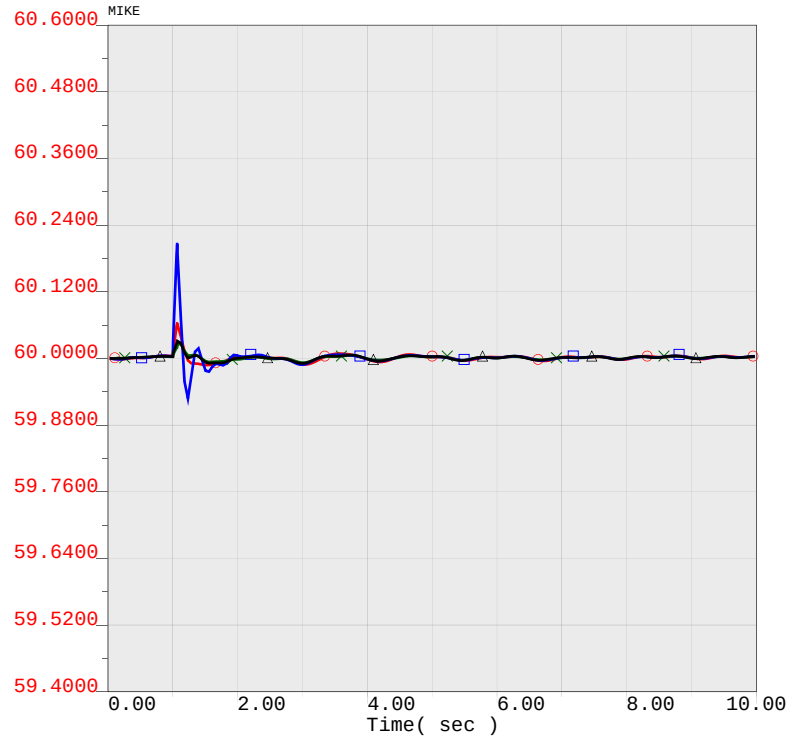
IID 92kV Voltage plots EC, MIR, NIL, CV



○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

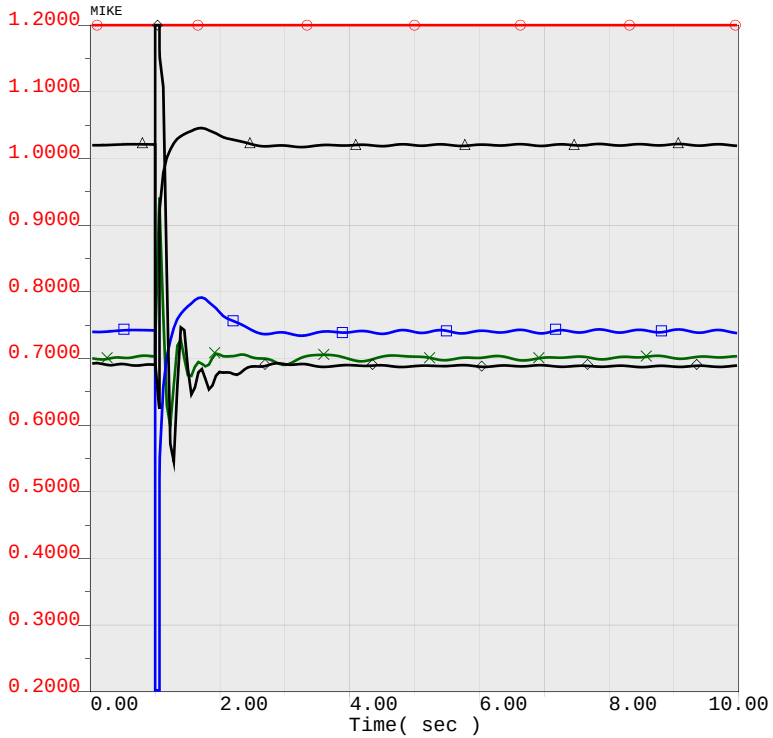
IID 92kV Frequncy plots EC, MIR, NIL, CV



○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

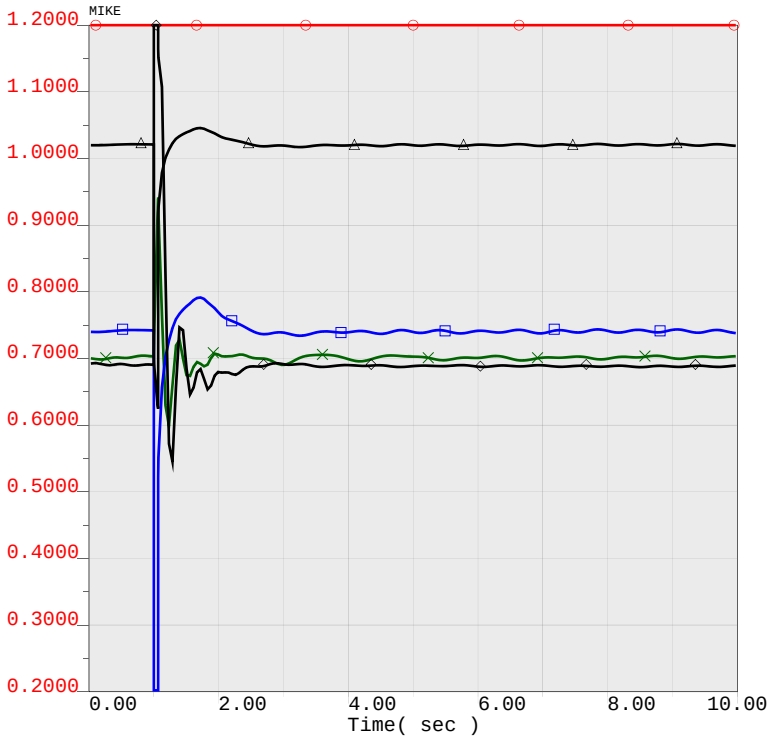
Niland Generator Bus 8000



○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
× 59.4	fbug	8000	NILGEN	13.8	1	1	60.6
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

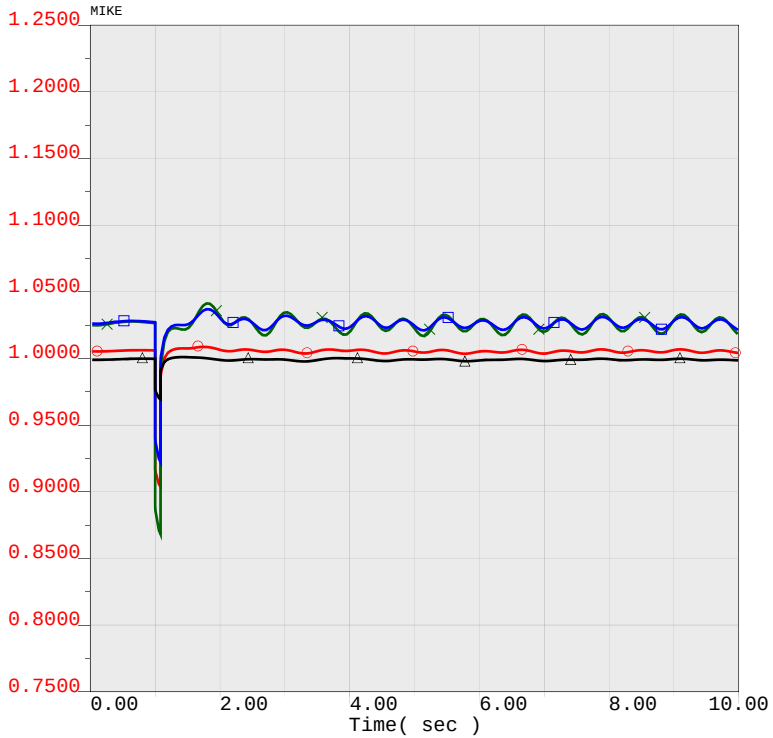
Niland Generator Bus 8050



○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip NILAND-ELCENTSW 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

IID 230kV Voltage plots EC, CV, RMN, IV



○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
×	0.75	vbus	8311	COACHELA	230.0	1	1	1.25
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

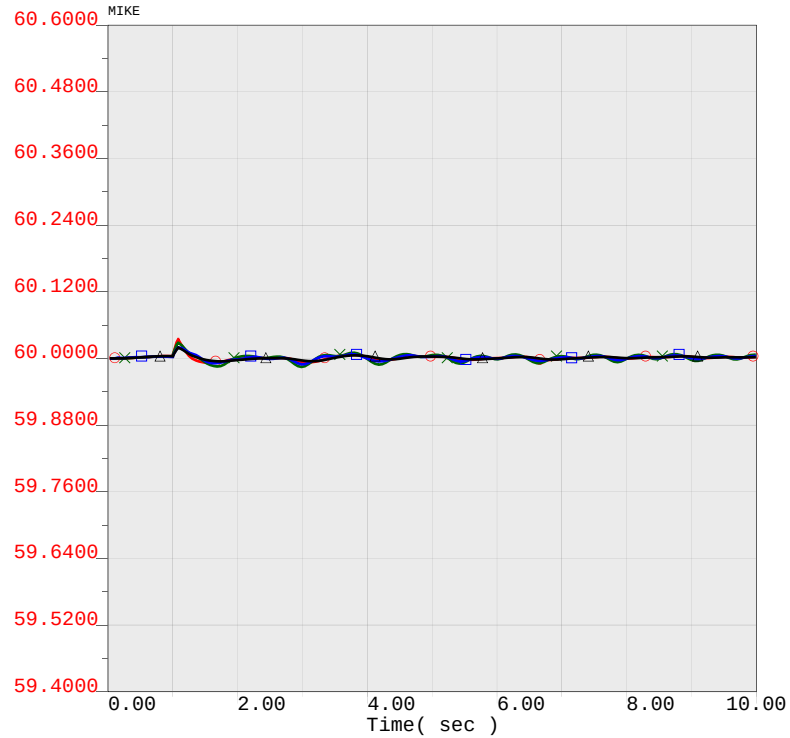
SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec_ave58.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:05:36 2006

IID 230kV Frequency plots EC, CV, RMN, IV



○	59.4	fbus	8332	ELCENTSW	230.0	1	1	60.6
×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

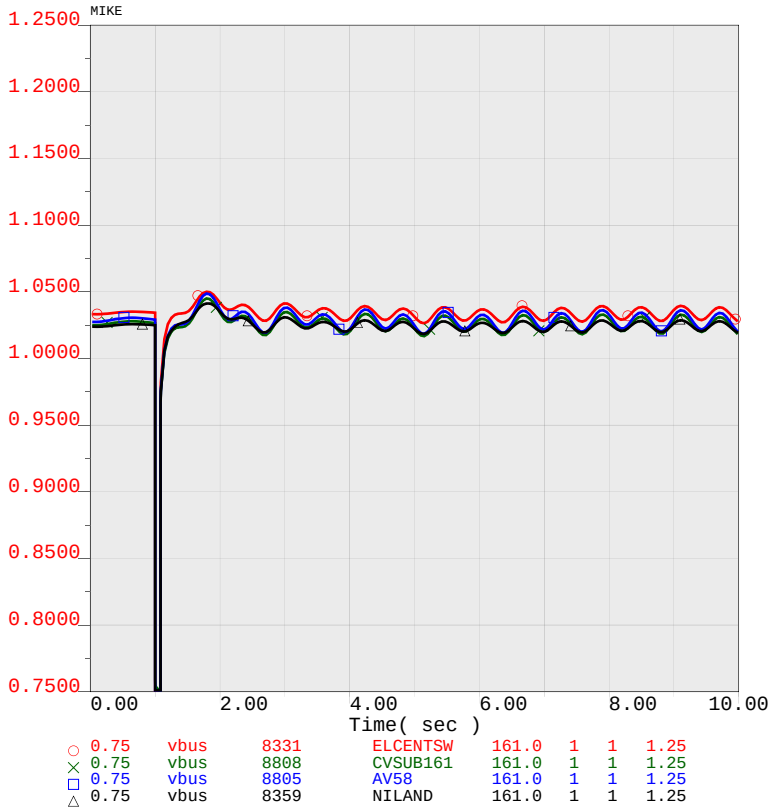
SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec_ave58.chf

c:\upslf15\samples\plot15

Wed Jan 11 17:05:36 2006

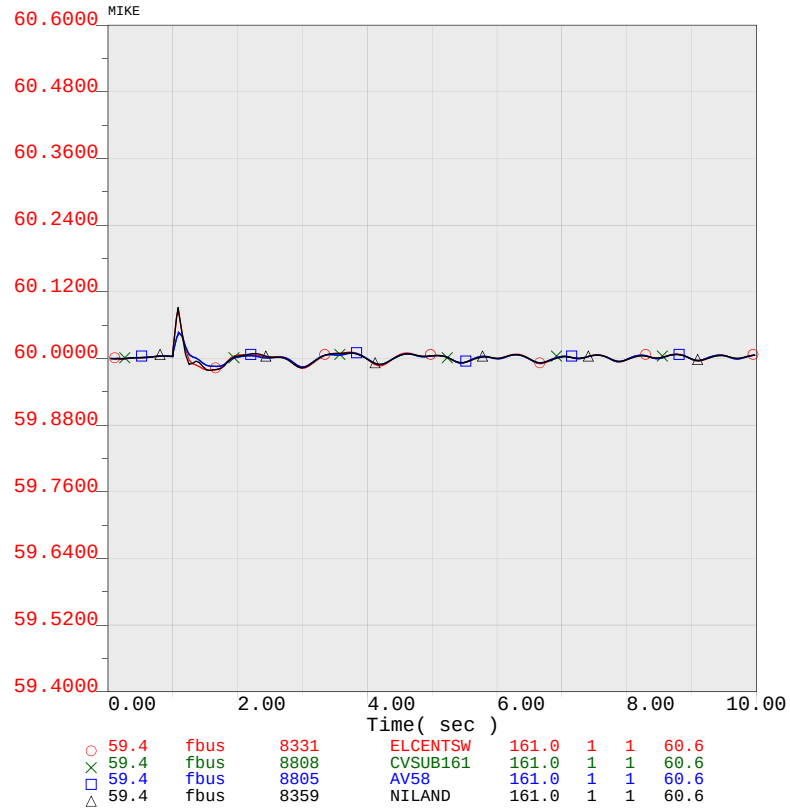
IID 161kV Voltage plots EC, CV, AV58, NIL



SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec_ave58.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:05:36 2006

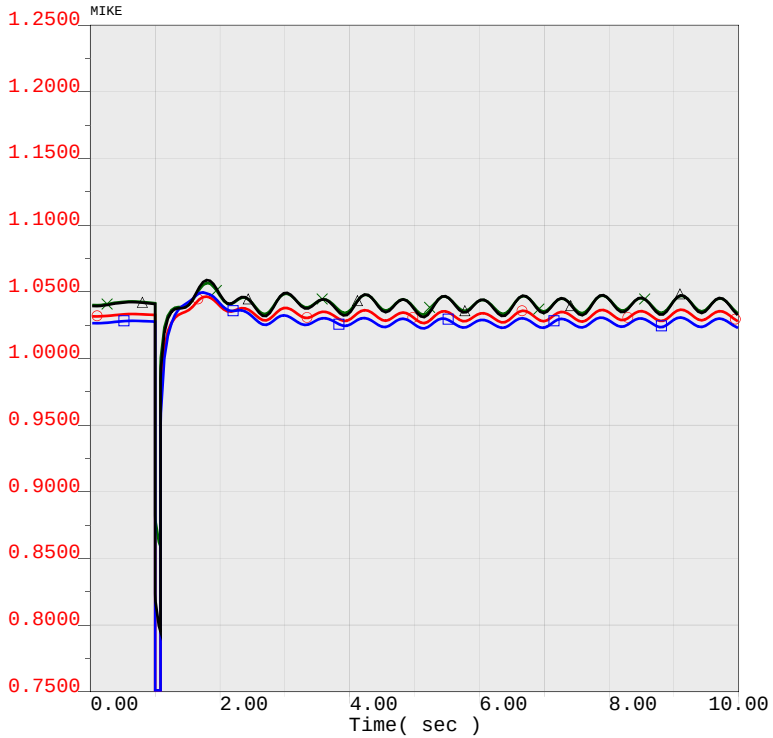
IID 161kV Frequncy plots EC, CV, AV58, NIL



SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec_ave58.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:05:36 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

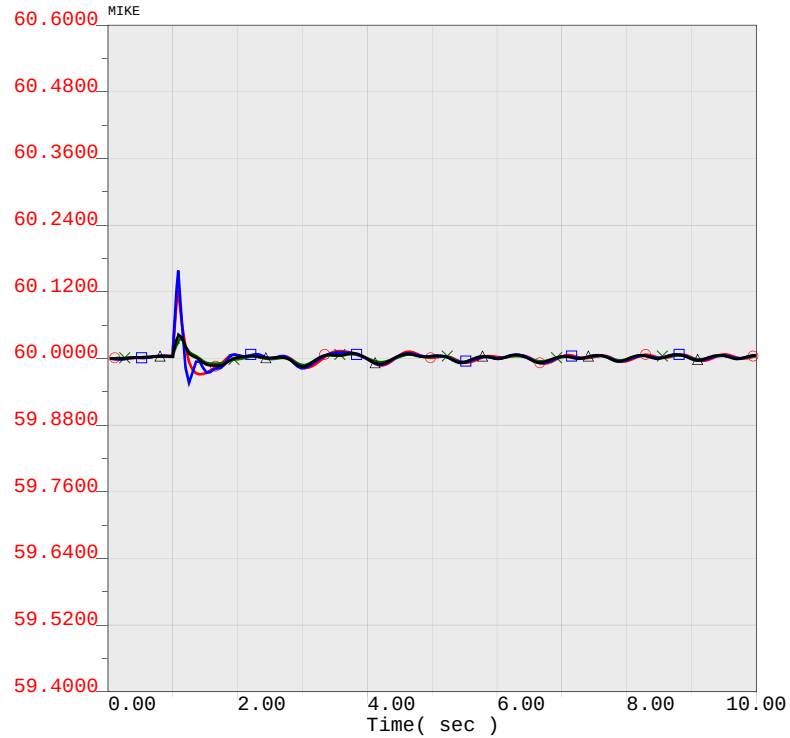


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec_ave58.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:05:36 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

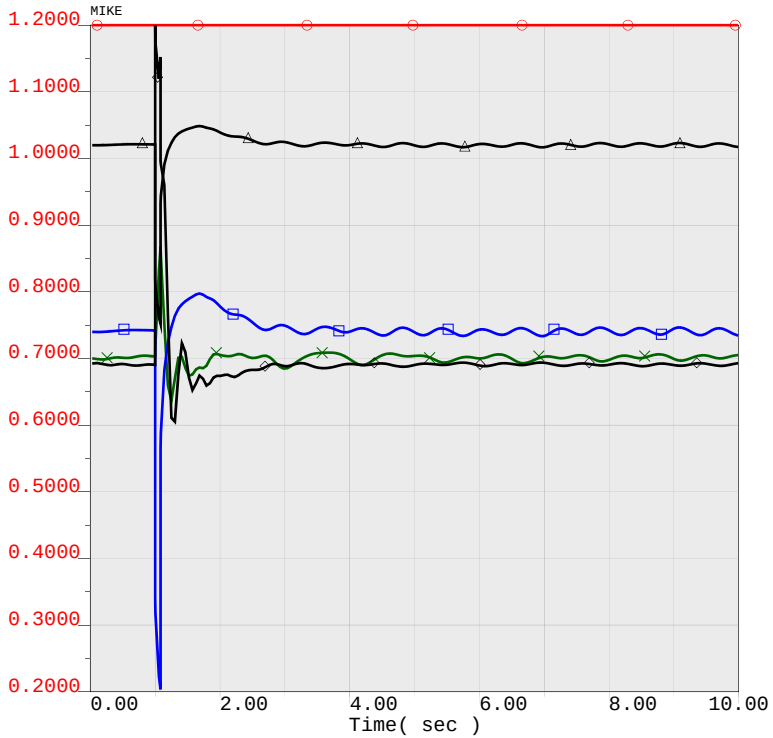


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec_ave58.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:05:36 2006

Niland Generator Bus 8000



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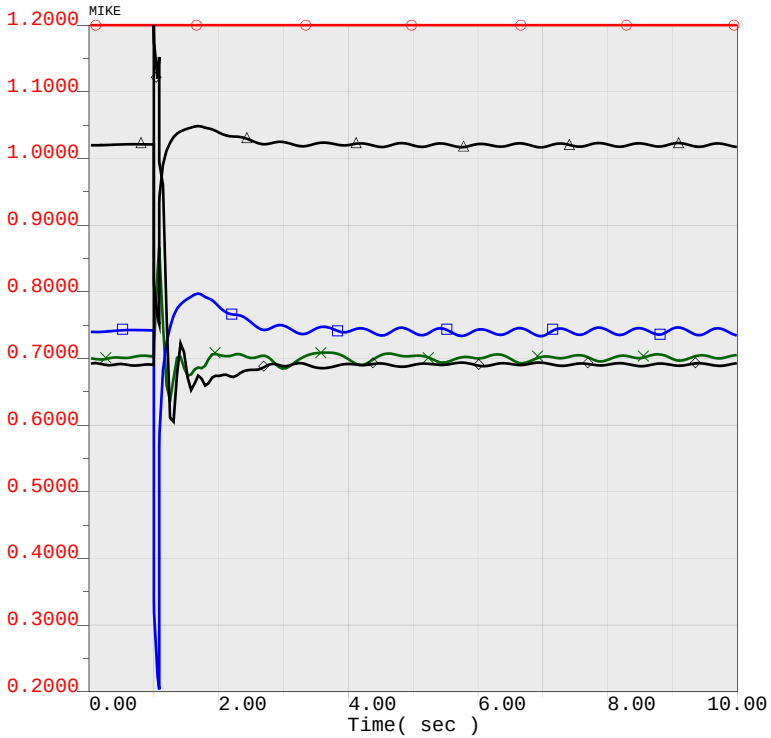
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec_ave58.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:05:36 2006

Niland Generator Bus 8050



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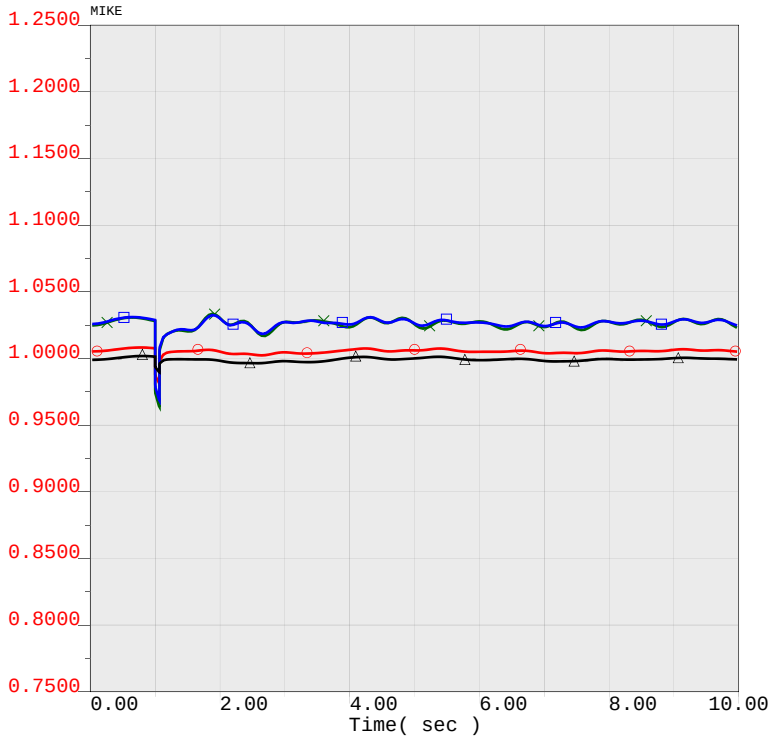
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip EC-AVE58 161kV
Case r2_s_nil_pst_maxgen_v15.SAV

ec_ave58.chf | c:\upslf15\samples\plot15 | Wed Jan 11 17:05:36 2006

IID 230kV Voltage plots EC, CV, RMN, IV



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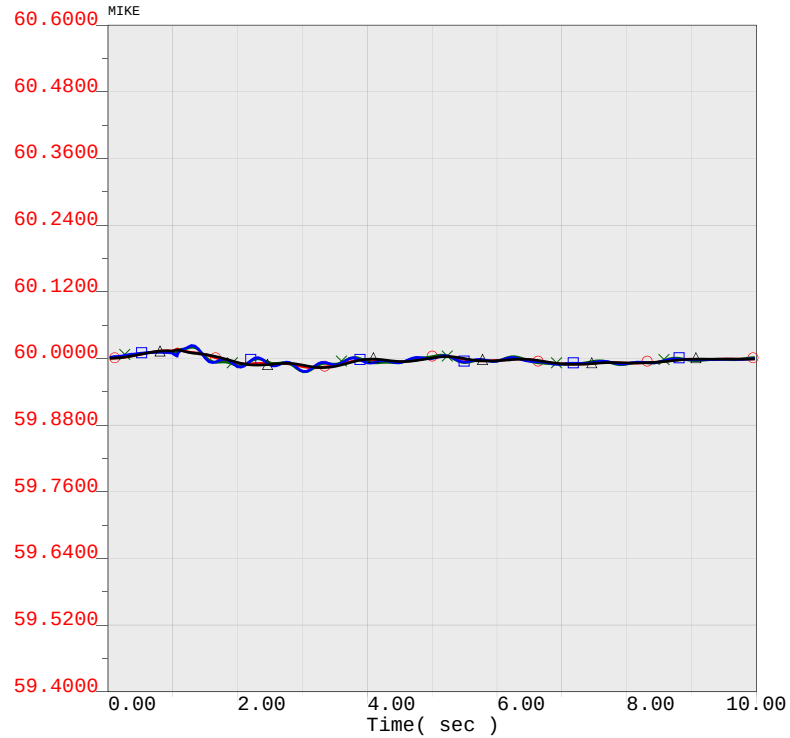
□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-knob.chf
c:\upslf15\samples\plot15
Wed Jan 11 16:13:54 2006

IID 230kV Frequency plots EC, CV, RMN, IV



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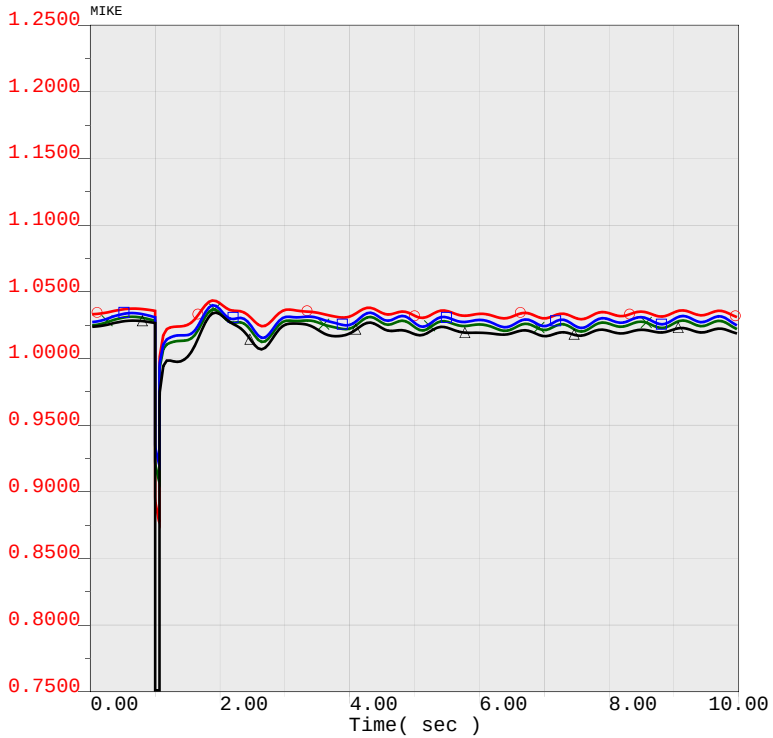
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-knob.chf
c:\upslf15\samples\plot15
Wed Jan 11 16:13:54 2006

IID 161kV Voltage plots EC, CV, AV58, NIL



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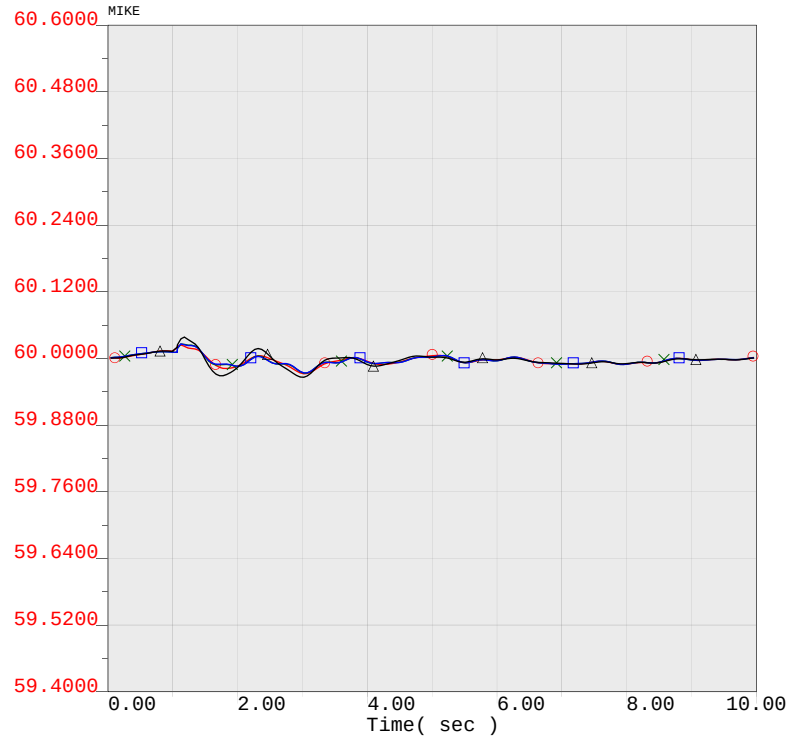
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-knob.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:13:54 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL



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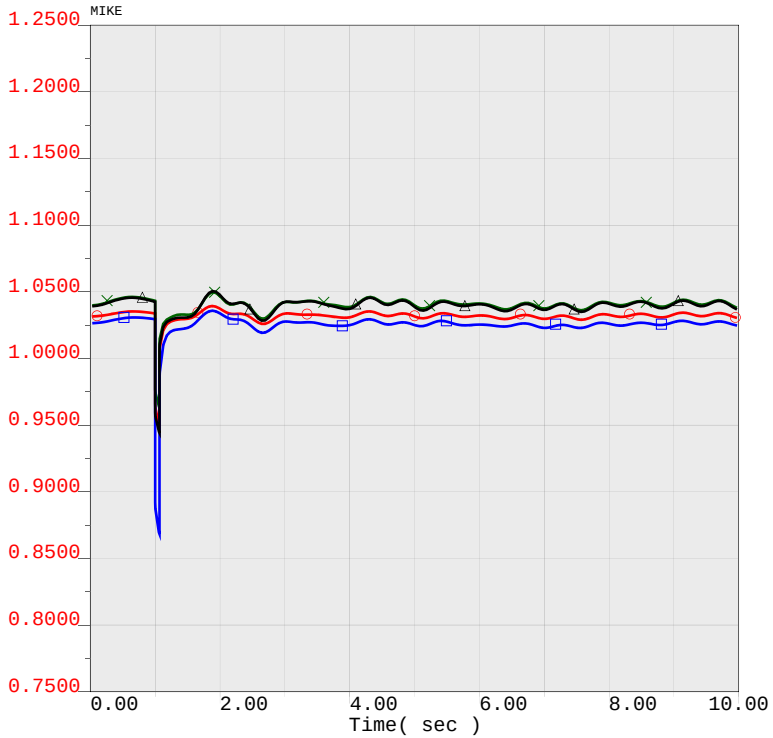
× 59.4	fbus	8808	CVSUB161	161.0	1	1	60.6
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-knob.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:13:54 2006

IID 92kV Voltage plots EC, MIR, NIL, CV

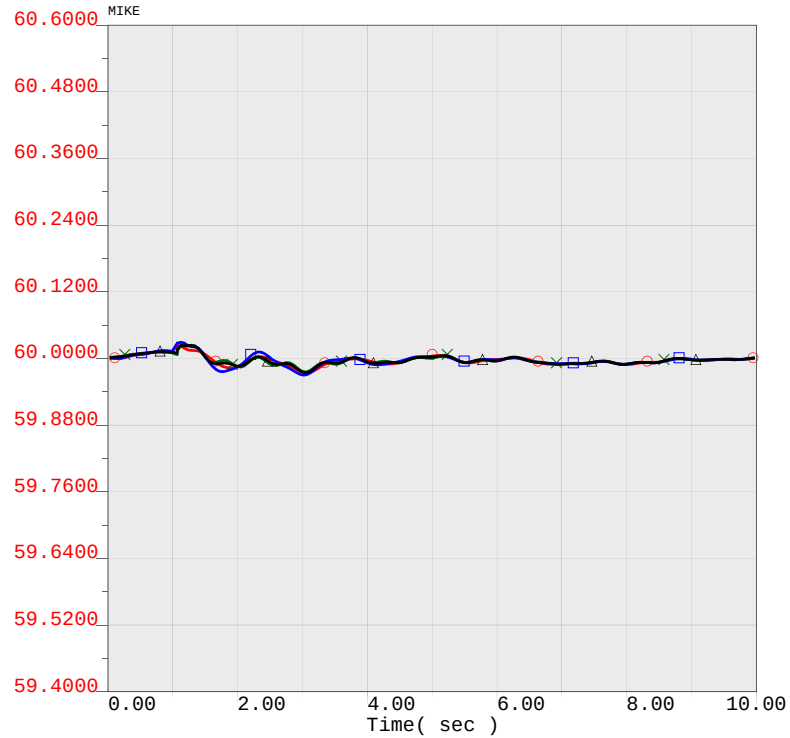


○	0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
×	0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□	0.75	vbul	8361	NILAND	92.0	1	1	1.25
△	0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-knob.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:13:54 2006

IID 92kV Frequncy plots EC, MIR, NIL, CV

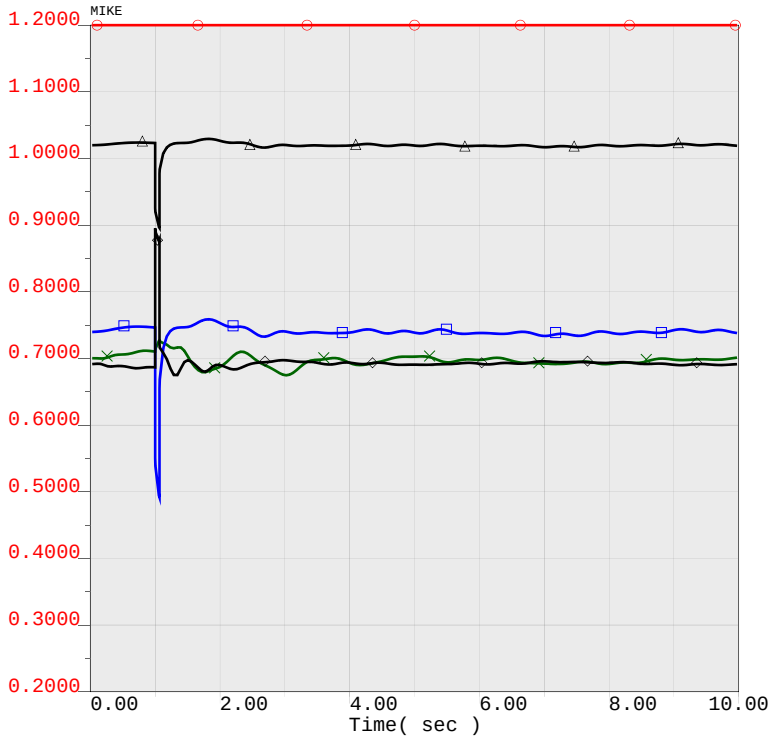


○	59.4	fbus	8335	ELSTEAMP	92.0	1	1	60.6
×	59.4	fbus	8640	MIRAGTIE	92.0	1	1	60.6
□	59.4	fbul	8361	NILAND	92.0	1	1	60.6
△	59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-knob.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:13:54 2006

Niland Generator Bus 8000



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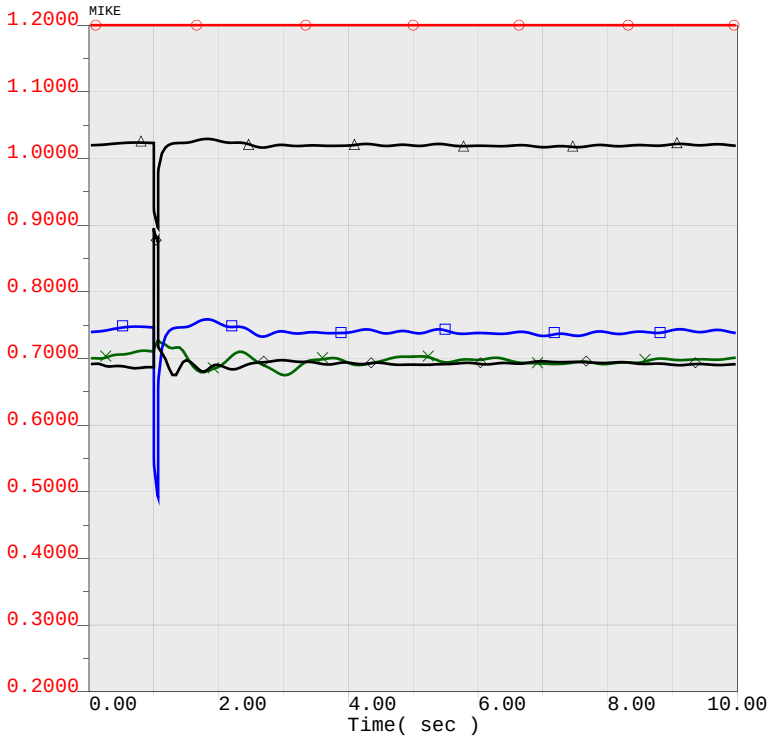
□ 0.75	vbug	8000	NILGEN	13.8	1	1	1.25
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-knob.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:13:54 2006

Niland Generator Bus 8050



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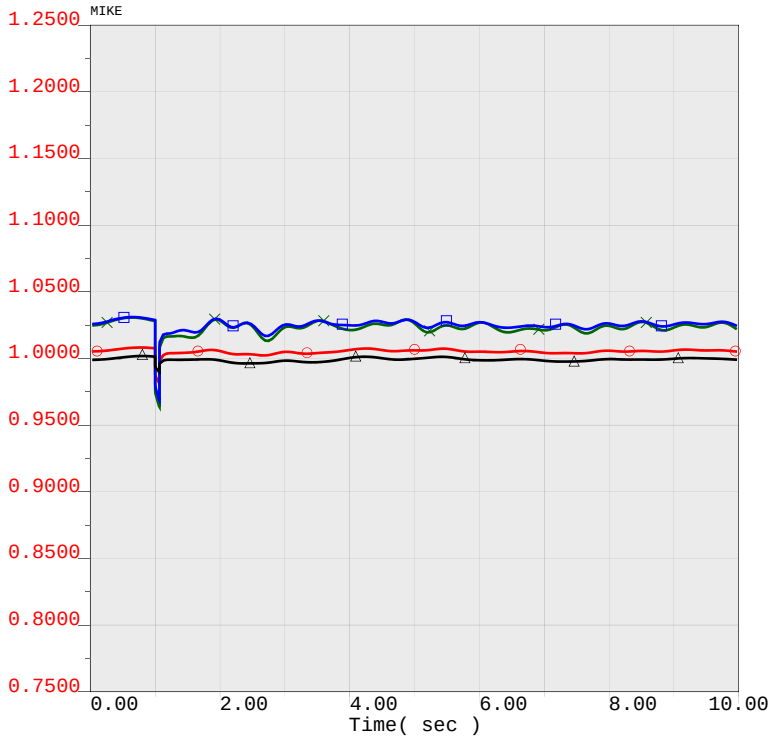
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-KNOB 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-knob.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:13:54 2006

IID 230kV Voltage plots EC, CV, RMN, IV



○	0.75	vbus	8332	ELCENTSW	230.0	1	1	1.25
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□	0.75	vbus	8695	RAMON	230.0	1	1	1.25
△	0.75	vbus	22356	IMPRLVLY	230.0	1	1	1.25

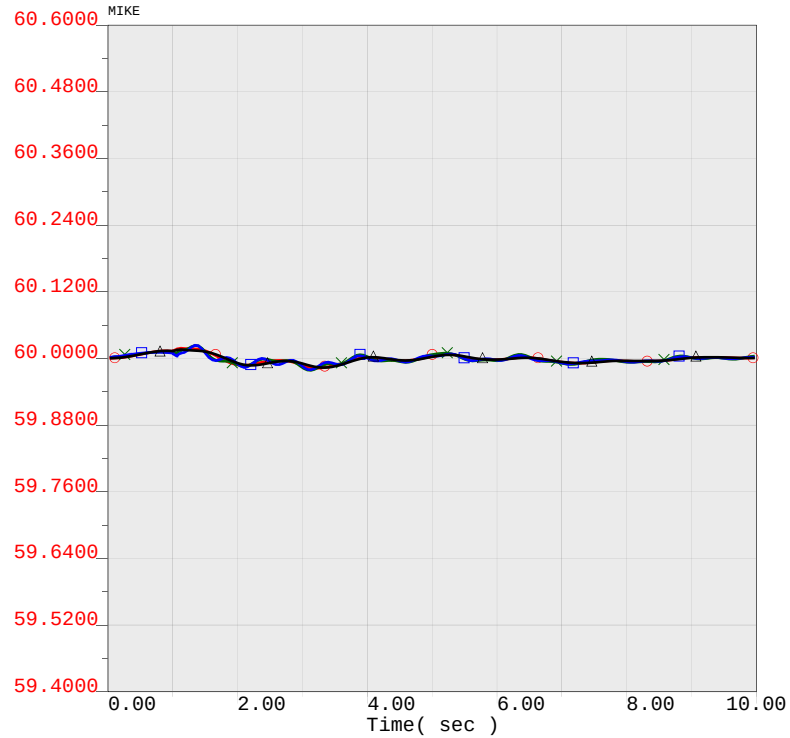
SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-egmt.chf

c:\upslf15\samples\plot15

Wed Jan 11 16:09:20 2006

IID 230kV Frequency plots EC, CV, RMN, IV



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×	59.4	fbus	8311	COACHELA	230.0	1	1	60.6
□	59.4	fbus	8695	RAMON	230.0	1	1	60.6
△	59.4	fbus	22356	IMPRLVLY	230.0	1	1	60.6

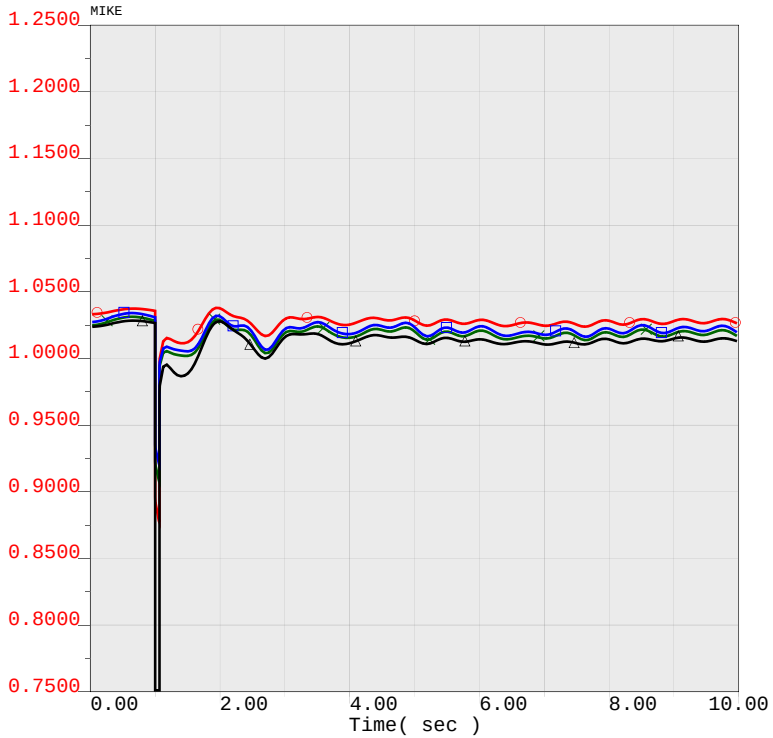
SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-egmt.chf

c:\upslf15\samples\plot15

Wed Jan 11 16:09:20 2006

IID 161kV Voltage plots EC, CV, AV58, NIL

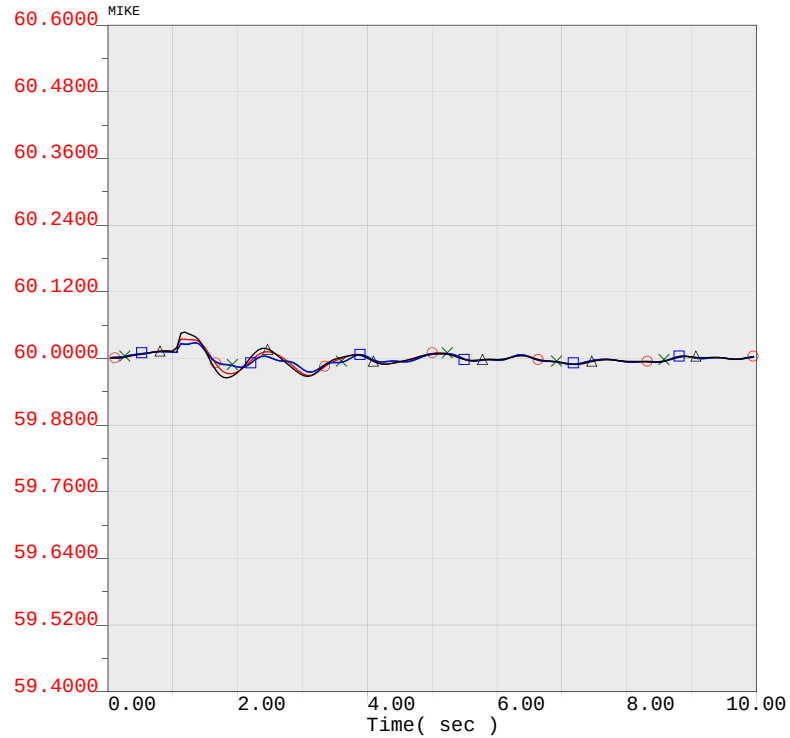


○ 0.75	vbus	8331	ELCENTSW	161.0	1	1	1.25
× 0.75	vbus	8808	CVSUB161	161.0	1	1	1.25
□ 0.75	vbus	8805	AV58	161.0	1	1	1.25
△ 0.75	vbus	8359	NILAND	161.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-egmt.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:09:21 2006

IID 161kV Frequncy plots EC, CV, AV58, NIL



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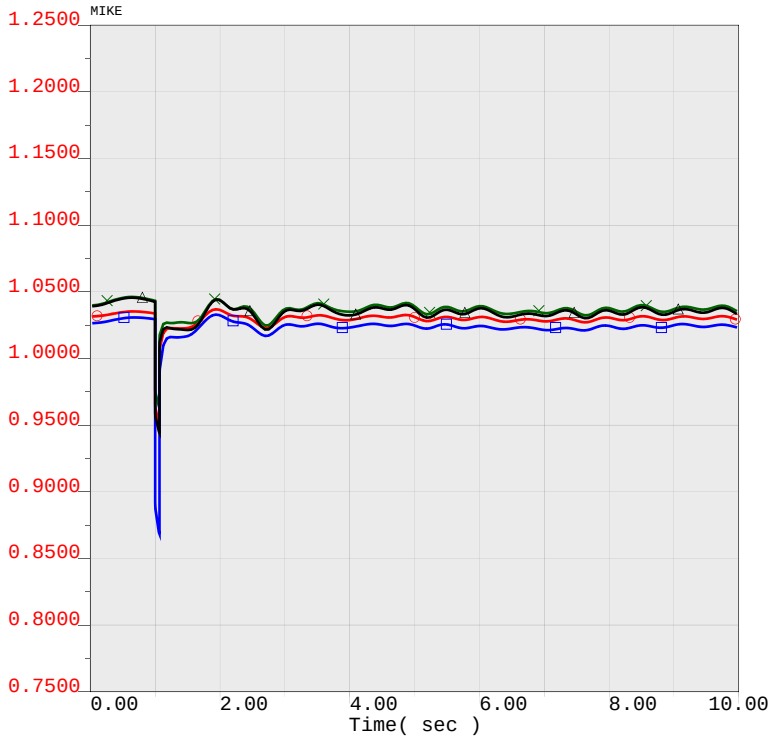
□ 59.4	fbus	8805	AV58	161.0	1	1	60.6
△ 59.4	fbus	8359	NILAND	161.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-egmt.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:09:21 2006

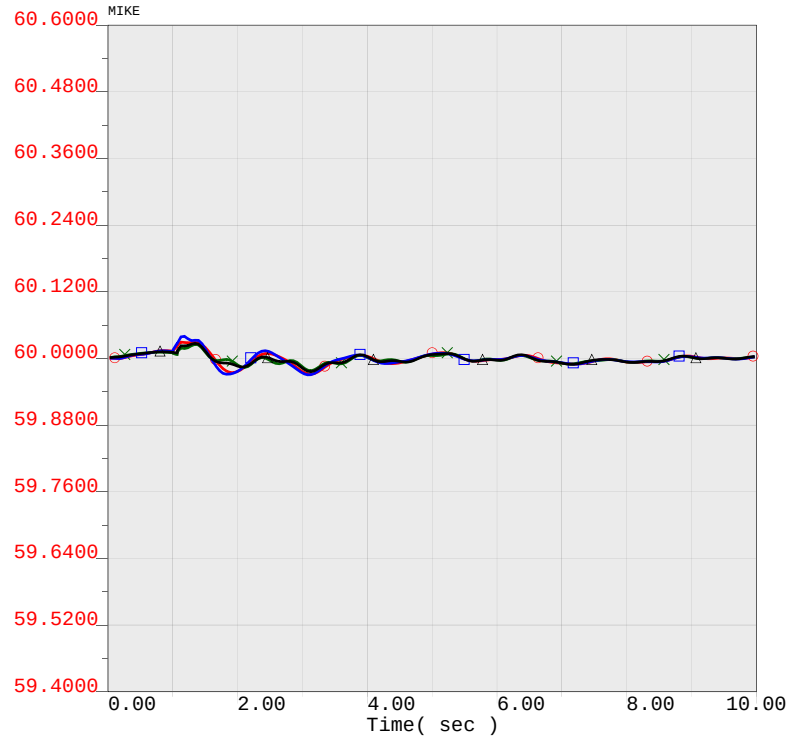
IID 92kV Voltage plots EC, MIR, NIL, CV



○ 0.75	vbus	8335	ELSTEAMP	92.0	1	1	1.25
× 0.75	vbus	8640	MIRAGTIE	92.0	1	1	1.25
□ 0.75	vbul	8361	NILAND	92.0	1	1	1.25
△ 0.75	vbus	8279	CVSUB	92.0	1	1	1.25

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

IID 92kV Frequncy plots EC, MIR, NIL, CV



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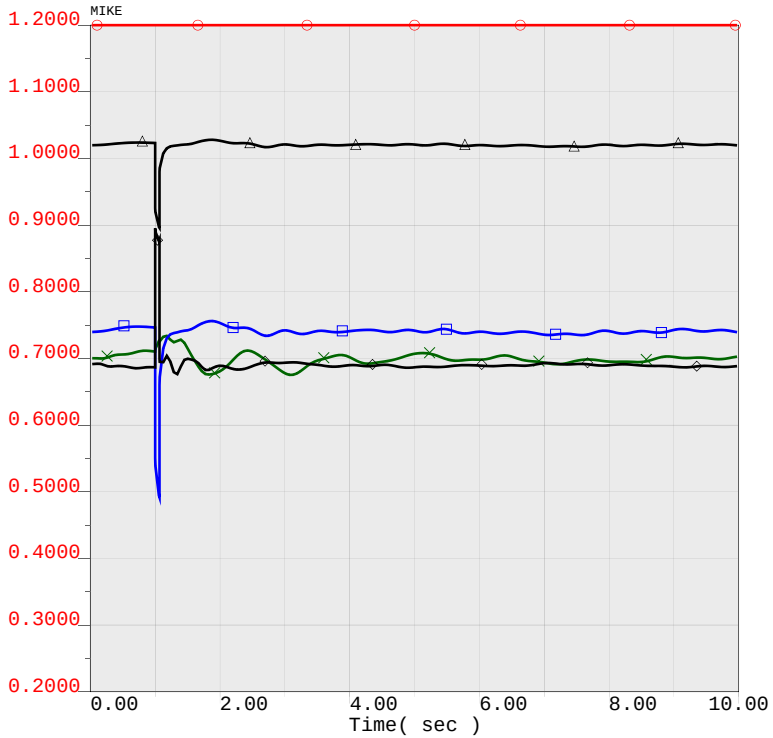
□ 59.4	fbul	8361	NILAND	92.0	1	1	60.6
△ 59.4	fbus	8279	CVSUB	92.0	1	1	60.6

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

Niland Generator Bus 8000



○ 0.2	pg	8000	NILGEN	13.8	1	1	1.2
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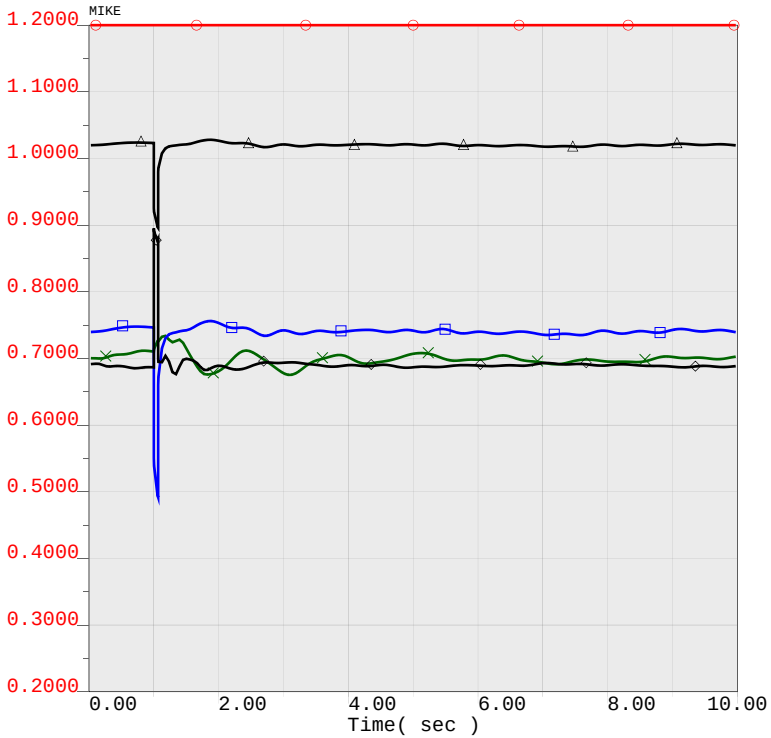
△ 0.2	vt	8000	NILGEN	13.8	4	1	1.2
◇ 0.2	it	8000	NILGEN	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-egmt.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:09:21 2006

Niland Generator Bus 8050



○ 0.2	pg	8050	NILGEN2	13.8	1	1	1.2
× 59.4	fbug	8050	NILGEN2	13.8	1	1	60.6
□ 0.75	vbug	8050	NILGEN2	13.8	1	1	1.25
△ 0.2	vt	8050	NILGEN2	13.8	4	1	1.2
◇ 0.2	it	8050	NILGEN2	13.8	4	1	1.2

SIS NILAND STUDY
2008 Heavy Summer Case
Trip BLYTHE-EAGLEMTN 161 kV
Case r2_s_nil_pst_maxgen_v15.SAV

bly-egmt.chf | c:\upslf15\samples\plot15 | Wed Jan 11 16:09:21 2006

Niland System Impact Study

Appendix I
Short Circuit Analysis

February 2006

Executive Summary

This report outlines the results of a short circuit study and breaker capability analysis that was performed to evaluate the impact of the addition of two (2) 50 MW generators to the 92 kV Niland Substation. The results of the study indicate that no interrupting rating violations will occur due to the increase in short circuit duties resulting from the generator addition.

1.0 Introduction

This report outlines the results of a short circuit study and breaker capability analysis that was performed to evaluate the impact of the addition of two (2) 50 MW generators to the existing 92 kV Niland Substation bus in 2008. The generation will be interconnected to the IID Energy electrical grid via two (2) 75 MVA generator step-up transformers (GSU).

The specific focus of this study is to evaluate the impact of the generator addition on system short circuit levels and to determine if the increase in short circuit levels, related to the generation addition, exceeds the interrupting rating of any short circuit interrupting devices (ie. Circuit breakers, circuit switchers, etc.).

In addition to examining the impact of the addition of the generation on the IID Energy electrical grid, a study was also performed to determine the impact on the short circuit current levels at the interconnection points with the electrical grids of neighboring utilities.

2.0 Study Description

The study was conducted by modeling the addition of the generation at Niland to the IID Energy 2008 Base Case Short Circuit Models. All short circuit analysis was performed using ASPEN, Inc. OneLiner short circuit analysis software. To conduct the study, the following assumptions were used.

- The “All-in” bus fault duties were utilized for the initial evaluation of short circuit levels vs interrupting ratings. In the event that interrupting rating violations were found, individual breaker contributions were evaluated to determine if actual interrupting rating violations were present.

3.0 Study Results

The tabular results of the study have been provided in Attachment I. In reviewing the tabular results it should be noted that short circuit levels above 90% of the interrupting ratings are marked in yellow. Levels above 100% of rating are marked in red. The results of the study are the following:

- The net change in short circuit levels on the 92 kV Niland bus is approximately 53.25%. The short circuit duty contribution from each generator is 2,029 A for three phase faults and 4,855 A for phase to ground faults.
- No interrupting rating violations were found for IID Energy equipment in going from pre-project to post-project conditions.

- The impact on the short circuit levels at interconnection busses documented in the table below:

	2008 Base		2008 with Niland Generation			
Bus	**3 Phase (A)**	**L-G (A)**	**3 Phase (A)**	**L-G (A)**	**3 Phase Change (%)**	**L-G Change (%)**
Imperial Valley 230 kV	28,597	26,408	28,604	26,412	0.02%	0.02%
Devers 230 kV	45,679	44,729	45,711	44,750	0.07%	0.05%
Mirage 230 kV	26,814	19,269	26,855	19,283	0.15%	0.07%
Knob 161 kV	10,206	9,191	10,221	9,199	0.15%	0.09%
Blythe 161 kV	26,629	25,164	26,703	25,205	0.28%	0.16%
Yucca 69 kV	21,922	24,557	21,927	24,561	0.02%	0.02%

As can be seen in the table above, the impact of the addition of the generation at Niland on the short circuit levels at the interconnection busses is very minimal with the exception of the Niland 161 kV bus. However, the fault duty levels at the Niland 161 kV bus are relatively low. Due to these two facts, no criteria violations are anticipated on neighboring utility systems.

4.0 Conclusion

This study has examined the impact of the addition of two (2) 50 MW generators to the 92 kV bus at Niland Substation on short circuit levels and circuit breaker and circuit switcher interrupting ratings. The results of the study indicate that the addition of the generation at Niland will not result in any interrupting rating violations for IID Energy equipment. Furthermore, no impacts on neighboring utility systems are anticipated due to the minimal impact on the short circuit levels at the interconnection busses.

Attachment I

Niland Generation Project - System Impact Study
Circuit Breaker Capability Study Summary

					2008 Case without Niland Gen (Pre-Project)		2008 Case with Niland Gen (Post Project)	
Bus Name	**IID Substation Name**	**kV**	**Breaker Rating (kA)**	**Note**	**Maximum Fault Symmetrical (A)**	**% of Interrupting Rating**	**Maximum Fault Symmetrical (A)**	**% of Interrupting Rating**
ANZA	ANZA	92	N/A		2,980	N/A	2,987	N/A
ATEN	ATEN	92	40,000		16,135	40%	16,301	41%
AVE-52	AVE. 52	92	N/A		14,488	N/A	14,740	N/A
AVE.42 N.BUS	AVE. 42	92	40,000		13,706	34%	13,847	35%
AVE48	AVE. 48	92	40,000		11,430	29%	11,536	29%
AVE58-161KV	AVE. 58	161	40,000		6,106	15%	6,204	16%
AVE58-92	AVE. 58	92	40,000		14,017	35%	14,152	35%
BEEF PLANT	BEEF PLANT	92	40,000		7,417	19%	7,814	20%
BRAVO 92 KV.	BRAVO	92	40,000		13,913	35%	14,001	35%
BRAWLEY	BRAWLEY	92	40,000		11,703	29%	12,255	31%
CALEXICO	CALEXICO	92	40,000		11,709	29%	11,778	29%
CALIPAT92	CALIPATRIA	92	40,000		8,488	21%	9,539	24%
CARREON	CARREON	92	40,000		10,790	27%	10,878	27%
CENTRAL	CENTRAL	92	40,000		12,406	31%	12,510	31%
CLARK	CLARK	92	40,000		15,647	39%	15,812	40%
CLPT-PRISON	CALIPATRIA PRISON	92	40,000		8,512	21%	10,179	25%
			40,000			45%		45%
COACHELA	COACHELLA SW STA	92	22,000	GTO CB	17,830	81%	18,049	82%
COLMAC92	COLMAC	92	40,000		8,829	22%	8,879	22%
CV-161	COACHELLA VALLEY	161	40,000		7,066	18%	7,190	18%
CV-230	COACHELLA VALLEY	230	40,000		16,311	41%	16,384	41%
CV-92	COACHELLA VALLEY	92	40,000		21,556	54%	21,815	55%
DAHLIA	DAHLIA	92	40,000		16,183	40%	16,360	41%
DESERT SHORE	DESERT SHORES	92	40,000		4,011	10%	4,026	10%
DIXIE-PRISON	DIXIELAND PRISON	92	40,000		7,172	18%	7,208	18%
DIXIELAND	DIXIELAND	92	40,000		7,585	19%	7,625	19%
DROP4	DROP 4	92	40,000		13,049	33%	13,101	33%
E.MESA	EAST MESA	92	40,000		8,167	20%	8,193	20%
EARTH-PLANT	(CALENERGY) SALTON SEA 2 - EARTH PLANT	92	20,000		6,152	31%	6,153	31%
EDOM	EDOM	92	40,000		9,774	24%	9,809	25%
ELCENTSW	EL CENTRO SW STA	92	40,000		33,541	84%	34,050	85%
ELCENTSW	EL CENTRO SW STA	161	40,000		8,782	22%	9,048	23%
ELCENTSW	EL CENTRO SW STA	230	40,000		9,493	24%	9,502	24%
ELMORE-92 k	(CALENERGY) ELMORE	92	31,500		7,548	24%	7,550	24%
			40,000			46%		46%
EUCLID	EUCLID	92	20,000	H40 & H50	18,209	91%	18,433	92%
FRANCES WAY-	FRANCES WAY	92	40,000		8,958	22%	9,002	23%
GEM 2 &3	GEM 2 & GEM 3	92	N/A		14,889	N/A	14,945	N/A
E. MESA 3	EAST MESA #3	92	40,000		16,578	41%	16,649	42%
HEBER IMP.	HEBER IMPERIAL	92	40,000		16,613	42%	16,736	42%
HEBERSCE	HGC PLANT (HEBER SCE)	92	N/A		14,698	N/A	14,807	N/A
HIGHLINE230	HIGHLINE	230	40,000		6,861	17%	6,880	17%
HIGHLINE92	HIGHLINE	92	40,000		19,565	49%	19,634	49%
HOCH	(CALENERGY) HOCH PLANT DEL RANCH	92	31,500		6,265	20%	6,266	20%
			40,000			33%		34%
HOLTVILLE	HOLTVILLE	92	16,000	H10	13,357	83%	13,451	84%
JACKSON	JACKSON	92	40,000		9,706	24%	9,779	24%

JEFFERSON92	JEFFERSON	92	40,000		8,905	22%	8,979	22%
LAQUINTA92	LA QUINTA	92	40,000		8,887	22%	8,953	22%
LEATHE-PLANT	(CALENERGY) LEATHERS PLANT	92	31,500		7,907	25%	7,909	25%
MALL	MALL	92	40,000		13,955	35%	14,072	35%
MARSHALL	MARSHALL	92	40,000		8,610	22%	8,653	22%
MIDWAY230	MIDWAY	230	40,000		10,520	26%	10,558	26%
MIDWAY92	MIDWAY	92	40,000		16,772	42%	16,786	42%
MONROE	MONROE	92	40,000		12,023	30%	12,132	30%
N. LA QUINTA	NORTH LA QUINTA	92	40,000		9,666	24%	9,741	24%
NAVY BASE	NAVY BASE	92	40,000		9,539	24%	9,602	24%
NEW BOMBAY		92	7,500		5,076	68%	5,544	74%
NEW IMPERIAL	NEW IMPERIAL	92	40,000		12,454	31%	12,659	32%
NEW MECCA	NEW MECCA	92	40,000		5,929	15%	6,096	15%
NILAND	NILAND	92	40,000		9,904	25%	15,178	38%
			40,000			22%		24%
			16,000	FOB		55%		59%
NILAND	NILAND	161	31,000	H10 & NOB	8,795	28%	9,518	31%
NORTHVIEW	NORTH VIEW	92	40,000		10,236	26%	10,298	26%
ORMESA1-92 1	ORMESA #1	92	N/A		9,400	N/A	9,416	N/A
ORMESA2-92	ORMESA #2	92	N/A		11,782	N/A	11,812	N/A
PANNO	PANNO	92	40,000		10,038	25%	10,357	26%
			40,000			21%		22%
PARKVIEW	PARKVIEW	92	20,000	H10 & H20	8,445	42%	8,885	44%
			40,000			41%		41%
PERRY	PERRY	92	26,000	PWO & PNO	16,320	63%	16,444	63%
PILOTKNOB	PILOT KNOB	92	40,000		6,708	17%	6,711	17%
			40,000			26%		26%
PILOTKNOB	PILOT KNOB	161	16,000	AXO	10,206	64%	10,221	64%
PLASTER-CITY	PLASTER CITY	92	64,000		5,465	9%	5,486	9%
PRUETT	PRUETT	92	40,000		16,022	40%	16,140	40%
RAMON	RAMON	92	40,000		13,434	34%	13,471	34%
RAMON	RAMON	230	40,000		26,305	66%	26,346	66%
ROCKWOOD	ROCKWOOD	92	20,000		11,838	59%	12,317	62%
SANFELIP	SAN FELIPE	92	N/A		2,268	N/A	2,272	N/A
SHADOW HILLS	SHADOW HILLS	92	40,000		11,748	29%	11,864	30%
SKYVALLEY	SKY VALLEY	92	7,500		1,852	25%	1,855	25%
SSIP230	SSIP	230	40,000		7,620	19%	7,645	19%
TERMINAL 92	TERMINAL	92	40,000		25,174	63%	25,605	64%
TRX WESTBIO	WESTERN 1	92	N/A		10,105	N/A	10,325	N/A
TRX-WESTBIO	WESTERN 2	92	N/A		10,087	N/A	10,306	N/A
UNIT NO.4	(CALENERGY) SALTON SEA 4 - UNIT 4	92	40,000		6,295	16%	6,296	16%
			31,500	UNIT 3		18%		18%
UNIT NO.5	(CALENERGY) SALTON SEA - UNITS 3 & 5	92	40,000	UNIT 5	5,685	14%	5,686	14%
VANBUREN	VAN BUREN	92	40,000		12,111	30%	12,242	31%
VULCAN 1	(CALENERGY) VULCAN 1	92	40,000		7,214	18%	7,216	18%

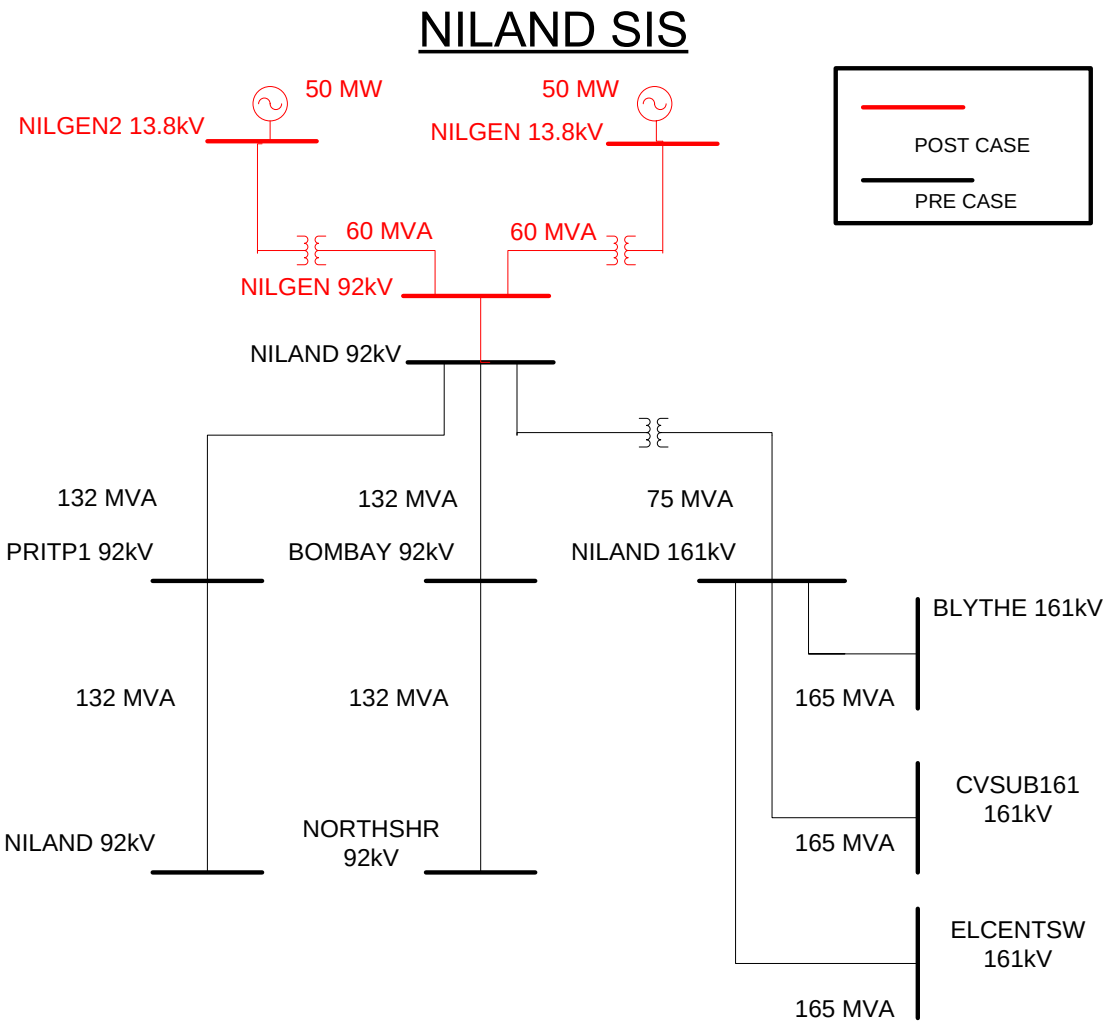
Niland System Impact Study

Appendix J
Off Peak Analysis

February 2006

Task:
Determine if there would be any system impact for operating the Niland Units under off-peak conditions, should a system event call for the need of their quick-start generating capacity.

Niland
The Niland 100MW facility is connected to the Niland 92kV bus via two 13.8/92kV transformers. At the Niland 92kV bus there are two 92kV lines connecting the Prison Tap 1 and Bombay 92kV stations. The Niland 92kV bus is connected to the Niland 161kV bus via a 75MVA transformer, as shown below



As the diagram shows, the 92kV lines emanating from the Niland 92kV station are rated at 132MVA, as are the subsequent lines from Prison Tap 1 and Bombay. The three 161kV lines emanating from the Niland 161kV bus are rated at 165MVA that connect Niland 161kV to Blythe 161kV, Coachella Valley 161kV, and El Centro 161kV substations.

The smallest element connected to the project is the Niland 161/92kV 75MVA transformer. Under lightly loaded conditions the Niland 161/92kV transformer was

approximately 10% of its rated capacity. The addition of the facility, at 100MW, should not cause any transmission element overloads due to the low load, number of lines, and unused capacity on the lines during off peak conditions.

This analysis was tested for a light winter 2007 condition. The following tables detail the line flow, the X represents a line outage.

(8361) NILAND 92kV LINES - LW PRE CASE

OUTAGE	MONITORED FLOW	NILAND - NILGEN2 13.8 TRANSFORMER	NILAND - NILGEN 13.8 TRANSFORMER	NILAND - PRITP1 92kV LINE	NILAND - BOMBAY 92kV LINE	NILAND - NILAND 161kV LINE
	MVA	MW	MW	MW	MW	MW
NILAND - NILGEN2 13.8 TRANSFORMER	60	X	0	0	0	0
NILAND - NILGEN 13.8 TRANSFORMER	60	0	X	0	0	0
NILAND - PRITP1 92kV LINE	132	-10.7	-10.7	X	-2.9	-16.9
NILAND - BOMBAY 92kV LINE	132	19.1	19.1	16.6	X	15.6
NILAND - NILAND 161kV LINE	75	-9.7	-9.7	-17.9	1.6	X

(8361) NILAND 92kV LINES - LW PST CASE

OUTAGE	MONITORED FLOW	NILAND - NILGEN2 13.8 TRANSFORMER	NILAND - NILGEN 13.8 TRANSFORMER	NILAND - PRITP1 92kV LINE	NILAND - BOMBAY 92kV LINE	NILAND - NILAND 161kV LINE
	MVA	MW	MW	MW	MW	MW
NILAND - NILGEN2 13.8 TRANSFORMER	60	X	50	50	50	50
NILAND - NILGEN 13.8 TRANSFORMER	60	50	X	50	50	50
NILAND - PRITP1 92kV LINE	132	6.8	6.8	X	40.3	48.7
NILAND - BOMBAY 92kV LINE	132	28.5	28.5	44.3	X	49.9
NILAND - NILAND 161kV LINE	75	13.3	13.3	54.3	58.4	X