BASIN ELECTRIC POWER COOPERATIVE

Site CS 5 Northern Border Waste Heat Recovery Generator
New Network Resource near:

Killdeer, ND

(WAPA OASIS Request # 38131-03 GI-0404 and TSR Request # 841183)

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0.0 Executive Summary

The Upper Great Plains Region (UGPR) of the Western Area Power Administration (Western) received a generation interconnection request for an interconnection of a 7.5 MW waste heat generator to the Western/Heartland Consumers Power District/Basin Electric Power Cooperative Integrated System (IS) near Killdeer, North Dakota. This request is identified as Request GI-0404 on Western's Generation Interconnection Queue posted on its Open Access Same Time Information System (OASIS).

The Transmission Customer has submitted a Transmission Service Request #841183 in Western's OASIS Queue and the delivery of this requested new Designated Network Resource was also evaluated in this study.

The scope of this system impact study is limited to identifying and resolving possible criteria violations that may limit the ability of the generator to interconnect as well as the delivery of the unit as a baseload network resource. In accordance with WAPA system impact study practices, an interconnection request is required to mitigate stability impacts, short-circuit impacts and injection related steady state impacts (local area thermal and voltage impacts under system intact and contingency conditions). In addition, the delivery impacts of this unit have been evaluated through the 2016 time frame as the generation and delivery queue assumptions are the same.

These study results indicate the addition of the 7.5MW generator near Killdeer, ND will not degrade the reliability of the MAPP system and does not result in any unacceptable loading or voltage conditions in the area. No new constrained interfaces are required to accommodate the new generator. The generator improves the voltage profile in the areas studied and does not negatively impact the North Dakota export (NDEX) transient stability performance. The study results demonstrate that the Western Area Power Administration (Western)/ Basin Electric Power Cooperative (Basin)/ Heartland Consumers Power District Integrated System (IS) is capable of accommodating the new network resource request

Based upon these study results, the interconnection issues are confined to the local areas due to the relatively small size of the unit and amount of local load at the location that will consume the generation locally. Therefore, there is no increase in the transmission commitment for Basin Electric network load delivery across the NDEX constrained interface as a result of this new network resource approval.

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1.0 Introduction

The purpose of this document is to provide information to the MAPP Design Review Subcommittee (DRS) regarding the addition of a new 7.5 MW waste heat recovery generator to be used as new network resource for BEPC. The new generator will be located on Basin Electric's member underlying distribution system. This site lies along the Northern Border Pipeline that runs through North and South Dakota. The generator associated with GI-0404 will be located at the Northern Border Pipeline pumping station CS-5. This generator will be fed into the bulk electric system via WAPA's Killdeer 115 kV substation. The geographic location of this substation can be seen in the following figure 1.1.

Figure 1.1 - Geographic location of Generation

2.0 Study Methodology

The PSS/E Power System Simulator for Engineers was used for this study. PTI PSS/ETM Rev 29.4 and Version 6.6B of the Digital FORTRAN Compiler was utilized to perform all aspects of the study work.

2.1 Stability Analysis

The purpose of the stability analysis is to determine whether the MAPP system would meet stability criteria following commissioning of the proposed GI-0404 plant. To that end, faults were simulated in Northern MAPP to assess the impact of the proposed project on transmission system stability. Preliminary solutions were identified and tested for faults that resulted in stability criteria violations.

2.2 Steady-State Analysis

The purpose of steady-state analysis is to analyze the impact of the proposed plant on transmission system facilities under steady-state conditions. It involves two distinct analyses: thermal analysis and voltage analysis.

2.2.1 System Intact Analysis

The incremental impact of the Killdeer plant on thermal loading of transmission facilities under system intact conditions was evaluated by comparing transmission system power flows with and without the proposed plant.

All transmission facilities rated 110 kV and above were monitored in the WAPA, OTP, GRE, MP, XEL and MH control areas. The criterion used to flag thermal overloads is 100% of continuous facility rating (Rate A in PSS/E). Significantly Affected Facilities (SAF) were identified based on the following criteria: All overloaded facilities that have a TDF (Transfer Distribution Factor) greater than 5% of the generation addition and an increase in flow of at least 1 MW (without plant vs. with plant) are flagged as significantly affected facilities.

Northern MAPP buses rated 110 kV and above were monitored for possible voltage violations. Voltages that were outside the values shown in Table 2.1 were flagged as violations. Those buses that have a voltage change of more than 0.01 p.u. (pre-project vs. post-project) are included in the SAF list.

System	Base kV	System Intact Conditions		N-1 Contingency Conditions	
		Max (pu)	Min (pu)	Max (pu)	Min (pu)
Northern MAPP	110-500 kV	1.05	0.95	1.10	0.90
MP (Area 608)	110-500 kV	1.05	1.00	1.05	0.95
MP Western Division (Area 610)	115-230 kV	1.05	0.96	1.05	0.92
OTP (Area 626)	230-345 kV	1.05	0.97	1.10	0.92
	115 kV	1.07	0.97	1.10	0.92

Figure 2.1 - Voltage Criteria for Steady-State Analysis

2.2.2 Contingency Analysis

Contingency analyses included single branch and selected multi-element contingencies on facilities rated 110 kV and above. Single branch as well as multi-terminal outages in WAPA, and single branch contingencies in GRE, MH, MP, OTP, and XEL were considered. Select multi-terminal outages were also considered in Northern MN. All facilities rated 110 kV and above were monitored in the WAPA, OTP, GRE, MP, XEL and MH control areas.

Contingencies were solved using activity ACCC of PSS/E, or some equivalent program (GRE's contingency program). Phase shifters and transformer taps were enabled. Thermal violations were flagged based on 100% of facility ratings (Rate A in PSS/E). Post-contingency power flows in excess of 100% of Rate A were recorded. Significantly Affected Facilities (SAF) were identified based on the following criteria: All overloaded facilities that have a TDF (Transfer Distribution Factor) greater than 3% of the generation addition and an increase in flow greater than 1 MW (pre-project vs. post-project) are flagged as significantly affected facilities.

If several contingencies overload a given transmission facility, only the worst fifteen contingencies are reported. Overloads on generator step up transformers are not reported.

As in the system intact analysis, Northern MAPP buses rated 110 kV and above were monitored for possible post-contingency voltage violations. Voltages that were outside the values shown in Table 2.1 were flagged as violations. Those buses that have a voltage change of more than 0.01 p.u. (pre-project vs. post-project) are included in the SAF list.

2.3 Constrained Interface Analysis

The purpose of the constrained interface analysis is to calculate the impact of the proposed project on specified interfaces in the MAPP transmission system. The MAPP DFCALC constrained interface analysis program was used for this purpose.

3.0 Stability Analysis

3.1 Model Development - Summer Off-peak High Transfer Powerflow Models

Cases used for dynamic stability analysis are taken from the NMORWG 2008 study package. The off-peak summer high transfer case (urg-so8aa.sav) with North Dakota coalfield generation at URGE output is used as a starting point for this study.

The following process was used to evaluate the differences of each option:

- Add a 60MVAR cap bank at the Groton 115 kV and at the 75 MVAR at the Watertown 230 kV buses to meet the requirements in the NDEX 2080 study.
- Document the transient stability performance of the existing system for the 2008 summer conditions at high simultaneous NDEX/MHEX/MWEX conditions of 2080/2175/1525 respectively.
- Document the stability performance of the resulting system with the generator online. Differences in power interfaces in the system were made to the swing bus and to loads, as the routine “setexports” requires.

The disturbances used to test the northern MAPP region included the ag1, ei2, and nmz disturbance files as well as the rest of the standard NMORWG disturbance files. These faults are defined as follows:

- **ag1** – Single line to ground fault on the Leland Olds to Fort Thompson 345 kV line with Leland Olds breaker stuck
- **ei2** – Permanent bipole fault on the Coal Creek DC line
- **nmz** – Three phase fault at Chisago, trip F601C, Cross trip D602F

Local faults were also developed to test the how the system and the cogen unit would react to faults in the area. Since the breakers are located at Charlie Creek and at Beulah, a fault on the 115 kV system will trip the entire 115 kV section of line as well as the cogen unit. The faults developed are as follows:

- **kb3** – Three Phase fault on the Killdeer to Halliday 115 kV line, Trip Charlie Creek to Beulah after 8 cycles

The fault files were used to check the transient response of the system with and without the generator online.

The following Table 3.1 shows that the addition of GI0404 does not change any of the transient voltages for the regional faults. Three critical buses that have been noted with low voltages in the past are compared.

	Groton 345 kV (PU) Transient Voltage Minimum			Wahpeton 115 kV (PU) Transient Voltage Minimum			Watertown 345 kV (PU) Transient Voltage Minimum		
	Disturbance			**Disturbance**			**Disturbance**		
	ag1	**ei2**	**nmz**	**ag1**	**ei2**	**nmz**	**ag1**	**ei2**	**nmz**
kc0-so08aa Base Case	0.83	0.81	0.71	0.95	0.85	0.80	0.92	0.87	0.76
kcg-so08aa GI0404 Added (7.5 MW)	0.83	0.81	0.71	0.95	0.85	0.80	0.92	0.87	0.76
Delta Impact	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure 3.1 - Transient Voltages at Critical Buses in MAPP Region

Figure 3.1 shows that the addition of the waste heat generator does not degrade the voltage performance during these regional disturbances. The corresponding stability summary tables for all the faults that were run can be found in Appendix C.

4.0 Steady State Powerflow Analysis Procedure

Steady state analysis was simulated in accordance with the MAPP DRS standards. Both single and multiple contingencies were run. To determine steady state results for each contingency, Contingency program developed by GRE was used. Single contingencies were created by the iplan for all areas within the MAPP region. Any cases that did not solve using this type of analysis were solved manually. The Contingency iplan monitors voltages and branch loading.

The Contingency analysis was run to flag any violations above 100% of Rate A, any voltage below 0.90 p.u, and any voltage and above 1.10 p.u during contingency scenarios. Any violations outside these limits were evaluated. A change in voltage of less than +/- 1% is considered a negligible effect. In addition, a loading increase of less than 1 MW is also considered a negligible effect.

4.1 Steady State Model Development

4.1.1 Summer Peak Model Development

The 2008 and 2016 cases were taken from the MAPP 2006 series models to serve as base cases for the GI0404 study. Existing and DRS approved area generation is energized at Pmax. Previously queued generation was also included in the 2008 and 2016 models according to the listed in-service dates.

The cases were created where the GI0404 generator was placed online and BEPC generation at Leland Olds unit 1 was scaled down by 7.5 MW to offset the increase in generation. The following Figure 4.2 lists the cases used for steady state analysis. To review the updates that were applied to these cases, please see the idevs located in Appendix A.

MAPP 2006 series cases Summer Peak Load	GI0404	Comments
kc0-sp08aa.sav	0	Base Case GI0404 offline
kcg-sp08aa.sav	7.5	GI0404 online BEPC generation scaled down by 7.5 MW
kcl-sp08aa.sav	7.5	GI0404 online ND BEPC load scaled up by 7.5 MW
kc0-sp16aa.sav	0	Base Case GI0404 offline
kcg-sp16aa.sav	7.5	GI0404 online BEPC generation scaled down by 7.5 MW
kcl-sp16aa.sav	7.5	GI0404 online ND BEPC load scaled up by 7.5 MW

4.2 - Steady State Powerflow Models

The GI0404 waste heat cogenerator will be operated as a base load resource therefore a steady state power flow analysis is conducted with summer-peak conditions. The peak case will also demonstrate the heaviest loading for some local area lines.

4.1.2 Summer Off-peak High Transfer Model Development

Cases used for off peak high transfer thermal analysis are taken from the NMORWG 2008 study package. The off-peak summer high transfer case (urg-so8aa.sav) with North Dakota coalfield generation at URGE output is used as a starting point for this study.

There were several model changes and facility additions added to the model to properly model the prior queued generation. All changes made to these cases can be seen in Appendix A in PSSE format. The base case name was kc0-so08aa.sav.

The Northern Border cogen unit at Killdeer (gi0404) was added to the URGE base case. Unlike the dynamics cases where generation is turned off to get the worst case stability scenario, the thermal analysis includes all prior queued generation in the area online. The "setexports" routine was then used to maintain Manitoba Hydro Export (MHEX), North Dakota Export (NDEX), and Minnesota-Wisconsin Export (MWEX) at their maximum simultaneous limits in each of these cases. The following Figure 4.3 lists each case and its corresponding export levels.

2008 Summer Off-Peak Load Cases	NBCG4	NDEX	MHEX	MWEX	Comments
kc0-so08aa.sav	0	2080	2176	1525	Base Case NBCG4 offline
kcg-so08aa.sav	7.5	2080	2177	1525	NBCG4 online, exports reset

Figure 4.3 - High Transfer Steady State Models

4.2 2008 Summer Peak

4.2.1 System Intact

No facilities were significantly affected for system intact conditions during the 2008 summer peak season. All facilities were less than the 5% threshold required for system intact requirements. A complete listing of the 2008 system intact report can be seen in Appendix D.

4.2.2 N-1 Conditions

No facilities were significantly affected for contingency conditions during the 2008 summer peak season. All facilities were less than the 3% threshold required for contingency requirements. A complete listing of the 2008 contingency report can be seen in Appendix D.

4.3 2016 Summer Peak

4.3.1 System Intact

No facilities were significantly affected for system intact conditions during the 2016 summer peak season. All facilities were less than the 5% threshold required for system intact requirements. A complete listing of the 2016 system intact report can be seen in Appendix D.

4.3.2 N-1 Conditions

No facilities were significantly affected for N-1contingency conditions during the 2016 summer peak season. However, there was one facility that was affected for an N-2 contingency situation during the 2016 summer peak season. The Belfield 345/230 kV transformer loads up to 108.6 % of its continuous rating for loss of both Leland Olds 345/230 kV transformers. This was an increase of 1.63 MVA from its base case loading at 108.1%. This double contingency is run due to the protection placed on the small transformer at Leland Olds to cross trip (if overloaded) for loss of the large transformer. The loading on the Belfield transformer is well below the 125% emergency limit of 390 MVA. Current operating procedures would monitor the generation at Leland Olds for loss of both of the transformers at that station.

4.4 2008 Summer off Peak Steady State Powerflow Analysis Results

4.4.1 System Intact

No facilities were significantly affected for system intact conditions during the 2008 summer off peak season. All facilities were less than the 5% threshold required for system intact requirements. A complete listing of the high transfer scenario system intact report can be seen in Appendix D.

4.4.2 N-1 Conditions

No facilities were significantly affected for contingency conditions during the 2008 summer off peak season. All facilities were less than the 3% threshold required for contingency requirements. A complete listing of the high transfer scenario contingency report can be seen in Appendix D.

4.5 Prior Outages

4.5.1 Antelope Valley – Charlie Creek 345 kV

The prior outage of the AVS to Charlie Creek 345 kV line has been determined to be the worst case prior outage for the area. Loss of this line creates a heavy through flow from Beulah to Charlie Creek. Loading and voltage on the 115 kV system has been a concern for this contingency especially with the increasing load in western North Dakota. The addition of the cogenerator unit at Killdeer has a beneficial impact for voltage support yet also increases the loading on the 115 kV segment from Killdeer to Charlie Creek. Loading on the Beulah to Charlie Creek line can be seen in the following figures 4.4 and 4.5

Line Segment	Rate A	System Intact Gen Off	System Intact Gen on	AVS – CC OS Gen Off	AVS – CC OS Gen on
Beulah – Haliday	120	14.5	12.1	84.8	82.1
Haliday - Killdeer	120	10.8	8.5	81.5	78.8
Killdeer – Charlie Creek	120	5.7	10.8	76.7	80.8

Figure 4.4 – SP08 Loading on 115 kV lines near Killdeer

Line Segment	Rate A	System Intact Gen Off	System Intact Gen on	AVS – CC OS Gen Off	AVS – CC OS Gen on
Beulah – Haliday	120	9.4	7.2	74.6	41.9
Haliday - Killdeer	120	5.2	3.0	71	68.3
Killdeer – Charlie Creek	120	1.2	4.7	65.9	70.2

Figure 4.5 – SP16 Loading on 115 kV lines near Killdeer

5.0 Constrained Interface Analysis

Constrained path analysis has been completed to assess the potential issues related to deliverability of the proposed generation. Analysis was completed using the 2008 and 2016 summer peak models that were used for steady state powerflow analysis. Both generation and load re-dispatch were considered. The analysis was completed using the DRS established "dfcalc.ipl" distribution factor calculation program, which measures the flows on all constrained interface ties, with and without the new generation. The net differences between the two cases are then compared to determine the total impact on each constrained interface. The net change in power flow across the interface is then divided by the new generation amount. This quantity equals the distribution factor. A distribution factor above 5% (for PTDF type flowgates) or 3% (for OTDF type flowgates) constitutes an impact on a constrained interface.

For the generation to load scenario, the Northern Border Waste heat recovery unit at pumping station 5 was added and BEPC's load within the NDEX boundary was increased by 7.5 MW. For the generation-to-generation scenario, the generator was added and the Leland Olds Unit 1 was reduced by 7.5 MW. Results showed that the addition of the 7.5 MW generator at Killdeer does not create any unacceptable impacts on any MAPP or MISO constraints. All of the distribution factors (DF's) are less than the cutoff thresholds 5% for the PTDF flowgates and 3% for the OTDF flowgates. The following Table 5.1 lists each of the interfaces and its corresponding distribution factor. The constrained interface reports can be seen in Appendix E.

	PTDF			
	Summer Peak 2008			
	Load Dispatch		Generation Dispatch	
Constrained Interface	(MW)	%	(MW)	%
COOPER_S	-0.10	-1.50%	0.00	0.49%
FTCAL_S	0.00	-0.56%	0.00	0.16%
GGS	-0.10	-1.74%	0.10	0.93%
GRIS_LNC	-0.10	-1.28%	0.00	0.44%
MNTSUMA_W	0.10	0.69%	0.00	-0.21%
NDEX	-0.40	-5.28%	0.10	1.57%
QUADCITY_W	0.10	0.70%	0.00	-0.23%
WNE_WKS	0.00	-0.65%	0.00	0.26%
MWEX	-0.10	-1.25%	0.00	0.50%
NDDC	0.00	0.00%	0.00	0.00%
MHEX_N+	0.10	0.86%	0.00	-0.38%
MHEX_S+	-0.10	-0.91%	0.00	0.38%
PRI-BYN	-0.10	-0.87%	0.00	0.38%
Y2DC	0.00	0.00%	0.00	0.00%
AHD_GPK	0.00	-0.50%	0.00	0.21%
EAUARP__XCEL	-0.10	-0.71%	0.00	0.27%
FORCHS_PTDF	-0.10	-1.63%	0.00	0.52%
LEECONELS	0.00	0.21%	0.00	-0.06%
MH_SPC_E+	-0.10	-1.12%	0.00	0.46%
MH_SPC_W+	0.10	1.14%	0.00	-0.47%

Figure 5.1 - 2008 PTDF Constrained Interface Analysis results

	OTDF			
	Summer Peak 2008			
	Load Dispatch		Generation Dispatch	
Constrained Interface	(MW)	%	(MW)	%
REASNOR_DPS	0.00	0.20%	0.00	-0.06%
S1226TEKAMAH	0.00	0.23%	0.00	-0.07%
S1226TEKAMAH	0.00	0.02%	0.00	-0.01%
HILLPAHILMON	0.00	0.16%	0.00	-0.05%
QUAD91CORD39	0.00	0.60%	0.00	-0.20%
CORD39QUAD91	0.00	0.52%	0.00	-0.17%
92HILLOUHILL	0.10	0.95%	0.00	-0.32%
PLYMSIOUXCTY	0.00	0.35%	0.00	-0.06%
ALBGARQUAST	0.00	-0.11%	0.00	0.04%
ARNVINARNHAZ	0.00	0.27%	0.00	-0.10%
BYCHEBYCHE	0.00	-0.25%	0.00	0.09%
DAVCALQUARCK	0.00	0.11%	0.00	-0.04%
HLSXFMTIFARN	0.00	0.20%	0.00	-0.08%
LACWGRLACSTI	0.00	0.52%	0.00	-0.17%
LEEBYREJNEL	0.00	-0.47%	0.00	0.15%
LKFFOXLKGWLM	0.00	0.01%	0.00	-0.03%
LORTRKWEMPAD	0.00	0.08%	0.00	-0.04%
PADXFMPADROE	0.00	0.00%	0.00	0.00%
POWREAMTZBON	0.00	0.27%	0.00	-0.08%
SALXFMQUADAV	0.00	0.20%	0.00	-0.07%
SALXFMWEMPAD	0.00	0.17%	0.00	-0.07%
SPETRILAKRAU	0.00	0.12%	0.00	-0.06%
SPHWMCSUMEMC	0.00	0.09%	0.00	-0.04%
CC-STN	-0.40	-4.72%	0.00	0.50%
STN-CC	0.40	4.76%	0.00	-0.50%
CC-CCT	-0.20	-2.68%	0.00	0.27%
CCT-CC	0.20	2.69%	0.00	-0.27%
CCTP-STN	-0.50	-7.03%	0.10	0.76%
STN-CCT	0.50	7.10%	-0.10	-0.77%

Figure 5.2 - 2008 OTDF Constrained Interface Analysis results

	PTDF			
	Summer Peak 2016			
	Load Dispatch		Generation Dispatch	
Constrained Interface	(MW)	%	(MW)	%
COOPER_S	-0.10	-1.01%	0.00	0.54%
FTCAL_S	0.00	-0.37%	0.00	0.19%
GGS	-0.10	-0.85%	0.10	0.92%
GRIS_LNC	0.00	-0.58%	0.00	0.36%
MNTSUMA_W	0.00	0.39%	0.00	-0.18%
NDEX	-0.20	-3.10%	0.00	0.14%
QUADCITY_W	0.00	0.28%	0.00	-0.22%
WNE_WKS	0.00	-0.36%	0.00	0.27%
MWEX	-0.10	-0.97%	0.10	0.74%
NDDC	0.00	-0.01%	0.00	0.00%
MHEX_N+	0.00	0.56%	-0.10	-1.49%
MHEX_S+	0.00	-0.58%	0.10	1.49%
PRI-BYN	0.00	0.00%	0.00	0.54%
Y2DC	0.00	0.00%	0.00	0.00%
AHD_GPK	0.00	-0.42%	0.00	0.32%
EAUARP__XCEL	0.00	-0.58%	0.00	0.40%
FORCHS_PTDF	-0.10	-1.77%	0.10	1.30%
LEECONELS	0.00	0.15%	0.00	-0.04%
MH_SPC_E+	-0.10	-1.59%	0.20	2.19%
MH_SPC_W+	0.10	1.62%	-0.20	-2.23%

Figure 5.3 - 2016 PTDF Constrained Interface Analysis results

	OTDF			
	Summer Peak 2016			
	Load Dispatch		Generation Dispatch	
Constrained Interface	(MW)	%	(MW)	%
REASNOR_DPS	0.00	0.11%	0.00	-0.04%
S1226TEKAMAH	0.00	0.13%	0.00	-0.08%
S1226TEKAMAH	0.00	0.01%	0.00	-0.01%
HILLPAHILMON	0.00	0.08%	0.00	-0.04%
QUAD91CORD39	0.00	0.24%	0.00	-0.19%
CORD39QUAD91	0.00	0.20%	0.00	-0.17%
92HILLOUHILL	0.00	0.50%	0.00	-0.35%
PLYMSIOUXCTY	0.00	0.19%	0.00	-0.03%
ALBGARQUAST	0.00	-0.08%	0.00	0.04%
ARNVINARNHAZ	0.00	0.15%	0.00	-0.13%
BYCHEBYCHE	0.00	-0.18%	0.00	0.09%
DAVCALQUARCK	0.00	0.12%	0.00	-0.06%
HLSXFMTIFARN	0.00	0.12%	0.00	-0.11%
LACWGRLACSTI	0.00	0.36%	0.00	-0.20%
LEEBYREJNEL	0.00	-0.33%	0.00	0.14%
LKFFOXLKGWLM	0.00	0.03%	0.00	-0.06%
LORTRKWEMPAD	0.00	0.07%	0.00	-0.05%
PADXFMPADROE	0.00	0.00%	0.00	0.00%
POWREAMTZBON	0.00	0.16%	0.00	-0.08%
SALXFMQUADAV	0.00	0.04%	0.00	-0.09%
SALXFMWEMPAD	0.00	0.04%	0.00	-0.08%
SPETRILAKRAU	0.00	0.11%	0.00	-0.09%
SPHWMCSUMEMC	0.00	0.05%	0.00	-0.04%
CC-STN	-0.30	-3.79%	0.10	0.88%
STN-CC	0.30	3.83%	-0.10	-0.89%
CC-CCT	-0.20	-2.21%	0.00	0.50%
CCT-CC	0.20	2.22%	0.00	-0.50%
CCTP-STN	-0.40	-5.80%	0.10	1.34%
STN-CCT	0.40	5.87%	-0.10	-1.36%

Figure 5.4 - 2016 OTDF Constrained Interface Analysis results

6.0 Short-Circuit Analysis

6.1 Base Case Development

The pre-project model required for this analysis is short-circuit case *01sc-062802.sav* included in the 2008 NMORWG Study Package.

Starting from this case, a post-project case was developed by adding the proposed GI-0404 project and associated upgrades described in section 4. Suitable assumptions were made for the sequence data required for these additions.

6.2 Short-Circuit Calculations

Short-circuit calculations were performed to determine the impact of the proposed project on substation fault current levels. Three-phase and single-line-to-ground (SLG) symmetrical fault current levels were calculated at all study area buses rated 69 kV and above, both without and with the proposed project and the proposed network upgrades. In order to calculate fault current levels, classical fault assumptions were used with a pre-fault voltage of 1.0 p.u.

Figure 6.1 lists the three-phase and SLG fault current levels at the substations in the vicinity of GI-0404. The highest of these fault currents was compared against the lowest rated circuit breaker at each of these substations to determine whether or not the circuit breaker may be overstressed.

Lowest breaker ratings were not available for all of the area substations.

The comparison showed that the calculated fault current levels did not exceed the lowest breaker rating substations analyzed.

The calculated fault currents should be compared against the corresponding lowest breaker ratings when this information becomes available in order to determine whether existing breakers at these substations could become overstressed and whether mitigation may be required.

BUS			MIN. BREAKER RATING	WITHOUT GI-0404 (1)		WITH GI-0404 (2)		CHANGE (2)-(1)	
NO.	NAME	kV		FAULT CURRENT (AMP)		FAULT CURRENT (AMP)		AMP	
			AMP	3-PH	SLG	3-PH	SLG	3-PH	SLG
67182	CHAR.CK7	115		9498	9586	9604	9657	106	71
66419	KILDEER7	115		4298	2943	4475	2998	177	55
66422	HALIDAY7	115		3764	2479	3829	2498	65	19
67205	BEULAH 7	115		8971	7722	9000	7736	29	14

Figure 6.1- GI-0404 Short Circuit comparison

7.0 Conclusion

The study results show that the addition of a GI0404 7.5MW Cogeneration unit to be fed into the bulk electric system through the Killdeer 115 kV bus does not degrade the reliability of the MAPP system. It provides minor steady state and contingency voltage support to the 115 kV transmission system from Charlie Creek to Beulah in west central North Dakota.

Summer Peak steady state analysis shows that the addition of the generator does not result in any voltage or loading violations for system intact and N-1 contingency scenarios. Contingency analysis showed that the addition of this unit increases the loading on an already overloaded facility at WAPA's Belfield station for an N-2 contingency situation. The Belfield transformer overloads above its continuous rating for loss of both Leland Olds 345/230 kV transformers but remains below its emergency rating.

The constrained interface analysis does not show any impacts to MAPP or MISO constrained interfaces.

Examination of stability analysis showed that all simulations are transiently stable and well damped. In addition, the stability analysis of the Northern MAPP region demonstrated that the addition of the unit did not degrade any transient voltages below criteria. The effect of the unit is negligible.

Appendix A – Case Descriptions

Appendix B – Maps and Onelines

Appendix C – Transient Stability Tables

Appendix D – Thermal and Voltage Analysis

Appendix E – Distribution Factor Analysis

INITIATED AT LOAD FLOW ENTRY POINT ON WED, FEB 20 2008 13:56

KC0-SP08AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=318,MH=1283,MW=758,OHMH=0,OHMP=150,EWTW=-119,BD=166

P O W E R F L O W S U M M A R Y

NDEX:	318 MW	ECL-ARP:	228 MW
MHEX:	1283 MW	PRI-BYN:	94 MW
MWEX:	758 MW	AHD-SLK:	300 MW
KING-ECL:	457 MW	SLK-GPK:	147 MW
COOPER S:	200 MW	WNE-WKS:	299 MW
FTCAL S:	315 MW	GGS:	1366 MW
GRIS-LNC:	316 MW	QC WEST:	955 MW

LOAD LEVELS AS PERCENT OF 2008 SUMMER PEAK:

NORTH DAKOTA	(ZONE 90,990)	3524.0 MW,	122.2%	OF	2883.0 MW
NSP	(AREA 600)	****** MW,	100.2%	OF	10581.0 MW
MAN HYDRO	(AREA 667)	2943.5 MW,	100.0%	OF	2943.0 MW

Load/Losses	MW / MW	Generation	MW	Export	MW
Manitoba	2943/ 290	MH total gross	4671	ATC West Import	496
Ont. total	23241/ 566	Wpg River	534	ATC SW Import	671
NW	0/ 0	7 Sisters	165	ATC SE Import	-190
Sask.	2952/ 99	OH total gross	23416	East Bias	114
MP	2074/ 188	northwest	0	SPC>WAPA (B10T)	166
NSP	10600/ 374	SPC total gross	3063	MH>SPC (3-230)	220
N. Dakota	3524/ 258	MP total gross	2186	MH>SPC (FALLS)	0
Manitoba	681 MVARS	ND Cfd AC gross	3089	OH>MH @Kenora	0
Ont. total	13540 MVARS	net	2918	OH>MP @Ft Fran	150
NW	0 MVARS	NSP East gross	2833	OH E>W @Wawa	-119
Sask.	699 MVARS	net	2698	OH>East USA	0
MP	11049 MVARS	West gross	2931	F601C @Forbes	798
NSP	1765 MVARS	net	2769	D602F @Dorsey	972
N. Dakota	782 MVARS	Total net	9409	L20D @Letell	265
ATC	14063/ 375	WAPA SD Hydro	1497	R50M @Richer	69
ATC	4266 MVARS	Pleasant Valley	422	G82R @Glenboro	-25
		LGS/Trimont	264		

SW MN Wind	1076
N DAK WIND	221
Swing Bus	1740

Tfmrs	MVA/	Load
Wshell #1 7-7	43/	30%
Wshell #2 7-7	43/	30%
Drayton#1 4-7	55/	39%
Drayton#2 4-7	70/	37%
Dorsey #1 2-4	459/	38%
Dorsey #2 2-4	545/	45%
Forbes 2-4	89/	13%
Stone Lk 3-5	150/	50%

Ph Shifters	Deg/	MW
Stinson	-1/	109
Boundary Dam	30/	166
Whiteshell	-42/	0
Int Falls	-35/	150
St. Lawrence	17/	0
Arrowhead	0/	300

DC Lines	MW
CU (1,2)	1075
SQ BU (3,4)	450
MH Bipole 1	1476
MH Bipole 2	1669
MH (BP1+BP2)	3146
Miles City E>W	0
RCDC (15)	130
Stegall (10)	0

Dorsey SC's		I/S	MVAR	Qmax/ Qmin
MIL 7-9G	17.0	2	383	600/ -330
SCE 1-3G	18.2	3	312	480/ -240
SCA 4-6G	18.2	3	312	480/ -240
Total			1008	1560/ -810
Margin			552	

SVC's	MVAR	Qmax/	Qmin
Forbes	500	-10	400/ -450
Fargo	13.2	-12	20/ -135
Watertown	20.0	19	125/ -86

Series Caps		Num In Serv
Roseau	500	2 of 2
Chisago	500	1 of 1

Caps/Reactors		MVAR
Balta	(FS) 230	60
Drayton	115	40
Drayton	13.8	0
Eau Claire	(FS) 161	267
Kohlman Lake	115	160
Parkers Lk	(FS) 115	0
Prairie	(FS) 115	80
Ramsey	(FS) 230	0
Red Rock	115	160
Rugby	13.8	-25
Split Rock	(FS) 115	0
Sheyenne	(FS) 115	120

Caps/Reactors		MVAR
Arrowhead	230	80
Blackberry	230	47
Minntac	115	45
Riverton	230	47
Roseau Co.	(FS) 230	30
Running	(FS) 230	30
Running react	230	-20
Shannon	230	0
		0
Glenboro	230	0
Laverendrye	110	98
Richer react	230	0

Caps/Reactors		MVAR
Chisago T 9	34.5	25
Chisago T 10	34.5	25
Forbes	230	0
Forbes	500	300
		0
Fargo	115	27
Watertown	20	20
Watertown	230	0
		0
Arrowhead	345	0
Stone Lake	345	0
Stone Lk Reac	345	0

Wilton/Bemidji	115	43	St Vital	110	98	Stone Lake	161	0
		0			0	Grdnr Pk Reac	345	0
		0			0	Grdnr Pk Caps	115	0
		0			0	Arpin Caps	138	100
		0			0	Council Creek	138	16

Bus Voltages		V,pu	Bus Voltages		V,pu	Bus Voltages		V,kV
Adams	345	1.022	Arrowhead	230	1.022	Whiteshell	110	119.1
Alexandria	115	1.014	Badoura	115	1.030	Kenora	220	249.3
Audubon	115	1.024	Blackberry	230	1.029	Dryden	220	252.8
Bemidji	115	1.021	Boise Cascade	13.8	1.033	Fort Frances	220	252.8
Byron	345	1.032	Boise Cascade	115	1.022	Mackenzie	220	253.6
Chisago Co.	345	1.034	ETCO	115	1.021	Lakehead	220	239.6
Chisago Co.	500	1.036	Forbes	230	1.038	Marathon	220	240.3
Drayton	230	1.022	Forbes	500	1.045	Wawa	220	237.3
Eau Claire	345	1.040	Hubbard	115	0.000	Mississagi	220	242.8
WEST FARIBAULT	115	1.006	Intl Falls	115	1.023	Fort Frances	118	120.7
LaPorte	115	1.015	Minntac	115	1.027	Lakehead	118	124.2
Maple River	230	1.034	Moranville	230	1.034	Birch	118	120.4
Marshall Tap	115	1.017	Riverton	230	1.023	Marathon	118	125.2
Owatonna	161	0.994	Running	230	1.028			0.000
Prairie	115	1.037	Shannon	230	1.027	Arrowhead	345	1.036
Prairie	230	1.028	Stinson MN	115	1.019	Stone Lake	345	1.043
Ramsey	230	1.014	Jamestown	345	0.985	Stone Lake	161	1.037
Roseau County	230	1.037	Groton	345	1.019	Gardner Park	345	1.020
Roseau County	500	1.076	Watertown	230	1.030	Weston	115	1.028
Sheyenne	230	1.037	Watertown	345	1.024	Arpin	345	1.031
Thief R Falls	115	1.019			0.000	Eau Claire	161	1.032
Tioga	230	1.030	Dorsey	230	1.045	Council Creek	161	0.999
Wahpeton	230	1.013	Dorsey	500	1.043	Hydro Lane	161	1.010
Winger	115	1.036			0.000	Wien	115	1.031
		0.000			0.000			0.000
		0.000			0.000			0.000
		0.000			0.000			0.000

Steady State Relay Margins (measured from inner blinder)

Relay Location	Manuf/Type	PSS Model	South	North	Em North

1)	B10T-Tioga (South)	GE OST	SLLP	334%	N/A	N/A
2)	-Tioga (North)	GE OST	SLLP	688%	N/A	N/A
3)	-Tioga (Em North)	GE OST	SLLP		N/A	N/A
4)	D602F-Dorsey	ATP ???	SLINOS	1051%	N/A	N/A
5)	-Forbes (Normal)	ATP ???	SLINOS	670%	N/A	N/A
6)	-Forbes (Em Nrth)	APT S-PRO	SLINOS		N/A	N/A
8)	F3M-Intl Falls	APT S-PRO	SLINOS	334%	N/A	N/A
9)	G82R-Rugby	APT	SLINOS	N/A	1996%	
10)	L20D-Drayton (Normal)	APT, ASEA	SLINOS	742%	N/A	N/A
11)	-Drayton (Em Nrth)	ASEA RXZF2	SLINOS		N/A	N/A
12)	R50M-Moranville (Norm)	APT, West	SLINOS	1967%	N/A	N/A
13)	-Moranville (Em N)	ASEA RXZF2	SLINOS		N/A	N/A

INITIATED AT LOAD FLOW ENTRY POINT ON WED, FEB 20 2008 13:56

KCG-SP08AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=319,MH=1283,MW=758,OHMH=0,OHMP=150,EWTW=-119,BD=166

P O W E R F L O W S U M M A R Y

NDEX:	319 MW	ECL-ARP:	228 MW
MHEX:	1283 MW	PRI-BYN:	94 MW
MWEX:	758 MW	AHD-SLK:	300 MW
KING-ECL:	457 MW	SLK-GPK:	147 MW
COOPER S:	200 MW	WNE-WKS:	299 MW
FTCAL S:	315 MW	GGS:	1366 MW
GRIS-LNC:	316 MW	QC WEST:	955 MW

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Load/Losses	MW / MW	Generation	MW	Export	MW
Manitoba	2943/ 290	MH total gross	4671	ATC West Import	496
Ont. total	23241/ 566	Wpg River	534	ATC SW Import	671
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Sask.	2952/ 99	OH total gross	23416	East Bias	114
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Sask.	699 MVARS	net	2698	OH>East USA	0
MP	11049 MVARS	West gross	2931	F601C @Forbes	798
NSP	1765 MVARS	net	2769	D602F @Dorsey	973
N. Dakota	782 MVARS	Total net	9409	L20D @Letell	265
ATC	14063/ 375	WAPA SD Hydro	1497	R50M @Richer	69
ATC	4266 MVARS	Pleasant Valley	422	G82R @Glenboro	-25
		LGS/Trimont	264		

SW MN Wind	1076
N DAK WIND	221
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Tfmrs	MVA/	Load	Ph Shifters	Deg/	MW	DC Lines	MW
Wshell #1 7-7	43/	30%	Stinson	-1/	109	CU (1,2)	1075
Wshell #2 7-7	43/	30%	Boundary Dam	30/	166	SQ BU (3,4)	450
Drayton#1 4-7	55/	39%	Whiteshell	-42/	0	MH Bipole 1	1476
Drayton#2 4-7	70/	37%	Int Falls	-35/	150	MH Bipole 2	1669
Dorsey #1 2-4	459/	38%	St. Lawrence	17/	0	MH (BP1+BP2)	3146
Dorsey #2 2-4	545/	45%	Arrowhead	0/	300	Miles City E>W	0
Forbes 2-4	89/	13%				RCDC (15)	130
Stone Lk 3-5	150/	50%				Stegall (10)	0

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MIL 7-9G	17.0	2	383	600/ -330
SCE 1-3G	18.2	3	312	480/ -240
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Chisago	500	1 of 1

Caps/Reactors		MVAR	Caps/Reactors		MVAR	Caps/Reactors		MVAR
Balta	(FS) 230	60	Arrowhead	230	80	Chisago T 9	34.5	25
Drayton	115	40	Blackberry	230	47	Chisago T 10	34.5	25
Drayton	13.8	0	Minntac	115	45	Forbes	230	0
Eau Claire	(FS) 161	267	Riverton	230	47	Forbes	500	300
Kohlman Lake	115	160	Roseau Co.	(FS) 230	30			0
Parkers Lk	(FS) 115	0	Running	(FS) 230	30	Fargo	115	27
Prairie	(FS) 115	80	Running react	230	-20	Watertown	20	20
Ramsey	(FS) 230	0	Shannon	230	0	Watertown	230	0
Red Rock	115	160			0			0
Rugby	13.8	-25	Glenboro	230	0	Arrowhead	345	0
Split Rock	(FS) 115	0	Laverendrye	110	98	Stone Lake	345	0
Sheyenne	(FS) 115	120	Richer react	230	0	Stone Lk Reac	345	0

Wilton/Bemidji	115	43	St Vital	110	98	Stone Lake	161	0
		0			0	Grdnr Pk Reac	345	0
		0			0	Grdnr Pk Caps	115	0
		0			0	Arpin Caps	138	100
		0			0	Council Creek	138	16

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Prairie	230	1.028	Stinson MN	115	1.019	Stone Lake	345	1.043
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Roseau County	230	1.037	Groton	345	1.019	Gardner Park	345	1.020
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Tioga	230	1.031	Dorsey	230	1.045	Council Creek	161	0.999
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4)	D602F-Dorsey	ATP ???	SLINOS	1051%	N/A	N/A
5)	-Forbes (Normal)	ATP ???	SLINOS	669%	N/A	N/A
6)	-Forbes (Em Nrth)	APT S-PRO	SLINOS		N/A	N/A
8)	F3M-Intl Falls	APT S-PRO	SLINOS	334%	N/A	N/A
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Dorsey #1 2-4	459/	38%	St. Lawrence	17/	0	MH (BP1+BP2)	3145
Dorsey #2 2-4	545/	45%	Arrowhead	0/	300	Miles City E>W	0
Forbes 2-4	89/	13%				RCDC (15)	130
Stone Lk 3-5	150/	50%				Stegall (10)	0

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Parkers Lk	(FS) 115	0
Prairie	(FS) 115	80
Ramsey	(FS) 230	0
Red Rock	115	160
Rugby	13.8	-25
Split Rock	(FS) 115	0
Sheyenne	(FS) 115	120

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Minntac	115	45
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Running	(FS) 230	30
Running react	230	-20
Shannon	230	0
		0
Glenboro	230	0
Laverendrye	110	98
Richer react	230	0

Caps/Reactors		MVAR
Chisago T 9	34.5	25
Chisago T 10	34.5	25
Forbes	230	0
Forbes	500	300
		0
Fargo	115	27
Watertown	20	20
Watertown	230	0
		0
Arrowhead	345	0
Stone Lake	345	0
Stone Lk Reac	345	0

Wilton/Bemidji	115	43	St Vital	110	98	Stone Lake	161	0
		0			0	Grdnr Pk Reac	345	0
		0			0	Grdnr Pk Caps	115	0
		0			0	Arpin Caps	138	100
		0			0	Council Creek	138	16

Bus Voltages		V,pu	Bus Voltages		V,pu	Bus Voltages		V,kV
Adams	345	1.022	Arrowhead	230	1.022	Whiteshell	110	119.1
Alexandria	115	1.014	Badoura	115	1.030	Kenora	220	249.3
Audubon	115	1.024	Blackberry	230	1.029	Dryden	220	252.8
Bemidji	115	1.021	Boise Cascade	13.8	1.033	Fort Frances	220	252.8
Byron	345	1.032	Boise Cascade	115	1.022	Mackenzie	220	253.6
Chisago Co.	345	1.034	ETCO	115	1.021	Lakehead	220	239.6
Chisago Co.	500	1.036	Forbes	230	1.038	Marathon	220	240.3
Drayton	230	1.022	Forbes	500	1.045	Wawa	220	237.3
Eau Claire	345	1.040	Hubbard	115	0.000	Mississagi	220	242.8
WEST FARIBAULT	115	1.006	Intl Falls	115	1.023	Fort Frances	118	120.7
LaPorte	115	1.015	Minntac	115	1.027	Lakehead	118	124.2
Maple River	230	1.034	Moranville	230	1.034	Birch	118	120.4
Marshall Tap	115	1.017	Riverton	230	1.023	Marathon	118	125.2
Owatonna	161	0.994	Running	230	1.028			0.000
Prairie	115	1.037	Shannon	230	1.027	Arrowhead	345	1.036
Prairie	230	1.028	Stinson MN	115	1.019	Stone Lake	345	1.043
Ramsey	230	1.014	Jamestown	345	0.985	Stone Lake	161	1.037
Roseau County	230	1.037	Groton	345	1.019	Gardner Park	345	1.020
Roseau County	500	1.076	Watertown	230	1.030	Weston	115	1.028
Sheyenne	230	1.037	Watertown	345	1.024	Arpin	345	1.031
Thief R Falls	115	1.018			0.000	Eau Claire	161	1.032
Tioga	230	1.030	Dorsey	230	1.045	Council Creek	161	0.999
Wahpeton	230	1.013	Dorsey	500	1.043	Hydro Lane	161	1.010
Winger	115	1.036			0.000	Wien	115	1.031
		0.000			0.000			0.000
		0.000			0.000			0.000
		0.000			0.000			0.000

Steady State Relay Margins (measured from inner blinder)

Relay Location	Manuf/Type	PSS Model	South	North	Em North

1)	B10T-Tioga (South)	GE OST	SLLP	334%	N/A	N/A
2)	-Tioga (North)	GE OST	SLLP	687%	N/A	N/A
3)	-Tioga (Em North)	GE OST	SLLP		N/A	N/A
4)	D602F-Dorsey	ATP ???	SLINOS	1051%	N/A	N/A
5)	-Forbes (Normal)	ATP ???	SLINOS	670%	N/A	N/A
6)	-Forbes (Em Nrth)	APT S-PRO	SLINOS		N/A	N/A
8)	F3M-Intl Falls	APT S-PRO	SLINOS	334%	N/A	N/A
9)	G82R-Rugby	APT	SLINOS	N/A	1998%	
10)	L20D-Drayton (Normal)	APT, ASEA	SLINOS	742%	N/A	N/A
11)	-Drayton (Em Nrth)	ASEA RXZF2	SLINOS		N/A	N/A
12)	R50M-Moranville (Norm)	APT, West	SLINOS	1967%	N/A	N/A
13)	-Moranville (Em N)	ASEA RXZF2	SLINOS		N/A	N/A

INITIATED AT LOAD FLOW ENTRY POINT ON WED, FEB 20 2008 13:57

KC0-SP16AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=9,MH=1056,MW=390,OHMH=3,OHMP=152,EWTW=-116,BD=169

P O W E R F L O W S U M M A R Y

NDEX:	9 MW	ECL-ARP:	133 MW
MHEX:	843 MW	PRI-BYN:	-83 MW
MWEX:	390 MW	AHD-SLK:	125 MW
KING-ECL:	265 MW	SLK-GPK:	-6 MW
COOPER S:	75 MW	WNE-WKS:	247 MW
FTCAL S:	124 MW	GGS:	1308 MW
GRIS-LNC:	104 MW	QC WEST:	1133 MW

LOAD LEVELS AS PERCENT OF 2016 SUMMER PEAK:

NORTH DAKOTA	(ZONE 90,990)	4544.3 MW,	122.5% OF	3710.2 MW
NSP	(AREA 600)	****** MW,	100.1% OF	11889.2 MW
MAN HYDRO	(AREA 667)	3076.3 MW,	100.0% OF	3076.0 MW

Load/Losses	MW / MW	Generation	MW	Export	MW
Manitoba	3076/ 228	MH total gross	4305	ATC West Import	332
Ont. total	23241/ 563	Wpg River	476	ATC SW Import	1060
NW	0/ 0	7 Sisters	165	ATC SE Import	-590
Sask.	3239/ 114	OH total gross	23417	East Bias	108
MP	2376/ 213	northwest	0	SPC>WAPA (B10T)	169
NSP	11895/ 401	SPC total gross	3353	MH>SPC (3-230)	233
N. Dakota	4544/ 258	MP total gross	2269	MH>SPC (FALLS)	-62
Manitoba	715 MVARS	ND Cfd AC gross	2974	OH>MH @Kenora	3
Ont. total	13590 MVARS	net	2805	OH>MP @Ft Fran	152
NW	0 MVARS	NSP East gross	2396	OH E>W @Wawa	-116
Sask.	761 MVARS	net	2290	OH>East USA	0
MP	8309 MVARS	West gross	3062	F601C @Forbes	303
NSP	2046 MVARS	net	2900	D602F @Dorsey	0
N. Dakota	1080 MVARS	Total net	11567	L20D @Letell	219
ATC	16817/ 432	WAPA SD Hydro	0	R50M @Richer	51
ATC	5062 MVARS	Pleasant Valley	422	G82R @Glenboro	-26
		LGS/Trimont	264		

SW MN Wind	1076
N DAK WIND	221
Swing Bus	2129

Tfmrs	MVA/	Load
Wshell #1 7-7	41/	29%
Wshell #2 7-7	41/	29%
Drayton#1 4-7	52/	37%
Drayton#2 4-7	66/	35%
Dorsey #1 2-4	276/	23%
Dorsey #2 2-4	357/	29%
Forbes 2-4	140/	20%
Stone Lk 3-5	136/	45%

Ph Shifters	Deg/	MW
Stinson	-7/	108
Boundary Dam	16/	170
Whiteshell	-70/	-3
Int Falls	-61/	151
St. Lawrence	16/	0
Arrowhead	0/	125

DC Lines	MW
CU (1,2)	1104
SQ BU (3,4)	450
MH Bipole 1	1058
MH Bipole 2	1198
MH (BP1+BP2)	2256
Miles City E>W	0
RCDC (15)	130
Stegall (10)	0

Dorsey SC's		I/S	MVAR	Qmax/ Qmin
MIL 7-9G	17.0	2	69	600/ -330
SCE 1-3G	18.2	3	56	480/ -240
SCA 4-6G	18.2	3	56	480/ -240
Total			183	1560/ -810
Margin			1377	

SVC's	MVAR	Qmax/ Qmin
Forbes	500	-8 400/ -450
Fargo	13.2	-4 20/ -135
Watertown	20.0	27 125/ -86

Series Caps	Num In Serv
Roseau 500	2 of 2
Chisago 500	1 of 1

Caps/Reactors		MVAR
Balta (FS)	230	0
Drayton	115	40
Drayton	13.8	0
Eau Claire(FS)	161	267
Kohlman Lake	115	240
Parkers Lk(FS)	115	0
Prairie (FS)	115	120
Ramsey (FS)	230	0
Red Rock	115	160
Rugby	13.8	-25
Split Rock(FS)	115	0
Sheyenne (FS)	115	120

Caps/Reactors		MVAR
Arrowhead	230	120
Blackberry	230	47
Minntac	115	45
Riverton	230	47
Roseau Co.(FS)	230	0
Running (FS)	230	0
Running react	230	-20
Shannon	230	36
		0
Glenboro	230	0
Laverendrye	110	98
Richer react	230	0

Caps/Reactors		MVAR
Chisago T 9	34.5	25
Chisago T 10	34.5	25
Forbes	230	0
Forbes	500	0
		0
Fargo	115	54
Watertown	20	20
Watertown	230	0
		0
Arrowhead	345	0
Stone Lake	345	0
Stone Lk Reac	345	0

Wilton/Bemidji	115	43	St Vital	110	98	Stone Lake	161	0
		0			0	Grdnr Pk Reac	345	0
		0			0	Grdnr Pk Caps	115	0
		0			0	Arpin Caps	138	50
		0			0	Council Creek	138	16

Bus Voltages		V,pu	Bus Voltages		V,pu	Bus Voltages		V,kV
Adams	345	1.014	Arrowhead	230	1.027	Whiteshell	110	119.1
Alexandria	115	1.020	Badoura	115	0.991	Kenora	220	251.2
Audubon	115	1.006	Blackberry	230	1.028	Dryden	220	254.7
Bemidji	115	1.015	Boise Cascade	13.8	1.045	Fort Frances	220	254.5
Byron	345	1.027	Boise Cascade	115	1.034	Mackenzie	220	254.1
Chisago Co.	345	1.034	ETCO	115	1.018	Lakehead	220	238.9
Chisago Co.	500	1.034	Forbes	230	1.026	Marathon	220	242.2
Drayton	230	1.031	Forbes	500	1.023	Wawa	220	240.6
Eau Claire	345	1.041	Hubbard	115	0.000	Mississagi	220	245.1
WEST FARIBAULT	115	1.006	Intl Falls	115	1.035	Fort Frances	118	121.7
LaPorte	115	0.993	Minntac	115	1.026	Lakehead	118	123.3
Maple River	230	1.025	Moranville	230	1.027	Birch	118	119.9
Marshall Tap	115	1.007	Riverton	230	1.002	Marathon	118	124.4
Owatonna	161	0.984	Running	230	1.018			0.000
Prairie	115	1.051	Shannon	230	1.031	Arrowhead	345	1.050
Prairie	230	1.035	Stinson MN	115	1.020	Stone Lake	345	1.053
Ramsey	230	1.001	Jamestown	345	0.986	Stone Lake	161	1.041
Roseau County	230	1.027	Groton	345	1.022	Gardner Park	345	1.020
Roseau County	500	1.048	Watertown	230	1.030	Weston	115	1.029
Sheyenne	230	1.029	Watertown	345	1.026	Arpin	345	1.024
Thief R Falls	115	1.018			0.000	Eau Claire	161	1.028
Tioga	230	1.024	Dorsey	230	1.045	Council Creek	161	0.960
Wahpeton	230	1.000	Dorsey	500	1.040	Hydro Lane	161	1.004
Winger	115	1.033			0.000	Wien	115	1.029
		0.000			0.000			0.000
		0.000			0.000			0.000
		0.000			0.000			0.000

Steady State Relay Margins (measured from inner blinder)

Relay Location	Manuf/Type	PSS Model	South	North	Em North

1)	B10T-Tioga (South)	GE OST	SLLP	315%	N/A	N/A
2)	-Tioga (North)	GE OST	SLLP	652%	N/A	N/A
3)	-Tioga (Em North)	GE OST	SLLP		N/A	N/A
4)	D602F-Dorsey	ATP ???	SLINOS	999999%	N/A	N/A
5)	-Forbes (Normal)	ATP ???	SLINOS	1170%	N/A	N/A
6)	-Forbes (Em Nrth)	APT S-PRO	SLINOS		N/A	N/A
8)	F3M-Intl Falls	APT S-PRO	SLINOS	339%	N/A	N/A
9)	G82R-Rugby	APT	SLINOS	N/A	1207%	
10)	L20D-Drayton (Normal)	APT, ASEA	SLINOS	969%	N/A	N/A
11)	-Drayton (Em Nrth)	ASEA RXZF2	SLINOS		N/A	N/A
12)	R50M-Moranville (Norm)	APT, West	SLINOS	3164%	N/A	N/A
13)	-Moranville (Em N)	ASEA RXZF2	SLINOS		N/A	N/A

INITIATED AT LOAD FLOW ENTRY POINT ON WED, FEB 20 2008 13:58

KCG-SP16AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=9,MH=1056,MW=390,OHMH=3,OHMP=152,EWTW=-116,BD=169

P O W E R F L O W S U M M A R Y

NDEX:	9 MW	ECL-ARP:	133 MW
MHEX:	843 MW	PRI-BYN:	-83 MW
MWEX:	390 MW	AHD-SLK:	125 MW
KING-ECL:	265 MW	SLK-GPK:	-6 MW
COOPER S:	75 MW	WNE-WKS:	247 MW
FTCAL S:	124 MW	GGS:	1308 MW
GRIS-LNC:	104 MW	QC WEST:	1133 MW

LOAD LEVELS AS PERCENT OF 2016 SUMMER PEAK:

NORTH DAKOTA	(ZONE 90,990)	4544.3 MW,	122.5% OF	3710.2 MW
NSP	(AREA 600)	****** MW,	100.1% OF	11889.2 MW
MAN HYDRO	(AREA 667)	3076.3 MW,	100.0% OF	3076.0 MW

Load/Losses	MW / MW	Generation	MW	Export	MW
Manitoba	3076/ 228	MH total gross	4305	ATC West Import	332
Ont. total	23241/ 563	Wpg River	476	ATC SW Import	1060
NW	0/ 0	7 Sisters	165	ATC SE Import	-590
Sask.	3239/ 114	OH total gross	23417	East Bias	108
MP	2376/ 213	northwest	0	SPC>WAPA (B10T)	169
NSP	11895/ 401	SPC total gross	3353	MH>SPC (3-230)	232
N. Dakota	4544/ 258	MP total gross	2269	MH>SPC (FALLS)	-62
Manitoba	715 MVARS	ND Cfd AC gross	2967	OH>MH @Kenora	3
Ont. total	13590 MVARS	net	2797	OH>MP @Ft Fran	152
NW	0 MVARS	NSP East gross	2396	OH E>W @Wawa	-116
Sask.	761 MVARS	net	2290	OH>East USA	0
MP	8309 MVARS	West gross	3062	F601C @Forbes	303
NSP	2046 MVARS	net	2900	D602F @Dorsey	0
N. Dakota	1080 MVARS	Total net	11567	L20D @Letell	219
ATC	16817/ 432	WAPA SD Hydro	0	R50M @Richer	51
ATC	5062 MVARS	Pleasant Valley	422	G82R @Glenboro	-25
		LGS/Trimont	264		

SW MN Wind	1076
N DAK WIND	221
Swing Bus	2129

Tfmrs	MVA/	Load
Wshell #1 7-7	41/	29%
Wshell #2 7-7	41/	29%
Drayton#1 4-7	52/	37%
Drayton#2 4-7	66/	35%
Dorsey #1 2-4	276/	23%
Dorsey #2 2-4	357/	29%
Forbes 2-4	140/	20%
Stone Lk 3-5	136/	45%

Ph Shifters	Deg/	MW
Stinson	-7/	108
Boundary Dam	16/	170
Whiteshell	-70/	-3
Int Falls	-61/	151
St. Lawrence	16/	0
Arrowhead	0/	125

DC Lines	MW
CU (1,2)	1103
SQ BU (3,4)	450
MH Bipole 1	1058
MH Bipole 2	1198
MH (BP1+BP2)	2256
Miles City E>W	0
RCDC (15)	130
Stegall (10)	0

Dorsey SC's		I/S	MVAR	Qmax/ Qmin
MIL 7-9G	17.0	2	69	600/ -330
SCE 1-3G	18.2	3	56	480/ -240
SCA 4-6G	18.2	3	56	480/ -240
Total			183	1560/ -810
Margin			1377	

SVC's	MVAR	Qmax/	Qmin
Forbes	500	-8	400/ -450
Fargo	13.2	-4	20/ -135
Watertown	20.0	27	125/ -86

Series Caps		Num In Serv
Roseau	500	2 of 2
Chisago	500	1 of 1

Caps/Reactors		MVAR
Balta (FS)	230	0
Drayton	115	40
Drayton	13.8	0
Eau Claire(FS)	161	267
Kohlman Lake	115	240
Parkers Lk(FS)	115	0
Prairie (FS)	115	120
Ramsey (FS)	230	0
Red Rock	115	160
Rugby	13.8	-25
Split Rock(FS)	115	0
Sheyenne (FS)	115	120

Caps/Reactors		MVAR
Arrowhead	230	120
Blackberry	230	47
Minntac	115	45
Riverton	230	47
Roseau Co.(FS)	230	0
Running (FS)	230	0
Running react	230	-20
Shannon	230	36
		0
Glenboro	230	0
Laverendrye	110	98
Richer react	230	0

Caps/Reactors		MVAR
Chisago T 9	34.5	25
Chisago T 10	34.5	25
Forbes	230	0
Forbes	500	0
		0
Fargo	115	54
Watertown	20	20
Watertown	230	0
		0
Arrowhead	345	0
Stone Lake	345	0
Stone Lk Reac	345	0

Wilton/Bemidji	115	43	St Vital	110	98	Stone Lake	161	0
		0			0	Grdnr Pk Reac	345	0
		0			0	Grdnr Pk Caps	115	0
		0			0	Arpin Caps	138	50
		0			0	Council Creek	138	16

Bus Voltages		V,pu	Bus Voltages		V,pu	Bus Voltages		V,kV
Adams	345	1.014	Arrowhead	230	1.027	Whiteshell	110	119.1
Alexandria	115	1.020	Badoura	115	0.991	Kenora	220	251.2
Audubon	115	1.006	Blackberry	230	1.028	Dryden	220	254.7
Bemidji	115	1.015	Boise Cascade	13.8	1.045	Fort Frances	220	254.5
Byron	345	1.027	Boise Cascade	115	1.034	Mackenzie	220	254.1
Chisago Co.	345	1.034	ETCO	115	1.018	Lakehead	220	238.9
Chisago Co.	500	1.034	Forbes	230	1.026	Marathon	220	242.2
Drayton	230	1.031	Forbes	500	1.023	Wawa	220	240.6
Eau Claire	345	1.041	Hubbard	115	0.000	Mississagi	220	245.1
WEST FARIBAULT	115	1.006	Intl Falls	115	1.035	Fort Frances	118	121.7
LaPorte	115	0.993	Minntac	115	1.026	Lakehead	118	123.3
Maple River	230	1.025	Moranville	230	1.027	Birch	118	119.9
Marshall Tap	115	1.007	Riverton	230	1.002	Marathon	118	124.4
Owatonna	161	0.984	Running	230	1.018			0.000
Prairie	115	1.051	Shannon	230	1.031	Arrowhead	345	1.050
Prairie	230	1.035	Stinson MN	115	1.020	Stone Lake	345	1.053
Ramsey	230	1.001	Jamestown	345	0.986	Stone Lake	161	1.041
Roseau County	230	1.027	Groton	345	1.022	Gardner Park	345	1.020
Roseau County	500	1.048	Watertown	230	1.030	Weston	115	1.029
Sheyenne	230	1.029	Watertown	345	1.026	Arpin	345	1.024
Thief R Falls	115	1.018			0.000	Eau Claire	161	1.028
Tioga	230	1.024	Dorsey	230	1.045	Council Creek	161	0.960
Wahpeton	230	1.000	Dorsey	500	1.040	Hydro Lane	161	1.004
Winger	115	1.033			0.000	Wien	115	1.029
		0.000			0.000			0.000
		0.000			0.000			0.000
		0.000			0.000			0.000

Steady State Relay Margins (measured from inner blinder)

Relay Location	Manuf/Type	PSS Model	South	North	Em North

1)	B10T-Tioga (South)	GE OST	SLLP	316%	N/A	N/A
2)	-Tioga (North)	GE OST	SLLP	653%	N/A	N/A
3)	-Tioga (Em North)	GE OST	SLLP		N/A	N/A
4)	D602F-Dorsey	ATP ???	SLINOS	999999%	N/A	N/A
5)	-Forbes (Normal)	ATP ???	SLINOS	1169%	N/A	N/A
6)	-Forbes (Em Nrth)	APT S-PRO	SLINOS		N/A	N/A
8)	F3M-Intl Falls	APT S-PRO	SLINOS	339%	N/A	N/A
9)	G82R-Rugby	APT	SLINOS	N/A	1208%	
10)	L20D-Drayton (Normal)	APT, ASEA	SLINOS	969%	N/A	N/A
11)	-Drayton (Em Nrth)	ASEA RXZF2	SLINOS		N/A	N/A
12)	R50M-Moranville (Norm)	APT, West	SLINOS	3163%	N/A	N/A
13)	-Moranville (Em N)	ASEA RXZF2	SLINOS		N/A	N/A

INITIATED AT LOAD FLOW ENTRY POINT ON WED, FEB 20 2008 13:58

KCL-SP16AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=4,MH=1057,MW=388,OHMH=0,OHMP=150,EWTW=-120,BD=165

P O W E R F L O W S U M M A R Y

NDEX:	4 MW	ECL-ARP:	132 MW
MHEX:	845 MW	PRI-BYN:	-84 MW
MWEX:	388 MW	AHD-SLK:	124 MW
KING-ECL:	264 MW	SLK-GPK:	-7 MW
COOPER S:	74 MW	WNE-WKS:	246 MW
FTCAL S:	123 MW	GGS:	1308 MW
GRIS-LNC:	104 MW	QC WEST:	1134 MW

LOAD LEVELS AS PERCENT OF 2016 SUMMER PEAK:
NORTH DAKOTA (ZONE 90,990) 4551.8 MW, 122.7% OF 3710.2 MW
NSP (AREA 600) ****** MW, 100.1% OF 11889.2 MW
MAN HYDRO (AREA 667) 3076.3 MW, 100.0% OF 3076.0 MW

Load/Losses	MW / MW	Generation	MW	Export	MW
Manitoba	3076/ 228	MH total gross	4305	ATC West Import	331
Ont. total	23241/ 564	Wpg River	476	ATC SW Import	1060
NW	0/ 0	7 Sisters	165	ATC SE Import	-590
Sask.	3239/ 114	OH total gross	23417	East Bias	108
MP	2376/ 213	northwest	0	SPC>WAPA (B10T)	165
NSP	11895/ 401	SPC total gross	3353	MH>SPC (3-230)	228
N. Dakota	4551/ 258	MP total gross	2269	MH>SPC (FALLS)	-62
Manitoba	715 MVARS	ND Cfd AC gross	2974	OH>MH @Kenora	0
Ont. total	13590 MVARS	net	2805	OH>MP @Ft Fran	150
NW	0 MVARS	NSP East gross	2396	OH E>W @Wawa	-120
Sask.	761 MVARS	net	2290	OH>East USA	0
MP	8310 MVARS	West gross	3062	F601C @Forbes	302
NSP	2046 MVARS	net	2900	D602F @Dorsey	0
N. Dakota	1080 MVARS	Total net	11567	L20D @Letell	219
ATC	16817/ 432	WAPA SD Hydro	0	R50M @Richer	51
ATC	5062 MVARS	Pleasant Valley	422	G82R @Glenboro	-25
		LGS/Trimont	264		

SW MN Wind	1076
N DAK WIND	221
Swing Bus	2131

Tfmrs	MVA/	Load
Wshell #1 7-7	42/	29%
Wshell #2 7-7	42/	29%
Drayton#1 4-7	52/	37%
Drayton#2 4-7	67/	35%
Dorsey #1 2-4	277/	23%
Dorsey #2 2-4	357/	29%
Forbes 2-4	140/	20%
Stone Lk 3-5	134/	44%

Ph Shifters	Deg/	MW
Stinson	-7/	109
Boundary Dam	15/	165
Whiteshell	-72/	0
Int Falls	-63/	150
St. Lawrence	16/	0
Arrowhead	0/	124

DC Lines	MW
CU (1,2)	1103
SQ BU (3,4)	450
MH Bipole 1	1058
MH Bipole 2	1198
MH (BP1+BP2)	2256
Miles City E>W	0
RCDC (15)	130
Stegall (10)	0

Dorsey SC's	I/S	MVAR	Qmax/ Qmin
MIL 7-9G 17.0	2	69	600/ -330
SCE 1-3G 18.2	3	56	480/ -240
SCA 4-6G 18.2	3	56	480/ -240
Total		183	1560/ -810
Margin		1377	

SVC's	MVAR	Qmax/	Qmin
Forbes	500	-8	400/ -450
Fargo	13.2	-4	20/ -135
Watertown	20.0	27	125/ -86

Series Caps		Num In Serv
Roseau	500	2 of 2
Chisago	500	1 of 1

Caps/Reactors		MVAR
Balta (FS)	230	0
Drayton	115	40
Drayton	13.8	0
Eau Claire(FS)	161	267
Kohlman Lake	115	240
Parkers Lk(FS)	115	0
Prairie (FS)	115	120
Ramsey (FS)	230	0
Red Rock	115	160
Rugby	13.8	-25
Split Rock(FS)	115	0
Sheyenne (FS)	115	120

Caps/Reactors		MVAR
Arrowhead	230	120
Blackberry	230	47
Minntac	115	45
Riverton	230	47
Roseau Co.(FS)	230	0
Running (FS)	230	0
Running react	230	-20
Shannon	230	36
		0
Glenboro	230	0
Laverendrye	110	98
Richer react	230	0

Caps/Reactors		MVAR
Chisago T 9	34.5	25
Chisago T 10	34.5	25
Forbes	230	0
Forbes	500	0
		0
Fargo	115	54
Watertown	20	20
Watertown	230	0
		0
Arrowhead	345	0
Stone Lake	345	0
Stone Lk Reac	345	0

Wilton/Bemidji	115	43	St Vital	110	98	Stone Lake	161	0
		0			0	Grdnr Pk Reac	345	0
		0			0	Grdnr Pk Caps	115	0
		0			0	Arpin Caps	138	50
		0			0	Council Creek	138	16

Bus Voltages		V,pu	Bus Voltages		V,pu	Bus Voltages		V,kV
Adams	345	1.014	Arrowhead	230	1.027	Whiteshell	110	119.1
Alexandria	115	1.020	Badoura	115	0.991	Kenora	220	251.3
Audubon	115	1.006	Blackberry	230	1.028	Dryden	220	254.7
Bemidji	115	1.015	Boise Cascade	13.8	1.046	Fort Frances	220	254.6
Byron	345	1.027	Boise Cascade	115	1.034	Mackenzie	220	254.1
Chisago Co.	345	1.034	ETCO	115	1.018	Lakehead	220	238.8
Chisago Co.	500	1.034	Forbes	230	1.026	Marathon	220	241.9
Drayton	230	1.031	Forbes	500	1.023	Wawa	220	240.4
Eau Claire	345	1.041	Hubbard	115	0.000	Mississagi	220	244.9
WEST FARIBAULT	115	1.006	Intl Falls	115	1.036	Fort Frances	118	121.8
LaPorte	115	0.993	Minntac	115	1.026	Lakehead	118	123.3
Maple River	230	1.025	Moranville	230	1.027	Birch	118	119.9
Marshall Tap	115	1.007	Riverton	230	1.002	Marathon	118	124.2
Owatonna	161	0.985	Running	230	1.019			0.000
Prairie	115	1.051	Shannon	230	1.031	Arrowhead	345	1.050
Prairie	230	1.035	Stinson MN	115	1.019	Stone Lake	345	1.053
Ramsey	230	1.001	Jamestown	345	0.986	Stone Lake	161	1.041
Roseau County	230	1.027	Groton	345	1.022	Gardner Park	345	1.020
Roseau County	500	1.048	Watertown	230	1.030	Weston	115	1.029
Sheyenne	230	1.029	Watertown	345	1.026	Arpin	345	1.024
Thief R Falls	115	1.018			0.000	Eau Claire	161	1.028
Tioga	230	1.024	Dorsey	230	1.045	Council Creek	161	0.960
Wahpeton	230	1.000	Dorsey	500	1.040	Hydro Lane	161	1.004
Winger	115	1.033			0.000	Wien	115	1.029
		0.000			0.000			0.000
		0.000			0.000			0.000
		0.000			0.000			0.000

Steady State Relay Margins (measured from inner blinder)

Relay Location	Manuf/Type	PSS Model	South	North	Em North

1)	B10T-Tioga (South)	GE OST	SLLP	328%	N/A	N/A
2)	-Tioga (North)	GE OST	SLLP	677%	N/A	N/A
3)	-Tioga (Em North)	GE OST	SLLP		N/A	N/A
4)	D602F-Dorsey	ATP ???	SLINOS	999999%	N/A	N/A
5)	-Forbes (Normal)	ATP ???	SLINOS	1169%	N/A	N/A
6)	-Forbes (Em Nrth)	APT S-PRO	SLINOS		N/A	N/A
8)	F3M-Intl Falls	APT S-PRO	SLINOS	344%	N/A	N/A
9)	G82R-Rugby	APT	SLINOS	N/A	1208%	
10)	L20D-Drayton (Normal)	APT, ASEA	SLINOS	966%	N/A	N/A
11)	-Drayton (Em Nrth)	ASEA RXZF2	SLINOS		N/A	N/A
12)	R50M-Moranville (Norm)	APT, West	SLINOS	3133%	N/A	N/A
13)	-Moranville (Em N)	ASEA RXZF2	SLINOS		N/A	N/A

INITIATED AT LOAD FLOW ENTRY POINT ON WED, FEB 20 2008 13:54

KC0-SO08AA.SAV;SUMMER;OP LD;SYSTEM INTACT :
ND=2079,MH=2176,MW=1525,OHMH=-195,OHMP=151,EWTW=191,BD=164

P O W E R F L O W S U M M A R Y

NDEX:	2079 MW	ECL-ARP:	551 MW
MHEX:	2176 MW	PRI-BYN:	882 MW
MWEX:	1525 MW	AHD-SLK:	638 MW
KING-ECL:	887 MW	SLK-GPK:	384 MW
COOPER S:	692 MW	WNE-WKS:	469 MW
FTCAL S:	587 MW	GGS:	1626 MW
GRIS-LNC:	756 MW	QC WEST:	193 MW

LOAD LEVELS AS PERCENT OF 2008 SUMMER PEAK:

NORTH DAKOTA	(ZONE 90,990)	2010.2 MW,	69.7%	OF	2883.0 MW
NSP	(AREA 600)	7883.8 MW,	74.5%	OF	10581.0 MW
MAN HYDRO	(AREA 667)	2348.2 MW,	79.8%	OF	2943.0 MW

Load/Losses	MW / MW	Generation	MW	Export	MW
Manitoba	2348/ 288	MH total gross	5004	ATC West Import	1092
Ont. total	22150/ 478	Wpg River	568	ATC SW Import	455
NW	915/ 37	7 Sisters	170	ATC SE Import	-1030
Sask.	2150/ 82	OH total gross	21884	East Bias	247
MP	2021/ 132	northwest	717	SPC>WAPA (B10T)	164
NSP	7883/ 427	SPC total gross	2406	MH>SPC (3-230)	60
N. Dakota	2010/ 286	MP total gross	2161	MH>SPC (FALLS)	0
Manitoba	481 MVARS	ND Cfd AC gross	3237	OH>MH @Kenora	-195
Ont. total	13082 MVARS	net	3066	OH>MP @Ft Fran	151
NW	489 MVARS	NSP East gross	2334	OH E>W @Wawa	191
Sask.	502 MVARS	net	2232	OH>East USA	0
MP	540 MVARS	West gross	3033	F601C @Forbes	1452
NSP	1671 MVARS	net	2871	D602F @Dorsey	1727
N. Dakota	460 MVARS	Total net	6305	L20D @Letell	277
ATC	10359/ 310	WAPA SD Hydro	1497	R50M @Richer	142
ATC	3110 MVARS	Pleasant Valley	0	G82R @Glenboro	29
		LGS/Trimont	19		

SW MN Wind	193
N DAK WIND	203
Swing Bus	972

Tfmrs	MVA/	Load
Wshell #1 7-7	112/	78%
Wshell #2 7-7	112/	78%
Drayton#1 4-7	47/	33%
Drayton#2 4-7	60/	32%
Dorsey #1 2-4	814/	67%
Dorsey #2 2-4	924/	77%
Forbes 2-4	94/	14%
Stone Lk 3-5	240/	71%

Ph Shifters	Deg/	MW
Stinson	26/	29
Boundary Dam	5/	165
Whiteshell	81/	199
Int Falls	100/	150
St. Lawrence	15/	0
Arrowhead	0/	638

DC Lines	MW
CU (1,2)	1104
SQ BU (3,4)	450
MH Bipole 1	1523
MH Bipole 2	1724
MH (BP1+BP2)	3247
Miles City E>W	-150
RCDC (15)	0
Stegall (10)	0

Dorsey SC's	I/S	MVAR	Qmax/ Qmin
MIL 7-9G 17.0	2	462	600/ -330
SCE 1-3G 18.2	3	377	480/ -240
SCA 4-6G 18.2	3	377	480/ -240
Total		1216	1560/ -810
Margin		344	

SVC's	MVAR	Qmax/	Qmin
Forbes	500	37	400/ -450
Fargo	13.2	-30	20/ -135
Watertown	20.0	39	125/ -86

Series Caps	Num In Serv
Roseau 500	2 of 2
Chisago 500	1 of 1

Caps/Reactors	MVAR
Balta (FS) 230	0
Drayton 115	20
Drayton 13.8	0
Eau Claire(FS) 161	267
Kohlman Lake 115	240
Parkers Lk(FS) 115	0
Prairie (FS) 115	40
Ramsey (FS) 230	0
Red Rock 115	240
Rugby 13.8	-25
Split Rock(FS) 115	80
Sheyenne (FS) 115	40

Caps/Reactors	MVAR
Arrowhead 230	160
Blackberry 230	47
Minntac 115	45
Riverton 230	47
Roseau Co.(FS) 230	0
Running (FS) 230	30
Running react 230	0
Shannon 230	72
230	0
Glenboro 230	0
Laverendrye 110	98
Richer react 230	0

Caps/Reactors	MVAR
Chisago T 9 34.5	51
Chisago T 10 34.5	51
Forbes 230	70
Forbes 500	600
	0
Fargo 115	54
Watertown 20	20
Watertown 230	76
	0
Arrowhead 345	150
Stone Lake 345	0
Stone Lk Reac 345	0

Wilton/Bemidji	115	20	St Vital	110	98	Stone Lake	161	20
		0			0	Grdnr Pk Reac	345	0
		0			0	Grdnr Pk Caps	115	0
		0			0	Arpin Caps	138	50
		0			0	Council Creek	138	16

Bus Voltages		V,pu	Bus Voltages		V,pu	Bus Voltages		V,kV
Adams	345	0.996	Arrowhead	230	1.023	Whiteshell	110	119.0
Alexandria	115	1.036	Badoura	115	1.043	Kenora	220	254.4
Audubon	115	1.048	Blackberry	230	1.036	Dryden	220	262.1
Bemidji	115	1.038	Boise Cascade	13.8	1.052	Fort Frances	220	259.8
Byron	345	1.007	Boise Cascade	115	1.020	Mackenzie	220	273.4
Chisago Co.	345	1.029	ETCO	115	1.019	Lakehead	220	273.6
Chisago Co.	500	1.027	Forbes	230	1.038	Marathon	220	269.1
Drayton	230	1.030	Forbes	500	1.035	Wawa	220	262.3
Eau Claire	345	1.008	Hubbard	115	1.031	Mississagi	220	252.4
WEST FARIBAULT	115	1.018	Intl Falls	115	1.021	Fort Frances	118	119.4
LaPorte	115	1.035	Minntac	115	1.028	Lakehead	118	122.8
Maple River	230	1.031	Moranville	230	1.030	Birch	118	120.3
Marshall Tap	115	1.030	Riverton	230	1.031	Marathon	118	127.5
Owatonna	161	0.998	Running	230	1.035			0.000
Prairie	115	1.043	Shannon	230	1.042	Arrowhead	345	1.046
Prairie	230	1.037	Stinson MN	115	1.029	Stone Lake	345	1.034
Ramsey	230	1.032	Jamestown	345	0.983	Stone Lake	161	1.038
Roseau County	230	1.029	Groton	345	0.992	Gardner Park	345	1.035
Roseau County	500	1.065	Watertown	230	1.030	Weston	115	1.035
Sheyenne	230	1.033	Watertown	345	1.021	Arpin	345	1.008
Thief R Falls	115	1.038			0.000	Eau Claire	161	1.029
Tioga	230	1.029	Dorsey	230	1.045	Council Creek	161	0.966
Wahpeton	230	1.024	Dorsey	500	1.038	Hydro Lane	161	1.011
Winger	115	1.052			0.000	Wien	115	1.033
		0.000			0.000			0.000
		0.000			0.000			0.000
		0.000			0.000			0.000

Steady State Relay Margins (measured from inner blinder)

Relay Location	Manuf/Type	PSS Model	South	North	Em North

1)	B10T-Tioga (South)	GE OST	SLLP	338%	N/A	N/A
2)	-Tioga (North)	GE OST	SLLP	694%	N/A	N/A
3)	-Tioga (Em North)	GE OST	SLLP		N/A	N/A
4)	D602F-Dorsey	ATP ???	SLINOS	421%	N/A	N/A
5)	-Forbes (Normal)	ATP ???	SLINOS	267%	N/A	N/A
6)	-Forbes (Em Nrth)	APT S-PRO	SLINOS		N/A	N/A
8)	F3M-Intl Falls	APT S-PRO	SLINOS	323%	N/A	N/A
9)	G82R-Rugby	APT	SLINOS	1797%	N/A	N/A
10)	L20D-Drayton (Normal)	APT, ASEA	SLINOS	719%	N/A	N/A
11)	-Drayton (Em Nrth)	ASEA RXZF2	SLINOS		N/A	N/A
12)	R50M-Moranville (Norm)	APT, West	SLINOS	952%	N/A	N/A
13)	-Moranville (Em N)	ASEA RXZF2	SLINOS		N/A	N/A

INITIATED AT LOAD FLOW ENTRY POINT ON WED, FEB 20 2008 13:55

KCG-SO08AA.SAV;SUMMER;OP LD;SYSTEM INTACT :
ND=2079,MH=2176,MW=1525,OHMH=-195,OHMP=151,EWTW=191,BD=164

P O W E R F L O W S U M M A R Y

NDEX:	2079 MW	ECL-ARP:	550 MW
MHEX:	2176 MW	PRI-BYN:	882 MW
MWEX:	1525 MW	AHD-SLK:	638 MW
KING-ECL:	886 MW	SLK-GPK:	384 MW
COOPER S:	691 MW	WNE-WKS:	469 MW
FTCAL S:	587 MW	GGS:	1626 MW
GRIS-LNC:	756 MW	QC WEST:	194 MW

LOAD LEVELS AS PERCENT OF 2008 SUMMER PEAK:

NORTH DAKOTA	(ZONE 90,990)	2016.8 MW,	70.0%	OF	2883.0 MW
NSP	(AREA 600)	7886.1 MW,	74.5%	OF	10581.0 MW
MAN HYDRO	(AREA 667)	2348.2 MW,	79.8%	OF	2943.0 MW

Load/Losses	MW / MW	Generation	MW	Export	MW
Manitoba	2348/ 288	MH total gross	5003	ATC West Import	1091
Ont. total	22150/ 478	Wpg River	568	ATC SW Import	455
NW	915/ 37	7 Sisters	170	ATC SE Import	-1030
Sask.	2150/ 82	OH total gross	21884	East Bias	247
MP	2021/ 132	northwest	717	SPC>WAPA (B10T)	164
NSP	7886/ 427	SPC total gross	2406	MH>SPC (3-230)	60
N. Dakota	2016/ 286	MP total gross	2161	MH>SPC (FALLS)	0
Manitoba	481 MVARS	ND Cfd AC gross	3237	OH>MH @Kenora	-195
Ont. total	13082 MVARS	net	3066	OH>MP @Ft Fran	151
NW	489 MVARS	NSP East gross	2334	OH E>W @Wawa	191
Sask.	502 MVARS	net	2232	OH>East USA	0
MP	540 MVARS	West gross	3033	F601C @Forbes	1452
NSP	1671 MVARS	net	2871	D602F @Dorsey	1726
N. Dakota	462 MVARS	Total net	6305	L20D @Letell	277
ATC	10358/ 309	WAPA SD Hydro	1497	R50M @Richer	142
ATC	3110 MVARS	Pleasant Valley	0	G82R @Glenboro	29
		LGS/Trimont	19		

SW MN Wind	193
N DAK WIND	203
Swing Bus	972

Tfmrs	MVA/	Load	Ph Shifters	Deg/	MW	DC Lines	MW
Wshell #1 7-7	112/	78%	Stinson	26/	29	CU (1,2)	1103
Wshell #2 7-7	112/	78%	Boundary Dam	5/	165	SQ BU (3,4)	450
Drayton#1 4-7	47/	33%	Whiteshell	81/	199	MH Bipole 1	1522
Drayton#2 4-7	60/	32%	Int Falls	100/	150	MH Bipole 2	1724
Dorsey #1 2-4	814/	67%	St. Lawrence	15/	0	MH (BP1+BP2)	3247
Dorsey #2 2-4	924/	77%	Arrowhead	0/	638	Miles City E>W	-150
Forbes 2-4	94/	14%				RCDC (15)	0
Stone Lk 3-5	241/	71%				Stegall (10)	0

Dorsey SC's		I/S	MVAR	Qmax/ Qmin
MIL 7-9G	17.0	2	462	600/ -330
SCE 1-3G	18.2	3	377	480/ -240
SCA 4-6G	18.2	3	377	480/ -240
Total			1216	1560/ -810
Margin			344	

SVC's	MVAR	Qmax/	Qmin
Forbes	500	37	400/ -450
Fargo	13.2	-29	20/ -135
Watertown	20.0	39	125/ -86

Series Caps		Num In Serv
Roseau	500	2 of 2
Chisago	500	1 of 1

Caps/Reactors		MVAR	Caps/Reactors		MVAR	Caps/Reactors		MVAR
Balta	(FS) 230	0	Arrowhead	230	160	Chisago T 9	34.5	51
Drayton	115	20	Blackberry	230	47	Chisago T 10	34.5	51
Drayton	13.8	0	Minntac	115	45	Forbes	230	70
Eau Claire	(FS) 161	267	Riverton	230	47	Forbes	500	600
Kohlman Lake	115	240	Roseau Co.	(FS) 230	0			0
Parkers Lk	(FS) 115	0	Running	(FS) 230	30	Fargo	115	54
Prairie	(FS) 115	40	Running react	230	0	Watertown	20	20
Ramsey	(FS) 230	0	Shannon	230	72	Watertown	230	76
Red Rock	115	240			0			0
Rugby	13.8	-25	Glenboro	230	0	Arrowhead	345	150
Split Rock	(FS) 115	80	Laverendrye	110	98	Stone Lake	345	0
Sheyenne	(FS) 115	40	Richer react	230	0	Stone Lk Reac	345	0

Wilton/Bemidji	115	20	St Vital	110	98	Stone Lake	161	20
		0			0	Grdnr Pk Reac	345	0
		0			0	Grdnr Pk Caps	115	0
		0			0	Arpin Caps	138	50
		0			0	Council Creek	138	16

Bus Voltages		V,pu	Bus Voltages		V,pu	Bus Voltages		V,kV
Adams	345	0.996	Arrowhead	230	1.023	Whiteshell	110	119.0
Alexandria	115	1.036	Badoura	115	1.043	Kenora	220	254.4
Audubon	115	1.047	Blackberry	230	1.036	Dryden	220	262.1
Bemidji	115	1.038	Boise Cascade	13.8	1.052	Fort Frances	220	259.8
Byron	345	1.007	Boise Cascade	115	1.020	Mackenzie	220	273.4
Chisago Co.	345	1.029	ETCO	115	1.019	Lakehead	220	273.6
Chisago Co.	500	1.027	Forbes	230	1.038	Marathon	220	269.1
Drayton	230	1.030	Forbes	500	1.035	Wawa	220	262.3
Eau Claire	345	1.009	Hubbard	115	1.031	Mississagi	220	252.4
WEST FARIBAULT	115	1.018	Intl Falls	115	1.021	Fort Frances	118	119.4
LaPorte	115	1.035	Minntac	115	1.028	Lakehead	118	122.8
Maple River	230	1.031	Moranville	230	1.030	Birch	118	120.3
Marshall Tap	115	1.030	Riverton	230	1.031	Marathon	118	127.5
Owatonna	161	0.998	Running	230	1.035			0.000
Prairie	115	1.042	Shannon	230	1.042	Arrowhead	345	1.046
Prairie	230	1.037	Stinson MN	115	1.029	Stone Lake	345	1.034
Ramsey	230	1.031	Jamestown	345	0.983	Stone Lake	161	1.038
Roseau County	230	1.029	Groton	345	0.992	Gardner Park	345	1.035
Roseau County	500	1.065	Watertown	230	1.030	Weston	115	1.035
Sheyenne	230	1.032	Watertown	345	1.020	Arpin	345	1.008
Thief R Falls	115	1.037			0.000	Eau Claire	161	1.029
Tioga	230	1.029	Dorsey	230	1.045	Council Creek	161	0.966
Wahpeton	230	1.024	Dorsey	500	1.038	Hydro Lane	161	1.011
Winger	115	1.052			0.000	Wien	115	1.033
		0.000			0.000			0.000
		0.000			0.000			0.000
		0.000			0.000			0.000

Steady State Relay Margins (measured from inner blinder)

Relay Location	Manuf/Type	PSS Model	South	North	Em North

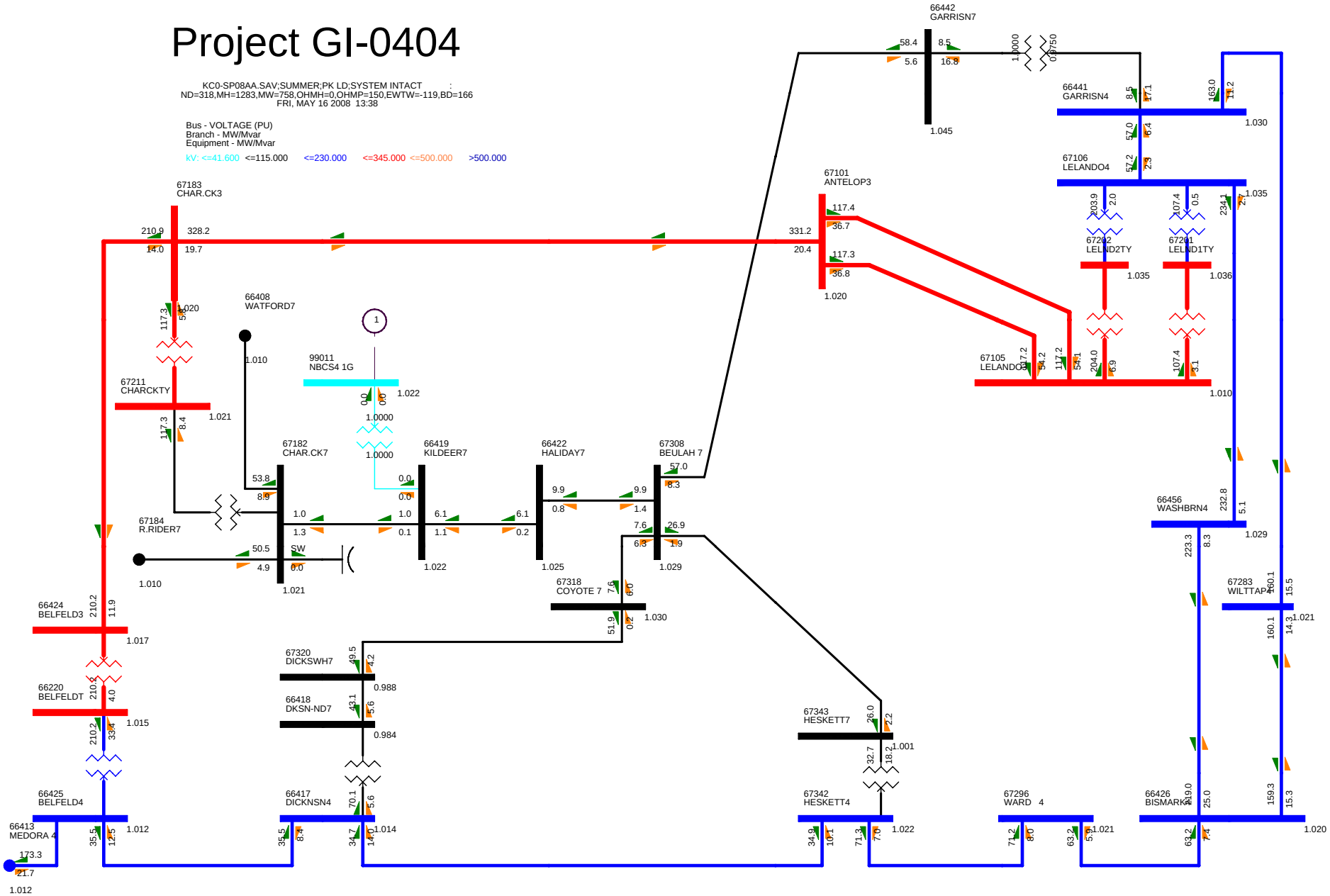
1)	B10T-Tioga (South)	GE OST	SLLP	339%	N/A	N/A
2)	-Tioga (North)	GE OST	SLLP	696%	N/A	N/A
3)	-Tioga (Em North)	GE OST	SLLP		N/A	N/A
4)	D602F-Dorsey	ATP ???	SLINOS	421%	N/A	N/A
5)	-Forbes (Normal)	ATP ???	SLINOS	267%	N/A	N/A
6)	-Forbes (Em Nrth)	APT S-PRO	SLINOS		N/A	N/A
8)	F3M-Intl Falls	APT S-PRO	SLINOS	323%	N/A	N/A
9)	G82R-Rugby	APT	SLINOS	1798%	N/A	N/A
10)	L20D-Drayton (Normal)	APT, ASEA	SLINOS	718%	N/A	N/A
11)	-Drayton (Em Nrth)	ASEA RXZF2	SLINOS		N/A	N/A
12)	R50M-Moranville (Norm)	APT, West	SLINOS	952%	N/A	N/A
13)	-Moranville (Em N)	ASEA RXZF2	SLINOS		N/A	N/A

Project GI-0404

KC0-SP08AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=318,MH=1283,MW=758,OHMH=0,OHMP=150,EWTW=-119,BD=166
FRI, MAY 16 2008 13:38

Bus - VOLTAGE (PU)
Branch - MW/Mvar
Equipment - MW/Mvar

kV: <=41.600 <=115.000 <=230.000 <=345.000 <=500.000 >500.000

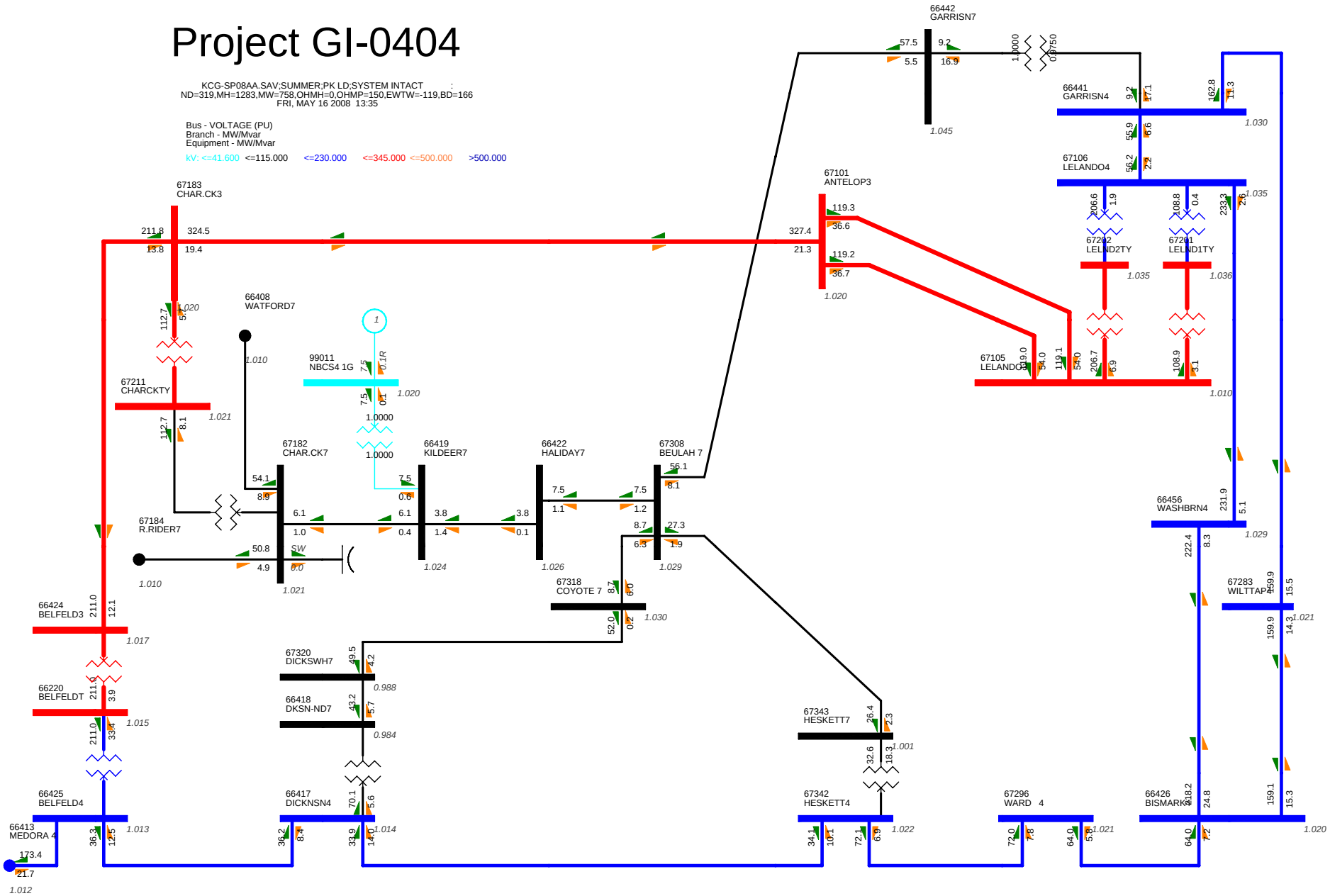


Project GI-0404

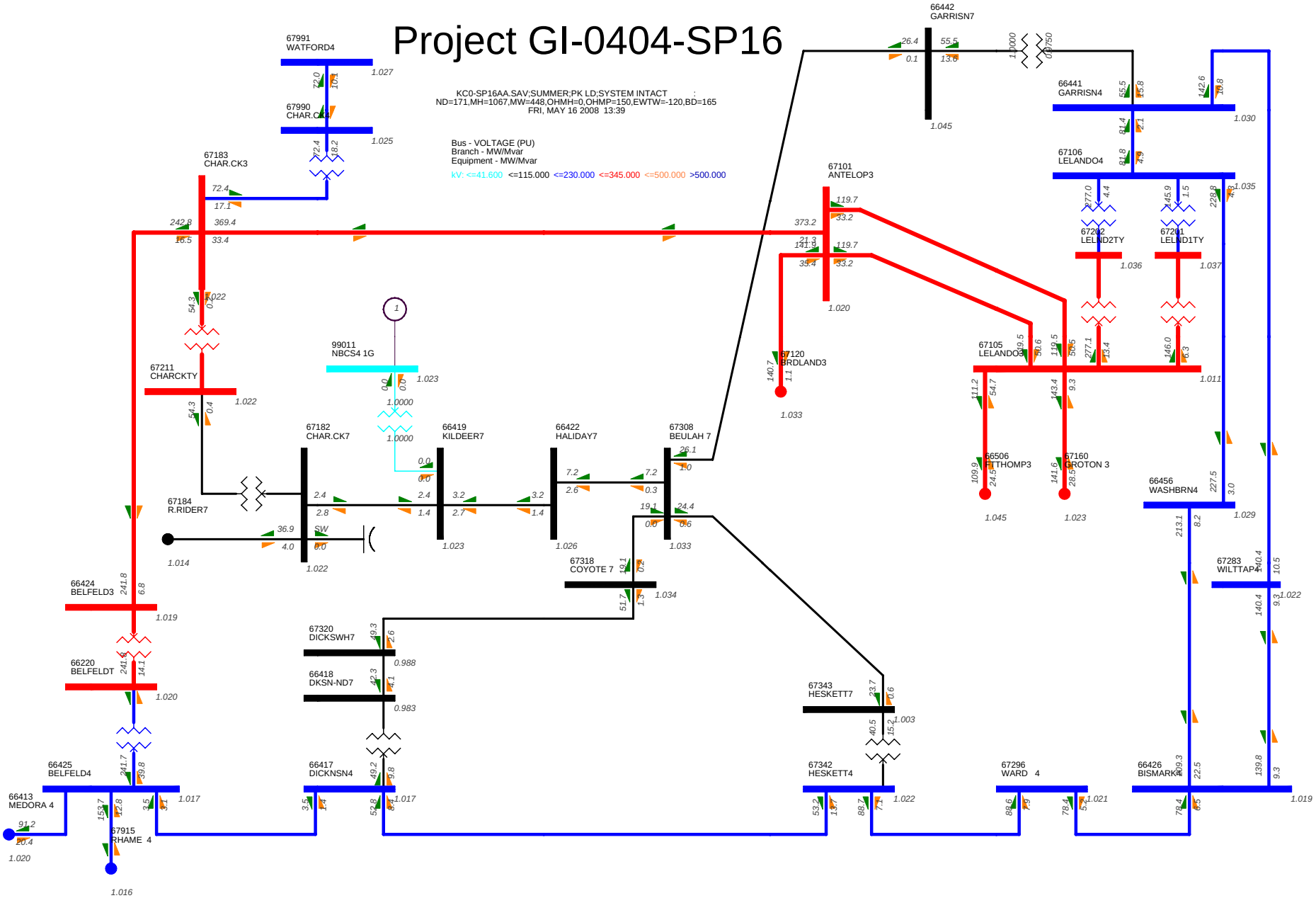
KCG-SP08AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=319,MH=1283,MW=758,OHMH=0,OHMP=150,EWTW=-119,BD=166
FRI, MAY 16 2008 13:35

Bus - VOLTAGE (PU)
Branch - MW/Mvar
Equipment - MW/Mvar

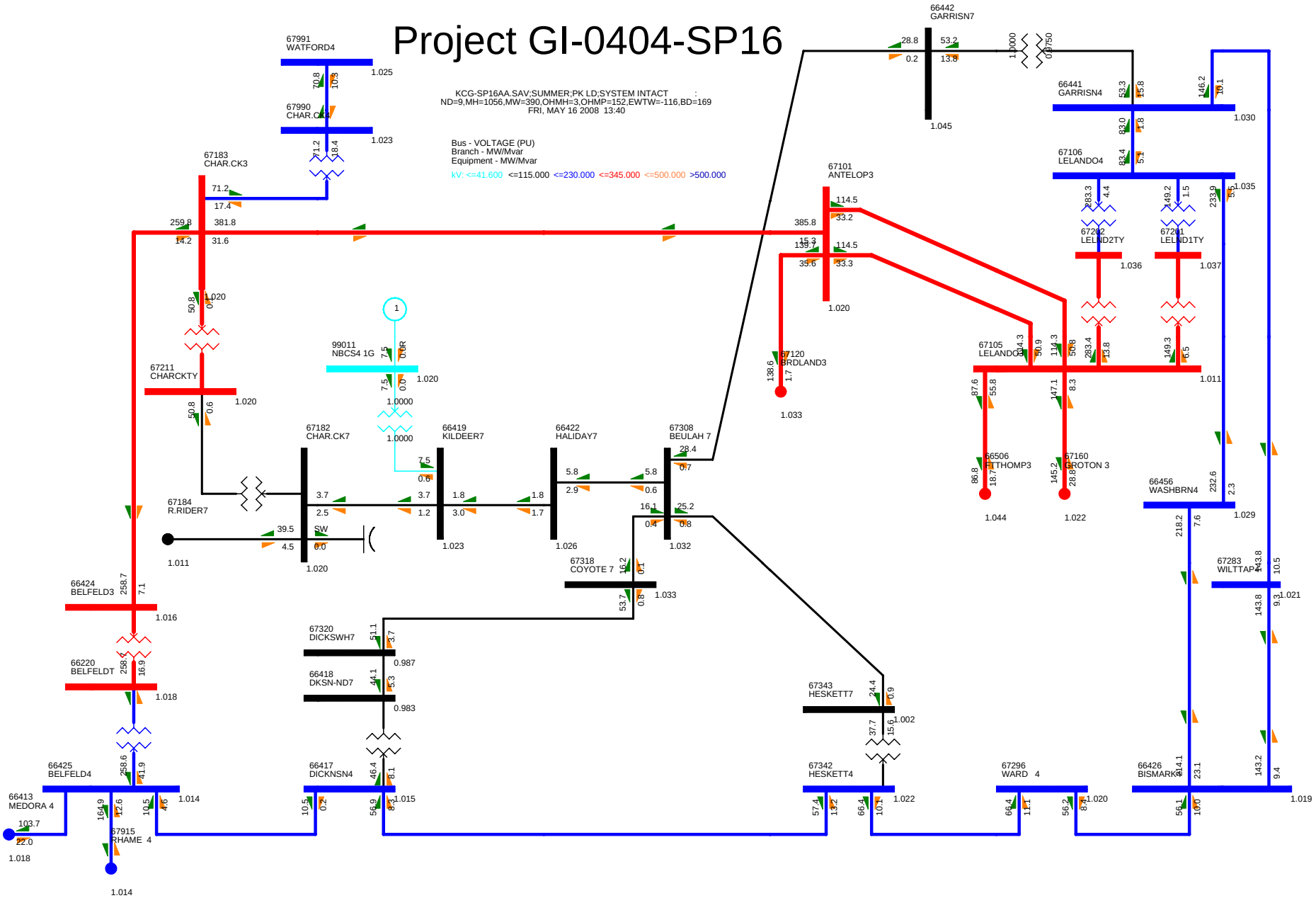
kV: <=41.600 <=115.000 <=230.000 <=345.000 <=500.000 >500.000



Project GI-0404-SP16



Project GI-0404-SP16



POWER FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	1	2	3	4	5
2	**Case Name**	kc0-so08aa-ac1	kcg-so08aa-ac1	kc0-so08aa-ac3	kcg-so08aa-ac3	kc0-so08aa-ad1
3	**Disturbance**	ac1	ac1	ac3	ac3	ad1
4	**Prior Outage**	None	None	None	None	None
5	**Date/Time**	FEB 05 2008 10:24	FEB 05 2008 11:11	FEB 05 2008 10:26	FEB 05 2008 11:13	FEB 05 2008 10:28
6	**Comments**					
7						
8	**Steady State Flows**					
9	NDEX / EAST BIAS	2079 / 296	2080 / 296	2079 / 296	2080 / 296	2079 / 296
10	MHEX / L20D	2176 / 252	2176 / 252	2176 / 252	2176 / 252	2176 / 252
11	ECL-ARP / PRI-BYN	546 / 863	546 / 863	546 / 863	546 / 863	546 / 863
12	MWEX / AHD-SLK	1525 / 646	1525 / 646	1525 / 646	1525 / 646	1525 / 646
13	D602F / F601C	1767 / 1502	1766 / 1502	1767 / 1502	1766 / 1502	1767 / 1502
14	B10T / MH>SPC	165 / 61	165 / 60	165 / 61	165 / 60	165 / 61
15	OH E-W / OH>MH	190 / -196	190 / -196	190 / -196	190 / -196	190 / -196
16	R50M / OH>MP	146 / 151	146 / 151	146 / 151	146 / 151	146 / 151
17	G82R	11	10	11	10	11
18	Dorsey bipole / CU bipole	3201 / 1103	3200 / 1104	3201 / 1103	3200 / 1104	3201 / 1103
19	Dorsey Reserve / Wtrtn SVC	321 / 33	322 / 34	321 / 33	322 / 34	321 / 33
20	Forbes SVC / MSC	35 / 600	35 / 600	35 / 600	35 / 600	35 / 600
21	RCDC	0	0	0	0	0
22	**Steady State Vltgs**					
23	Dorsey 500/Dorsey 230	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000
24	Roseau 500/Forbes 500	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025
25	Chisago 500/EauClaire 345	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009
26	Int Falls 115/Badoura 115	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031
27	Drayton 230/Groton 345	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000
28	**SS OS Relay Margins**					
29	D602F at Forbes/Dorsey	250% / 393%	250% / 393%	250% / 393%	250% / 393%	250% / 393%
30	G82R at Rugby/L20D at Drayton	999% / 809%	999% / 809%	999% / 809%	999% / 809%	999% / 809%
31	R50M/F3M	903% / 323%	903% / 323%	903% / 323%	903% / 323%	903% / 323%
32	B10T	338%	339%	338%	339%	338%
33	**Min/MaxTransientVltg**					
34	Arrowhd 230	0.99 | 1.03	0.99 | 1.03	0.98 | 1.03	0.98 | 1.03	1.00 | 1.04
35	Boise 115	0.99 | 1.03	0.99 | 1.03	0.99 | 1.03	0.99 | 1.03	1.00 | 1.03
36	Dorsey 230	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.03 | 1.06
37	Forbes 230	1.00 | 1.05	1.00 | 1.05	1.00 | 1.04	1.00 | 1.05	1.01 | 1.05
38	Riverton 230	0.97 | 1.06	0.98 | 1.06	0.97 | 1.05	0.97 | 1.05	0.99 | 1.06
39	Coal Creek 230	0.95 | 1.12	0.95 | 1.12	0.95 | 1.12	0.95 | 1.12	0.96 | 1.12
40	Stone Lake 345	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.01 | 1.05
41	Drayton 230	0.98 | 1.09	0.98 | 1.09	0.99 | 1.09	0.99 | 1.10	0.99 | 1.08
42	Groton 345	0.83 | 1.01	0.83 | 1.02	0.83 | 1.02	0.83 | 1.02	0.87 | 1.04
43	Minong 161	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05
44	Wahpeton 115	0.94 | 1.09	0.95 | 1.09	0.94 | 1.09	0.94 | 1.09	0.97 | 1.10
45	Watertown 345	0.92 | 1.03	0.93 | 1.03	0.93 | 1.04	0.93 | 1.04	0.94 | 1.04
46	**Dynamic Voltage Warnings**					
47		none	none	none	none	none
48						
49						
50						
51						
52						
53						
54	Worst Case Angle Damping					
55	Dorsey SUVP / UdHold					
56	Forbes DC Red (DCAR)	396%	396%	406%	405%	392%
57	K22W (max +dP @ t, d-ang)	10.6@(2.61665,2.2)	10.2@(2.60832,2.4)	13.2@(2.55832,0.9)	13.2@(2.55832,0.9)	15.3@(2.49166,-0.4)
58	K22W (max -dP @ t, d-ang)	24.9@(0.85000,6.8)	24.2@(0.85000,6.6)	23.7@(0.80833,6.9)	23.8@(0.80833,6.9)	16.1@(0.77500,4.0)
59	K22W (max d-ang @ t, dP)	9.6@(1.13333,-12.0)	9.3@(1.12500,-11.6)	9.3@(1.07500,-12.4)	9.3@(1.07500,-12.5)	5.9@(1.05000,-4.9)
60	**OS Rel Trip / Marg**					
61	MH - OH					
62	D602F at Forbes/Dorsey	178% / 275%	179% / 277%	178% / 275%	178% / 275%	198% / 309%
63	G82R at Rugby/L20D at Drayton	999% / 621%	999% / 622%	999% / 616%	999% / 615%	999% / 633%
64	R50M / F3M	696% / 264%	700% / 264%	699% / 262%	699% / 262%	760% / 270%
65	B10T	190%	192%	184%	184%	190%
66	**FSCAPS (SS/Unav/Final)**					
67	Balta 230	(0 | 1 | 0)	(0 | 1 | 0)	(0 | 1 | 0)	(0 | 1 | 0)	(0 | 0 | 0)
68	Eau Cl 345 / Park Lk 115	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)
69	Prairie 115 / Ramsey 230	(1 | 4 | 2) / (0 | 1 | 0)	(1 | 4 | 2) / (0 | 1 | 0)	(1 | 4 | 1) / (0 | 2 | 1)	(1 | 4 | 1) / (0 | 2 | 1)	(1 | 2 | 1) / (0 | 1 | 0)
70	Roseau 230 / Running 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)
71	Shey 115 / Split Rock 115	(1 | 5 | 2) / (1 | 1 | 1)	(1 | 5 | 2) / (1 | 1 | 1)	(1 | 5 | 2) / (1 | 2 | 2)	(1 | 5 | 2) / (1 | 2 | 2)	(1 | 3 | 1) / (1 | 1 | 1)
72	**Damping Performance**	N/A	N/A	N/A	N/A	N/A

Table A

POWER FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	6	7	8	9	10
2	**Case Name**	kcg-so08aa-ad1	kc0-so08aa-ad3	kcg-so08aa-ad3	kc0-so08aa-af1	kcg-so08aa-af1
3	**Disturbance**	ad1	ad3	ad3	af1	af1
4	**Prior Outage**	None	None	None	None	None
5	**Date/Time**	FEB 05 2008 11:15	FEB 05 2008 10:30	FEB 05 2008 11:17	FEB 05 2008 10:31	FEB 05 2008 11:18
6	**Comments**					
7						
8	**Steady State Flows**					
9	NDEX / EAST BIAS	2080 / 296	2079 / 296	2080 / 296	2079 / 296	2080 / 296
10	MHEX / L20D	2176 / 252	2176 / 252	2176 / 252	2176 / 252	2176 / 252
11	ECL-ARP / PRI-BYN	546 / 863	546 / 863	546 / 863	546 / 863	546 / 863
12	MWEX / AHD-SLK	1525 / 646	1525 / 646	1525 / 646	1525 / 646	1525 / 646
13	D602F / F601C	1766 / 1502	1767 / 1502	1766 / 1502	1767 / 1502	1766 / 1502
14	B10T / MH>SPC	165 / 60	165 / 61	165 / 60	165 / 61	165 / 60
15	OH E-W / OH>MH	190 / -196	190 / -196	190 / -196	190 / -196	190 / -196
16	R50M / OH>MP	146 / 151	146 / 151	146 / 151	146 / 151	146 / 151
17	G82R	10	11	10	11	10
18	Dorsey bipole / CU bipole	3200 / 1104	3201 / 1103	3200 / 1104	3201 / 1103	3200 / 1104
19	Dorsey Reserve / Wtrtn SVC	322 / 34	321 / 33	322 / 34	321 / 33	322 / 34
20	Forbes SVC / MSC	35 / 600	35 / 600	35 / 600	35 / 600	35 / 600
21	RCDC	0	0	0	0	0
22	**Steady State Vltgs**					
23	Dorsey 500/Dorsey 230	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000
24	Roseau 500/Forbes 500	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025
25	Chisago 500/EauClaire 345	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009
26	Int Falls 115/Badoura 115	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031
27	Drayton 230/Groton 345	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000
28	**SS OS Relay Margins**					
29	D602F at Forbes/Dorsey	250% / 393%	250% / 393%	250% / 393%	250% / 393%	250% / 393%
30	G82R at Rugby/L20D at Drayton	999% / 809%	999% / 809%	999% / 809%	999% / 809%	999% / 809%
31	R50M/F3M	903% / 323%	903% / 323%	903% / 323%	903% / 323%	903% / 323%
32	B10T	339%	338%	339%	338%	339%
33	**Min/MaxTransientVltg**					
34	Arrowhd 230	1.00 | 1.04	1.00 | 1.04	1.00 | 1.04	1.00 | 1.04	1.00 | 1.04
35	Boise 115	1.00 | 1.03	1.00 | 1.03	0.99 | 1.03	1.00 | 1.03	1.00 | 1.03
36	Dorsey 230	1.03 | 1.06	1.03 | 1.06	1.03 | 1.06	1.03 | 1.06	1.03 | 1.06
37	Forbes 230	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05
38	Riverton 230	0.99 | 1.06	0.99 | 1.06	0.99 | 1.06	0.99 | 1.06	0.99 | 1.06
39	Coal Creek 230	0.96 | 1.12	0.96 | 1.12	0.96 | 1.12	0.97 | 1.12	0.97 | 1.12
40	Stone Lake 345	1.01 | 1.05	1.01 | 1.05	1.01 | 1.06	1.01 | 1.06	1.01 | 1.06
41	Drayton 230	0.99 | 1.08	0.99 | 1.07	0.99 | 1.08	0.99 | 1.08	0.99 | 1.08
42	Groton 345	0.86 | 1.04	0.87 | 1.04	0.87 | 1.04	0.89 | 1.04	0.89 | 1.04
43	Minong 161	1.02 | 1.05	1.01 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05
44	Wahpeton 115	0.97 | 1.10	0.97 | 1.10	0.97 | 1.10	0.98 | 1.10	0.98 | 1.10
45	Watertown 345	0.93 | 1.04	0.94 | 1.05	0.94 | 1.05	0.95 | 1.04	0.95 | 1.04
46	**Dynamic Voltage Warnings**					
47		none	none	none	none	none
48						
49						
50						
51						
52						
53						
54	Worst Case Angle Damping					
55	Dorsey SUVP / UdHold					
56	Forbes DC Red (DCAR)	392%	391%	393%	396%	396%
57	K22W (max +dP @ t, d-ang)	15.4@(2.49166,-0.4)	18.0@(2.44166,-1.4)	17.9@(2.44166,-1.4)	13.7@(2.45832,-0.1)	13.7@(2.44999,0.0)
58	K22W (max -dP @ t, d-ang)	16.2@(0.77500,4.0)	16.5@(0.71666,4.3)	15.8@(0.71666,4.2)	15.0@(0.74166,3.6)	15.0@(0.74166,3.6)
59	K22W (max d-ang @ t, dP)	5.9@(1.05000,-5.0)	6.1@(0.97500,-6.7)	5.9@(0.97500,-6.0)	5.3@(1.00833,-4.2)	5.3@(1.00833,-4.2)
60	**OS Rel Trip / Marg**					
61	MH - OH					
62	D602F at Forbes/Dorsey	198% / 309%	197% / 307%	197% / 307%	201% / 314%	201% / 314%
63	G82R at Rugby/L20D at Drayton	999% / 633%	999% / 621%	999% / 621%	999% / 635%	999% / 635%
64	R50M / F3M	760% / 269%	756% / 268%	757% / 267%	768% / 271%	768% / 271%
65	B10T	191%	181%	182%	198%	199%
66	**FSCAPS (SS/Unav/Final)**					
67	Balta 230	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
68	Eau Cl 345 / Park Lk 115	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)
69	Prairie 115 / Ramsey 230	(1 | 2 | 1) / (0 | 1 | 0)	(1 | 1 | 1) / (0 | 1 | 0)	(1 | 2 | 1) / (0 | 1 | 0)	(1 | 3 | 1) / (0 | 1 | 0)	(1 | 2 | 1) / (0 | 1 | 0)
70	Roseau 230 / Running 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)
71	Shey 115 / Split Rock 115	(1 | 3 | 1) / (1 | 1 | 1)	(1 | 4 | 1) / (1 | 2 | 2)	(1 | 4 | 1) / (1 | 2 | 2)	(1 | 3 | 1) / (1 | 1 | 1)	(1 | 3 | 1) / (1 | 1 | 1)
72	**Damping Performance**	N/A	N/A	N/A	N/A	N/A

Table A

POWER FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	11	12	13	14	15
2	**Case Name**	kc0-so08aa-af3	kcg-so08aa-af3	kc0-so08aa-ag1	kcg-so08aa-ag1	kc0-so08aa-ag3
3	**Disturbance**	af3	af3	ag1	ag1	ag3
4	**Prior Outage**	None	None	None	None	None
5	**Date/Time**	FEB 05 2008 10:33	FEB 05 2008 11:20	FEB 05 2008 10:35	FEB 05 2008 11:22	FEB 05 2008 10:37
6	**Comments**					
7						
8	**Steady State Flows**					
9	NDEX / EAST BIAS	2079 / 296	2080 / 296	2079 / 296	2080 / 296	2079 / 296
10	MHEX / L20D	2176 / 252	2176 / 252	2176 / 252	2176 / 252	2176 / 252
11	ECL-ARP / PRI-BYN	546 / 863	546 / 863	546 / 863	546 / 863	546 / 863
12	MWEX / AHD-SLK	1525 / 646	1525 / 646	1525 / 646	1525 / 646	1525 / 646
13	D602F / F601C	1767 / 1502	1766 / 1502	1767 / 1502	1766 / 1502	1767 / 1502
14	B10T / MH>SPC	165 / 61	165 / 60	165 / 61	165 / 60	165 / 61
15	OH E-W / OH>MH	190 / -196	190 / -196	190 / -196	190 / -196	190 / -196
16	R50M / OH>MP	146 / 151	146 / 151	146 / 151	146 / 151	146 / 151
17	G82R	11	10	11	10	11
18	Dorsey bipole / CU bipole	3201 / 1103	3200 / 1104	3201 / 1103	3200 / 1104	3201 / 1103
19	Dorsey Reserve / Wtrtn SVC	321 / 33	322 / 34	321 / 33	322 / 34	321 / 33
20	Forbes SVC / MSC	35 / 600	35 / 600	35 / 600	35 / 600	35 / 600
21	RCDC	0	0	0	0	0
22	**Steady State Vltgs**					
23	Dorsey 500/Dorsey 230	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000
24	Roseau 500/Forbes 500	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025
25	Chisago 500/EauClaire 345	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009
26	Int Falls 115/Badoura 115	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031
27	Drayton 230/Groton 345	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000
28	**SS OS Relay Margins**					
29	D602F at Forbes/Dorsey	250% / 393%	250% / 393%	250% / 393%	250% / 393%	250% / 393%
30	G82R at Rugby/L20D at Drayton	999% / 809%	999% / 809%	999% / 809%	999% / 809%	999% / 809%
31	R50M/F3M	903% / 323%	903% / 323%	903% / 323%	903% / 323%	903% / 323%
32	B10T	338%	339%	338%	339%	338%
33	**Min/MaxTransientVltg**					
34	Arrowhd 230	1.00 | 1.04	1.00 | 1.04	0.99 | 1.03	0.99 | 1.03	0.98 | 1.03
35	Boise 115	1.00 | 1.03	1.00 | 1.03	0.99 | 1.04	0.99 | 1.04	0.99 | 1.04
36	Dorsey 230	1.03 | 1.06	1.03 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06
37	Forbes 230	1.01 | 1.05	1.01 | 1.05	1.00 | 1.05	1.00 | 1.05	1.00 | 1.04
38	Riverton 230	0.99 | 1.06	0.99 | 1.06	0.98 | 1.06	0.98 | 1.06	0.98 | 1.05
39	Coal Creek 230	0.97 | 1.12	0.97 | 1.12	0.95 | 1.12	0.95 | 1.12	0.96 | 1.12
40	Stone Lake 345	1.01 | 1.06	1.01 | 1.06	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05
41	Drayton 230	0.99 | 1.07	0.99 | 1.08	0.98 | 1.09	0.98 | 1.09	0.98 | 1.10
42	Groton 345	0.89 | 1.05	0.89 | 1.05	0.83 | 1.03	0.83 | 1.03	0.83 | 1.03
43	Minong 161	1.01 | 1.05	1.02 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05
44	Wahpeton 115	0.97 | 1.10	0.97 | 1.10	0.95 | 1.10	0.95 | 1.10	0.94 | 1.09
45	Watertown 345	0.95 | 1.05	0.95 | 1.05	0.92 | 1.04	0.92 | 1.04	0.92 | 1.04
46	**Dynamic Voltage Warnings**					
47		none	none	none	none	none
48						
49						
50						
51						
52						
53						
54	Worst Case Angle Damping					
55	Dorsey SUVP / UdHold					
56	Forbes DC Red (DCAR)	394%	395%	389%	389%	386%
57	K22W (max +dP @ t, d-ang)	16.7@(2.42499,-1.2)	16.6@(2.41666,-1.1)	11.5@(2.55832,2.5)	11.5@(2.55832,2.5)	13.4@(2.51666,1.8)
58	K22W (max -dP @ t, d-ang)	16.1@(0.69166,4.0)	15.5@(0.69166,3.9)	24.4@(0.81666,6.6)	24.5@(0.81666,6.6)	24.4@(0.79166,7.5)
59	K22W (max d-ang @ t, dP)	5.8@(0.95833,-5.5)	5.6@(0.95000,-5.5)	9.5@(1.10000,-11.5)	9.5@(1.10000,-11.5)	9.8@(1.04166,-13.2)
60	**OS Rel Trip / Marg**					
61	MH - OH					
62	D602F at Forbes/Dorsey	198% / 309%	198% / 310%	179% / 277%	179% / 277%	177% / 272%
63	G82R at Rugby/L20D at Drayton	999% / 619%	999% / 618%	999% / 609%	999% / 608%	999% / 599%
64	R50M / F3M	760% / 269%	761% / 268%	702% / 262%	702% / 262%	694% / 260%
65	B10T	185%	184%	179%	178%	170%
66	**FSCAPS (SS/Unav/Final)**					
67	Balta 230	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 1 | 0)	(0 | 1 | 0)	(0 | 1 | 0)
68	Eau Cl 345 / Park Lk 115	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)
69	Prairie 115 / Ramsey 230	(1 | 1 | 1) / (0 | 1 | 0)	(1 | 2 | 1) / (0 | 1 | 0)	(1 | 5 | 2) / (0 | 1 | 0)	(1 | 5 | 2) / (0 | 1 | 0)	(1 | 5 | 1) / (0 | 2 | 0)
70	Roseau 230 / Running 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)
71	Shey 115 / Split Rock 115	(1 | 4 | 1) / (1 | 2 | 2)	(1 | 4 | 1) / (1 | 2 | 2)	(1 | 5 | 2) / (1 | 1 | 1)	(1 | 5 | 2) / (1 | 1 | 1)	(1 | 5 | 2) / (1 | 2 | 2)
72	**Damping Performance**	N/A	N/A	N/A	N/A	N/A

Table A

POWER FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	16	17	18	19	20
2	**Case Name**	kcg-so08aa-ag3	kc0-so08aa-ah1	kcg-so08aa-ah1	kc0-so08aa-ah3	kcg-so08aa-ah3
3	**Disturbance**	ag3	ah1	ah1	ah3	ah3
4	**Prior Outage**	None	None	None	None	None
5	**Date/Time**	FEB 05 2008 11:24	FEB 05 2008 10:39	FEB 05 2008 11:25	FEB 05 2008 10:41	FEB 05 2008 11:27
6	**Comments**					
7						
8	**Steady State Flows**					
9	NDEX / EAST BIAS	2080 / 296	2079 / 296	2080 / 296	2079 / 296	2080 / 296
10	MHEX / L20D	2176 / 252	2176 / 252	2176 / 252	2176 / 252	2176 / 252
11	ECL-ARP / PRI-BYN	546 / 863	546 / 863	546 / 863	546 / 863	546 / 863
12	MWEX / AHD-SLK	1525 / 646	1525 / 646	1525 / 646	1525 / 646	1525 / 646
13	D602F / F601C	1766 / 1502	1767 / 1502	1766 / 1502	1767 / 1502	1766 / 1502
14	B10T / MH>SPC	165 / 60	165 / 61	165 / 60	165 / 61	165 / 60
15	OH E-W / OH>MH	190 / -196	190 / -196	190 / -196	190 / -196	190 / -196
16	R50M / OH>MP	146 / 151	146 / 151	146 / 151	146 / 151	146 / 151
17	G82R	10	11	10	11	10
18	Dorsey bipole / CU bipole	3200 / 1104	3201 / 1103	3200 / 1104	3201 / 1103	3200 / 1104
19	Dorsey Reserve / Wtrtn SVC	322 / 34	321 / 33	322 / 34	321 / 33	322 / 34
20	Forbes SVC / MSC	35 / 600	35 / 600	35 / 600	35 / 600	35 / 600
21	RCDC	0	0	0	0	0
22	**Steady State Vltgs**					
23	Dorsey 500/Dorsey 230	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000
24	Roseau 500/Forbes 500	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025
25	Chisago 500/EauClaire 345	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009
26	Int Falls 115/Badoura 115	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031
27	Drayton 230/Groton 345	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000
28	**SS OS Relay Margins**					
29	D602F at Forbes/Dorsey	250% / 393%	250% / 393%	250% / 393%	250% / 393%	250% / 393%
30	G82R at Rugby/L20D at Drayton	999% / 809%	999% / 809%	999% / 809%	999% / 809%	999% / 809%
31	R50M/F3M	903% / 323%	903% / 323%	903% / 323%	903% / 323%	903% / 323%
32	B10T	339%	338%	339%	338%	339%
33	**Min/MaxTransientVltg**					
34	Arrowhd 230	0.98 | 1.03	0.99 | 1.03	0.99 | 1.03	0.98 | 1.04	0.99 | 1.04
35	Boise 115	0.99 | 1.04	0.99 | 1.03	0.99 | 1.03	0.99 | 1.03	0.99 | 1.03
36	Dorsey 230	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06
37	Forbes 230	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05
38	Riverton 230	0.97 | 1.05	0.98 | 1.06	0.98 | 1.06	0.98 | 1.05	0.98 | 1.06
39	Coal Creek 230	0.96 | 1.12	0.95 | 1.12	0.95 | 1.12	0.95 | 1.12	0.96 | 1.13
40	Stone Lake 345	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05
41	Drayton 230	0.98 | 1.10	0.98 | 1.09	0.98 | 1.09	0.98 | 1.10	0.98 | 1.08
42	Groton 345	0.83 | 1.03	0.94 | 1.04	0.94 | 1.04	0.94 | 1.04	0.94 | 1.04
43	Minong 161	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05
44	Wahpeton 115	0.94 | 1.09	0.95 | 1.09	0.95 | 1.09	0.94 | 1.09	0.94 | 1.09
45	Watertown 345	0.92 | 1.04	0.97 | 1.04	0.97 | 1.04	0.97 | 1.05	0.97 | 1.05
46	**Dynamic Voltage Warnings**					
47		none	none	none	none	none
48						
49						
50						
51						
52						
53						
54	Worst Case Angle Damping					
55	Dorsey SUVP / UdHold					
56	Forbes DC Red (DCAR)	386%	400%	400%	399%	399%
57	K22W (max +dP @ t, d-ang)	13.4@(2.51666,1.8)	11.0@(2.60832,1.5)	11.0@(2.60832,1.5)	13.3@(2.54999,0.7)	13.2@(2.55832,0.6)
58	K22W (max -dP @ t, d-ang)	24.5@(0.80000,7.6)	22.9@(0.85000,6.3)	23.0@(0.85000,6.3)	23.0@(0.80833,6.9)	23.9@(0.80833,7.1)
59	K22W (max d-ang @ t, dP)	9.8@(1.04166,-13.2)	8.6@(1.11666,-11.3)	8.7@(1.11666,-11.3)	8.9@(1.05000,-12.9)	9.2@(1.06666,-12.0)
60	**OS Rel Trip / Marg**					
61	MH - OH					
62	D602F at Forbes/Dorsey	177% / 272%	179% / 278%	179% / 278%	177% / 274%	177% / 273%
63	G82R at Rugby/L20D at Drayton	999% / 598%	999% / 620%	999% / 619%	999% / 606%	999% / 608%
64	R50M / F3M	694% / 260%	701% / 263%	701% / 263%	696% / 261%	694% / 262%
65	B10T	170%	202%	202%	191%	194%
66	**FSCAPS (SS/Unav/Final)**					
67	Balta 230	(0 | 1 | 0)	(0 | 1 | 0)	(0 | 1 | 0)	(0 | 1 | 0)	(0 | 1 | 0)
68	Eau Cl 345 / Park Lk 115	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)
69	Prairie 115 / Ramsey 230	(1 | 5 | 1) / (0 | 2 | 0)	(1 | 6 | 2) / (0 | 1 | 0)	(1 | 6 | 2) / (0 | 1 | 0)	(1 | 5 | 2) / (0 | 2 | 0)	(1 | 4 | 2) / (0 | 1 | 0)
70	Roseau 230 / Running 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)
71	Shey 115 / Split Rock 115	(1 | 5 | 2) / (1 | 2 | 2)	(1 | 5 | 2) / (1 | 1 | 1)	(1 | 5 | 2) / (1 | 1 | 1)	(1 | 5 | 3) / (1 | 2 | 2)	(1 | 5 | 3) / (1 | 2 | 2)
72	**Damping Performance**	N/A	N/A	N/A	N/A	N/A

Table A

POWER FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	21	22	23	24	25
2	**Case Name**	kc0-so08aa-ah4	kcg-so08aa-ah4	kc0-so08aa-ai1	kcg-so08aa-ai1	kc0-so08aa-ai3
3	**Disturbance**	ah4	ah4	ai1	ai1	ai3
4	**Prior Outage**	None	None	None	None	None
5	**Date/Time**	FEB 05 2008 10:43	FEB 05 2008 11:29	FEB 05 2008 10:44	FEB 05 2008 11:31	FEB 05 2008 10:46
6	**Comments**					
7						
8	**Steady State Flows**					
9	NDEX / EAST BIAS	2079 / 296	2080 / 296	2079 / 296	2080 / 296	2079 / 296
10	MHEX / L20D	2176 / 252	2176 / 252	2176 / 252	2176 / 252	2176 / 252
11	ECL-ARP / PRI-BYN	546 / 863	546 / 863	546 / 863	546 / 863	546 / 863
12	MWEX / AHD-SLK	1525 / 646	1525 / 646	1525 / 646	1525 / 646	1525 / 646
13	D602F / F601C	1767 / 1502	1766 / 1502	1767 / 1502	1766 / 1502	1767 / 1502
14	B10T / MH>SPC	165 / 61	165 / 60	165 / 61	165 / 60	165 / 61
15	OH E-W / OH>MH	190 / -196	190 / -196	190 / -196	190 / -196	190 / -196
16	R50M / OH>MP	146 / 151	146 / 151	146 / 151	146 / 151	146 / 151
17	G82R	11	10	11	10	11
18	Dorsey bipole / CU bipole	3201 / 1103	3200 / 1104	3201 / 1103	3200 / 1104	3201 / 1103
19	Dorsey Reserve / Wtrtn SVC	321 / 33	322 / 34	321 / 33	322 / 34	321 / 33
20	Forbes SVC / MSC	35 / 600	35 / 600	35 / 600	35 / 600	35 / 600
21	RCDC	0	0	0	0	0
22	**Steady State Vltgs**					
23	Dorsey 500/Dorsey 230	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000
24	Roseau 500/Forbes 500	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025
25	Chisago 500/EauClaire 345	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009
26	Int Falls 115/Badoura 115	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031
27	Drayton 230/Groton 345	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000
28	**SS OS Relay Margins**					
29	D602F at Forbes/Dorsey	250% / 393%	250% / 393%	250% / 393%	250% / 393%	250% / 393%
30	82R at Rugby/L20D at Drayton	999% / 809%	999% / 809%	999% / 809%	999% / 809%	999% / 809%
31	R50M/F3M	903% / 323%	903% / 323%	903% / 323%	903% / 323%	903% / 323%
32	B10T	338%	339%	338%	339%	338%
33	**Min/MaxTransientVltg**					
34	Arrowhd 230	0.99 | 1.03	0.99 | 1.03	0.99 | 1.04	0.99 | 1.04	0.99 | 1.04
35	Boise 115	0.99 | 1.03	0.99 | 1.03	0.99 | 1.03	0.99 | 1.03	0.99 | 1.04
36	Dorsey 230	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.03 | 1.06
37	Forbes 230	1.00 | 1.05	1.00 | 1.05	1.00 | 1.04	1.00 | 1.04	1.00 | 1.05
38	Riverton 230	0.98 | 1.06	0.98 | 1.06	0.99 | 1.05	0.99 | 1.05	0.99 | 1.06
39	Coal Creek 230	0.95 | 1.12	0.95 | 1.12	0.97 | 1.12	0.97 | 1.12	0.97 | 1.12
40	Stone Lake 345	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.01 | 1.05
41	Drayton 230	0.98 | 1.09	0.98 | 1.09	0.98 | 1.09	0.98 | 1.09	0.99 | 1.08
42	Groton 345	0.94 | 1.04	0.94 | 1.04	0.95 | 1.04	0.95 | 1.04	0.89 | 1.05
43	Minong 161	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05
44	Wahpeton 115	0.95 | 1.09	0.95 | 1.09	0.97 | 1.09	0.96 | 1.08	0.98 | 1.09
45	Watertown 345	0.97 | 1.04	0.97 | 1.04	0.97 | 1.04	0.97 | 1.04	0.95 | 1.05
46	**Dynamic Voltage Warnings**					
47		none	none	none	none	none
48						
49						
50						
51						
52						
53						
54	Worst Case Angle Damping					
55	Dorsey SUVP / UdHold					
56	Forbes DC Red (DCAR)	399%	398%	402%	403%	395%
57	K22W (max +dP @ t, d-ang)	10.6@(2.59999,1.6)	10.6@(2.59999,1.6)	11.1@(2.58332,1.2)	11.2@(2.58332,1.2)	17.2@(2.39999,-1.3)
58	K22W (max -dP @ t, d-ang)	22.9@(0.84166,6.2)	22.9@(0.84166,6.2)	21.4@(0.83333,5.7)	21.5@(0.83333,5.7)	16.4@(0.67500,4.2)
59	K22W (max d-ang @ t, dP)	8.6@(1.11666,-10.8)	8.6@(1.11666,-10.9)	8.2@(1.11666,-10.1)	8.2@(1.11666,-10.2)	6.1@(0.95000,-6.4)
60	**OS Rel Trip / Marg**					
61	MH - OH					
62	D602F at Forbes/Dorsey	180% / 278%	180% / 278%	181% / 280%	181% / 280%	197% / 307%
63	82R at Rugby/L20D at Drayton	999% / 620%	999% / 620%	999% / 621%	999% / 620%	999% / 617%
64	R50M / F3M	701% / 263%	701% / 263%	707% / 262%	707% / 262%	755% / 268%
65	B10T	202%	203%	205%	206%	181%
66	**FSCAPS (SS/Unav/Final)**					
67	Balta 230	(0 | 1 | 0)	(0 | 1 | 0)	(0 | 2 | 0)	(0 | 2 | 0)	(0 | 0 | 0)
68	Eau Cl 345 / Park Lk 115	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)
69	Prairie 115 / Ramsey 230	(1 | 6 | 2) / (0 | 1 | 0)	(1 | 6 | 2) / (0 | 1 | 0)	(1 | 5 | 1) / (0 | 1 | 0)	(1 | 5 | 1) / (0 | 1 | 0)	(1 | 3 | 1) / (0 | 1 | 0)
70	Roseau 230 / Running 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)
71	Shey 115 / Split Rock 115	(1 | 5 | 2) / (1 | 1 | 1)	(1 | 5 | 2) / (1 | 1 | 1)	(1 | 5 | 3) / (1 | 1 | 1)	(1 | 5 | 3) / (1 | 1 | 1)	(1 | 4 | 2) / (1 | 2 | 2)
72	**Damping Performance**	N/A	N/A	N/A	N/A	N/A

Table A

POWER FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	26	27	28	29	30
2	**Case Name**	kcg-so08aa-ai3	kc0-so08aa-am1	kcg-so08aa-am1	kc0-so08aa-am3	kcg-so08aa-am3
3	**Disturbance**	ai3	am1	am1	am3	am3
4	**Prior Outage**	None	None	None	None	None
5	**Date/Time**	FEB 05 2008 11:32	FEB 05 2008 10:48	FEB 05 2008 11:34	FEB 05 2008 10:50	FEB 05 2008 11:36
6	**Comments**					
7						
8	**Steady State Flows**					
9	NDEX / EAST BIAS	2080 / 296	2079 / 296	2080 / 296	2079 / 296	2080 / 296
10	MHEX / L20D	2176 / 252	2176 / 252	2176 / 252	2176 / 252	2176 / 252
11	ECL-ARP / PRI-BYN	546 / 863	546 / 863	546 / 863	546 / 863	546 / 863
12	MWEX / AHD-SLK	1525 / 646	1525 / 646	1525 / 646	1525 / 646	1525 / 646
13	D602F / F601C	1766 / 1502	1767 / 1502	1766 / 1502	1767 / 1502	1766 / 1502
14	B10T / MH>SPC	165 / 60	165 / 61	165 / 60	165 / 61	165 / 60
15	OH E-W / OH>MH	190 / -196	190 / -196	190 / -196	190 / -196	190 / -196
16	R50M / OH>MP	146 / 151	146 / 151	146 / 151	146 / 151	146 / 151
17	G82R	10	11	10	11	10
18	Dorsey bipole / CU bipole	3200 / 1104	3201 / 1103	3200 / 1104	3201 / 1103	3200 / 1104
19	Dorsey Reserve / Wtrtn SVC	322 / 34	321 / 33	322 / 34	321 / 33	322 / 34
20	Forbes SVC / MSC	35 / 600	35 / 600	35 / 600	35 / 600	35 / 600
21	RCDC	0	0	0	0	0
22	**Steady State Vltgs**					
23	Dorsey 500/Dorsey 230	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000
24	Roseau 500/Forbes 500	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025
25	Chisago 500/EauClaire 345	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009
26	Int Falls 115/Badoura 115	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031
27	Drayton 230/Groton 345	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000
28	**SS OS Relay Margins**					
29	D602F at Forbes/Dorsey	250% / 393%	250% / 393%	250% / 393%	250% / 393%	250% / 393%
30	82R at Rugby/L20D at Drayton	999% / 809%	999% / 809%	999% / 809%	999% / 809%	999% / 809%
31	R50M/F3M	903% / 323%	903% / 323%	903% / 323%	903% / 323%	903% / 323%
32	B10T	339%	338%	339%	338%	339%
33	**Min/MaxTransientVltg**					
34	Arrowhd 230	0.99 | 1.04	1.01 | 1.04	1.01 | 1.04	0.99 | 1.04	0.99 | 1.04
35	Boise 115	0.99 | 1.04	1.00 | 1.03	1.00 | 1.03	0.99 | 1.04	0.99 | 1.04
36	Dorsey 230	1.03 | 1.06	1.03 | 1.06	1.03 | 1.06	1.02 | 1.06	1.02 | 1.06
37	Forbes 230	1.00 | 1.05	1.01 | 1.04	1.01 | 1.04	1.00 | 1.05	1.00 | 1.05
38	Riverton 230	0.99 | 1.06	1.01 | 1.05	1.01 | 1.05	0.98 | 1.06	0.98 | 1.06
39	Coal Creek 230	0.97 | 1.12	0.98 | 1.10	0.98 | 1.10	0.96 | 1.12	0.96 | 1.12
40	Stone Lake 345	1.01 | 1.05	1.02 | 1.06	1.02 | 1.06	1.00 | 1.05	1.00 | 1.05
41	Drayton 230	0.99 | 1.08	1.00 | 1.08	1.00 | 1.08	0.98 | 1.09	0.98 | 1.09
42	Groton 345	0.89 | 1.05	0.86 | 1.08	0.86 | 1.08	0.85 | 1.05	0.85 | 1.05
43	Minong 161	1.01 | 1.05	1.02 | 1.06	1.02 | 1.06	1.01 | 1.05	1.01 | 1.05
44	Wahpeton 115	0.98 | 1.09	1.00 | 1.09	1.00 | 1.08	0.96 | 1.10	0.96 | 1.10
45	Watertown 345	0.95 | 1.05	0.93 | 1.07	0.93 | 1.07	0.93 | 1.05	0.93 | 1.05
46	**Dynamic Voltage Warnings**					
47		none	none	none	none	none
48						
49						
50						
51						
52						
53						
54	Worst Case Angle Damping					
55	Dorsey SUVP / UdHold					
56	Forbes DC Red (DCAR)	395%	428%	429%	381%	381%
57	K22W (max +dP @ t, d-ang)	17.5@(2.39999,-1.5)	30.3@(2.68332,-6.6)	30.5@(2.68332,-6.6)	19.8@(2.45832,-1.4)	19.9@(2.45832,-1.4)
58	K22W (max -dP @ t, d-ang)	16.5@(0.67500,4.2)	7.4@(0.39166,0.7)	7.4@(0.39166,0.7)	19.9@(0.70833,5.4)	20.0@(0.70833,5.5)
59	K22W (max d-ang @ t, dP)	6.1@(0.95000,-6.4)	-9.4@(2.02500,13.8)	-9.4@(2.02500,13.8)	7.8@(0.99166,-10.2)	7.8@(0.99166,-10.3)
60	**OS Rel Trip / Marg**					
61	MH - OH					
62	D602F at Forbes/Dorsey	197% / 307%	212% / 331%	212% / 331%	188% / 292%	188% / 292%
63	82R at Rugby/L20D at Drayton	999% / 616%	999% / 615%	999% / 614%	999% / 590%	999% / 590%
64	R50M / F3M	755% / 268%	809% / 273%	809% / 273%	731% / 265%	731% / 265%
65	B10T	181%	203%	203%	170%	170%
66	**FSCAPS (SS/Unav/Final)**					
67	Balta 230	(0 | 0 | 0)	(0 | 2 | 0)	(0 | 2 | 0)	(0 | 1 | 0)	(0 | 1 | 0)
68	Eau Cl 345 / Park Lk 115	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)
69	Prairie 115 / Ramsey 230	(1 | 3 | 1) / (0 | 1 | 0)	(1 | 4 | 1) / (0 | 1 | 0)	(1 | 4 | 1) / (0 | 1 | 0)	(1 | 3 | 1) / (0 | 1 | 0)	(1 | 3 | 1) / (0 | 1 | 0)
70	Roseau 230 / Running 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)
71	Shey 115 / Split Rock 115	(1 | 5 | 2) / (1 | 2 | 2)	(1 | 3 | 2) / (1 | 1 | 1)	(1 | 3 | 2) / (1 | 1 | 1)	(1 | 5 | 2) / (1 | 2 | 2)	(1 | 5 | 2) / (1 | 2 | 2)
72	**Damping Performance**	N/A	N/A	N/A	N/A	N/A

Table A

POWER FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	31	32	33	34	35
2	**Case Name**	kc0-so08aa-aq3	kcg-so08aa-aq3	kc0-so08aa-ec1	kcg-so08aa-ec1	kc0-so08aa-ef1
3	**Disturbance**	aq3	aq3	ec1	ec1	ef1
4	**Prior Outage**	None	None	None	None	None
5	**Date/Time**	FEB 05 2008 10:52	FEB 05 2008 11:38	FEB 05 2008 10:53	FEB 05 2008 11:39	FEB 05 2008 10:55
6	**Comments**					
7						
8	**Steady State Flows**					
9	NDEX / EAST BIAS	2079 / 296	2080 / 296	2079 / 296	2080 / 296	2079 / 296
10	MHEX / L20D	2176 / 252	2176 / 252	2176 / 252	2176 / 252	2176 / 252
11	ECL-ARP / PRI-BYN	546 / 863	546 / 863	546 / 863	546 / 863	546 / 863
12	MWEX / AHD-SLK	1525 / 646	1525 / 646	1525 / 646	1525 / 646	1525 / 646
13	D602F / F601C	1767 / 1502	1766 / 1502	1767 / 1502	1766 / 1502	1767 / 1502
14	B10T / MH>SPC	165 / 61	165 / 60	165 / 61	165 / 60	165 / 61
15	OH E-W / OH>MH	190 / -196	190 / -196	190 / -196	190 / -196	190 / -196
16	R50M / OH>MP	146 / 151	146 / 151	146 / 151	146 / 151	146 / 151
17	G82R	11	10	11	10	11
18	Dorsey bipole / CU bipole	3201 / 1103	3200 / 1104	3201 / 1103	3200 / 1104	3201 / 1103
19	Dorsey Reserve / Wtrtn SVC	321 / 33	322 / 34	321 / 33	322 / 34	321 / 33
20	Forbes SVC / MSC	35 / 600	35 / 600	35 / 600	35 / 600	35 / 600
21	RCDC	0	0	0	0	0
22	**Steady State Vltgs**					
23	Dorsey 500/Dorsey 230	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000
24	Roseau 500/Forbes 500	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025
25	Chisago 500/EauClaire 345	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009
26	Int Falls 115/Badoura 115	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031
27	Drayton 230/Groton 345	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000
28	**SS OS Relay Margins**					
29	D602F at Forbes/Dorsey	250% / 393%	250% / 393%	250% / 393%	250% / 393%	250% / 393%
30	G82R at Rugby/L20D at Drayton	999% / 809%	999% / 809%	999% / 809%	999% / 809%	999% / 809%
31	R50M/F3M	903% / 323%	903% / 323%	903% / 323%	903% / 323%	903% / 323%
32	B10T	338%	339%	338%	339%	338%
33	**Min/MaxTransientVltg**					
34	Arrowhd 230	1.01 | 1.02	1.01 | 1.02	0.98 | 1.04	0.98 | 1.04	1.00 | 1.04
35	Boise 115	1.01 | 1.02	1.01 | 1.02	1.00 | 1.04	1.00 | 1.04	1.01 | 1.03
36	Dorsey 230	1.04 | 1.05	1.04 | 1.05	1.03 | 1.07	1.03 | 1.07	1.03 | 1.06
37	Forbes 230	1.02 | 1.03	1.02 | 1.03	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05
38	Riverton 230	1.01 | 1.02	1.01 | 1.02	0.98 | 1.06	0.98 | 1.06	1.00 | 1.05
39	Coal Creek 230	1.01 | 1.05	1.01 | 1.05	0.95 | 1.14	0.95 | 1.14	0.96 | 1.15
40	Stone Lake 345	1.02 | 1.04	1.02 | 1.04	1.00 | 1.06	1.00 | 1.06	1.01 | 1.05
41	Drayton 230	1.01 | 1.03	1.01 | 1.03	0.99 | 1.13	0.99 | 1.13	1.01 | 1.08
42	Groton 345	0.99 | 1.03	0.99 | 1.03	0.92 | 1.04	0.92 | 1.04	0.94 | 1.02
43	Minong 161	1.03 | 1.04	1.03 | 1.04	1.01 | 1.06	1.01 | 1.06	1.02 | 1.05
44	Wahpeton 115	1.01 | 1.03	1.01 | 1.03	0.96 | 1.11	0.95 | 1.11	1.00 | 1.07
45	Watertown 345	1.02 | 1.03	1.02 | 1.03	0.97 | 1.04	0.96 | 1.04	0.98 | 1.03
46	**Dynamic Voltage Warnings**					
47		none	none			none
48						
49						
50						
51						
52						
53						
54	Worst Case Angle Damping					
55	Dorsey SUVP / UdHold					
56	Forbes DC Red (DCAR)	486%	486%	419%	419%	421%
57	K22W (max +dP @ t, d-ang)	2.2@(2.36666,0.6)	2.2@(2.36666,0.7)	14.4@(2.54999,-0.3)	14.5@(2.54999,-0.3)	10.6@(2.56665,-1.7)
58	K22W (max -dP @ t, d-ang)	7.9@(0.65833,2.3)	7.9@(1.71666,0.6)	16.8@(0.70000,1.8)	16.8@(0.70000,1.8)	8.4@(0.64166,1.9)
59	K22W (max d-ang @ t, dP)	3.4@(0.96666,-5.2)	3.4@(0.96666,-5.2)	4.4@(1.04166,-3.8)	4.4@(1.04166,-3.9)	3.2@(1.00000,-5.0)
60	**OS Rel Trip / Marg**					
61	MH - OH					
62	D602F at Forbes/Dorsey	218% / 342%	218% / 342%	208% / 326%	208% / 325%	226% / 354%
63	G82R at Rugby/L20D at Drayton	999% / 777%	999% / 776%	999% / 649%	999% / 648%	999% / 687%
64	R50M / F3M	812% / 300%	812% / 300%	736% / 271%	736% / 271%	830% / 296%
65	B10T	303%	304%	182%	183%	230%
66	**FSCAPS (SS/Unav/Final)**					
67	Balta 230	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 1 | 0)	(0 | 1 | 0)	(0 | 2 | 0)
68	Eau Cl 345 / Park Lk 115	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)
69	Prairie 115 / Ramsey 230	(1 | 1 | 1) / (0 | 0 | 0)	(1 | 1 | 1) / (0 | 0 | 0)	(1 | 5 | 1) / (0 | 1 | 0)	(1 | 5 | 1) / (0 | 1 | 0)	(1 | 4 | 1) / (0 | 1 | 0)
70	Roseau 230 / Running 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)
71	Shey 115 / Split Rock 115	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 5 | 1) / (1 | 1 | 1)	(1 | 5 | 1) / (1 | 1 | 1)	(1 | 3 | 2) / (1 | 1 | 1)
72	**Damping Performance**	N/A	N/A	N/A	N/A	N/A

Table A

POWER FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	36	37	38	39	40
2	**Case Name**	kcg-so08aa-ef1	kc0-so08aa-ei2	kcg-so08aa-ei2	kc0-so08aa-eq1	kcg-so08aa-eq1
3	**Disturbance**	ef1	ei2	ei2	eq1	eq1
4	**Prior Outage**	None	None	None	None	None
5	**Date/Time**	FEB 05 2008 11:41	FEB 05 2008 10:57	FEB 05 2008 11:43	FEB 05 2008 10:59	FEB 05 2008 11:45
6	**Comments**					
7						
8	**Steady State Flows**					
9	NDEX / EAST BIAS	2080 / 296	2079 / 296	2080 / 296	2079 / 296	2080 / 296
10	MHEX / L20D	2176 / 252	2176 / 252	2176 / 252	2176 / 252	2176 / 252
11	ECL-ARP / PRI-BYN	546 / 863	546 / 863	546 / 863	546 / 863	546 / 863
12	MWEX / AHD-SLK	1525 / 646	1525 / 646	1525 / 646	1525 / 646	1525 / 646
13	D602F / F601C	1766 / 1502	1767 / 1502	1766 / 1502	1767 / 1502	1766 / 1502
14	B10T / MH>SPC	165 / 60	165 / 61	165 / 60	165 / 61	165 / 60
15	OH E-W / OH>MH	190 / -196	190 / -196	190 / -196	190 / -196	190 / -196
16	R50M / OH>MP	146 / 151	146 / 151	146 / 151	146 / 151	146 / 151
17	G82R	10	11	10	11	10
18	Dorsey bipole / CU bipole	3200 / 1104	3201 / 1103	3200 / 1104	3201 / 1103	3200 / 1104
19	Dorsey Reserve / Wtrtn SVC	322 / 34	321 / 33	322 / 34	321 / 33	322 / 34
20	Forbes SVC / MSC	35 / 600	35 / 600	35 / 600	35 / 600	35 / 600
21	RCDC	0	0	0	0	0
22	**Steady State Vltgs**					
23	Dorsey 500/Dorsey 230	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000
24	Roseau 500/Forbes 500	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025
25	Chisago 500/EauClaire 345	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009
26	Int Falls 115/Badoura 115	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031
27	Drayton 230/Groton 345	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000
28	**SS OS Relay Margins**					
29	D602F at Forbes/Dorsey	250% / 393%	250% / 393%	250% / 393%	250% / 393%	250% / 393%
30	G82R at Rugby/L20D at Drayton	999% / 809%	999% / 809%	999% / 809%	999% / 809%	999% / 809%
31	R50M/F3M	903% / 323%	903% / 323%	903% / 323%	903% / 323%	903% / 323%
32	B10T	339%	338%	339%	338%	339%
33	**Min/MaxTransientVltg**					
34	Arrowhd 230	1.00 | 1.04	0.97 | 1.06	0.97 | 1.06	0.98 | 1.05	0.98 | 1.05
35	Boise 115	1.01 | 1.03	0.97 | 1.04	0.97 | 1.04	0.99 | 1.03	0.99 | 1.03
36	Dorsey 230	1.04 | 1.06	1.02 | 1.07	1.02 | 1.07	1.03 | 1.06	1.03 | 1.06
37	Forbes 230	1.02 | 1.05	0.97 | 1.04	0.97 | 1.04	1.00 | 1.05	1.00 | 1.05
38	Riverton 230	1.00 | 1.05	0.91 | 1.06	0.90 | 1.06	0.95 | 1.06	0.95 | 1.06
39	Coal Creek 230	0.96 | 1.15	1.00 | 1.13	1.00 | 1.13	0.97 | 1.17	0.97 | 1.17
40	Stone Lake 345	1.01 | 1.05	1.02 | 1.08	1.02 | 1.08	1.02 | 1.08	1.02 | 1.08
41	Drayton 230	1.01 | 1.08	0.94 | 1.11	0.94 | 1.10	1.00 | 1.10	1.00 | 1.10
42	Groton 345	0.94 | 1.02	0.81 | 1.08	0.81 | 1.08	0.85 | 1.07	0.85 | 1.07
43	Minong 161	1.02 | 1.05	1.01 | 1.08	1.01 | 1.08	1.02 | 1.07	1.02 | 1.07
44	Wahpeton 115	1.00 | 1.07	0.85 | 1.11	0.85 | 1.11	0.90 | 1.10	0.90 | 1.10
45	Watertown 345	0.98 | 1.03	0.87 | 1.08	0.87 | 1.08	0.91 | 1.07	0.90 | 1.08
46	**Dynamic Voltage Warnings**					
47		none	none	none	none	none
48						
49						
50						
51						
52						
53						
54	Worst Case Angle Damping					
55	Dorsey SUVP / UdHold					
56	Forbes DC Red (DCAR)	421%	507%	507%	507%	507%
57	K22W (max +dP @ t, d-ang)	10.7@(2.56665,-1.7)	68.9@(2.76665,-27.6)	69.0@(2.77498,-27.5)	49.5@(2.49166,-19.0)	49.5@(2.49166,-19.0)
58	K22W (max -dP @ t, d-ang)	8.4@(0.64166,1.9)	6.9@(0.63333,0.7)	7.0@(0.63333,0.7)	8.5@(0.32500,0.7)	8.5@(0.32500,0.7)
59	K22W (max d-ang @ t, dP)	3.2@(1.00000,-5.1)	-32.9@(2.22499,56.3)	-33.0@(2.22499,56.2)	-21.0@(2.04166,38.8)	-21.0@(2.04166,38.8)
60	**OS Rel Trip / Marg**					
61	MH - OH					
62	D602F at Forbes/Dorsey	226% / 354%	141% / 215%	141% / 215%	180% / 279%	180% / 279%
63	G82R at Rugby/L20D at Drayton	999% / 686%	999% / 485%	999% / 483%	999% / 548%	999% / 547%
64	R50M / F3M	830% / 296%	631% / 198%	631% / 198%	727% / 230%	727% / 229%
65	B10T	230%	81%	81%	106%	107%
66	**FSCAPS (SS/Unav/Final)**					
67	Balta 230	(0 | 2 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 2 | 0)	(0 | 2 | 0)
68	Eau Cl 345 / Park Lk 115	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 2) / (0 | 0 | 0)	(3 | 3 | 2) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)
69	Prairie 115 / Ramsey 230	(1 | 4 | 1) / (0 | 1 | 0)	(1 | 7 | 1) / (0 | 2 | 0)	(1 | 7 | 1) / (0 | 2 | 0)	(1 | 4 | 1) / (0 | 1 | 0)	(1 | 4 | 1) / (0 | 1 | 0)
70	Roseau 230 / Running 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 1 | 0) / (1 | 2 | 1)	(0 | 1 | 0) / (1 | 2 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)
71	Shey 115 / Split Rock 115	(1 | 3 | 2) / (1 | 1 | 1)	(1 | 5 | 0) / (1 | 2 | 2)	(1 | 5 | 0) / (1 | 2 | 2)	(1 | 5 | 1) / (1 | 2 | 2)	(1 | 5 | 1) / (1 | 2 | 2)
72	**Damping Performance**	N/A	N/A	N/A	N/A	N/A

Table A

POWER FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	41	42	43	44	45
2	**Case Name**	kc0-so08aa-er1	kcg-so08aa-er1	kc0-so08aa-evl	kcg-so08aa-evl	kc0-so08aa-fd1
3	**Disturbance**	er1	er1	evl	evl	fd1
4	**Prior Outage**	None	None	None	None	None
5	**Date/Time**	FEB 05 2008 11:01	FEB 05 2008 11:47	FEB 05 2008 11:02	FEB 05 2008 11:48	FEB 05 2008 11:04
6	**Comments**					
7						
8	**Steady State Flows**					
9	NDEX / EAST BIAS	2079 / 296	2080 / 296	2079 / 296	2080 / 296	2079 / 296
10	MHEX / L20D	2176 / 252	2176 / 252	2176 / 252	2176 / 252	2176 / 252
11	ECL-ARP / PRI-BYN	546 / 863	546 / 863	546 / 863	546 / 863	546 / 863
12	MWEX / AHD-SLK	1525 / 646	1525 / 646	1525 / 646	1525 / 646	1525 / 646
13	D602F / F601C	1767 / 1502	1766 / 1502	1767 / 1502	1766 / 1502	1767 / 1502
14	B10T / MH>SPC	165 / 61	165 / 60	165 / 61	165 / 60	165 / 61
15	OH E-W / OH>MH	190 / -196	190 / -196	190 / -196	190 / -196	190 / -196
16	R50M / OH>MP	146 / 151	146 / 151	146 / 151	146 / 151	146 / 151
17	G82R	11	10	11	10	11
18	Dorsey bipole / CU bipole	3201 / 1103	3200 / 1104	3201 / 1103	3200 / 1104	3201 / 1103
19	Dorsey Reserve / Wtrtn SVC	321 / 33	322 / 34	321 / 33	322 / 34	321 / 33
20	Forbes SVC / MSC	35 / 600	35 / 600	35 / 600	35 / 600	35 / 600
21	RCDC	0	0	0	0	0
22	**Steady State Vltgs**					
23	Dorsey 500/Dorsey 230	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000
24	Roseau 500/Forbes 500	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025
25	Chisago 500/EauClaire 345	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009
26	Int Falls 115/Badoura 115	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031
27	Drayton 230/Groton 345	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000
28	**SS OS Relay Margins**					
29	D602F at Forbes/Dorsey	250% / 393%	250% / 393%	250% / 393%	250% / 393%	250% / 393%
30	G82R at Rugby/L20D at Drayton	999% / 809%	999% / 809%	999% / 809%	999% / 809%	999% / 809%
31	R50M/F3M	903% / 323%	903% / 323%	903% / 323%	903% / 323%	903% / 323%
32	B10T	338%	339%	338%	339%	338%
33	**Min/MaxTransientVltg**					
34	Arrowhd 230	0.98 | 1.05	0.98 | 1.05	1.02 | 1.07	1.02 | 1.07	1.00 | 1.05
35	Boise 115	0.99 | 1.03	0.99 | 1.03	0.99 | 1.03	0.99 | 1.03	0.99 | 1.03
36	Dorsey 230	1.03 | 1.06	1.03 | 1.06	1.03 | 1.06	1.03 | 1.06	1.02 | 1.06
37	Forbes 230	1.00 | 1.04	1.00 | 1.04	1.01 | 1.05	1.01 | 1.05	1.00 | 1.05
38	Riverton 230	0.95 | 1.06	0.95 | 1.06	0.99 | 1.07	0.99 | 1.07	0.95 | 1.07
39	Coal Creek 230	0.97 | 1.18	0.97 | 1.18	0.96 | 1.13	0.96 | 1.13	0.97 | 1.14
40	Stone Lake 345	1.02 | 1.08	1.02 | 1.08	1.04 | 1.08	1.04 | 1.08	1.02 | 1.07
41	Drayton 230	1.00 | 1.10	1.00 | 1.10	1.00 | 1.12	1.00 | 1.12	0.99 | 1.10
42	Groton 345	0.85 | 1.07	0.85 | 1.07	0.92 | 1.07	0.92 | 1.07	0.87 | 1.06
43	Minong 161	1.02 | 1.07	1.02 | 1.07	1.04 | 1.08	1.04 | 1.08	1.02 | 1.06
44	Wahpeton 115	0.90 | 1.09	0.90 | 1.09	0.97 | 1.10	0.97 | 1.10	0.89 | 1.11
45	Watertown 345	0.91 | 1.07	0.90 | 1.07	0.97 | 1.06	0.97 | 1.06	0.92 | 1.06
46	**Dynamic Voltage Warnings**					
47		none	none	none	none	none
48						
49						
50						
51						
52						
53						
54	Worst Case Angle Damping					
55	Dorsey SUVP / UdHold					
56	Forbes DC Red (DCAR)	507%	507%	471%	470%	360%
57	K22W (max +dP @ t, d-ang)	49.4@(2.48332,-19.4)	49.5@(2.48332,-19.4)	47.4@(2.34999,-15.7)	47.4@(2.34999,-15.7)	21.3@(2.67499,-1.4)
58	K22W (max -dP @ t, d-ang)	8.5@(0.32500,0.7)	8.5@(0.32500,0.7)	6.6@(0.34167,0.0)	6.6@(0.34167,0.0)	21.4@(0.87500,4.1)
59	K22W (max d-ang @ t, dP)	-21.0@(2.05833,39.3)	-21.1@(2.05833,39.3)	-17.1@(1.85833,30.6)	-17.1@(1.85833,30.6)	6.8@(1.15833,-8.4)
60	**OS Rel Trip / Marg**					
61	MH - OH					
62	D602F at Forbes/Dorsey	180% / 279%	180% / 279%	206% / 321%	206% / 321%	183% / 284%
63	G82R at Rugby/L20D at Drayton	999% / 563%	999% / 561%	999% / 557%	999% / 557%	999% / 623%
64	R50M / F3M	726% / 228%	726% / 228%	736% / 240%	736% / 240%	715% / 254%
65	B10T	114%	114%	128%	128%	160%
66	**FSCAPS (SS/Unav/Final)**					
67	Balta 230	(0 | 2 | 0)	(0 | 2 | 0)	(0 | 1 | 0)	(0 | 1 | 0)	(0 | 0 | 0)
68	Eau Cl 345 / Park Lk 115	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)
69	Prairie 115 / Ramsey 230	(1 | 4 | 1) / (0 | 1 | 0)	(1 | 4 | 1) / (0 | 1 | 0)	(1 | 5 | 1) / (0 | 1 | 0)	(1 | 5 | 1) / (0 | 1 | 0)	(1 | 5 | 1) / (0 | 1 | 0)
70	Roseau 230 / Running 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)
71	Shey 115 / Split Rock 115	(1 | 5 | 1) / (1 | 2 | 2)	(1 | 5 | 1) / (1 | 2 | 2)	(1 | 4 | 0) / (1 | 1 | 1)	(1 | 4 | 0) / (1 | 1 | 1)	(1 | 5 | 1) / (1 | 2 | 2)
72	**Damping Performance**	N/A	N/A	N/A	N/A	N/A

Table A

POWER FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	46	47	48	49	50
2	**Case Name**	kcg-so08aa-fd1	kc0-so08aa-fd3	kcg-so08aa-fd3	kc0-so08aa-pcs	kcg-so08aa-pcs
3	**Disturbance**	fd1	fd3	fd3	pcs	pcs
4	**Prior Outage**	None	None	None	None	None
5	**Date/Time**	FEB 05 2008 11:50	FEB 05 2008 11:06	FEB 05 2008 11:52	FEB 05 2008 11:08	FEB 05 2008 11:54
6	**Comments**					
7						
8	**Steady State Flows**					
9	NDEX / EAST BIAS	2080 / 296	2079 / 296	2080 / 296	2079 / 296	2080 / 296
10	MHEX / L20D	2176 / 252	2176 / 252	2176 / 252	2176 / 252	2176 / 252
11	ECL-ARP / PRI-BYN	546 / 863	546 / 863	546 / 863	546 / 863	546 / 863
12	MWEX / AHD-SLK	1525 / 646	1525 / 646	1525 / 646	1525 / 646	1525 / 646
13	D602F / F601C	1766 / 1502	1767 / 1502	1766 / 1502	1767 / 1502	1766 / 1502
14	B10T / MH>SPC	165 / 60	165 / 61	165 / 60	165 / 61	165 / 60
15	OH E-W / OH>MH	190 / -196	190 / -196	190 / -196	190 / -196	190 / -196
16	R50M / OH>MP	146 / 151	146 / 151	146 / 151	146 / 151	146 / 151
17	G82R	10	11	10	11	10
18	Dorsey bipole / CU bipole	3200 / 1104	3201 / 1103	3200 / 1104	3201 / 1103	3200 / 1104
19	Dorsey Reserve / Wtrtn SVC	322 / 34	321 / 33	322 / 34	321 / 33	322 / 34
20	Forbes SVC / MSC	35 / 600	35 / 600	35 / 600	35 / 600	35 / 600
21	RCDC	0	0	0	0	0
22	**Steady State Vltgs**					
23	Dorsey 500/Dorsey 230	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000	1.045 / 0.000
24	Roseau 500/Forbes 500	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025	1.063 / 1.025
25	Chisago 500/EauClaire 345	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009	1.019 / 1.009
26	Int Falls 115/Badoura 115	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031	1.020 / 1.031
27	Drayton 230/Groton 345	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000	1.024 / 0.000
28	**SS OS Relay Margins**					
29	D602F at Forbes/Dorsey	250% / 393%	250% / 393%	250% / 393%	250% / 393%	250% / 393%
30	82R at Rugby/L20D at Drayton	999% / 809%	999% / 809%	999% / 809%	999% / 809%	999% / 809%
31	R50M/F3M	903% / 323%	903% / 323%	903% / 323%	903% / 323%	903% / 323%
32	B10T	339%	338%	339%	338%	339%
33	**Min/MaxTransientVltg**					
34	Arrowhd 230	1.00 | 1.05	0.95 | 1.04	0.95 | 1.04	0.85 | 1.00	0.85 | 1.00
35	Boise 115	0.99 | 1.03	0.99 | 1.04	0.99 | 1.04	0.98 | 1.05	0.98 | 1.05
36	Dorsey 230	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.01 | 1.10	1.01 | 1.10
37	Forbes 230	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05
38	Riverton 230	0.95 | 1.07	0.93 | 1.07	0.93 | 1.07	0.98 | 1.03	0.98 | 1.03
39	Coal Creek 230	0.97 | 1.14	0.95 | 1.15	0.95 | 1.15	0.96 | 1.07	0.96 | 1.07
40	Stone Lake 345	1.02 | 1.07	0.98 | 1.05	0.98 | 1.05	0.79 | 1.00	0.79 | 1.00
41	Drayton 230	0.99 | 1.10	0.98 | 1.12	0.98 | 1.12	0.99 | 1.06	0.99 | 1.06
42	Groton 345	0.87 | 1.06	0.83 | 1.08	0.83 | 1.07	0.93 | 1.01	0.93 | 1.01
43	Minong 161	1.02 | 1.06	0.99 | 1.05	0.99 | 1.05	0.82 | 1.01	0.82 | 1.01
44	Wahpeton 115	0.88 | 1.11	0.86 | 1.12	0.86 | 1.12	0.98 | 1.06	0.98 | 1.06
45	Watertown 345	0.92 | 1.06	0.89 | 1.07	0.89 | 1.07	0.97 | 1.03	0.97 | 1.03
46	**Dynamic Voltage Warnings**					
47		none	none	none	none	none
48						
49						
50						
51						
52						
53						
54	Worst Case Angle Damping					
55	Dorsey SUVP / UdHold		/ 0.166	/ 0.166		
56	Forbes DC Red (DCAR)	360%	356%	354%	107%	107%
57	K22W (max +dP @ t, d-ang)	21.4@(2.67499,-1.4)	27.0@(2.64165,-2.3)	27.1@(2.64165,-2.3)	8.4@(3.53331,0.7)	8.4@(3.53331,0.7)
58	K22W (max -dP @ t, d-ang)	21.5@(0.87500,4.1)	23.6@(0.88333,7.4)	23.8@(0.88333,7.4)	55.8@(1.65833,18.6)	55.8@(1.65833,18.6)
59	K22W (max d-ang @ t, dP)	6.8@(1.15833,-8.5)	9.8@(1.11666,-14.6)	9.8@(1.11666,-14.6)	29.0@(1.10833,-51.5)	29.0@(1.10833,-51.5)
60	**OS Rel Trip / Marg**					
61	MH - OH					
62	D602F at Forbes/Dorsey	182% / 283%	184% / 286%	184% / 286%	171% / 261%	171% / 261%
63	82R at Rugby/L20D at Drayton	999% / 620%	999% / 530%	999% / 529%	999% / 503%	999% / 502%
64	R50M / F3M	715% / 254%	730% / 265%	730% / 265%	581% / 323%	581% / 323%
65	B10T	160%	118%	117%	117%	117%
66	**FSCAPS (SS/Unav/Final)**					
67	Balta 230	(0 | 0 | 0)	(0 | 1 | 0)	(0 | 1 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
68	Eau Cl 345 / Park Lk 115	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 4 | 3) / (0 | 3 | 3)	(3 | 4 | 3) / (0 | 3 | 3)
69	Prairie 115 / Ramsey 230	(1 | 5 | 1) / (0 | 1 | 0)	(1 | 5 | 1) / (0 | 2 | 1)	(1 | 5 | 1) / (0 | 2 | 1)	(1 | 2 | 2) / (0 | 1 | 1)	(1 | 2 | 2) / (0 | 1 | 1)
70	Roseau 230 / Running 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 1 | 1) / (1 | 1 | 1)	(0 | 1 | 1) / (1 | 1 | 1)
71	Shey 115 / Split Rock 115	(1 | 5 | 1) / (1 | 2 | 2)	(1 | 5 | 0) / (1 | 2 | 2)	(1 | 5 | 0) / (1 | 2 | 2)	(1 | 2 | 2) / (1 | 2 | 2)	(1 | 2 | 2) / (1 | 2 | 2)
72	**Damping Performance**	N/A	N/A	N/A	N/A	N/A

Table A

POWER FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	51	52
2	**Case Name**	kc0-so08aa-pyt	kcg-so08aa-pyt
3	**Disturbance**	pyt	pyt
4	**Prior Outage**	None	None
5	**Date/Time**	FEB 05 2008 11:10	FEB 05 2008 11:56
6	**Comments**		
7			
8	**Steady State Flows**		
9	NDEX / EAST BIAS	2079 / 296	2080 / 296
10	MHEX / L20D	2176 / 252	2176 / 252
11	ECL-ARP / PRI-BYN	546 / 863	546 / 863
12	MWEX / AHD-SLK	1525 / 646	1525 / 646
13	D602F / F601C	1767 / 1502	1766 / 1502
14	B10T / MH>SPC	165 / 61	165 / 60
15	OH E-W / OH>MH	190 / -196	190 / -196
16	R50M / OH>MP	146 / 151	146 / 151
17	G82R	11	10
18	Dorsey bipole / CU bipole	3201 / 1103	3200 / 1104
19	Dorsey Reserve / Wtrtn SVC	321 / 33	322 / 34
20	Forbes SVC / MSC	35 / 600	35 / 600
21	RCDC	0	0
22	**Steady State Vltgs**		
23	Dorsey 500/Dorsey 230	1.045 / 0.000	1.045 / 0.000
24	Roseau 500/Forbes 500	1.063 / 1.025	1.063 / 1.025
25	Chisago 500/EauClaire 345	1.019 / 1.009	1.019 / 1.009
26	Int Falls 115/Badoura 115	1.020 / 1.031	1.020 / 1.031
27	Drayton 230/Groton 345	1.024 / 0.000	1.024 / 0.000
28	**SS OS Relay Margins**		
29	D602F at Forbes/Dorsey	250% / 393%	250% / 393%
30	82R at Rugby/L20D at Drayton	999% / 809%	999% / 809%
31	R50M/F3M	903% / 323%	903% / 323%
32	B10T	338%	339%
33	**Min/MaxTransientVltg**		
34	Arrowhd 230	0.99 | 1.02	0.99 | 1.02
35	Boise 115	1.02 | 1.04	1.02 | 1.04
36	Dorsey 230	1.04 | 1.05	1.04 | 1.05
37	Forbes 230	1.02 | 1.04	1.02 | 1.04
38	Riverton 230	1.02 | 1.04	1.02 | 1.04
39	Coal Creek 230	1.02 | 1.05	1.02 | 1.05
40	Stone Lake 345	0.99 | 1.02	0.99 | 1.02
41	Drayton 230	1.02 | 1.04	1.02 | 1.04
42	Groton 345	0.98 | 1.00	0.98 | 1.00
43	Minong 161	1.00 | 1.02	1.00 | 1.02
44	Wahpeton 115	1.03 | 1.05	1.03 | 1.05
45	Watertown 345	1.01 | 1.02	1.01 | 1.02
46	**Dynamic Voltage Warnings**		
47		none	none
48			
49			
50			
51			
52			
53			
54	Worst Case Angle Damping		
55	Dorsey SUVP / UdHold		
56	Forbes DC Red (DCAR)	330%	330%
57	K22W (max +dP @ t, d-ang)	0.0@(0.00000,0.0)	0.0@(0.00000,0.0)
58	K22W (max -dP @ t, d-ang)	28.5@(1.81666,11.1)	28.5@(1.81666,11.1)
59	K22W (max d-ang @ t, dP)	11.6@(2.10833,-26.9)	11.5@(2.10833,-26.8)
60	**OS Rel Trip / Marg**		
61	MH - OH		
62	D602F at Forbes/Dorsey	250% / 393%	250% / 393%
63	82R at Rugby/L20D at Drayton	999% / 722%	999% / 721%
64	R50M / F3M	853% / 323%	854% / 323%
65	B10T	274%	275%
66	**FSCAPS (SS/Unav/Final)**		
67	Balta 230	(0 | 0 | 0)	(0 | 0 | 0)
68	Eau Cl 345 / Park Lk 115	(3 | 3 | 3) / (0 | 0 | 0)	(3 | 3 | 3) / (0 | 0 | 0)
69	Prairie 115 / Ramsey 230	(1 | 1 | 1) / (0 | 0 | 0)	(1 | 1 | 1) / (0 | 0 | 0)
70	Roseau 230 / Running 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)
71	Shey 115 / Split Rock 115	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
72	**Damping Performance**	N/A	N/A

Date:	05/16/2008 13:43		
Date of Run:	FEB 12 2008	FEB 17 2008	FEB 18 2008
Size of Plant		7.5	7.5
Differential Impact Threshold		0.225	0.225
Line Overload: System Intact	95.0%	100.0%	100.0%
Contingency	95.0%	100.0%	100.0%
Transformer Overload: System Intact	95.0%	100.0%	100.0%
Contingency	95.0%	100.0%	100.0%
Number of Violations Monitored:	10	10	10
Output File:	kc0-sp08-line	kcg-sp08-line	kcl-sp08-line

CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM	TO	CKT	SWITCH
34005 HRN LK 5 161	34007 LAKEFLD5 161	1	112	57.5	64.41	57.5	64.41		57.5	64.41		SYSTEM INTACT			
				104.4	116.97	104.4	116.97		104.4	116.97		34003 MAGNLIA5 161	60370 DAN JUHL 161	1	
				95.3	106.69							60128 SPLT RK5 161	60370 DAN JUHL 161	1	
34018 HAZLTON3 345	34019 HAZLTON5 161	1	224	51.2	114.74							SYSTEM INTACT			
				97.8	219.14							34018 HAZLTON3 345	34020 HAZL S 5 161	2	
34019 HAZLTON5 161	34440 HAZLTNN869.0	1	30	80	24.01	80	24.01		80	24.01		SYSTEM INTACT			
				137.6	41.27	137.6	41.27		137.6	41.27		34020 HAZL S 5 161	34439 HAZLTNS869.0	1	
34020 HAZL S 5 161	34439 HAZLTNS869.0	1	30	69	20.71	69	20.71		69	20.71		SYSTEM INTACT			
				135	40.51	135	40.51		135	40.51		34019 HAZLTON5 161	34440 HAZLTNN869.0	1	
34029 SALEM 3 345	34030 SALEM N5 161	1	336	89.7	301.46	89.7	301.45		89.7	301.47		SYSTEM INTACT			
				99.4	333.86							34035 ROCKCKW5 161	34037 ROCK CK5 161	1	SW769
				99.9	335.7							34036 ROCK CK3 345	34037 ROCK CK5 161	1	
				98	329.34							34038 BVR CH 5 161	34044 ALBANY 5 161	1	SW789
				98.1	329.65							34043 SAVANNA5 161	34046 YORK 5 161	1	
				99.4	334.07							34044 ALBANY 5 161	34046 YORK 5 161	1	
				100.5	337.66	100.5	337.65		100.5	337.66		60101 FORBES 2 500	60174 ROSEAUS2 500	1	SW501
				100.7	338.33	100.7	338.33		100.7	338.35		60101 FORBES 2 500	60198 CHIS-N 2 500	1	SW500
				100.5	337.66	100.5	337.65		100.5	337.66		60173 ROSEAUN2 500	60174 ROSEAUS2 500	1	SW501
				100.7	338.33	100.7	338.33		100.7	338.35		60197 CHIS CO2 500	60198 CHIS-N 2 500	1	SW500
				101.9	342.22	101.8	342.22		101.9	342.23		60202 COON CK3 345	63030 DICKNSN3 345	1	SW880
34038 BVR CH 5 161	34041 BEVCHN2869.0	2	74.7	59.2	44.2							SYSTEM INTACT			
				96.6	72.14							34040 BEVCHN1869.0	34042 BVR CH65 161	1	
34040 BEVCHN1869.0	34042 BVR CH65 161	1	150	55.6	83.42							SYSTEM INTACT			
				96	144.03							34038 BVR CH 5 161	34042 BVR CH65 161	1	
34043 SAVANNA5 161	34346 SAVNA S934.5	1	22.4	59.5	13.32	59.5	13.32		59.5	13.32		SYSTEM INTACT			
				123.5	27.67	123.5	27.67		123.5	27.67		34043 SAVANNA5 161	34347 SAVNA N934.5	1	
34043 SAVANNA5 161	34347 SAVNA N934.5	1	22.4	59.5	13.32	59.5	13.32		59.5	13.32		SYSTEM INTACT			
				122.7	27.49	122.7	27.49		122.7	27.49		34038 BVR CH 5 161	34044 ALBANY 5 161	1	SW789
				123.5	27.67	123.5	27.67		123.5	27.67		34043 SAVANNA5 161	34346 SAVNA S934.5	1	
34050 GU CTR 5 161	34167 GU CTR 934.5	1	24	109.7	26.32	109.7	26.32		109.7	26.32		SYSTEM INTACT			
				115.4	27.69	115.4	27.69		115.4	27.69		34047 ANTA TP5 161	34048 ANITA 5 161	1	
				110.5	26.53	110.5	26.53		110.5	26.53		34047 ANTA TP5 161	66560 CRESTON5 161	1	
				110.6	26.55	110.6	26.55		110.6	26.55		34047 ANTA TP5 161	66603 EXIRA 5 161	1	
				113.9	27.34	113.9	27.34		113.9	27.34		34048 ANITA 5 161	34050 GU CTR 5 161	1	
				110	26.41	110	26.41		110	26.41		34052 AMES 7 115	34076 BNE JCT7 115	1	SW787
				110.1	26.42	110.1	26.42		110.1	26.42		34059 BOONE E7 115	34076 BNE JCT7 115	1	
				110	26.4	110	26.4		110	26.4		34068 M-TOWN 5 161	34179 JASPER 5 161	1	
				110.1	26.43	110.1	26.43		110.1	26.43		34068 M-TOWN 5 161	34179 JASPER 5 161	1	SW771
				110	26.4	110	26.4		110	26.4		34189 OTTUMWA5 161	34192 LUCAS 5 161	1	
				110	26.4	110	26.4		110	26.4		34192 LUCAS 5 161	34202 LUCAS 869.0	1	

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line				
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
34051 TOLEDO 7 115	34154 TOLEDO 934.5	1	24	72.4	17.38	72.4	17.38		72.4	17.38		SYSTEM INTACT	
				101.8	24.42	101.8	24.42		101.8	24.42		34051 TOLEDO 7 115 34066 M-TOWN 7 115 1	
				141	33.84	141	33.84		141	33.84		34051 TOLEDO 7 115 34154 TOLEDO 934.5 2	
34051 TOLEDO 7 115	34154 TOLEDO 934.5	2	25	60.9	15.22	60.9	15.22		60.9	15.22		SYSTEM INTACT	
				138.1	34.53	138.1	34.53		138.1	34.53		34051 TOLEDO 7 115 34154 TOLEDO 934.5 1	
34059 BOONE E7 115	34163 BOONE 934.5	1	31	76.4	23.69	76.4	23.69		76.4	23.69		SYSTEM INTACT	
				151.8	47.07	151.8	47.07		151.8	47.07		34163 BOONE 934.5 34550 BOONE W7 115 2	
34066 M-TOWN 7 115	34159 M-TOWN 934.5	1	93	54.4	50.62	54.4	50.62		54.4	50.62		SYSTEM INTACT	
				106.5	99.04	106.5	99.04		106.5	99.04		34066 M-TOWN 7 115 34159 M-TOWN 934.5 2	
34066 M-TOWN 7 115	34159 M-TOWN 934.5	2	93	54.1	50.32	54.1	50.32		54.1	50.32		SYSTEM INTACT	
				106.5	99.03	106.5	99.03		106.5	99.03		34066 M-TOWN 7 115 34159 M-TOWN 934.5 1	
34086 WILMSBG7 115	34153 WILMSBG934.5	1	13	125.9	16.37	125.9	16.37		125.9	16.37		SYSTEM INTACT	
				126.3	16.42	126.3	16.42		126.3	16.42		34029 SALEM 3 345 34030 SALEM N5 161 1	
				126.3	16.42	126.3	16.42		126.3	16.42		34029 SALEM 3 345 34036 ROCK CK3 345 1	
				126.3	16.42	126.3	16.42		126.3	16.42		34051 TOLEDO 7 115 34066 M-TOWN 7 115 1	
				129.6	16.85	129.6	16.85		129.6	16.85		34066 M-TOWN 7 115 34085 BLRSTWN7 115 1	
				131.4	17.08	131.4	17.08		131.4	17.08		34085 BLRSTWN7 115 34099 PRAR CK7 115 1	
				216.5	28.14	216.5	28.14		216.5	28.14		34086 WILMSBG7 115 34153 WILMSBG934.5 2	
				126.3	16.42	126.3	16.42		126.3	16.42		34091 ARNOLD 5 161 34105 HIAWATA5 161 1	
				126.7	16.47	126.7	16.47		126.7	16.47		34091 ARNOLD 5 161 34111 FAIRFAX5 161 1	
				126.3	16.42	126.3	16.42		126.3	16.42		34101 HIAWATA7 115 34105 HIAWATA5 161 1	
				126.3	16.42	126.3	16.42		126.3	16.42		34107 BEVERLY5 161 34111 FAIRFAX5 161 1	
34086 WILMSBG7 115	34153 WILMSBG934.5	2	13	86.8	11.29	86.8	11.29		86.8	11.29		SYSTEM INTACT	
				223.2	29.02	223.2	29.02		223.2	29.02		34086 WILMSBG7 115 34153 WILMSBG934.5 1	
34092 PR CRK1G34.5	34099 PRAR CK7 115	1	93	49.1	45.65	49.1	45.65		49.1	45.65		SYSTEM INTACT	
				101.8	94.64	101.8	94.64		101.8	94.64		34092 PR CRK1G34.5 34099 PRAR CK7 115 2	
34092 PR CRK1G34.5	34099 PRAR CK7 115	2	93	50.7	47.18	50.7	47.18		50.7	47.18		SYSTEM INTACT	
				101.6	94.5	101.6	94.5		101.6	94.5		34092 PR CRK1G34.5 34099 PRAR CK7 115 1	
34097 6 ST 7 115	34100 6 ST 26G34.5	1	93	67.9	63.16	67.9	63.16		67.9	63.16		SYSTEM INTACT	
				142.8	132.82	142.8	132.82		142.8	132.82		34097 6 ST 7 115 34100 6 ST 26G34.5 2	
34097 6 ST 7 115	34100 6 ST 26G34.5	2	93	70.2	65.26	70.2	65.26		70.2	65.26		SYSTEM INTACT	
				142.4	132.47	142.4	132.47		142.4	132.47		34097 6 ST 7 115 34100 6 ST 26G34.5 1	
34103 MARION 7 115	34104 MARION 934.5	1	56	48.2	27.01	48.2	27.01		48.2	27.01		SYSTEM INTACT	
				100	56.02	100	56.02		100	56.02		34103 MARION 7 115 34104 MARION 934.5 2	
34103 MARION 7 115	34104 MARION 934.5	2	50	57.1	28.53	57.1	28.53		57.1	28.53		SYSTEM INTACT	
				111.9	55.95	111.9	55.95		111.9	55.95		34103 MARION 7 115 34104 MARION 934.5 1	
34119 DUNDEE 934.5	34133 DUNDEE 7 115	1	12.5	63.9	7.99	63.9	7.99		63.9	7.99		SYSTEM INTACT	
				129.7	16.21	129.7	16.21		129.7	16.21		34119 DUNDEE 934.5 34133 DUNDEE 7 115 2	
34119 DUNDEE 934.5	34133 DUNDEE 7 115	2	12.5	63.3	7.91	63.3	7.91		63.3	7.91		SYSTEM INTACT	
				129.8	16.22	129.8	16.22		129.8	16.22		34119 DUNDEE 934.5 34133 DUNDEE 7 115 1	
34163 BOONE 934.5	34550 BOONE W7 115	2	47	49.9	23.47	49.9	23.47		49.9	23.47		SYSTEM INTACT	
				100.1	47.07	100.1	47.07		100.1	47.07		34059 BOONE E7 115 34163 BOONE 934.5 1	
34182 WAPELLO5 161	34206 WAPELLO869.0	1	131	54.5	71.45							SYSTEM INTACT	
				97.4	127.56							34182 WAPELLO5 161 34206 WAPELLO869.0 2	
34182 WAPELLO5 161	34206 WAPELLO869.0	2	131	54.5	71.45							SYSTEM INTACT	
				97.4	127.56							34182 WAPELLO5 161 34206 WAPELLO869.0 1	
34528 IAFINDP7 115	34532 IAFINDP869.0	1	31.2	59.2	18.51	59.2	18.51		59.2	18.51		SYSTEM INTACT	
				102.1	31.9	102.1	31.9		102.1	31.9		34527 IAFINDT7 115 34528 IAFINDP7 115 1	
34901 ROCKCO G34.5	60370 DAN JUHL 161	1	13.3	92.8	12.38							SYSTEM INTACT	

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line			
CIRCUIT FROM: CIRCUIT TO: CKT # NAME # NAME	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
		95	12.67							34005 HRN LK 5 161 62709 BREWSTR5 161 1	
		96.5	12.87							60128 SPLT RK5 161 60129 SPLT RK7 115 6	
		97.2	12.95							60128 SPLT RK5 161 60370 DAN JUHL 161 1	
60009 HIBRD75G13.8 60214 HIBRDGE7 115 5	47	220.7	103.71	220.7	103.71		220.7	103.71		SYSTEM INTACT	
		228.5	107.38	228.5	107.38		228.5	107.38		60186 AS KING3 345 60221 KOLMNLK3 345 1	SW911
		231.2	108.67	231.2	108.67		231.2	108.67		60202 COON CK3 345 60221 KOLMNLK3 345 1	SW910
		244.9	115.12	244.9	115.12		244.9	115.12		60202 COON CK3 345 60251 TERMINL3 345 1	SW855
		231.2	108.64	231.2	108.64		231.2	108.64		60209 ELLOTPK7 115 60246 SO TOWN7 115 1	
		226.7	106.53	226.7	106.53		226.7	106.53		60218 INVRHLS7 115 60220 INVRGRV7 115 1	
		226.9	106.66	226.9	106.66		226.9	106.66		60221 KOLMNLK3 345 60251 TERMINL3 345 1	
		230	108.1	230	108.1		230	108.1		60221 KOLMNLK3 345 60251 TERMINL3 345 1	SW856
		227.7	107.03	227.7	107.03		227.7	107.03		60228 MERIMPK7 115 60275 PRIOR 7 115 1	
		230.5	108.32	230.5	108.32		230.5	108.32		60252 TERMINL7 115 60255 WESTERN7 115 1	
		231	108.58	231	108.58		231	108.58		60252 TERMINL7 115 60275 PRIOR 7 115 1	
60105 PR ISLD3 345 60106 PR ISLD5 161 10	224	67.6	151.43							SYSTEM INTACT	
		95.7	214.34							60105 PR ISLD3 345 60236 REDROCK3 345 1	SW800
60107 W FARIB7 115 60792 WFARBLT869.0 1	70	123.4	86.35	123.4	86.35		123.4	86.35		SYSTEM INTACT	
		140.8	98.55	140.8	98.54		140.8	98.55		60105 PR ISLD3 345 60106 PR ISLD5 161 10	
		140.8	98.55	140.8	98.55		140.8	98.55		60106 PR ISLD5 161 62224 RAVENNA5 161 1	
		142.4	99.69	142.4	99.69		142.4	99.69		60107 W FARIB7 115 60792 WFARBLT869.0 2	
		142.6	99.84	142.6	99.84		142.6	99.84		60107 W FARIB7 115 60792 WFARBLT869.0 3	
		139.9	97.95	139.9	97.95		139.9	97.95		60108 WILMART3 345 60192 BLUE LK3 345 1	
		140.2	98.11	140.2	98.11		140.2	98.11		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
		139.9	97.91	139.9	97.9		139.9	97.91		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
		134.9	94.42	134.9	94.42		134.9	94.42		60108 WILMART3 345 60365 FIELD_S3 345 1	
		156.8	109.75	156.8	109.75		156.8	109.75		60369 FEPTP 7 115 62234 LKMARN 7 115 1	
		140.8	98.55	140.8	98.55		140.8	98.56		62224 RAVENNA5 161 63071 SPRNGCK5 161 1	
60107 W FARIB7 115 60792 WFARBLT869.0 2	25	99.9	24.97	99.9	24.97		99.9	24.97		SYSTEM INTACT	
		112.5	28.13	112.5	28.13		112.5	28.13		60105 PR ISLD3 345 60106 PR ISLD5 161 10	
		112.5	28.13	112.5	28.13		112.5	28.13		60106 PR ISLD5 161 62224 RAVENNA5 161 1	
		196.2	49.04	196.2	49.04		196.2	49.04		60107 W FARIB7 115 60792 WFARBLT869.0 1	
		222.3	55.58	222.3	55.58		222.3	55.58		60107 W FARIB7 115 60792 WFARBLT869.0 1	SW822
		115.9	28.98	115.9	28.98		115.9	28.98		60107 W FARIB7 115 60792 WFARBLT869.0 3	
		112.8	28.19	112.8	28.19		112.8	28.19		60108 WILMART3 345 60192 BLUE LK3 345 1	
		113	28.24	113	28.24		113	28.24		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
		112.7	28.18	112.7	28.18		112.7	28.18		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
		128.1	32.03	128.1	32.03		128.1	32.03		60369 FEPTP 7 115 62234 LKMARN 7 115 1	
		112.5	28.13	112.5	28.13		112.5	28.13		62224 RAVENNA5 161 63071 SPRNGCK5 161 1	
60107 W FARIB7 115 60792 WFARBLT869.0 3	25	100.8	25.21	100.8	25.21		100.8	25.21		SYSTEM INTACT	
		113.6	28.4	113.6	28.4		113.6	28.41		60105 PR ISLD3 345 60106 PR ISLD5 161 10	
		113.6	28.4	113.6	28.4		113.6	28.41		60106 PR ISLD5 161 62224 RAVENNA5 161 1	
		198.1	49.52	198.1	49.52		198.1	49.52		60107 W FARIB7 115 60792 WFARBLT869.0 1	
		224.5	56.12	224.5	56.12		224.5	56.12		60107 W FARIB7 115 60792 WFARBLT869.0 1	SW822
		116.9	29.22	116.9	29.22		116.9	29.22		60107 W FARIB7 115 60792 WFARBLT869.0 2	
		113.9	28.46	113.9	28.46		113.9	28.46		60108 WILMART3 345 60192 BLUE LK3 345 1	
		114	28.51	114	28.51		114.1	28.51		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
		113.8	28.45	113.8	28.45		113.8	28.46		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
		129.4	32.34	129.4	32.34		129.4	32.34		60369 FEPTP 7 115 62234 LKMARN 7 115 1	
		113.6	28.4	113.6	28.4		113.6	28.4		62224 RAVENNA5 161 63071 SPRNGCK5 161 1	

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line			
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
60107 W FARIB7 115	62865 AIRTECH7 115 1	310	74.2	230.05	74.2	230.05		74.2	230.05		SYSTEM INTACT	
			97.7	302.82							60108 WILMART3 345 60365 FIELD_S3 345 1	
			97.7	302.99							60331 LKFLDXL3 345 60364 FIELD_N3 345 1	
			97.7	302.86							60364 FIELD_N3 345 60365 FIELD_S3 345 1	
			108.6	336.58	108.6	336.58		108.6	336.58		60369 FEPTP 7 115 62234 LKMARN 7 115 1	
60110 WILMART7 115	60650 WILMART869.0 1	70	113.2	79.21	113.2	79.21		113.2	79.21		SYSTEM INTACT	
			117.7	82.37	117.7	82.37		117.7	82.37		60107 W FARIB7 115 60792 WFARBLT869.0 1	
			117.8	82.49	117.8	82.49		117.8	82.49		60107 W FARIB7 115 60792 WFARBLT869.0 1	SW822
			117	81.9	117	81.9		117	81.9		60107 W FARIB7 115 62865 AIRTECH7 115 1	
			128	89.63	128	89.63		128	89.63		60108 WILMART3 345 60192 BLUE LK3 345 1	
			128.7	90.09	128.7	90.09		128.7	90.09		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
			128.6	89.99	128.5	89.98		128.6	89.99		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
			164.2	114.96	164.2	114.96		164.2	114.96		60110 WILMART7 115 60650 WILMART869.0 2	
			163.8	114.68	163.8	114.68		163.8	114.68		60110 WILMART7 115 60650 WILMART869.0 3	
			119.8	83.86	119.8	83.86		119.8	83.86		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	SW812
			117.1	81.96	117.1	81.96		117.1	81.96		60369 FEPTP 7 115 62865 AIRTECH7 115 1	
60110 WILMART7 115	60650 WILMART869.0 2	70	113.8	79.66	113.8	79.66		113.8	79.66		SYSTEM INTACT	
			118.3	82.84	118.3	82.84		118.3	82.84		60107 W FARIB7 115 60792 WFARBLT869.0 1	
			118.5	82.96	118.5	82.96		118.5	82.96		60107 W FARIB7 115 60792 WFARBLT869.0 1	SW822
			117.7	82.37	117.7	82.37		117.7	82.37		60107 W FARIB7 115 62865 AIRTECH7 115 1	
			128.8	90.14	128.8	90.13		128.8	90.14		60108 WILMART3 345 60192 BLUE LK3 345 1	
			129.4	90.6	129.4	90.6		129.4	90.6		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
			129.3	90.49	129.3	90.49		129.3	90.5		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
			164.8	115.33	164.8	115.33		164.8	115.33		60110 WILMART7 115 60650 WILMART869.0 1	
			164.8	115.33	164.8	115.33		164.8	115.33		60110 WILMART7 115 60650 WILMART869.0 3	
			120.5	84.33	120.5	84.33		120.5	84.33		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	SW812
			117.7	82.42	117.7	82.42		117.7	82.42		60369 FEPTP 7 115 62865 AIRTECH7 115 1	
60110 WILMART7 115	60650 WILMART869.0 3	70	113.2	79.21	113.2	79.21		113.2	79.21		SYSTEM INTACT	
			117.7	82.37	117.7	82.37		117.7	82.37		60107 W FARIB7 115 60792 WFARBLT869.0 1	
			117.9	82.5	117.9	82.5		117.9	82.5		60107 W FARIB7 115 60792 WFARBLT869.0 1	SW822
			117	81.91	117	81.91		117	81.91		60107 W FARIB7 115 62865 AIRTECH7 115 1	
			128	89.63	128	89.63		128	89.63		60108 WILMART3 345 60192 BLUE LK3 345 1	
			128.7	90.1	128.7	90.1		128.7	90.1		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
			128.6	89.99	128.6	89.99		128.6	89.99		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
			163.8	114.68	163.8	114.68		163.8	114.68		60110 WILMART7 115 60650 WILMART869.0 1	
			164.2	114.97	164.2	114.97		164.2	114.97		60110 WILMART7 115 60650 WILMART869.0 2	
			119.8	83.86	119.8	83.86		119.8	83.86		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	SW812
			117.1	81.96	117.1	81.96		117.1	81.96		60369 FEPTP 7 115 62865 AIRTECH7 115 1	
60114 ELM CRK3 345	60115 ELMCRK 7 115 9	448	61.9	277.35	61.9	277.35		61.9	277.36		SYSTEM INTACT	
			100.1	448.27	100.1	448.28		100.1	448.27		60114 ELM CRK3 345 60233 PARKERS3 345 1	SW830
60122 LAWRENC7 115	60834 LAWRENC869.0 1	112	72.7	81.43	72.7	81.43		72.7	81.43		SYSTEM INTACT	
			113.9	127.59	113.9	127.59		113.9	127.59		60117 CHERRYC7 115 60129 SPLT RK7 115 1	SW756
			97	108.66							60121 MINEHAH7 115 60122 LAWRENC7 115 1	
60124 LINCNCO7 115	60836 LINCLNC869.0 1	70	50.5	35.35	50.5	35.35		50.5	35.35		SYSTEM INTACT	
			102.6	71.83	102.6	71.83		102.6	71.83		60122 LAWRENC7 115 60834 LAWRENC869.0 1	
60132 WSX FLS7 115	60850 WSX FLS869.0 1	70	40.4	28.28	40.4	28.28		40.4	28.28		SYSTEM INTACT	
			102.6	71.81	102.6	71.81		102.6	71.8		60122 LAWRENC7 115 60834 LAWRENC869.0 1	
60140 MCHENRY7 115	63082 MCHENRYY1.00 1	84	71.6	60.16	71.6	60.14		72	60.47		SYSTEM INTACT	
			115.6	97.1	115.6	97.07		116.1	97.54	0.44	60138 SOURIS 7 115 60139 MALLARD7 115 1	

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line			
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
			97	81.46							66442 GARRISN7 115 67113 VOLTAIR7 115 1	
			100.6	84.54	100.5	84.43		101.2	84.99	0.45	67106 LELANDO4 230 67108 LOGAN 4 230 1	
60144 DGLASCO7 115 60749 DGLAS C869.0 1		47	72.7	34.18							SYSTEM INTACT	
			96.4	45.32							62427 WILLMAR869.0 63050 WILLMAR4 230 1	SW928
60145 FRANKLN7 115 60728 FRANKLN869.0 1		47	61.2	28.76							SYSTEM INTACT	
			98.4	46.25							60145 FRANKLN7 115 60728 FRANKLN869.0 2	
60145 FRANKLN7 115 60728 FRANKLN869.0 2		47	61.2	28.76							SYSTEM INTACT	
			98.4	46.25							60145 FRANKLN7 115 60728 FRANKLN869.0 1	
60148 MINVALY7 115 60357 MAYNARD7 115 1		78	53	41.33	53	41.33		53	41.33		SYSTEM INTACT	
			96.4	75.2							62427 WILLMAR869.0 63050 WILLMAR4 230 1	SW928
			112.1	87.48	112.1	87.47		112.2	87.48		63050 WILLMAR4 230 66550 GRANITF4 230 1	
60151 MNTCELO3 345 60152 MNTCELO4 230 6		336	67.5	226.8	67.5	226.79		67.5	226.8		SYSTEM INTACT	
			96.6	324.55							60114 ELM CRK3 345 60151 MNTCELO3 345 1	SW833
			113.5	381.5	113.5	381.49		113.5	381.52		60142 BENTON 3 345 60160 SHERCO 3 345 1	
			113.5	381.5	113.5	381.49		113.5	381.52		60142 BENTON 3 345 60160 SHERCO 3 345 1	SW979
60151 MNTCELO3 345 60153 MNTCELO7 115 10		336	73.2	245.95	73.2	245.94		73.2	245.95		SYSTEM INTACT	
			108	362.91	108	362.91		108	362.91		60114 ELM CRK3 345 60151 MNTCELO3 345 1	SW833
60154 SAUK RV7 115 60157 STCLOUD7 115 1		139	33.1	46.02	33.1	46.02		33.1	46.03		SYSTEM INTACT	
			121.7	169.12	121.7	169.12		121.7	169.13		60143 BENTON 7 115 60146 GRANCTY7 115 1	SW757
			95.7	132.99							60146 GRANCTY7 115 60164 XRDS 7 115 1	
60154 SAUK RV7 115 60163 WST CLD7 115 1		139	13	18.13							SYSTEM INTACT	
			98.1	136.42							60143 BENTON 7 115 60146 GRANCTY7 115 1	SW757
60155 PULASKI7 115 60763 PULASKI869.0 1		70	127	88.88	127	88.88		127	88.88		SYSTEM INTACT	
			129	90.29	129	90.29		129	90.29		60151 MNTCELO3 345 60153 MNTCELO7 115 10	
			129.2	90.42	129.2	90.42		129.2	90.42		60153 MNTCELO7 115 62927 LKCONST7 115 1	
			131.9	92.3	131.9	92.3		131.9	92.3		60155 PULASKI7 115 62926 DCKSNSS7 115 1	
			131.9	92.3	131.9	92.3		131.9	92.3		60155 PULASKI7 115 62926 DCKSNSS7 115 1	SW982
			128.9	90.24	128.9	90.24		128.9	90.24		60155 PULASKI7 115 62927 LKCONST7 115 1	
			128.3	89.78	128.3	89.78		128.3	89.78		60211 GLESNLK7 115 60234 PARKERS7 115 1	SW992
			128	89.58	128	89.58		128	89.58		60233 PARKERS3 345 60270 MPLEGV13 345 1	SW402
			131.9	92.31	131.9	92.31		131.9	92.31		62925 DICKNSN7 115 62926 DCKSNSS7 115 1	
			127.9	89.54	127.9	89.54		127.9	89.54		62925 DICKNSN7 115 63085 DICKNSNY1.00 1	
			127.9	89.54	127.9	89.54		127.9	89.54		63030 DICKNSN3 345 63085 DICKNSNY1.00 1	
60156 PYNSVIL7 115 60702 PAYNES1934.5 1		17.9	245	43.85	245	43.85		245	43.85		SYSTEM INTACT	
			247.1	44.23	247.1	44.23		247.1	44.23		60142 BENTON 3 345 60160 SHERCO 3 345 1	
			247.1	44.23	247.1	44.23		247.1	44.23		60142 BENTON 3 345 60160 SHERCO 3 345 1	SW979
			251.1	44.95	251.1	44.95		251.1	44.95		60143 BENTON 7 115 60146 GRANCTY7 115 1	SW757
			247.3	44.26	247.3	44.26		247.3	44.26		60144 DGLASCO7 115 60749 DGLAS C869.0 1	
			247.5	44.3	247.5	44.3		247.5	44.3		60144 DGLASCO7 115 60749 DGLAS C869.0 1	SW997
			254.8	45.6	254.8	45.6		254.8	45.6		60156 PYNSVIL7 115 60356 PAYNES 4 230 6	
			246.5	44.13	246.5	44.13		246.5	44.13		60163 WST CLD7 115 60732 WST CLD869.0 1	
			254.8	45.62	254.8	45.62		254.8	45.62		60356 PAYNES 4 230 63050 WILLMAR4 230 1	
			247.5	44.3	247.5	44.3		247.5	44.3		62427 WILLMAR869.0 63050 WILLMAR4 230 1	SW928
			258.7	46.3	258.7	46.3		258.7	46.3		63050 WILLMAR4 230 66550 GRANITF4 230 1	
60156 PYNSVIL7 115 60760 PAYNES 869.0 1		47	66.3	31.16	66.3	31.16		66.3	31.16		SYSTEM INTACT	
			111.2	52.24	111.1	52.24		111.2	52.24		60156 PYNSVIL7 115 60760 PAYNES 869.0 2	
60156 PYNSVIL7 115 60760 PAYNES 869.0 2		47	65.6	30.83	65.6	30.83		65.6	30.84		SYSTEM INTACT	
			110.8	52.06	110.8	52.06		110.8	52.06		60156 PYNSVIL7 115 60760 PAYNES 869.0 1	
60158 STCLTP 7 115 60166 SALIDA 7 115 1		139	55.7	77.38	55.7	77.38		55.7	77.39		SYSTEM INTACT	

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line				
CIRCUIT FROM: CIRCUIT TO: CKT # NAME # NAME	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
		136.5	189.78	136.5	189.77		136.5	189.79		60143 BENTON 7 115 60146 GRANCTY7 115 1	SW757
60163 WST CLD7 115 60732 WST CLD869.0 1	46.7	75.8	35.4							SYSTEM INTACT	
		98	45.79							60156 PYNSVIL7 115 60356 PAYNES 4 230 6	
		98.1	45.8							60356 PAYNES 4 230 63050 WILLMAR4 230 1	
		99.3	46.4							62427 WILLMAR869.0 63050 WILLMAR4 230 1	SW928
		96.8	45.21							63050 WILLMAR4 230 66550 GRANITF4 230 1	
60170 MARSHAL7 115 60171 LYON CO7 115 1	127	115.4	146.59	115.4	146.58		115.4	146.59		SYSTEM INTACT	
		124.3	157.84	124.3	157.84		124.3	157.85		60108 WILMART3 345 60365 FIELD_S3 345 1	
		126.5	160.64	126.5	160.64		126.5	160.64		60123 PIPESTN7 115 60125 PATHFDR7 115 1	
		126.5	160.64	126.5	160.64		126.5	160.65		60125 PATHFDR7 115 60129 SPLT RK7 115 1	
		151.1	191.92	151.1	191.92		151.1	191.93		60148 MINVALY7 115 60171 LYON CO7 115 1	
		126.6	160.81	126.6	160.8		126.6	160.81		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	SW812
		124.3	157.89	124.3	157.89		124.3	157.9		60331 LKFLDXL3 345 60364 FIELD_N3 345 1	
		139.1	176.68	139.1	176.68		139.1	176.69		60362 CHANRMB7 115 60384 FENTON 7 115 1	
		124.3	157.84	124.3	157.84		124.3	157.84		60364 FIELD_N3 345 60365 FIELD_S3 345 1	
		130.9	166.28	130.9	166.27		130.9	166.29		66503 BLAIR 4 230 66530 WATERTN4 230 1	SW896
		135.6	172.22	135.6	172.22		135.6	172.23		66503 BLAIR 4 230 66550 GRANITF4 230 1	SW897
60170 MARSHAL7 115 60373 SOUTH E7 115 1	127.9	19.8	25.27							SYSTEM INTACT	
		96.4	123.3							60170 MARSHAL7 115 60375 MMU_N7ST 115 1	
60170 MARSHAL7 115 60375 MMU_N7ST 115 1	127.9	91.1	116.49	91.1	116.49		91.1	116.49		SYSTEM INTACT	
		97.9	125.22							60125 PATHFDR7 115 60129 SPLT RK7 115 1	
		118.7	151.88	118.7	151.87		118.8	151.88		60148 MINVALY7 115 60171 LYON CO7 115 1	
		109.4	139.96	109.4	139.96		109.4	139.96		60170 MARSHAL7 115 60373 SOUTH E7 115 1	
		98.1	125.47							60276 AIRLAKE7 115 62234 LKMARN 7 115 1	SW812
		108.9	139.25	108.9	139.24		108.9	139.25		60362 CHANRMB7 115 60384 FENTON 7 115 1	
		98.9	126.52							60371 ERIE RD7 115 60372 SARATOG7 115 1	
		109.8	140.45	109.8	140.44		109.8	140.45		60372 SARATOG7 115 67473 MMU SW 7 115 1	
		101.6	129.96	101.6	129.96		101.6	129.96		60373 SOUTH E7 115 67473 MMU SW 7 115 1	
		101.6	129.96	101.6	129.96		101.6	129.97		66503 BLAIR 4 230 66530 WATERTN4 230 1	SW896
		106.1	135.65	106.1	135.64		106.1	135.65		66503 BLAIR 4 230 66550 GRANITF4 230 1	SW897
60171 LYON CO7 115 60903 LYON CO869.0 1	70	31.5	22.05	31.5	22.05		31.5	22.05		SYSTEM INTACT	
		119.7	83.82	119.7	83.82		119.7	83.82		60119 LKYNKTN7 115 60171 LYON CO7 115 1	SW935
60177 CHAMPLN7 115 60178 CHAMP T7 115 1	140	45.2	63.26	45.2	63.26		45.2	63.26		SYSTEM INTACT	
		100.3	140.41	100.3	140.42		100.3	140.41		60114 ELM CRK3 345 60233 PARKERS3 345 1	SW830
60178 CHAMP T7 115 60205 CRKEDLK7 115 1	189	47.7	90.24	47.7	90.24		47.7	90.24		SYSTEM INTACT	
		111	209.73	111	209.73		111	209.81		60203 COON CK7 115 62090 PRKWOOD7 115 1	
		104.7	197.93	104.7	197.87		104.7	197.93		60203 COON CK7 115 62090 PRKWOOD7 115 1	SW970
60184 APACHET7 115 60185 ARDNHLS7 115 1	229	46.2	105.9	46.2	105.9		46.2	105.9		SYSTEM INTACT	
		95.7	219.17							60212 GOOSELK7 115 60222 KOLMNLK7 115 1	
		119	272.43	119	272.43		119	272.43		60212 GOOSELK7 115 60222 KOLMNLK7 115 1	SW919
60190 BLK DOG7 115 60258 WILSON 7 115 3	167	83.2	138.96	83.2	138.96		83.2	138.96		SYSTEM INTACT	
		99.1	165.47							60190 BLK DOG7 115 60242 SAVAGE 7 115 1	
		99.1	165.47							60190 BLK DOG7 115 60242 SAVAGE 7 115 1	SW885
		143.2	239.08	143.2	239.08		143.2	239.08		60190 BLK DOG7 115 60258 WILSON 7 115 1	
		95.8	159.96							60208 EDINA 7 115 60263 EDEN PR7 115 1	
60208 EDINA 7 115 60263 EDEN PR7 115 1	310	73	226.26							SYSTEM INTACT	
		96	297.67							60234 PARKERS7 115 60259 BASCRK 7 115 1	SW838
60212 GOOSELK7 115 62091 VADNSTP7 115 1	189	51.3	96.88	51.3	96.89		51.3	96.88		SYSTEM INTACT	
		106.3	200.81	106.3	200.81		106.2	200.73		60184 APACHET7 115 60185 ARDNHLS7 115 1	

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line			
CIRCUIT FROM: CIRCUIT TO: CKT	RATEA	OVRLD	CURRENT	OVRLD	CURRENT	Diff	OVRLD	CURRENT	Diff	CONTINGENCY
# NAME # NAME	MVA	%	MVA	%	MVA	MVA	%	MVA	MVA	FROM TO CKT SWITCH
60224 LONG LK7 115 60230 OAKDALE7 115 1	239	56	133.88	56	133.88		56	133.87		SYSTEM INTACT
		104	248.67	104	248.67		104	248.67		60179 AFTON 7 115 60238 REDROCK7 115 1 SW921
		103.9	248.37	103.9	248.37		103.9	248.37		60238 REDROCK7 115 60344 WOODBUR7 115 1
60225 LXNGTON7 115 62091 VADNSTP7 115 1	189	42.4	80.1							SYSTEM INTACT
		97.1	183.55							60184 APACHET7 115 60185 ARDNHLS7 115 1
60236 REDROCK3 345 60238 REDROCK7 115 9	448	67.4	301.86							SYSTEM INTACT
		97	434.52							60236 REDROCK3 345 60238 REDROCK7 115 10
60244 SCOTTCO7 115 60890 SCOTTCO869.0 1	70	60.9	42.62	60.9	42.62		60.9	42.62		SYSTEM INTACT
		105.3	73.73	105.3	73.73		105.3	73.73		60244 SCOTTCO7 115 60890 SCOTTCO869.0 2
60244 SCOTTCO7 115 60890 SCOTTCO869.0 2	70	59.4	41.58	59.4	41.58		59.4	41.58		SYSTEM INTACT
		96.8	67.78							60108 WILMART3 345 60192 BLUE LK3 345 1 SW903
		99.6	69.74							60244 SCOTTCO7 115 60261 DEANLAK7 115 1 SW904
		104.7	73.3	104.7	73.3		104.7	73.3		60244 SCOTTCO7 115 60890 SCOTTCO869.0 1
60250 TANRSLK7 115 60344 WOODBUR7 115 1	191	25.7	49.16	25.7	49.15		25.7	49.16		SYSTEM INTACT
		110.6	211.32	110.6	211.32		110.6	211.32		60176 BAYTOWN7 115 60187 AS KING7 115 1 SW810
		98.1	187.3							60224 LONG LK7 115 60230 OAKDALE7 115 1
60262 EDEN PR3 345 60263 EDEN PR7 115 10	448	60	268.98							SYSTEM INTACT
		95.4	427.41							60262 EDEN PR3 345 60263 EDEN PR7 115 9
60262 EDEN PR3 345 60263 EDEN PR7 115 9	448	64.6	289.31							SYSTEM INTACT
		95.6	428.49							60233 PARKERS3 345 60262 EDEN PR3 345 1 SW988
		98.5	441.44							60262 EDEN PR3 345 60263 EDEN PR7 115 10
60279 BUFFRID7 115 60616 BRI WND134.5 1	120	109.5	131.43	109.5	131.43		109.5	131.43		SYSTEM INTACT
		110.4	132.47	110.4	132.47		110.4	132.47		60119 LKYNKTN7 115 60171 LYON CO7 115 1 SW935
		111.8	134.2	111.8	134.2		111.8	134.2		60119 LKYNKTN7 115 60279 BUFFRID7 115 1
		109.7	131.69	109.7	131.69		109.7	131.69		60119 LKYNKTN7 115 62712 ELLSBOR7 115 1
		110.2	132.18	110.2	132.18		110.2	132.18		60123 PIPESTN7 115 60279 BUFFRID7 115 1
		109.8	131.8	109.8	131.8		109.8	131.8		60123 PIPESTN7 115 60362 CHANRMB7 115 1
		222.5	266.97	222.5	266.97		222.5	266.97		60279 BUFFRID7 115 60617 BRI WND234.5 2
		110.5	132.61	110.5	132.61		110.5	132.61		60362 CHANRMB7 115 60384 FENTON 7 115 1
		109.8	131.7	109.8	131.7		109.8	131.7		60362 CHANRMB7 115 62712 ELLSBOR7 115 1
		109.8	131.7	109.8	131.7		109.8	131.7		66504 BROOKNG7 115 66531 WATERTN7 115 1 SW898
		109.7	131.69	109.7	131.69		109.7	131.69		66529 WATERTN3 345 66537 WHITE 3 345 1
60279 BUFFRID7 115 60617 BRI WND234.5 2	120	109.5	131.39	109.5	131.39		109.5	131.39		SYSTEM INTACT
		110.4	132.43	110.4	132.43		110.4	132.43		60119 LKYNKTN7 115 60171 LYON CO7 115 1 SW935
		111.8	134.16	111.8	134.16		111.8	134.16		60119 LKYNKTN7 115 60279 BUFFRID7 115 1
		109.7	131.66	109.7	131.66		109.7	131.66		60119 LKYNKTN7 115 62712 ELLSBOR7 115 1
		110.1	132.14	110.1	132.14		110.1	132.14		60123 PIPESTN7 115 60279 BUFFRID7 115 1
		109.8	131.76	109.8	131.76		109.8	131.76		60123 PIPESTN7 115 60362 CHANRMB7 115 1
		222.5	266.97	222.5	266.97		222.5	266.97		60279 BUFFRID7 115 60616 BRI WND134.5 1
		110.5	132.57	110.5	132.57		110.5	132.57		60362 CHANRMB7 115 60384 FENTON 7 115 1
		109.7	131.66	109.7	131.66		109.7	131.66		60362 CHANRMB7 115 62712 ELLSBOR7 115 1
		109.7	131.67	109.7	131.67		109.7	131.67		66504 BROOKNG7 115 66531 WATERTN7 115 1 SW898
		109.7	131.65	109.7	131.65		109.7	131.65		66529 WATERTN3 345 66537 WHITE 3 345 1
60288 IRONWD 7 115 60289 HURLEY 7 115 1	60	85.7	51.44	85.7	51.44		85.7	51.43		SYSTEM INTACT
		96.5	57.88							60282 REDCDR 5 161 60319 WHEATTP5 161 1 SW866
		96.2	57.7							60282 REDCDR 5 161 60319 WHEATTP5 161 1 SW870
		98.5	59.13							60285 EAGLEPT7 115 60321 HYDROLN7 115 1 SW865
		96.6	57.95							60296 SHELDNP7 115 60297 OSPREY 7 115 1
		98.9	59.32							60296 SHELDNP7 115 60306 HOLCOMB7 115 1

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line				
CIRCUIT FROM: CIRCUIT TO: CKT # NAME # NAME	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
		100.8	60.49	100.8	60.49		100.8	60.48		60306 HOLCOMB7 115 60322 CORNELL7 115 1	
		100.8	60.5	100.8	60.5		100.8	60.49		60306 HOLCOMB7 115 60322 CORNELL7 115 1	SW872
		96.2	57.71							60319 WHEATTP5 161 60320 HYDROLN5 161 1	
		96.2	57.7							60320 HYDROLN5 161 60321 HYDROLN7 115 1	
		98.4	59.07							60321 HYDROLN7 115 60326 JIMFLS 7 115 1	
60290 ST LAKE5 161 60663 STONELK869.0 2	70	62	43.38							SYSTEM INTACT	
		98.4	68.88							60290 ST LAKE5 161 60293 FRMSINN5 161 1	
60293 FRMSINN5 161 60664 FRMRSIN869.0 1	50	61.9	30.94	61.9	30.94		61.9	30.94		SYSTEM INTACT	
		116.9	58.43	116.9	58.43		116.9	58.43		60290 ST LAKE5 161 60663 STONELK869.0 2	
60298 PARKFLS7 115 61101 PARKFLS934.5 1	28	60	16.8	60	16.8		60	16.8		SYSTEM INTACT	
		122.2	34.21	122.2	34.21		122.2	34.21		60298 PARKFLS7 115 61101 PARKFLS934.5 2	
60298 PARKFLS7 115 61101 PARKFLS934.5 2	28	60	16.8	60	16.8		60	16.8		SYSTEM INTACT	
		122.2	34.21	122.2	34.21		122.2	34.21		60298 PARKFLS7 115 61101 PARKFLS934.5 1	
60302 COULEE 5 161 60967 COULEE 869.0 1	70	62.5	43.77	62.5	43.77		62.5	43.77		SYSTEM INTACT	
		108	75.63	108	75.63		108	75.63		60302 COULEE 5 161 60308 LACROSS5 161 1	SW874
		114.4	80.1	114.4	80.1		114.4	80.1		60302 COULEE 5 161 60967 COULEE 869.0 2	
60302 COULEE 5 161 60967 COULEE 869.0 2	112	68	76.12	68	76.12		68	76.12		SYSTEM INTACT	
		117.4	131.54	117.4	131.53		117.4	131.54		60302 COULEE 5 161 60308 LACROSS5 161 1	SW874
60305 EAU CLA5 161 61001 EAUCLAI869.0 1	112	76.9	86.16	76.9	86.16		76.9	86.16		SYSTEM INTACT	
		95.8	107.27							60282 REDCDR 5 161 60319 WHEATTP5 161 1	SW866
		116.4	130.41	116.4	130.41		116.4	130.41		60305 EAU CLA5 161 61001 EAUCLAI869.0 2	
		103.5	115.89	103.5	115.89		103.5	115.89		60323 SEVN ML5 161 61071 SEVN ML869.0 1	
60305 EAU CLA5 161 61001 EAUCLAI869.0 2	112	84.3	94.41	84.3	94.41		84.3	94.41		SYSTEM INTACT	
		105	117.54	105	117.54		104.9	117.54		60282 REDCDR 5 161 60319 WHEATTP5 161 1	SW866
		99.9	111.85							60282 REDCDR 5 161 60319 WHEATTP5 161 1	SW870
		96.2	107.75							60305 EAU CLA5 161 60323 SEVN ML5 161 1	
		97.8	109.58							60305 EAU CLA5 161 60368 JEFRSRD5 161 1	
		122.1	136.76	122.1	136.76		122.1	136.76		60305 EAU CLA5 161 61001 EAUCLAI869.0 1	
		95.3	106.75							60318 WHT 56 5 161 60319 WHEATTP5 161 1	
		95.3	106.76							60318 WHT 56 5 161 60319 WHEATTP5 161 1	SW871
		98.6	110.41							60319 WHEATTP5 161 60320 HYDROLN5 161 1	
		98.6	110.39							60320 HYDROLN5 161 60321 HYDROLN7 115 1	
		113.4	126.99	113.4	126.99		113.4	126.99		60323 SEVN ML5 161 61071 SEVN ML869.0 1	
60305 EAU CLA5 161 61200 PRESTOT5 161 1	272	54.9	149.42							SYSTEM INTACT	
		95.3	259.32							60186 AS KING3 345 60304 EAU CL 3 345 1	SW400
60307 JACKSON5 161 60966 JACKCO 869.0 1	47	84.6	39.77	84.6	39.77		84.6	39.77		SYSTEM INTACT	
		99.1	46.58							60308 LACROSS5 161 60310 MONROCO5 161 1	
		99.1	46.58							60310 MONROCO5 161 60949 MONROCO869.0 1	
		103.4	48.61	103.4	48.62		103.4	48.61		60316 TREMVAL5 161 60979 TREMVAL869.0 1	
60308 LACROSS5 161 60973 LAX 869.0 1	70	70.4	49.29							SYSTEM INTACT	
		97.9	68.52							60308 LACROSS5 161 60973 LAX 869.0 2	
60308 LACROSS5 161 60973 LAX 869.0 2	70	70.7	49.52							SYSTEM INTACT	
		98.2	68.71							60308 LACROSS5 161 60973 LAX 869.0 1	
60310 MONROCO5 161 60949 MONROCO869.0 1	70	106.5	74.54	106.5	74.54		106.5	74.54		SYSTEM INTACT	
		108.1	75.66	108.1	75.66		108.1	75.66		34021 LANSINGW 161 34022 LANSING5 161 1	
		110.1	77.06	110.1	77.06		110.1	77.06		60186 AS KING3 345 60221 KOLMNLK3 345 1	SW914
		109.2	76.41	109.2	76.41		109.2	76.41		60186 AS KING3 345 60236 REDROCK3 345 1	SW916
		110.4	77.25	110.4	77.25		110.4	77.25		60186 AS KING3 345 60304 EAU CL 3 345 1	SW861
		110.7	77.48	110.7	77.48		110.7	77.48		60302 COULEE 5 161 60967 COULEE 869.0 2	

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line				
CIRCUIT FROM: CIRCUIT TO: CKT # NAME # NAME	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
		117.6	82.29	117.6	82.29		117.6	82.29		60307 JACKSON5 161 60316 TREMVAL5 161 1	
		117.6	82.29	117.6	82.29		117.6	82.29		60307 JACKSON5 161 60966 JACKCO 869.0 1	
		110.1	77.06	110.1	77.06		110.1	77.06		60308 LACROSS5 161 60311 MAYFAIR5 161 1	
		112.6	78.85	112.6	78.85		112.6	78.84		60308 LACROSS5 161 60973 LAX 869.0 1	
		112.7	78.87	112.7	78.87		112.7	78.87		60308 LACROSS5 161 60973 LAX 869.0 2	
60312 PINE LK5 161 60313 PINE LK7 115 3	112	41.9	46.97	41.9	46.97		41.9	46.97		SYSTEM INTACT	
		125.9	141.05	125.9	141.05		125.9	141.05		60187 AS KING7 115 60325 WILOWRV7 115 1	
60315 T-CRNRS7 115 60666 T CORNE869.0 1	62.5	47.4	29.64	47.4	29.64		47.4	29.64		SYSTEM INTACT	
		109.5	68.45	109.5	68.45		109.5	68.45		60315 T-CRNRS7 115 60666 T CORNE869.0 2	
60317 WHT 14 5 161 61200 PRESTOT5 161 1	272	55.8	151.67							SYSTEM INTACT	
		96.6	262.65							60186 AS KING3 345 60304 EAU CL 3 345 1	SW400
60323 SEVN ML5 161 61071 SEVN ML869.0 1	112	80.8	90.54	80.8	90.54		80.8	90.54		SYSTEM INTACT	
		100	111.95							60305 EAU CLA5 161 61001 EAUCLAI869.0 1	
		102.8	115.18	102.8	115.18		102.8	115.18		60305 EAU CLA5 161 61001 EAUCLAI869.0 2	
60357 MAYNARD7 115 62005 KERKHOT7 115 1	78	50.4	39.34	50.4	39.33		50.4	39.34		SYSTEM INTACT	
		98.5	76.8							62427 WILLMAR869.0 63050 WILLMAR4 230 1	SW928
		118.9	92.76	118.9	92.76		118.9	92.77		63050 WILLMAR4 230 66550 GRANITF4 230 1	
60362 CHANRMB7 115 60614 CHB WND134.5 1	120	149.5	179.37	149.5	179.37		149.5	179.37		SYSTEM INTACT	
		150.6	180.78	150.6	180.78		150.6	180.78		60119 LKYNKTN7 115 60171 LYON CO7 115 1	SW935
		150.8	181.01	150.8	181.01		150.8	181.01		60119 LKYNKTN7 115 60279 BUFFRID7 115 1	
		149.9	179.87	149.9	179.87		149.9	179.87		60123 PIPESTN7 115 60125 PATHFDR7 115 1	
		149.8	179.81	149.8	179.81		149.8	179.81		60125 PATHFDR7 115 60129 SPLT RK7 115 1	
		149.8	179.74	149.8	179.74		149.8	179.74		60126 SPLT RK3 345 60130 SPLTRTA3 345 1	
		149.8	179.79	149.8	179.79		149.8	179.79		60126 SPLT RK3 345 60130 SPLTRTA3 345 1	SW755
		149.8	179.78	149.8	179.78		149.8	179.78		60130 SPLTRTA3 345 66537 WHITE 3 345 1	
		149.7	179.62	149.7	179.62		149.7	179.62		60170 MARSHAL7 115 60171 LYON CO7 115 1	
		300.9	361.05	300.9	361.05		300.9	361.05		60362 CHANRMB7 115 60615 CHB WND234.5 2	
		149.7	179.59	149.7	179.59		149.7	179.59		60362 CHANRMB7 115 62712 ELLSBOR7 115 1	
60362 CHANRMB7 115 60615 CHB WND234.5 2	120	149.5	179.37	149.5	179.37		149.5	179.37		SYSTEM INTACT	
		150.6	180.78	150.6	180.78		150.6	180.78		60119 LKYNKTN7 115 60171 LYON CO7 115 1	SW935
		150.8	181.01	150.8	181.01		150.8	181.01		60119 LKYNKTN7 115 60279 BUFFRID7 115 1	
		149.9	179.87	149.9	179.87		149.9	179.87		60123 PIPESTN7 115 60125 PATHFDR7 115 1	
		149.8	179.81	149.8	179.81		149.8	179.81		60125 PATHFDR7 115 60129 SPLT RK7 115 1	
		149.8	179.74	149.8	179.74		149.8	179.74		60126 SPLT RK3 345 60130 SPLTRTA3 345 1	
		149.8	179.79	149.8	179.79		149.8	179.79		60126 SPLT RK3 345 60130 SPLTRTA3 345 1	SW755
		149.8	179.78	149.8	179.78		149.8	179.78		60130 SPLTRTA3 345 66537 WHITE 3 345 1	
		149.7	179.62	149.7	179.62		149.7	179.62		60170 MARSHAL7 115 60171 LYON CO7 115 1	
		300.9	361.05	300.9	361.05		300.9	361.05		60362 CHANRMB7 115 60614 CHB WND134.5 1	
		149.7	179.59	149.7	179.59		149.7	179.59		60362 CHANRMB7 115 62712 ELLSBOR7 115 1	
60369 FEPTP 7 115 62234 LKMARN 7 115 1	310	83.2	257.83	83.2	257.82		83.2	257.83		SYSTEM INTACT	
		97.9	303.6							60101 FORBES 2 500 60198 CHIS-N 2 500 1	SW500
		112.8	349.54	112.8	349.54		112.8	349.54		60107 W FARIB7 115 62865 AIRTECH7 115 1	
		105.8	327.89	105.8	327.88		105.8	327.9		60108 WILMART3 345 60192 BLUE LK3 345 1	
		106.5	330.05	106.5	330.04		106.5	330.05		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
		106.1	328.84	106.1	328.83		106.1	328.84		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
		98.7	306.12							60108 WILMART3 345 60365 FIELD_S3 345 1	
		97.9	303.6							60197 CHIS CO2 500 60198 CHIS-N 2 500 1	SW500
		98.8	306.19							60331 LKFLDXL3 345 60364 FIELD_N3 345 1	
		98.7	306.09							60364 FIELD_N3 345 60365 FIELD_S3 345 1	

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line				
CIRCUIT FROM: CIRCUIT TO: CKT # NAME # NAME	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
		113.4	351.41	113.4	351.41		113.4	351.41		60369 FEPTP 7 115 62865 AIRTECH7 115 1	
60369 FEPTP 7 115 62865 AIRTECH7 115 1	310	75.7	234.57	75.7	234.57		75.7	234.57		SYSTEM INTACT	
		99.2	307.41							60108 WILMART3 345 60365 FIELD_S3 345 1	
		99.2	307.57							60331 LKFLDXL3 345 60364 FIELD_N3 345 1	
		99.2	307.44							60364 FIELD_N3 345 60365 FIELD_S3 345 1	
		110.1	341.18	110.1	341.17		110.1	341.17		60369 FEPTP 7 115 62234 LKMARN 7 115 1	
60372 SARATOG7 115 67473 MMU SW 7 115 1	127.9	19.4	24.79							SYSTEM INTACT	
		95.7	122.34							60170 MARSHAL7 115 60375 MMU_N7ST 115 1	
60382 BRKNGCO7 115 60383 BRKNGCO3 345 1	448	92.7	415.42	92.7	415.43		92.7	415.42		SYSTEM INTACT	
		97.9	438.37							60119 LKYNKTN7 115 60171 LYON CO7 115 1	
		112.7	505.04	112.7	505.05		112.7	505.04		60119 LKYNKTN7 115 60171 LYON CO7 115 1	SW935
		116.8	523.3	116.8	523.31		116.8	523.3		60119 LKYNKTN7 115 60279 BUFFRID7 115 1	
		103.3	462.6	103.3	462.61		103.3	462.59		60123 PIPESTN7 115 60125 PATHFDR7 115 1	
		106	474.97	106	474.98		106	474.96		60123 PIPESTN7 115 60279 BUFFRID7 115 1	
		103.2	462.49	103.2	462.49		103.2	462.48		60125 PATHFDR7 115 60129 SPLT RK7 115 1	
		97.1	435.04							60148 MINVALY7 115 60171 LYON CO7 115 1	
		98.5	441.26							60170 MARSHAL7 115 60171 LYON CO7 115 1	
		110	492.8	110	492.8		110	492.8		60279 BUFFRID7 115 60381 YANKEE 7 115 1	
		109.7	491.47	109.7	491.48		109.7	491.46		60362 CHANRMB7 115 60384 FENTON 7 115 1	
62003 JOHNJCT7 115 63216 ORTONVL7 115 1	96.6	70.4	68	70.4	67.99		70.4	68		SYSTEM INTACT	
		100.5	97.04	100.4	97.03		100.5	97.05		63129 WAHPETN941.6 63201 WAHPET2Y 230 1	SW960
		96.5	93.24							63314 BIGSTON4 230 63325 BROWNSV4 230 1	
		96.1	92.8							63314 BIGSTON4 230 63325 BROWNSV4 230 1	SW937
		99.4	96.02							63327 HANKSON4 230 63329 WAHPETN4 230 1	
62147 BNKRLK 869.0 63046 BUNKER 4 230 1	112	76.9	86.17							SYSTEM INTACT	
		97.7	109.43							60203 COON CK7 115 62090 PRKWOOD7 115 1	SW970
62232 DKTAHGT7 115 62237 KENRICK7 115 1	144	66.8	96.24	66.8	96.24		66.8	96.24		SYSTEM INTACT	
		108.4	156.13	108.4	156.13		108.4	156.13		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	
62234 LKMARN 7 115 62237 KENRICK7 115 1	144	71.3	102.66	71.3	102.66		71.3	102.66		SYSTEM INTACT	
		113	162.76	113	162.75		113	162.76		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	
62234 LKMARN 7 115 62259 LKMARN 869.0 1	70	81.6	57.09	81.6	57.09		81.6	57.09		SYSTEM INTACT	
		105.8	74.04	105.8	74.04		105.8	74.04		60107 W FARIB7 115 62865 AIRTECH7 115 1	
		101.9	71.35	101.9	71.35		101.9	71.35		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	
		106.3	74.43	106.3	74.43		106.3	74.43		60369 FEPTP 7 115 62865 AIRTECH7 115 1	
		98.2	68.77							62232 DKTAHGT7 115 62237 KENRICK7 115 1	
		100	69.98							62234 LKMARN 7 115 62237 KENRICK7 115 1	
62387 SPRNGCK869.0 63071 SPRNGCK5 161 1	70	71.7	50.18	71.7	50.18		71.7	50.18		SYSTEM INTACT	
		107.7	75.37	107.7	75.38		107.7	75.37		62387 SPRNGCK869.0 63071 SPRNGCK5 161 2	
62387 SPRNGCK869.0 63071 SPRNGCK5 161 2	70	65.2	45.64	65.2	45.64		65.2	45.64		SYSTEM INTACT	
		103.1	72.17	103.1	72.17		103.1	72.17		62387 SPRNGCK869.0 63071 SPRNGCK5 161 1	
62425 WILLMAR7 115 62427 WILLMAR869.0 1	92.4	33.4	30.82	33.4	30.83		33.4	30.82		SYSTEM INTACT	
		106.6	98.46	106.6	98.47		106.6	98.46		63050 WILLMAR4 230 66550 GRANITF4 230 1	
62666 GLNDALE7 115 62672 GLNDALE869.0 1	46.7	68.5	32.01	68.5	32.01		68.5	32.01		SYSTEM INTACT	
		102.1	47.69	102.1	47.69		102.1	47.69		62666 GLNDALE7 115 62672 GLNDALE869.0 2	
62666 GLNDALE7 115 62672 GLNDALE869.0 2	46.7	68.5	32.01	68.5	32.01		68.5	32.01		SYSTEM INTACT	
		99.8	46.6							60194 CARVRCO7 115 60243 SCOTTAP7 115 1	SW991
		102.1	47.69	102.1	47.69		102.1	47.69		62666 GLNDALE7 115 62672 GLNDALE869.0 1	
62667 ST BONI7 115 63021 ST BONI869.0 1	70	28.9	20.24	28.9	20.24		28.9	20.24		SYSTEM INTACT	
		109.9	76.95	109.9	76.95		109.9	76.95		60211 GLESNLK7 115 60887 GLESNLK869.0 1	

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line			
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
62925 DICKNSN7 115	63085 DICKNSNY1.00	1	448	71.3	319.29							SYSTEM INTACT	
				96	430.22							60114 ELM CRK3 345 60233 PARKERS3 345 1	SW827
63000 COAL 41G22.0	63041 COAL CR4 230	1	566	100	565.82	100	565.82		100	565.83		SYSTEM INTACT	
				100.1	566.64	100.1	566.64		100.1	566.66		60138 SOURIS 7 115 60139 MALLARD7 115 1	
				100	566.16	100	566.16		100	566.18		60139 MALLARD7 115 67155 LOGAN 7 115 1	
				100	566.21	100	566.21		100	566.22		63041 COAL CR4 230 63049 STANTON4 230 1	
				100.1	566.72	100.1	566.72		100.1	566.73		63042 COAL TP4 230 63049 STANTON4 230 1	
				100.1	566.47	100.1	566.47		100.1	566.49		63044 MCHENRY4 230 63056 BALTA 4 230 1	
				100	566.26	100	566.26		100	566.28		66751 CENTER 4 230 67342 HESKETT4 230 1	
				100	566.21	100	566.21		100	566.22		66752 DRAYTON4 230 66755 PRAIRIE4 230 1	SW502
				100.1	566.3	100.1	566.3		100.1	566.32		67106 LELANDO4 230 67108 LOGAN 4 230 1	
				100	566.15	100	566.15		100	566.16		67108 LOGAN 4 230 67208 LOGAN TY 230 1	
				100	566.15	100	566.15		100	566.16		67155 LOGAN 7 115 67208 LOGAN TY 230 1	
63030 DICKNSN3 345	63085 DICKNSNY1.00	1	448	71.3	319.29							SYSTEM INTACT	
				96	430.22							60114 ELM CRK3 345 60233 PARKERS3 345 1	SW827
63044 MCHENRY4 230	63082 MCHENRYY1.00	1	84	83.7	70.31	83.7	70.29		84	70.58		SYSTEM INTACT	
				124.9	104.93	124.9	104.91		125.4	105.35	**0.42**	60138 SOURIS 7 115 60139 MALLARD7 115 1	
				96.2	80.82							60139 MALLARD7 115 67155 LOGAN 7 115 1	
				97.5	81.89							63044 MCHENRY4 230 63056 BALTA 4 230 1	
				95.5	80.24							63047 RAMSEY 4 230 63056 BALTA 4 230 1	
				95.8	80.44							63185 RUGBY Y 230 63379 RUGBY 4 230 1	
				105.2	88.38	105.2	88.37		105.8	88.83	**0.45**	66442 GARRISN7 115 67113 VOLTAIR7 115 1	
				109	91.53	108.8	91.43		109.5	91.96	**0.43**	67106 LELANDO4 230 67108 LOGAN 4 230 1	
				97.2	81.68							67108 LOGAN 4 230 67208 LOGAN TY 230 1	
				97.2	81.68							67155 LOGAN 7 115 67208 LOGAN TY 230 1	
63047 RAMSEY 4 230	63084 RAMSEY Y1.00	1	84	54.1	45.48							SYSTEM INTACT	
				98.2	82.52							63047 RAMSEY 4 230 66755 PRAIRIE4 230 1	
63084 RAMSEY Y1.00	63266 RAMSEY 7 115	1	84	54.1	45.48							SYSTEM INTACT	
				98.2	82.52							63047 RAMSEY 4 230 66755 PRAIRIE4 230 1	
63189 MAPLER1Y 345	66792 MAPLE R3 345	1	336	49.5	166.42							SYSTEM INTACT	
				95.2	319.82							63190 MAPLER2Y 345 66754 MAPLE R4 230 1	SW8
				95.2	319.82							63190 MAPLER2Y 345 66792 MAPLE R3 345 1	SW8
63190 MAPLER2Y 345	66792 MAPLE R3 345	1	336	49.5	166.42							SYSTEM INTACT	
				95.2	319.82							63189 MAPLER1Y 345 66754 MAPLE R4 230 1	SW7
				95.2	319.82							63189 MAPLER1Y 345 66792 MAPLE R3 345 1	SW7
63192 HENSEL Y 115	66796 HENSELU869.0	1	40	91.2	36.46	91.2	36.46		91.2	36.46		SYSTEM INTACT	
				112.3	44.92	112.3	44.92		112.3	44.94		63257 HENSEL 7 115 66705 DRAYTON7 115 1	
63240 MN PIPE7 115	63340 MN PIPE94.20	1	11	94.4	10.39							SYSTEM INTACT	
				95.5	10.51							63187 WINGER Y 230 63238 WINGER 7 115 1	
				95.5	10.51							63187 WINGER Y 230 66758 WINGER 4 230 1	
				95.6	10.52							63238 WINGER 7 115 63239 BAGLEY 7 115 1	
				96.5	10.61							63239 BAGLEY 7 115 63243 SHEVLIN7 115 1	
				97.9	10.77							63243 SHEVLIN7 115 63285 SOLWAY 7 115 1	
63327 HANKSON4 230	63329 WAHPETN4 230	1	320	78.3	250.41	78.2	250.38		78.2	250.38		SYSTEM INTACT	
				97.2	311.09							63198 BUFFALOY 345 63258 BUFFALO7 115 1	SW886
				97.8	312.95							63358 BUFFALO3 345 63369 JAMESTN3 345 1	
				97.1	310.78							63358 BUFFALO3 345 66792 MAPLE R3 345 1	
				100.9	322.74	100.9	322.75		100.9	322.8		63369 JAMESTN3 345 66791 CENTER 3 345 1	
65708 WLINC 7 115	65812 WLINC A934.5	2	42	55	23.09	55	23.09		55	23.09		SYSTEM INTACT	

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line				
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
				101.2	42.51	101.2	42.51		101.2	42.51		65708 WLINC 7 115 65812 WLINC A934.5 3	
66203 FARGO 869.0	66436 FARGO 7 115	1	42	28.2	11.82	28.2	11.82		28.2	11.82		SYSTEM INTACT	
				122.1	51.27	122.1	51.27		122.1	51.27		66203 FARGO 869.0 66436 FARGO 7 115 2	
66203 FARGO 869.0	66436 FARGO 7 115	2	100	57.5	57.51	57.5	57.5		57.5	57.51		SYSTEM INTACT	
				110.8	110.8	110.8	110.8		110.8	110.8		60136 MAPLE R7 115 66783 MAPLE RT 115 1	
				110.8	110.8	110.8	110.8		110.8	110.8		66783 MAPLE RT 115 67000 MAPLE R869.0 1	
66303 SIOUXC1T 345	66564 SIOUXCY3 345	1	250	68.9	172.14	68.9	172.14		68.9	172.15		SYSTEM INTACT	
				108.6	271.45	108.6	271.44		108.6	271.46		66306 SIOUXC2T 345 66564 SIOUXCY3 345 1	
				108.6	271.45	108.6	271.44		108.6	271.46		66306 SIOUXC2T 345 66565 SIOUXCY4 230 1	
66303 SIOUXC1T 345	66565 SIOUXCY4 230	1	250	68.9	172.14	68.9	172.14		68.9	172.15		SYSTEM INTACT	
				108.6	271.45	108.6	271.44		108.6	271.46		66306 SIOUXC2T 345 66564 SIOUXCY3 345 1	
				108.6	271.45	108.6	271.44		108.6	271.46		66306 SIOUXC2T 345 66565 SIOUXCY4 230 1	
66306 SIOUXC2T 345	66564 SIOUXCY3 345	1	250	67.8	169.4	67.8	169.4		67.8	169.41		SYSTEM INTACT	
				107.9	269.67	107.9	269.67		107.9	269.69		66303 SIOUXC1T 345 66564 SIOUXCY3 345 1	
				107.9	269.67	107.9	269.67		107.9	269.69		66303 SIOUXC1T 345 66565 SIOUXCY4 230 1	
66306 SIOUXC2T 345	66565 SIOUXCY4 230	1	250	67.8	169.4	67.8	169.4		67.8	169.41		SYSTEM INTACT	
				107.9	269.67	107.9	269.67		107.9	269.69		66303 SIOUXC1T 345 66564 SIOUXCY3 345 1	
				107.9	269.67	107.9	269.67		107.9	269.69		66303 SIOUXC1T 345 66565 SIOUXCY4 230 1	
66401 CIRCLE 7 115	66404 DAWSONC7 115	1	40	25.7	10.29	25.7	10.29		25.5	10.21		SYSTEM INTACT	
				133	53.22	133.1	53.23		132.8	53.12		66403 DAWSONC4 230 66405 FTPECK 4 230 1	
66401 CIRCLE 7 115	66409 WOLFPT 7 115	1	40	47	18.79	47	18.8		47	18.8		SYSTEM INTACT	
				153.7	61.49	153.8	61.51		153.7	61.48		66403 DAWSONC4 230 66405 FTPECK 4 230 1	
66403 DAWSONC4 230	66411 MI CTYE4 230	1	200	89.7	179.38	89.7	179.48		89.9	179.89		SYSTEM INTACT	
				105.9	211.76	105.9	211.84		106.2	212.42	0.66	66210 DAWSONCT 230 66403 DAWSONC4 230 1	
				105.9	211.76	105.9	211.84		106.2	212.42	0.66	66210 DAWSONCT 230 66404 DAWSONC7 115 1	
				101.1	202.26	101.2	202.37		101.4	202.83	0.57	66216 MICTYE1T 230 66411 MI CTYE4 230 1	
				101.1	202.26	101.2	202.37		101.4	202.83	0.57	66216 MICTYE1T 230 66412 MI CTYE7 115 1	
				104.3	208.55	104.3	208.67		103.4	206.74		66404 DAWSONC7 115 66407 FALLON 7 115 1	
				107.8	215.5	107.8	215.62		108.1	216.28	0.78	66404 DAWSONC7 115 67332 GLENDCT7 115 1	
				100.6	201.11	100.6	201.23		100.8	201.69	0.58	66407 FALLON 7 115 66412 MI CTYE7 115 1	
				102.7	205.47	102.9	205.86	0.39	103.1	206.26	0.79	66470 BISON 4 230 66497 MAURINE4 230 1	
				101.6	203.26	101.6	203.24		102	204	0.74	66470 BISON 4 230 67347 HETINGR4 230 1	
				101.9	203.85	102	203.98		102.1	204.13	0.28	67305 BAKER 7 115 67332 GLENDCT7 115 1	
66404 DAWSONC7 115	67356 LEWIS 7 115	1	80	44	35.21	44.2	35.34		44.2	35.33		SYSTEM INTACT	
				120.5	96.42	120.7	96.56		121.2	96.96	0.54	66403 DAWSONC4 230 66413 MEDORA 4 230 1	
				130.6	104.51	130.8	104.66		131.8	105.43	0.92	66413 MEDORA 4 230 66425 BELFELD4 230 1	
66405 FTPECK 4 230	66406 FTPECK 7 115	1	67	5.4	3.64	5.4	3.62		5.6	3.72		SYSTEM INTACT	
				128.2	85.87	128.2	85.87		128.2	85.87		66403 DAWSONC4 230 66405 FTPECK 4 230 1	
66408 WATFORD7 115	67182 CHAR.CK7 115	1	80	84.4	67.55	84.8	67.85		85.3	68.23		SYSTEM INTACT	
				108.5	86.79	109	87.17	0.38	109.6	87.65	0.86	66220 BELFELDT 345 66424 BELFELD3 345 1	
				108.5	86.8	109	87.18	0.38	109.6	87.66	0.86	66220 BELFELDT 345 66425 BELFELD4 230 1	
				123.9	99.12	124.3	99.42	0.3	125.1	100.08	0.96	66403 DAWSONC4 230 66413 MEDORA 4 230 1	
				129.1	103.29	129.5	103.59	0.3	130.5	104.41	1.12	66413 MEDORA 4 230 66425 BELFELD4 230 1	
				108.8	87.04	109.3	87.41	0.37	109.9	87.89	0.85	66424 BELFELD3 345 67183 CHAR.CK3 345 1	
				106	84.76	106.2	84.99	0.23	106.9	85.53	0.77	67104 TIOGA4 4 230 67108 LOGAN 4 230 1	
				106.2	84.95	106.5	85.17		107.2	85.72	0.77	67104 TIOGA4 4 230 67385 TIOGA4 7 115 1	
				104.3	83.43	104.7	83.8	0.37	105.4	84.32	0.89	67181 BICNTNL7 115 67184 R.RIDER7 115 1	
				104.3	83.47	104.8	83.84	0.37	105.5	84.36	0.89	67182 CHAR.CK7 115 67184 R.RIDER7 115 1	
				115.9	92.71	116.1	92.85		116.8	93.48	0.77	67385 TIOGA4 7 115 67386 TIOGA7 7 115 1	

Output File:		kc0-sp08-line		kcg-sp08-line			kcl-sp08-line				
CIRCUIT FROM: CIRCUIT TO: CKT # NAME # NAME	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	**Diff MVA**	OVRLD %	CURRENT MVA	**Diff MVA**	CONTINGENCY FROM TO CKT	SWITCH
66417 DICKNSN4 230 66418 DKSN-ND7 115 1	100	69.2	69.22	69.2	69.24		69.6	69.56		SYSTEM INTACT	
		110.9	110.93	111	110.96		111.5	111.55	**0.62**	66403 DAWSONC4 230 66413 MEDORA 4 230 1	
		115.4	115.41	115.4	115.44		116.2	116.19	**0.78**	66413 MEDORA 4 230 66425 BELFELD4 230 1	
		107.7	107.74	107.8	107.8		108.3	108.31	**0.57**	66418 DKSN-ND7 115 67320 DICKSWH7 115 1	
		113	112.95	113	113.01		113.5	113.52	**0.57**	67318 COYOTE 7 115 67320 DICKSWH7 115 1	
66421 WILISTN7 115 67386 TIOGA7 7 115 1	79.7	40.1	31.91							SYSTEM INTACT	
		100	79.69							67101 ANTELOP3 345 67183 CHAR.CK3 345 1	
66426 BISMARK4 230 66427 BISMARK7 115 1	100	68.4	68.42	68.3	68.29		68.6	68.6		SYSTEM INTACT	
		109.8	109.8	109.6	109.59		110.1	110.09	**0.29**	66426 BISMARK4 230 66427 BISMARK7 115 2	
66426 BISMARK4 230 66427 BISMARK7 115 2	100	60.6	60.58	60.5	60.46		60.7	60.74		SYSTEM INTACT	
		105.5	105.47	105.3	105.27		105.8	105.76	**0.29**	66426 BISMARK4 230 66427 BISMARK7 115 1	
66451 RICHLND7 115 67356 LEWIS 7 115 1	79.7	23.2	18.48	23.3	18.57		23.6	18.79		SYSTEM INTACT	
		100.8	80.31	101	80.46		101.8	81.13	**0.82**	66403 DAWSONC4 230 66413 MEDORA 4 230 1	
		111.6	88.91	111.8	89.04		112.8	89.84	**0.93**	66413 MEDORA 4 230 66425 BELFELD4 230 1	
66486 PHILIP 4 230 66487 PHILIP 7 115 1	100	41.6	41.64							SYSTEM INTACT	
		97.4	97.37							66484 NUNDRWD4 230 66488 PHILTAP4 230 1	
66488 PHILTAP4 230 66519 OAHE 4 230 1	240	67.9	163.02	67.9	162.89					SYSTEM INTACT	
		114.6	275.09	114.5	274.91					66573 STEGALL4 230 67206 STGXFMR4 230 1	SW4
		114.6	275.09	114.5	274.91					67135 STEGALL3 345 67207 STEGALTY 345 1	SW4
		114.6	275.09	114.5	274.91					67206 STGXFMR4 230 67207 STEGALTY 345 1	SW4
66502 BERSFRD7 115 66517 MANNING7 115 1	80	37.5	30.03	37.5	30.03		37.5	30.03		SYSTEM INTACT	
		107.1	85.68	107.1	85.68		107.1	85.68		66511 GAVINS 7 115 66532 YANKTON7 115 1	
		107.1	85.68	107.1	85.68		107.1	85.68		66532 YANKTON7 115 67121 SPIRITM7 115 1	
66519 OAHE 4 230 66520 OAHE 7 115 1	107	43.4	46.4	43.3	46.35		43.4	46.48		SYSTEM INTACT	
		100.5	107.56	100.4	107.45		100.7	107.74		66488 PHILTAP4 230 66519 OAHE 4 230 1	
67104 TIOGA4 4 230 67385 TIOGA4 7 115 1	100	70	69.98	69.7	69.68		70.3	70.32		SYSTEM INTACT	
		95.6	95.61							66413 MEDORA 4 230 66425 BELFELD4 230 1	
		106.8	106.77	105.9	105.89		106.7	106.71		67101 ANTELOP3 345 67183 CHAR.CK3 345 1	
67307 BISM NW7 115 67343 HESKETT7 115 1	119.5	45.4	54.29							SYSTEM INTACT	
		99.7	119.15							66427 BISMARK7 115 67329 ESTBMRK7 115 1	
67318 COYOTE 7 115 67320 DICKSWH7 115 1	101.4	52.5	53.28							SYSTEM INTACT	
		95.7	97.09							66417 DICKNSN4 230 66418 DKSN-ND7 115 1	
67335 GLENHAM7 115 67338 GLENHAM4 230 1	25	38.2	9.55	38.2	9.55		38.2	9.55		SYSTEM INTACT	
		102.4	25.6	102.4	25.6		102.4	25.61		67335 GLENHAM7 115 67338 GLENHAM4 230 2	
67342 HESKETT4 230 67343 HESKETT7 115 1	100	39.1	39.05	39	38.99		39.1	39.11		SYSTEM INTACT	
		132.6	132.58	132.3	132.32		132.4	132.39		66427 BISMARK7 115 67329 ESTBMRK7 115 1	
67385 TIOGA4 7 115 67386 TIOGA7 7 115 1	101.4	56.6	57.41	56.2	57.04		56.7	57.54		SYSTEM INTACT	
		103.7	105.17	102.6	104.06		103.4	104.83		67101 ANTELOP3 345 67183 CHAR.CK3 345 1	
		175.8	175.76	175.8	175.76		175.7	175.75		67396 G132 POI 230 67397 G132 CLC34.5 1	

Date:	05/16/2008 13:45		
Date of Run:	FEB 12 2008	FEB 17 2008	FEB 18 2008
Size of Plant		7.5	7.5
Differential Impact Threshold		0.225	0.225
Line Overload: System Intact	95.0%	100.0%	100.0%
Contingency	95.0%	100.0%	100.0%
Transformer Overload: System Intact	95.0%	100.0%	100.0%
Contingency	95.0%	100.0%	100.0%
Number of Violations Monitored:	10	10	10
Output File:	kc0-sp16-line	kcg-sp16-line	kcl-sp16-line

CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM	TO	CKT	SWITCH
34016 EMERY	5 161 34912 EMERYST118.0	1	300	105.2	315.58	105.2	315.58		105.2	315.58		SYSTEM INTACT			
				105.2	315.74	105.2	315.74		105.2	315.74		34020 HAZL S	5 161 34135 DUNDEE	5 161 1	
				105.3	315.76	105.3	315.76		105.3	315.76		34075 ELDORA	7 115 34527 IAFINDT7	115 1	
34019 HAZLTON5	161 34440 HAZLTNN869.0	1	30	106.4	31.92	106.4	31.92		106.4	31.92		SYSTEM INTACT			
				108.2	32.45	108.2	32.45		108.2	32.45		34018 HAZLTON3	345 60102 ADAMS	3 345 1	
				108.4	32.53	108.4	32.53		108.5	32.54		34018 HAZLTON3	345 60102 ADAMS	3 345 1	SW815
				113.7	34.1	113.7	34.1		113.7	34.1		34019 HAZLTON5	161 61930 WINDSOR5	161 1	
				180.6	54.19	180.6	54.19		180.6	54.19		34020 HAZL S	5 161 34439 HAZLTNS869.0	1	
				108.4	32.51	108.4	32.51		108.4	32.51		34021 LANSINGW	161 34022 LANSING5	161 1	
				108.4	32.51	108.4	32.51		108.4	32.51		34029 SALEM	3 345 34036 ROCK CK3	345 1	
				108.4	32.51	108.4	32.51		108.4	32.51		34030 SALEM N5	161 34508 JULIAN 5	161 1	SW763
				108.9	32.67	108.9	32.67		108.9	32.67		34135 DUNDEE	5 161 34138 DUNDEE 869.0	1	
				117.8	35.34	117.8	35.34		117.8	35.34		34432 WINDSOR869.0	61930 WINDSOR5	161 1	
				109.2	32.75	109.2	32.75		109.2	32.75		60202 COON CK3	345 63030 DICKNSN3	345 1	SW880
34020 HAZL S	5 161 34135 DUNDEE	5 161 1	167	51.3	85.74							SYSTEM INTACT			
				98.6	164.64							34030 SALEM N5	161 34508 JULIAN	5 161 1	SW763
34020 HAZL S	5 161 34439 HAZLTNS869.0	1	30	91.8	27.53	91.8	27.53		91.8	27.53		SYSTEM INTACT			
				96.5	28.95							34019 HAZLTON5	161 34020 HAZL S	5 161 1	
				173.4	52.01	173.4	52.01		173.4	52.01		34019 HAZLTON5	161 34440 HAZLTNN869.0	1	
				98	29.41							34019 HAZLTON5	161 61930 WINDSOR5	161 1	
				101.6	30.48	101.6	30.48		101.6	30.48		34432 WINDSOR869.0	61930 WINDSOR5	161 1	
34027 CNTRGRV5	161 34508 JULIAN 5	161 1	326	56.7	184.75							SYSTEM INTACT			
				97.6	318.05							34031 SO.GVW.5	161 34034 SALEM S5	161 1	
34028 LORE	5 161 34908 KERPER 5	161 1	200	42.2	84.35	42.2	84.34		42.2	84.35		SYSTEM INTACT			
				101	202.06	101	202.05		101	202.07		34027 CNTRGRV5	161 34508 JULIAN 5	161 1	
				102.7	205.36	102.7	205.36		102.7	205.37		34030 SALEM N5	161 34508 JULIAN 5	161 1	
34029 SALEM	3 345 34030 SALEM N5	161 1	336	112	376.37	112	376.37		112	376.38		SYSTEM INTACT			
				119.7	402.06	119.7	402.05		119.7	402.07		34018 HAZLTON3	345 34093 ARNOLD	3 345 1	
				118.5	398.21	118.5	398.2		118.5	398.21		34020 HAZL S	5 161 34135 DUNDEE	5 161 1	
				118.4	397.85	118.4	397.85		118.4	397.86		34034 SALEM S5	161 34126 MQOKETA5	161 1	
				123.6	415.45	123.6	415.44		123.6	415.46		34035 ROCKCKW5	161 34037 ROCK CK5	161 1	SW769
				124	416.79	124	416.79		124	416.8		34036 ROCK CK3	345 34037 ROCK CK5	161 1	
				123.9	416.29	123.9	416.28		123.9	416.3		34038 BVR CH	5 161 34044 ALBANY	5 161 1	SW789
				123.8	415.86	123.8	415.85		123.8	415.87		34043 SAVANNA5	161 34046 YORK	5 161 1	
				125.4	421.25	125.4	421.25		125.4	421.27		34044 ALBANY	5 161 34046 YORK	5 161 1	
				119.9	402.88	119.9	402.87		119.9	402.89		34122 E CALMS5	161 34126 MQOKETA5	161 1	
				125.5	421.59	125.5	421.58		125.5	421.6		60202 COON CK3	345 63030 DICKNSN3	345 1	SW880
34030 SALEM N5	161 34508 JULIAN 5	161 1	300	63.3	190.05	63.3	190.05		63.4	190.06		SYSTEM INTACT			
				97	290.95							34030 SALEM N5	161 34034 SALEM S5	161 1	
				101.9	305.81	101.9	305.8		101.9	305.82		34031 SO.GVW.5	161 34032 8TH ST.5	161 1	
				107.8	323.44	107.8	323.43		107.8	323.45		34031 SO.GVW.5	161 34034 SALEM S5	161 1	

Output File:	kc0-sp16-line		kcg-sp16-line			kcl-sp16-line			
CIRCUIT FROM: CIRCUIT TO: CKT # NAME # NAME	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
34031 SO.GVW.5 161 34032 8TH ST.5 161 1	304	55.7	169.46	55.7	169.46		55.7	169.46		SYSTEM INTACT	
		99.6	302.88							34027 CNTRGRV5 161 34508 JULIAN 5 161 1	
		100.9	306.75	100.9	306.74		100.9	306.76		34030 SALEM N5 161 34508 JULIAN 5 161 1	
34031 SO.GVW.5 161 34034 SALEM S5 161 1	306	63.6	194.66	63.6	194.66		63.6	194.67		SYSTEM INTACT	
		101.6	311.03	101.6	311.03		101.6	311.04		34026 ASBURY 5 161 34027 CNTRGRV5 161 1	
		100.9	308.9	100.9	308.89		101	308.91		34026 ASBURY 5 161 34028 LORE 5 161 1	SW775
		107.3	328.3	107.3	328.3		107.3	328.31		34027 CNTRGRV5 161 34508 JULIAN 5 161 1	
		108.6	332.18	108.6	332.17		108.6	332.18		34030 SALEM N5 161 34508 JULIAN 5 161 1	
34032 8TH ST.5 161 34908 KERPER 5 161 1	200	48.2	96.42	48.2	96.42		48.2	96.43		SYSTEM INTACT	
		99.8	199.56							34026 ASBURY 5 161 34027 CNTRGRV5 161 1	
		95.5	191.03							34026 ASBURY 5 161 34028 LORE 5 161 1	SW775
		107.3	214.67	107.3	214.67		107.3	214.68		34027 CNTRGRV5 161 34508 JULIAN 5 161 1	
		109	218.04	109	218.03		109	218.05		34030 SALEM N5 161 34508 JULIAN 5 161 1	
34038 BVR CH 5 161 34041 BEVCHN2869.0 1	74.7	65.7	49.06	65.7	49.06		65.7	49.06		SYSTEM INTACT	
		106.1	79.23	106.1	79.23		106.1	79.23		34040 BEVCHN1869.0 34042 BVR CH65 161 1	
34038 BVR CH 5 161 34041 BEVCHN2869.0 2	74.7	65.6	49.01	65.6	49.01		65.6	49.01		SYSTEM INTACT	
		109.8	81.99	109.8	81.99		109.8	81.99		34040 BEVCHN1869.0 34042 BVR CH65 161 1	
34039 BVRCH52G20.0 34042 BVR CH65 161 1	252	93.3	235.22							SYSTEM INTACT	
		95.1	239.59							34029 SALEM 3 345 34030 SALEM N5 161 1	
		95.2	239.81							34029 SALEM 3 345 34036 ROCK CK3 345 1	
		96.4	242.91							34035 ROCKCKW5 161 34037 ROCK CK5 161 1	SW769
		98.1	247.26							34036 ROCK CK3 345 34037 ROCK CK5 161 1	
34040 BEVCHN1869.0 34042 BVR CH65 161 1	150	62.1	93.16	62.1	93.16		62.1	93.16		SYSTEM INTACT	
		109.1	163.61	109.1	163.61		109.1	163.61		34038 BVR CH 5 161 34042 BVR CH65 161 1	
34043 SAVANNA5 161 34046 YORK 5 161 1	167	67	111.93	67	111.93		67	111.94		SYSTEM INTACT	
		102.6	171.35	102.6	171.35		102.6	171.36		34029 SALEM 3 345 34030 SALEM N5 161 1	
		102.6	171.33	102.6	171.33		102.6	171.34		34029 SALEM 3 345 34036 ROCK CK3 345 1	
		117.1	195.52	117.1	195.51		117.1	195.52		34030 SALEM N5 161 34508 JULIAN 5 161 1	SW763
34043 SAVANNA5 161 34346 SAVNA S934.5 1	22.4	70	15.67	70	15.67		70	15.67		SYSTEM INTACT	
		147.1	32.95	147.1	32.95		147.1	32.95		34043 SAVANNA5 161 34347 SAVNA N934.5 1	
34043 SAVANNA5 161 34347 SAVNA N934.5 1	22.4	70	15.67	70	15.67		70	15.67		SYSTEM INTACT	
		148.3	33.23	148.3	33.23		148.3	33.23		34038 BVR CH 5 161 34044 ALBANY 5 161 1	SW789
		147.1	32.95	147.1	32.95		147.1	32.95		34043 SAVANNA5 161 34346 SAVNA S934.5 1	
34044 ALBANY 5 161 34046 YORK 5 161 1	200	61.3	122.63	61.3	122.62		61.3	122.63		SYSTEM INTACT	
		104.2	208.31	104.2	208.31		104.2	208.32		34030 SALEM N5 161 34508 JULIAN 5 161 1	SW763
34061 BNE JCT5 161 34076 BNE JCT7 115 3	45	48.8	21.94							SYSTEM INTACT	
		97.9	44.06							34061 BNE JCT5 161 34076 BNE JCT7 115 2	
34066 M-TOWN 7 115 34159 M-TOWN 934.5 1	93	61.1	56.82	61.1	56.82		61.1	56.82		SYSTEM INTACT	
		121.8	113.28	121.8	113.28		121.8	113.28		34066 M-TOWN 7 115 34159 M-TOWN 934.5 2	
34066 M-TOWN 7 115 34159 M-TOWN 934.5 2	93	60.7	56.48	60.7	56.48		60.7	56.48		SYSTEM INTACT	
		121.8	113.27	121.8	113.27		121.8	113.28		34066 M-TOWN 7 115 34159 M-TOWN 934.5 1	
34083 BL.PLN.7 115 34095 STON PT7 115 1	77	26.5	20.39							SYSTEM INTACT	
		96.9	74.62							34051 TOLEDO 7 115 34066 M-TOWN 7 115 1	
34092 PR CRK1G34.5 34099 PRAR CK7 115 1	93	58.7	54.64	58.7	54.64		58.7	54.64		SYSTEM INTACT	
		122.7	114.12	122.7	114.12		122.7	114.12		34092 PR CRK1G34.5 34099 PRAR CK7 115 2	
34092 PR CRK1G34.5 34099 PRAR CK7 115 2	93	60.7	56.47	60.7	56.47		60.7	56.47		SYSTEM INTACT	
		122.5	113.88	122.5	113.88		122.5	113.88		34092 PR CRK1G34.5 34099 PRAR CK7 115 1	
34119 DUNDEE 934.5 34133 DUNDEE 7 115 1	12.5	74.1	9.26	74.1	9.26		74.1	9.26		SYSTEM INTACT	
		150.7	18.84	150.7	18.84		150.7	18.84		34119 DUNDEE 934.5 34133 DUNDEE 7 115 2	
34119 DUNDEE 934.5 34133 DUNDEE 7 115 2	12.5	73.3	9.16	73.3	9.16		73.3	9.16		SYSTEM INTACT	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line			
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
				150.8	18.85	150.8	18.85		150.8	18.85		34119 DUNDEE 934.5 34133 DUNDEE 7 115 1	
34122 E CALMS5 161	34126 MQOKETA5 161	1	176	49.3	86.71	49.3	86.71		49.3	86.72		SYSTEM INTACT	
				100.7	177.17	100.7	177.16		100.7	177.18		34029 SALEM 3 345 34030 SALEM N5 161 1	
				100.7	177.15	100.6	177.14		100.7	177.16		34029 SALEM 3 345 34036 ROCK CK3 345 1	
34133 DUNDEE 7 115	34135 DUNDEE 5 161	1	56	53.2	29.81							SYSTEM INTACT	
				99.3	55.62							34103 MARION 7 115 34170 SWAMPFX7 115 1	
34163 BOONE 934.5	34550 BOONE W7 115	2	47	57.1	26.84	57.1	26.84		57.1	26.84		SYSTEM INTACT	
				115.2	54.13	115.2	54.13		115.2	54.13		34059 BOONE E7 115 34163 BOONE 934.5 1	
34182 WAPELLO5 161	34206 WAPELLO869.0	1	131	62.4	81.75	62.4	81.75		62.4	81.75		SYSTEM INTACT	
				111.7	146.31	111.7	146.32		111.7	146.31		34182 WAPELLO5 161 34206 WAPELLO869.0 2	
34182 WAPELLO5 161	34206 WAPELLO869.0	2	131	62.4	81.75	62.4	81.75		62.4	81.75		SYSTEM INTACT	
				111.7	146.31	111.7	146.32		111.7	146.31		34182 WAPELLO5 161 34206 WAPELLO869.0 1	
34528 IAFINDP7 115	34532 IAFINDP869.0	1	31.2	87.8	27.43	87.8	27.43		87.8	27.43		SYSTEM INTACT	
				104	32.49	104	32.49		104	32.49		34075 ELDORA 7 115 34527 IAFINDT7 115 1	
				101.2	31.63	101.2	31.63		101.2	31.63		34527 IAFINDT7 115 34528 IAFINDP7 115 1	
60105 PR ISLD3 345	60106 PR ISLD5 161	10	224	65	145.7	65	145.7		65	145.7		SYSTEM INTACT	
				102.4	229.44	102.4	229.44		102.4	229.44		60105 PR ISLD3 345 60236 REDROCK3 345 1	SW800
60107 W FARIB7 115	60792 WFARBLT869.0	1	70	108.1	75.68	108.1	75.68		108.1	75.68		SYSTEM INTACT	
				121.2	84.82	121.2	84.82		121.2	84.82		60105 PR ISLD3 345 60106 PR ISLD5 161 10	
				121.2	84.82	121.2	84.82		121.2	84.82		60106 PR ISLD5 161 62224 RAVENNA5 161 1	
				124.9	87.45	124.9	87.44		124.9	87.45		60107 W FARIB7 115 60792 WFARBLT869.0 2	
				125.1	87.58	125.1	87.58		125.1	87.58		60107 W FARIB7 115 60792 WFARBLT869.0 3	
				123.8	86.65	123.8	86.65		123.8	86.66		60108 WILMART3 345 60192 BLUE LK3 345 1	
				124.2	86.95	124.2	86.94		124.2	86.95		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
				123.8	86.64	123.8	86.63		123.8	86.64		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
				118.3	82.83	118.3	82.83		118.3	82.83		60331 LKFLDXL3 345 60364 FIELD_N3 345 1	
				143	100.08	143	100.08		143	100.08		60369 FEPTP 7 115 62234 LKMARN 7 115 1	
				121.2	84.82	121.2	84.82		121.2	84.83		62224 RAVENNA5 161 63071 SPRNGCK5 161 1	
60107 W FARIB7 115	60792 WFARBLT869.0	2	25	87.3	21.84	87.3	21.84		87.3	21.84		SYSTEM INTACT	
				98.4	24.6							60105 PR ISLD3 345 60106 PR ISLD5 161 10	
				98.4	24.6							60106 PR ISLD5 161 62224 RAVENNA5 161 1	
				165.4	41.34	165.4	41.34		165.4	41.34		60107 W FARIB7 115 60792 WFARBLT869.0 1	
				190.8	47.7	190.8	47.69		190.8	47.7		60107 W FARIB7 115 60792 WFARBLT869.0 1	SW822
				101.4	25.36	101.4	25.36		101.4	25.36		60107 W FARIB7 115 60792 WFARBLT869.0 3	
				101.1	25.28	101.1	25.27		101.1	25.28		60108 WILMART3 345 60192 BLUE LK3 345 1	
				101.5	25.37	101.5	25.37		101.5	25.37		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
				101.1	25.28	101.1	25.28		101.1	25.28		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
				116.1	29.02	116.1	29.02		116.1	29.02		60369 FEPTP 7 115 62234 LKMARN 7 115 1	
				98.4	24.6							62224 RAVENNA5 161 63071 SPRNGCK5 161 1	
60107 W FARIB7 115	60792 WFARBLT869.0	3	25	88.2	22.05	88.2	22.05		88.2	22.05		SYSTEM INTACT	
				99.3	24.84							60105 PR ISLD3 345 60106 PR ISLD5 161 10	
				99.3	24.84							60106 PR ISLD5 161 62224 RAVENNA5 161 1	
				167	41.74	167	41.74		167	41.74		60107 W FARIB7 115 60792 WFARBLT869.0 1	
				192.6	48.16	192.6	48.16		192.6	48.16		60107 W FARIB7 115 60792 WFARBLT869.0 1	SW822
				102.3	25.57	102.3	25.57		102.3	25.57		60107 W FARIB7 115 60792 WFARBLT869.0 2	
				102.1	25.52	102.1	25.52		102.1	25.52		60108 WILMART3 345 60192 BLUE LK3 345 1	
				102.5	25.62	102.5	25.62		102.5	25.62		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
				102.1	25.52	102.1	25.52		102.1	25.52		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
				117.2	29.3	117.2	29.3		117.2	29.3		60369 FEPTP 7 115 62234 LKMARN 7 115 1	
				99.3	24.84							62224 RAVENNA5 161 63071 SPRNGCK5 161 1	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line			
CIRCUIT FROM: CIRCUIT TO: CKT	RATEA	OVRLD	CURRENT	OVRLD	CURRENT	Diff	OVRLD	CURRENT	Diff	CONTINGENCY
# NAME # NAME	MVA	%	MVA	%	MVA	MVA	%	MVA	MVA	FROM TO CKT	SWITCH
60107 W FARIB7 115 62865 AIRTECH7 115 1	310	64.8	201.02							SYSTEM INTACT	
		99.5	308.56							60369 FEPTP 7 115 62234 LKMARN 7 115 1	
60114 ELM CRK3 345 60115 ELMCRK 7 115 9	448	71.6	320.67	71.6	320.67		71.6	320.67		SYSTEM INTACT	
		102.5	459.09	102.5	459.1		102.5	459.09		60114 ELM CRK3 345 60233 PARKERS3 345 1	SW830
60119 LKYNKTN7 115 60279 BUFFRID7 115 1	292	60.3	175.99	60.3	175.99		60.3	176		SYSTEM INTACT	
		123.9	361.66	123.9	361.66		123.9	361.67		60381 YANKEE 7 115 60382 BRKNGCO7 115 1	
		123.2	359.85	123.2	359.85		123.2	359.86		60382 BRKNGCO7 115 60383 BRKNGCO3 345 1	
60120 BLUEETA5 161 61085 BLUEE 869.0 1	18	94	16.93							SYSTEM INTACT	
		96.5	17.37							34008 FOX LK 5 161 61932 RUTLAND5 161 1	
		96.2	17.32							34008 FOX LK 5 161 61932 RUTLAND5 161 1	SW889
		95.1	17.11							34009 WINBAGO5 161 34257 WBGOJ N869.0 1	
		96.2	17.32							34009 WINBAGO5 161 61932 RUTLAND5 161 1	
60122 LAWRENC7 115 60834 LAWRENC869.0 1	112	83.4	93.36	83.4	93.36		83.4	93.36		SYSTEM INTACT	
		130.7	146.41	130.7	146.41		130.7	146.41		60117 CHERRYC7 115 60129 SPLT RK7 115 1	SW756
		110.9	124.17	110.9	124.17		110.9	124.17		60121 MINEHAH7 115 60122 LAWRENC7 115 1	
		103.4	115.83	103.4	115.83		103.4	115.83		60121 MINEHAH7 115 60124 LINCNCO7 115 1	
		96.3	107.87							60124 LINCNCO7 115 60836 LINCLNC869.0 1	
		98	109.8							60129 SPLT RK7 115 60132 WSX FLS7 115 1	
60124 LINCNCO7 115 60836 LINCLNC869.0 1	70	55.1	38.58	55.1	38.58		55.1	38.59		SYSTEM INTACT	
		109.7	76.79	109.7	76.79		109.7	76.79		60122 LAWRENC7 115 60834 LAWRENC869.0 1	
60132 WSX FLS7 115 60850 WSX FLS869.0 1	70	33.6	23.51	33.6	23.51		33.6	23.51		SYSTEM INTACT	
		106.4	74.49	106.4	74.49		106.4	74.49		60122 LAWRENC7 115 60834 LAWRENC869.0 1	
60138 SOURIS 7 115 60139 MALLARD7 115 1	112	76.4	85.59	76.4	85.59		76.5	85.7		SYSTEM INTACT	
		96.6	108.23							60140 MCHENRY7 115 63082 MCHENRYY1.00 1	
		118.1	132.25	118.1	132.25		118.3	132.44		63041 COAL CR4 230 63042 COAL TP4 230 1	SW805
		98.1	109.9							63044 MCHENRY4 230 63082 MCHENRYY1.00 1	
		96.1	107.61							66442 GARRISN7 115 67113 VOLTAIR7 115 1	
60140 MCHENRY7 115 63082 MCHENRYY1.00 1	84	78	65.49	77.9	65.46		78.3	65.76		SYSTEM INTACT	
		135.8	114.05	135.7	114.02		136.2	114.42	**0.37**	60138 SOURIS 7 115 60139 MALLARD7 115 1	
		101.1	84.93	101.1	84.89		101.5	85.22	**0.29**	60139 MALLARD7 115 67155 LOGAN 7 115 1	
		99.8	83.81							63041 COAL CR4 230 63042 COAL TP4 230 1	SW805
		100.1	84.09	100	84.04		100.5	84.38	**0.29**	63044 MCHENRY4 230 63056 BALTA 4 230 1	
		104.2	87.56	104.2	87.53		104.7	87.96	**0.4**	66442 GARRISN7 115 67113 VOLTAIR7 115 1	
		96.3	80.88							67106 LELANDO4 230 67108 LOGAN 4 230 1	
		100.1	84.06	100	84		100.2	84.16		67108 LOGAN 4 230 67208 LOGAN TY 230 1	
		100.1	84.06	100	84		100.2	84.16		67155 LOGAN 7 115 67208 LOGAN TY 230 1	
60142 BENTON 3 345 63045 BENTON 4 230 1	336	75.3	253.06	75.3	253.05		75.3	253.07		SYSTEM INTACT	
		117.1	393.6	117.1	393.59		117.1	393.61		60142 BENTON 3 345 63045 BENTON 4 230 2	
		108	362.95	108	362.94		108	362.96		60151 MNTCELO3 345 60160 SHERCO 3 345 1	SW834
		106.8	358.8	106.8	358.8		106.8	358.81		60151 MNTCELO3 345 60160 SHERCO 3 345 1	SW878
60142 BENTON 3 345 63045 BENTON 4 230 2	336	72.8	244.46	72.8	244.45		72.8	244.47		SYSTEM INTACT	
		115.4	387.82	115.4	387.8		115.4	387.83		60142 BENTON 3 345 63045 BENTON 4 230 1	
		104.3	350.62	104.3	350.61		104.4	350.62		60151 MNTCELO3 345 60160 SHERCO 3 345 1	SW834
		103.2	346.61	103.2	346.6		103.2	346.62		60151 MNTCELO3 345 60160 SHERCO 3 345 1	SW878
60145 FRANKLN7 115 60728 FRANKLN869.0 1	47	65.1	30.61	65.1	30.61		65.1	30.61		SYSTEM INTACT	
		104.8	49.25	104.8	49.25		104.8	49.25		60145 FRANKLN7 115 60728 FRANKLN869.0 2	
60145 FRANKLN7 115 60728 FRANKLN869.0 2	47	65.1	30.61	65.1	30.61		65.1	30.61		SYSTEM INTACT	
		104.8	49.25	104.8	49.25		104.8	49.25		60145 FRANKLN7 115 60728 FRANKLN869.0 1	
60146 GRANCTY7 115 60164 XRDS 7 115 1	191	79.5	151.85	79.5	151.85		79.5	151.86		SYSTEM INTACT	
		105.7	201.87	105.7	201.87		105.7	201.88		60154 SAUK RV7 115 60157 STCLOUD7 115 1	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line			
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
				98.5	188.23							60157 STCLOUD7 115 60348 BENCTP7 115 1	
60148 MINVALY7 115	60357 MAYNARD7 115	1	78	56.7	44.22	56.7	44.22		56.7	44.22		SYSTEM INTACT	
				95.7	74.64							62427 WILLMAR869.0 63050 WILLMAR4 230 1	
				107.5	83.82	107.5	83.81		107.5	83.82		62427 WILLMAR869.0 63050 WILLMAR4 230 1	SW928
				122.7	95.68	122.7	95.68		122.7	95.68		63050 WILLMAR4 230 66550 GRANITF4 230 1	
60151 MNTCELO3 345	60152 MNTCELO4 230	6	336	78.4	263.33	78.4	263.33		78.4	263.34		SYSTEM INTACT	
				105.6	354.75	105.6	354.75		105.6	354.76		60114 ELM CRK3 345 60151 MNTCELO3 345 1	SW833
				137.4	461.82	137.4	461.81		137.5	461.83		60142 BENTON 3 345 60160 SHERCO 3 345 1	
				137.4	461.82	137.4	461.81		137.5	461.83		60142 BENTON 3 345 60160 SHERCO 3 345 1	SW979
				106	356.19	106	356.18		106	356.19		60160 SHERCO 3 345 63031 BUNKER 3 345 1	SW976
				98.5	331.01							60160 SHERCO 3 345 63031 BUNKER 3 345 1	SW977
				95.3	320.37							63031 BUNKER 3 345 63046 BUNKER 4 230 1	
60151 MNTCELO3 345	60153 MNTCELO7 115	10	336	87.6	294.46	87.6	294.46		87.6	294.47		SYSTEM INTACT	
				119.9	403.01	119.9	403.01		119.9	403.01		60114 ELM CRK3 345 60151 MNTCELO3 345 1	SW833
				106.7	358.45	106.7	358.44		106.7	358.45		60142 BENTON 3 345 60160 SHERCO 3 345 1	
				106.7	358.45	106.7	358.44		106.7	358.45		60142 BENTON 3 345 60160 SHERCO 3 345 1	SW979
				110.9	372.77	110.9	372.77		110.9	372.77		60143 BENTON 7 115 60146 GRANCTY7 115 1	SW757
				110.1	369.93	110.1	369.93		110.1	369.93		60155 PULASKI7 115 62926 DCKSNSS7 115 1	
				110.1	369.93	110.1	369.92		110.1	369.93		60155 PULASKI7 115 62926 DCKSNSS7 115 1	SW982
				106	356.27	106	356.27		106	356.27		60202 COON CK3 345 63030 DICKNSN3 345 1	SW880
				110.3	370.47	110.3	370.47		110.3	370.47		62925 DICKNSN7 115 62926 DCKSNSS7 115 1	
				112.5	377.86	112.5	377.86		112.5	377.87		62925 DICKNSN7 115 63085 DICKNSNY1.00 1	
				112.5	377.86	112.5	377.86		112.5	377.87		63030 DICKNSN3 345 63085 DICKNSNY1.00 1	
60152 MNTCELO4 230	63045 BENTON 4 230	1	383.2	29.8	114.2	29.8	114.19		29.8	114.21		SYSTEM INTACT	
				100.4	384.58	100.4	384.57		100.4	384.6		60142 BENTON 3 345 60160 SHERCO 3 345 1	
				100.4	384.58	100.4	384.57		100.4	384.6		60142 BENTON 3 345 60160 SHERCO 3 345 1	SW979
60153 MNTCELO7 115	62927 LKCONST7 115	1	191	36.5	69.62							SYSTEM INTACT	
				97.5	186.24							60202 COON CK3 345 63030 DICKNSN3 345 1	SW880
				96.1	183.62							62925 DICKNSN7 115 63085 DICKNSNY1.00 1	
				96.1	183.62							63030 DICKNSN3 345 63085 DICKNSNY1.00 1	
60154 SAUK RV7 115	60157 STCLOUD7 115	1	139	44.8	62.31	44.8	62.3		44.8	62.31		SYSTEM INTACT	
				129.1	179.46	129.1	179.45		129.1	179.46		60143 BENTON 7 115 60146 GRANCTY7 115 1	SW757
				131.7	183.08	131.7	183.07		131.7	183.08		60146 GRANCTY7 115 60164 XRDS 7 115 1	
				103.2	143.43	103.2	143.43		103.2	143.44		60164 XRDS 7 115 60165 MEI INT7 115 1	
60154 SAUK RV7 115	60163 WST CLD7 115	1	139	22.3	30.96	22.3	30.95		22.3	30.96		SYSTEM INTACT	
				108.1	150.28	108.1	150.27		108.1	150.28		60143 BENTON 7 115 60146 GRANCTY7 115 1	SW757
				104.9	145.84	104.9	145.83		104.9	145.85		60146 GRANCTY7 115 60164 XRDS 7 115 1	
60155 PULASKI7 115	62926 DCKSNSS7 115	1	194	54	104.82	54	104.82		54	104.83		SYSTEM INTACT	
				105.3	204.22	105.3	204.22		105.3	204.22		60151 MNTCELO3 345 60153 MNTCELO7 115 10	
60156 PYNSVIL7 115	60702 PAYNES1934.5	1	17.9	264.2	47.28	264.2	47.28		264.2	47.28		SYSTEM INTACT	
				271.2	48.54	271.2	48.54		271.2	48.54		60143 BENTON 7 115 60146 GRANCTY7 115 1	SW757
				270.9	48.49	270.9	48.49		270.9	48.49		60144 DGLASCO7 115 60749 DGLAS C869.0 1	
				270.9	48.49	270.9	48.49		270.9	48.49		60144 DGLASCO7 115 60749 DGLAS C869.0 1	SW997
				273.1	48.89	273.1	48.89		273.1	48.89		60146 GRANCTY7 115 60164 XRDS 7 115 1	SW803
				275.9	49.39	275.9	49.39		275.9	49.39		60156 PYNSVIL7 115 60356 PAYNES 4 230 6	
				267.6	47.9	267.6	47.9		267.6	47.9		60159 STCTPW 7 115 60162 WAKEFLD7 115 1	
				272.1	48.7	272.1	48.7		272.1	48.7		60163 WST CLD7 115 60732 WST CLD869.0 1	
				275.9	49.39	275.9	49.39		275.9	49.39		60356 PAYNES 4 230 63050 WILLMAR4 230 1	
				269	48.14	269	48.14		269	48.14		62427 WILLMAR869.0 63050 WILLMAR4 230 1	SW928
				283.1	50.67	283.1	50.67		283.1	50.67		63050 WILLMAR4 230 66550 GRANITF4 230 1	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line				
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
60156 PYNSVIL7 115	60760 PAYNES 869.0	1	47	80.3	37.75	80.3	37.75		80.3	37.75		SYSTEM INTACT	
				98.1	46.12							60146 GRANCTY7 115 60164 XRDS 7 115 1	SW803
				133.5	62.72	133.4	62.72		133.5	62.73		60156 PYNSVIL7 115 60760 PAYNES 869.0 2	
				99.5	46.76							60157 STCLOUD7 115 60159 STCTPW 7 115 1	SW999
				101.6	47.77	101.6	47.77		101.6	47.77		60162 WAKEFLD7 115 60717 WAKEFLD869.0 1	
				95.8	45.04							60163 WST CLD7 115 60732 WST CLD869.0 1	
				99.2	46.62							62001 BENSON 7 115 62012 BENSON 869.0 1	
60156 PYNSVIL7 115	60760 PAYNES 869.0	2	47	79.5	37.35	79.5	37.35		79.5	37.35		SYSTEM INTACT	
				97.1	45.63							60146 GRANCTY7 115 60164 XRDS 7 115 1	SW803
				133	62.5	133	62.5		133	62.5		60156 PYNSVIL7 115 60760 PAYNES 869.0 1	
				98.4	46.27							60157 STCLOUD7 115 60159 STCTPW 7 115 1	SW999
				100.6	47.26	100.6	47.26		100.6	47.27		60162 WAKEFLD7 115 60717 WAKEFLD869.0 1	
				98.1	46.13							62001 BENSON 7 115 62012 BENSON 869.0 1	
60158 STCLTP 7 115	60166 SALIDA 7 115	1	139	68	94.57	68	94.57		68	94.57		SYSTEM INTACT	
				112.6	156.58	112.6	156.58		112.7	156.59		60142 BENTON 3 345 60160 SHERCO 3 345 1	
				112.6	156.58	112.6	156.58		112.7	156.59		60142 BENTON 3 345 60160 SHERCO 3 345 1	SW979
				153	212.7	153	212.7		153	212.71		60143 BENTON 7 115 60146 GRANCTY7 115 1	SW757
60162 WAKEFLD7 115	60717 WAKEFLD869.0	1	70	77.2	54.01	77.2	54.01		77.2	54.02		SYSTEM INTACT	
				117.5	82.28	117.5	82.28		117.5	82.28		60146 GRANCTY7 115 60164 XRDS 7 115 1	SW803
				111.4	77.96	111.4	77.96		111.4	77.96		60163 WST CLD7 115 60732 WST CLD869.0 1	
60163 WST CLD7 115	60732 WST CLD869.0	1	46.7	97.2	45.4	97.2	45.4		97.2	45.4		SYSTEM INTACT	
				109.8	51.28	109.8	51.28		109.8	51.28		60144 DGLASCO7 115 60749 DGLAS C869.0 1	
				109.6	51.18	109.6	51.18		109.6	51.18		60144 DGLASCO7 115 60749 DGLAS C869.0 1	SW997
				121.3	56.64	121.3	56.64		121.3	56.64		60156 PYNSVIL7 115 60356 PAYNES 4 230 6	
				111.6	52.1	111.6	52.1		111.6	52.1		60157 STCLOUD7 115 60159 STCTPW 7 115 1	SW999
				117.3	54.79	117.3	54.79		117.3	54.79		60162 WAKEFLD7 115 60717 WAKEFLD869.0 1	
				106.1	49.55	106.1	49.54		106.1	49.55		60163 WST CLD7 115 62819 FSCHRHL7 115 1	
				121.3	56.65	121.3	56.65		121.3	56.65		60356 PAYNES 4 230 63050 WILLMAR4 230 1	
				105.3	49.18	105.3	49.18		105.3	49.18		62268 LANGLTP7 115 62819 FSCHRHL7 115 1	
				122.6	57.27	122.6	57.27		122.6	57.27		62427 WILLMAR869.0 63050 WILLMAR4 230 1	SW928
				118.1	55.17	118.1	55.17		118.1	55.17		63050 WILLMAR4 230 66550 GRANITF4 230 1	
60166 SALIDA 7 115	62137 BCKRNSP869.0	1	112	65.9	73.83	65.9	73.83		65.9	73.83		SYSTEM INTACT	
				119.3	133.61	119.3	133.61		119.3	133.61		60155 PULASKI7 115 60763 PULASKI869.0 1	SW68
60170 MARSHAL7 115	60171 LYON CO7 115	1	127	108	137.12	108	137.12		108	137.12		SYSTEM INTACT	
				114.7	145.72	114.7	145.71		114.7	145.72		60108 WILMART3 345 60365 FIELD_S3 345 1	
				131.9	167.45	131.8	167.45		131.9	167.46		60148 MINVALY7 115 60171 LYON CO7 115 1	
				116.4	147.83	116.4	147.83		116.4	147.84		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	SW812
				136.4	173.17	136.4	173.17		136.4	173.17		60287 NOBLES 7 115 60384 FENTON 7 115 1	
				114.8	145.74	114.8	145.74		114.8	145.74		60331 LKFLDXL3 345 60364 FIELD_N3 345 1	
				115.9	147.16	115.9	147.16		115.9	147.16		60362 CHANRMB7 115 60384 FENTON 7 115 1	
				141.3	179.42	141.3	179.42		141.3	179.42		60381 YANKEE 7 115 60382 BRKNGCO7 115 1	
				141.1	179.19	141.1	179.19		141.1	179.19		60382 BRKNGCO7 115 60383 BRKNGCO3 345 1	
				121.2	153.94	121.2	153.94		121.2	153.95		66503 BLAIR 4 230 66530 WATERTN4 230 1	SW896
				117.5	149.2	117.5	149.19		117.5	149.2		66503 BLAIR 4 230 66550 GRANITF4 230 1	SW897
60170 MARSHAL7 115	60375 MMU_N7ST 115	1	127.9	80.8	103.39	80.8	103.39		80.8	103.39		SYSTEM INTACT	
				100.6	128.68	100.6	128.67		100.6	128.68		60148 MINVALY7 115 60171 LYON CO7 115 1	
				100.7	128.8	100.7	128.8		100.7	128.81		60170 MARSHAL7 115 60373 SOUTH E7 115 1	
				101	129.19	101	129.18		101	129.19		60287 NOBLES 7 115 60384 FENTON 7 115 1	
				97.5	124.71							60372 SARATOG7 115 67473 MMU SW 7 115 1	
				104.7	133.88	104.7	133.87		104.7	133.88		60381 YANKEE 7 115 60382 BRKNGCO7 115 1	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line			
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
				104.7	133.87	104.7	133.87		104.7	133.88		60382 BRKNGCO7 115 60383 BRKNGCO3 345 1	
60171 LYON CO7 115	60903 LYON CO869.0	1	70	34.5	24.18	34.5	24.18		34.5	24.18		SYSTEM INTACT	
				105.1	73.57	105.1	73.57		105.1	73.57		60119 LKYNKTN7 115 60171 LYON CO7 115 1	SW935
60177 CHAMPLN7 115	60178 CHAMP T7 115	1	140	51	71.38							SYSTEM INTACT	
				98.5	137.9							60114 ELM CRK3 345 60233 PARKERS3 345 1	SW830
				99.3	139.06							60203 COON CK7 115 62090 PRKWOOD7 115 1	
60178 CHAMP T7 115	60205 CRKEDLK7 115	1	189	60.6	114.53	60.6	114.53		60.6	114.53		SYSTEM INTACT	
				153.1	289.42	153.1	289.42		153.1	289.42		60203 COON CK7 115 62090 PRKWOOD7 115 1	
				144.4	272.89	144.4	272.89		144.4	272.89		60203 COON CK7 115 62090 PRKWOOD7 115 1	SW970
60184 APACHET7 115	60185 ARDNHLS7 115	1	229	50.8	116.26	50.8	116.26		50.8	116.26		SYSTEM INTACT	
				105.3	241.05	105.3	241.05		105.3	241.05		60212 GOOSELK7 115 60222 KOLMNLK7 115 1	
				114.4	261.89	114.4	261.89		114.4	261.89		60212 GOOSELK7 115 60222 KOLMNLK7 115 1	SW919
60190 BLK DOG7 115	60258 WILSON 7 115	3	167	89.6	149.65	89.6	149.65		89.6	149.65		SYSTEM INTACT	
				95.9	160.1							60180 AIRPRT 7 115 60239 ROGRSLK7 115 1	
				97.5	162.89							60189 SHAKOPE7 115 62669 EAGLECK7 115 1	
				110.6	184.66	110.6	184.66		110.6	184.66		60190 BLK DOG7 115 60242 SAVAGE 7 115 1	
				110.6	184.66	110.6	184.66		110.6	184.66		60190 BLK DOG7 115 60242 SAVAGE 7 115 1	SW885
				153.8	256.8	153.8	256.8		153.8	256.8		60190 BLK DOG7 115 60258 WILSON 7 115 1	
				106	177.02	106	177.01		106	177.02		60192 BLUE LK3 345 60233 PARKERS3 345 1	SW985
				96.5	161.21							60193 BLUE LK7 115 60215 HYLNDLK7 115 1	
				98.7	164.9							60193 BLUE LK7 115 60215 HYLNDLK7 115 1	SW905
				101.9	170.18	101.9	170.18		101.9	170.18		60208 EDINA 7 115 60263 EDEN PR7 115 1	
				103.9	173.49	103.9	173.49		103.9	173.49		60242 SAVAGE 7 115 62669 EAGLECK7 115 1	
60194 CARVRCO7 115	60931 CARVRCO869.0	1	70	60	42.01	60	42.01		60	42.01		SYSTEM INTACT	
				113.8	79.67	113.8	79.67		113.8	79.67		60194 CARVRCO7 115 60931 CARVRCO869.0 2	
60194 CARVRCO7 115	60931 CARVRCO869.0	2	70	60	42.01	60	42.01		60	42.01		SYSTEM INTACT	
				105.8	74.07	105.8	74.07		105.8	74.07		60194 CARVRCO7 115 60243 SCOTTAP7 115 1	SW991
				107.6	75.29	107.6	75.29		107.6	75.29		60194 CARVRCO7 115 60931 CARVRCO869.0 1	SW76
60200 BLK DG27 115	62666 GLNDALE7 115	1	133	63.4	84.3							SYSTEM INTACT	
				99	131.61							60193 BLUE LK7 115 60215 HYLNDLK7 115 1	
				95.8	127.42							60256 WSTGATE7 115 60257 BLUFFCK7 115 1	SW900
60203 COON CK7 115	62090 PRKWOOD7 115	1	315.5	72.6	229.2	72.6	229.2		72.6	229.2		SYSTEM INTACT	
				105.2	331.96	105.2	331.96		105.2	331.96		60115 ELMCRK 7 115 60177 CHAMPLN7 115 1	SW836
				104.9	330.85	104.9	330.85		104.9	330.85		60115 ELMCRK 7 115 60177 CHAMPLN7 115 1	SW837
				105	331.16	105	331.16		105	331.16		60178 CHAMP T7 115 60205 CRKEDLK7 115 1	
60212 GOOSELK7 115	62091 VADNSTP7 115	1	189	37.3	70.52							SYSTEM INTACT	
				96.1	181.58							60184 APACHET7 115 60185 ARDNHLS7 115 1	
60214 HIBRDGE7 115	60228 MERIMPK7 115	1	194	63.2	122.53							SYSTEM INTACT	
				98.5	191.08							60214 HIBRDGE7 115 60239 ROGRSLK7 115 1	
60214 HIBRDGE7 115	60239 ROGRSLK7 115	1	200	85	169.96	85	169.97		85	169.95		SYSTEM INTACT	
				98.5	196.92							60114 ELM CRK3 345 60233 PARKERS3 345 1	SW827
				98.1	196.12							60176 BAYTOWN7 115 60187 AS KING7 115 1	SW810
				99.7	199.41							60195 CDRVALE7 115 60246 SO TOWN7 115 1	SW908
				113	225.9	113	225.91		112.9	225.89		60207 DYTNBLF7 115 60214 HIBRDGE7 115 1	
				112.4	224.83	112.4	224.83		112.4	224.82		60214 HIBRDGE7 115 60228 MERIMPK7 115 1	
				109.3	218.52	109.3	218.52		109.3	218.51		60214 HIBRDGE7 115 60245 SHEPARD7 115 1	
				110.2	220.49	110.2	220.49		110.2	220.48		60214 HIBRDGE7 115 60245 SHEPARD7 115 1	SW925
				102.7	205.41	102.7	205.42		102.7	205.4		60218 INVRHLS7 115 60220 INVRGRV7 115 1	
				99.8	199.63							60236 REDROCK3 345 60238 REDROCK7 115 9	
				101.9	203.86	101.9	203.87		101.9	203.86		60245 SHEPARD7 115 60246 SO TOWN7 115 1	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line				
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
60215 HYLNDLK7 115	60261 DEANLAK7 115	1	194	81.7	158.53	81.7	158.53		81.7	158.53		SYSTEM INTACT	
				97.7	189.58							60190 BLK DOG7 115 60193 BLUE LK7 115 1	
				106.5	206.63	106.5	206.62		106.5	206.63		60192 BLUE LK3 345 60233 PARKERS3 345 1	SW985
				99	192.08							60256 WSTGATE7 115 60257 BLUFFCK7 115 1	
				106.4	206.46	106.4	206.46		106.4	206.46		60256 WSTGATE7 115 60257 BLUFFCK7 115 1	SW900
60218 INVRHLS7 115	60223 KOCHREF7 115	1	371	74.5	276.32							SYSTEM INTACT	
				97.3	360.9							60188 RIVERWD7 115 60200 BLK DG27 115 1	
				95.3	353.4							60218 INVRHLS7 115 60220 INVRGRV7 115 1	
				95.4	353.86							60276 AIRLAKE7 115 62234 LKMARN 7 115 1	SW812
60220 INVRGRV7 115	60914 INVERGR869.0	1	63	58	36.54	58	36.54		58	36.54		SYSTEM INTACT	
				117.4	73.98	117.4	73.98		117.4	73.98		60220 INVRGRV7 115 60914 INVERGR869.0 2	
60220 INVRGRV7 115	60914 INVERGR869.0	2	63	58	36.54	58	36.54		58	36.54		SYSTEM INTACT	
				117.4	73.98	117.4	73.98		117.4	73.98		60220 INVRGRV7 115 60914 INVERGR869.0 1	
60224 LONG LK7 115	60230 OAKDALE7 115	1	239	51.5	123.01	51.5	123.02		51.5	123.01		SYSTEM INTACT	
				119.8	286.22	119.8	286.22		119.8	286.22		60179 AFTON 7 115 60238 REDROCK7 115 1	SW921
				119.6	285.77	119.6	285.77		119.6	285.77		60238 REDROCK7 115 60344 WOODBUR7 115 1	
60233 PARKERS3 345	61489 PKLMID2Y 110	10	450	64.8	291.41							SYSTEM INTACT	
				95.9	431.6							60233 PARKERS3 345 61490 PKLMID1Y 110 9	
				95.9	431.6							60233 PARKERS3 345 61490 PKLMID1Y 110 9	SW829
				95.9	431.6							60234 PARKERS7 115 61490 PKLMID1Y 110 9	
60233 PARKERS3 345	61490 PKLMID1Y 110	9	450	64.2	288.93							SYSTEM INTACT	
				95.5	429.71							60233 PARKERS3 345 61489 PKLMID2Y 110 10	
				95.5	429.71							60234 PARKERS7 115 61489 PKLMID2Y 110 10	
60234 PARKERS7 115	61489 PKLMID2Y 110	10	450	64.8	291.41							SYSTEM INTACT	
				95.9	431.6							60233 PARKERS3 345 61490 PKLMID1Y 110 9	
				95.9	431.6							60233 PARKERS3 345 61490 PKLMID1Y 110 9	SW829
				95.9	431.6							60234 PARKERS7 115 61490 PKLMID1Y 110 9	
60234 PARKERS7 115	61490 PKLMID1Y 110	9	450	64.2	288.93							SYSTEM INTACT	
				95.5	429.71							60233 PARKERS3 345 61489 PKLMID2Y 110 10	
				95.5	429.71							60234 PARKERS7 115 61489 PKLMID2Y 110 10	
60238 REDROCK7 115	60344 WOODBUR7 115	1	310	49.6	153.88							SYSTEM INTACT	
				99.7	309.19							60176 BAYTOWN7 115 60187 AS KING7 115 1	SW810
60244 SCOTTCO7 115	60890 SCOTTCO869.0	1	70	69.9	48.92	69.9	48.92		69.9	48.92		SYSTEM INTACT	
				121.3	84.89	121.3	84.89		121.3	84.89		60244 SCOTTCO7 115 60890 SCOTTCO869.0 2	
60244 SCOTTCO7 115	60890 SCOTTCO869.0	2	70	68.2	47.72	68.2	47.72		68.2	47.72		SYSTEM INTACT	
				111.1	77.8	111.1	77.8		111.1	77.8		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
				114.7	80.27	114.7	80.27		114.7	80.27		60244 SCOTTCO7 115 60261 DEANLAK7 115 1	SW904
				120.5	84.38	120.5	84.38		120.5	84.38		60244 SCOTTCO7 115 60890 SCOTTCO869.0 1	
60250 TANRSLK7 115	60344 WOODBUR7 115	1	191	37.3	71.24	37.3	71.23		37.3	71.24		SYSTEM INTACT	
				118	225.41	118	225.41		118	225.41		60176 BAYTOWN7 115 60187 AS KING7 115 1	SW810
				105.3	201.08	105.3	201.08		105.3	201.08		60224 LONG LK7 115 60230 OAKDALE7 115 1	
60256 WSTGATE7 115	60263 EDEN PR7 115	1	310	50.8	157.39							SYSTEM INTACT	
				97.4	301.96							60256 WSTGATE7 115 60263 EDEN PR7 115 2	
60256 WSTGATE7 115	60263 EDEN PR7 115	2	310	50.8	157.39							SYSTEM INTACT	
				97.4	301.96							60256 WSTGATE7 115 60263 EDEN PR7 115 1	
				96.6	299.43							60256 WSTGATE7 115 60263 EDEN PR7 115 1	SW901
60262 EDEN PR3 345	60263 EDEN PR7 115	10	448	64.1	287.14	64.1	287.14		64.1	287.14		SYSTEM INTACT	
				101.9	456.35	101.9	456.35		101.9	456.35		60262 EDEN PR3 345 60263 EDEN PR7 115 9	
60262 EDEN PR3 345	60263 EDEN PR7 115	9	448	68.9	308.85	68.9	308.85		68.9	308.85		SYSTEM INTACT	
				109.9	492.46	109.9	492.45		109.9	492.47		60192 BLUE LK3 345 60233 PARKERS3 345 1	SW986

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line			
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
				104.5	468.22	104.5	468.21		104.5	468.22		60233 PARKERS3 345 60262 EDEN PR3 345 1	SW988
				105.2	471.32	105.2	471.32		105.2	471.33		60262 EDEN PR3 345 60263 EDEN PR7 115 10	
60279 BUFFRID7 115	60708 BUFFRIDG34.5	1	120	57.1	68.48	57.1	68.48		57.1	68.48		SYSTEM INTACT	
				115	138.01	115	138.01		115	138.01		60279 BUFFRID7 115 60708 BUFFRIDG34.5 2	
60279 BUFFRID7 115	60708 BUFFRIDG34.5	2	120	57.1	68.48	57.1	68.48		57.1	68.48		SYSTEM INTACT	
				115	138.01	115	138.01		115	138.01		60279 BUFFRID7 115 60708 BUFFRIDG34.5 1	
60288 IRONWD 7 115	60289 HURLEY 7 115	1	60	84.4	50.65	84.4	50.65		84.4	50.65		SYSTEM INTACT	
				106.3	63.77	106.3	63.77		106.3	63.77		60285 EAGLEPT7 115 60321 HYDROLN7 115 1	SW865
				99.6	59.75							60296 SHELDNP7 115 60297 OSPREY 7 115 1	
				102	61.18	102	61.18		102	61.18		60296 SHELDNP7 115 60306 HOLCOMB7 115 1	
				100.8	60.47	100.8	60.47		100.8	60.47		60297 OSPREY 7 115 60298 PARKFLS7 115 1	SW867
				105.8	63.49	105.8	63.49		105.8	63.49		60306 HOLCOMB7 115 60322 CORNELL7 115 1	
				105.9	63.55	105.9	63.55		105.9	63.55		60306 HOLCOMB7 115 60322 CORNELL7 115 1	SW872
				99.2	59.51							60320 HYDROLN5 161 60321 HYDROLN7 115 1	
				106.5	63.87	106.5	63.87		106.4	63.87		60321 HYDROLN7 115 60326 JIMFLS 7 115 1	
				99.6	59.73							60322 CORNELL7 115 69157 ANDERSN7 115 1	
				100.6	60.37	100.6	60.37		100.6	60.37		60326 JIMFLS 7 115 69157 ANDERSN7 115 1	
60290 ST LAKE5 161	60663 STONELK869.0	2	70	66.2	46.33	66.2	46.33		66.2	46.33		SYSTEM INTACT	
				110.8	77.53	110.8	77.53		110.8	77.53		60290 ST LAKE5 161 60293 FRMSINN5 161 1	
				96.8	67.76							60293 FRMSINN5 161 60664 FRMRSIN869.0 1	
60293 FRMSINN5 161	60664 FRMRSIN869.0	1	50	68.6	34.28	68.6	34.28		68.6	34.28		SYSTEM INTACT	
				129.2	64.58	129.2	64.58		129.2	64.58		60290 ST LAKE5 161 60663 STONELK869.0 2	
60298 PARKFLS7 115	61101 PARKFLS934.5	1	28	64	17.91	64	17.91		64	17.91		SYSTEM INTACT	
				130.7	36.59	130.7	36.59		130.7	36.59		60298 PARKFLS7 115 61101 PARKFLS934.5 2	
60298 PARKFLS7 115	61101 PARKFLS934.5	2	28	64	17.91	64	17.91		64	17.91		SYSTEM INTACT	
				130.7	36.59	130.7	36.59		130.7	36.59		60298 PARKFLS7 115 61101 PARKFLS934.5 1	
60302 COULEE 5 161	60967 COULEE 869.0	2	112	51.6	57.8							SYSTEM INTACT	
				97.9	109.68							60302 COULEE 5 161 60308 LACROSS5 161 1	SW874
60305 EAU CLA5 161	61001 EAUCLAI869.0	1	112	92.4	103.5	92.4	103.5		92.4	103.5		SYSTEM INTACT	
				118.4	132.56	118.4	132.56		118.4	132.56		60282 REDCDR 5 161 60319 WHEATTP5 161 1	SW866
				113.3	126.94	113.3	126.94		113.3	126.94		60282 REDCDR 5 161 60319 WHEATTP5 161 1	SW870
				105.6	118.25	105.6	118.25		105.6	118.25		60305 EAU CLA5 161 60323 SEVN ML5 161 1	
				102.5	114.82	102.5	114.82		102.5	114.82		60305 EAU CLA5 161 60368 JEFRSRD5 161 1	
				140.2	157.06	140.2	157.06		140.2	157.06		60305 EAU CLA5 161 61001 EAUCLAI869.0 2	
				108.8	121.9	108.8	121.9		108.8	121.9		60318 WHT 56 5 161 60319 WHEATTP5 161 1	
				105.9	118.56	105.9	118.56		105.9	118.56		60318 WHT 56 5 161 60319 WHEATTP5 161 1	SW871
				110	123.24	110	123.24		110	123.24		60319 WHEATTP5 161 60320 HYDROLN5 161 1	
				110	123.24	110	123.24		110	123.24		60320 HYDROLN5 161 60321 HYDROLN7 115 1	
				124.5	139.43	124.5	139.43		124.5	139.43		60323 SEVN ML5 161 61071 SEVN ML869.0 1	
60305 EAU CLA5 161	61001 EAUCLAI869.0	2	112	101.3	113.41	101.3	113.41		101.3	113.41		SYSTEM INTACT	
				129.7	145.25	129.7	145.25		129.7	145.25		60282 REDCDR 5 161 60319 WHEATTP5 161 1	SW866
				124.2	139.1	124.2	139.1		124.2	139.1		60282 REDCDR 5 161 60319 WHEATTP5 161 1	SW870
				115.7	129.57	115.7	129.57		115.7	129.57		60305 EAU CLA5 161 60323 SEVN ML5 161 1	
				112.3	125.82	112.3	125.82		112.3	125.82		60305 EAU CLA5 161 60368 JEFRSRD5 161 1	
				147	164.62	147	164.62		147	164.62		60305 EAU CLA5 161 61001 EAUCLAI869.0 1	
				119.3	133.57	119.3	133.57		119.3	133.57		60318 WHT 56 5 161 60319 WHEATTP5 161 1	
				116	129.91	116	129.91		116	129.91		60318 WHT 56 5 161 60319 WHEATTP5 161 1	SW871
				120.6	135.04	120.6	135.04		120.6	135.04		60319 WHEATTP5 161 60320 HYDROLN5 161 1	
				120.6	135.04	120.6	135.04		120.6	135.04		60320 HYDROLN5 161 60321 HYDROLN7 115 1	
				136.4	152.78	136.4	152.78		136.4	152.78		60323 SEVN ML5 161 61071 SEVN ML869.0 1	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line				
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
60305 EAU CLA5 161	61200 PRESTOT5 161	1	272	93.8	255.27	93.8	255.27		93.8	255.26		SYSTEM INTACT	
				98.5	267.98							60105 PR ISLD3 345 60236 REDROCK3 345 1	SW800
				111.3	302.8	111.3	302.81		111.3	302.8		60186 AS KING3 345 60221 KOLMNLK3 345 1	SW913
				111.7	303.71	111.7	303.72		111.7	303.71		60186 AS KING3 345 60221 KOLMNLK3 345 1	SW914
				111.8	304.04	111.8	304.05		111.8	304.04		60186 AS KING3 345 60236 REDROCK3 345 1	SW915
				112.1	304.8	112.1	304.8		112.1	304.79		60186 AS KING3 345 60236 REDROCK3 345 1	SW916
				123.1	334.9	123.1	334.9		123.1	334.9		60186 AS KING3 345 60304 EAU CL 3 345 1	SW400
				111.8	304.11	111.8	304.11		111.8	304.11		60186 AS KING3 345 60304 EAU CL 3 345 1	SW860
				112.1	304.85	112.1	304.85		112.1	304.84		60186 AS KING3 345 60304 EAU CL 3 345 1	SW861
				97	263.76							60304 EAU CL 3 345 60305 EAU CLA5 161 9	
				97.5	265.25							60316 TREMVAL5 161 60323 SEVN ML5 161 1	
60307 JACKSON5 161	60966 JACKCO 869.0	1	47	91.3	42.91	91.3	42.91		91.3	42.91		SYSTEM INTACT	
				95	44.67							60282 REDCDR 5 161 60319 WHEATTP5 161 1	SW866
				108.1	50.79	108.1	50.79		108.1	50.79		60308 LACROSS5 161 60310 MONROCO5 161 1	
				108.1	50.8	108.1	50.8		108.1	50.8		60310 MONROCO5 161 60949 MONROCO869.0 1	
				96.2	45.23							60316 TREMVAL5 161 60323 SEVN ML5 161 1	
				112.7	52.98	112.7	52.98		112.7	52.98		60316 TREMVAL5 161 60979 TREMVAL869.0 1	
				98	46.07							60323 SEVN ML5 161 61071 SEVN ML869.0 1	
60310 MONROCO5 161	60949 MONROCO869.0	1	70	119.6	83.69	119.6	83.69		119.6	83.69		SYSTEM INTACT	
				121.1	84.78	121.1	84.78		121.1	84.78		60186 AS KING3 345 60221 KOLMNLK3 345 1	SW914
				122	85.38	122	85.38		122	85.38		60302 COULEE 5 161 60967 COULEE 869.0 2	
				122	85.39	122	85.39		122	85.39		60305 EAU CLA5 161 61200 PRESTOT5 161 1	
				130.8	91.54	130.8	91.54		130.8	91.54		60307 JACKSON5 161 60316 TREMVAL5 161 1	
				130.8	91.55	130.8	91.55		130.8	91.55		60307 JACKSON5 161 60966 JACKCO 869.0 1	
				127.3	89.08	127.3	89.08		127.3	89.08		60308 LACROSS5 161 60311 MAYFAIR5 161 1	
				121.7	85.2	121.7	85.2		121.7	85.2		60308 LACROSS5 161 60973 LAX 869.0 1	
				121.7	85.21	121.7	85.21		121.7	85.2		60308 LACROSS5 161 60973 LAX 869.0 2	
				121.3	84.91	121.3	84.91		121.3	84.91		60316 TREMVAL5 161 60979 TREMVAL869.0 1	
				122	85.39	122	85.39		122	85.39		60317 WHT 14 5 161 61200 PRESTOT5 161 1	
60312 PINE LK5 161	60313 PINE LK7 115	3	112	66	73.95	66	73.95		66	73.95		SYSTEM INTACT	
				151.4	169.53	151.4	169.53		151.4	169.53		60187 AS KING7 115 60325 WILOWRV7 115 1	
				97.1	108.75							60187 AS KING7 115 60325 WILOWRV7 115 1	SW863
				96.7	108.28							60313 PINE LK7 115 60325 WILOWRV7 115 1	
60312 PINE LK5 161	60314 PINELKT5 161	1	165	44.8	73.95	44.8	73.95		44.8	73.95		SYSTEM INTACT	
				102.7	169.53	102.7	169.53		102.7	169.53		60187 AS KING7 115 60325 WILOWRV7 115 1	
60313 PINE LK7 115	61023 PINE LK869.0	1	112	53.4	59.86	53.4	59.86		53.4	59.86		SYSTEM INTACT	
				103.5	115.97	103.5	115.97		103.5	115.97		60313 PINE LK7 115 61023 PINE LK869.0 2	
60313 PINE LK7 115	61023 PINE LK869.0	2	112	52.9	59.25	52.9	59.25		52.9	59.25		SYSTEM INTACT	
				103.5	115.88	103.5	115.88		103.5	115.88		60313 PINE LK7 115 61023 PINE LK869.0 1	
60315 T-CRNRS7 115	60666 T CORNE869.0	1	62.5	56.3	35.16	56.3	35.16		56.3	35.17		SYSTEM INTACT	
				130	81.22	130	81.22		130	81.22		60315 T-CRNRS7 115 60666 T CORNE869.0 2	
60317 WHT 14 5 161	61200 PRESTOT5 161	1	272	94.3	256.36	94.3	256.36		94.3	256.36		SYSTEM INTACT	
				98.9	269.1							60105 PR ISLD3 345 60236 REDROCK3 345 1	SW800
				111.8	304.02	111.8	304.02		111.8	304.01		60186 AS KING3 345 60221 KOLMNLK3 345 1	SW913
				112.1	304.94	112.1	304.94		112.1	304.93		60186 AS KING3 345 60221 KOLMNLK3 345 1	SW914
				112.2	305.26	112.2	305.26		112.2	305.25		60186 AS KING3 345 60236 REDROCK3 345 1	SW915
				112.5	306.02	112.5	306.02		112.5	306.02		60186 AS KING3 345 60236 REDROCK3 345 1	SW916
				123.9	337.04	123.9	337.04		123.9	337.04		60186 AS KING3 345 60304 EAU CL 3 345 1	SW400
				112.3	305.32	112.3	305.32		112.3	305.32		60186 AS KING3 345 60304 EAU CL 3 345 1	SW860
				112.5	306.07	112.5	306.07		112.5	306.07		60186 AS KING3 345 60304 EAU CL 3 345 1	SW861

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line			
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
				97.4	264.93							60304 EAU CL 3 345 60305 EAU CLA5 161 9	
				97.9	266.37							60316 TREMVAL5 161 60323 SEVN ML5 161 1	
60323 SEVN ML5 161	61071 SEVN ML869.0	1	112	104.2	116.7	104.2	116.7		104.2	116.7		SYSTEM INTACT	
				118.1	132.22	118.1	132.22		118.1	132.22		60282 REDCDR 5 161 60319 WHEATTP5 161 1	SW866
				115.8	129.71	115.8	129.71		115.8	129.71		60282 REDCDR 5 161 60319 WHEATTP5 161 1	SW870
				126.4	141.53	126.4	141.53		126.4	141.53		60305 EAU CLA5 161 61001 EAUCLAI869.0 1	
				129.8	145.41	129.8	145.41		129.8	145.41		60305 EAU CLA5 161 61001 EAUCLAI869.0 2	
				107.7	120.62	107.7	120.62		107.7	120.62		60307 JACKSON5 161 60966 JACKCO 869.0 1	
				108.1	121.03	108.1	121.03		108.1	121.03		60316 TREMVAL5 161 60979 TREMVAL869.0 1	
				111.6	125.02	111.6	125.02		111.6	125.02		60318 WHT 56 5 161 60319 WHEATTP5 161 1	
				114.6	128.38	114.6	128.38		114.6	128.38		60319 WHEATTP5 161 60320 HYDROLN5 161 1	
				114.6	128.39	114.6	128.39		114.6	128.39		60320 HYDROLN5 161 60321 HYDROLN7 115 1	
				108.2	121.21	108.2	121.21		108.2	121.21		60321 HYDROLN7 115 61006 WISSOTAG69.0 1	
60343 WILLPIP7 115	62228 APPVLTW7 115	1	195.6	48.6	95							SYSTEM INTACT	
				99	193.55							60188 RIVERWD7 115 60200 BLK DG27 115 1	
60357 MAYNARD7 115	62005 KERKHOT7 115	1	78	52.7	41.14	52.7	41.14		52.8	41.15		SYSTEM INTACT	
				96.1	74.97							62427 WILLMAR869.0 63050 WILLMAR4 230 1	
				109.3	85.27	109.3	85.26		109.3	85.27		62427 WILLMAR869.0 63050 WILLMAR4 230 1	SW928
				127.2	99.18	127.2	99.18		127.2	99.19		63050 WILLMAR4 230 66550 GRANITF4 230 1	
60362 CHANRMB7 115	60715 CHANRMB934.5	1	120	67.2	80.64	67.2	80.64		67.2	80.64		SYSTEM INTACT	
				134.5	161.44	134.5	161.44		134.5	161.44		60362 CHANRMB7 115 60715 CHANRMB934.5 2	
60362 CHANRMB7 115	60715 CHANRMB934.5	2	120	67.2	80.64	67.2	80.64		67.2	80.64		SYSTEM INTACT	
				134.5	161.44	134.5	161.44		134.5	161.44		60362 CHANRMB7 115 60715 CHANRMB934.5 1	
60369 FEPTP 7 115	62234 LKMARN 7 115	1	310	85.8	266.04	85.8	266.03		85.8	266.05		SYSTEM INTACT	
				98.4	305.03							60107 W FARIB7 115 60792 WFARBLT869.0 1	SW822
				111.2	344.72	111.2	344.71		111.2	344.73		60107 W FARIB7 115 62865 AIRTECH7 115 1	
				112	347.12	112	347.11		112	347.13		60108 WILMART3 345 60192 BLUE LK3 345 1	
				113	350.16	113	350.15		113	350.17		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
				112.3	348.19	112.3	348.18		112.3	348.2		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
				100.9	312.87	100.9	312.87		100.9	312.88		60108 WILMART3 345 60365 FIELD_S3 345 1	
				100.3	310.97	100.3	310.96		100.3	310.97		60202 COON CK3 345 63030 DICKNSN3 345 1	SW880
				100.9	312.87	100.9	312.86		100.9	312.87		60331 LKFLDXL3 345 60364 FIELD_N3 345 1	
				100.9	312.84	100.9	312.83		100.9	312.84		60364 FIELD_N3 345 60365 FIELD_S3 345 1	
				112	347.1	112	347.09		112	347.11		60369 FEPTP 7 115 62865 AIRTECH7 115 1	
60369 FEPTP 7 115	62865 AIRTECH7 115	1	310	66.7	206.82	66.7	206.82		66.7	206.82		SYSTEM INTACT	
				101.4	314.47	101.4	314.46		101.4	314.47		60369 FEPTP 7 115 62234 LKMARN 7 115 1	
60382 BRKNGCO7 115	60383 BRKNGCO3 345	1	448	74.9	335.35	74.9	335.36		74.9	335.35		SYSTEM INTACT	
				95.2	426.46							60119 LKYNKTN7 115 60279 BUFFRID7 115 1	
				109.5	490.66	109.5	490.66		109.5	490.66		60279 BUFFRID7 115 60381 YANKEE 7 115 1	
60384 FENTON 7 115	60610 FTN WND134.5	1	120	89.4	107.23	89.4	107.23		89.4	107.23		SYSTEM INTACT	
				117.6	141.07	117.6	141.07		117.6	141.07		34003 MAGNLIA5 161 60128 SPLT RK5 161 1	SW806
				117.5	141.06	117.5	141.06		117.5	141.06		60067 FTN 20G.575 60370 DAN JUHL 161 1	
				117.5	141.06	117.5	141.06		117.5	141.06		60128 SPLT RK5 161 60370 DAN JUHL 161 1	
60742 PANTHER869.0	63054 PANTHER4 230	1	70	71.9	50.34							SYSTEM INTACT	
				96.1	67.24							60148 MINVALY7 115 61954 REDFLST7 115 1	
61910 MILACA 4 230	62301 MILACA 869.0	1	71.7	124.4	89.18	124.4	89.18		124.4	89.18		SYSTEM INTACT	
				137.8	98.8	137.8	98.8		137.8	98.8		60114 ELM CRK3 345 60151 MNTCELO3 345 1	SW833
				142.6	102.26	142.6	102.26		142.6	102.26		60143 BENTON 7 115 60146 GRANCTY7 115 1	SW757
				135.3	97.03	135.3	97.03		135.3	97.03		60151 MNTCELO3 345 60160 SHERCO 3 345 1	SW834
				134.7	96.58	134.7	96.58		134.7	96.58		60151 MNTCELO3 345 60160 SHERCO 3 345 1	SW878

Output File: kc0-sp16-line kcg-sp16-line kcl-sp16-line

CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
				135	96.82	135	96.82		135	96.82		60152 MNTCELO4 230 63043 ELK RIV4 230 1	
				138.9	99.62	138.9	99.62		138.9	99.62		60152 MNTCELO4 230 63043 ELK RIV4 230 1	SW975
				140	100.4	140	100.4		140	100.4		60160 SHERCO 3 345 63031 BUNKER 3 345 1	SW976
				133.5	95.74	133.5	95.74		133.5	95.74		60160 SHERCO 3 345 63031 BUNKER 3 345 1	SW977
				135.5	97.13	135.5	97.13		135.5	97.13		62293 RUSH CY869.0 63048 RUSH CY4 230 1	
				138.4	99.27	138.4	99.26		138.4	99.27		62297 BENTON 869.0 63045 BENTON 4 230 1	
62090 PRKWOOD7 115	62132 PRKWOOD869.0	1	140	69.7	97.65	69.7	97.65		69.7	97.65		SYSTEM INTACT	
				109.9	153.86	109.9	153.86		109.9	153.86		62090 PRKWOOD7 115 62132 PRKWOOD869.0 2	
62090 PRKWOOD7 115	62132 PRKWOOD869.0	2	140	69.7	97.65	69.7	97.65		69.7	97.65		SYSTEM INTACT	
				113.3	158.64	113.3	158.64		113.3	158.65		60205 CRKEDLK7 115 62090 PRKWOOD7 115 1	SW969
				109.9	153.86	109.9	153.86		109.9	153.86		62090 PRKWOOD7 115 62132 PRKWOOD869.0 1	
62128 BLAINE 869.0	63040 BLAINE 4 230	1	112	79.8	89.35	79.8	89.35		79.8	89.35		SYSTEM INTACT	
				95.1	106.51							60203 COON CK7 115 62090 PRKWOOD7 115 1	
				101.7	113.95	101.7	113.95		101.7	113.95		60203 COON CK7 115 62090 PRKWOOD7 115 1	SW970
				100	112.03	100	112.03		100	112.03		62140 MARTNTP869.0 63057 LINWOOD4 230 1	
				95.9	107.36							62147 BNKRLK 869.0 63046 BUNKER 4 230 1	
62134 ELKR14S869.0	63043 ELK RIV4 230	1	187	70.1	131.01	70.1	131.01		70.1	131.01		SYSTEM INTACT	
				107.2	200.51	107.2	200.51		107.2	200.51		62134 ELKR14S869.0 63043 ELK RIV4 230 2	
				117.8	220.24	117.8	220.24		117.8	220.24		62134 ELKR14S869.0 63043 ELK RIV4 230 2	SW974
62134 ELKR14S869.0	63043 ELK RIV4 230	2	187	70.1	131.01	70.1	131.01		70.1	131.01		SYSTEM INTACT	
				107.2	200.51	107.2	200.51		107.2	200.51		62134 ELKR14S869.0 63043 ELK RIV4 230 1	
62147 BNKRLK 869.0	63046 BUNKER 4 230	1	112	104.9	117.48	104.9	117.48		104.9	117.48		SYSTEM INTACT	
				116.7	130.75	116.7	130.75		116.7	130.75		60114 ELM CRK3 345 60151 MNTCELO3 345 1	SW833
				125.4	140.41	125.4	140.41		125.4	140.41		60203 COON CK7 115 62090 PRKWOOD7 115 1	
				132.8	148.69	132.8	148.69		132.8	148.69		60203 COON CK7 115 62090 PRKWOOD7 115 1	SW970
				116.7	130.69	116.7	130.69		116.7	130.69		60205 CRKEDLK7 115 62090 PRKWOOD7 115 1	SW969
				118.1	132.32	118.1	132.32		118.1	132.32		62090 PRKWOOD7 115 62132 PRKWOOD869.0 1	
				118.1	132.32	118.1	132.32		118.1	132.32		62090 PRKWOOD7 115 62132 PRKWOOD869.0 2	
				119.3	133.63	119.3	133.63		119.3	133.63		62128 BLAINE 869.0 63040 BLAINE 4 230 1	
				126.9	142.18	126.9	142.18		126.9	142.18		62128 BLAINE 869.0 63040 BLAINE 4 230 1	SW993
				115.1	128.93	115.1	128.93		115.1	128.93		62134 ELKR14S869.0 63043 ELK RIV4 230 1	
				122.1	136.73	122.1	136.73		122.1	136.73		63040 BLAINE 4 230 63046 BUNKER 4 230 1	
62225 BURNVIL7 115	62250 BURNVIL869.0	1	95.6	65.4	62.51	65.4	62.51		65.4	62.51		SYSTEM INTACT	
				112.4	107.41	112.4	107.41		112.4	107.41		62225 BURNVIL7 115 62250 BURNVIL869.0 2	
62232 DKTAHGT7 115	62237 KENRICK7 115	1	144	70.4	101.43	70.4	101.43		70.4	101.44		SYSTEM INTACT	
				97.6	140.61							60108 WILMART3 345 60192 BLUE LK3 345 1	
				99.1	142.71							60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
				98.3	141.51							60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
				95.8	137.9							60188 RIVERWD7 115 60200 BLK DG27 115 1	
				110.1	158.59	110.1	158.58		110.1	158.59		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	
62234 LKMARN 7 115	62237 KENRICK7 115	1	144	76.5	110.2	76.5	110.2		76.5	110.21		SYSTEM INTACT	
				96.4	138.79							60107 W FARIB7 115 62865 AIRTECH7 115 1	
				103.4	148.91	103.4	148.91		103.4	148.92		60108 WILMART3 345 60192 BLUE LK3 345 1	
				104.9	151.05	104.9	151.05		104.9	151.06		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
				104	149.82	104	149.81		104	149.82		60108 WILMART3 345 60192 BLUE LK3 345 1	SW903
				102.5	147.61	102.5	147.61		102.5	147.62		60188 RIVERWD7 115 60200 BLK DG27 115 1	
				97.7	140.7							60188 RIVERWD7 115 62225 BURNVIL7 115 1	
				116.3	167.52	116.3	167.51		116.3	167.52		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	
				100.4	144.57	100.4	144.56		100.4	144.57		60343 WILLPIP7 115 62228 APPVLTW7 115 1	
				97	139.63							60369 FEPTP 7 115 62865 AIRTECH7 115 1	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line			
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
				100.4	144.57	100.4	144.57		100.4	144.58		62227 JOHNCAK7 115 62228 APPVLTW7 115 1	
62234 LKMARN 7 115	62259 LKMARN 869.0	1	70	95.8	67.08	95.8	67.08		95.8	67.08		SYSTEM INTACT	
				105.1	73.58	105.1	73.57		105.1	73.58		60107 W FARIB7 115 60792 WFARBLT869.0 1	SW822
				114.8	80.33	114.8	80.33		114.8	80.33		60107 W FARIB7 115 62865 AIRTECH7 115 1	
				105	73.52	105	73.51		105	73.52		60108 WILMART3 345 60192 BLUE LK3 345 1	SW902
				105.7	74	105.7	74		105.7	74		60200 BLK DG27 115 62666 GLNDALE7 115 1	SW857
				104.4	73.1	104.4	73.1		104.4	73.1		60218 INVRHLS7 115 60220 INVRGRV7 115 1	
				113.9	79.76	113.9	79.76		113.9	79.76		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	
				115.4	80.8	115.4	80.8		115.4	80.8		60369 FEPTP 7 115 62865 AIRTECH7 115 1	
				104.3	72.98	104.3	72.98		104.3	72.98		62225 BURNVIL7 115 62232 DKTAHGT7 115 1	
				112.5	78.73	112.5	78.72		112.5	78.73		62232 DKTAHGT7 115 62237 KENRICK7 115 1	
				114.7	80.29	114.7	80.29		114.7	80.29		62234 LKMARN 7 115 62237 KENRICK7 115 1	
62293 RUSH CY869.0	63048 RUSH CY4 230	1	84	87.9	73.87	87.9	73.87		87.9	73.87		SYSTEM INTACT	
				95.2	79.94							60142 BENTON 3 345 60160 SHERCO 3 345 1	
				95.2	79.94							60142 BENTON 3 345 60160 SHERCO 3 345 1	SW979
				100.4	84.31	100.4	84.31		100.4	84.31		61910 MILACA 4 230 62301 MILACA 869.0 1	
				100.4	84.32	100.4	84.32		100.4	84.32		61910 MILACA 4 230 63045 BENTON 4 230 1	
				102.2	85.83	102.2	85.83		102.2	85.83		61910 MILACA 4 230 63045 BENTON 4 230 1	SW971
				107	89.92	107	89.92		107	89.92		62140 MARTNTP869.0 63057 LINWOOD4 230 1	
62387 SPRNGCK869.0	63071 SPRNGCK5 161	1	70	63.7	44.58							SYSTEM INTACT	
				95.8	67.05							62387 SPRNGCK869.0 63071 SPRNGCK5 161 2	
62425 WILLMAR7 115	62427 WILLMAR869.0	1	92.4	36.5	33.72	36.5	33.72		36.5	33.72		SYSTEM INTACT	
				97.4	90.02							62427 WILLMAR869.0 63050 WILLMAR4 230 1	
				101	93.33	101	93.33		101	93.33		62427 WILLMAR869.0 63050 WILLMAR4 230 1	SW928
				123.5	114.13	123.5	114.13		123.5	114.13		63050 WILLMAR4 230 66550 GRANITF4 230 1	
62616 BIGSWAN7 115	62617 BIGSWAN869.0	1	46.7	84.7	39.56	84.7	39.56		84.7	39.56		SYSTEM INTACT	
				100.3	46.82	100.3	46.82		100.3	46.82		60206 CROWRVR7 115 60652 CROWRV 869.0 1	
				102.5	47.86	102.5	47.86		102.5	47.86		62982 HUTCHMN7 115 62986 HUTCHMN869.0 1	
62666 GLNDALE7 115	62672 GLNDALE869.0	1	46.7	83.6	39.04	83.6	39.04		83.6	39.03		SYSTEM INTACT	
				115.2	53.79	115.2	53.79		115.2	53.78		60188 RIVERWD7 115 60200 BLK DG27 115 1	
				109.4	51.11	109.4	51.11		109.4	51.11		60188 RIVERWD7 115 62225 BURNVIL7 115 1	
				106.1	49.53	106.1	49.53		106.1	49.53		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	SW812
				100.1	46.74	100.1	46.74		100.1	46.74		60369 FEPTP 7 115 62234 LKMARN 7 115 1	
				99.2	46.32							62225 BURNVIL7 115 62250 BURNVIL869.0 2	
				100.4	46.88	100.4	46.88		100.4	46.88		62234 LKMARN 7 115 62259 LKMARN 869.0 1	
				123.6	57.71	123.6	57.71		123.6	57.71		62666 GLNDALE7 115 62672 GLNDALE869.0 2	
62666 GLNDALE7 115	62672 GLNDALE869.0	2	46.7	83.6	39.04	83.6	39.04		83.6	39.03		SYSTEM INTACT	
				115.2	53.79	115.2	53.79		115.2	53.78		60188 RIVERWD7 115 60200 BLK DG27 115 1	
				109.4	51.11	109.4	51.11		109.4	51.11		60188 RIVERWD7 115 62225 BURNVIL7 115 1	
				127.3	59.43	127.3	59.43		127.3	59.43		60194 CARVRCO7 115 60243 SCOTTAP7 115 1	SW991
				106.1	49.53	106.1	49.53		106.1	49.53		60276 AIRLAKE7 115 62234 LKMARN 7 115 1	SW812
				100.1	46.74	100.1	46.74		100.1	46.74		60369 FEPTP 7 115 62234 LKMARN 7 115 1	
				99.2	46.32							62225 BURNVIL7 115 62250 BURNVIL869.0 2	
				100.4	46.88	100.4	46.88		100.4	46.88		62234 LKMARN 7 115 62259 LKMARN 869.0 1	
				123.6	57.71	123.6	57.71		123.6	57.71		62666 GLNDALE7 115 62672 GLNDALE869.0 1	
62667 ST BONI7 115	63021 ST BONI869.0	1	70	48	33.59	48	33.59		48	33.59		SYSTEM INTACT	
				159.6	111.69	159.6	111.69		159.6	111.69		60211 GLESNLK7 115 60887 GLESNLK869.0 1	
62925 DICKNSN7 115	62926 DCKSNSS7 115	1	195.6	54	105.65	54	105.64		54	105.65		SYSTEM INTACT	
				104.8	205.06	104.8	205.05		104.8	205.06		60151 MNTCELO3 345 60153 MNTCELO7 115 10	
62925 DICKNSN7 115	63085 DICKNSNY1.00	1	448	84.9	380.47	84.9	380.47		84.9	380.48		SYSTEM INTACT	

Output File: kc0-sp16-line kcg-sp16-line kcl-sp16-line

CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	kc0 OVRLD %	kc0 CURRENT MVA	kcg OVRLD %	kcg CURRENT MVA	Diff MVA	kcl OVRLD %	kcl CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
				106	475.08	106	475.08		106	475.08		60114 ELM CRK3 345 60233 PARKERS3 345 1	SW827
				101.5	454.62	101.5	454.62		101.5	454.62		60151 MNTCELO3 345 60153 MNTCELO7 115 10	
				102.1	457.25	102.1	457.25		102.1	457.26		60160 SHERCO 3 345 60202 COON CK3 345 1	SW881
				102.1	457.25	102.1	457.25		102.1	457.26		60160 SHERCO 3 345 60202 COON CK3 345 1	SW882
				102	456.98	102	456.98		102	456.99		60160 SHERCO 3 345 60272 MPLEGV23 345 1	SW835
				97.2	435.43							60202 COON CK3 345 63030 DICKNSN3 345 1	SW402
				105.5	472.45	105.5	472.45		105.5	472.45		60211 GLESNLK7 115 60234 PARKERS7 115 1	SW992
				101.8	456.21	101.8	456.21		101.8	456.21		60233 PARKERS3 345 60270 MPLEGV13 345 1	SW828
				101.8	456.21	101.8	456.21		101.8	456.21		60233 PARKERS3 345 60270 MPLEGV13 345 1	SW883
				96.8	433.48							60270 MPLEGV13 345 63030 DICKNSN3 345 1	SW402
63030 DICKNSN3 345	63085 DICKNSNY1.00	1	448	84.9	380.47	84.9	380.47		84.9	380.48		SYSTEM INTACT	
				106	475.08	106	475.08		106	475.08		60114 ELM CRK3 345 60233 PARKERS3 345 1	SW827
				101.5	454.62	101.5	454.62		101.5	454.62		60151 MNTCELO3 345 60153 MNTCELO7 115 10	
				102.1	457.25	102.1	457.25		102.1	457.26		60160 SHERCO 3 345 60202 COON CK3 345 1	SW881
				102.1	457.25	102.1	457.25		102.1	457.26		60160 SHERCO 3 345 60202 COON CK3 345 1	SW882
				102	456.98	102	456.98		102	456.99		60160 SHERCO 3 345 60272 MPLEGV23 345 1	SW835
				97.2	435.43							60202 COON CK3 345 63030 DICKNSN3 345 1	SW402
				105.5	472.45	105.5	472.45		105.5	472.45		60211 GLESNLK7 115 60234 PARKERS7 115 1	SW992
				101.8	456.21	101.8	456.22		101.8	456.21		60233 PARKERS3 345 60270 MPLEGV13 345 1	SW828
				101.8	456.21	101.8	456.22		101.8	456.21		60233 PARKERS3 345 60270 MPLEGV13 345 1	SW883
				96.8	433.48							60270 MPLEGV13 345 63030 DICKNSN3 345 1	SW402
63044 MCHENRY4 230	63082 MCHENRYY1.00	1	84	89.9	75.51	89.9	75.48		90.2	75.75		SYSTEM INTACT	
				144.6	121.51	144.6	121.48		145.1	121.86	**0.35**	60138 SOURIS 7 115 60139 MALLARD7 115 1	
				110.4	92.77	110.4	92.73		110.8	93.04	**0.27**	60139 MALLARD7 115 67155 LOGAN 7 115 1	
				107.5	90.29	107.4	90.24		107.8	90.57	**0.28**	63044 MCHENRY4 230 63056 BALTA 4 230 1	
				101	84.86	101	84.83		101.3	85.13	**0.27**	63047 RAMSEY 4 230 63056 BALTA 4 230 1	
				101.5	85.27	101.5	85.23		101.8	85.53	**0.26**	63047 RAMSEY 4 230 66755 PRAIRIE4 230 1	SW739
				102.6	86.14	102.5	86.11		102.9	86.47	**0.33**	63185 RUGBY Y 230 63379 RUGBY 4 230 1	
				112.7	94.71	112.7	94.68		113.2	95.09	**0.38**	66442 GARRISN7 115 67113 VOLTAIR7 115 1	
				105.6	88.67	105.4	88.56		106	89.02	**0.35**	67106 LELANDO4 230 67108 LOGAN 4 230 1	
				109.5	91.96	109.4	91.91		109.5	92.02		67108 LOGAN 4 230 67208 LOGAN TY 230 1	
				109.5	91.96	109.4	91.91		109.5	92.02		67155 LOGAN 7 115 67208 LOGAN TY 230 1	
63047 RAMSEY 4 230	63084 RAMSEY Y1.00	1	84	69.3	58.19	69.3	58.18		69.4	58.27		SYSTEM INTACT	
				107.8	90.55	107.8	90.54		107.9	90.61		63047 RAMSEY 4 230 66755 PRAIRIE4 230 1	
				96.7	81.19							63257 HENSEL 7 115 66705 DRAYTON7 115 1	
				101.3	85.13	101.3	85.13		101.5	85.25		66447 LEEDS 7 115 66452 RUGBY 7 115 1	
63084 RAMSEY Y1.00	63266 RAMSEY 7 115	1	84	69.3	58.18	69.3	58.18		69.4	58.27		SYSTEM INTACT	
				107.8	90.55	107.8	90.54		107.9	90.61		63047 RAMSEY 4 230 66755 PRAIRIE4 230 1	
				96.7	81.19							63257 HENSEL 7 115 66705 DRAYTON7 115 1	
				101.3	85.13	101.3	85.13		101.5	85.25		66447 LEEDS 7 115 66452 RUGBY 7 115 1	
63123 HOOT LK941.6	63223 HOOT LK7 115	1	27	96.7	26.11							SYSTEM INTACT	
				99.6	26.9							60133 SHEYNNE4 230 60134 SHEYNNE7 115 5	SW887
				98.3	26.53							60133 SHEYNNE4 230 63336 AUDUBON4 230 1	
				98.4	26.57							63129 WAHPETN941.6 63201 WAHPET2Y 230 1	SW960
				98.4	26.56							63198 BUFFALOY 345 63258 BUFFALO7 115 1	SW886
				98.6	26.63							63202 AUDUBONY 230 63236 AUDUBON7 115 1	
				97.6	26.34							63202 AUDUBONY 230 63336 AUDUBON4 230 1	
				97.9	26.44							63327 HANKSON4 230 63329 WAHPETN4 230 1	
				97.9	26.44							63358 BUFFALO3 345 63369 JAMESTN3 345 1	
				98.3	26.55							63358 BUFFALO3 345 66792 MAPLE R3 345 1	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line				
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
				97.6	26.35							63369 JAMESTN3 345 66791 CENTER 3 345 1	
63179 RUGBY T13.8	63185 RUGBY Y 230	1	25.3	97.7	24.71							SYSTEM INTACT	
				98.4	24.91							60202 COON CK3 345 63030 DICKNSN3 345 1	SW880
				98	24.79							63041 COAL CR4 230 63042 COAL TP4 230 1	SW804
				98	24.81							63047 RAMSEY 4 230 63056 BALTA 4 230 1	
				98.2	24.84							63056 BALTA 4 230 63290 HARVEY 4 230 1	
				98.2	24.85							63056 BALTA 4 230 63379 RUGBY 4 230 1	SW507
				98.9	25.02							63267 DEVIL J7 115 66431 DEVILSL7 115 1	SW732
				98.2	24.83							63290 HARVEY 4 230 63381 UNDERWD4 230 1	
				98.2	24.84							66437 GRNDFKS4 230 66759 PICKERT4 230 1	
				98.2	24.84							66437 GRNDFKS4 230 66759 PICKERT4 230 1	SW734
				98.2	24.84							67105 LELANDO3 345 67202 LELND2TY 345 1	SW3
63184 HENSEL2Y 115	66796 HENSELU869.0 P2		40	50.4	20.18	50.4	20.18		50.4	20.18		SYSTEM INTACT	
				109.2	43.69	109.2	43.69		109.2	43.69		63192 HENSEL Y 115 63257 HENSEL 7 115 1	
				101.6	40.63	101.6	40.63		101.6	40.63		63192 HENSEL Y 115 66796 HENSELU869.0 1	
63186 WILTON Y 230	63245 WILTON 7 115	1	140	60.4	84.57	60.4	84.57		60.4	84.57		SYSTEM INTACT	
				105.8	148.09	105.8	148.08		105.8	148.09		63245 WILTON 7 115 66798 WILTON2T 230 1	
				105.8	148.09	105.8	148.08		105.8	148.09		63345 WILTON 4 230 66798 WILTON2T 230 1	
63186 WILTON Y 230	63345 WILTON 4 230	1	140	60.4	84.57	60.4	84.57		60.4	84.57		SYSTEM INTACT	
				105.8	148.09	105.8	148.08		105.8	148.09		63245 WILTON 7 115 66798 WILTON2T 230 1	
				105.8	148.09	105.8	148.08		105.8	148.09		63345 WILTON 4 230 66798 WILTON2T 230 1	
63189 MAPLER1Y 345	66792 MAPLE R3 345	1	336	49.5	166.29							SYSTEM INTACT	
				95	319.37							63190 MAPLER2Y 345 66754 MAPLE R4 230 1	SW8
				95	319.37							63190 MAPLER2Y 345 66792 MAPLE R3 345 1	SW8
63190 MAPLER2Y 345	66792 MAPLE R3 345	1	336	49.5	166.29							SYSTEM INTACT	
				95	319.37							63189 MAPLER1Y 345 66754 MAPLE R4 230 1	SW7
				95	319.37							63189 MAPLER1Y 345 66792 MAPLE R3 345 1	SW7
63192 HENSEL Y 115	66796 HENSELU869.0 1		40	50.4	20.18	50.4	20.18		50.4	20.18		SYSTEM INTACT	
				109.2	43.69	109.2	43.69		109.2	43.69		63184 HENSEL2Y 115 63257 HENSEL 7 115 P2	
				101.6	40.63	101.6	40.63		101.6	40.63		63184 HENSEL2Y 115 66796 HENSELU869.0 P2	
63219 GRANTCO7 115	66555 MORRIS 7 115	1	96	96.5	92.66	96.5	92.65		96.5	92.67		SYSTEM INTACT	
				107.9	103.57	107.9	103.55		107.9	103.57		60133 SHEYNNE4 230 66435 FARGO 4 230 1	
				128.1	122.99	128.1	122.98		128.1	122.99		63129 WAHPETN941.6 63191 WAHPET1Y 230 1	SW959
				130	124.82	130	124.81		130	124.83		63129 WAHPETN941.6 63201 WAHPET2Y 230 1	SW960
				109.1	104.77	109.1	104.77		109.1	104.78		63219 GRANTCO7 115 63223 HOOT LK7 115 1	
				119.7	114.88	119.7	114.87		119.7	114.9		63314 BIGSTON4 230 63325 BROWNSV4 230 1	
				118.5	113.73	118.5	113.71		118.5	113.74		63314 BIGSTON4 230 63325 BROWNSV4 230 1	SW937
				117.1	112.42	117.1	112.41		117.1	112.43		63325 BROWNSV4 230 63327 HANKSON4 230 1	
				129.4	124.23	129.4	124.22		129.4	124.24		63327 HANKSON4 230 63329 WAHPETN4 230 1	
				124	119.04	124	119.03		124	119.04		63329 WAHPETN4 230 63331 FERGSFL4 230 1	
				112.9	108.41	112.9	108.39		112.9	108.42		66553 MOORHED4 230 66554 MORRIS 4 230 1	
63223 HOOT LK7 115	63233 EDGETAP7 115	1	96	82.9	79.58	82.9	79.57		82.9	79.58		SYSTEM INTACT	
				110.9	106.46	110.9	106.46		110.9	106.47		60133 SHEYNNE4 230 60134 SHEYNNE7 115 5	SW887
				102	97.88	102	97.88		102	97.88		60133 SHEYNNE4 230 63336 AUDUBON4 230 1	
				105.6	101.39	105.6	101.39		105.6	101.39		62531 INMAN 7 115 63052 INMAN 4 230 1	SW819
				102.5	98.44	102.5	98.43		102.5	98.44		63051 HENNING4 230 63052 INMAN 4 230 1	
				102.5	98.44	102.5	98.43		102.5	98.44		63051 HENNING4 230 63052 INMAN 4 230 1	SW818
				105.2	100.97	105.2	100.97		105.2	100.97		63051 HENNING4 230 63366 SILVRLK4 230 1	
				102.4	98.27	102.4	98.27		102.4	98.27		63202 AUDUBONY 230 63236 AUDUBON7 115 1	
				100.7	96.67	100.7	96.67		100.7	96.67		63219 GRANTCO7 115 63220 ELBOWLK7 115 1	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line			
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
				99.2	95.19							63219 GRANTCO7 115 63220 ELBOWLK7 115 1	SW939
				105.2	100.98	105.2	100.98		105.2	100.98		63331 FERGSFL4 230 63366 SILVRLK4 230 1	
63223 HOOT LK7 115	63323 HOOTLK2G13.8	1	60	106.9	64.14	106.9	64.14		106.9	64.14		SYSTEM INTACT	
				111.4	66.82	111.4	66.82		111.4	66.82		60133 SHEYNNE4 230 60134 SHEYNNE7 115 5	SW887
				110	66.03	110	66.03		110.1	66.03		60133 SHEYNNE4 230 63336 AUDUBON4 230 1	
				110.2	66.12	110.2	66.12		110.2	66.12		63129 WAHPETN941.6 63201 WAHPET2Y 230 1	SW960
				110.2	66.1	110.2	66.1		110.2	66.11		63198 BUFFALOY 345 63258 BUFFALO7 115 1	SW886
				110.4	66.24	110.4	66.24		110.4	66.24		63202 AUDUBONY 230 63236 AUDUBON7 115 1	
				109.4	65.63	109.4	65.63		109.4	65.63		63202 AUDUBONY 230 63336 AUDUBON4 230 1	
				109.7	65.83	109.7	65.83		109.7	65.83		63327 HANKSON4 230 63329 WAHPETN4 230 1	
				109.7	65.84	109.7	65.84		109.7	65.85		63358 BUFFALO3 345 63369 JAMESTN3 345 1	
				110.1	66.07	110.1	66.07		110.1	66.08		63358 BUFFALO3 345 66792 MAPLE R3 345 1	
				109.4	65.66	109.4	65.66		109.4	65.66		63369 JAMESTN3 345 66791 CENTER 3 345 1	
63245 WILTON 7 115	63246 BEMIDJI7 115	1	120	106.8	128.17	106.8	128.17		106.8	128.17		SYSTEM INTACT	
				113.5	136.19	113.5	136.19		113.5	136.18		60101 FORBES 2 500 60198 CHIS-N 2 500 1	SW500
				116.4	139.73	116.4	139.73		116.4	139.72		60133 SHEYNNE4 230 60134 SHEYNNE7 115 5	SW887
				119.7	143.66	119.7	143.66		119.7	143.65		60133 SHEYNNE4 230 63336 AUDUBON4 230 1	
				113	135.57	113	135.57		113	135.57		60142 BENTON 3 345 60160 SHERCO 3 345 1	
				113	135.57	113	135.57		113	135.57		60142 BENTON 3 345 60160 SHERCO 3 345 1	SW979
				113.5	136.19	113.5	136.19		113.5	136.18		60197 CHIS CO2 500 60198 CHIS-N 2 500 1	SW500
				115.1	138.14	115.1	138.14		115.1	138.14		61910 MILACA 4 230 63045 BENTON 4 230 1	SW971
				112.2	134.67	112.2	134.67		112.2	134.67		63051 HENNING4 230 63366 SILVRLK4 230 1	
				113.3	135.97	113.3	135.97		113.3	135.97		63238 WINGER 7 115 63239 BAGLEY 7 115 1	SW943
				112.3	134.82	112.3	134.82		112.3	134.81		63243 SHEVLIN7 115 63285 SOLWAY 7 115 1	
63327 HANKSON4 230	63329 WAHPETN4 230	1	320	78.5	251.26							SYSTEM INTACT	
				96.6	308.97							63198 BUFFALOY 345 63258 BUFFALO7 115 1	SW886
				97.1	310.88							63358 BUFFALO3 345 63369 JAMESTN3 345 1	
				96.4	308.63							63358 BUFFALO3 345 66792 MAPLE R3 345 1	
				98.5	315.27							63369 JAMESTN3 345 66791 CENTER 3 345 1	
				99.2	317.55							66550 GRANITF4 230 66554 MORRIS 4 230 1	SW930
65738 20&PIO 7 115	65836 20&PI A913.2	1	28	104.5	29.27	104.5	29.27		104.5	29.27		SYSTEM INTACT	
				105	29.4	105	29.4		105	29.4		60202 COON CK3 345 63030 DICKNSN3 345 1	SW880
				104.8	29.35	104.8	29.35		104.8	29.35		65714 NW68HOL7 115 65716 SW27&F 7 115 1	
				104.9	29.36	104.9	29.36		104.9	29.36		65714-65720-65721 NW68HOL3 345/115/13 1	
				104.9	29.36	104.9	29.36		104.9	29.36		65714-65720-65722 NW68HOL3 345/115/13 2	
				104.8	29.34	104.8	29.34		104.8	29.34		65754 120&O 7 115 65771 81&OC 7 115 1	
				104.8	29.34	104.8	29.34		104.8	29.34		65754 120&O 7 115 65785 WAGENER7 115 1	
				105	29.39	105	29.39		105	29.39		65767 84&LEIG7 115 65785 WAGENER7 115 1	
				105	29.39	105	29.39		105	29.39		65785-65786-65787 WAGENER3 345/115/13 1	
				104.9	29.38	104.9	29.38		104.9	29.38		65785-65786-65788 WAGENER3 345/115/13 2	
				104.9	29.38	104.9	29.38		104.9	29.38		65786 WAGENER3 345 65789 103ROK 3 345 1	
66203 FARGO 869.0	66436 FARGO 7 115	1	42	31.9	13.4	31.9	13.4		31.9	13.4		SYSTEM INTACT	
				138.4	58.15	138.4	58.14		138.4	58.15		66203 FARGO 869.0 66436 FARGO 7 115 2	
66203 FARGO 869.0	66436 FARGO 7 115	2	100	67.5	67.52	67.5	67.51		67.5	67.52		SYSTEM INTACT	
				101.5	101.47	101.4	101.45		101.5	101.46		60133 SHEYNNE4 230 66435 FARGO 4 230 1	
				125.2	125.19	125.2	125.19		125.2	125.19		60136 MAPLE R7 115 66783 MAPLE RT 115 1	
				125.2	125.19	125.2	125.19		125.2	125.19		66783 MAPLE RT 115 67000 MAPLE R869.0 1	
66220 BELFELDT 345	66424 BELFELD3 345	1	312	81.5	254.35	81.8	255.12		82.1	256.08		SYSTEM INTACT	
				96.5	301.14							66426 BISMARK4 230 66456 WASHBRN4 230 1	SW893
				108.1	337.19	108.6	338.82	1.63	108.7	339.17	1.98	67105 LELANDO3 345 67202 LELND2TY 345 1	SW3

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line			
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	Diff MVA	OVRLD %	CURRENT MVA	Diff MVA	CONTINGENCY FROM TO CKT	SWITCH
66220 BELFELDT 345	66425 BELFELD4 230	1	312	82.7	257.95	82.9	258.71		83.2	259.66		SYSTEM INTACT	
				97.8	305.04							66426 BISMARK4 230 66456 WASHBRN4 230 1	SW893
				108.1	337.19	108.6	338.82	**1.63**	108.7	339.17	**1.98**	67105 LELANDO3 345 67202 LELND2TY 345 1	SW3
66231 SIOUXF1T 230	66523 SIOUXFL4 230	1	100	82.3	82.29	82.3	82.29		82.3	82.29		SYSTEM INTACT	
				140.5	140.48	140.5	140.48		140.5	140.48		66234 SIOUXF2T 230 66523 SIOUXFL4 230 1	
				140.5	140.48	140.5	140.48		140.5	140.48		66234 SIOUXF2T 230 66524 SIOUXFL7 115 1	
				96.7	96.74							66474 AURORA 7 115 66504 BROOKNG7 115 1	
				100.7	100.73	100.7	100.73		100.7	100.73		66502 BERSFRD7 115 66517 MANNING7 115 1	
				95.3	95.33							66504 BROOKNG7 115 66538 WHITE 7 115 1	
				103.3	103.33	103.3	103.33		103.3	103.33		66517 MANNING7 115 67121 SPIRITM7 115 1	
66231 SIOUXF1T 230	66524 SIOUXFL7 115	1	100	82.3	82.29	82.3	82.29		82.3	82.29		SYSTEM INTACT	
				140.5	140.48	140.5	140.48		140.5	140.48		66234 SIOUXF2T 230 66523 SIOUXFL4 230 1	
				140.5	140.48	140.5	140.48		140.5	140.48		66234 SIOUXF2T 230 66524 SIOUXFL7 115 1	
				96.7	96.74							66474 AURORA 7 115 66504 BROOKNG7 115 1	
				100.7	100.73	100.7	100.73		100.7	100.73		66502 BERSFRD7 115 66517 MANNING7 115 1	
				95.3	95.33							66504 BROOKNG7 115 66538 WHITE 7 115 1	
				103.3	103.33	103.3	103.33		103.3	103.33		66517 MANNING7 115 67121 SPIRITM7 115 1	
66234 SIOUXF2T 230	66523 SIOUXFL4 230	1	100	80.1	80.11	80.1	80.11		80.1	80.11		SYSTEM INTACT	
				139.4	139.44	139.4	139.44		139.4	139.44		66231 SIOUXF1T 230 66523 SIOUXFL4 230 1	
				139.4	139.44	139.4	139.44		139.4	139.44		66231 SIOUXF1T 230 66524 SIOUXFL7 115 1	
				98.1	98.05							66502 BERSFRD7 115 66517 MANNING7 115 1	
				100.6	100.57	100.6	100.57		100.6	100.57		66517 MANNING7 115 67121 SPIRITM7 115 1	
66234 SIOUXF2T 230	66524 SIOUXFL7 115	1	100	80.1	80.11	80.1	80.11		80.1	80.11		SYSTEM INTACT	
				139.4	139.44	139.4	139.44		139.4	139.44		66231 SIOUXF1T 230 66523 SIOUXFL4 230 1	
				139.4	139.44	139.4	139.44		139.4	139.44		66231 SIOUXF1T 230 66524 SIOUXFL7 115 1	
				98.1	98.05							66502 BERSFRD7 115 66517 MANNING7 115 1	
				100.6	100.57	100.6	100.57		100.6	100.57		66517 MANNING7 115 67121 SPIRITM7 115 1	
66303 SIOUXC1T 345	66564 SIOUXCY3 345	1	250	90.7	226.82	90.7	226.82		90.7	226.82		SYSTEM INTACT	
				95.4	238.5							34007 LAKEFLD5 161 34137 TRIBOJI5 161 1	
				95.3	238.15							60108 WILMART3 345 60365 FIELD_S3 345 1	
				103	257.59	103	257.59		103	257.6		60127 SPLT RK4 230 60129 SPLT RK7 115 7	
				103	257.59	103	257.59		103	257.6		60127 SPLT RK4 230 66523 SIOUXFL4 230 1	
				95.3	238.19							60331 LKFLDXL3 345 60364 FIELD_N3 345 1	
				143	357.47	143	357.47		143	357.48		66306 SIOUXC2T 345 66564 SIOUXCY3 345 1	
				143	357.47	143	357.47		143	357.48		66306 SIOUXC2T 345 66565 SIOUXCY4 230 1	
				96	239.91							66507 FTTHOMP4 230 66509 FTRANDL4 230 1	SW899
				96.1	240.27							66509 FTRANDL4 230 66565 SIOUXCY4 230 1	SW747
				95.7	239.34							66523 SIOUXFL4 230 66578 PAHOJA 4 230 1	
66303 SIOUXC1T 345	66565 SIOUXCY4 230	1	250	90.7	226.82	90.7	226.82		90.7	226.82		SYSTEM INTACT	
				95.4	238.5							34007 LAKEFLD5 161 34137 TRIBOJI5 161 1	
				95.3	238.15							60108 WILMART3 345 60365 FIELD_S3 345 1	
				103	257.59	103	257.59		103	257.6		60127 SPLT RK4 230 60129 SPLT RK7 115 7	
				103	257.59	103	257.59		103	257.6		60127 SPLT RK4 230 66523 SIOUXFL4 230 1	
				95.3	238.19							60331 LKFLDXL3 345 60364 FIELD_N3 345 1	
				143	357.47	143	357.47		143	357.48		66306 SIOUXC2T 345 66564 SIOUXCY3 345 1	
				143	357.47	143	357.47		143	357.48		66306 SIOUXC2T 345 66565 SIOUXCY4 230 1	
				96	239.91							66507 FTTHOMP4 230 66509 FTRANDL4 230 1	SW899
				96.1	240.27							66509 FTRANDL4 230 66565 SIOUXCY4 230 1	SW747
				95.7	239.34							66523 SIOUXFL4 230 66578 PAHOJA 4 230 1	
66306 SIOUXC2T 345	66564 SIOUXCY3 345	1	250	89.3	223.22	89.3	223.22		89.3	223.22		SYSTEM INTACT	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line			
CIRCUIT FROM: CIRCUIT TO: CKT	RATEA	OVRLD	CURRENT	OVRLD	CURRENT	Diff	OVRLD	CURRENT	Diff	CONTINGENCY	
# NAME # NAME	MVA	%	MVA	%	MVA	MVA	%	MVA	MVA	FROM TO CKT	SWITCH
		101.4	253.5	101.4	253.5		101.4	253.51		60127 SPLT RK4 230 60129 SPLT RK7 115 7	
		101.4	253.5	101.4	253.5		101.4	253.51		60127 SPLT RK4 230 66523 SIOUXFL4 230 1	
		142.1	355.13	142.1	355.13		142.1	355.14		66303 SIOUXC1T 345 66564 SIOUXCY3 345 1	
		142.1	355.13	142.1	355.13		142.1	355.14		66303 SIOUXC1T 345 66565 SIOUXCY4 230 1	
66306 SIOUXC2T 345 66565 SIOUXCY4 230 1	250	89.3	223.22	89.3	223.22		89.3	223.22		SYSTEM INTACT	
		101.4	253.5	101.4	253.5		101.4	253.51		60127 SPLT RK4 230 60129 SPLT RK7 115 7	
		101.4	253.5	101.4	253.5		101.4	253.51		60127 SPLT RK4 230 66523 SIOUXFL4 230 1	
		142.1	355.13	142.1	355.13		142.1	355.14		66303 SIOUXC1T 345 66564 SIOUXCY3 345 1	
		142.1	355.13	142.1	355.13		142.1	355.14		66303 SIOUXC1T 345 66565 SIOUXCY4 230 1	
66403 DAWSONC4 230 66411 MI CTYE4 230 1	200	69.3	138.68							SYSTEM INTACT	
		97.1	194.17							66425 BELFELD4 230 67915 RHAME 4 230 1	
66426 BISMARK4 230 66427 BISMARK7 115 1	100	81.3	81.33	81.2	81.2		81.5	81.5		SYSTEM INTACT	
		131.3	131.29	131.1	131.08		131.6	131.57	0.28	66426 BISMARK4 230 66427 BISMARK7 115 2	
		96.2	96.2							67307 BISM NW7 115 67343 HESKETT7 115 1	
		99.6	99.57							67342 HESKETT4 230 67343 HESKETT7 115 1	
66426 BISMARK4 230 66427 BISMARK7 115 2	100	72	72	71.9	71.89		72.2	72.16		SYSTEM INTACT	
		126.3	126.29	126.1	126.09		126.6	126.56	0.27	66426 BISMARK4 230 66427 BISMARK7 115 1	
66432 EDGELEY7 115 66433 EDGELEY869.0 1	20	56.9	11.39	56.9	11.38		57.1	11.41		SYSTEM INTACT	
		104.4	20.88	104.4	20.88		104.5	20.91		66432 EDGELEY7 115 66445 JAMESTN7 115 1	
66435 FARGO 4 230 66440 FARGOM14 230 1	100	67.6	67.65	67.6	67.65		67.7	67.67		SYSTEM INTACT	
		104.5	104.48	104.5	104.48		104.5	104.51		66435 FARGO 4 230 66446 FARGOM24 230 1	
66435 FARGO 4 230 66446 FARGOM24 230 1	100	62.7	62.71	62.7	62.71		62.7	62.72		SYSTEM INTACT	
		102.4	102.35	102.4	102.35		102.4	102.37		66435 FARGO 4 230 66440 FARGOM14 230 1	
66436 FARGO 7 115 66440 FARGOM14 230 1	100	74.4	74.39	74.4	74.39		74.4	74.39		SYSTEM INTACT	
		100	100.05	100	100.03		100	100.04		60133 SHEYNNE4 230 66435 FARGO 4 230 1	
		99.1	99.05							60136 MAPLE R7 115 66783 MAPLE RT 115 1	
		109.3	109.29	109.3	109.29		109.3	109.3		66435 FARGO 4 230 66446 FARGOM24 230 1	
		110.5	110.46	110.5	110.46		110.5	110.46		66436 FARGO 7 115 66446 FARGOM24 230 1	
		99.1	99.05							66783 MAPLE RT 115 67000 MAPLE R869.0 1	
66436 FARGO 7 115 66446 FARGOM24 230 1	100	63.7	63.69	63.7	63.69		63.7	63.7		SYSTEM INTACT	
		103	102.97	103	102.98		103	102.99		66435 FARGO 4 230 66440 FARGOM14 230 1	
		109.5	109.52	109.5	109.52		109.5	109.53		66436 FARGO 7 115 66440 FARGOM14 230 1	
66502 BERSFRD7 115 66517 MANNING7 115 1	80	51.6	41.27	51.6	41.27		51.6	41.27		SYSTEM INTACT	
		106.4	85.11	106.4	85.11		106.4	85.11		66511 GAVINS 7 115 66532 YANKTON7 115 1	
		106.4	85.11	106.4	85.11		106.4	85.11		66532 YANKTON7 115 67121 SPIRITM7 115 1	
66515 HURON 7 115 67404 HURONWP7 115 1	120	48.6	58.37	48.6	58.37		48.6	58.37		SYSTEM INTACT	
		106.8	128.19	106.8	128.19		106.8	128.2		66515 HURON 7 115 67411 BTAP WP7 115 1	
66515 HURON 7 115 67411 BTAP WP7 115 1	120	71.8	86.16	71.8	86.16		71.8	86.16		SYSTEM INTACT	
		96.8	116.14							66512 GROTON 7 115 67402 ABDNSBT7 115 1	
		117	140.41	117	140.41		117	140.42		66515 HURON 7 115 67404 HURONWP7 115 1	
67101 ANTELOP3 345 67183 CHAR.CK3 345 1	538	71.2	383.21	70.6	379.74		70.9	381.52		SYSTEM INTACT	
		104.8	563.9	104.5	562.14		104.6	562.62		67105 LELANDO3 345 67202 LELND2TY 345 1	SW3
67265 LTLMISS4 230 67915 RHAME 4 230 1	216.1	84.1	181.78	84.1	181.68		84.5	182.69		SYSTEM INTACT	
		110.4	238.6	110.4	238.5		111	239.89	1.29	66403 DAWSONC4 230 66413 MEDORA 4 230 1	
		116.1	250.86	116	250.75		116.1	250.91		66413 MEDORA 4 230 66425 BELFELD4 230 1	
67307 BISM NW7 115 67343 HESKETT7 115 1	119.5	49	58.55	49.1	58.72		49.2	58.77		SYSTEM INTACT	
		116.7	139.45	116.7	139.45		116.9	139.73	0.28	66427 BISMARK7 115 67329 ESTBMRK7 115 1	
67316 COYOTE 3 345 67318 COYOTE 7 115 1	168	41.8	70.18							SYSTEM INTACT	
		96.6	162.25							63369 JAMESTN3 345 66791 CENTER 3 345 1	
67335 GLENHAM7 115 67338 GLENHAM4 230 1	25	41.5	10.38	41.5	10.38		41.5	10.38		SYSTEM INTACT	

Output File:		kc0-sp16-line		kcg-sp16-line			kcl-sp16-line				
CIRCUIT FROM: # NAME	CIRCUIT TO: # NAME	CKT	RATEA MVA	OVRLD %	CURRENT MVA	OVRLD %	CURRENT MVA	**Diff MVA**	OVRLD %	CURRENT MVA	**Diff MVA**	CONTINGENCY FROM TO CKT	SWITCH
				110.3	27.57	110.3	27.57		110.3	27.58		67335 GLENHAM7 115 67338 GLENHAM4 230 2	
67342 HESKETT4 230	67343 HESKETT7 115	1	100	39.4	39.38	39.3	39.3		39.4	39.43		SYSTEM INTACT	
				156.5	156.54	156.3	156.29		156.7	156.73		66427 BISMARK7 115 67329 ESTBMRK7 115 1	
67343 HESKETT7 115	67367 MANDANW7 115	1	119.5	48.1	57.47							SYSTEM INTACT	
				96.4	115.17							66427 BISMARK7 115 67329 ESTBMRK7 115 1	
				96.8	115.66							67309 BISEXP 7 115 67329 ESTBMRK7 115 1	

***** BASE CASE:
KC0-SP08AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=318,MH=1283,MW=758,OHMH=0,OHMP=150,EWTW=-119,BD=166

***** CHNG CASE:
KCG-SP08AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=319,MH=1283,MW=758,OHMH=0,OHMP=150,EWTW=-119,BD=166

***** BASE TRANSACTION AMOUNT FOR DF CALCULATION: 7.500

PTDF INTERFACES

64786 COOPER 3	- 59393 ST JOE 3	BASE:	95.0	CHNG:	95.0	DIFF:	0.0%
64786 COOPER 3	- 96039 7FAIRPT	BASE:	105.8	CHNG:	105.8	DIFF:	0.0%
SUBTOTALS FOR: COOPER_S		BASE:	200.7	CHNG:	200.8	DIFF:	0.0%
				DIFF:	0.0	DF:	0.5%
65351 S3451 3	- 65354 S3454 3	BASE:	101.3	CHNG:	101.3	DIFF:	0.0%
65351 S3451 3	- 65359 S3459 3	BASE:	143.9	CHNG:	144.0	DIFF:	0.0%
65451 S1251 5	- 65497 S1297 5	BASE:	70.6	CHNG:	70.6	DIFF:	0.0%
SUBTOTALS FOR: FTCAL_S		BASE:	315.9	CHNG:	315.9	DIFF:	0.0%
				DIFF:	0.0	DF:	0.2%
64832 GENTLMN4	- 64909 N.PLATT4	BASE:	153.8	CHNG:	153.8	DIFF:	0.0%
64832 GENTLMN4	- 64909 N.PLATT4	BASE:	154.3	CHNG:	154.3	DIFF:	0.0%
64832 GENTLMN4	- 64909 N.PLATT4	BASE:	157.7	CHNG:	157.7	DIFF:	0.0%
64831 GENTLMN3	- 64984 SWEET W3	BASE:	272.6	CHNG:	272.6	DIFF:	0.0%
64831 GENTLMN3	- 64984 SWEET W3	BASE:	328.5	CHNG:	328.6	DIFF:	0.0%
64831 GENTLMN3	- 64943 REDWILO3	BASE:	299.7	CHNG:	299.7	DIFF:	0.0%
SUBTOTALS FOR: GGS		BASE:	1366.6	CHNG:	1366.6	DIFF:	0.0%
				DIFF:	0.1	DF:	0.9%
64933 PAULINE3	- 64902 MOORE 3	BASE:	63.6	CHNG:	63.6	DIFF:	0.0%
64839 GR ISLD4	- 64780 COLMB.W4	BASE:	115.7	CHNG:	115.7	DIFF:	0.0%
66571 GR ISLD3	- 64896 MCCOOL 3	BASE:	137.6	CHNG:	137.6	DIFF:	0.0%
SUBTOTALS FOR: GRIS_LNC		BASE:	316.8	CHNG:	316.9	DIFF:	0.0%
				DIFF:	0.0	DF:	0.4%
64095 MNTZUMA3	- 64064 BONDRNT3	BASE:	137.8	CHNG:	137.8	DIFF:	0.0%
SUBTOTALS FOR: MNTZUMA_W		BASE:	137.8	CHNG:	137.8	DIFF:	0.0%
				DIFF:	0.0	DF:	-0.2%
67105 LELANDO3	- 66506 FTTHOMP3	BASE:	153.7	CHNG:	153.5	DIFF:	-0.1%
67105 LELANDO3	- 67160 GROTON 3	BASE:	201.7	CHNG:	201.6	DIFF:	-0.1%
67101 ANTELOP3	- 67120 BRDLAND3	BASE:	187.0	CHNG:	187.0	DIFF:	0.0%
63314 BIGSTON4	- 66503 BLAIR 4	BASE:	127.8	CHNG:	127.8	DIFF:	0.0%
66554 MORRIS 4	- 66550 GRANITF4	BASE:	-48.5	CHNG:	-48.5	DIFF:	-0.1%
63336 AUDUBON4	- 63053 HUBBARD4	BASE:	60.3	CHNG:	60.4	DIFF:	0.0%
66521 SULLYBT4	- 66519 OAHE 4	BASE:	-55.4	CHNG:	-55.4	DIFF:	0.0%
63052 INMAN 4	- 61611 WINGRIV4	BASE:	54.6	CHNG:	54.6	DIFF:	0.0%
66470 BISON 4	- 66497 MAURINE4	BASE:	-63.0	CHNG:	-62.8	DIFF:	-0.4%
66716 LAPORTE7	- 61638 AKELEY7	BASE:	-22.5	CHNG:	-22.5	DIFF:	0.0%
63222 ALEXAND7	- 60144 DGLASCO7	BASE:	18.8	CHNG:	18.8	DIFF:	0.0%
67327 ELLENDL7	- 67401 ABDNJCT7	BASE:	13.6	CHNG:	13.7	DIFF:	0.2%

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66432 EDGELEY7  - 66534 ORDWAY 7   BASE:    -7.6 CHNG:    -7.6 DIFF:    -0.2%
66438 FORMAN 7  - 66522 SUMMIT-7   BASE:   -11.9 CHNG:   -11.9 DIFF:    -0.1%
63211 CANBY  7  - 66551 GRANITF7   BASE:     8.5 CHNG:     8.5 DIFF:     0.0%
62006 KERKHO 7  - 62005 KERKHOT7   BASE:    -7.5 CHNG:    -7.5 DIFF:    -0.1%
66752 DRAYTON4  - 67557 LETELER4   BASE:  -265.9 CHNG:  -265.9 DIFF:     0.0%
63379 RUGBY  4  - 67523 GLENBOR4   BASE:    25.4 CHNG:    25.4 DIFF:     0.0%

SUBTOTALS FOR: NDEX                BASE:   368.9 CHNG:   369.0 DIFF:     0.0%
                                               DIFF:     0.1   DF:     1.6%
********************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   BASE:   559.9 CHNG:   559.9 DIFF:     0.0%
64400 MECCORD3  - 64403 E MOLIN3   BASE:   395.7 CHNG:   395.7 DIFF:     0.0%

SUBTOTALS FOR: QUADCITY_W          BASE:   955.6 CHNG:   955.5 DIFF:     0.0%
                                               DIFF:     0.0   DF:    -0.2%
********************************************************************************

64831 GENTLMN3  - 64943 REDWILO3   BASE:   299.7 CHNG:   299.7 DIFF:     0.0%

SUBTOTALS FOR: WNE_WKS             BASE:   299.7 CHNG:   299.7 DIFF:     0.0%
                                               DIFF:     0.0   DF:     0.3%
********************************************************************************

61615 ARROWHD4  - 39448 AWHD PST   BASE:   300.6 CHNG:   300.6 DIFF:     0.0%
60186 AS KING3  - 60304 EAU CL 3   BASE:   457.8 CHNG:   457.8 DIFF:     0.0%

SUBTOTALS FOR: MWEX                BASE:   758.4 CHNG:   758.4 DIFF:     0.0%
                                               DIFF:     0.0   DF:     0.5%
********************************************************************************

66756 SQBUTTE4  - 63049 STANTON4   BASE:   -64.9 CHNG:   -64.1 DIFF:    -1.3%
66756 SQBUTTE4  - 66751 CENTER 4   BASE:   -57.0 CHNG:   -57.0 DIFF:     0.0%
66756 SQBUTTE4  - 66791 CENTER 3   BASE:    70.6 CHNG:    69.8 DIFF:    -1.1%
63041 COAL CR4  - 63042 COAL TP4   BASE:    -9.7 CHNG:    -9.7 DIFF:     0.0%
63041 COAL CR4  - 63049 STANTON4   BASE:  -116.0 CHNG:  -116.0 DIFF:     0.0%
63041 COAL CR4  - 63381 UNDERWD4   BASE:   123.7 CHNG:   123.6 DIFF:     0.0%

SUBTOTALS FOR: NDDC                BASE:   -53.4 CHNG:   -53.4 DIFF:     0.0%
                                               DIFF:     0.0   DF:     0.0%
********************************************************************************

60175 ROSEAU 4  - 67576 RICHER 4   BASE:   -68.9 CHNG:   -68.9 DIFF:     0.0%
60173 ROSEAUN2  - 67564 DORSEY 2   BASE:  -961.0 CHNG:  -961.0 DIFF:     0.0%
66752 DRAYTON4  - 67557 LETELER4   BASE:  -260.4 CHNG:  -260.4 DIFF:     0.0%
63379 RUGBY  4  - 67523 GLENBOR4   BASE:    25.5 CHNG:    25.5 DIFF:     0.0%

SUBTOTALS FOR: MHEX_N+             BASE: -1264.8 CHNG: -1264.9 DIFF:     0.0%
                                               DIFF:     0.0   DF:    -0.4%
********************************************************************************

67576 RICHER 4  - 60175 ROSEAU 4   BASE:    69.5 CHNG:    69.5 DIFF:     0.0%
67564 DORSEY 2  - 60173 ROSEAUN2   BASE:   973.0 CHNG:   973.0 DIFF:     0.0%
67557 LETELER4  - 66752 DRAYTON4   BASE:   265.9 CHNG:   265.9 DIFF:     0.0%
67523 GLENBOR4  - 63379 RUGBY  4   BASE:   -25.4 CHNG:   -25.4 DIFF:     0.0%

SUBTOTALS FOR: MHEX_S+             BASE:  1283.0 CHNG:  1283.1 DIFF:     0.0%
                                               DIFF:     0.0   DF:     0.4%
********************************************************************************

60105 PR ISLD3  - 61950 BYRON  3   BASE:    94.2 CHNG:    94.2 DIFF:     0.0%

SUBTOTALS FOR: PR_ISL_BYRON        BASE:    94.2 CHNG:    94.2 DIFF:     0.0%
                                               DIFF:     0.0   DF:     0.4%
********************************************************************************

66756 SQBUTTE4  - 63049 STANTON4   BASE:   -64.9 CHNG:   -64.1 DIFF:    -1.3%
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66756 SQBUTTE4  - 66751 CENTER 4   BASE:    -57.0 CHNG:    -57.0 DIFF:     0.0%
66756 SQBUTTE4  - 66791 CENTER 3   BASE:     70.6 CHNG:     69.8 DIFF:    -1.1%

SUBTOTALS FOR: Y2DC                BASE:    -51.3 CHNG:    -51.3 DIFF:     0.0%
                                                  DIFF:      0.0   DF:     0.0%
********************************************************************************

61615 ARROWHD4  - 39448 AWHD PST   BASE:    300.6 CHNG:    300.6 DIFF:     0.0%

SUBTOTALS FOR: AHD_GPK             BASE:    300.6 CHNG:    300.6 DIFF:     0.0%
                                                  DIFF:      0.0   DF:     0.2%
********************************************************************************

60304 EAU CL 3  - 39244 ARP 345    BASE:    228.9 CHNG:    228.9 DIFF:     0.0%

SUBTOTALS FOR: EAUARP__XCEL        BASE:    228.9 CHNG:    228.9 DIFF:     0.0%
                                                  DIFF:      0.0   DF:     0.3%
********************************************************************************

60101 FORBES 2  - 60198 CHIS-N 2   BASE:    798.6 CHNG:    798.6 DIFF:     0.0%

SUBTOTALS FOR: FORCHS_PTDF         BASE:    798.6 CHNG:    798.6 DIFF:     0.0%
                                                  DIFF:      0.0   DF:     0.5%
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37632 LEECO;BP  - 36362 NELSO; B   BASE:    403.0 CHNG:    403.0 DIFF:     0.0%

SUBTOTALS FOR: LEECONELS           BASE:    403.0 CHNG:    403.0 DIFF:     0.0%
                                                  DIFF:      0.0   DF:    -0.1%
********************************************************************************

68613 AUBURNT4  - 67525 RESTON 4   BASE:    -10.3 CHNG:    -10.3 DIFF:    -0.2%
68615 YORKTON4  - 67514 ROBLIN 4   BASE:   -116.8 CHNG:   -116.8 DIFF:     0.0%
68630 EBCAMPB4  - 67515 RALL   4   BASE:    -89.8 CHNG:    -89.8 DIFF:     0.0%

SUBTOTALS FOR: MH_SPC_E+           BASE:   -216.9 CHNG:   -216.9 DIFF:     0.0%
                                                  DIFF:      0.0   DF:     0.5%
********************************************************************************

67525 RESTON 4  - 68613 AUBURNT4   BASE:     10.4 CHNG:     10.4 DIFF:    -0.2%
67514 ROBLIN 4  - 68615 YORKTON4   BASE:    118.2 CHNG:    118.2 DIFF:     0.0%
67515 RALL   4  - 68630 EBCAMPB4   BASE:     92.0 CHNG:     92.0 DIFF:     0.0%

SUBTOTALS FOR: MH_SPC_W+           BASE:    220.6 CHNG:    220.5 DIFF:     0.0%
                                                  DIFF:      0.0   DF:    -0.5%
********************************************************************************



## OTDF INTERFACES ##

64095 MNTZUMA3  - 64064 BONDRNT3   *CONTINGENCY* BASE:      0.0 CHNG:      0.0
--------------------------------------------------------------------------------
34191 REASNOR5  - 64062 DMOINES5   BASE:     13.7 CHNG:     13.7 DIFF:     0.0%

SUBTOTALS FOR: REASNOR_DPS         BASE:     13.7 CHNG:     13.7 DIFF:     0.0%
                                                  DIFF:      0.0   DF:    -0.1%
********************************************************************************

65351 S3451  3  - 63875 RAUN   3   *CONTINGENCY* BASE:      0.0 CHNG:      0.0
--------------------------------------------------------------------------------
65426 S1226  5  - 64987 TEKAMAH5   BASE:     35.4 CHNG:     35.4 DIFF:     0.0%

SUBTOTALS FOR: S1226TEKAMAH        BASE:     35.4 CHNG:     35.4 DIFF:     0.0%
                                                  DIFF:      0.0   DF:    -0.1%
********************************************************************************
```

```
65351 S3451  3  - 63875 RAUN   3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:   -18.5 CHNG:   -18.5 DIFF:     0.0%

SUBTOTALS FOR: S1226TEKAMAH        BASE:   -18.5 CHNG:   -18.5 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.0%
********************************************************************************

64350 HILLS  3  - 64095 MNTZUMA3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64351 HILLS  5  - 34084 PARNEL 5   BASE:    48.1 CHNG:    48.1 DIFF:     0.0%

SUBTOTALS FOR: HILLPAHILMON        BASE:    48.1 CHNG:    48.1 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.0%
********************************************************************************

***** ERROR: OTDF #  5 BASE CONTINGENT LINE NOT FOUND OR ALREADY STATUS=0  64403 TO  64680 CKT
***** ERROR: OTDF #  5 CHNG CONTINGENT LINE NOT FOUND OR ALREADY STATUS=0  64403 TO  64680 CKT
64400 MECCORD3  - 64403 E MOLIN3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64403 E MOLIN3  - 64680 ********   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64403 E MOLIN3  - 64418 E MOLINE   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
36382 QUAD ;    - 64405 SUB 91 3   BASE:   798.8 CHNG:   798.8 DIFF:     0.0%

SUBTOTALS FOR: QUAD91CORD39        BASE:   798.8 CHNG:   798.8 DIFF:     0.0%
                                                 DIFF:     0.0   DF:    -0.2%
********************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64405 SUB 91 3  - 64438 SB 91  5   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64400 MECCORD3  - 64403 E MOLIN3   BASE:   731.6 CHNG:   731.6 DIFF:     0.0%

SUBTOTALS FOR: CORD39QUAD91        BASE:   731.6 CHNG:   731.6 DIFF:     0.0%
                                                 DIFF:     0.0   DF:    -0.2%
********************************************************************************

64402 LOUISA 3  - 64408 SUB T  3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64408 SUB T  3  - 64350 HILLS  3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64406 SUB 92 3  - 64350 HILLS  3   BASE:   544.8 CHNG:   544.8 DIFF:     0.0%

SUBTOTALS FOR: 92HILLOUHILL        BASE:   544.8 CHNG:   544.8 DIFF:     0.0%
                                                 DIFF:     0.0   DF:    -0.3%
********************************************************************************

63875 RAUN   3  - 66564 SIOUXCY3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63889 PLYMOTH5  - 66566 SIOUXCY5   BASE:   -51.3 CHNG:   -51.3 DIFF:     0.0%

SUBTOTALS FOR: PLYMSIOUXCTY        BASE:   -51.3 CHNG:   -51.3 DIFF:     0.0%
                                                 DIFF:     0.0   DF:    -0.1%
********************************************************************************

36382 QUAD ;    - 36368 H471 ;     *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34045 ALBANY 6  - 36773 GARDE;     BASE:    42.8 CHNG:    42.8 DIFF:     0.0%

SUBTOTALS FOR: ALBGARQUAST         BASE:    42.8 CHNG:    42.8 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.0%
********************************************************************************

34093 ARNOLD 3  - 34018 HAZLTON3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34091 ARNOLD 5  - 34089 VINTON 5   BASE:   127.6 CHNG:   127.6 DIFF:     0.0%

SUBTOTALS FOR: ARNVINARNHAZ        BASE:   127.6 CHNG:   127.6 DIFF:     0.0%
```

```
                                                DIFF:     0.0   DF:    -0.1%
********************************************************************************

36280 BYRON; B  - 36288 CHERR; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
36281 BYRON; R  - 36289 CHERR; R   BASE:  1362.4 CHNG:  1362.4 DIFF:     0.0%

SUBTOTALS FOR: BYCHEBYCHE          BASE:  1362.4 CHNG:  1362.4 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.1%
********************************************************************************

36382 QUAD ;    - 34036 ROCK CK3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64425 DAVNPRT5  - 34909 E CAL T5   BASE:   202.9 CHNG:   202.9 DIFF:     0.0%

SUBTOTALS FOR: DAVCALQUARCK        BASE:   202.9 CHNG:   202.9 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.0%
********************************************************************************

64352 TIFFIN 3  - 34093 ARNOLD 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64350 HILLS  3  - 34110 HILLSIE5   BASE:   115.1 CHNG:   115.1 DIFF:     0.0%

SUBTOTALS FOR: HLSXFMTIFARN        BASE:   115.1 CHNG:   115.1 DIFF:     0.0%
                                                DIFF:     0.0   DF:    -0.1%
********************************************************************************

57981 LACYGNE7  - 57968 STILWEL7   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57981 LACYGNE7  - 57965 W.GRDNR7   BASE:  1041.2 CHNG:  1041.2 DIFF:     0.0%

SUBTOTALS FOR: LACWGRLACSTI        BASE:  1041.2 CHNG:  1041.2 DIFF:     0.0%
                                                DIFF:     0.0   DF:    -0.2%
********************************************************************************

36310 ELECT; B  - 36362 NELSO; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
37632 LEECO;BP  - 36280 BYRON; B   BASE:   542.6 CHNG:   542.6 DIFF:     0.0%

SUBTOTALS FOR: LEEBYREJNEL         BASE:   542.6 CHNG:   542.6 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.2%
********************************************************************************

60331 LKFLDXL3  - 34006 LAKEFLD3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34007 LAKEFLD5  - 34008 FOX LK 5   BASE:    46.4 CHNG:    46.3 DIFF:     0.0%

SUBTOTALS FOR: LKFFOXLKGWLM        BASE:    46.4 CHNG:    46.3 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.0%
********************************************************************************

36407 WEMPL; R  - 39058 PAD 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34028 LORE   5  - 34033 TRK RIV5   BASE:    82.1 CHNG:    82.1 DIFF:     0.0%

SUBTOTALS FOR: LORTRKWEMPAD        BASE:    82.1 CHNG:    82.1 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.0%
********************************************************************************

39058 PAD 345   - 36407 WEMPL; R   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
36407 WEMPL; R  - 36406 WEMPL; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
36406 WEMPL; B  - 39119 ROE 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
39058 PAD 345   - 39059 PAD 138    BASE:     0.0 CHNG:     0.0 DIFF:  -763.4%

SUBTOTALS FOR: PADXFMPADROE        BASE:     0.0 CHNG:     0.0 DIFF:  -763.4%
                                                DIFF:     0.0   DF:     0.0%
```

```
********************************************************************************

64095 MNTZUMA3  - 64064 BONDRNT3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34185 POWESHK5  - 34191 REASNOR5   BASE:    61.2 CHNG:    61.2 DIFF:     0.0%

SUBTOTALS FOR: POWREAMTZBON        BASE:    61.2 CHNG:    61.2 DIFF:     0.0%
                                                DIFF:     0.0   DF:    -0.1%
********************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34029 SALEM  3  - 34030 SALEM N5   BASE:   299.7 CHNG:   299.7 DIFF:     0.0%

SUBTOTALS FOR: SALXFMQUADAV        BASE:   299.7 CHNG:   299.7 DIFF:     0.0%
                                                DIFF:     0.0   DF:    -0.1%
********************************************************************************

36407 WEMPL; R  - 39058 PAD 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34029 SALEM  3  - 34030 SALEM N5   BASE:   268.1 CHNG:   268.1 DIFF:     0.0%

SUBTOTALS FOR: SALXFMWEMPAD        BASE:   268.1 CHNG:   268.1 DIFF:     0.0%
                                                DIFF:     0.0   DF:    -0.1%
********************************************************************************

63875 RAUN   3  - 34006 LAKEFLD3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
66563 SPENCER5  - 34137 TRIBOJI5   BASE:   -79.8 CHNG:   -79.8 DIFF:     0.0%

SUBTOTALS FOR: SPETRILAKRAU        BASE:   -79.8 CHNG:   -79.8 DIFF:     0.0%
                                                DIFF:     0.0   DF:    -0.1%
********************************************************************************

56873 SUMMIT 6  - 56872 EMCPHER6   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:    -4.9 CHNG:    -4.9 DIFF:     0.0%
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:    -5.3 CHNG:    -5.3 DIFF:     0.0%

SUBTOTALS FOR: SPHWMCSUMEMC        BASE:   -10.3 CHNG:   -10.3 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.0%
********************************************************************************

63041 COAL CR4  - 63042 COAL TP4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63044 MCHENRY4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63041 COAL CR4  - 63049 STANTON4   BASE:  -174.5 CHNG:  -174.5 DIFF:     0.0%

SUBTOTALS FOR: CC-STN              BASE:  -174.5 CHNG:  -174.5 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.5%
********************************************************************************

63041 COAL CR4  - 63042 COAL TP4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63044 MCHENRY4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63049 STANTON4  - 63041 COAL CR4   BASE:   175.3 CHNG:   175.2 DIFF:     0.0%

SUBTOTALS FOR: STN-CC              BASE:   175.3 CHNG:   175.2 DIFF:     0.0%
                                                DIFF:     0.0   DF:    -0.5%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63041 COAL CR4  - 63042 COAL TP4   BASE:  -118.6 CHNG:  -118.5 DIFF:     0.0%
```

```
SUBTOTALS FOR: CC-CCT              BASE:  -118.6 CHNG:  -118.5 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.3%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63042 COAL TP4  - 63041 COAL CR4   BASE:   118.7 CHNG:   118.7 DIFF:     0.0%

SUBTOTALS FOR: CCT-CC              BASE:   118.7 CHNG:   118.7 DIFF:     0.0%
                                                 DIFF:     0.0   DF:    -0.3%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63042 COAL TP4  - 63049 STANTON4   BASE:  -239.1 CHNG:  -239.0 DIFF:     0.0%

SUBTOTALS FOR: CCTP-STN            BASE:  -239.1 CHNG:  -239.0 DIFF:     0.0%
                                                 DIFF:     0.1   DF:     0.8%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63049 STANTON4  - 63042 COAL TP4   BASE:   240.2 CHNG:   240.2 DIFF:     0.0%

SUBTOTALS FOR: STN-CCT             BASE:   240.2 CHNG:   240.2 DIFF:     0.0%
                                                 DIFF:    -0.1   DF:    -0.8%
********************************************************************************
```

***** BASE CASE:
KC0-SP08AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=318,MH=1283,MW=758,OHMH=0,OHMP=150,EWTW=-119,BD=166

***** CHNG CASE:
KCL-SP08AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=318,MH=1282,MW=758,OHMH=0,OHMP=150,EWTW=-119,BD=166

***** BASE TRANSACTION AMOUNT FOR DF CALCULATION: 7.500

PTDF INTERFACES

64786 COOPER 3	- 59393 ST JOE 3	BASE:	95.0	CHNG:	94.9	DIFF:	-0.1%
64786 COOPER 3	- 96039 7FAIRPT	BASE:	105.8	CHNG:	105.7	DIFF:	0.0%
SUBTOTALS FOR: COOPER_S		BASE:	200.7	CHNG:	200.6	DIFF:	-0.1%
				DIFF:	-0.1	DF:	-1.5%
65351 S3451 3	- 65354 S3454 3	BASE:	101.3	CHNG:	101.3	DIFF:	0.0%
65351 S3451 3	- 65359 S3459 3	BASE:	143.9	CHNG:	143.9	DIFF:	0.0%
65451 S1251 5	- 65497 S1297 5	BASE:	70.6	CHNG:	70.6	DIFF:	0.0%
SUBTOTALS FOR: FTCAL_S		BASE:	315.9	CHNG:	315.8	DIFF:	0.0%
				DIFF:	0.0	DF:	-0.6%
64832 GENTLMN4	- 64909 N.PLATT4	BASE:	153.8	CHNG:	153.8	DIFF:	0.0%
64832 GENTLMN4	- 64909 N.PLATT4	BASE:	154.3	CHNG:	154.3	DIFF:	0.0%
64832 GENTLMN4	- 64909 N.PLATT4	BASE:	157.7	CHNG:	157.7	DIFF:	0.0%
64831 GENTLMN3	- 64984 SWEET W3	BASE:	272.6	CHNG:	272.5	DIFF:	0.0%
64831 GENTLMN3	- 64984 SWEET W3	BASE:	328.5	CHNG:	328.5	DIFF:	0.0%
64831 GENTLMN3	- 64943 REDWILO3	BASE:	299.7	CHNG:	299.6	DIFF:	0.0%
SUBTOTALS FOR: GGS		BASE:	1366.6	CHNG:	1366.4	DIFF:	0.0%
				DIFF:	-0.1	DF:	-1.7%
64933 PAULINE3	- 64902 MOORE 3	BASE:	63.6	CHNG:	63.6	DIFF:	-0.1%
64839 GR ISLD4	- 64780 COLMB.W4	BASE:	115.7	CHNG:	115.6	DIFF:	0.0%
66571 GR ISLD3	- 64896 MCCOOL 3	BASE:	137.6	CHNG:	137.5	DIFF:	0.0%
SUBTOTALS FOR: GRIS_LNC		BASE:	316.8	CHNG:	316.7	DIFF:	0.0%
				DIFF:	-0.1	DF:	-1.3%
64095 MNTZUMA3	- 64064 BONDRNT3	BASE:	137.8	CHNG:	137.9	DIFF:	0.0%
SUBTOTALS FOR: MNTZUMA_W		BASE:	137.8	CHNG:	137.9	DIFF:	0.0%
				DIFF:	0.1	DF:	0.7%
67105 LELANDO3	- 66506 FTTHOMP3	BASE:	153.7	CHNG:	153.9	DIFF:	0.1%
67105 LELANDO3	- 67160 GROTON 3	BASE:	201.7	CHNG:	201.9	DIFF:	0.1%
67101 ANTELOP3	- 67120 BRDLAND3	BASE:	187.0	CHNG:	187.3	DIFF:	0.1%
63314 BIGSTON4	- 66503 BLAIR 4	BASE:	127.8	CHNG:	127.7	DIFF:	0.0%
66554 MORRIS 4	- 66550 GRANITF4	BASE:	-48.5	CHNG:	-48.5	DIFF:	0.1%
63336 AUDUBON4	- 63053 HUBBARD4	BASE:	60.3	CHNG:	60.3	DIFF:	0.0%
66521 SULLYBT4	- 66519 OAHE 4	BASE:	-55.4	CHNG:	-55.7	DIFF:	0.4%
63052 INMAN 4	- 61611 WINGRIV4	BASE:	54.6	CHNG:	54.6	DIFF:	0.0%
66470 BISON 4	- 66497 MAURINE4	BASE:	-63.0	CHNG:	-63.5	DIFF:	0.7%
66716 LAPORTE7	- 61638 AKELEY7	BASE:	-22.5	CHNG:	-22.6	DIFF:	0.1%
63222 ALEXAND7	- 60144 DGLASCO7	BASE:	18.8	CHNG:	18.8	DIFF:	0.0%
67327 ELLENDL7	- 67401 ABDNJCT7	BASE:	13.6	CHNG:	13.6	DIFF:	-0.2%

```
66432 EDGELEY7  - 66534 ORDWAY 7   BASE:    -7.6 CHNG:    -7.7 DIFF:     0.6%
66438 FORMAN 7  - 66522 SUMMIT-7   BASE:   -11.9 CHNG:   -12.0 DIFF:     0.2%
63211 CANBY  7  - 66551 GRANITF7   BASE:     8.5 CHNG:     8.5 DIFF:    -0.1%
62006 KERKHO 7  - 62005 KERKHOT7   BASE:    -7.5 CHNG:    -7.5 DIFF:     0.1%
66752 DRAYTON4  - 67557 LETELER4   BASE:  -265.9 CHNG:  -265.9 DIFF:     0.0%
63379 RUGBY  4  - 67523 GLENBOR4   BASE:    25.4 CHNG:    25.3 DIFF:    -0.3%

SUBTOTALS FOR: NDEX                BASE:   368.9 CHNG:   368.5 DIFF:    -0.1%
                                               DIFF:    -0.4   DF:    -5.3%
*********************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   BASE:   559.9 CHNG:   559.9 DIFF:     0.0%
64400 MECCORD3  - 64403 E MOLIN3   BASE:   395.7 CHNG:   395.7 DIFF:     0.0%

SUBTOTALS FOR: QUADCITY_W          BASE:   955.6 CHNG:   955.6 DIFF:     0.0%
                                               DIFF:     0.1   DF:     0.7%
*********************************************************************************

64831 GENTLMN3  - 64943 REDWILO3   BASE:   299.7 CHNG:   299.6 DIFF:     0.0%

SUBTOTALS FOR: WNE_WKS             BASE:   299.7 CHNG:   299.6 DIFF:     0.0%
                                               DIFF:     0.0   DF:    -0.7%
*********************************************************************************

61615 ARROWHD4  - 39448 AWHD PST   BASE:   300.6 CHNG:   300.6 DIFF:     0.0%
60186 AS KING3  - 60304 EAU CL 3   BASE:   457.8 CHNG:   457.7 DIFF:     0.0%

SUBTOTALS FOR: MWEX                BASE:   758.4 CHNG:   758.3 DIFF:     0.0%
                                               DIFF:    -0.1   DF:    -1.2%
*********************************************************************************

66756 SQBUTTE4  - 63049 STANTON4   BASE:   -64.9 CHNG:   -64.6 DIFF:    -0.5%
66756 SQBUTTE4  - 66751 CENTER 4   BASE:   -57.0 CHNG:   -56.8 DIFF:    -0.4%
66756 SQBUTTE4  - 66791 CENTER 3   BASE:    70.6 CHNG:    70.1 DIFF:    -0.8%
63041 COAL CR4  - 63042 COAL TP4   BASE:    -9.7 CHNG:    -9.7 DIFF:    -0.3%
63041 COAL CR4  - 63049 STANTON4   BASE:  -116.0 CHNG:  -116.3 DIFF:     0.2%
63041 COAL CR4  - 63381 UNDERWD4   BASE:   123.7 CHNG:   123.9 DIFF:     0.2%

SUBTOTALS FOR: NDDC                BASE:   -53.4 CHNG:   -53.4 DIFF:     0.0%
                                               DIFF:     0.0   DF:     0.0%
*********************************************************************************

60175 ROSEAU 4  - 67576 RICHER 4   BASE:   -68.9 CHNG:   -68.9 DIFF:     0.0%
60173 ROSEAUN2  - 67564 DORSEY 2   BASE:  -961.0 CHNG:  -960.8 DIFF:     0.0%
66752 DRAYTON4  - 67557 LETELER4   BASE:  -260.4 CHNG:  -260.5 DIFF:     0.0%
63379 RUGBY  4  - 67523 GLENBOR4   BASE:    25.5 CHNG:    25.4 DIFF:    -0.3%

SUBTOTALS FOR: MHEX_N+             BASE: -1264.8 CHNG: -1264.8 DIFF:     0.0%
                                               DIFF:     0.1   DF:     0.9%
*********************************************************************************

67576 RICHER 4  - 60175 ROSEAU 4   BASE:    69.5 CHNG:    69.5 DIFF:     0.0%
67564 DORSEY 2  - 60173 ROSEAUN2   BASE:   973.0 CHNG:   972.8 DIFF:     0.0%
67557 LETELER4  - 66752 DRAYTON4   BASE:   265.9 CHNG:   265.9 DIFF:     0.0%
67523 GLENBOR4  - 63379 RUGBY  4   BASE:   -25.4 CHNG:   -25.3 DIFF:    -0.3%

SUBTOTALS FOR: MHEX_S+             BASE:  1283.0 CHNG:  1283.0 DIFF:     0.0%
                                               DIFF:    -0.1   DF:    -0.9%
*********************************************************************************

60105 PR ISLD3  - 61950 BYRON  3   BASE:    94.2 CHNG:    94.1 DIFF:    -0.1%

SUBTOTALS FOR: PR_ISL_BYRON        BASE:    94.2 CHNG:    94.1 DIFF:    -0.1%
                                               DIFF:    -0.1   DF:    -0.9%
*********************************************************************************

66756 SQBUTTE4  - 63049 STANTON4   BASE:   -64.9 CHNG:   -64.6 DIFF:    -0.5%
```

```
66756 SQBUTTE4  - 66751 CENTER 4   BASE:    -57.0 CHNG:    -56.8 DIFF:     -0.4%
66756 SQBUTTE4  - 66791 CENTER 3   BASE:     70.6 CHNG:     70.1 DIFF:     -0.8%

SUBTOTALS FOR: Y2DC                BASE:    -51.3 CHNG:    -51.3 DIFF:      0.0%
                                                  DIFF:      0.0   DF:      0.0%
********************************************************************************

61615 ARROWHD4  - 39448 AWHD PST   BASE:    300.6 CHNG:    300.6 DIFF:      0.0%

SUBTOTALS FOR: AHD_GPK             BASE:    300.6 CHNG:    300.6 DIFF:      0.0%
                                                  DIFF:      0.0   DF:     -0.5%
********************************************************************************

60304 EAU CL 3  - 39244 ARP 345    BASE:    228.9 CHNG:    228.9 DIFF:      0.0%

SUBTOTALS FOR: EAUARP__XCEL        BASE:    228.9 CHNG:    228.9 DIFF:      0.0%
                                                  DIFF:     -0.1   DF:     -0.7%
********************************************************************************

60101 FORBES 2  - 60198 CHIS-N 2   BASE:    798.6 CHNG:    798.5 DIFF:      0.0%

SUBTOTALS FOR: FORCHS_PTDF         BASE:    798.6 CHNG:    798.5 DIFF:      0.0%
                                                  DIFF:     -0.1   DF:     -1.6%
********************************************************************************

37632 LEECO;BP  - 36362 NELSO; B   BASE:    403.0 CHNG:    403.1 DIFF:      0.0%

SUBTOTALS FOR: LEECONELS           BASE:    403.0 CHNG:    403.1 DIFF:      0.0%
                                                  DIFF:      0.0   DF:      0.2%
********************************************************************************

68613 AUBURNT4  - 67525 RESTON 4   BASE:    -10.3 CHNG:    -10.4 DIFF:      0.4%
68615 YORKTON4  - 67514 ROBLIN 4   BASE:   -116.8 CHNG:   -116.8 DIFF:      0.0%
68630 EBCAMPB4  - 67515 RALL   4   BASE:    -89.8 CHNG:    -89.8 DIFF:      0.0%

SUBTOTALS FOR: MH_SPC_E+           BASE:   -216.9 CHNG:   -217.0 DIFF:      0.0%
                                                  DIFF:     -0.1   DF:     -1.1%
********************************************************************************

67525 RESTON 4  - 68613 AUBURNT4   BASE:     10.4 CHNG:     10.4 DIFF:      0.4%
67514 ROBLIN 4  - 68615 YORKTON4   BASE:    118.2 CHNG:    118.2 DIFF:      0.0%
67515 RALL   4  - 68630 EBCAMPB4   BASE:     92.0 CHNG:     92.0 DIFF:      0.0%

SUBTOTALS FOR: MH_SPC_W+           BASE:    220.6 CHNG:    220.7 DIFF:      0.0%
                                                  DIFF:      0.1   DF:      1.1%
********************************************************************************


## OTDF INTERFACES ##

64095 MNTZUMA3  - 64064 BONDRNT3   *CONTINGENCY* BASE:      0.0 CHNG:      0.0
--------------------------------------------------------------------------------
34191 REASNOR5  - 64062 DMOINES5   BASE:     13.7 CHNG:     13.7 DIFF:      0.1%

SUBTOTALS FOR: REASNOR_DPS         BASE:     13.7 CHNG:     13.7 DIFF:      0.1%
                                                  DIFF:      0.0   DF:      0.2%
********************************************************************************

65351 S3451  3  - 63875 RAUN   3   *CONTINGENCY* BASE:      0.0 CHNG:      0.0
--------------------------------------------------------------------------------
65426 S1226  5  - 64987 TEKAMAH5   BASE:     35.4 CHNG:     35.5 DIFF:      0.0%

SUBTOTALS FOR: S1226TEKAMAH        BASE:     35.4 CHNG:     35.5 DIFF:      0.0%
                                                  DIFF:      0.0   DF:      0.2%
********************************************************************************
```

```
65351 S3451  3  - 63875 RAUN   3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:   -18.5 CHNG:   -18.5 DIFF:     0.0%

SUBTOTALS FOR: S1226TEKAMAH        BASE:   -18.5 CHNG:   -18.5 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.0%
********************************************************************************

64350 HILLS  3  - 64095 MNTZUMA3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64351 HILLS  5  - 34084 PARNEL 5   BASE:    48.1 CHNG:    48.1 DIFF:     0.0%

SUBTOTALS FOR: HILLPAHILMON        BASE:    48.1 CHNG:    48.1 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.2%
********************************************************************************

***** ERROR: OTDF #  5 BASE CONTINGENT LINE NOT FOUND OR ALREADY STATUS=0  64403 TO  64680 CKT
***** ERROR: OTDF #  5 CHNG CONTINGENT LINE NOT FOUND OR ALREADY STATUS=0  64403 TO  64680 CKT
64400 MECCORD3  - 64403 E MOLIN3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64403 E MOLIN3  - 64680 ********   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64403 E MOLIN3  - 64418 E MOLINE   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
36382 QUAD ;    - 64405 SUB 91 3   BASE:   798.8 CHNG:   798.9 DIFF:     0.0%

SUBTOTALS FOR: QUAD91CORD39        BASE:   798.8 CHNG:   798.9 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.6%
********************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64405 SUB 91 3  - 64438 SB 91  5   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64400 MECCORD3  - 64403 E MOLIN3   BASE:   731.6 CHNG:   731.7 DIFF:     0.0%

SUBTOTALS FOR: CORD39QUAD91        BASE:   731.6 CHNG:   731.7 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.5%
********************************************************************************

64402 LOUISA 3  - 64408 SUB T  3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64408 SUB T  3  - 64350 HILLS  3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64406 SUB 92 3  - 64350 HILLS  3   BASE:   544.8 CHNG:   544.9 DIFF:     0.0%

SUBTOTALS FOR: 92HILLOUHILL        BASE:   544.8 CHNG:   544.9 DIFF:     0.0%
                                                 DIFF:     0.1   DF:     0.9%
********************************************************************************

63875 RAUN   3  - 66564 SIOUXCY3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63889 PLYMOTH5  - 66566 SIOUXCY5   BASE:   -51.3 CHNG:   -51.3 DIFF:    -0.1%

SUBTOTALS FOR: PLYMSIOUXCTY        BASE:   -51.3 CHNG:   -51.3 DIFF:    -0.1%
                                                 DIFF:     0.0   DF:     0.3%
********************************************************************************

36382 QUAD ;    - 36368 H471 ;     *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34045 ALBANY 6  - 36773 GARDE;     BASE:    42.8 CHNG:    42.8 DIFF:     0.0%

SUBTOTALS FOR: ALBGARQUAST         BASE:    42.8 CHNG:    42.8 DIFF:     0.0%
                                                 DIFF:     0.0   DF:    -0.1%
********************************************************************************

34093 ARNOLD 3  - 34018 HAZLTON3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34091 ARNOLD 5  - 34089 VINTON 5   BASE:   127.6 CHNG:   127.6 DIFF:     0.0%

SUBTOTALS FOR: ARNVINARNHAZ        BASE:   127.6 CHNG:   127.6 DIFF:     0.0%
```

```
                                                DIFF:     0.0   DF:     0.3%
********************************************************************************

36280 BYRON; B  - 36288 CHERR; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
36281 BYRON; R  - 36289 CHERR; R   BASE:  1362.4 CHNG:  1362.3 DIFF:     0.0%

SUBTOTALS FOR: BYCHEBYCHE          BASE:  1362.4 CHNG:  1362.3 DIFF:     0.0%
                                                DIFF:     0.0   DF:    -0.2%
********************************************************************************

36382 QUAD ;    - 34036 ROCK CK3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64425 DAVNPRT5  - 34909 E CAL T5   BASE:   202.9 CHNG:   202.9 DIFF:     0.0%

SUBTOTALS FOR: DAVCALQUARCK        BASE:   202.9 CHNG:   202.9 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.1%
********************************************************************************

64352 TIFFIN 3  - 34093 ARNOLD 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64350 HILLS  3  - 34110 HILLSIE5   BASE:   115.1 CHNG:   115.2 DIFF:     0.0%

SUBTOTALS FOR: HLSXFMTIFARN        BASE:   115.1 CHNG:   115.2 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.2%
********************************************************************************

57981 LACYGNE7  - 57968 STILWEL7   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57981 LACYGNE7  - 57965 W.GRDNR7   BASE:  1041.2 CHNG:  1041.3 DIFF:     0.0%

SUBTOTALS FOR: LACWGRLACSTI        BASE:  1041.2 CHNG:  1041.3 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.5%
********************************************************************************

36310 ELECT; B  - 36362 NELSO; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
37632 LEECO;BP  - 36280 BYRON; B   BASE:   542.6 CHNG:   542.5 DIFF:     0.0%

SUBTOTALS FOR: LEEBYREJNEL         BASE:   542.6 CHNG:   542.5 DIFF:     0.0%
                                                DIFF:     0.0   DF:    -0.5%
********************************************************************************

60331 LKFLDXL3  - 34006 LAKEFLD3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34007 LAKEFLD5  - 34008 FOX LK 5   BASE:    46.4 CHNG:    46.4 DIFF:     0.0%

SUBTOTALS FOR: LKFFOXLKGWLM        BASE:    46.4 CHNG:    46.4 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.0%
********************************************************************************

36407 WEMPL; R  - 39058 PAD 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34028 LORE   5  - 34033 TRK RIV5   BASE:    82.1 CHNG:    82.1 DIFF:     0.0%

SUBTOTALS FOR: LORTRKWEMPAD        BASE:    82.1 CHNG:    82.1 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.1%
********************************************************************************

39058 PAD 345   - 36407 WEMPL; R   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
36407 WEMPL; R  - 36406 WEMPL; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
36406 WEMPL; B  - 39119 ROE 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
39058 PAD 345   - 39059 PAD 138    BASE:     0.0 CHNG:     0.0 DIFF:   382.3%

SUBTOTALS FOR: PADXFMPADROE        BASE:     0.0 CHNG:     0.0 DIFF:   382.3%
                                                DIFF:     0.0   DF:     0.0%
```

```
********************************************************************************

64095 MNTZUMA3  - 64064 BONDRNT3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34185 POWESHK5  - 34191 REASNOR5   BASE:    61.2 CHNG:    61.2 DIFF:     0.0%

SUBTOTALS FOR: POWREAMTZBON        BASE:    61.2 CHNG:    61.2 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.3%
********************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34029 SALEM  3  - 34030 SALEM N5   BASE:   299.7 CHNG:   299.7 DIFF:     0.0%

SUBTOTALS FOR: SALXFMQUADAV        BASE:   299.7 CHNG:   299.7 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.2%
********************************************************************************

36407 WEMPL; R  - 39058 PAD 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34029 SALEM  3  - 34030 SALEM N5   BASE:   268.1 CHNG:   268.2 DIFF:     0.0%

SUBTOTALS FOR: SALXFMWEMPAD        BASE:   268.1 CHNG:   268.2 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.2%
********************************************************************************

63875 RAUN   3  - 34006 LAKEFLD3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
66563 SPENCER5  - 34137 TRIBOJI5   BASE:   -79.8 CHNG:   -79.8 DIFF:     0.0%

SUBTOTALS FOR: SPETRILAKRAU        BASE:   -79.8 CHNG:   -79.8 DIFF:     0.0%
                                                DIFF:     0.0   DF:     0.1%
********************************************************************************

56873 SUMMIT 6  - 56872 EMCPHER6   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:    -4.9 CHNG:    -4.9 DIFF:    -0.1%
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:    -5.3 CHNG:    -5.3 DIFF:    -0.1%

SUBTOTALS FOR: SPHWMCSUMEMC        BASE:   -10.3 CHNG:   -10.3 DIFF:    -0.1%
                                                DIFF:     0.0   DF:     0.1%
********************************************************************************

63041 COAL CR4  - 63042 COAL TP4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63044 MCHENRY4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63041 COAL CR4  - 63049 STANTON4   BASE:  -174.5 CHNG:  -174.9 DIFF:     0.2%

SUBTOTALS FOR: CC-STN              BASE:  -174.5 CHNG:  -174.9 DIFF:     0.2%
                                                DIFF:    -0.4   DF:    -4.7%
********************************************************************************

63041 COAL CR4  - 63042 COAL TP4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63044 MCHENRY4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63049 STANTON4  - 63041 COAL CR4   BASE:   175.3 CHNG:   175.6 DIFF:     0.2%

SUBTOTALS FOR: STN-CC              BASE:   175.3 CHNG:   175.6 DIFF:     0.2%
                                                DIFF:     0.4   DF:     4.8%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63041 COAL CR4  - 63042 COAL TP4   BASE:  -118.6 CHNG:  -118.8 DIFF:     0.2%
```

```
SUBTOTALS FOR: CC-CCT              BASE:  -118.6 CHNG:  -118.8 DIFF:     0.2%
                                                 DIFF:    -0.2   DF:    -2.7%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63042 COAL TP4  - 63041 COAL CR4   BASE:   118.7 CHNG:   118.9 DIFF:     0.2%

SUBTOTALS FOR: CCT-CC              BASE:   118.7 CHNG:   118.9 DIFF:     0.2%
                                                 DIFF:     0.2   DF:     2.7%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63042 COAL TP4  - 63049 STANTON4   BASE:  -239.1 CHNG:  -239.6 DIFF:     0.2%

SUBTOTALS FOR: CCTP-STN            BASE:  -239.1 CHNG:  -239.6 DIFF:     0.2%
                                                 DIFF:    -0.5   DF:    -7.0%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63049 STANTON4  - 63042 COAL TP4   BASE:   240.2 CHNG:   240.8 DIFF:     0.2%

SUBTOTALS FOR: STN-CCT             BASE:   240.2 CHNG:   240.8 DIFF:     0.2%
                                                 DIFF:     0.5   DF:     7.1%
********************************************************************************
```

***** BASE CASE:
KC0-SP16AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=171,MH=1067,MW=448,OHMH=0,OHMP=150,EWTW=-120,BD=165

***** ERROR: GETTING LINE FLOW 60105 TO 61950 CKT 1 IERR= 2

***** CHNG CASE:
KCG-SP16AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=9,MH=1056,MW=390,OHMH=3,OHMP=152,EWTW=-116,BD=169

***** BASE TRANSACTION AMOUNT FOR DF CALCULATION: 7.500

PTDF INTERFACES

64786 COOPER 3	- 59393 ST JOE 3	BASE:	25.9	CHNG:	20.8	DIFF:	-20.0%
64786 COOPER 3	- 96039 7FAIRPT	BASE:	57.9	CHNG:	54.4	DIFF:	-6.1%
SUBTOTALS FOR: COOPER_S(MAP		BASE:	83.8	CHNG:	75.1	DIFF:	-10.4%
				DIFF:	-8.7	DF:	-116.2%

****

65351 S3451 3	- 65354 S3454 3	BASE:	31.3	CHNG:	37.1	DIFF:	18.7%
65351 S3451 3	- 65359 S3459 3	BASE:	21.6	CHNG:	27.2	DIFF:	26.0%
65451 S1251 5	- 65497 S1297 5	BASE:	32.7	CHNG:	59.9	DIFF:	83.0%
SUBTOTALS FOR: FTCAL_S(MAPP		BASE:	85.6	CHNG:	124.3	DIFF:	45.1%
				DIFF:	38.6	DF:	515.2%

****

64832 GENTLMN4	- 64909 N.PLATT4	BASE:	176.1	CHNG:	167.0	DIFF:	-5.2%
64832 GENTLMN4	- 64909 N.PLATT4	BASE:	176.7	CHNG:	167.6	DIFF:	-5.1%
64832 GENTLMN4	- 64909 N.PLATT4	BASE:	180.6	CHNG:	171.2	DIFF:	-5.2%
64831 GENTLMN3	- 64984 SWEET W3	BASE:	253.6	CHNG:	251.9	DIFF:	-0.7%
64831 GENTLMN3	- 64984 SWEET W3	BASE:	305.9	CHNG:	303.9	DIFF:	-0.7%
64831 GENTLMN3	- 64943 REDWILO3	BASE:	253.6	CHNG:	247.1	DIFF:	-2.6%
SUBTOTALS FOR: GGS(MAPP)		BASE:	1346.5	CHNG:	1308.6	DIFF:	-2.8%
				DIFF:	-37.8	DF:	-504.3%

****

64933 PAULINE3	- 64902 MOORE 3	BASE:	33.7	CHNG:	-11.2	DIFF:	-133.3%
64839 GR ISLD4	- 64780 COLMB.W4	BASE:	82.9	CHNG:	143.1	DIFF:	72.6%
66571 GR ISLD3	- 64896 MCCOOL 3	BASE:	82.7	CHNG:	-27.1	DIFF:	-132.8%
SUBTOTALS FOR: GRIS_LNC(MAP		BASE:	199.4	CHNG:	104.8	DIFF:	-47.5%
				DIFF:	-94.7	DF:	-999.0%

****

64095 MNTZUMA3	- 64064 BONDRNT3	BASE:	144.9	CHNG:	138.6	DIFF:	-4.3%
SUBTOTALS FOR: MNTZUMA_W(MA		BASE:	144.9	CHNG:	138.6	DIFF:	-4.3%
				DIFF:	-6.2	DF:	-83.2%

****

67105 LELANDO3	- 66506 FTTHOMP3	BASE:	109.9	CHNG:	86.8	DIFF:	-21.1%
67105 LELANDO3	- 67160 GROTON 3	BASE:	141.6	CHNG:	145.2	DIFF:	2.5%
67101 ANTELOP3	- 67120 BRDLAND3	BASE:	140.7	CHNG:	138.6	DIFF:	-1.5%
63314 BIGSTON4	- 66503 BLAIR 4	BASE:	89.0	CHNG:	40.9	DIFF:	-54.0%
66554 MORRIS 4	- 66550 GRANITF4	BASE:	-11.1	CHNG:	-33.8	DIFF:	204.4%
63336 AUDUBON4	- 63053 HUBBARD4	BASE:	64.4	CHNG:	56.0	DIFF:	-13.1%
66521 SULLYBT4	- 66519 OAHE 4	BASE:	-86.9	CHNG:	-99.4	DIFF:	14.5%
63052 INMAN 4	- 61611 WINGRIV4	BASE:	86.8	CHNG:	52.3	DIFF:	-39.7%
66470 BISON 4	- 66497 MAURINE4	BASE:	-24.0	CHNG:	-46.2	DIFF:	92.4%
66716 LAPORTE7	- 61638 AKELEY7	BASE:	4.8	CHNG:	10.0	DIFF:	106.4%
63222 ALEXAND7	- 60144 DGLASCO7	BASE:	70.4	CHNG:	19.7	DIFF:	-72.0%

```
67327 ELLENDL7  - 67401 ABDNJCT7   BASE:     8.4 CHNG:    12.8 DIFF:    51.6%
66432 EDGELEY7  - 66534 ORDWAY 7   BASE:   -19.4 CHNG:   -15.7 DIFF:   -19.0%
66438 FORMAN 7  - 66522 SUMMIT-7   BASE:   -24.6 CHNG:   -27.7 DIFF:    12.7%
62006 KERKHO 7  - 62005 KERKHOT7   BASE:     0.6 CHNG:    -6.9 DIFF:  -999.0%
66752 DRAYTON4  - 67557 LETELER4   BASE:  -201.3 CHNG:  -219.3 DIFF:     8.9%
63379 RUGBY  4  - 67523 GLENBOR4   BASE:    32.0 CHNG:    26.0 DIFF:   -18.8%
63400 ********  - 60507 ********   BASE:   206.5 CHNG:     0.0 DIFF:  -100.0%
67010 ********  - 60389 ********   BASE:  -122.3 CHNG:     0.0 DIFF:  -100.0%
67452 ALEXSS 7  - 99950 CARPNTR4   BASE:    20.1 CHNG:     0.0 DIFF:  -100.0%
63212 BURR   7  - 63210 TORONTO7   BASE:   -56.2 CHNG:     2.6 DIFF:  -104.6%
63345 WILTON 4  - 61626 BOSWELL4   BASE:  -180.3 CHNG:  -200.4 DIFF:    11.1%

SUBTOTALS FOR: NDEX(MAPP)          BASE:   249.1 CHNG:   -58.6 DIFF:  -123.5%
                                                 DIFF:  -307.8   DF:  -999.0%
*******************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   BASE:   601.6 CHNG:   657.3 DIFF:     9.3%
64400 MECCORD3  - 64403 E MOLIN3   BASE:   436.1 CHNG:   476.5 DIFF:     9.2%

SUBTOTALS FOR: QUADCITY_W(M        BASE:  1037.7 CHNG:  1133.7 DIFF:     9.3%
                                                 DIFF:    96.0   DF:   999.0%
*******************************************************************************

64831 GENTLMN3  - 64943 REDWILO3   BASE:   253.6 CHNG:   247.1 DIFF:    -2.6%

SUBTOTALS FOR: WNE_WKS(MAPP        BASE:   253.6 CHNG:   247.1 DIFF:    -2.6%
                                                 DIFF:    -6.5   DF:   -86.9%
*******************************************************************************

61615 ARROWHD4  - 39448 AWHD PST   BASE:   156.7 CHNG:   125.6 DIFF:   -19.9%
60186 AS KING3  - 60304 EAU CL 3   BASE:   291.5 CHNG:   265.2 DIFF:    -9.0%

SUBTOTALS FOR: MWEX(NEW)           BASE:   448.2 CHNG:   390.8 DIFF:   -12.8%
                                                 DIFF:   -57.4   DF:  -765.1%
*******************************************************************************

66756 SQBUTTE4  - 63049 STANTON4   BASE:    23.3 CHNG:     3.1 DIFF:   -86.9%
66756 SQBUTTE4  - 66751 CENTER 4   BASE:   -54.0 CHNG:   -39.3 DIFF:   -27.2%
66756 SQBUTTE4  - 66791 CENTER 3   BASE:    34.0 CHNG:    39.6 DIFF:    16.2%
63041 COAL CR4  - 63042 COAL TP4   BASE:    -9.1 CHNG:    -8.1 DIFF:   -10.9%
63041 COAL CR4  - 63049 STANTON4   BASE:  -139.3 CHNG:  -128.6 DIFF:    -7.7%
63041 COAL CR4  - 63381 UNDERWD4   BASE:   146.1 CHNG:   134.4 DIFF:    -8.0%

SUBTOTALS FOR: NDDC(INFO)          BASE:     1.0 CHNG:     1.0 DIFF:     0.4%
                                                 DIFF:     0.0   DF:     0.0%
*******************************************************************************

60175 ROSEAU 4  - 67576 RICHER 4   BASE:   -50.7 CHNG:   -50.9 DIFF:     0.5%
67621 RIEL   2  - 67564 DORSEY 2   BASE:  -554.1 CHNG:  -545.1 DIFF:    -1.6%
66752 DRAYTON4  - 67557 LETELER4   BASE:  -198.3 CHNG:  -215.6 DIFF:     8.8%
63379 RUGBY  4  - 67523 GLENBOR4   BASE:    32.3 CHNG:    26.2 DIFF:   -18.9%

SUBTOTALS FOR: MHEX_N+(INFO        BASE:  -770.8 CHNG:  -785.5 DIFF:     1.9%
                                                 DIFF:   -14.7   DF:  -195.3%
*******************************************************************************

67576 RICHER 4  - 60175 ROSEAU 4   BASE:    51.0 CHNG:    51.3 DIFF:     0.5%
67564 DORSEY 2  - 67621 RIEL   2   BASE:   555.9 CHNG:   546.5 DIFF:    -1.7%
67557 LETELER4  - 66752 DRAYTON4   BASE:   201.3 CHNG:   219.3 DIFF:     8.9%
67523 GLENBOR4  - 63379 RUGBY  4   BASE:   -32.0 CHNG:   -26.0 DIFF:   -18.8%

SUBTOTALS FOR: MHEX_S+(INFO        BASE:   776.2 CHNG:   791.0 DIFF:     1.9%
                                                 DIFF:    14.8   DF:   197.6%
*******************************************************************************

60105 PR ISLD3  - 61950 BYRON  3   BASE:     0.0 CHNG:   -83.7 DIFF:   999.0%
```

```
SUBTOTALS FOR: PR_ISL_BYRON        BASE:     0.0 CHNG:   -83.7 DIFF:   999.0%
                                               DIFF:   -83.7   DF:  -999.0%
********************************************************************************

66756 SQBUTTE4  - 63049 STANTON4   BASE:    23.3 CHNG:     3.1 DIFF:   -86.9%
66756 SQBUTTE4  - 66751 CENTER 4   BASE:   -54.0 CHNG:   -39.3 DIFF:   -27.2%
66756 SQBUTTE4  - 66791 CENTER 3   BASE:    34.0 CHNG:    39.6 DIFF:    16.2%

SUBTOTALS FOR: Y2DC(INFO)          BASE:     3.3 CHNG:     3.3 DIFF:    -0.1%
                                               DIFF:     0.0   DF:     0.0%
********************************************************************************

61615 ARROWHD4  - 39448 AWHD PST   BASE:   156.7 CHNG:   125.6 DIFF:   -19.9%

SUBTOTALS FOR: AHD_GPK(INFO        BASE:   156.7 CHNG:   125.6 DIFF:   -19.9%
                                               DIFF:   -31.1   DF:  -414.7%
********************************************************************************

60304 EAU CL 3  - 39244 ARP 345    BASE:   191.7 CHNG:   133.2 DIFF:   -30.5%

SUBTOTALS FOR: EAUARP__XCEL        BASE:   191.7 CHNG:   133.2 DIFF:   -30.5%
                                               DIFF:   -58.5   DF:  -780.2%
********************************************************************************

60101 FORBES 2  - 60198 CHIS-N 2   BASE:   360.9 CHNG:   303.6 DIFF:   -15.9%

SUBTOTALS FOR: FORCHS_PTDF         BASE:   360.9 CHNG:   303.6 DIFF:   -15.9%
                                               DIFF:   -57.3   DF:  -764.6%
********************************************************************************

37632 LEECO;BP  - 36362 NELSO; B   BASE:   -26.6 CHNG:   -58.2 DIFF:   118.6%

SUBTOTALS FOR: LEECONELS           BASE:   -26.6 CHNG:   -58.2 DIFF:   118.6%
                                               DIFF:   -31.6   DF:  -421.2%
********************************************************************************

68613 AUBURNT4  - 67525 RESTON 4   BASE:     9.4 CHNG:     7.2 DIFF:   -23.7%
68615 YORKTON4  - 67514 ROBLIN 4   BASE:  -116.9 CHNG:  -118.2 DIFF:     1.1%
68630 EBCAMPB4  - 67515 RALL   4   BASE:  -115.7 CHNG:  -116.8 DIFF:     1.0%

SUBTOTALS FOR: MH_SPC_E+           BASE:  -223.2 CHNG:  -227.8 DIFF:     2.1%
                                               DIFF:    -4.6   DF:   -61.4%
********************************************************************************

67525 RESTON 4  - 68613 AUBURNT4   BASE:    -9.4 CHNG:    -7.2 DIFF:   -23.7%
67514 ROBLIN 4  - 68615 YORKTON4   BASE:   118.4 CHNG:   119.7 DIFF:     1.1%
67515 RALL   4  - 68630 EBCAMPB4   BASE:   119.2 CHNG:   120.3 DIFF:     1.0%

SUBTOTALS FOR: MH_SPC_W+           BASE:   228.2 CHNG:   232.9 DIFF:     2.1%
                                               DIFF:     4.7   DF:    62.5%
********************************************************************************



## OTDF INTERFACES ##

64095 MNTZUMA3  - 64064 BONDRNT3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34191 REASNOR5  - 64062 DMOINES5   BASE:    15.8 CHNG:     8.9 DIFF:   -43.4%

SUBTOTALS FOR: REASNOR_DPS(        BASE:    15.8 CHNG:     8.9 DIFF:   -43.4%
                                               DIFF:    -6.9   DF:   -91.5%
********************************************************************************

65351 S3451  3  - 63875 RAUN   3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
65426 S1226  5  - 64987 TEKAMAH5   BASE:    23.0 CHNG:   115.7 DIFF:   403.4%
```

```
SUBTOTALS FOR: S1226TEKAMAH        BASE:    23.0 CHNG:   115.7 DIFF:   403.4%
                                                DIFF:    92.7   DF:   999.0%
********************************************************************************

65351 S3451  3  - 63875 RAUN   3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:   -16.7 CHNG:   -16.1 DIFF:    -4.0%

SUBTOTALS FOR: S1226TEKAMAH        BASE:   -16.7 CHNG:   -16.1 DIFF:    -4.0%
                                                DIFF:     0.7   DF:     8.9%
********************************************************************************

64350 HILLS  3  - 64095 MNTZUMA3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64351 HILLS  5  - 34084 PARNEL 5   BASE:    33.8 CHNG:    31.8 DIFF:    -5.7%

SUBTOTALS FOR: HILLPAHILMON        BASE:    33.8 CHNG:    31.8 DIFF:    -5.7%
                                                DIFF:    -1.9   DF:   -25.8%
********************************************************************************

***** ERROR: OTDF #  5 BASE CONTINGENT LINE NOT FOUND OR ALREADY STATUS=0  64403 TO  64680 CKT
***** ERROR: OTDF #  5 CHNG CONTINGENT LINE NOT FOUND OR ALREADY STATUS=0  64403 TO  64680 CKT
64400 MECCORD3  - 64403 E MOLIN3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64403 E MOLIN3  - 64680 ********   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64403 E MOLIN3  - 64418 E MOLINE   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
36382 QUAD ;    - 64405 SUB 91 3   BASE:   853.6 CHNG:   945.4 DIFF:    10.8%

SUBTOTALS FOR: QUAD91CORD39        BASE:   853.6 CHNG:   945.4 DIFF:    10.8%
                                                DIFF:    91.9   DF:   999.0%
********************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64405 SUB 91 3  - 64438 SB 91  5   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64400 MECCORD3  - 64403 E MOLIN3   BASE:   775.9 CHNG:   870.4 DIFF:    12.2%

SUBTOTALS FOR: CORD39QUAD91        BASE:   775.9 CHNG:   870.4 DIFF:    12.2%
                                                DIFF:    94.6   DF:   999.0%
********************************************************************************

64402 LOUISA 3  - 64408 SUB T  3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64408 SUB T  3  - 64350 HILLS  3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64406 SUB 92 3  - 64350 HILLS  3   BASE:   557.9 CHNG:   637.6 DIFF:    14.3%

SUBTOTALS FOR: 92HILLOUHILL        BASE:   557.9 CHNG:   637.6 DIFF:    14.3%
                                                DIFF:    79.7   DF:   999.0%
********************************************************************************

63875 RAUN   3  - 66564 SIOUXCY3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63889 PLYMOTH5  - 66566 SIOUXCY5   BASE:   -32.4 CHNG:    65.3 DIFF:  -302.0%

SUBTOTALS FOR: PLYMSIOUXCTY        BASE:   -32.4 CHNG:    65.3 DIFF:  -302.0%
                                                DIFF:    97.7   DF:   999.0%
********************************************************************************

36382 QUAD ;    - 36368 H471 ;     *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34045 ALBANY 6  - 36773 GARDE;     BASE:    26.5 CHNG:    20.4 DIFF:   -23.1%

SUBTOTALS FOR: ALBGARQUAST         BASE:    26.5 CHNG:    20.4 DIFF:   -23.1%
                                                DIFF:    -6.1   DF:   -81.6%
********************************************************************************
```

```
34093 ARNOLD 3  - 34018 HAZLTON3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34091 ARNOLD 5  - 34089 VINTON 5   BASE:   125.6 CHNG:   164.1 DIFF:    30.6%

SUBTOTALS FOR: ARNVINARNHAZ        BASE:   125.6 CHNG:   164.1 DIFF:    30.6%
                                                 DIFF:    38.5   DF:   513.0%
********************************************************************************

36280 BYRON; B  - 36288 CHERR; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
36281 BYRON; R  - 36289 CHERR; R   BASE:  1523.1 CHNG:  1526.5 DIFF:     0.2%

SUBTOTALS FOR: BYCHEBYCHE          BASE:  1523.1 CHNG:  1526.5 DIFF:     0.2%
                                                 DIFF:     3.4   DF:    45.2%
********************************************************************************

36382 QUAD ;    - 34036 ROCK CK3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64425 DAVNPRT5  - 34909 E CAL T5   BASE:   207.9 CHNG:   238.5 DIFF:    14.7%

SUBTOTALS FOR: DAVCALQUARCK        BASE:   207.9 CHNG:   238.5 DIFF:    14.7%
                                                 DIFF:    30.6   DF:   408.6%
********************************************************************************

64352 TIFFIN 3  - 34093 ARNOLD 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64350 HILLS  3  - 34110 HILLSIE5   BASE:   102.6 CHNG:   139.1 DIFF:    35.5%

SUBTOTALS FOR: HLSXFMTIFARN        BASE:   102.6 CHNG:   139.1 DIFF:    35.5%
                                                 DIFF:    36.4   DF:   486.0%
********************************************************************************

57981 LACYGNE7  - 57968 STILWEL7   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57981 LACYGNE7  - 57965 W.GRDNR7   BASE:  1080.7 CHNG:  1090.2 DIFF:     0.9%

SUBTOTALS FOR: LACWGRLACSTI        BASE:  1080.7 CHNG:  1090.2 DIFF:     0.9%
                                                 DIFF:     9.5   DF:   126.6%
********************************************************************************

36310 ELECT; B  - 36362 NELSO; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
37632 LEECO;BP  - 36280 BYRON; B   BASE:  1054.6 CHNG:  1088.8 DIFF:     3.2%

SUBTOTALS FOR: LEEBYREJNEL         BASE:  1054.6 CHNG:  1088.8 DIFF:     3.2%
                                                 DIFF:    34.2   DF:   456.0%
********************************************************************************

60331 LKFLDXL3  - 34006 LAKEFLD3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34007 LAKEFLD5  - 34008 FOX LK 5   BASE:    31.8 CHNG:    43.1 DIFF:    35.5%

SUBTOTALS FOR: LKFFOXLKGWLM        BASE:    31.8 CHNG:    43.1 DIFF:    35.5%
                                                 DIFF:    11.3   DF:   150.6%
********************************************************************************

36407 WEMPL; R  - 39058 PAD 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34028 LORE   5  - 34033 TRK RIV5   BASE:   175.8 CHNG:   146.8 DIFF:   -16.5%

SUBTOTALS FOR: LORTRKWEMPAD        BASE:   175.8 CHNG:   146.8 DIFF:   -16.5%
                                                 DIFF:   -29.0   DF:  -387.2%
********************************************************************************

39058 PAD 345   - 36407 WEMPL; R   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
36407 WEMPL; R  - 36406 WEMPL; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
36406 WEMPL; B  - 39119 ROE 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
```

```
--------------------------------------------------------------------------------
39058 PAD 345   - 39059 PAD 138    BASE:     0.0 CHNG:     0.0 DIFF:  -182.2%

SUBTOTALS FOR: PADXFMPADROE        BASE:     0.0 CHNG:     0.0 DIFF:  -182.2%
                                               DIFF:     0.0   DF:     0.0%
********************************************************************************

64095 MNTZUMA3  - 64064 BONDRNT3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34185 POWESHK5  - 34191 REASNOR5   BASE:    68.3 CHNG:    71.1 DIFF:     4.0%

SUBTOTALS FOR: POWREAMTZBON        BASE:    68.3 CHNG:    71.1 DIFF:     4.0%
                                               DIFF:     2.8   DF:    36.7%
********************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34029 SALEM  3  - 34030 SALEM N5   BASE:   240.5 CHNG:   370.8 DIFF:    54.1%

SUBTOTALS FOR: SALXFMQUADAV        BASE:   240.5 CHNG:   370.8 DIFF:    54.1%
                                               DIFF:   130.2   DF:   999.0%
********************************************************************************

36407 WEMPL; R  - 39058 PAD 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34029 SALEM  3  - 34030 SALEM N5   BASE:   219.3 CHNG:   336.9 DIFF:    53.6%

SUBTOTALS FOR: SALXFMWEMPAD        BASE:   219.3 CHNG:   336.9 DIFF:    53.6%
                                               DIFF:   117.5   DF:   999.0%
********************************************************************************

63875 RAUN   3  - 34006 LAKEFLD3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
66563 SPENCER5  - 34137 TRIBOJI5   BASE:   -53.7 CHNG:   -36.3 DIFF:   -32.4%

SUBTOTALS FOR: SPETRILAKRAU        BASE:   -53.7 CHNG:   -36.3 DIFF:   -32.4%
                                               DIFF:    17.4   DF:   232.0%
********************************************************************************

56873 SUMMIT 6  - 56872 EMCPHER6   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:    -1.0 CHNG:     0.7 DIFF:  -167.3%
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:    -0.6 CHNG:     1.3 DIFF:  -304.9%

SUBTOTALS FOR: SPHWMCSUMEMC        BASE:    -1.6 CHNG:     2.0 DIFF:  -222.5%
                                               DIFF:     3.6   DF:    47.8%
********************************************************************************

63041 COAL CR4  - 63042 COAL TP4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63044 MCHENRY4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63041 COAL CR4  - 63049 STANTON4   BASE:  -206.4 CHNG:  -191.4 DIFF:    -7.3%

SUBTOTALS FOR: CC-STN              BASE:  -206.4 CHNG:  -191.4 DIFF:    -7.3%
                                               DIFF:    15.0   DF:   200.2%
********************************************************************************

63041 COAL CR4  - 63042 COAL TP4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63044 MCHENRY4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63049 STANTON4  - 63041 COAL CR4   BASE:   207.4 CHNG:   192.3 DIFF:    -7.3%

SUBTOTALS FOR: STN-CC              BASE:   207.4 CHNG:   192.3 DIFF:    -7.3%
                                               DIFF:   -15.2   DF:  -202.2%
********************************************************************************
```

```
63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63041 COAL CR4  - 63042 COAL TP4   BASE:  -139.9 CHNG:  -128.9 DIFF:    -7.9%

SUBTOTALS FOR: CC-CCT              BASE:  -139.9 CHNG:  -128.9 DIFF:    -7.9%
                                                 DIFF:    11.0   DF:   146.9%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63042 COAL TP4  - 63041 COAL CR4   BASE:   140.1 CHNG:   129.0 DIFF:    -7.9%

SUBTOTALS FOR: CCT-CC              BASE:   140.1 CHNG:   129.0 DIFF:    -7.9%
                                                 DIFF:   -11.0   DF:  -147.2%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63042 COAL TP4  - 63049 STANTON4   BASE:  -288.0 CHNG:  -266.0 DIFF:    -7.6%

SUBTOTALS FOR: CCTP-STN            BASE:  -288.0 CHNG:  -266.0 DIFF:    -7.6%
                                                 DIFF:    21.9   DF:   292.6%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63049 STANTON4  - 63042 COAL TP4   BASE:   289.7 CHNG:   267.5 DIFF:    -7.7%

SUBTOTALS FOR: STN-CCT             BASE:   289.7 CHNG:   267.5 DIFF:    -7.7%
                                                 DIFF:   -22.2   DF:  -296.0%
********************************************************************************
```

***** BASE CASE:
KC0-SP16AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=171,MH=1067,MW=448,OHMH=0,OHMP=150,EWTW=-120,BD=165

***** ERROR: GETTING LINE FLOW 60105 TO 61950 CKT 1 IERR= 2

***** CHNG CASE:
KCL-SP16AA.SAV;SUMMER;PK LD;SYSTEM INTACT :
ND=171,MH=1067,MW=448,OHMH=0,OHMP=150,EWTW=-120,BD=165

***** BASE TRANSACTION AMOUNT FOR DF CALCULATION: 7.500

PTDF INTERFACES

64786 COOPER 3	- 59393 ST JOE 3	BASE:	25.9	CHNG:	25.9	DIFF:	-0.2%
64786 COOPER 3	- 96039 7FAIRPT	BASE:	57.9	CHNG:	57.9	DIFF:	-0.1%
SUBTOTALS FOR: COOPER_S(MAP		BASE:	83.8	CHNG:	83.8	DIFF:	-0.1%
				DIFF:	-0.1	DF:	-1.0%
65351 S3451 3	- 65354 S3454 3	BASE:	31.3	CHNG:	31.3	DIFF:	0.0%
65351 S3451 3	- 65359 S3459 3	BASE:	21.6	CHNG:	21.6	DIFF:	-0.1%
65451 S1251 5	- 65497 S1297 5	BASE:	32.7	CHNG:	32.7	DIFF:	0.0%
SUBTOTALS FOR: FTCAL_S(MAPP		BASE:	85.6	CHNG:	85.6	DIFF:	0.0%
				DIFF:	0.0	DF:	-0.4%
64832 GENTLMN4	- 64909 N.PLATT4	BASE:	176.1	CHNG:	176.1	DIFF:	0.0%
64832 GENTLMN4	- 64909 N.PLATT4	BASE:	176.7	CHNG:	176.7	DIFF:	0.0%
64832 GENTLMN4	- 64909 N.PLATT4	BASE:	180.6	CHNG:	180.6	DIFF:	0.0%
64831 GENTLMN3	- 64984 SWEET W3	BASE:	253.6	CHNG:	253.6	DIFF:	0.0%
64831 GENTLMN3	- 64984 SWEET W3	BASE:	305.9	CHNG:	305.9	DIFF:	0.0%
64831 GENTLMN3	- 64943 REDWILO3	BASE:	253.6	CHNG:	253.6	DIFF:	0.0%
SUBTOTALS FOR: GGS(MAPP)		BASE:	1346.5	CHNG:	1346.4	DIFF:	0.0%
				DIFF:	-0.1	DF:	-0.8%
64933 PAULINE3	- 64902 MOORE 3	BASE:	33.7	CHNG:	33.7	DIFF:	-0.1%
64839 GR ISLD4	- 64780 COLMB.W4	BASE:	82.9	CHNG:	82.9	DIFF:	0.0%
66571 GR ISLD3	- 64896 MCCOOL 3	BASE:	82.7	CHNG:	82.7	DIFF:	0.0%
SUBTOTALS FOR: GRIS_LNC(MAP		BASE:	199.4	CHNG:	199.4	DIFF:	0.0%
				DIFF:	0.0	DF:	-0.6%
64095 MNTZUMA3	- 64064 BONDRNT3	BASE:	144.9	CHNG:	144.9	DIFF:	0.0%
SUBTOTALS FOR: MNTZUMA_W(MA		BASE:	144.9	CHNG:	144.9	DIFF:	0.0%
				DIFF:	0.0	DF:	0.4%
67105 LELANDO3	- 66506 FTTHOMP3	BASE:	109.9	CHNG:	110.1	DIFF:	0.1%
67105 LELANDO3	- 67160 GROTON 3	BASE:	141.6	CHNG:	141.7	DIFF:	0.1%
67101 ANTELOP3	- 67120 BRDLAND3	BASE:	140.7	CHNG:	140.9	DIFF:	0.1%
63314 BIGSTON4	- 66503 BLAIR 4	BASE:	89.0	CHNG:	88.9	DIFF:	0.0%
66554 MORRIS 4	- 66550 GRANITF4	BASE:	-11.1	CHNG:	-11.1	DIFF:	0.2%
63336 AUDUBON4	- 63053 HUBBARD4	BASE:	64.4	CHNG:	64.4	DIFF:	0.0%
66521 SULLYBT4	- 66519 OAHE 4	BASE:	-86.9	CHNG:	-87.1	DIFF:	0.2%
63052 INMAN 4	- 61611 WINGRIV4	BASE:	86.8	CHNG:	86.8	DIFF:	0.0%
66470 BISON 4	- 66497 MAURINE4	BASE:	-24.0	CHNG:	-24.2	DIFF:	0.8%
66716 LAPORTE7	- 61638 AKELEY7	BASE:	4.8	CHNG:	4.8	DIFF:	-0.1%
63222 ALEXAND7	- 60144 DGLASCO7	BASE:	70.4	CHNG:	70.4	DIFF:	0.0%

```
67327 ELLENDL7  - 67401 ABDNJCT7   BASE:     8.4 CHNG:     8.4 DIFF:    -0.3%
66432 EDGELEY7  - 66534 ORDWAY 7   BASE:   -19.4 CHNG:   -19.5 DIFF:     0.2%
66438 FORMAN 7  - 66522 SUMMIT-7   BASE:   -24.6 CHNG:   -24.6 DIFF:     0.1%
62006 KERKHO 7  - 62005 KERKHOT7   BASE:     0.6 CHNG:     0.6 DIFF:    -0.5%
66752 DRAYTON4  - 67557 LETELER4   BASE:  -201.3 CHNG:  -201.4 DIFF:     0.0%
63379 RUGBY  4  - 67523 GLENBOR4   BASE:    32.0 CHNG:    31.9 DIFF:    -0.2%
63400 CANBY  3  - 60507 HAZEL 3    BASE:   206.5 CHNG:   206.5 DIFF:     0.0%
67010 AlexSS3   - 60389 WaitePk3   BASE:  -122.3 CHNG:  -122.3 DIFF:     0.0%
67452 ALEXSS 7  - 99950 SAUKCT 7   BASE:    20.1 CHNG:    20.1 DIFF:     0.0%
63212 BURR   7  - 63210 TORONTO7   BASE:   -56.2 CHNG:   -56.2 DIFF:     0.0%
63345 WILTON 4  - 61626 BOSWELL4   BASE:  -180.3 CHNG:  -180.3 DIFF:     0.0%

SUBTOTALS FOR: NDEX(MAPP)          BASE:   249.1 CHNG:   248.9 DIFF:    -0.1%
                                              DIFF:    -0.2   DF:    -3.1%
*******************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   BASE:   601.6 CHNG:   601.6 DIFF:     0.0%
64400 MECCORD3  - 64403 E MOLIN3   BASE:   436.1 CHNG:   436.1 DIFF:     0.0%

SUBTOTALS FOR: QUADCITY_W(M        BASE:  1037.7 CHNG:  1037.7 DIFF:     0.0%
                                              DIFF:     0.0   DF:     0.3%
*******************************************************************************

64831 GENTLMN3  - 64943 REDWILO3   BASE:   253.6 CHNG:   253.6 DIFF:     0.0%

SUBTOTALS FOR: WNE_WKS(MAPP        BASE:   253.6 CHNG:   253.6 DIFF:     0.0%
                                              DIFF:     0.0   DF:    -0.4%
*******************************************************************************

61615 ARROWHD4  - 39448 AWHD PST   BASE:   156.7 CHNG:   156.7 DIFF:     0.0%
60186 AS KING3  - 60304 EAU CL 3   BASE:   291.5 CHNG:   291.4 DIFF:     0.0%

SUBTOTALS FOR: MWEX(NEW)           BASE:   448.2 CHNG:   448.1 DIFF:     0.0%
                                              DIFF:    -0.1   DF:    -1.0%
*******************************************************************************

66756 SQBUTTE4  - 63049 STANTON4   BASE:    23.3 CHNG:    23.6 DIFF:     1.3%
66756 SQBUTTE4  - 66751 CENTER 4   BASE:   -54.0 CHNG:   -53.7 DIFF:    -0.5%
66756 SQBUTTE4  - 66791 CENTER 3   BASE:    34.0 CHNG:    33.5 DIFF:    -1.7%
63041 COAL CR4  - 63042 COAL TP4   BASE:    -9.1 CHNG:    -9.0 DIFF:    -0.3%
63041 COAL CR4  - 63049 STANTON4   BASE:  -139.3 CHNG:  -139.5 DIFF:     0.1%
63041 COAL CR4  - 63381 UNDERWD4   BASE:   146.1 CHNG:   146.2 DIFF:     0.1%

SUBTOTALS FOR: NDDC(INFO)          BASE:     1.0 CHNG:     1.0 DIFF:     0.0%
                                              DIFF:     0.0   DF:     0.0%
*******************************************************************************

60175 ROSEAU 4  - 67576 RICHER 4   BASE:   -50.7 CHNG:   -50.7 DIFF:     0.0%
67621 RIEL   2  - 67564 DORSEY 2   BASE:  -554.1 CHNG:  -554.0 DIFF:     0.0%
66752 DRAYTON4  - 67557 LETELER4   BASE:  -198.3 CHNG:  -198.3 DIFF:     0.0%
63379 RUGBY  4  - 67523 GLENBOR4   BASE:    32.3 CHNG:    32.2 DIFF:    -0.2%

SUBTOTALS FOR: MHEX_N+(INFO        BASE:  -770.8 CHNG:  -770.8 DIFF:     0.0%
                                              DIFF:     0.0   DF:     0.6%
*******************************************************************************

67576 RICHER 4  - 60175 ROSEAU 4   BASE:    51.0 CHNG:    51.0 DIFF:     0.0%
67564 DORSEY 2  - 67621 RIEL   2   BASE:   555.9 CHNG:   555.7 DIFF:     0.0%
67557 LETELER4  - 66752 DRAYTON4   BASE:   201.3 CHNG:   201.4 DIFF:     0.0%
67523 GLENBOR4  - 63379 RUGBY  4   BASE:   -32.0 CHNG:   -31.9 DIFF:    -0.2%

SUBTOTALS FOR: MHEX_S+(INFO        BASE:   776.2 CHNG:   776.2 DIFF:     0.0%
                                              DIFF:     0.0   DF:    -0.6%
*******************************************************************************

60105 PR ISLD3  - 61950 BYRON  3   BASE:     0.0 CHNG:     0.0 DIFF:   999.0%
```

```
SUBTOTALS FOR: PR_ISL_BYRON        BASE:     0.0 CHNG:     0.0 DIFF:   999.0%
                                              DIFF:     0.0   DF:     0.0%
********************************************************************************

66756 SQBUTTE4  - 63049 STANTON4   BASE:    23.3 CHNG:    23.6 DIFF:     1.3%
66756 SQBUTTE4  - 66751 CENTER 4   BASE:   -54.0 CHNG:   -53.7 DIFF:    -0.5%
66756 SQBUTTE4  - 66791 CENTER 3   BASE:    34.0 CHNG:    33.5 DIFF:    -1.7%

SUBTOTALS FOR: Y2DC(INFO)          BASE:     3.3 CHNG:     3.3 DIFF:     0.0%
                                              DIFF:     0.0   DF:     0.0%
********************************************************************************

61615 ARROWHD4  - 39448 AWHD PST   BASE:   156.7 CHNG:   156.7 DIFF:     0.0%

SUBTOTALS FOR: AHD_GPK(INFO        BASE:   156.7 CHNG:   156.7 DIFF:     0.0%
                                              DIFF:     0.0   DF:    -0.4%
********************************************************************************

60304 EAU CL 3  - 39244 ARP 345    BASE:   191.7 CHNG:   191.6 DIFF:     0.0%

SUBTOTALS FOR: EAUARP__XCEL        BASE:   191.7 CHNG:   191.6 DIFF:     0.0%
                                              DIFF:     0.0   DF:    -0.6%
********************************************************************************

60101 FORBES 2  - 60198 CHIS-N 2   BASE:   360.9 CHNG:   360.8 DIFF:     0.0%

SUBTOTALS FOR: FORCHS_PTDF         BASE:   360.9 CHNG:   360.8 DIFF:     0.0%
                                              DIFF:    -0.1   DF:    -1.8%
********************************************************************************

37632 LEECO;BP  - 36362 NELSO; B   BASE:   -26.6 CHNG:   -26.6 DIFF:     0.0%

SUBTOTALS FOR: LEECONELS           BASE:   -26.6 CHNG:   -26.6 DIFF:     0.0%
                                              DIFF:     0.0   DF:     0.1%
********************************************************************************

68613 AUBURNT4  - 67525 RESTON 4   BASE:     9.4 CHNG:     9.4 DIFF:    -0.7%
68615 YORKTON4  - 67514 ROBLIN 4   BASE:  -116.9 CHNG:  -117.0 DIFF:     0.0%
68630 EBCAMPB4  - 67515 RALL   4   BASE:  -115.7 CHNG:  -115.7 DIFF:     0.0%

SUBTOTALS FOR: MH_SPC_E+           BASE:  -223.2 CHNG:  -223.3 DIFF:     0.1%
                                              DIFF:    -0.1   DF:    -1.6%
********************************************************************************

67525 RESTON 4  - 68613 AUBURNT4   BASE:    -9.4 CHNG:    -9.3 DIFF:    -0.7%
67514 ROBLIN 4  - 68615 YORKTON4   BASE:   118.4 CHNG:   118.4 DIFF:     0.0%
67515 RALL   4  - 68630 EBCAMPB4   BASE:   119.2 CHNG:   119.2 DIFF:     0.0%

SUBTOTALS FOR: MH_SPC_W+           BASE:   228.2 CHNG:   228.3 DIFF:     0.1%
                                              DIFF:     0.1   DF:     1.6%
********************************************************************************



## OTDF INTERFACES ##

64095 MNTZUMA3  - 64064 BONDRNT3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34191 REASNOR5  - 64062 DMOINES5   BASE:    15.8 CHNG:    15.8 DIFF:     0.1%

SUBTOTALS FOR: REASNOR_DPS(        BASE:    15.8 CHNG:    15.8 DIFF:     0.1%
                                              DIFF:     0.0   DF:     0.1%
********************************************************************************

65351 S3451  3  - 63875 RAUN   3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
65426 S1226  5  - 64987 TEKAMAH5   BASE:    23.0 CHNG:    23.0 DIFF:     0.0%
```

```
SUBTOTALS FOR: S1226TEKAMAH        BASE:    23.0 CHNG:    23.0 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.1%
********************************************************************************

65351 S3451  3  - 63875 RAUN   3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:   -16.7 CHNG:   -16.7 DIFF:     0.0%

SUBTOTALS FOR: S1226TEKAMAH        BASE:   -16.7 CHNG:   -16.7 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.0%
********************************************************************************

64350 HILLS  3  - 64095 MNTZUMA3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64351 HILLS  5  - 34084 PARNEL 5   BASE:    33.8 CHNG:    33.8 DIFF:     0.0%

SUBTOTALS FOR: HILLPAHILMON        BASE:    33.8 CHNG:    33.8 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.1%
********************************************************************************

***** ERROR: OTDF #  5 BASE CONTINGENT LINE NOT FOUND OR ALREADY STATUS=0  64403 TO  64680 CKT
***** ERROR: OTDF #  5 CHNG CONTINGENT LINE NOT FOUND OR ALREADY STATUS=0  64403 TO  64680 CKT
64400 MECCORD3  - 64403 E MOLIN3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64403 E MOLIN3  - 64680 ********   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64403 E MOLIN3  - 64418 E MOLINE   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
36382 QUAD ;    - 64405 SUB 91 3   BASE:   853.6 CHNG:   853.6 DIFF:     0.0%

SUBTOTALS FOR: QUAD91CORD39        BASE:   853.6 CHNG:   853.6 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.2%
********************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64405 SUB 91 3  - 64438 SB 91  5   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64400 MECCORD3  - 64403 E MOLIN3   BASE:   775.9 CHNG:   775.9 DIFF:     0.0%

SUBTOTALS FOR: CORD39QUAD91        BASE:   775.9 CHNG:   775.9 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.2%
********************************************************************************

64402 LOUISA 3  - 64408 SUB T  3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
64408 SUB T  3  - 64350 HILLS  3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64406 SUB 92 3  - 64350 HILLS  3   BASE:   557.9 CHNG:   558.0 DIFF:     0.0%

SUBTOTALS FOR: 92HILLOUHILL        BASE:   557.9 CHNG:   558.0 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.5%
********************************************************************************

63875 RAUN   3  - 66564 SIOUXCY3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63889 PLYMOTH5  - 66566 SIOUXCY5   BASE:   -32.4 CHNG:   -32.3 DIFF:     0.0%

SUBTOTALS FOR: PLYMSIOUXCTY        BASE:   -32.4 CHNG:   -32.3 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.2%
********************************************************************************

36382 QUAD ;    - 36368 H471 ;     *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34045 ALBANY 6  - 36773 GARDE;     BASE:    26.5 CHNG:    26.5 DIFF:     0.0%

SUBTOTALS FOR: ALBGARQUAST         BASE:    26.5 CHNG:    26.5 DIFF:     0.0%
                                                 DIFF:     0.0   DF:    -0.1%
********************************************************************************
```

```
34093 ARNOLD 3  - 34018 HAZLTON3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34091 ARNOLD 5  - 34089 VINTON 5   BASE:   125.6 CHNG:   125.6 DIFF:     0.0%

SUBTOTALS FOR: ARNVINARNHAZ        BASE:   125.6 CHNG:   125.6 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.2%
********************************************************************************

36280 BYRON; B  - 36288 CHERR; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
36281 BYRON; R  - 36289 CHERR; R   BASE:  1523.1 CHNG:  1523.1 DIFF:     0.0%

SUBTOTALS FOR: BYCHEBYCHE          BASE:  1523.1 CHNG:  1523.1 DIFF:     0.0%
                                                 DIFF:     0.0   DF:    -0.2%
********************************************************************************

36382 QUAD ;    - 34036 ROCK CK3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64425 DAVNPRT5  - 34909 E CAL T5   BASE:   207.9 CHNG:   207.9 DIFF:     0.0%

SUBTOTALS FOR: DAVCALQUARCK        BASE:   207.9 CHNG:   207.9 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.1%
********************************************************************************

64352 TIFFIN 3  - 34093 ARNOLD 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
64350 HILLS  3  - 34110 HILLSIE5   BASE:   102.6 CHNG:   102.6 DIFF:     0.0%

SUBTOTALS FOR: HLSXFMTIFARN        BASE:   102.6 CHNG:   102.6 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.1%
********************************************************************************

57981 LACYGNE7  - 57968 STILWEL7   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57981 LACYGNE7  - 57965 W.GRDNR7   BASE:  1080.7 CHNG:  1080.8 DIFF:     0.0%

SUBTOTALS FOR: LACWGRLACSTI        BASE:  1080.7 CHNG:  1080.8 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.4%
********************************************************************************

36310 ELECT; B  - 36362 NELSO; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
37632 LEECO;BP  - 36280 BYRON; B   BASE:  1054.6 CHNG:  1054.6 DIFF:     0.0%

SUBTOTALS FOR: LEEBYREJNEL         BASE:  1054.6 CHNG:  1054.6 DIFF:     0.0%
                                                 DIFF:     0.0   DF:    -0.3%
********************************************************************************

60331 LKFLDXL3  - 34006 LAKEFLD3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34007 LAKEFLD5  - 34008 FOX LK 5   BASE:    31.8 CHNG:    31.8 DIFF:     0.0%

SUBTOTALS FOR: LKFFOXLKGWLM        BASE:    31.8 CHNG:    31.8 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.0%
********************************************************************************

36407 WEMPL; R  - 39058 PAD 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34028 LORE   5  - 34033 TRK RIV5   BASE:   175.8 CHNG:   175.8 DIFF:     0.0%

SUBTOTALS FOR: LORTRKWEMPAD        BASE:   175.8 CHNG:   175.8 DIFF:     0.0%
                                                 DIFF:     0.0   DF:     0.1%
********************************************************************************

39058 PAD 345   - 36407 WEMPL; R   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
36407 WEMPL; R  - 36406 WEMPL; B   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
36406 WEMPL; B  - 39119 ROE 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
```

```
--------------------------------------------------------------------------------
39058 PAD 345   - 39059 PAD 138    BASE:     0.0 CHNG:     0.0 DIFF:  -104.5%

SUBTOTALS FOR: PADXFMPADROE        BASE:     0.0 CHNG:     0.0 DIFF:  -104.5%
                                               DIFF:     0.0   DF:     0.0%
********************************************************************************

64095 MNTZUMA3  - 64064 BONDRNT3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34185 POWESHK5  - 34191 REASNOR5   BASE:    68.3 CHNG:    68.3 DIFF:     0.0%

SUBTOTALS FOR: POWREAMTZBON        BASE:    68.3 CHNG:    68.3 DIFF:     0.0%
                                               DIFF:     0.0   DF:     0.2%
********************************************************************************

36382 QUAD ;    - 64405 SUB 91 3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34029 SALEM  3  - 34030 SALEM N5   BASE:   240.5 CHNG:   240.5 DIFF:     0.0%

SUBTOTALS FOR: SALXFMQUADAV        BASE:   240.5 CHNG:   240.5 DIFF:     0.0%
                                               DIFF:     0.0   DF:     0.0%
********************************************************************************

36407 WEMPL; R  - 39058 PAD 345    *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
34029 SALEM  3  - 34030 SALEM N5   BASE:   219.3 CHNG:   219.3 DIFF:     0.0%

SUBTOTALS FOR: SALXFMWEMPAD        BASE:   219.3 CHNG:   219.3 DIFF:     0.0%
                                               DIFF:     0.0   DF:     0.0%
********************************************************************************

63875 RAUN   3  - 34006 LAKEFLD3   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
66563 SPENCER5  - 34137 TRIBOJI5   BASE:   -53.7 CHNG:   -53.7 DIFF:     0.0%

SUBTOTALS FOR: SPETRILAKRAU        BASE:   -53.7 CHNG:   -53.7 DIFF:     0.0%
                                               DIFF:     0.0   DF:     0.1%
********************************************************************************

56873 SUMMIT 6  - 56872 EMCPHER6   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:    -1.0 CHNG:    -1.0 DIFF:    -0.2%
57374 SPHILPJ3  - 57438 WMCPHER3   BASE:    -0.6 CHNG:    -0.6 DIFF:    -0.3%

SUBTOTALS FOR: SPHWMCSUMEMC        BASE:    -1.6 CHNG:    -1.6 DIFF:    -0.2%
                                               DIFF:     0.0   DF:     0.0%
********************************************************************************

63041 COAL CR4  - 63042 COAL TP4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63044 MCHENRY4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63041 COAL CR4  - 63049 STANTON4   BASE:  -206.4 CHNG:  -206.7 DIFF:     0.1%

SUBTOTALS FOR: CC-STN              BASE:  -206.4 CHNG:  -206.7 DIFF:     0.1%
                                               DIFF:    -0.3   DF:    -3.8%
********************************************************************************

63041 COAL CR4  - 63042 COAL TP4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
63042 COAL TP4  - 63044 MCHENRY4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63049 STANTON4  - 63041 COAL CR4   BASE:   207.4 CHNG:   207.7 DIFF:     0.1%

SUBTOTALS FOR: STN-CC              BASE:   207.4 CHNG:   207.7 DIFF:     0.1%
                                               DIFF:     0.3   DF:     3.8%
********************************************************************************
```

```
63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63041 COAL CR4  - 63042 COAL TP4   BASE:  -139.9 CHNG:  -140.0 DIFF:     0.1%

SUBTOTALS FOR: CC-CCT              BASE:  -139.9 CHNG:  -140.0 DIFF:     0.1%
                                                 DIFF:    -0.2   DF:    -2.2%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63042 COAL TP4  - 63041 COAL CR4   BASE:   140.1 CHNG:   140.2 DIFF:     0.1%

SUBTOTALS FOR: CCT-CC              BASE:   140.1 CHNG:   140.2 DIFF:     0.1%
                                                 DIFF:     0.2   DF:     2.2%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63042 COAL TP4  - 63049 STANTON4   BASE:  -288.0 CHNG:  -288.4 DIFF:     0.2%

SUBTOTALS FOR: CCTP-STN            BASE:  -288.0 CHNG:  -288.4 DIFF:     0.2%
                                                 DIFF:    -0.4   DF:    -5.8%
********************************************************************************

63041 COAL CR4  - 63049 STANTON4   *CONTINGENCY* BASE:     0.0 CHNG:     0.0
--------------------------------------------------------------------------------
63049 STANTON4  - 63042 COAL TP4   BASE:   289.7 CHNG:   290.2 DIFF:     0.2%

SUBTOTALS FOR: STN-CCT             BASE:   289.7 CHNG:   290.2 DIFF:     0.2%
                                                 DIFF:     0.4   DF:     5.9%
********************************************************************************
```