APPENDIX B

POWERFLOW CASE DOCUMENTATION

Powerflow reports

Powerflow diagrams

STABILITY CASE DOCUMENTATION

Disturbance list and description

Stability case summary tables

Selected stability plots

APPENDIX B1

POWERFLOW CASE DOCUMENTATION

Powerflow reports

Plan	Case Name	MHEX (MW)	NDEX (MW)	TCEX (MW)
Base	wb-sraa.uvj04Y4	1975	1950	1350

Powerflow diagrams

Plan	Case Name	MHEX (MW)	NDEX (MW)	TCEX (MW)
Base	wb-sraa.uvj04Y4	1975	1950	1350
1c	1c-sraa.uvj04Y4	1975	1950	1328*
2e	2e-sraa.uvg04Y4	1975	1950	1020*
3j	3j-sraa.uvg04Y4	1975	1950	1005*
5a	5a-sraa.uvf04Y4	1975	1950	910*
5b	5b-sraa.uvh04Y4	1975	1950	1117*
9b	9b-sraa.uvk04Y4	1975	1950	1395*
10	10-sraa.uvg04Y4	1975	1950	959*
* - TCEX flow following addition of new facilities				

INITIATED AT LOAD FLOW ENTRY POINT ON WED, MAY 26 1999 14:24

WB-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1946,MH=1976,TC=1313,MHOH=0,OHMP=152,EWTW=-87,BD=149

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

NDEX: 1947 MW		MN.WUMS: 986 MW	
MHEX: 1975 MW		MN.IOWA: 481 MW	
TCEX: 1310 MW		E. BIAS: 245 MW	(Audubon-Hubb 230 & Rush LkT-WingR 230)

LOAD LEVELS AS PERCENT OF 2002 SUMMER PEAK:

NORTH DAKOTA	(ZONE 90,990)	1750.0 MW,	64.4% OF	2716.0 MW
NSP	(AREA 23)	7393.5 MW,	79.5% OF	9296.0 MW
MAN HYDRO	(AREA 20)	2246.1 MW,	88.7% OF	2532.0 MW

Load/Losses	MW / MW	Generation	MW	Export	MW
Manitoba	2246/ 260	MH total gross	4494	NDEX net	1947
Ont. total	22108/ 375	Wpg River	420	MHEX net	1975
NW	952/ 30	7 Sisters	92	TCEX 345 KV	1310
Sask.	1845/ 86	OH total gross	22722	TCEX 345 KV-new	2023
MP	1244/ 75	northwest	1223	SPC>WAPA (B10T)	150
NSP	7393/ 436	SPC total gross	2069	MH>SPC (3-230)	88
N. Dakota	1750/ 257	MP total gross	1508	MH>SPC (FALLS)	-74
Manitoba	656 MVARS	ND Cfd AC gross	3089	OH>MH @Kenora	0
Ont. total	14354 MVARS	net	2918	OH>MP @Ft Fran	150
NW	444 MVARS	NSP East gross	2245	OH E>W @Wawa	-89
Sask.	465 MVARS	net	2139	OH>East USA	0
MP	483 MVARS	West gross	2926	F601C @Forbes	1506
NSP	1651 MVARS	net	2764	D602F @Dorsey	1622
N. Dakota	392 MVARS	Total net	5887	L20D @Letell	233
		WAPA SD Hydro	1399	R50M @Richer	119
		Swing Bus 71219	1757	Eau Claire-Arpin	788

Tfmrs	MVA/ Load	Ph Shifters	Deg/ MW	DC Lines	MW
Wshell #1 7-7	25/ 12%	Stinson	18/ 110	CU (1,2)	1000
Wshell #2 7-7	25/ 12%	Boundary Dam	23/ 151	Miles City E>W	-149
Drayton#1 4-7	47/ 33%	Whiteshell	82/ 0	SQ BU (3,4)	400
Drayton#2 4-7	60/ 32%	Int Falls	85/ 150	MH Bipole 1	1492
Dorsey #1 2-4	811/ 67%	St. Lawrence	5/ 3	MH Bipole 2	1689
Dorsey #2 2-4	831/ 69%			MH (BP1+BP2)	3181
Forbes 2-4	19/ 2%				

Dorsey SC's	I/S	MVAR	Qmax/ Qmin	SVC's	MVAR	Qmax/ Qmin

MIL 7-9G	17.0	2	465	600/ -330	Forbes	500	24	400/ -450
SCE 1-3G	18.2	3	372	480/ -240	Fargo	13.2	12	20/ -135
SCA 4-6G	18.2	2	248	320/ -160	Watertown	20.0	75	125/ -86
Total			1087	1400/ -730				
Margin			313					

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

Caps/Reactors		MVAR
Drayton	115	40
Drayton	13.8	0
Eau Claire(FS)	161	352
Kohlman Lake	115	160
Parkers Lk(FS)	115	0
Prairie (FS)	115	40
Ramsey (FS)	230	30
Red Rock	115	160
Split Rock(FS)	115	120
Sheyenne (FS)	115	0

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	0
Shannon	230	36
Laverendrye	110	98
Richer react	230	-30
St Vital	110	0

Caps/Reactors		MVAR
Chisago T 9	34.5	60
Chisago T 10	34.5	60
Forbes	230	70
Forbes	500	600
Fargo	115	27
Watertown	20	20
Watertown	230	76

1*** wb-sraa.uvj04Y4 Page 2

Bus Voltages		V,pu
Adams	345	0.979
Alexandria	115	1.007
Audubon	115	1.013
Byron	345	0.983
Chisago Co.	345	1.028
Chisago Co.	500	1.026
Drayton	230	1.030
Eau Claire	345	0.978
Faribault,West	115	1.015
LaPorte	115	0.997
Maple River	230	1.014
Marshall Tap	115	1.029
Owatonna	161	1.011
Prairie	115	1.022
Prairie	230	1.024
Ramsey	230	1.023
Roseau County	230	1.027
Roseau County	500	1.056
Sheyenne	230	1.013
Thief R Falls	115	1.023
Tioga	230	1.042
Wahpeton	230	1.021
Winger	115	1.029

Bus Voltages		V,pu
Arrowhead	230	1.033
Badoura	115	1.000
Blackberry	230	1.035
Boise Cascade	13.8	1.088
Boise Cascade	115	1.044
ETCO	115	1.020
Forbes	230	1.036
Forbes	500	1.035
Hubbard	115	1.007
Intl Falls	115	1.043
Minntac	115	1.017
Moranville	230	1.027
Riverton	230	1.025
Running	230	1.017
Shannon	230	1.029
Groton	345	0.995
Watertown	230	1.030
Watertown	345	1.022
Dorsey	230	1.045
Dorsey	500	1.030

Bus Voltages		V,kV
Whiteshell	110	119.0
Kenora	220	247.4
Dryden	220	247.2
Fort Frances	220	247.7
Mackenzie	220	251.9
Lakehead	220	245.5
Marathon	220	252.5
Wawa	220	240.8
Mississagi	220	238.7
Fort Frances	118	121.4
Lakehead	118	124.3
Birch	118	121.3
Marathon	118	125.7

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	396%	N/A	N/A
2) -Tioga (North)	GE OST	SLLP	804%	N/A	N/A
3) -Tioga (Em North)	GE OST	SLLP		N/A	N/A
4) D602F-Dorsey	GE SLLP	RLGMH1	307%	N/A	N/A
5) -Forbes (Normal)	GE SLLP3	RLGMH1	184%	N/A	N/A
6) -Forbes (Em Nrth)	APT S-PRO	SLINOS		N/A	N/A
7) -Forbes (DC Red)	SEL 21/68	CIRCOS	92%	N/A	N/A
8) F3M-Intl Falls	APT S-PRO	SLINOS	340%	N/A	N/A
9) L20D-Drayton (Normal)	APT, ASEA	SLINOS	751%	N/A	N/A
10) -Drayton (Em Nrth)	ASEA RXZF2	SLINOS		N/A	N/A
11) -Prairie	West SDBU2	SLINOS	943%	N/A	N/A
12) R50M-Moranville (Norm)	APT, West	SLINOS	660%	N/A	N/A
13) -Moranville (Em N)	ASEA RXZF2	SLINOS		N/A	N/A

Out of Step Relay Settings Used for Margin Calculations

1) P1/P2/P3=0.223,0.283,0.350 pu, R1/X1/R2/X2=0.030,0.348,-0.030,-0.348 pu
2) P1/P2/P3=0.180,0.248,0.312 pu, R1/X1/R2/X2=0.027,0.311,-0.027,-0.311 pu
3) P1/P2/P3=0.283,0.339,0.397 pu, R1/X1/R2/X2=0.035,0.395,-0.035,-0.395 pu
4) MTA=85.0 Deg,FWD=0.0976 pu,REV=0.0288 pu,ANGIN=125.0 Deg,ANGOUT=110.0 Deg
5) MTA=85.0 Deg,FWD=0.0970 pu,REV=0.0210 pu,ANGIN=118.0 Deg,ANGOUT=98.0 Deg
6) MTA=85.0 Deg,OBR=0.0732 pu,IBR=0.0522 pu,OBL=-0.0360 pu,IBL=-0.0229 pu
7) Angle1/2= 63,107 Deg, Diam1/2=0.1360,0.1563 pu, FWD/REV=0.0378,0.0378 pu
8) MTA=76.3 Deg, OBR=0.4800 pu, IBR=0.3000 pu, OBL=-0.3500 pu, IBL=-0.2000 pu
9) MTA=80.0 Deg, OBR=0.2005 pu, IBR=0.1604 pu, OBL=-0.2005 pu, IBL=-0.1604 pu
10) MTA=80.0 Deg, OBR=0.3151 pu, IBR=0.2520 pu, OBL=-0.3151 pu, IBL=-0.2520 pu
11) MTA=75.0 Deg, OBR=0.2450 pu, IBR=0.1740 pu, OBL=-0.2450 pu, IBL=-0.1740 pu
12) MTA=76.3 Deg, OBR=0.3450 pu, IBR=0.2450 pu, OBL=-0.3450 pu, IBL=-0.2450 pu
13) MTA=80.0 Deg, OBR=0.5260 pu, IBR=0.4210 pu, OBL=-0.5260 pu, IBL=-0.4210 pu

Legend: MTA = Maximum Torque Angle
OBR/IBR/OBL/IBL = outer/inner blinders in the right/left half-plane
P1/P2/P3 = perpendicular distances to blinders from MTA line
R1,X1/R2,X2 = coordinates of upper/lower vertices of lens

PRE-CONTINGENCY VOLTAGE/LOADING CHECK

MH AREA OUT-OF-RANGE VOLTAGES

BUS	NAME	BSKV	AREA	V(PU)	V(KV)	BUS	NAME	BSKV	AREA	V(PU)	V(KV)
3412	ASHERN 4	230	20	1.0582	243.39	3462	JENPEG 4	230	20	1.0623	244.33
3468	DC5 JCT4	230	20	0.9619	221.24	3469	DC6 JCT4	230	20	0.9613	221.09
3480	SILVER 4	230	20	1.0618	244.22	3482	HERB LK7	110	20	0.9698	106.68
3485	SILVERTP	230	20	1.0628	244.44	3602	MINTS 4	230	20	1.0564	242.98
3630	CLIFF1 7	110	20	0.9797	107.77	3633	ROSS LK7	110	20	0.9774	107.52
3636	STALLK 7	110	20	0.9675	106.43	3637	HERB TP7	110	20	0.9687	106.56
3638	SNOWLK 7	110	20	0.9680	106.48	3639	CHSLKTP7	110	20	0.9681	106.50

3642	SHERRDN7	110	20	0.9709	106.80	3671	SK1 SUB7	110	20	1.1479	126.27
3672	STAR LK7	110	20	1.1482	126.31	3684	ILEDESC7	110	20	0.9831	108.14
3818	SNOWMIL7	110	20	0.9675	106.43	3819	CHSL LK7	110	20	0.9678	106.45
3820	TVXMINE7	110	20	0.9680	106.48	3822	CLIFF2 7	110	20	0.9797	107.77

SPC AREA OUT-OF-RANGE VOLTAGES

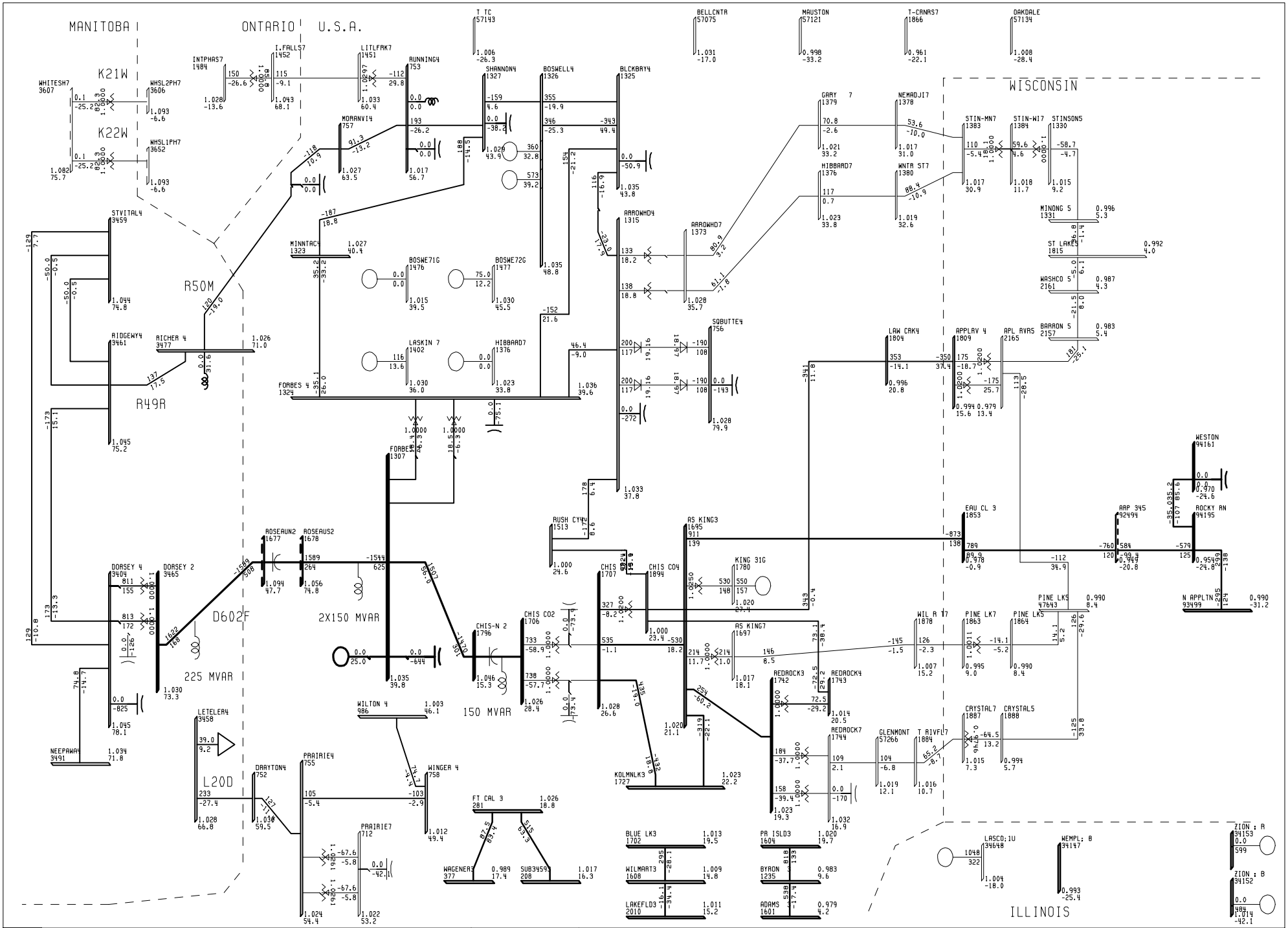
BUS	NAME	BSKV	AREA	V(PU)	V(KV)	BUS	NAME	BSKV	AREA	V(PU)	V(KV)
3114	TANTALL6	138	18	1.0645	146.90						

PRE-CONTINGENCY VOLTAGE CRITERIA BY COMPANY

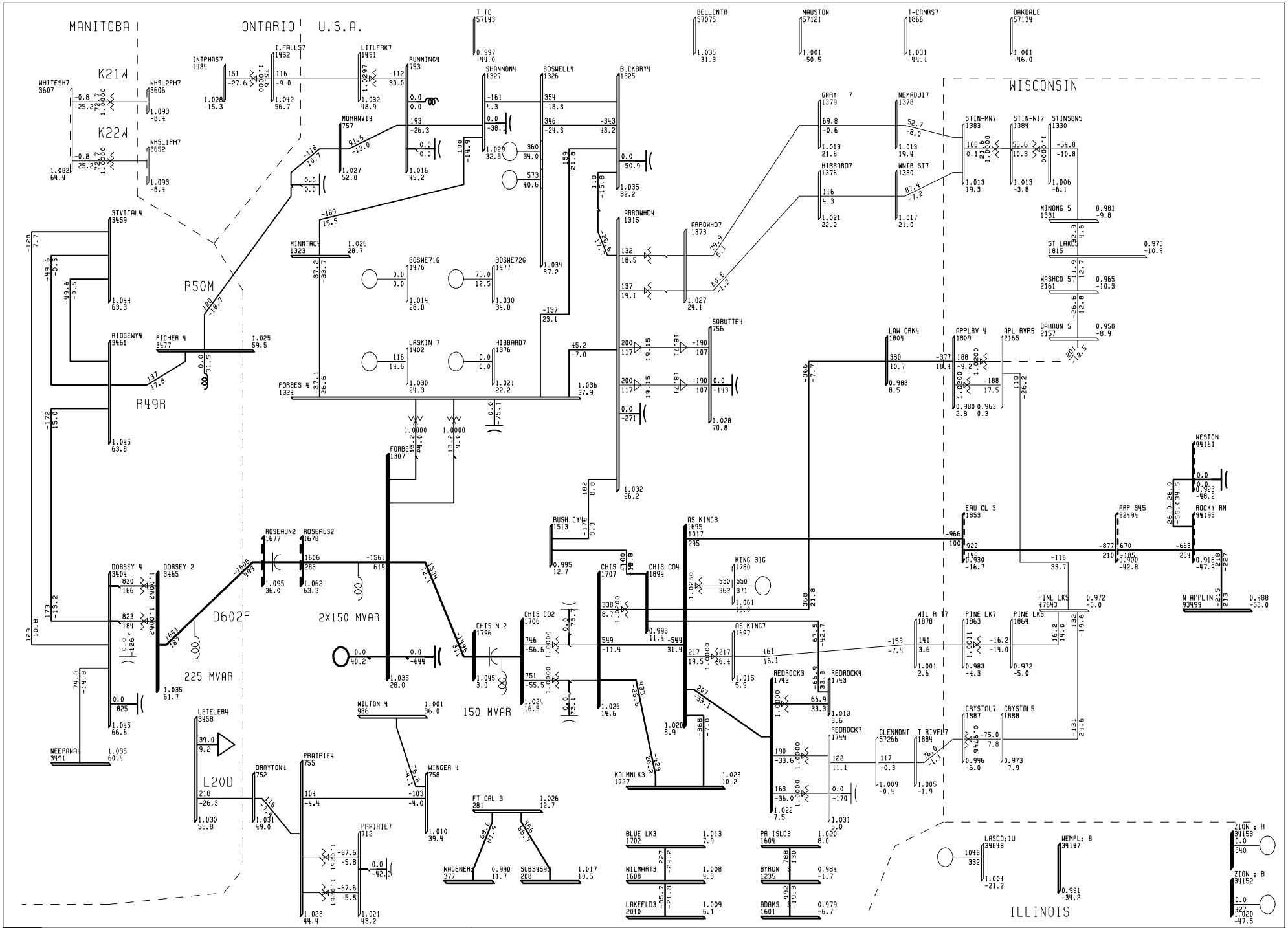
	Vmax(pu)	Vmin(pu)	Bus Range 1	Bus Range 2	Area(s)	Except
BEPC AREA	1.05	0.95	600 - 699			N
CP AREA	1.05	0.95	1900 - 1999			Y
DPC AREA	1.05	0.95	2100 - 2199			N
IES AREA	1.05	0.95	2500 - 2699			N
IPW AREA	1.05	0.95	2000 - 2099			N
LES AREA	1.05	0.95	300 - 399			N
MDU AREA	1.05	0.95	800 - 899			N
MEC AREA	1.05	0.95	2200 - 2499			N
MH AREA	1.05	0.95			20 0	Y
MP AREA	1.05	1.00	1250 - 1499			Y
MPC AREA	1.05	0.95	700 - 799			Y
MPW AREA	1.05	0.95	2900 - 2999			N
NPPD AREA	1.05	0.95	1 - 199			N
NSP AREA	1.10	0.00	1600 - 1899			Y
NWPS AREA	1.05	0.95	1000 - 1099			N
OPPD AREA	1.05	0.95	200 - 299			N
OTP AREA	1.05	0.97	900 - 999	77000 - 79999		Y
SMMPA AREA	1.05	0.95	1200 - 1249			N
SPC AREA	1.05	0.95	3000 - 3399			Y
UPA AREA	1.05	0.95	1500 - 1599			N
WAPA AREA	1.05	0.95	400 - 599			Y

LINE AND TRANSFORMER OVERLOAD FOR AREAS
2,3,4,6,14,18,19,20,21,22,23,25,26,30,31,36,39,77
(MVA LOADING > 100% OF RATE A; ENDPOINT BUSES RATED >= 110.0 KV)

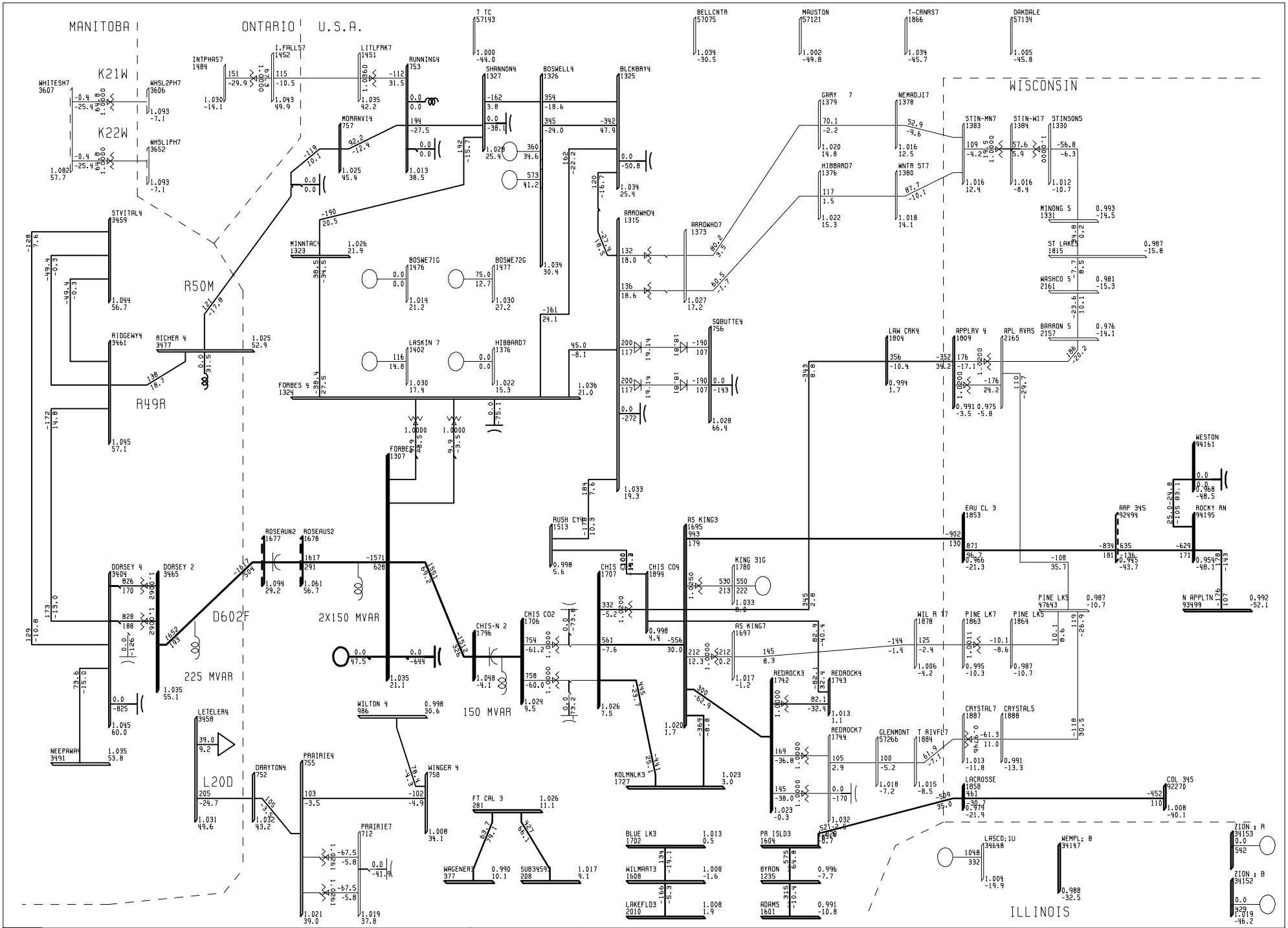
BUS	NAME	BSKV	AREA	BUS	NAME	BSKV	AREA	CKT	LOADING	RATING	PERCENT
2111	BELLCTR5	161	26	2115*	HLSBORO5	161	26	1	72.2	60.0	120.3



POWER TECHNOLOGIES, INC.	WB-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT ND=1946,MH=1976,TC=1313,MHOH=0,OHMP=152,EWTW=-87,BD=149 STABILITY BASE CASE WED, MAY 26 1999 14:14	100% RATEA 0.950 UV 1.050 OV KV: ≤161 , ≤230 , ≤345	BUS - VOLTAGE (PU) /ANGLE BRANCH - MW/MVAR EQUIPMENT - MW/MVAR

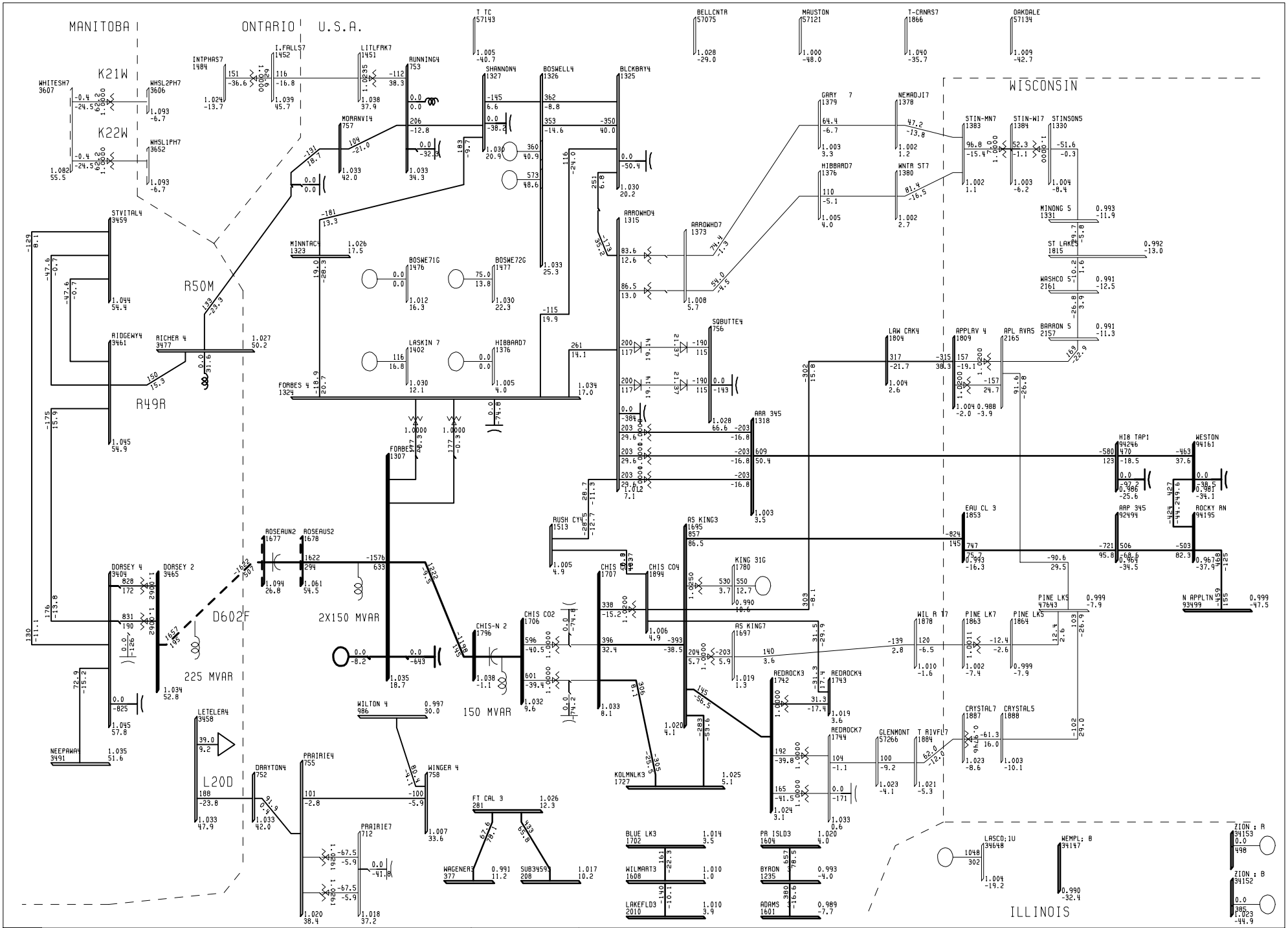


POWER TECHNOLOGIES, INC.	1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149 PLAN 1C BASE CASE WED, MAY 26 1999 12:00	100% RATEA 0.950 UV 1.050 OV KV: ≤161 , ≤230 , ≤345
		BUS - VOLTAGE (PU) /ANGLE BRANCH - MW/MVAR EQUIPMENT - MW/MVAR

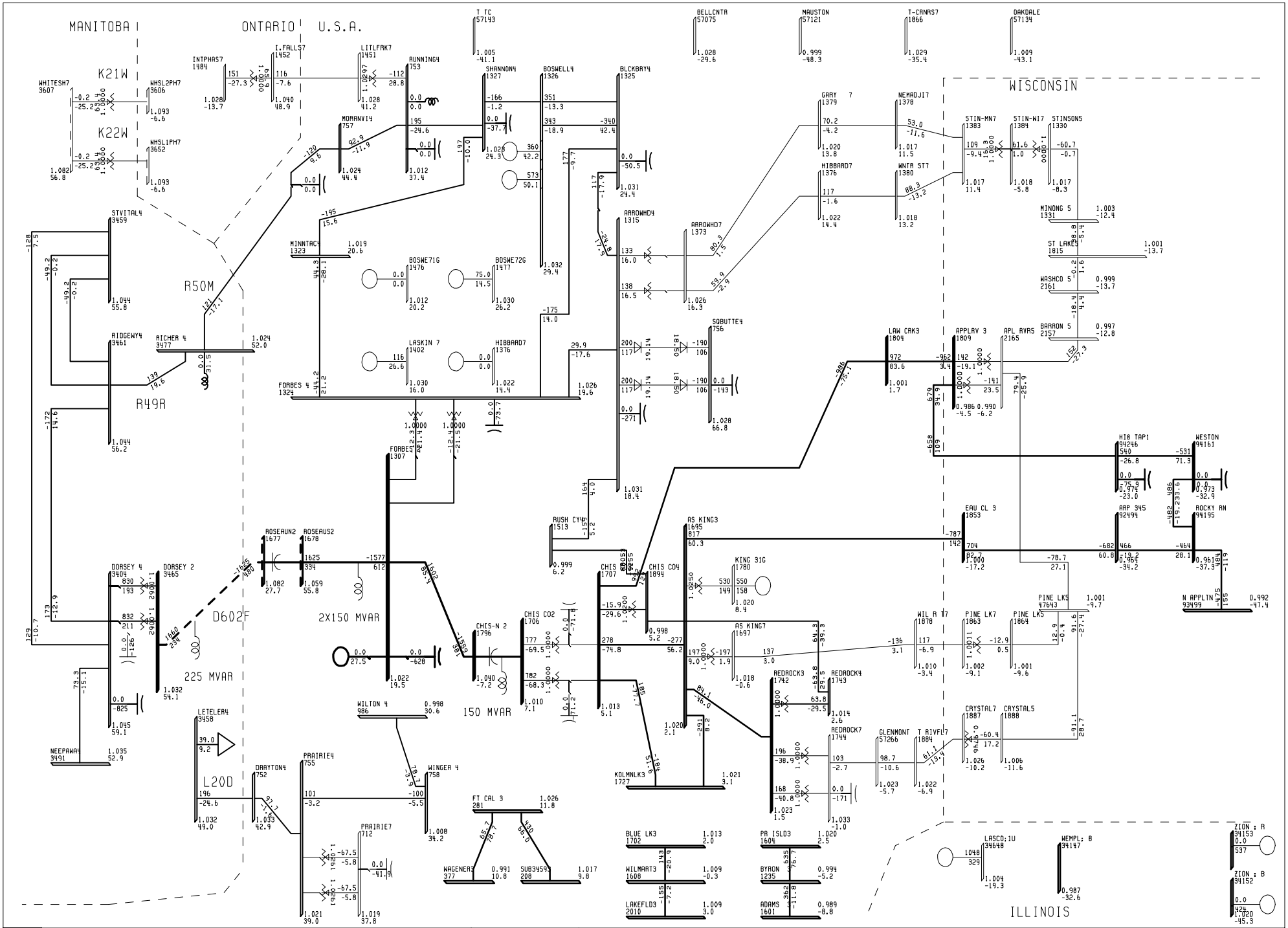


POWER TECHNOLOGIES, INC.	2E-SRAA.UVG04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT ND=1940,MH=1976,TC=1007,MHOH=0,OHMP=152,EWTW=-88,BD=149 PLAN 2E BASE CASE WED, MAY 26 1999 14:06	100% RATED 0.950 UV 1.050 OV KV: ≤161 , ≤230 , ≤345

BUS - VOLTAGE (PU) /ANGLE
BRANCH - MW/MVAR
EQUIPMENT - MW/MVAR



POWER TECHNOLOGIES, INC.	3J-SRAA.UVG04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT ND=1940,MH=1978,TC=1009,MHOH=0,OHMP=152,EWTW=-87,BD=149 PLAN 3J BASE CASE WED, MAY 26 1999 14:07	100% RATEA 0.950 UV 1.050 OV KV: ≤161 , ≤230 , ≤345	BUS - VOLTAGE (PU) /ANGLE BRANCH - MW/MVAR EQUIPMENT - MW/MVAR

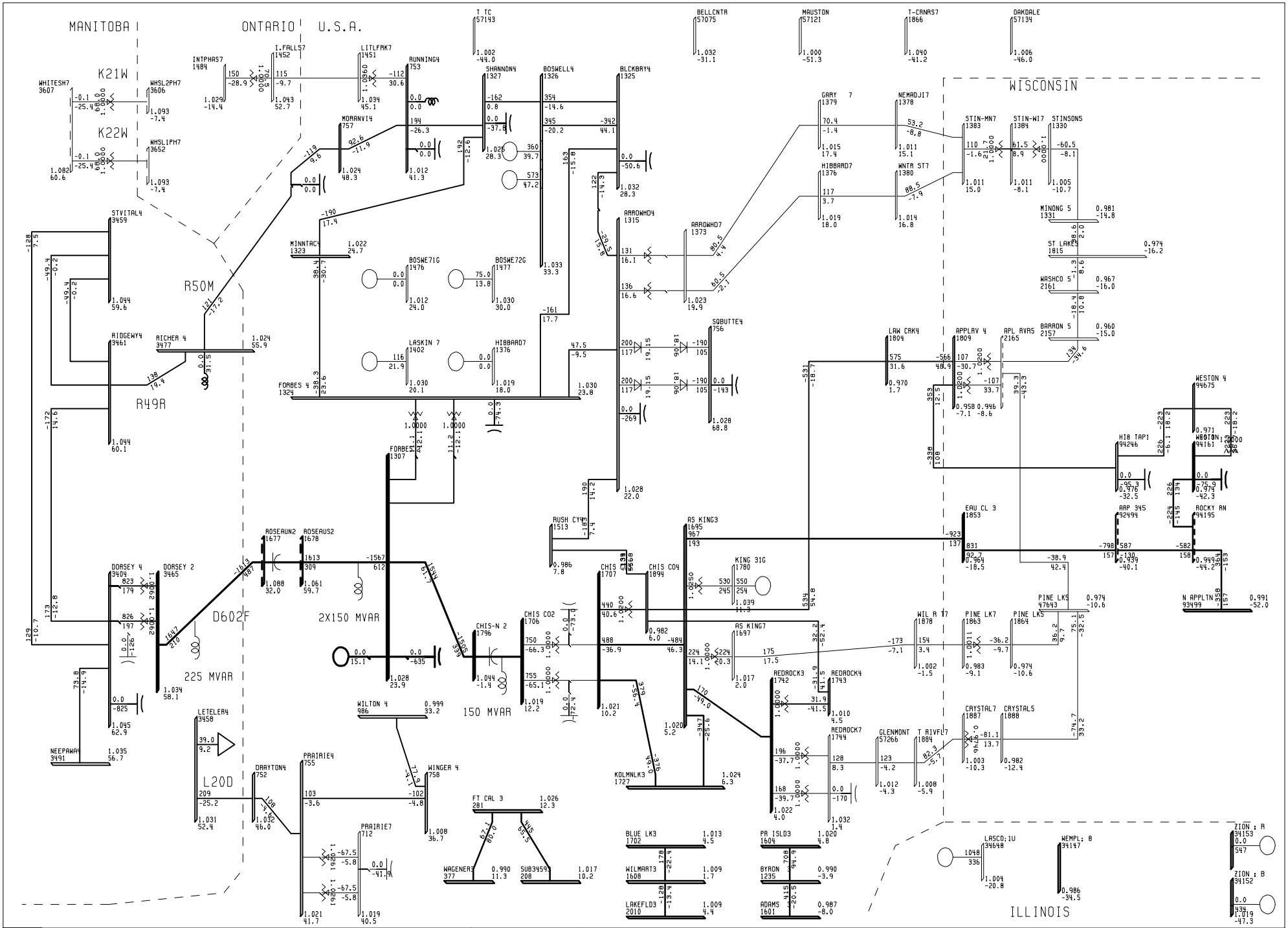


5A-SRAA.UVF04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1942,MH=1977,TC=910,MHOH=0,OHMP=151,EWTW=-88,BD=150
PLAN 5A BASE CASE WED, MAY 26 1999 14:08

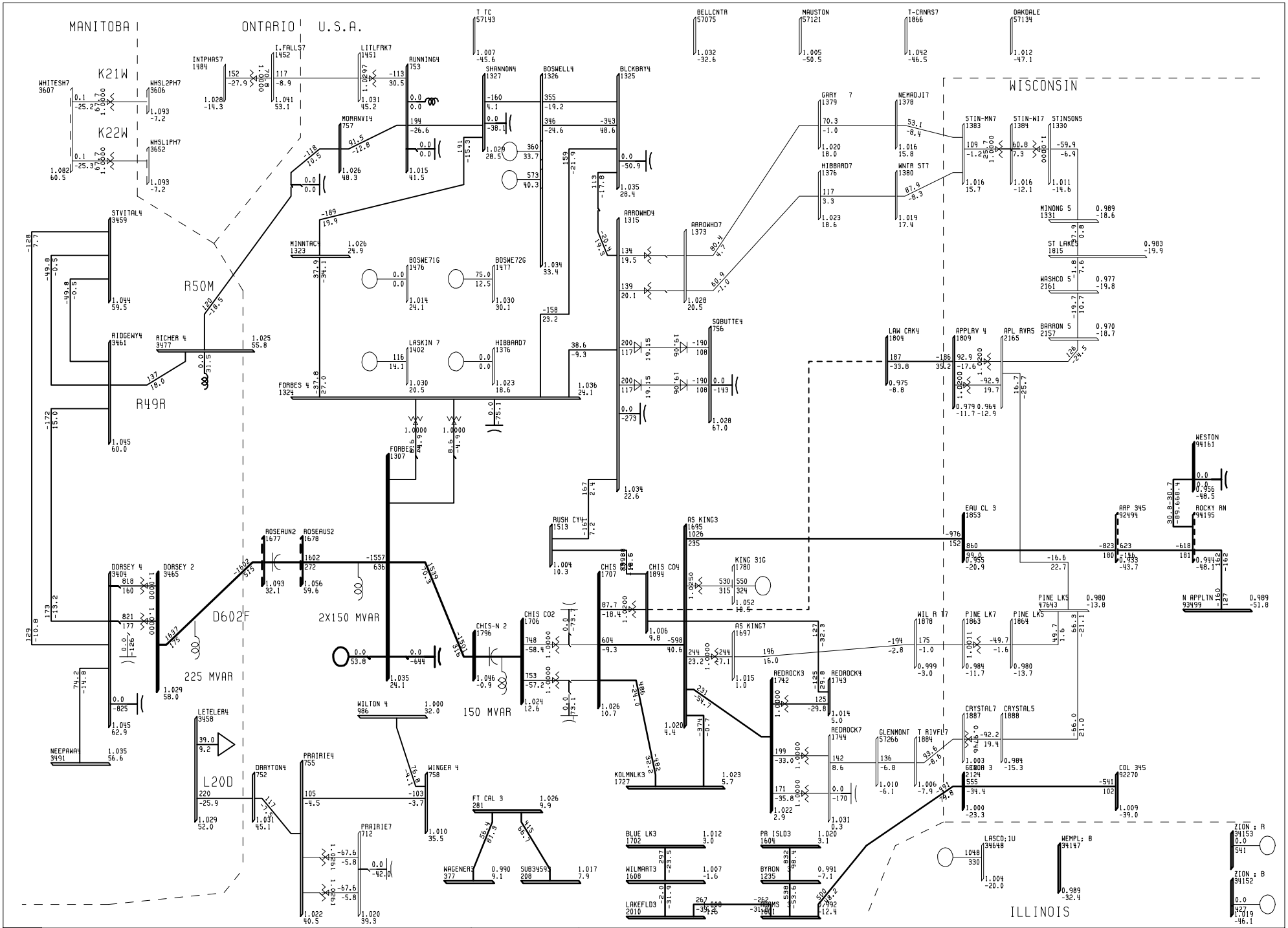
100% RATEA
0.950 UV 1.050 OV
KV: ≤161 , ≤230 , ≤345

BUS - VOLTAGE (PU) /ANGLE
BRANCH - MW/MVAR
EQUIPMENT - MW/MVAR

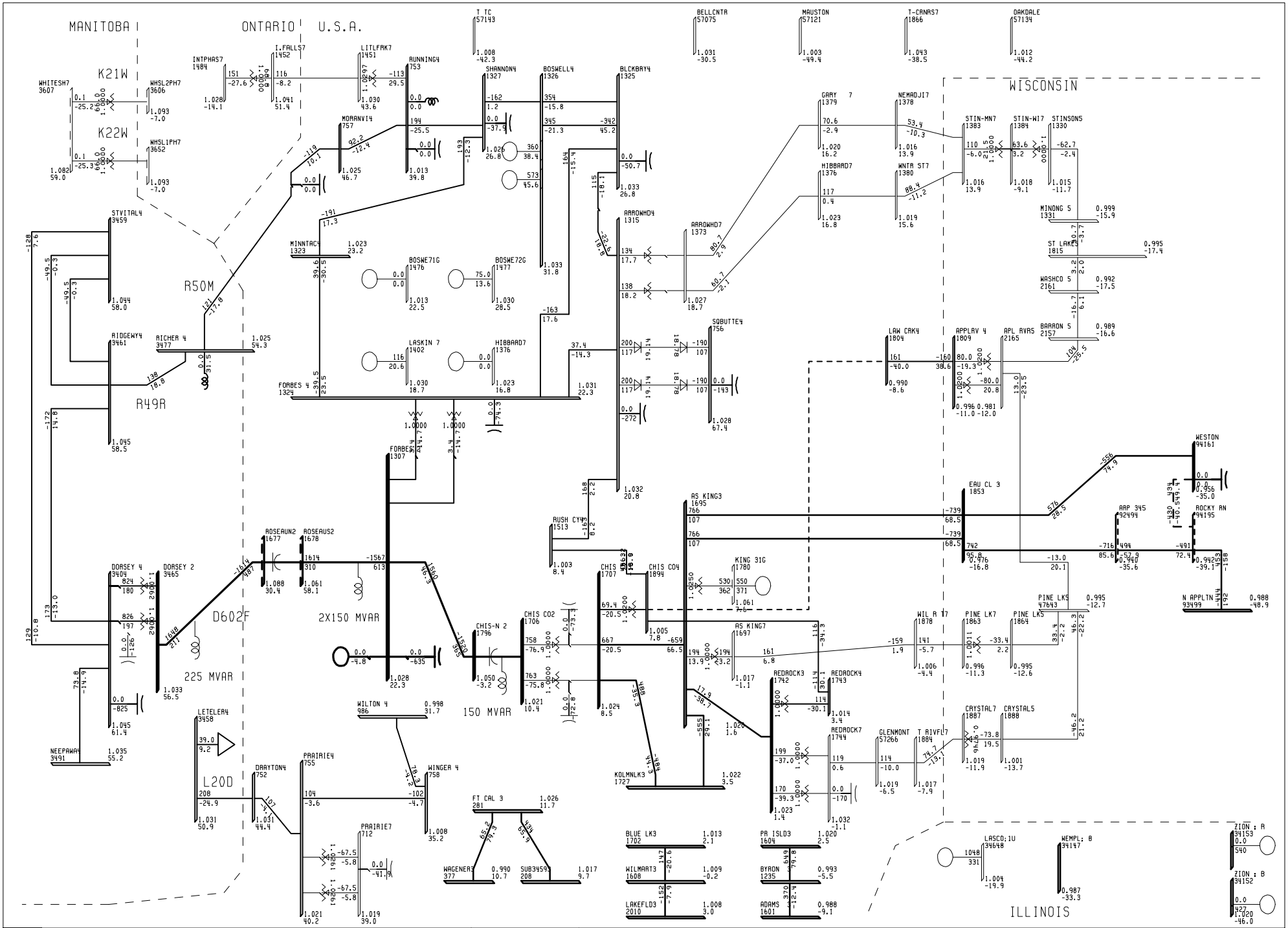
POWER TECHNOLOGIES, INC.



5B-SRAA.UVH04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT ND=1942,MH=1976,TC=1117,MHOH=0,OHMP=150,EWTW=-89,BD=150 PLAN 5B BASE CASE WED, MAY 26 1999 14:09	100% RATEA 0.950 UV 1.050 OV KV: ≤161 , ≤230 , ≤345	BUS - VOLTAGE (PU) /ANGLE BRANCH - MW/MVAR EQUIPMENT - MW/MVAR



POWER TECHNOLOGIES, INC.	9B-SRAA.UVK04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT ND=1942,MH=1976,TC=1395,MHOH=0,OHMP=152,EWTW=-87,BD=149 PLAN 9B BASE CASE WED, MAY 26 1999 14:09	100% RATEA 0.950 UV 1.050 OV KV: ≤161 , ≤230 , ≤345	BUS - VOLTAGE (PU) /ANGLE BRANCH - MW/MVAR EQUIPMENT - MW/MVAR



10-SRAA.UVG04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1941,MH=1976,TC=959,MHOH=0,OHMP=151,EWTW=-88,BD=150
PLAN 10 BASE CASE WED, MAY 26 1999 14:10

100% RATEA
0.950 UV 1.050 OV
KV: ≤161 , ≤230 , ≤345

BUS - VOLTAGE (PU) /ANGLE
BRANCH - MW/MVAR
EQUIPMENT - MW/MVAR

APPENDIX B2

STABILITY CASE DOCUMENTATION

Stability case summary tables

Selected stability plots

MAPP disturbances:

AG1 4 cycle slgf @ Leland Olds 345 on Ft. Thompson line, Leland Olds breaker 2692 stuck. Clear @ 11 cycles by tripping faulted line.

EI2 Permanent bipole fault on the CUDC line. Both Coal Creek units tripped at 0.30 sec.

NBS Three-phase fault at Chisago on Chisago County-Forbes 500 kV line.

PCS Single line to ground fault with breaker fail at King with 8P6 stuck. Trip King - Eau Claire - Arpin 345 kV line and King to Chisago County 345 kV line.

PYS 14 cycle SLG fault at Prairie Island 345 kV, trip Prairie Island-Byron 345 kV line.

WUMS area disturbances:

WLS 3 phase fault at Rocky Run on Rocky Run – North Appleton 345 line, 6-1 breaker failure at Rocky Run (18 cycle clearing)

WLZ 3 phase fault at Rocky Run on Rocky Run – North Appleton 345 line, 6-1 breaker failure at Rocky Run (14 cycle clearing)

APPENDIX B2

STABILITY CASE DOCUMENTATION

Stability Case Summary Tables

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	1	2	3	4	5	6	7	8	9	10
Case Name	10-sraa.uvg04Y4-ag1	1c-sraa.uvj04Y4-ag1	2e-sraa.uvg04Y4-ag1	3j-sraa.uvg04Y4-ag1	5a-sraa.uvf04Y4-ag1	5b-sraa.uvh04Y4-ag1	9b-sraa.uvk04Y4-ag1	10-sraa.uvg04Y4-ei2	1c-sraa.uvj04Y4-ei2	2e-sraa.uvg04Y4-ei2
Disturbance	ag1	ag1	ag1	ag1	ag1	ag1	ag1	ei2	ei2	ei2
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 02 1999 21:37	JAN 07 1999 21:15	JAN 08 1999 08:14	JAN 07 1999 16:04	JAN 09 1999 15:39	FEB 02 1999 09:25	JAN 11 1999 09:48	FEB 02 1999 21:53	JAN 07 1999 21:29	JAN 08 1999 08:29
Comments										
Steady State Flows										
NDEX / E Bias	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287
MHEX / L20D	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205
MN-WUMS / MN-IOWA	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37
TCEX / TCEX-new	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652
D602F / F601C	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550
B10T / MH>SPC	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87
OH E-W / OH>MH	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0
R50M / OH>MP	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54
Forbes SVC / MSC	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045
Roseau 500/Forbes 500	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035
Chisago 500/EauClaire 345	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966
Ifalls 115/Badoura 115	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995
Drayton 230/Groton 345	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%
L20Dat Prairie/Drayton	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%
R50M/F3M	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%
B10T	397%	402%	397%	400%	396%	398%	400%	397%	402%	397%
Min/MaxTransientVltg										
Arrowhd 230	0.99 | 1.05	0.99 | 1.05	0.99 | 1.05	0.96 | 1.03	0.99 | 1.05	0.98 | 1.05	0.99 | 1.05	0.98 | 1.06	0.98 | 1.06	0.98 | 1.06
Boise 115	1.01 | 1.06	1.01 | 1.06	1.01 | 1.06	1.01 | 1.06	1.01 | 1.06	1.01 | 1.07	1.01 | 1.06	1.00 | 1.06	1.00 | 1.07	1.01 | 1.07
Arpin 345	0.89 | 0.97	0.84 | 0.93	0.90 | 0.97	0.92 | 1.00	0.92 | 1.00	0.89 | 0.97	0.88 | 0.96	0.94 | 1.02	0.91 | 0.99	0.95 | 1.01
Forbes 230	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.00 | 1.04	1.01 | 1.05	1.02 | 1.05	0.99 | 1.04	0.99 | 1.05	0.99 | 1.05
Weston 345	0.91 | 0.98	0.88 | 0.95	0.94 | 0.99	0.94 | 1.02	0.94 | 1.01	0.93 | 1.01	0.92 | 0.98	0.96 | 1.03	0.92 | 0.98	0.97 | 1.02
Coal Creek 230	0.91 | 1.13	0.91 | 1.14	0.91 | 1.14	0.91 | 1.14	0.91 | 1.14	0.91 | 1.14	0.91 | 1.13	0.98 | 1.16	0.98 | 1.16	0.98 | 1.16
Columbia 345	1.01 | 1.02	1.00 | 1.02	0.99 | 1.03	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	0.99 | 1.03	1.00 | 1.02	1.00 | 1.02	1.00 | 1.03
Drayton 230	0.97 | 1.12	0.97 | 1.12	0.97 | 1.14	0.97 | 1.14	0.97 | 1.14	0.97 | 1.12	0.97 | 1.12	0.93 | 1.14	0.93 | 1.14	0.93 | 1.14
Groton 345	0.79 | 1.04	0.78 | 1.04	0.78 | 1.04	0.79 | 1.04	0.79 | 1.04	0.78 | 1.04	0.78 | 1.03	0.78 | 1.09	0.78 | 1.09	0.79 | 1.09
Rocky Run 345	0.90 | 0.97	0.87 | 0.94	0.92 | 0.98	0.92 | 1.00	0.93 | 0.99	0.90 | 0.98	0.91 | 0.97	0.94 | 1.01	0.92 | 0.98	0.96 | 1.01
Wahpeton 230	0.89 | 1.09	0.89 | 1.10	0.89 | 1.09	0.89 | 1.10	0.89 | 1.10	0.89 | 1.09	0.89 | 1.09	0.82 | 1.11	0.82 | 1.11	0.82 | 1.11
Watertown 230	0.88 | 1.05	0.87 | 1.05	0.88 | 1.05	0.88 | 1.05	0.88 | 1.05	0.87 | 1.05	0.87 | 1.05	0.84 | 1.09	0.83 | 1.09	0.84 | 1.09
Dynamic Voltage Warnings										
	none	none	1647 [NORDIC 7] 1.21 712 [PRAIRIE7] 1.21	1647 [NORDIC 7] 1.21 712 [PRAIRIE7] 1.21	1647 [NORDIC 7] 1.21 712 [PRAIRIE7] 1.21	none	none	1647 [NORDIC 7] 1.22 712 [PRAIRIE7] 1.22	1647 [NORDIC 7] 1.22 712 [PRAIRIE7] 1.22	712 [PRAIRIE7] 1.22 1647 [NORDIC 7] 1.21
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	-18% / 262%	-17% / 251%	-18% / 271%	-19% / 273%	-24% / 272%	-21% / 253%	-22% / 256%	-44% / 481%	-43% / 482%	-40% / 483%
K22W (max +dP @ t, d-ang)	13.5@(1.72493,4.7)	15.3@(2.95821,-0.9)	15.1@(1.71660,4.2)	14.9@(1.71660,3.8)	15.0@(1.72493,3.5)	13.6@(1.73326,4.9)	14.2@(1.73326,4.8)	81.3@(1.94159,-28.5)	88.1@(1.96659,-31.1)	79.9@(1.92492,-27.6)
K22W (max -dP @ t, d-ang)	38.1@(0.94163,9.5)	39.7@(0.95830,10.2)	37.1@(0.94163,9.3)	36.4@(0.94163,9.3)	36.2@(0.93330,8.9)	39.1@(0.94996,9.9)	39.3@(0.94996,10.0)	1.4@(0.49998,-0.5)	0.5@(0.48331,-0.6)	1.2@(0.49165,-0.5)
K22W (max d-ang @ t, dP)	13.5@(1.25828,-18.6)	14.4@(1.28328,-19.2)	13.1@(1.24995,-18.1)	13.0@(1.24162,-18.1)	12.6@(1.24162,-17.6)	14.0@(1.26662,-19.1)	14.1@(1.26662,-19.2)	-37.1@(5.00815,35.2)	-39.1@(5.00815,40.2)	-37.3@(5.00815,34.2)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	112% / 197%	113% / 199%	112% / 199%	111% / 198%	109% / 190%	110% / 193%	109% / 196%	95% / 167%	95% / 168%	98% / 172%
L20D at Prairie/Drayton	480% / 667%	489% / 639%	482% / 670%	770% / 726%	476% / 700%	481% / 665%	485% / 630%	524% / 547%	492% / 520%	534% / 555%
R50M / F3M	905% / 257%	903% / 259%	902% / 257%	827% / 250%	898% / 255%	890% / 259%	901% / 252%	866% / 194%	865% / 185%	871% / 198%
B10T	163%	169%	160%	161%	159%	164%	166%	125%	127%	125%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 5 | 1) / (1 | 2 | 1)	(1 | 6 | 2) / (1 | 2 | 0)	(1 | 7 | 2) / (1 | 2 | 0)	(1 | 7 | 2) / (1 | 2 | 0)	(1 | 7 | 2) / (1 | 2 | 0)	(1 | 5 | 1) / (1 | 2 | 1)	(1 | 5 | 1) / (1 | 2 | 1)	(1 |10 | 2) / (1 | 2 | 0)	(1 |10 | 2) / (1 | 2 | 0)	(1 |10 | 2) / (1 | 2 | 0)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)
Sheyenne 115	(0 | 5 | 2)	(0 | 5 | 2)	(0 | 5 | 2)	(0 | 5 | 2)	(0 | 5 | 2)	(0 | 5 | 2)	(0 | 5 | 2)	(0 | 5 | 1)	(0 | 5 | 1)	(0 | 5 | 1)
Delta Transient Vltg										
Arrowhd 230	-0.04	-0.04	-0.04	-0.05	-0.04	-0.05	-0.04	-0.05	-0.05	-0.05
Arpin 345	-0.05	-0.06	-0.04	-0.04	-0.04	-0.05	-0.05	0.00	0.01	0.01
Weston 345	-0.05	-0.04	-0.03	-0.04	-0.03	-0.04	-0.04	0.00	0.00	0.00
Columbia 345	0.00	-0.01	-0.02	0.00	0.00	0.00	-0.02	-0.01	-0.01	-0.01
Rocky Run 345	-0.04	-0.05	-0.03	-0.05	-0.03	-0.05	-0.03	0.00	0.00	0.01

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	11	12	13	14	15	16	17	18	19	20
Case Name	3j-sraa.uvg04Y4-ei2	5a-sraa.uvf04Y4-ei2	5b-sraa.uvh04Y4-ei2	9b-sraa.uvk04Y4-ei2	10-sraa.uvg04Y4-ej2	1c-sraa.uvj04Y4-ej2	2e-sraa.uvg04Y4-ej2	3j-sraa.uvg04Y4-ej2	5a-sraa.uvf04Y4-ej2	5b-sraa.uvh04Y4-ej2
Disturbance	ei2	ei2	ei2	ei2	ej2	ej2	ej2	ej2	ej2	ej2
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 07 1999 16:19	JAN 09 1999 15:52	FEB 02 1999 09:43	JAN 11 1999 10:01	FEB 02 1999 22:10	JAN 07 1999 21:44	JAN 08 1999 08:45	JAN 07 1999 16:33	JAN 09 1999 16:07	FEB 02 1999 10:04
Comments										
Steady State Flows										
NDEX / E Bias	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282
MHEX / L20D	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208
MN-WUMS / MN-IOWA	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76
TCEX / TCEX-new	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852
D602F / F601C	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543
B10T / MH>SPC	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87
OH E-W / OH>MH	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0
R50M / OH>MP	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66
Forbes SVC / MSC	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045
Roseau 500/Forbes 500	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028
Chisago 500/EauClaire 345	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964
Ifalls 115/Badoura 115	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995
Drayton 230/Groton 345	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%
B10T	400%	396%	398%	400%	397%	402%	397%	400%	396%	398%
Min/MaxTransientVltg										
Arrowhd 230	0.98 | 1.07	0.98 | 1.06	0.97 | 1.06	0.98 | 1.06	1.07 | 1.08	1.07 | 1.08	1.07 | 1.08	1.04 | 1.06	1.07 | 1.08	1.06 | 1.07
Boise 115	1.00 | 1.05	1.01 | 1.06	1.00 | 1.07	1.00 | 1.07	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
Arpin 345	0.96 | 1.04	0.97 | 1.03	0.94 | 1.02	0.94 | 1.01	0.93 | 0.96	0.89 | 0.92	0.94 | 0.96	0.97 | 0.99	0.96 | 0.98	0.93 | 0.96
Forbes 230	1.00 | 1.05	0.98 | 1.04	0.99 | 1.04	0.99 | 1.05	1.03 | 1.04	1.04 | 1.05	1.04 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
Weston 345	0.97 | 1.05	0.97 | 1.04	0.97 | 1.04	0.95 | 1.01	0.95 | 0.97	0.92 | 0.93	0.96 | 0.98	0.99 | 1.01	0.97 | 0.99	0.97 | 0.99
Coal Creek 230	0.97 | 1.16	0.98 | 1.16	0.98 | 1.16	0.98 | 1.16	1.00 | 1.06	1.00 | 1.06	1.00 | 1.06	1.00 | 1.07	1.00 | 1.06	1.00 | 1.06
Columbia 345	1.00 | 1.03	1.00 | 1.02	1.00 | 1.02	1.00 | 1.03	1.01 | 1.02	1.01 | 1.02	1.01 | 1.01	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02
Drayton 230	0.92 | 1.16	0.93 | 1.14	0.93 | 1.14	0.93 | 1.14	1.01 | 1.04	1.01 | 1.03	1.01 | 1.04	1.01 | 1.05	1.01 | 1.04	1.01 | 1.04
Groton 345	0.79 | 1.09	0.79 | 1.09	0.78 | 1.09	0.78 | 1.09	0.94 | 0.98	0.94 | 0.98	0.94 | 0.98	0.94 | 0.99	0.95 | 0.99	0.94 | 0.98
Rocky Run 345	0.96 | 1.04	0.96 | 1.02	0.95 | 1.02	0.95 | 1.00	0.94 | 0.96	0.91 | 0.93	0.95 | 0.96	0.97 | 0.99	0.96 | 0.98	0.94 | 0.96
Wahpeton 230	0.81 | 1.11	0.82 | 1.11	0.82 | 1.11	0.83 | 1.11	0.96 | 1.01	0.97 | 1.01	0.96 | 1.01	0.96 | 1.01	0.96 | 1.01	0.96 | 1.01
Watertown 230	0.84 | 1.09	0.84 | 1.09	0.83 | 1.09	0.83 | 1.09	0.98 | 1.02	0.98 | 1.01	0.98 | 1.02	0.98 | 1.02	0.98 | 1.02	0.98 | 1.02
Dynamic Voltage Warnings										
	1647 [NORDIC 7] 1.25 712 [PRAIRIE7] 1.25 9889 [DRAYTO2T] 1.21 9000 [GRNDFKST] 1.21	1647 [NORDIC 7] 1.22 712 [PRAIRIE7] 1.22	1647 [NORDIC 7] 1.22 712 [PRAIRIE7] 1.22	1647 [NORDIC 7] 1.22 712 [PRAIRIE7] 1.22	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	-44% / 482%	-49% / 479%	-46% / 480%	-43% / 483%	18% / 469%	22% / 466%	20% / 469%	17% / 466%	11% / 466%	17% / 466%
K22W (max +dP @ t, d-ang)	83.5@(1.93325,-28.3)	79.1@(1.93325,-27.8)	84.9@(1.95825,-29.9)	84.0@(1.93325,-29.1)	3.6@(0.39998,-1.5)	3.8@(0.39998,-1.5)	3.6@(0.39998,-1.5)	4.4@(3.09987,-3.2)	3.3@(0.39165,-1.4)	3.6@(0.39998,-1.5)
K22W (max -dP @ t, d-ang)	0.5@(0.49165,-0.8)	1.6@(0.49165,-0.5)	1.0@(0.48331,-0.5)	0.7@(0.49165,-0.6)	10.3@(1.03329,-1.3)	10.3@(1.04996,-1.3)	10.4@(1.03329,-1.3)	10.7@(1.05829,-0.5)	10.6@(1.03329,-1.1)	10.6@(1.04163,-1.2)
K22W (max d-ang @ t, dP)	-36.9@(5.00815,37.3)	-36.6@(5.00815,34.7)	-38.3@(5.00815,38.7)	-38.3@(5.00815,35.9)	-2.5@(0.67497,-1.7)	-2.6@(0.68331,-1.6)	-2.5@(0.67497,-1.7)	-3.4@(2.55823,-2.6)	-2.4@(0.66664,-1.8)	-2.6@(2.48323,-5.8)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	95% / 169%	92% / 161%	93% / 164%	96% / 170%	136% / 232%	139% / 238%	137% / 236%	135% / 233%	132% / 224%	135% / 231%
L20D at Prairie/Drayton	575% / 579%	562% / 577%	516% / 540%	487% / 516%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
R50M / F3M	793% / 194%	858% / 199%	854% / 191%	871% / 189%	956% / 282%	962% / 283%	958% / 285%	877% / 277%	945% / 283%	946% / 285%
B10T	122%	124%	124%	125%	397%	402%	397%	400%	396%	398%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 |10 | 2) / (1 | 2 | 0)	(1 |10 | 2) / (1 | 2 | 0)	(1 |10 | 2) / (1 | 2 | 0)	(1 |10 | 2) / (1 | 2 | 0)	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 2 | 2) / (1 | 2 | 2)	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 1 | 1) / (1 | 2 | 2)
Roseau 230 / Runn 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 5 | 1)	(0 | 5 | 1)	(0 | 5 | 1)	(0 | 5 | 1)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 2 | 2)
Delta Transient Vltg										
Arrowhd 230	-0.03	-0.05	-0.06	-0.05	0.04	0.04	0.04	0.03	0.04	0.03
Arpin 345	0.00	0.01	0.00	0.01	-0.01	-0.01	0.00	0.01	0.00	-0.01
Weston 345	-0.01	0.00	0.00	-0.01	-0.01	0.00	-0.01	0.01	0.00	0.00
Columbia 345	-0.01	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.00
Rocky Run 345	-0.01	0.00	0.00	0.01	0.00	-0.01	0.00	0.00	0.00	-0.01

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	21	22	23	24	25	26	27	28	29	30
Case Name	9b-sraa.uvk04Y4-ej2	10-sraa.uvg04Y4-mad	1c-sraa.uvj04Y4-mad	2e-sraa.uvg04Y4-mad	3j-sraa.uvg04Y4-mad	5a-sraa.uvf04Y4-mad	5b-sraa.uvh04Y4-mad	9b-sraa.uvk04Y4-mad	10-sraa.uvg04Y4-mat	1c-sraa.uvj04Y4-mat
Disturbance	ej2	mad	mad	mad	mad	mad	mad	mad	mat	mat
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 11 1999 10:17	FEB 02 1999 23:25	JAN 07 1999 22:57	JAN 08 1999 09:54	JAN 07 1999 17:45	JAN 09 1999 17:18	FEB 02 1999 11:28	JAN 13 1999 09:57	FEB 02 1999 23:57	JAN 07 1999 23:26
Comments										
Steady State Flows										
NDEX / E Bias	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267
MHEX / L20D	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218
MN-WUMS / MN-IOWA	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278
TCEX / TCEX-new	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031
D602F / F601C	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534
B10T / MH>SPC	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86
OH E-W / OH>MH	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1
R50M / OH>MP	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71
Forbes SVC / MSC	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045
Roseau 500/Forbes 500	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035
Chisago 500/EauClaire 345	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930
Ifalls 115/Badoura 115	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997
Drayton 230/Groton 345	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%
L20Dat Prairie/Drayton	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%
R50M/F3M	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%
B10T	400%	397%	402%	397%	400%	396%	398%	400%	397%	402%
Min/MaxTransientVltg										
Arrowhd 230	1.07 | 1.08	1.03 | 1.06	1.03 | 1.06	1.03 | 1.06	1.04 | 1.08	1.03 | 1.05	1.03 | 1.06	1.03 | 1.06	1.02 | 1.06	1.03 | 1.07
Boise 115	1.03 | 1.04	0.97 | 1.04	0.95 | 1.04	0.97 | 1.04	0.97 | 1.04	0.97 | 1.04	0.96 | 1.04	0.96 | 1.04	0.94 | 1.04	0.93 | 1.05
Arpin 345	0.93 | 0.95	0.98 | 1.03	0.95 | 1.00	0.98 | 1.02	0.99 | 1.04	1.00 | 1.04	0.97 | 1.03	0.97 | 1.01	0.98 | 1.02	0.95 | 0.99
Forbes 230	1.04 | 1.05	1.01 | 1.04	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.01 | 1.04	1.01 | 1.04	1.02 | 1.05	1.01 | 1.04	1.01 | 1.05
Weston 345	0.95 | 0.97	0.99 | 1.04	0.95 | 0.99	0.98 | 1.02	1.00 | 1.06	1.01 | 1.05	0.99 | 1.05	0.97 | 1.01	0.99 | 1.03	0.95 | 0.98
Coal Creek 230	1.00 | 1.06	1.01 | 1.10	1.00 | 1.10	1.01 | 1.10	1.01 | 1.10	1.01 | 1.10	1.00 | 1.10	1.01 | 1.10	1.01 | 1.10	1.00 | 1.11
Columbia 345	1.01 | 1.01	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02
Drayton 230	1.01 | 1.04	1.01 | 1.09	1.00 | 1.09	1.01 | 1.09	1.01 | 1.09	1.01 | 1.09	1.01 | 1.09	1.00 | 1.09	0.98 | 1.10	0.98 | 1.10
Groton 345	0.94 | 0.98	0.95 | 1.03	0.95 | 1.03	0.95 | 1.03	0.95 | 1.03	0.95 | 1.03	0.95 | 1.03	0.95 | 1.03	0.92 | 1.02	0.91 | 1.03
Rocky Run 345	0.94 | 0.96	0.98 | 1.02	0.95 | 0.99	0.98 | 1.01	0.99 | 1.04	1.00 | 1.03	0.97 | 1.02	0.97 | 1.01	0.98 | 1.01	0.95 | 0.98
Wahpeton 230	0.97 | 1.01	0.93 | 1.03	0.93 | 1.04	0.93 | 1.04	0.93 | 1.04	0.93 | 1.03	0.92 | 1.04	0.93 | 1.04	0.91 | 1.04	0.91 | 1.05
Watertown 230	0.98 | 1.01	0.98 | 1.04	0.98 | 1.04	0.98 | 1.04	0.98 | 1.04	0.98 | 1.04	0.98 | 1.04	0.98 | 1.04	0.96 | 1.04	0.95 | 1.04
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold		/ 0.133	/ 0.133	/ 0.133	/ 0.133	/ 0.133	/ 0.133	/ 0.133		
Forbes DC Red (SEL) / DCAR	19% / 470%	83% / 507%	90% / 507%	85% / 507%	83% / 507%	75% / 507%	83% / 507%	86% / 507%	83% / 507%	90% / 507%
K22W (max +dP @ t, d-ang)	3.8@(0.39998,-1.5)	129.1@(0.36665,-15.6)	129.2@(0.36665,-15.5)	128.1@(0.36665,-15.5)	126.9@(0.36665,-15.5)	128.9@(0.36665,-15.5)	129.2@(0.36665,-15.6)	128.7@(0.36665,-15.5)	88.0@(1.97492,-49.2)	95.8@(1.99158,-53.3)
K22W (max -dP @ t, d-ang)	10.3@(1.02496,-1.4)	16.2@(0.76664,-28.0)	15.6@(0.76664,-28.0)	16.5@(0.76664,-27.8)	17.1@(0.76664,-27.3)	16.0@(0.77497,-27.8)	16.4@(0.76664,-28.0)	16.0@(0.76664,-27.9)	65.4@(0.21666,3.5)	65.3@(0.21666,3.5)
K22W (max d-ang @ t, dP)	-2.7@(2.49156,-5.1)	-75.4@(5.00815,39.9)	-78.2@(5.00815,43.7)	-74.6@(5.00815,38.8)	-73.3@(5.00815,39.1)	-74.2@(5.00815,38.8)	-75.7@(5.00815,41.2)	-75.6@(5.00815,40.9)	-72.8@(5.00815,39.4)	-74.9@(5.00815,41.6)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	136% / 237%	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.10000 sec / 0.10000 sec	0.10000 sec / 0.10000 sec
L20D at Prairie/Drayton	999% / 964%	999% / 861%	825% / 823%	999% / 838%	999% / 273%	999% / 474%	999% / 882%	841% / 838%	534% / 685%	516% / 653%
R50M / F3M	965% / 279%	540% / 140%	483% / 125%	544% / 145%	519% / 146%	563% / 144%	514% / 137%	524% / 135%	369% / 120%	342% / 110%
B10T	400%	349%	349%	357%	343%	356%	351%	353%	281%	280%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 4 | 1) / (1 | 2 | 2)	(1 | 4 | 1) / (1 | 2 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 1 | 0) / (0 | 3 | 3)	(0 | 1 | 0) / (0 | 4 | 3)	(0 | 1 | 0) / (0 | 3 | 3)	(0 | 1 | 0) / (1 | 3 | 3)	(0 | 0 | 0) / (0 | 3 | 3)	(0 | 1 | 0) / (0 | 4 | 3)	(0 | 1 | 0) / (0 | 3 | 3)	(0 | 2 | 0) / (0 | 4 | 3)	(0 | 2 | 0) / (0 | 5 | 3)
Sheyenne 115	(0 | 2 | 2)	(0 | 3 | 3)	(0 | 3 | 3)	(0 | 3 | 3)	(0 | 3 | 3)	(0 | 3 | 3)	(0 | 3 | 3)	(0 | 3 | 3)	(0 | 4 | 4)	(0 | 4 | 4)
Delta Transient Vltg										
Arrowhd 230	0.04	0.00	0.00	0.00	0.03	0.00	0.00	0.00	-0.01	0.00
Arpin 345	0.00	0.04	0.05	0.04	0.03	0.04	0.03	0.04	0.04	0.05
Weston 345	-0.01	0.03	0.03	0.01	0.02	0.04	0.02	0.01	0.03	0.03
Columbia 345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rocky Run 345	0.00	0.04	0.03	0.03	0.02	0.04	0.02	0.03	0.04	0.03

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	31	32	33	34	35	36	37	38	39	40
Case Name	2e-sraa.uvg04Y4-mat	3j-sraa.uvg04Y4-mat	5a-sraa.uvf04Y4-mat	5b-sraa.uvh04Y4-mat	9b-sraa.uvk04Y4-mat	10-sraa.uvg04Y4-mqs	1c-sraa.uvj04Y4-mqs	2e-sraa.uvg04Y4-mqs	3j-sraa.uvg04Y4-mqs	5a-sraa.uvf04Y4-mqs
Disturbance	mat	mat	mat	mat	mat	mqs	mqs	mqs	mqs	mqs
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 08 1999 10:22	JAN 07 1999 18:14	JAN 09 1999 17:46	FEB 02 1999 12:01	JAN 13 1999 10:13	FEB 02 1999 22:23	JAN 07 1999 21:56	JAN 08 1999 08:58	JAN 07 1999 16:46	JAN 09 1999 16:19
Comments										
Steady State Flows										
NDEX / E Bias	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294
MHEX / L20D	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195
MN-WUMS / MN-IOWA	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14
TCEX / TCEX-new	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594
D602F / F601C	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601
B10T / MH>SPC	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88
OH E-W / OH>MH	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0
R50M / OH>MP	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47
Forbes SVC / MSC	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045
Roseau 500/Forbes 500	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022
Chisago 500/EauClaire 345	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000
Ifalls 115/Badoura 115	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993
Drayton 230/Groton 345	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%
B10T	397%	400%	396%	398%	400%	397%	402%	397%	400%	396%
Min/MaxTransientVltg										
Arrowhd 230	1.03 | 1.06	1.04 | 1.08	1.02 | 1.06	1.02 | 1.06	1.03 | 1.06	0.99 | 1.06	0.98 | 1.06	0.98 | 1.06	0.95 | 1.07	0.98 | 1.06
Boise 115	0.94 | 1.04	0.94 | 1.04	0.94 | 1.04	0.94 | 1.05	0.93 | 1.04	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.00 | 1.05	1.00 | 1.05
Arpin 345	0.98 | 1.02	1.00 | 1.03	1.00 | 1.03	0.98 | 1.02	0.98 | 1.01	0.89 | 1.01	0.85 | 0.98	0.90 | 1.01	0.92 | 1.03	0.92 | 1.03
Forbes 230	1.01 | 1.04	1.02 | 1.05	1.00 | 1.04	1.01 | 1.04	1.01 | 1.05	1.00 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.00 | 1.04
Weston 345	0.99 | 1.01	1.00 | 1.05	1.01 | 1.04	0.99 | 1.04	0.98 | 1.00	0.91 | 1.02	0.89 | 0.98	0.94 | 1.01	0.94 | 1.04	0.93 | 1.04
Coal Creek 230	1.01 | 1.10	1.00 | 1.10	1.00 | 1.10	1.00 | 1.10	1.01 | 1.10	0.96 | 1.09	0.96 | 1.09	0.97 | 1.09	0.97 | 1.09	0.96 | 1.09
Columbia 345	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.00 | 1.03	1.01 | 1.02	1.01 | 1.02
Drayton 230	0.98 | 1.09	0.99 | 1.10	0.99 | 1.09	0.98 | 1.10	0.98 | 1.09	0.99 | 1.09	0.99 | 1.07	0.98 | 1.09	0.99 | 1.09	0.99 | 1.09
Groton 345	0.92 | 1.02	0.93 | 1.02	0.93 | 1.02	0.92 | 1.03	0.92 | 1.02	0.87 | 1.05	0.87 | 1.04	0.87 | 1.05	0.88 | 1.05	0.87 | 1.05
Rocky Run 345	0.98 | 1.01	0.99 | 1.03	1.00 | 1.03	0.98 | 1.01	0.97 | 1.00	0.90 | 1.01	0.88 | 0.98	0.92 | 1.00	0.93 | 1.03	0.92 | 1.02
Wahpeton 230	0.91 | 1.03	0.91 | 1.04	0.91 | 1.03	0.90 | 1.04	0.91 | 1.03	0.92 | 1.08	0.93 | 1.07	0.91 | 1.09	0.92 | 1.08	0.92 | 1.08
Watertown 230	0.96 | 1.04	0.96 | 1.04	0.96 | 1.04	0.95 | 1.04	0.95 | 1.04	0.92 | 1.06	0.92 | 1.06	0.92 | 1.06	0.93 | 1.06	0.92 | 1.06
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	85% / 507%	83% / 507%	75% / 507%	83% / 507%	86% / 507%	-60% / 321%	-61% / 318%	-59% / 320%	-65% / 330%	-69% / 318%
K22W (max +dP @ t, d-ang)	85.7@(1.96659,-48.1)	83.9@(1.97492,-47.7)	82.3@(1.96659,-47.0)	92.1@(1.98325,-51.3)	87.0@(1.97492,-49.4)	77.0@(2.03325,-34.2)	82.7@(2.07491,-37.6)	77.5@(2.03325,-34.3)	78.6@(2.02492,-33.5)	75.7@(2.04158,-34.1)
K22W (max -dP @ t, d-ang)	65.9@(0.21666,3.5)	65.9@(0.21666,3.5)	65.9@(0.21666,3.5)	65.4@(0.21666,3.5)	65.4@(0.21666,3.5)	29.0@(0.34999,4.6)	30.2@(0.35832,4.9)	29.9@(0.35832,4.9)	27.8@(0.34999,4.3)	29.0@(0.35832,4.7)
K22W (max d-ang @ t, dP)	-71.7@(5.00815,37.1)	-70.7@(5.00815,38.1)	-71.4@(5.00815,37.7)	-73.2@(5.00815,39.7)	-72.9@(5.00815,39.1)	-38.3@(2.34157,68.9)	-41.6@(2.37490,76.5)	-38.2@(2.33324,68.7)	-37.4@(2.31657,70.0)	-37.6@(2.32490,68.0)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	0.10000 sec / 0.10000 sec	0.10000 sec / 0.10000 sec	0.10000 sec / 0.10000 sec	0.10000 sec / 0.10000 sec	0.10000 sec / 0.10000 sec	84% / 155%	83% / 156%	85% / 158%	80% / 153%	78% / 146%
L20D at Prairie/Drayton	539% / 690%	566% / 746%	550% / 725%	533% / 683%	517% / 646%	655% / 640%	624% / 613%	660% / 642%	742% / 697%	694% / 668%
R50M / F3M	375% / 124%	372% / 125%	392% / 126%	355% / 118%	357% / 115%	809% / 212%	807% / 206%	808% / 215%	730% / 211%	792% / 215%
B10T	280%	285%	282%	282%	278%	132%	134%	130%	138%	129%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 3) / (0 | 3 | 3)	(4 | 4 | 3) / (0 | 3 | 3)
Prairie 115 / Ramsey 230	(1 | 4 | 1) / (1 | 2 | 2)	(1 | 4 | 1) / (1 | 2 | 2)	(1 | 3 | 1) / (1 | 2 | 2)	(1 | 4 | 1) / (1 | 2 | 1)	(1 | 4 | 1) / (1 | 2 | 2)	(1 | 4 | 1) / (1 | 2 | 1)	(1 | 3 | 1) / (1 | 2 | 1)	(1 | 4 | 1) / (1 | 2 | 1)	(1 | 3 | 1) / (1 | 2 | 1)	(1 | 4 | 1) / (1 | 2 | 1)
Roseau 230 / Runn 230	(0 | 2 | 0) / (0 | 4 | 3)	(0 | 1 | 0) / (1 | 5 | 3)	(0 | 1 | 0) / (0 | 4 | 3)	(0 | 2 | 0) / (0 | 5 | 3)	(0 | 2 | 0) / (0 | 4 | 3)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)
Sheyenne 115	(0 | 3 | 3)	(0 | 4 | 4)	(0 | 4 | 4)	(0 | 4 | 4)	(0 | 3 | 3)	(0 | 4 | 2)	(0 | 4 | 2)	(0 | 5 | 2)	(0 | 5 | 2)	(0 | 5 | 2)
Delta Transient Vltg										
Arrowhd 230	0.00	0.03	-0.01	-0.01	0.00	-0.04	-0.05	-0.05	-0.06	-0.05
Arpin 345	0.04	0.04	0.04	0.04	0.05	-0.05	-0.05	-0.04	-0.04	-0.04
Weston 345	0.02	0.02	0.04	0.02	0.02	-0.05	-0.03	-0.03	-0.04	-0.04
Columbia 345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00
Rocky Run 345	0.03	0.02	0.04	0.03	0.03	-0.04	-0.04	-0.03	-0.04	-0.04

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	41	42	43	44	45	46	47	48	49	50
Case Name	5b-sraa.uvh04Y4-mqs	9b-sraa.uvk04Y4-mqs	10-sraa.uvg04Y4-mss	1c-sraa.uvj04Y4-mss	2e-sraa.uvg04Y4-mss	3j-sraa.uvg04Y4-mss	5a-sraa.uvf04Y4-mss	5b-sraa.uvh04Y4-mss	9b-sraa.uvk04Y4-mss	10-sraa.uvg04Y4-mts
Disturbance	mqs	mqs	mss	mss	mss	mss	mss	mss	mss	mts
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 02 1999 10:19	JAN 13 1999 10:27	FEB 02 1999 22:40	JAN 07 1999 22:11	JAN 08 1999 09:12	JAN 07 1999 17:00	JAN 09 1999 16:37	FEB 02 1999 10:36	JAN 13 1999 10:42	FEB 02 1999 22:54
Comments										
Steady State Flows										
NDEX / E Bias	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285
MHEX / L20D	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207
MN-WUMS / MN-IOWA	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15
TCEX / TCEX-new	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562
D602F / F601C	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560
B10T / MH>SPC	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87
OH E-W / OH>MH	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0
R50M / OH>MP	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54
Forbes SVC / MSC	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045
Roseau 500/Forbes 500	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028
Chisago 500/EauClaire 345	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977
Ifalls 115/Badoura 115	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995
Drayton 230/Groton 345	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%
L20Dat Prairie/Drayton	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%
R50M/F3M	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%
B10T	398%	400%	397%	402%	397%	400%	396%	398%	400%	397%
Min/MaxTransientVltg										
Arrowhd 230	0.98 | 1.06	0.98 | 1.07	0.98 | 1.05	0.98 | 1.05	0.98 | 1.05	0.94 | 1.05	0.98 | 1.05	0.98 | 1.05	0.98 | 1.06	1.00 | 1.05
Boise 115	1.01 | 1.05	1.01 | 1.05	1.02 | 1.07	1.02 | 1.07	1.02 | 1.07	1.02 | 1.06	1.02 | 1.07	1.02 | 1.07	1.02 | 1.07	1.02 | 1.06
Arpin 345	0.89 | 1.02	0.89 | 1.00	0.85 | 0.98	0.80 | 0.95	0.86 | 0.98	0.88 | 1.01	0.89 | 1.01	0.85 | 0.99	0.85 | 0.97	0.89 | 0.97
Forbes 230	1.00 | 1.05	1.01 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.01 | 1.05	1.01 | 1.04	1.01 | 1.05	1.01 | 1.05	1.02 | 1.04
Weston 345	0.93 | 1.03	0.92 | 1.00	0.87 | 0.99	0.86 | 0.95	0.91 | 0.99	0.90 | 1.03	0.90 | 1.02	0.90 | 1.02	0.90 | 0.98	0.90 | 0.98
Coal Creek 230	0.96 | 1.09	0.96 | 1.09	0.96 | 1.06	0.96 | 1.06	0.96 | 1.06	0.96 | 1.06	0.96 | 1.06	0.96 | 1.06	0.96 | 1.06	0.97 | 1.07
Columbia 345	1.01 | 1.02	1.00 | 1.03	1.01 | 1.02	1.00 | 1.02	0.98 | 1.02	1.01 | 1.02	1.01 | 1.02	1.00 | 1.02	0.98 | 1.02	1.01 | 1.02
Drayton 230	0.99 | 1.08	0.99 | 1.08	1.01 | 1.07	1.01 | 1.06	1.01 | 1.07	1.01 | 1.07	1.01 | 1.07	1.01 | 1.07	1.01 | 1.07	1.01 | 1.07
Groton 345	0.87 | 1.05	0.86 | 1.05	0.91 | 1.02	0.90 | 1.02	0.91 | 1.02	0.92 | 1.02	0.91 | 1.02	0.91 | 1.02	0.90 | 1.02	0.92 | 1.02
Rocky Run 345	0.91 | 1.01	0.91 | 1.00	0.86 | 0.98	0.84 | 0.95	0.89 | 0.98	0.89 | 1.01	0.89 | 1.00	0.87 | 0.99	0.88 | 0.97	0.89 | 0.97
Wahpeton 230	0.92 | 1.08	0.92 | 1.08	0.95 | 1.04	0.95 | 1.04	0.95 | 1.04	0.95 | 1.04	0.95 | 1.04	0.95 | 1.04	0.95 | 1.04	0.96 | 1.04
Watertown 230	0.92 | 1.06	0.91 | 1.06	0.95 | 1.04	0.94 | 1.04	0.95 | 1.04	0.95 | 1.04	0.95 | 1.04	0.94 | 1.04	0.94 | 1.04	0.96 | 1.04
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	-67% / 312%	-64% / 314%	-28% / 168%	-29% / 135%	-28% / 173%	-29% / 179%	-36% / 172%	-34% / 145%	-34% / 149%	-3% / 280%
K22W (max +dP @ t, d-ang)	81.4@(2.07491,-37.2)	81.3@(2.05825,-36.2)	37.4@(2.64989,-14.8)	42.8@(2.69989,-16.2)	36.8@(2.64156,-14.8)	37.5@(2.63322,-14.8)	36.8@(2.64156,-14.9)	41.0@(2.67489,-16.0)	40.3@(2.66656,-16.1)	27.7@(2.61656,-11.7)
K22W (max -dP @ t, d-ang)	29.9@(0.35832,4.9)	30.7@(0.35832,5.0)	40.5@(0.84997,16.3)	44.8@(0.87497,18.0)	39.7@(0.84997,16.3)	40.0@(0.83330,15.7)	39.1@(0.84997,16.0)	42.9@(0.85830,17.3)	42.8@(0.85830,17.5)	28.6@(0.81663,10.9)
K22W (max d-ang @ t, dP)	-40.9@(2.34990,74.3)	-40.2@(2.34990,72.3)	19.1@(1.09996,-29.8)	21.3@(1.14162,-31.8)	19.0@(1.09162,-30.1)	18.5@(1.08329,-28.3)	18.5@(1.09162,-29.1)	20.4@(1.11662,-30.9)	20.5@(1.11662,-31.1)	12.7@(1.05829,-21.3)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	79% / 148%	81% / 154%	105% / 189%	104% / 189%	105% / 191%	104% / 189%	100% / 180%	101% / 183%	100% / 186%	122% / 214%
L20D at Prairie/Drayton	645% / 628%	594% / 592%	741% / 699%	683% / 664%	753% / 707%	865% / 783%	805% / 742%	728% / 690%	662% / 643%	855% / 780%
R50M / F3M	785% / 212%	803% / 208%	853% / 271%	849% / 269%	852% / 274%	778% / 267%	842% / 271%	835% / 270%	845% / 264%	919% / 284%
B10T	130%	128%	154%	157%	152%	156%	153%	151%	146%	198%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)
Prairie 115 / Ramsey 230	(1 | 3 | 1) / (1 | 2 | 1)	(1 | 3 | 1) / (1 | 2 | 1)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 2) / (1 | 1 | 1)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)
Roseau 230 / Runn 230	(0 | 1 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 5 | 2)	(0 | 5 | 2)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 2 | 2)
Delta Transient Vltg										
Arrowhd 230	-0.05	-0.05	-0.05	-0.05	-0.05	-0.07	-0.05	-0.05	-0.05	-0.03
Arpin 345	-0.05	-0.04	-0.09	-0.10	-0.08	-0.08	-0.07	-0.09	-0.08	-0.05
Weston 345	-0.04	-0.04	-0.09	-0.06	-0.06	-0.08	-0.07	-0.07	-0.06	-0.06
Columbia 345	0.00	-0.01	0.00	-0.01	-0.03	0.00	0.00	-0.01	-0.03	0.00
Rocky Run 345	-0.04	-0.03	-0.08	-0.08	-0.06	-0.08	-0.07	-0.08	-0.06	-0.05

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	51	52	53	54	55	56	57	58	59	60
Case Name	1c-sraa.uvj04Y4-mts	2e-sraa.uvg04Y4-mts	3j-sraa.uvg04Y4-mts	5a-sraa.uvf04Y4-mts	5b-sraa.uvh04Y4-mts	9b-sraa.uvk04Y4-mts	10-sraa.uvg04Y4-nad	1c-sraa.uvj04Y4-nad	2e-sraa.uvg04Y4-nad	3j-sraa.uvg04Y4-nad
Disturbance	mts	mts	mts	mts	mts	mts	nad	nad	nad	nad
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 07 1999 22:24	JAN 08 1999 09:25	JAN 07 1999 17:14	JAN 09 1999 16:50	FEB 02 1999 10:50	JAN 13 1999 10:55	FEB 02 1999 23:41	JAN 07 1999 23:12	JAN 08 1999 10:07	JAN 07 1999 17:58
Comments										
Steady State Flows										
NDEX / E Bias	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314
MHEX / L20D	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188
MN-WUMS / MN-IOWA	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54
TCEX / TCEX-new	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674
D602F / F601C	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221
B10T / MH>SPC	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87
OH E-W / OH>MH	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0
R50M / OH>MP	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50
Forbes SVC / MSC	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045
Roseau 500/Forbes 500	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035
Chisago 500/EauClaire 345	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993
Ifalls 115/Badoura 115	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994
Drayton 230/Groton 345	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000
SS OS Relay Margins										
D602F at Forbes/Dorsey	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%
L20Dat Prairie/Drayton	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%
R50M/F3M	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%
B10T	402%	397%	400%	396%	398%	400%	397%	402%	397%	400%
Min/MaxTransientVltg										
Arrowhd 230	1.00 | 1.05	1.00 | 1.05	0.97 | 1.04	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.03 | 1.07	1.03 | 1.07	1.03 | 1.07	1.03 | 1.09
Boise 115	1.02 | 1.06	1.03 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	0.92 | 1.05	0.92 | 1.05	0.93 | 1.06	0.93 | 1.05
Arpin 345	0.84 | 0.93	0.89 | 0.97	0.91 | 1.00	0.92 | 1.00	0.88 | 0.98	0.88 | 0.96	0.97 | 1.02	0.93 | 0.99	0.97 | 1.02	0.99 | 1.03
Forbes 230	1.03 | 1.05	1.03 | 1.05	1.03 | 1.05	1.02 | 1.04	1.02 | 1.04	1.03 | 1.05	1.00 | 1.04	1.01 | 1.05	1.01 | 1.05	1.02 | 1.05
Weston 345	0.88 | 0.95	0.93 | 0.99	0.93 | 1.02	0.93 | 1.01	0.93 | 1.01	0.92 | 0.97	0.99 | 1.03	0.94 | 0.98	0.98 | 1.01	1.00 | 1.05
Coal Creek 230	0.97 | 1.07	0.98 | 1.07	0.97 | 1.07	0.98 | 1.07	0.97 | 1.07	0.97 | 1.07	0.99 | 1.11	0.99 | 1.11	0.99 | 1.11	0.98 | 1.11
Columbia 345	1.01 | 1.02	0.99 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	0.99 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02
Drayton 230	1.01 | 1.06	1.01 | 1.06	1.01 | 1.07	1.01 | 1.06	1.01 | 1.07	1.01 | 1.06	0.97 | 1.09	0.97 | 1.09	0.97 | 1.09	0.97 | 1.10
Groton 345	0.91 | 1.02	0.92 | 1.02	0.93 | 1.02	0.92 | 1.02	0.92 | 1.02	0.91 | 1.02	0.90 | 1.03	0.89 | 1.03	0.90 | 1.03	0.90 | 1.03
Rocky Run 345	0.87 | 0.94	0.92 | 0.97	0.92 | 1.00	0.92 | 0.99	0.90 | 0.98	0.90 | 0.96	0.97 | 1.01	0.94 | 0.98	0.98 | 1.01	0.99 | 1.03
Wahpeton 230	0.96 | 1.04	0.96 | 1.05	0.96 | 1.04	0.96 | 1.05	0.96 | 1.04	0.96 | 1.04	0.90 | 1.06	0.90 | 1.07	0.90 | 1.06	0.90 | 1.06
Watertown 230	0.95 | 1.04	0.96 | 1.04	0.96 | 1.04	0.96 | 1.04	0.95 | 1.04	0.95 | 1.04	0.94 | 1.05	0.93 | 1.05	0.94 | 1.05	0.94 | 1.05
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold							/ 0.133	/ 0.133	/ 0.133	/ 0.133
Forbes DC Red (SEL) / DCAR	-4% / 262%	-2% / 285%	-3% / 290%	-10% / 285%	-9% / 269%	-10% / 269%	83% / 507%	90% / 507%	85% / 507%	83% / 507%
K22W (max +dP @ t, d-ang)	30.5@(2.64156,-12.0)	27.6@(2.60822,-11.7)	28.6@(2.59989,-11.9)	27.6@(2.59989,-11.8)	30.6@(2.62489,-12.8)	28.4@(2.61656,-11.8)	118.4@(2.02492,-56.5)	124.1@(2.03325,-59.5)	117.1@(2.02492,-55.7)	119.2@(2.02492,-54.2)
K22W (max -dP @ t, d-ang)	31.6@(0.84163,12.0)	27.8@(0.81663,10.9)	28.1@(0.81663,10.6)	27.3@(0.81663,10.6)	30.0@(0.82497,11.5)	30.3@(0.83330,11.8)	125.5@(0.28332,12.0)	124.3@(0.29165,12.2)	125.3@(0.29165,12.3)	125.8@(0.29165,12.3)
K22W (max d-ang @ t, dP)	14.0@(1.07496,-23.2)	12.6@(1.04163,-21.6)	-12.2@(2.47490,26.8)	-12.3@(2.44990,25.3)	13.4@(1.05829,-22.2)	13.5@(1.05829,-22.6)	-70.0@(5.00815,34.2)	-70.2@(5.00815,33.4)	-69.6@(5.00815,33.5)	-67.7@(5.00815,32.8)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	121% / 214%	122% / 217%	121% / 215%	117% / 205%	118% / 208%	117% / 210%	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec
L20D at Prairie/Drayton	757% / 726%	856% / 775%	999% / 871%	914% / 815%	807% / 746%	741% / 713%	307% / 430%	300% / 417%	312% / 435%	337% / 470%
R50M / F3M	913% / 278%	920% / 284%	837% / 278%	909% / 282%	899% / 278%	908% / 274%	312% / 113%	301% / 108%	313% / 115%	305% / 118%
B10T	190%	193%	201%	193%	184%	183%	175%	170%	174%	177%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 2) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 2 | 1) / (1 | 2 | 2)	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 4 | 1) / (1 | 2 | 1)	(1 | 4 | 1) / (1 | 2 | 1)	(1 | 4 | 1) / (1 | 2 | 1)	(1 | 4 | 1) / (1 | 2 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 2 | 0) / (0 | 5 | 3)	(0 | 2 | 0) / (0 | 5 | 3)	(0 | 2 | 0) / (0 | 5 | 3)	(0 | 1 | 0) / (1 | 6 | 3)
Sheyenne 115	(0 | 2 | 2)	(0 | 3 | 3)	(0 | 2 | 2)	(0 | 3 | 3)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 5 | 4)	(0 | 5 | 3)	(0 | 5 | 4)	(0 | 5 | 4)
Delta Transient Vltg										
Arrowhd 230	-0.03	-0.03	-0.04	-0.03	-0.03	-0.03	0.00	0.00	0.00	0.02
Arpin 345	-0.06	-0.05	-0.05	-0.04	-0.06	-0.05	0.03	0.03	0.03	0.03
Weston 345	-0.04	-0.04	-0.05	-0.04	-0.04	-0.04	0.03	0.02	0.01	0.02
Columbia 345	0.00	-0.02	0.00	0.00	0.00	-0.02	0.00	0.00	0.00	0.00
Rocky Run 345	-0.05	-0.03	-0.05	-0.04	-0.05	-0.04	0.03	0.02	0.03	0.02

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	61	62	63	64	65	66	67	68	69	70
Case Name	5a-sraa.uvf04Y4-nad	5b-sraa.uvh04Y4-nad	9b-sraa.uvk04Y4-nad	10-sraa.uvg04Y4-nbs	1c-sraa.uvj04Y4-nbs	2e-sraa.uvg04Y4-nbs	3j-sraa.uvg04Y4-nbs	5a-sraa.uvf04Y4-nbs	5b-sraa.uvh04Y4-nbs	9b-sraa.uvk04Y4-nbs
Disturbance	nad	nad	nad	nbs	nbs	nbs	nbs	nbs	nbs	nbs
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 09 1999 17:31	FEB 02 1999 11:45	JAN 13 1999 11:09	FEB 02 1999 23:09	JAN 11 1999 08:02	JAN 11 1999 08:24	JAN 10 1999 11:34	JAN 09 1999 17:04	FEB 02 1999 11:06	JAN 13 1999 11:25
Comments										
Steady State Flows										
NDEX / E Bias	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267
MHEX / L20D	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219
MN-WUMS / MN-IOWA	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342
TCEX / TCEX-new	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155
D602F / F601C	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539
B10T / MH>SPC	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87
OH E-W / OH>MH	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0
R50M / OH>MP	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65
Forbes SVC / MSC	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045
Roseau 500/Forbes 500	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035
Chisago 500/EauClaire 345	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955
Ifalls 115/Badoura 115	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996
Drayton 230/Groton 345	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996
SS OS Relay Margins										
D602F at Forbes/Dorsey	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%
R50M/F3M	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%
B10T	396%	398%	400%	397%	402%	397%	400%	396%	398%	400%
Min/MaxTransientVltg										
Arrowhd 230	1.02 | 1.06	1.02 | 1.07	1.03 | 1.07	0.86 | 1.06	0.86 | 1.06	0.86 | 1.06	0.88 | 1.09	0.86 | 1.06	0.86 | 1.06	0.87 | 1.06
Boise 115	0.93 | 1.05	0.92 | 1.05	0.92 | 1.05	1.01 | 1.08	1.00 | 1.08	1.01 | 1.08	1.00 | 1.06	1.01 | 1.08	1.01 | 1.08	1.01 | 1.08
Arpin 345	1.00 | 1.04	0.97 | 1.02	0.96 | 1.01	0.95 | 1.03	0.92 | 1.01	0.95 | 1.02	0.94 | 1.05	0.97 | 1.04	0.94 | 1.03	0.94 | 1.02
Forbes 230	1.00 | 1.04	1.00 | 1.04	1.01 | 1.05	0.96 | 1.05	0.97 | 1.05	0.97 | 1.05	0.98 | 1.06	0.96 | 1.05	0.96 | 1.05	0.97 | 1.05
Weston 345	1.01 | 1.04	0.99 | 1.04	0.97 | 1.00	0.96 | 1.04	0.92 | 0.99	0.97 | 1.02	0.93 | 1.06	0.98 | 1.05	0.96 | 1.04	0.96 | 1.01
Coal Creek 230	0.99 | 1.11	0.99 | 1.11	0.99 | 1.11	0.95 | 1.11	0.94 | 1.11	0.94 | 1.11	0.96 | 1.09	0.94 | 1.10	0.94 | 1.11	0.95 | 1.11
Columbia 345	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.00 | 1.03	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.00 | 1.03
Drayton 230	0.98 | 1.10	0.97 | 1.10	0.97 | 1.09	0.98 | 1.14	0.98 | 1.14	0.98 | 1.14	0.98 | 1.14	0.98 | 1.14	0.98 | 1.14	0.98 | 1.14
Groton 345	0.91 | 1.03	0.89 | 1.03	0.90 | 1.03	0.83 | 1.06	0.82 | 1.07	0.83 | 1.06	0.87 | 1.08	0.84 | 1.06	0.83 | 1.07	0.82 | 1.07
Rocky Run 345	0.99 | 1.03	0.97 | 1.01	0.97 | 1.00	0.95 | 1.02	0.92 | 0.99	0.96 | 1.01	0.94 | 1.04	0.97 | 1.04	0.95 | 1.02	0.95 | 1.01
Wahpeton 230	0.91 | 1.06	0.90 | 1.06	0.91 | 1.05	0.87 | 1.09	0.87 | 1.09	0.87 | 1.09	0.89 | 1.10	0.87 | 1.09	0.87 | 1.09	0.87 | 1.10
Watertown 230	0.94 | 1.04	0.93 | 1.05	0.94 | 1.05	0.88 | 1.07	0.87 | 1.07	0.88 | 1.07	0.91 | 1.09	0.88 | 1.07	0.87 | 1.07	0.87 | 1.08
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold	/ 0.133	/ 0.133	/ 0.133	/ 0.133	/ 0.133	/ 0.133	/ 0.133	/ 0.133	/ 0.133	/ 0.133
Forbes DC Red (SEL) / DCAR	75% / 507%	83% / 507%	86% / 507%	83% / 507%	90% / 507%	85% / 507%	83% / 507%	75% / 507%	83% / 507%	86% / 507%
K22W (max +dP @ t, d-ang)	114.6@(2.02492,-54.4)	120.5@(2.02492,-57.4)	118.4@(2.02492,-57.1)	191.1@(1.85826,-58.1)	197.9@(1.87492,-61.1)	190.2@(1.85826,-57.7)	205.1@(1.85826,-65.5)	186.6@(1.86659,-56.1)	194.5@(1.87492,-59.5)	193.6@(1.86659,-59.5)
K22W (max -dP @ t, d-ang)	126.9@(0.28332,12.1)	125.6@(0.28332,12.0)	123.9@(0.29165,12.2)	46.7@(0.22499,6.2)	46.1@(0.22499,6.2)	46.5@(0.22499,6.3)	39.9@(0.19999,5.3)	47.6@(0.22499,6.3)	46.4@(0.22499,6.2)	46.3@(0.22499,6.2)
K22W (max d-ang @ t, dP)	-68.6@(5.00815,32.9)	-69.0@(5.00815,33.0)	-69.8@(5.00815,33.9)	-71.2@(5.00815,122.4)	-72.8@(5.00815,123.9)	-71.3@(5.00815,123.2)	-79.5@(5.00815,140.6)	-68.7@(5.00815,120.1)	-71.8@(5.00815,123.3)	-72.2@(5.00815,123.7)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%
L20D at Prairie/Drayton	322% / 452%	308% / 430%	296% / 412%	376% / -578%	385% / 583%	364% / -999%	513% / -733%	376% / -999%	376% / -567%	347% / 771%
R50M / F3M	315% / 119%	305% / 113%	308% / 109%	999% / 224%	999% / 213%	999% / 226%	999% / 208%	999% / 233%	999% / 223%	999% / 217%
B10T	181%	176%	167%	387%	374%	395%	400%	362%	376%	378%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 2) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 2) / (0 | 0 | 0)	(4 | 4 | 2) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 3 | 1) / (1 | 2 | 1)	(1 | 4 | 1) / (1 | 2 | 1)	(1 | 4 | 1) / (1 | 2 | 1)	(1 | 4 | 0) / (1 | 2 | 1)	(1 | 4 | 0) / (1 | 2 | 1)	(1 | 4 | 0) / (1 | 2 | 1)	(1 | 5 | 1) / (1 | 2 | 1)	(1 | 4 | 0) / (1 | 2 | 1)	(1 | 4 | 0) / (1 | 2 | 1)	(1 | 4 | 0) / (1 | 2 | 1)
Roseau 230 / Runn 230	(0 | 2 | 0) / (0 | 5 | 3)	(0 | 2 | 0) / (0 | 5 | 3)	(0 | 2 | 0) / (0 | 5 | 3)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 5 | 4)	(0 | 5 | 4)	(0 | 4 | 3)	(0 | 5 | 1)	(0 | 5 | 1)	(0 | 5 | 1)	(0 | 5 | 1)	(0 | 5 | 1)	(0 | 5 | 1)	(0 | 5 | 1)
Delta Transient Vltg										
Arrowhd 230	-0.01	-0.01	0.00	-0.17	-0.17	-0.17	-0.13	-0.17	-0.17	-0.16
Arpin 345	0.04	0.03	0.03	0.01	0.02	0.01	-0.02	0.01	0.00	0.01
Weston 345	0.04	0.02	0.01	0.00	0.00	0.00	-0.05	0.01	-0.01	0.00
Columbia 345	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	-0.01
Rocky Run 345	0.03	0.02	0.03	0.01	0.00	0.01	-0.03	0.01	0.00	0.01

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	71	72	73	74	75	76	77	78	79	80
Case Name	10-sraa.uvg04Y4-oas	1c-sraa.uvj04Y4-oas	2e-sraa.uvg04Y4-oas	3j-sraa.uvg04Y4-oas	5a-sraa.uvf04Y4-oas	5b-sraa.uvh04Y4-oas	9b-sraa.uvk04Y4-oas	10-sraa.uvg04Y4-pcs	1c-sraa.uvj04Y4-pcs-15	2e-sraa.uvg04Y4-pcs-15
Disturbance	oas	oas	oas	oas	oas	oas	oas	pcs	pcs	pcs
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 03 1999 00:12	JAN 07 1999 23:41	JAN 08 1999 10:36	JAN 07 1999 18:29	JAN 09 1999 17:59	FEB 02 1999 12:22	JAN 13 1999 11:40	FEB 03 1999 00:27	JAN 18 1999 09:33	JAN 18 1999 10:03
Comments									DCAR Blocked	DCAR Blocked
Steady State Flows										
NDEX / E Bias	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287
MHEX / L20D	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205
MN-WUMS / MN-IOWA	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37
TCEX / TCEX-new	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652
D602F / F601C	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550
B10T / MH>SPC	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87
OH E-W / OH>MH	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0
R50M / OH>MP	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54
Forbes SVC / MSC	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045
Roseau 500/Forbes 500	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035
Chisago 500/EauClaire 345	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966
Ifalls 115/Badoura 115	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995
Drayton 230/Groton 345	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%
L20Dat Prairie/Drayton	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%
R50M/F3M	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%
B10T	397%	402%	397%	400%	396%	398%	400%	397%	402%	397%
Min/MaxTransientVltg										
Arrowhd 230	1.04 | 1.11	1.04 | 1.11	1.04 | 1.10	1.05 | 1.13	1.04 | 1.10	1.04 | 1.10	1.04 | 1.10	1.01 | 1.04	1.02 | 1.04	1.02 | 1.04
Boise 115	0.96 | 1.05	0.95 | 1.05	0.96 | 1.06	0.96 | 1.04	0.97 | 1.05	0.96 | 1.06	0.95 | 1.05	1.03 | 1.07	1.04 | 1.08	1.04 | 1.08
Arpin 345	0.98 | 1.03	0.95 | 1.00	0.98 | 1.02	0.99 | 1.05	1.00 | 1.04	0.97 | 1.03	0.97 | 1.01	0.85 | 0.95	0.89 | 0.95	0.92 | 0.98
Forbes 230	1.05 | 1.11	1.04 | 1.11	1.05 | 1.10	1.05 | 1.11	1.04 | 1.10	1.04 | 1.11	1.05 | 1.10	1.02 | 1.05	1.03 | 1.07	1.03 | 1.07
Weston 345	0.99 | 1.04	0.94 | 0.98	0.98 | 1.02	0.99 | 1.06	1.01 | 1.05	0.99 | 1.04	0.97 | 1.01	0.83 | 0.95	0.90 | 0.96	0.93 | 0.99
Coal Creek 230	0.99 | 1.11	0.98 | 1.11	0.99 | 1.10	0.99 | 1.10	0.99 | 1.10	0.99 | 1.11	0.99 | 1.11	0.98 | 1.06	0.99 | 1.07	0.99 | 1.06
Columbia 345	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	0.99 | 1.02	0.97 | 1.02	0.94 | 1.02
Drayton 230	1.03 | 1.12	1.03 | 1.12	1.03 | 1.12	1.04 | 1.12	1.03 | 1.12	1.03 | 1.12	1.03 | 1.12	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05
Groton 345	0.93 | 1.04	0.93 | 1.05	0.93 | 1.04	0.94 | 1.04	0.94 | 1.04	0.93 | 1.05	0.93 | 1.04	0.94 | 1.02	0.94 | 1.01	0.94 | 1.01
Rocky Run 345	0.97 | 1.02	0.95 | 0.99	0.98 | 1.01	0.99 | 1.04	0.99 | 1.03	0.97 | 1.02	0.97 | 1.01	0.85 | 0.95	0.90 | 0.95	0.92 | 0.98
Wahpeton 230	0.92 | 1.06	0.92 | 1.07	0.93 | 1.06	0.93 | 1.06	0.93 | 1.06	0.92 | 1.07	0.93 | 1.06	0.98 | 1.04	0.99 | 1.04	0.98 | 1.04
Watertown 230	0.97 | 1.05	0.96 | 1.06	0.97 | 1.05	0.97 | 1.05	0.97 | 1.05	0.96 | 1.06	0.97 | 1.05	0.98 | 1.04	0.97 | 1.03	0.98 | 1.04
Dynamic Voltage Warnings										
	3601 [DORSEYS4] 1.24	3601 [DORSEYS4] 1.24	3601 [DORSEYS4] 1.24	3601 [DORSEYS4] 1.25	3601 [DORSEYS4] 1.25	3601 [DORSEYS4] 1.24	3601 [DORSEYS4] 1.24	none	none	none
	3431 [ROSSER 4] 1.24	3431 [ROSSER 4] 1.24	3431 [ROSSER 4] 1.24	3431 [ROSSER 4] 1.24	3431 [ROSSER 4] 1.24	3431 [ROSSER 4] 1.24	3431 [ROSSER 4] 1.24			
	3460 [LAVEREN4] 1.23	3480 [SILVER 4] 1.23	3460 [LAVEREN4] 1.23	3461 [RIDGEWY4] 1.23	3460 [LAVEREN4] 1.23	3460 [LAVEREN4] 1.23	3460 [LAVEREN4] 1.22			
	3480 [SILVER 4] 1.23	3459 [STVITAL4] 1.22	3480 [SILVER 4] 1.23	3480 [SILVER 4] 1.23	3480 [SILVER 4] 1.23	3480 [SILVER 4] 1.23	3480 [SILVER 4] 1.22			
	3459 [STVITAL4] 1.22	3475 [PORTSOU4] 1.22	3459 [STVITAL4] 1.22	3460 [LAVEREN4] 1.23	3459 [STVITAL4] 1.23	3459 [STVITAL4] 1.22	3459 [STVITAL4] 1.22			
	3475 [PORTSOU4] 1.22	3461 [RIDGEWY4] 1.22	3475 [PORTSOU4] 1.22	3485 [SILVERTP] 1.22	3461 [RIDGEWY4] 1.23	3475 [PORTSOU4] 1.22	3461 [RIDGEWY4] 1.22			
	461 [RIDGEWY4] 1.22 +mor	3460 [LAVEREN4] 1.22 +mor	461 [RIDGEWY4] 1.22 +mor	475 [PORTSOU4] 1.22 +mor	3485 [SILVERTP] 1.22 +more	461 [RIDGEWY4] 1.22 +mor	3485 [SILVERTP] 1.21 +more			
Worst Case Angle Damping								SHERC33G / 47.13%	SHERC33G / 36.09%	SHERC33G / 33.52%
Dorsey SUVP / UdHold	0.267 sec / 0.133	0.267 sec / 0.133	0.267 sec / 0.133	0.267 sec / 0.133	0.267 sec / 0.133	0.267 sec / 0.133	0.267 sec / 0.133			
Forbes DC Red (SEL) / DCAR	83% / 507%	90% / 507%	85% / 507%	83% / 507%	75% / 507%	83% / 507%	86% / 507%	15% / 63%	65% / -73%	39% / -10%
K22W (max +dP @ t, d-ang)	179.0@(1.98325,-74.1)	185.6@(1.99158,-77.4)	175.9@(1.97492,-72.8)	175.3@(1.97492,-71.6)	174.9@(1.97492,-72.5)	180.9@(1.98325,-75.0)	178.2@(1.98325,-74.4)	6.5@(2.78322,1.1)	0.0@(0.07500,0.0)	0.0@(0.04167,0.0)
K22W (max -dP @ t, d-ang)	61.4@(0.36665,4.9)	60.7@(0.36665,4.9)	61.6@(0.36665,4.9)	62.3@(0.36665,4.9)	62.1@(0.36665,5.0)	61.4@(0.36665,4.9)	60.6@(0.36665,4.9)	49.5@(0.95830,21.3)	60.8@(0.95830,25.5)	55.4@(0.94163,23.6)
K22W (max d-ang @ t, dP)	-97.4@(5.00815,102.8)	-99.5@(5.00815,105.3)	-96.5@(5.00815,101.5)	-94.9@(5.00815,101.2)	-95.8@(5.00815,101.0)	-98.3@(5.00815,104.5)	-97.3@(5.00815,102.8)	25.7@(1.28328,-35.1)	34.8@(1.48327,-49.8)	30.5@(1.36661,-40.2)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	0.16666 sec / 0.16666 sec	134% / 229%	167% / 279%	150% / 254%
L20D at Prairie/Drayton	395% / 401%	387% / 381%	397% / 402%	408% / 426%	403% / 421%	394% / 399%	387% / 381%	763% / 751%	637% / 657%	698% / 703%
R50M / F3M	324% / 113%	326% / 110%	324% / 116%	330% / 121%	325% / 120%	321% / 114%	327% / 110%	915% / 324%	981% / 338%	942% / 340%
B10T	291%	290%	292%	300%	298%	293%	288%	203%	200%	191%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 2) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 2) / (0 | 0 | 0)	(4 | 4 | 2) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 3 | 1) / (1 | 1 | 1)	(1 | 3 | 1) / (1 | 1 | 1)	(1 | 3 | 1) / (1 | 1 | 1)	(1 | 3 | 1) / (1 | 1 | 1)	(1 | 3 | 1) / (1 | 1 | 1)	(1 | 3 | 1) / (1 | 2 | 2)	(1 | 3 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 1 | 0) / (0 | 3 | 1)	(0 | 1 | 0) / (0 | 3 | 1)	(0 | 1 | 0) / (0 | 3 | 1)	(0 | 1 | 0) / (1 | 2 | 1)	(0 | 1 | 0) / (0 | 2 | 1)	(0 | 1 | 0) / (0 | 3 | 1)	(0 | 1 | 0) / (0 | 3 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 4 | 3)	(0 | 4 | 2)	(0 | 4 | 3)	(0 | 4 | 3)	(0 | 4 | 3)	(0 | 4 | 3)	(0 | 3 | 2)	(0 | 1 | 1)	(0 | 0 | 0)	(0 | 1 | 1)
Delta Transient Vltg										
Arrowhd 230	0.01	0.01	0.01	0.04	0.01	0.01	0.01	-0.02	-0.01	-0.01
Arpin 345	0.04	0.05	0.04	0.03	0.04	0.03	0.04	-0.09	-0.01	-0.02
Weston 345	0.03	0.02	0.01	0.01	0.04	0.02	0.01	-0.13	-0.02	-0.04
Columbia 345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	-0.04	-0.07
Rocky Run 345	0.03	0.03	0.03	0.02	0.03	0.02	0.03	-0.09	-0.02	-0.03

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	81	82	83	84	85	86	87	88	89	90
Case Name	3j-sraa.uvg04Y4-pcs-15	5a-sraa.uvf04Y4-pcs-15	5b-sraa.uvh04Y4-pcs	9b-sraa.uvk04Y4-pcs-15	10-sraa.uvg04Y4-pct	1c-sraa.uvj04Y4-pct-15	2e-sraa.uvg04Y4-pct-15	3j-sraa.uvg04Y4-pct-15	5a-sraa.uvf04Y4-pct-15	5b-sraa.uvh04Y4-pct
Disturbance	pcs	pcs	pcs	pcs	pct	pct	pct	pct	pct	pct
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 18 1999 10:31	JAN 18 1999 10:58	FEB 02 1999 13:08	JAN 18 1999 11:53	FEB 03 1999 01:00	JAN 25 1999 22:46	JAN 25 1999 23:13	JAN 25 1999 23:42	JAN 26 1999 11:06	FEB 02 1999 13:40
Comments	DCAR Blocked	DCAR Blocked		DCAR Blocked		DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	
Steady State Flows										
NDEX / E Bias	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 293	1942 / 282
MHEX / L20D	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208
MN-WUMS / MN-IOWA	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	950 / 16	1125 / 76
TCEX / TCEX-new	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	986 / 1674	910 / 1594	1117 / 1852
D602F / F601C	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1659 / 1601	1647 / 1543
B10T / MH>SPC	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87
OH E-W / OH>MH	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0
R50M / OH>MP	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66
Forbes SVC / MSC	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	27 / 600	14 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045
Roseau 500/Forbes 500	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028
Chisago 500/EauClaire 345	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964
Ifalls 115/Badoura 115	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995
Drayton 230/Groton 345	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%
B10T	400%	396%	398%	400%	397%	402%	397%	400%	396%	398%
Min/MaxTransientVltg										
Arrowhd 230	0.86 | 0.97	1.00 | 1.04	1.00 | 1.03	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	0.88 | 0.95	1.01 | 1.03	1.00 | 1.03
Boise 115	1.02 | 1.06	1.04 | 1.08	1.05 | 1.09	1.03 | 1.08	1.04 | 1.05	1.05 | 1.06	1.05 | 1.06	1.04 | 1.05	1.04 | 1.06	1.05 | 1.06
Arpin 345	0.86 | 0.98	0.87 | 0.97	0.88 | 0.97	0.91 | 0.97	0.90 | 0.93	0.90 | 0.95	0.94 | 0.98	0.90 | 0.96	0.90 | 0.94	0.91 | 0.96
Forbes 230	1.01 | 1.04	1.01 | 1.03	1.02 | 1.05	1.03 | 1.07	1.03 | 1.04	1.03 | 1.05	1.03 | 1.05	1.01 | 1.03	1.02 | 1.03	1.02 | 1.04
Weston 345	0.83 | 0.97	0.85 | 0.96	0.87 | 0.98	0.93 | 0.98	0.89 | 0.93	0.91 | 0.95	0.95 | 0.99	0.88 | 0.95	0.88 | 0.93	0.91 | 0.97
Coal Creek 230	0.98 | 1.07	0.98 | 1.07	0.99 | 1.07	0.99 | 1.07	1.02 | 1.04	1.02 | 1.06	1.01 | 1.05	1.01 | 1.05	1.02 | 1.04	1.01 | 1.05
Columbia 345	0.99 | 1.02	1.00 | 1.02	0.98 | 1.02	0.94 | 1.02	1.00 | 1.02	0.98 | 1.02	0.96 | 1.01	1.00 | 1.02	1.00 | 1.02	0.99 | 1.02
Drayton 230	1.02 | 1.05	1.02 | 1.05	1.01 | 1.05	1.01 | 1.04	1.03 | 1.04	1.02 | 1.05	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.05
Groton 345	0.94 | 1.02	0.94 | 1.01	0.94 | 1.01	0.94 | 1.01	0.99 | 1.01	0.98 | 1.01	0.99 | 1.01	0.98 | 1.01	0.99 | 1.01	0.98 | 1.01
Rocky Run 345	0.86 | 0.97	0.87 | 0.96	0.88 | 0.97	0.92 | 0.97	0.90 | 0.93	0.91 | 0.95	0.94 | 0.98	0.90 | 0.96	0.90 | 0.94	0.91 | 0.96
Wahpeton 230	0.97 | 1.04	0.97 | 1.04	0.98 | 1.04	0.99 | 1.04	1.02 | 1.03	1.02 | 1.04	1.02 | 1.03	1.01 | 1.03	1.02 | 1.03	1.02 | 1.03
Watertown 230	0.98 | 1.04	0.98 | 1.04	0.98 | 1.03	0.97 | 1.03	1.02 | 1.03	1.00 | 1.03	1.02 | 1.03	1.01 | 1.03	1.02 | 1.03	1.01 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping	SHERC33G / 31.83%	SHERC33G / 49.40%	SHERC33G / 23.58%	SHERC33G / 26.09%	KING 31G / 38.46%	KING 31G / 36.80%	KING 31G / 53.70%	KING 31G / 21.44%	KING 31G / 27.97%	KING 31G / 29.80%
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	18% / 34%	-2% / 91%	37% / -14%	35% / -12%	83% / 268%	90% / 26%	85% / 141%	80% / 115%	75% / 216%	83% / 73%
K22W (max +dP @ t, d-ang)	2.1@(2.76655,1.9)	4.8@(2.74155,-0.4)	0.0@(0.10000,0.0)	0.0@(0.09166,0.0)	0.0@(0.10000,0.0)	0.0@(0.20832,-0.1)	0.0@(0.04167,0.0)	0.0@(0.07500,0.0)	0.0@(0.10000,0.0)	0.0@(0.10000,0.0)
K22W (max -dP @ t, d-ang)	51.7@(0.91663,22.3)	48.4@(0.94163,20.2)	58.1@(0.93330,23.5)	56.4@(0.91663,23.7)	28.8@(1.92492,14.8)	55.3@(2.02492,29.1)	42.1@(1.93325,22.3)	45.0@(1.94159,23.9)	34.1@(1.90825,17.7)	49.4@(1.98325,26.1)
K22W (max d-ang @ t, dP)	27.9@(1.29162,-35.3)	23.6@(1.23328,-36.4)	30.3@(1.35828,-41.9)	30.8@(1.34161,-40.0)	19.0@(14.23301,-17.4)	31.5@(15.00799,-36.0)	22.6@(14.14134,-25.7)	35.3@(14.69133,-28.5)	25.2@(14.31634,-20.0)	35.2@(14.93300,-31.3)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	136% / 232%	124% / 210%	149% / 249%	147% / 252%	179% / 294%	183% / 303%	180% / 298%	177% / 293%	174% / 284%	180% / 295%
L20D at Prairie/Drayton	832% / 790%	816% / 789%	681% / 688%	618% / 636%	999% / 883%	764% / 756%	867% / 835%	999% / 943%	999% / 922%	830% / 807%
R50M / F3M	831% / 322%	889% / 320%	934% / 341%	937% / 335%	999% / 337%	999% / 338%	999% / 340%	955% / 329%	999% / 338%	999% / 341%
B10T	186%	191%	186%	181%	300%	265%	268%	283%	286%	267%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 3) / (0 | 3 | 3)	(4 | 4 | 3) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 2) / (0 | 0 | 0)	(4 | 4 | 2) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 2 | 2)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.15	-0.03	-0.03	-0.01	-0.01	-0.01	-0.01	-0.13	-0.02	-0.03
Arpin 345	-0.10	-0.09	-0.06	-0.02	-0.04	0.00	0.00	-0.06	-0.06	-0.03
Weston 345	-0.15	-0.12	-0.10	-0.03	-0.07	-0.01	-0.02	-0.10	-0.09	-0.06
Columbia 345	-0.02	-0.01	-0.03	-0.07	-0.01	-0.03	-0.05	-0.01	-0.01	-0.02
Rocky Run 345	-0.11	-0.09	-0.07	-0.02	-0.04	-0.01	-0.01	-0.07	-0.06	-0.04

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	91	92	93	94	95	96	97	98	99	100
Case Name	9b-sraa.uvk04Y4-pct-15	10-sraa.uvg04Y4-pds	1c-sraa.uvj04Y4-pds	2e-sraa.uvg04Y4-pds	3j-sraa.uvg04Y4-pds	5a-sraa.uvf04Y4-pds	5b-sraa.uvi04Y4-pds	9b-sraa.uvk04Y4-pds	10-sraa.uvg04Y4-pdt	1c-sraa.uvj04Y4-pdt
Disturbance	pct	pds	pds	pds	pds	pds	pds	pds	pdt	pdt
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 26 1999 01:05	FEB 03 1999 16:10	JAN 25 1999 16:32	JAN 25 1999 17:14	JAN 25 1999 14:11	JAN 26 1999 10:01	JAN 25 1999 18:38	JAN 25 1999 19:21	FEB 03 1999 16:38	JAN 25 1999 16:05
Comments	DCAR Blocked		DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked		DCAR Blocked
Steady State Flows										
NDEX / E Bias	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 293	1942 / 273	1942 / 267	1941 / 285	1943 / 267
MHEX / L20D	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1978 / 216	1976 / 219	1976 / 207	1979 / 218
MN-WUMS / MN-IOWA	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	950 / 16	1140 / 95	1124 / 342	1005 / 15	1209 / 278
TCEX / TCEX-new	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	986 / 1674	910 / 1594	1170 / 2016	1395 / 2155	959 / 1562	1328 / 2031
D602F / F601C	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1659 / 1601	1641 / 1549	1636 / 1539	1647 / 1560	1640 / 1534
B10T / MH>SPC	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	149 / 87	149 / 87	150 / 87	149 / 86
OH E-W / OH>MH	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-86 / 2	-87 / 0	-88 / 0	-87 / 1
R50M / OH>MP	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	120 / 151	120 / 152	120 / 151	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	263 / 71	306 / 65	268 / 54	293 / 71
Forbes SVC / MSC	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	27 / 600	0 / 600	53 / 600	-4 / 600	40 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.033 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045
Roseau 500/Forbes 500	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.019 / 1.026	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035
Chisago 500/EauClaire 345	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.017 / 0.948	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930
Ifalls 115/Badoura 115	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.042 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997
Drayton 230/Groton 345	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.031 / 0.997	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	181% / 295%	180% / 301%	179% / 294%	183% / 303%
L20Dat Prairie/Drayton	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 983%	999% / 964%	999% / 999%	999% / 974%
R50M/F3M	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 338%	999% / 335%	999% / 337%	999% / 338%
B10T	400%	397%	402%	397%	400%	396%	400%	400%	397%	402%
Min/MaxTransientVltg										
Arrowhd 230	1.02 | 1.04	1.00 | 1.05	0.99 | 1.03	0.99 | 1.04	0.88 | 1.00	0.99 | 1.04	0.98 | 1.03	0.99 | 1.04	1.02 | 1.03	1.00 | 1.03
Boise 115	1.05 | 1.06	1.03 | 1.07	1.03 | 1.09	1.04 | 1.08	1.02 | 1.06	1.03 | 1.08	1.04 | 1.09	1.03 | 1.08	1.04 | 1.05	1.05 | 1.06
Arpin 345	0.93 | 0.97	0.86 | 0.97	0.84 | 0.95	0.90 | 0.99	0.88 | 1.01	0.90 | 1.00	0.86 | 0.99	0.88 | 0.98	0.92 | 0.94	0.89 | 0.93
Forbes 230	1.03 | 1.05	1.02 | 1.04	1.02 | 1.06	1.03 | 1.05	1.01 | 1.04	1.01 | 1.04	1.01 | 1.06	1.02 | 1.06	1.03 | 1.03	1.03 | 1.04
Weston 345	0.94 | 0.98	0.88 | 0.98	0.88 | 0.96	0.93 | 1.00	0.87 | 1.01	0.88 | 0.99	0.89 | 1.01	0.92 | 0.99	0.93 | 0.95	0.91 | 0.95
Coal Creek 230	1.01 | 1.05	0.98 | 1.06	0.98 | 1.06	0.98 | 1.06	0.97 | 1.07	0.97 | 1.06	0.98 | 1.06	0.98 | 1.05	1.03 | 1.04	1.02 | 1.05
Columbia 345	0.96 | 1.01	1.00 | 1.02	0.99 | 1.02	0.96 | 1.02	1.00 | 1.02	1.00 | 1.02	0.99 | 1.02	0.96 | 1.02	1.01 | 1.02	1.00 | 1.02
Drayton 230	1.02 | 1.05	1.02 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.06	1.02 | 1.05	1.00 | 1.05	1.00 | 1.05	1.03 | 1.04	1.03 | 1.04
Groton 345	0.98 | 1.01	0.93 | 1.01	0.93 | 1.02	0.93 | 1.01	0.93 | 1.02	0.93 | 1.02	0.94 | 1.02	0.93 | 1.02	0.99 | 1.00	0.98 | 1.01
Rocky Run 345	0.93 | 0.97	0.88 | 0.97	0.87 | 0.96	0.92 | 0.99	0.89 | 1.00	0.89 | 0.99	0.88 | 0.99	0.90 | 0.98	0.92 | 0.94	0.91 | 0.94
Wahpeton 230	1.02 | 1.04	0.97 | 1.04	0.98 | 1.04	0.97 | 1.04	0.96 | 1.04	0.97 | 1.04	0.98 | 1.04	0.98 | 1.04	1.02 | 1.02	1.02 | 1.03
Watertown 230	1.01 | 1.03	0.97 | 1.04	0.97 | 1.04	0.97 | 1.04	0.97 | 1.04	0.97 | 1.04	0.97 | 1.04	0.96 | 1.04	1.02 | 1.03	1.01 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	1804 [LAW CRK4] 0.66 2165 [APL RVR5] 0.66 1809 [APPLRV 4] 0.67 7871 [LAW CRK7] 0.69 1331 [MINONG 5] 0.77	1331 [MINONG 5] 0.81	none	none
Worst Case Angle Damping	KING 31G / 43.26%									
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	86% / 86%	-8% / 174%	24% / -7%	10% / 59%	-2% / 72%	-14% / 114%	24% / -61%	10% / -15%	83% / 393%	90% / 167%
K22W (max +dP @ t, d-ang)	0.0@(0.09166,0.0)	20.2@(2.70822,-8.0)	2.7@(2.79155,2.1)	7.3@(2.75822,-1.5)	15.7@(2.74988,-4.4)	15.4@(2.73322,-5.6)	0.0@(0.05000,0.0)	6.3@(2.78322,0.2)	0.0@(0.10000,0.0)	0.0@(0.07500,0.0)
K22W (max -dP @ t, d-ang)	48.2@(1.94992,25.7)	40.7@(0.93330,16.9)	57.7@(0.91663,23.5)	51.8@(0.91663,21.4)	48.6@(0.90830,21.1)	45.6@(0.92496,19.3)	62.9@(0.92496,25.1)	57.5@(0.89997,23.7)	14.2@(1.84159,7.3)	40.7@(1.94992,21.1)
K22W (max d-ang @ t, dP)	28.6@(14.39134,-30.3)	18.8@(1.14995,-33.0)	30.6@(1.31661,-39.3)	26.0@(1.24995,-38.6)	25.4@(1.22495,-34.4)	22.1@(1.19162,-35.8)	32.9@(1.34995,-44.4)	30.9@(1.29162,-39.5)	7.3@(1.74993,-14.1)	21.1@(1.95825,-40.7)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	180% / 301%	119% / 208%	140% / 238%	130% / 226%	123% / 214%	115% / 198%	141% / 236%	130% / 228%	179% / 294%	183% / 303%
L20D at Prairie/Drayton	757% / 750%	800% / 770%	608% / 627%	717% / 713%	839% / 790%	811% / 778%	594% / 616%	587% / 608%	999% / 950%	813% / 793%
R50M / F3M	999% / 335%	883% / 297%	913% / 328%	896% / 318%	797% / 300%	867% / 304%	909% / 324%	891% / 323%	999% / 337%	999% / 338%
B10T	260%	192%	172%	179%	177%	181%	167%	162%	338%	283%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 0)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 2 | 2)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 2 | 2)	(0 | 2 | 2)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.01	-0.03	-0.04	-0.04	-0.13	-0.04	-0.05	-0.04	-0.01	-0.03
Arpin 345	0.00	-0.08	-0.06	-0.04	-0.08	-0.06	-0.08	-0.05	-0.02	-0.01
Weston 345	-0.02	-0.08	-0.04	-0.04	-0.11	-0.09	-0.08	-0.04	-0.03	-0.01
Columbia 345	-0.05	-0.01	-0.02	-0.05	-0.01	-0.01	-0.02	-0.05	0.00	-0.01
Rocky Run 345	-0.01	-0.06	-0.05	-0.03	-0.08	-0.07	-0.07	-0.04	-0.02	-0.01

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	101	102	103	104	105	106	107	108	109	110
Case Name	2e-sraa.uvg04Y4-pdt	3j-sraa.uvg04Y4-pdt	5a-sraa.uvf04Y4-pdt	5b-sraa.uvi04Y4-pdt	9b-sraa.uvk04Y4-pdt	10-sraa.uvg04Y4-pet	1c-sraa.uvj04Y4-pet	2e-sraa.uvg04Y4-pet	3j-sraa.uvg04Y4-pet	5a-sraa.uvf04Y4-pet
Disturbance	pdt	pdt	pdt	pdt	pdt	pet	pet	pet	pet	pet
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 25 1999 16:48	JAN 25 1999 13:46	JAN 26 1999 09:33	JAN 25 1999 18:10	JAN 25 1999 18:55	FEB 03 1999 16:51	JAN 25 1999 16:19	JAN 25 1999 17:01	JAN 25 1999 13:59	JAN 26 1999 09:47
Comments	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked
Steady State Flows										
NDEX / E Bias	1941 / 287	1941 / 314	1942 / 293	1942 / 273	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 293
MHEX / L20D	1977 / 205	1978 / 188	1977 / 195	1978 / 216	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195
MN-WUMS / MN-IOWA	1161 / -37	1005 / 54	950 / 16	1140 / 95	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	950 / 16
TCEX / TCEX-new	1020 / 1652	986 / 1674	910 / 1594	1170 / 2016	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	986 / 1674	910 / 1594
D602F / F601C	1651 / 1550	1656 / 1221	1659 / 1601	1641 / 1549	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1659 / 1601
B10T / MH>SPC	150 / 87	149 / 87	150 / 88	149 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88
OH E-W / OH>MH	-88 / 0	-87 / 0	-88 / 0	-86 / 2	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0
R50M / OH>MP	120 / 151	133 / 151	121 / 151	120 / 151	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	288 / 54	291 / 50	243 / 47	263 / 71	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47
Forbes SVC / MSC	47 / 600	-8 / 600	27 / 600	0 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	27 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.033 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045
Roseau 500/Forbes 500	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.019 / 1.026	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022
Chisago 500/EauClaire 345	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.017 / 0.948	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000
Ifalls 115/Badoura 115	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.042 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993
Drayton 230/Groton 345	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.031 / 0.997	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 298%	179% / 296%	174% / 284%	181% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 983%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 340%	999% / 329%	999% / 338%	999% / 338%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%
B10T	397%	400%	396%	400%	400%	397%	402%	397%	400%	396%
Min/MaxTransientVltg										
Arrowhd 230	1.01 | 1.03	0.94 | 0.98	1.02 | 1.03	1.00 | 1.03	1.01 | 1.03	1.03 | 1.04	1.03 | 1.05	1.03 | 1.05	0.92 | 0.97	1.02 | 1.03
Boise 115	1.05 | 1.06	1.04 | 1.05	1.04 | 1.05	1.05 | 1.06	1.04 | 1.06	1.04 | 1.05	1.05 | 1.06	1.05 | 1.06	1.04 | 1.05	1.04 | 1.05
Arpin 345	0.94 | 0.97	0.95 | 0.99	0.95 | 0.98	0.92 | 0.97	0.93 | 0.97	0.91 | 0.93	0.90 | 0.95	0.93 | 0.97	0.91 | 0.95	0.92 | 0.94
Forbes 230	1.03 | 1.04	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.03 | 1.04	1.03 | 1.04	1.04 | 1.05	1.04 | 1.05	1.02 | 1.03	1.02 | 1.03
Weston 345	0.96 | 0.99	0.94 | 0.98	0.93 | 0.97	0.94 | 1.00	0.95 | 0.98	0.90 | 0.92	0.90 | 0.95	0.95 | 0.99	0.90 | 0.95	0.90 | 0.94
Coal Creek 230	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	1.01 | 1.05	1.01 | 1.05	1.03 | 1.04	1.02 | 1.06	1.02 | 1.05	1.02 | 1.05	1.02 | 1.04
Columbia 345	0.98 | 1.01	1.01 | 1.02	1.01 | 1.02	1.00 | 1.02	0.98 | 1.01	1.01 | 1.02	0.98 | 1.02	0.97 | 1.01	1.00 | 1.02	1.00 | 1.02
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
Groton 345	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.98 | 1.01	0.98 | 1.00	0.99 | 1.00	0.98 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01
Rocky Run 345	0.95 | 0.98	0.94 | 0.98	0.94 | 0.97	0.93 | 0.98	0.94 | 0.97	0.90 | 0.93	0.91 | 0.95	0.94 | 0.97	0.91 | 0.95	0.91 | 0.94
Wahpeton 230	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02	1.02 | 1.03	1.02 | 1.03	1.02 | 1.02	1.02 | 1.04	1.02 | 1.03	1.01 | 1.02	1.02 | 1.03
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.01 | 1.03	1.01 | 1.03	1.02 | 1.03	1.01 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	85% / 272%	80% / 299%	72% / 341%	85% / 109%	86% / 183%	83% / 371%	90% / 143%	85% / 229%	83% / 254%	75% / 322%
K22W (max +dP @ t, d-ang)	0.0@(0.04167,0.0)	0.0@(0.07500,0.0)	0.0@(0.10000,0.0)	0.0@(0.05000,0.0)	0.0@(0.09166,0.0)	0.1@(0.21666,0.0)	1.2@(0.24166,-0.2)	0.7@(0.23332,-0.1)	0.1@(0.21666,0.0)	0.1@(0.20832,0.0)
K22W (max -dP @ t, d-ang)	28.2@(1.86659,14.7)	25.6@(1.81659,13.2)	20.2@(1.81659,10.3)	45.5@(1.94159,23.9)	38.0@(1.89159,20.1)	17.4@(1.94992,8.7)	43.7@(2.04158,22.3)	33.3@(1.97492,17.2)	31.3@(1.97492,15.9)	23.1@(1.94992,11.5)
K22W (max d-ang @ t, dP)	14.7@(1.77493,-27.9)	13.2@(1.78326,-25.6)	10.4@(1.72493,-20.0)	23.9@(1.94992,-45.5)	20.1@(1.84992,-37.9)	8.7@(1.89159,-17.3)	22.4@(2.13325,-43.3)	17.2@(1.94992,-33.3)	15.9@(2.03325,-31.1)	11.5@(1.92492,-23.1)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	180% / 298%	177% / 293%	173% / 281%	181% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%
L20D at Prairie/Drayton	999% / 886%	999% / 999%	999% / 985%	794% / 779%	792% / 777%	999% / 941%	816% / 796%	999% / 875%	999% / 999%	999% / 981%
R50M / F3M	999% / 340%	974% / 329%	999% / 338%	999% / 338%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	987% / 329%	999% / 338%
B10T	292%	309%	315%	270%	272%	333%	286%	288%	311%	316%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.02	-0.07	-0.01	-0.03	-0.02	0.00	0.00	0.00	-0.09	-0.01
Arpin 345	0.00	-0.01	-0.01	-0.02	0.00	-0.03	0.00	-0.01	-0.05	-0.04
Weston 345	-0.01	-0.04	-0.04	-0.03	-0.01	-0.06	-0.02	-0.02	-0.08	-0.07
Columbia 345	-0.03	0.00	0.00	-0.01	-0.03	0.00	-0.03	-0.04	-0.01	-0.01
Rocky Run 345	0.00	-0.03	-0.02	-0.02	0.00	-0.04	-0.01	-0.01	-0.06	-0.05

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	111	112	113	114	115	116	117	118	119	120
Case Name	5b-sraa.uvi04Y4-pet	9b-sraa.uvk04Y4-pet	10-sraa.uvg04Y4-pys	1c-sraa.uvj04Y4-pys-15	2e-sraa.uvg04Y4-pys-15	3j-sraa.uvg04Y4-pys-15	5a-sraa.uvf04Y4-pys-15	5b-sraa.uvh04Y4-pys	9b-sraa.uvk04Y4-pys-15	10-sraa.uvg04Y4-pyt
Disturbance	pet	pet	pys	pys	pys	pys	pys	pys	pys	pyt
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 25 1999 18:24	JAN 25 1999 19:08	FEB 03 1999 02:03	JAN 19 1999 08:40	JAN 19 1999 09:10	JAN 19 1999 09:36	JAN 19 1999 10:02	FEB 02 1999 14:47	JAN 19 1999 10:55	FEB 03 1999 01:31
Comments	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked
Steady State Flows										
NDEX / E Bias	1942 / 273	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285
MHEX / L20D	1978 / 216	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207
MN-WUMS / MN-IOWA	1140 / 95	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15
TCEX / TCEX-new	1170 / 2016	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562
D602F / F601C	1641 / 1549	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560
B10T / MH>SPC	149 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87
OH E-W / OH>MH	-86 / 2	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0
R50M / OH>MP	120 / 151	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	263 / 71	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54
Forbes SVC / MSC	0 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.033 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045
Roseau 500/Forbes 500	1.019 / 1.026	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028
Chisago 500/EauClaire 345	1.017 / 0.948	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977
Ifalls 115/Badoura 115	1.042 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995
Drayton 230/Groton 345	1.031 / 0.997	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	181% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%
L20Dat Prairie/Drayton	999% / 983%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%
R50M/F3M	999% / 338%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%
B10T	400%	400%	397%	402%	397%	400%	396%	398%	400%	397%
Min/MaxTransientVltg										
Arrowhd 230	1.02 | 1.04	1.03 | 1.05	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	0.97 | 1.02	1.02 | 1.04	1.01 | 1.04	1.02 | 1.04	1.03 | 1.04
Boise 115	1.05 | 1.06	1.05 | 1.06	1.03 | 1.07	1.04 | 1.07	1.03 | 1.07	1.03 | 1.06	1.03 | 1.06	1.04 | 1.07	1.03 | 1.07	1.04 | 1.05
Arpin 345	0.92 | 0.96	0.92 | 0.96	0.87 | 0.94	0.80 | 0.90	0.89 | 0.95	0.89 | 0.97	0.90 | 0.97	0.85 | 0.95	0.84 | 0.93	0.90 | 0.93
Forbes 230	1.03 | 1.04	1.04 | 1.05	1.02 | 1.05	1.03 | 1.06	1.03 | 1.05	1.02 | 1.05	1.02 | 1.04	1.02 | 1.05	1.03 | 1.05	1.03 | 1.04
Weston 345	0.93 | 0.97	0.93 | 0.97	0.89 | 0.96	0.85 | 0.93	0.93 | 0.98	0.91 | 0.99	0.92 | 0.99	0.90 | 0.99	0.89 | 0.96	0.92 | 0.94
Coal Creek 230	1.02 | 1.05	1.02 | 1.05	0.99 | 1.06	0.99 | 1.06	0.99 | 1.06	0.99 | 1.06	0.99 | 1.06	0.99 | 1.06	0.99 | 1.06	1.02 | 1.04
Columbia 345	0.99 | 1.02	0.97 | 1.01	1.01 | 1.02	1.01 | 1.02	0.99 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.00 | 1.02	1.01 | 1.02
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.01 | 1.05	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	1.01 | 1.05	1.03 | 1.04
Groton 345	0.99 | 1.01	0.98 | 1.01	0.94 | 1.01	0.94 | 1.01	0.94 | 1.01	0.95 | 1.01	0.94 | 1.01	0.94 | 1.01	0.93 | 1.01	0.99 | 1.00
Rocky Run 345	0.93 | 0.96	0.93 | 0.96	0.87 | 0.95	0.84 | 0.92	0.91 | 0.96	0.90 | 0.98	0.90 | 0.97	0.88 | 0.96	0.87 | 0.95	0.90 | 0.93
Wahpeton 230	1.02 | 1.03	1.02 | 1.03	0.98 | 1.03	0.98 | 1.04	0.98 | 1.03	0.98 | 1.03	0.98 | 1.03	0.98 | 1.04	0.98 | 1.04	1.02 | 1.02
Watertown 230	1.02 | 1.03	1.01 | 1.03	0.98 | 1.03	0.97 | 1.04	0.98 | 1.03	0.98 | 1.03	0.98 | 1.03	0.97 | 1.03	0.97 | 1.04	1.02 | 1.02
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping			SHERC33G / 49.68%	SHERC33G / 11.01%	SHERC33G / 59.41%	SHERC33G / 46.73%	SHERC33G / 54.73%	SHERC33G / 31.49%	SHERC33G / 29.43%	ANTEL31G / 33.52%
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	85% / 235%	86% / 224%	34% / 190%	48% / 112%	30% / 238%	34% / 200%	23% / 204%	38% / 146%	36% / 119%	83% / 322%
K22W (max +dP @ t, d-ang)	0.7@(0.23332,-0.1)	0.9@(0.24166,-0.1)	3.8@(2.70822,1.8)	0.0@(0.07500,0.0)	7.7@(2.68322,-0.7)	3.4@(2.69989,1.8)	5.1@(2.69989,0.8)	1.5@(2.75822,3.2)	2.3@(2.75822,3.2)	0.0@(0.10000,0.0)
K22W (max -dP @ t, d-ang)	33.4@(2.03325,16.7)	34.2@(1.99992,17.6)	41.4@(0.85830,13.8)	49.4@(0.87497,16.4)	36.5@(0.84163,12.1)	40.5@(0.84997,13.4)	39.4@(0.85830,13.2)	45.6@(0.86663,15.2)	49.3@(0.86663,16.4)	22.6@(1.84992,11.7)
K22W (max d-ang @ t, dP)	16.8@(2.09158,-33.3)	17.6@(1.99992,-34.2)	19.0@(1.25828,-21.9)	26.5@(14.00801,-27.6)	16.1@(1.19162,-19.6)	18.5@(1.24995,-20.9)	17.7@(1.22495,-21.1)	21.8@(1.32495,-25.3)	23.8@(13.52468,-24.3)	15.1@(14.24967,-14.1)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	181% / 295%	180% / 301%	147% / 246%	156% / 261%	144% / 245%	146% / 248%	140% / 234%	150% / 249%	148% / 252%	179% / 294%
L20D at Prairie/Drayton	869% / 837%	830% / 806%	798% / 780%	678% / 686%	846% / 816%	999% / 870%	880% / 842%	764% / 754%	656% / 668%	999% / 893%
R50M / F3M	999% / 338%	999% / 335%	980% / 330%	999% / 334%	975% / 327%	890% / 321%	964% / 329%	981% / 334%	992% / 329%	999% / 337%
B10T	304%	291%	223%	209%	228%	225%	225%	218%	198%	306%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.01	0.00	-0.01	-0.01	-0.01	-0.04	-0.01	-0.02	-0.01	0.00
Arpin 345	-0.02	-0.01	-0.07	-0.10	-0.05	-0.07	-0.06	-0.09	-0.09	-0.04
Weston 345	-0.04	-0.03	-0.07	-0.07	-0.04	-0.07	-0.05	-0.07	-0.07	-0.04
Columbia 345	-0.02	-0.04	0.00	0.00	-0.02	0.00	0.00	0.00	-0.01	0.00
Rocky Run 345	-0.02	-0.01	-0.07	-0.08	-0.04	-0.07	-0.06	-0.07	-0.07	-0.04

LOAD FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	121	122	123	124	125	126
2	**Case Name**	1c-sraa.uvj04Y4-pyt-15	2e-sraa.uvg04Y4-pyt-15	3j-sraa.uvg04Y4-pyt-15	5a-sraa.uvf04Y4-pyt-15	5b-sraa.uvh04Y4-pyt	9b-sraa.uvk04Y4-pyt-15
3	**Disturbance**	pyt	pyt	pyt	pyt	pyt	pyt
4	**Prior Outage**	None	None	None	None	None	None
5	**Date/Time**	JAN 25 1999 20:02	JAN 25 1999 20:28	JAN 25 1999 20:54	JAN 26 1999 10:42	FEB 02 1999 14:13	JAN 25 1999 22:20
6	**Comments**	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked	DCAR Blocked
7							
8	**Steady State Flows**						
9	NDEX / E Bias	1943 / 267	1941 / 287	1941 / 314	1942 / 293	1942 / 282	1942 / 267
10	MHEX / L20D	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219
11	MN-WUMS / MN-IOWA	1209 / 278	1161 / -37	1005 / 54	950 / 16	1125 / 76	1124 / 342
12	TCEX / TCEX-new	1328 / 2031	1020 / 1652	986 / 1674	910 / 1594	1117 / 1852	1395 / 2155
13	D602F / F601C	1640 / 1534	1651 / 1550	1656 / 1221	1659 / 1601	1647 / 1543	1636 / 1539
14	B10T / MH>SPC	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87
15	OH E-W / OH>MH	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0
16	R50M / OH>MP	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152
17	Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
18	Dorsey Reserve / Wtrtn SVC	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65
19	Forbes SVC / MSC	40 / 600	47 / 600	-8 / 600	27 / 600	14 / 600	53 / 600
20	**Steady State Vltgs**						
21	Dorsey 500/Dorsey 230	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045
22	Roseau 500/Forbes 500	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035
23	Chisago 500/EauClaire 345	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955
24	Ifalls 115/Badoura 115	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996
25	Drayton 230/Groton 345	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996
26	**SS OS Relay Margins**						
27	D602F at Forbes/Dorsey	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%
28	L20Dat Prairie/Drayton	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%
29	R50M/F3M	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%
30	B10T	402%	397%	400%	396%	398%	400%
31	**Min/MaxTransientVltg**						
32	Arrowhd 230	1.02 | 1.04	1.03 | 1.04	0.99 | 1.01	1.02 | 1.03	1.02 | 1.03	1.02 | 1.04
33	Boise 115	1.04 | 1.06	1.05 | 1.05	1.04 | 1.05	1.04 | 1.05	1.05 | 1.06	1.04 | 1.06
34	Arpin 345	0.83 | 0.88	0.92 | 0.94	0.92 | 0.95	0.93 | 0.95	0.89 | 0.93	0.87 | 0.91
35	Forbes 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.03	1.03 | 1.03	1.03 | 1.04
36	Weston 345	0.88 | 0.92	0.95 | 0.96	0.95 | 0.97	0.94 | 0.97	0.94 | 0.97	0.92 | 0.95
37	Coal Creek 230	1.02 | 1.04	1.03 | 1.04	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04
38	Columbia 345	1.01 | 1.02	1.00 | 1.01	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.00 | 1.01
39	Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
40	Groton 345	0.98 | 1.00	0.99 | 1.00	0.99 | 1.00	0.99 | 1.00	0.99 | 1.00	0.98 | 1.00
41	Rocky Run 345	0.87 | 0.91	0.94 | 0.95	0.93 | 0.96	0.93 | 0.95	0.91 | 0.94	0.90 | 0.93
42	Wahpeton 230	1.02 | 1.03	1.02 | 1.02	1.02 | 1.02	1.02 | 1.02	1.02 | 1.03	1.02 | 1.03
43	Watertown 230	1.01 | 1.02	1.02 | 1.02	1.02 | 1.03	1.02 | 1.02	1.02 | 1.02	1.01 | 1.02
44	**Dynamic Voltage Warnings**						
45		none	none	none	none	none	none
46							
47							
48							
49							
50							
51							
52	Worst Case Angle Damping	SHERC33G / 25.18%	ANTEL31G / 38.14%	KING 31G / 37.76%	ANTEL31G / 41.51%	ANTEL31G / 30.09%	STANT41G / 26.84%
53	Dorsey SUVP / UdHold						
54	Forbes DC Red (SEL) / DCAR	90% / 216%	85% / 375%	83% / 325%	75% / 339%	83% / 279%	86% / 229%
55	K22W (max +dP @ t, d-ang)	0.0@(0.07500,0.0)	0.0@(0.04167,0.0)	0.0@(0.07500,0.0)	0.0@(0.10000,0.0)	0.0@(0.10000,0.0)	0.0@(0.09166,0.0)
56	K22W (max -dP @ t, d-ang)	35.3@(1.98325,18.3)	16.5@(1.80826,8.6)	22.5@(1.84159,11.6)	20.4@(1.82493,10.5)	27.6@(1.89992,14.3)	33.7@(1.93325,17.5)
57	K22W (max d-ang @ t, dP)	23.7@(14.74133,-23.8)	11.1@(14.08301,-10.2)	14.0@(14.25801,-14.1)	12.7@(14.09968,-12.8)	18.1@(14.47467,-17.4)	22.4@(14.44134,-21.5)
58	**OS Rel Trip / Marg**						
59	MH - OH						
60	D602F at Forbes/Dorsey	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%
61	L20D at Prairie/Drayton	819% / 800%	999% / 938%	999% / 999%	999% / 969%	999% / 868%	794% / 780%
62	R50M / F3M	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%
63	B10T	287%	324%	307%	309%	296%	276%
64	**FSCAPS (SS/Unav/Final)**						
65	EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
66	Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
67	Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
68	Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
69	**Delta Transient Vltg**						
70	Arrowhd 230	-0.01	0.00	-0.02	-0.01	-0.01	-0.01
71	Arpin 345	-0.07	-0.02	-0.04	-0.03	-0.05	-0.06
72	Weston 345	-0.04	-0.02	-0.03	-0.03	-0.03	-0.04
73	Columbia 345	0.00	-0.01	0.00	0.00	0.00	-0.01
74	Rocky Run 345	-0.05	-0.01	-0.04	-0.03	-0.04	-0.04

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	126	127	128	129	130	131	132	133	134	135
Case Name	10-sraa.uvg04Y4-was	1c-sraa.uvj04Y4-was	2e-sraa.uvg04Y4-was	3j-sraa.uvg04Y4-was	5a-sraa.uvf04Y4-was	5b-sraa.uvh04Y4-was	9b-sraa.uvk04Y4-was	10-sraa.uvg04Y4-wbs	1c-sraa.uvj04Y4-wbs	2e-sraa.uvg04Y4-wbs
Disturbance	was	was	was	was	was	was	was	wbs	wbs	wbs
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 03 1999 13:42	JAN 13 1999 16:06	JAN 13 1999 18:01	JAN 12 1999 17:07	JAN 13 1999 19:54	FEB 02 1999 13:37	JAN 19 1999 19:43	FEB 03 1999 13:55	JAN 13 1999 16:19	JAN 13 1999 18:15
Comments										
Steady State Flows										
NDEX / E Bias	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287
MHEX / L20D	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205
MN-WUMS / MN-IOWA	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37
TCEX / TCEX-new	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652
D602F / F601C	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550
B10T / MH>SPC	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87
OH E-W / OH>MH	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0
R50M / OH>MP	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54
Forbes SVC / MSC	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045
Roseau 500/Forbes 500	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035
Chisago 500/EauClaire 345	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966
Ifalls 115/Badoura 115	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995
Drayton 230/Groton 345	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%
L20Dat Prairie/Drayton	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%
R50M/F3M	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%
B10T	397%	402%	397%	400%	396%	398%	400%	397%	402%	397%
Min/MaxTransientVltg										
Arrowhd 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.00 | 1.02	1.03 | 1.04	1.02 | 1.03	1.03 | 1.04	1.03 | 1.04	1.03 | 1.03	1.03 | 1.04
Boise 115	1.04 | 1.04	1.04 | 1.05	1.04 | 1.05	1.04 | 1.04	1.04 | 1.04	1.04 | 1.05	1.04 | 1.05	1.04 | 1.04	1.04 | 1.04	1.04 | 1.05
Arpin 345	0.92 | 0.96	0.88 | 0.91	0.93 | 0.95	0.95 | 0.98	0.95 | 0.98	0.92 | 0.96	0.92 | 0.94	0.93 | 0.94	0.88 | 0.90	0.92 | 0.94
Forbes 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.03	1.03 | 1.04	1.03 | 1.04	1.03 | 1.03	1.03 | 1.04	1.03 | 1.04
Weston 345	0.94 | 0.97	0.91 | 0.93	0.96 | 0.98	0.97 | 1.00	0.96 | 0.99	0.96 | 0.99	0.95 | 0.97	0.94 | 0.96	0.91 | 0.92	0.95 | 0.97
Coal Creek 230	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04
Columbia 345	1.00 | 1.03	1.00 | 1.03	1.00 | 1.02	1.00 | 1.03	1.00 | 1.03	1.00 | 1.03	1.00 | 1.02	0.99 | 1.03	1.00 | 1.02	1.00 | 1.02
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.03	1.03 | 1.03	1.03 | 1.04
Groton 345	0.99 | 1.00	0.99 | 1.00	0.99 | 1.01	1.00 | 1.00	0.99 | 1.00	0.99 | 1.00	0.99 | 1.00	0.99 | 1.00	0.99 | 1.00	0.99 | 1.01
Rocky Run 345	0.93 | 0.96	0.90 | 0.93	0.94 | 0.96	0.95 | 0.99	0.95 | 0.98	0.93 | 0.96	0.93 | 0.95	0.93 | 0.94	0.90 | 0.91	0.94 | 0.95
Wahpeton 230	1.01 | 1.02	1.02 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02	1.02 | 1.02	1.01 | 1.02
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	75% / 472%	81% / 468%	74% / 461%	74% / 476%	65% / 472%	74% / 473%	75% / 457%	78% / 481%	82% / 470%	77% / 456%
K22W (max +dP @ t, d-ang)	3.0@(2.57489,0.2)	3.7@(3.49152,0.4)	5.1@(2.49990,-0.5)	3.7@(2.57489,-0.4)	3.8@(2.57489,-0.4)	3.8@(3.44152,-0.2)	5.1@(2.51656,-0.5)	2.3@(2.56656,0.2)	3.2@(3.56652,0.7)	2.3@(2.54156,0.6)
K22W (max -dP @ t, d-ang)	3.7@(0.82497,1.2)	3.9@(0.85830,1.3)	7.6@(0.70831,2.3)	3.6@(0.81663,1.2)	4.0@(0.83330,1.3)	3.4@(0.83330,1.1)	7.6@(0.73330,2.3)	2.7@(0.82497,1.0)	3.7@(0.92496,1.4)	7.1@(0.73330,2.2)
K22W (max d-ang @ t, dP)	2.4@(4.98315,-1.0)	2.7@(5.00815,-1.4)	3.3@(1.09996,-2.5)	2.2@(1.48327,-2.3)	2.4@(1.49161,-2.6)	2.3@(1.62493,-2.5)	3.5@(1.33328,-4.2)	2.0@(5.00815,-0.7)	3.0@(5.00815,-1.5)	3.7@(4.96648,-2.7)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	174% / 287%	177% / 294%	173% / 287%	173% / 288%	168% / 275%	173% / 286%	173% / 291%	176% / 289%	178% / 296%	175% / 291%
L20D at Prairie/Drayton	999% / 999%	999% / 949%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 923%	999% / 999%	999% / 952%	999% / 999%
R50M / F3M	999% / 329%	999% / 329%	999% / 328%	999% / 320%	999% / 329%	999% / 331%	999% / 324%	999% / 331%	999% / 331%	999% / 334%
B10T	375%	377%	355%	378%	372%	378%	354%	380%	378%	359%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	0.00
Arpin 345	-0.02	-0.02	-0.01	-0.01	-0.01	-0.02	-0.01	-0.01	-0.02	-0.02
Weston 345	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01	-0.02
Columbia 345	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01	-0.01
Rocky Run 345	-0.01	-0.02	-0.01	-0.02	-0.01	-0.02	-0.01	-0.01	-0.02	-0.01

LOAD FLOW AND STABILITY SUMMARY TABLE

	Case No.	136	137	138	139	140	141	142	143	144	145
	Case Name	3j-sraa.uvg04Y4-wbs	5a-sraa.uvf04Y4-wbs	5b-sraa.uvh04Y4-wbs	9b-sraa.uvk04Y4-wbs	10-sraa.uvg04Y4-wcs	1c-sraa.uvj04Y4-wcs	2e-sraa.uvg04Y4-wcs	3j-sraa.uvg04Y4-wcs	5a-sraa.uvf04Y4-wcs	5b-sraa.uvh04Y4-wcs
	Disturbance	wbs	wbs	wbs	wbs	wcs	wcs	wcs	wcs	wcs	wcs
	Prior Outage	None	None	None	None		None	None	None	None	None
	Date/Time	JAN 12 1999 17:21	JAN 13 1999 20:07	FEB 02 1999 13:48	JAN 19 1999 19:57		JAN 13 1999 16:33	JAN 13 1999 18:29	JAN 12 1999 17:34	JAN 13 1999 20:19	FEB 02 1999 13:59
	Comments										
	Steady State Flows										
	NDEX / E Bias	1941 / 314	1942 / 294	1942 / 282	1942 / 267		1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282
	MHEX / L20D	1978 / 188	1977 / 195	1976 / 208	1976 / 219		1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208
	MN-WUMS / MN-IOWA	1005 / 54	952 / 14	1125 / 76	1124 / 342		1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76
	TCEX / TCEX-new	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155		1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852
	D602F / F601C	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539		1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543
	B10T / MH>SPC	149 / 87	150 / 88	150 / 87	149 / 87		149 / 86	150 / 87	149 / 87	150 / 88	150 / 87
	OH E-W / OH>MH	-87 / 0	-88 / 0	-89 / 0	-87 / 0		-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0
	R50M / OH>MP	133 / 151	121 / 151	121 / 150	120 / 152		120 / 151	120 / 151	133 / 151	121 / 151	121 / 150
	Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689		1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
	Dorsey Reserve / Wtrtn SVC	291 / 50	243 / 47	268 / 66	306 / 65		293 / 71	288 / 54	291 / 50	243 / 47	268 / 66
	Forbes SVC / MSC	-8 / 600	26 / 600	14 / 600	53 / 600		40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600
	Steady State Vltgs										
	Dorsey 500/Dorsey 230	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045		1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045
	Roseau 500/Forbes 500	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035		1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028
	Chisago 500/EauClaire 345	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955		1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964
	Ifalls 115/Badoura 115	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996		1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995
	Drayton 230/Groton 345	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996		1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998
	SS OS Relay Margins										
	D602F at Forbes/Dorsey	179% / 296%	174% / 284%	180% / 295%	180% / 301%		183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%
	L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 964%		999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
	R50M/F3M	999% / 329%	999% / 338%	999% / 341%	999% / 335%		999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%
	B10T	400%	396%	398%	400%		402%	397%	400%	396%	398%
	Min/MaxTransientVltg										
	Arrowhd 230	1.00 | 1.02	1.03 | 1.03	1.02 | 1.03	1.03 | 1.04		1.03 | 1.04	1.03 | 1.04	1.01 | 1.02	1.03 | 1.03	1.03 | 1.03
	Boise 115	1.04 | 1.04	1.04 | 1.04	1.04 | 1.05	1.04 | 1.05		1.04 | 1.04	1.04 | 1.05	1.04 | 1.04	1.04 | 1.04	1.04 | 1.05
	Arpin 345	0.95 | 0.97	0.95 | 0.97	0.92 | 0.94	0.91 | 0.92		0.89 | 0.91	0.94 | 0.95	0.96 | 0.98	0.96 | 0.98	0.93 | 0.95
	Forbes 230	1.03 | 1.04	1.02 | 1.03	1.03 | 1.03	1.03 | 1.04		1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.03	1.03 | 1.03
	Weston 345	0.97 | 0.99	0.97 | 0.98	0.96 | 0.98	0.94 | 0.95		0.91 | 0.93	0.96 | 0.97	0.97 | 0.99	0.97 | 0.99	0.96 | 0.99
	Coal Creek 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04		1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
	Columbia 345	1.00 | 1.03	1.00 | 1.03	0.99 | 1.03	1.00 | 1.02		1.01 | 1.03	1.00 | 1.02	1.01 | 1.02	1.01 | 1.02	1.00 | 1.02
	Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.03	1.03 | 1.04		1.03 | 1.03	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.03
	Groton 345	1.00 | 1.00	1.00 | 1.00	0.99 | 1.00	0.99 | 1.00		0.99 | 1.00	0.99 | 1.00	1.00 | 1.00	1.00 | 1.00	1.00 | 1.00
	Rocky Run 345	0.95 | 0.97	0.95 | 0.97	0.94 | 0.95	0.92 | 0.94		0.91 | 0.93	0.95 | 0.96	0.96 | 0.98	0.96 | 0.97	0.94 | 0.96
	Wahpeton 230	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02		1.02 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02
	Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03		1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
	Dynamic Voltage Warnings										
		none	none	none	none		none	none	none	none	none
	Worst Case Angle Damping										
	Dorsey SUVP / UdHold										
	Forbes DC Red (SEL) / DCAR	76% / 483%	67% / 482%	77% / 481%	77% / 449%		83% / 478%	77% / 473%	77% / 483%	69% / 482%	77% / 481%
	K22W (max +dP @ t, d-ang)	2.8@(2.58323,-0.2)	3.2@(2.58323,-0.3)	3.2@(3.50818,0.0)	2.1@(2.55823,0.7)		2.8@(3.49152,0.3)	3.6@(2.47490,-0.2)	2.2@(3.43319,0.3)	2.4@(2.54989,0.0)	2.7@(3.44985,0.1)
	K22W (max -dP @ t, d-ang)	2.6@(0.82497,1.0)	2.8@(0.83330,1.0)	2.6@(0.84997,1.0)	7.2@(0.76664,2.2)		2.8@(0.84997,1.0)	5.5@(0.69164,1.7)	2.5@(0.79997,0.9)	2.8@(0.80830,0.9)	2.4@(0.82497,0.8)
	K22W (max d-ang @ t, dP)	1.7@(1.50827,-1.8)	1.7@(1.44161,-1.7)	1.8@(1.57494,-1.9)	4.2@(5.00815,-3.4)		2.1@(5.00815,-1.0)	2.6@(4.75815,-1.8)	1.7@(1.54160,-1.7)	1.7@(1.50827,-1.8)	1.8@(1.65827,-1.8)
	OS Rel Trip / Marg										
	MH - OH										
	D602F at Forbes/Dorsey	175% / 290%	169% / 277%	175% / 288%	174% / 292%		179% / 297%	175% / 290%	175% / 291%	170% / 279%	176% / 289%
	L20D at Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 925%		999% / 955%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
	R50M / F3M	999% / 322%	999% / 331%	999% / 333%	999% / 330%		999% / 332%	999% / 332%	999% / 324%	999% / 332%	999% / 335%
	B10T	383%	378%	381%	358%		384%	366%	384%	379%	383%
	FSCAPS (SS/Unav/Final)										
	EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)		(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
	Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)		(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
	Roseau 230 / Runn 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)		(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
	Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)		(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
	Delta Transient Vltg										
	Arrowhd 230	-0.01	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Arpin 345	-0.01	-0.01	-0.02	-0.02	-0.01	-0.01	0.00	0.00	0.00	-0.01
	Weston 345	-0.01	0.00	-0.01	-0.02	-0.02	-0.01	-0.01	-0.01	0.00	-0.01
	Columbia 345	-0.01	-0.01	-0.02	-0.01	-0.02	0.00	-0.01	0.00	0.00	-0.01
	Rocky Run 345	-0.02	-0.01	-0.01	-0.02	-0.01	-0.01	0.00	-0.01	0.00	-0.01

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	146	147	148	149	150	151	152	153	154	155
Case Name	9b-sraa.uvk04Y4-wcs	10-sraa.uvg04Y4-wds	1c-sraa.uvj04Y4-wds	2e-sraa.uvg04Y4-wds	3j-sraa.uvg04Y4-wds	5a-sraa.uvf04Y4-wds	5b-sraa.uvh04Y4-wds	9b-sraa.uvk04Y4-wds	10-sraa.uvg04Y4-wes	1c-sraa.uvj04Y4-wes
Disturbance	wcs	wds	wds	wds	wds	wds	wds	wds	wes	wes
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 20 1999 11:08	FEB 03 1999 14:06	JAN 13 1999 16:47	JAN 13 1999 18:42	JAN 12 1999 17:47	JAN 15 1999 10:04	FEB 02 1999 14:10	JAN 19 1999 20:10	FEB 03 1999 14:18	JAN 13 1999 17:00
Comments										
Steady State Flows										
NDEX / E Bias	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267
MHEX / L20D	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218
MN-WUMS / MN-IOWA	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278
TCEX / TCEX-new	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031
D602F / F601C	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534
B10T / MH>SPC	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86
OH E-W / OH>MH	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1
R50M / OH>MP	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71
Forbes SVC / MSC	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045
Roseau 500/Forbes 500	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035
Chisago 500/EauClaire 345	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930
Ifalls 115/Badoura 115	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997
Drayton 230/Groton 345	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%
L20Dat Prairie/Drayton	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%
R50M/F3M	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%
B10T	400%	397%	402%	397%	400%	396%	398%	400%	397%	402%
Min/MaxTransientVltg										
Arrowhd 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.00 | 1.02	1.03 | 1.03	1.02 | 1.03	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
Boise 115	1.04 | 1.05	1.04 | 1.04	1.04 | 1.05	1.04 | 1.05	1.04 | 1.04	1.04 | 1.04	1.04 | 1.05	1.04 | 1.05	1.04 | 1.04	1.04 | 1.05
Arpin 345	0.92 | 0.94	0.92 | 0.95	0.87 | 0.90	0.91 | 0.94	0.94 | 0.97	0.95 | 0.97	0.92 | 0.95	0.90 | 0.92	0.92 | 0.96	0.88 | 0.92
Forbes 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.03	1.03 | 1.03	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
Weston 345	0.95 | 0.96	0.94 | 0.96	0.90 | 0.93	0.95 | 0.97	0.96 | 0.99	0.96 | 0.99	0.96 | 0.98	0.93 | 0.95	0.94 | 0.97	0.91 | 0.94
Coal Creek 230	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.02 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.05	1.03 | 1.04	1.03 | 1.04
Columbia 345	1.00 | 1.02	0.91 | 1.04	0.93 | 1.04	0.94 | 1.03	0.90 | 1.04	0.90 | 1.04	0.91 | 1.03	0.95 | 1.02	0.99 | 1.03	1.00 | 1.03
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
Groton 345	0.99 | 1.00	0.99 | 1.00	0.99 | 1.00	0.99 | 1.01	1.00 | 1.01	0.99 | 1.00	0.99 | 1.00	0.99 | 1.01	0.99 | 1.00	0.99 | 1.00
Rocky Run 345	0.94 | 0.95	0.92 | 0.95	0.89 | 0.92	0.93 | 0.95	0.95 | 0.97	0.95 | 0.97	0.93 | 0.96	0.92 | 0.94	0.93 | 0.96	0.90 | 0.93
Wahpeton 230	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	78% / 470%	76% / 465%	79% / 457%	73% / 419%	74% / 468%	65% / 467%	74% / 464%	74% / 411%	75% / 471%	81% / 469%
K22W (max +dP @ t, d-ang)	3.7@(2.49156,-0.1)	3.8@(3.56652,1.1)	4.8@(3.59151,0.9)	3.3@(2.57489,1.3)	4.2@(3.51652,0.6)	4.6@(2.61656,-0.1)	4.8@(3.56652,0.6)	2.9@(3.42486,2.0)	3.2@(2.58323,0.1)	3.9@(3.48319,0.2)
K22W (max -dP @ t, d-ang)	5.6@(0.71664,1.7)	4.1@(0.89997,1.6)	5.0@(0.93330,1.9)	11.5@(0.76664,3.6)	4.0@(0.92496,1.7)	4.2@(0.90830,1.6)	4.1@(0.94163,1.6)	11.6@(0.79997,3.6)	4.0@(0.82497,1.3)	4.0@(0.84163,1.3)
K22W (max d-ang @ t, dP)	2.7@(4.80815,-1.9)	3.6@(5.00815,-0.8)	4.0@(5.00815,-1.8)	6.6@(5.00815,-4.3)	3.1@(5.00815,-0.7)	3.1@(4.96648,-0.8)	3.5@(5.00815,-0.8)	7.4@(5.00815,-5.4)	2.4@(1.58327,-2.9)	2.7@(1.67493,-2.9)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	175% / 294%	175% / 287%	176% / 293%	173% / 287%	173% / 288%	168% / 275%	173% / 286%	172% / 290%	174% / 287%	177% / 294%
L20D at Prairie/Drayton	999% / 934%	999% / 999%	999% / 945%	999% / 987%	999% / 999%	999% / 999%	999% / 999%	999% / 902%	999% / 999%	999% / 949%
R50M / F3M	999% / 327%	999% / 328%	999% / 327%	999% / 331%	999% / 318%	999% / 327%	999% / 330%	999% / 328%	999% / 329%	999% / 328%
B10T	366%	373%	370%	336%	376%	371%	373%	336%	374%	377%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	0.00	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00
Arpin 345	-0.01	-0.02	-0.03	-0.03	-0.02	-0.01	-0.02	-0.03	-0.02	-0.02
Weston 345	-0.01	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.03	-0.02	-0.01
Columbia 345	-0.01	-0.10	-0.08	-0.07	-0.11	-0.11	-0.10	-0.06	-0.02	-0.01
Rocky Run 345	0.00	-0.02	-0.03	-0.02	-0.02	-0.01	-0.02	-0.02	-0.01	-0.02

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	156	157	158	159	160	161	162	163	164	165
Case Name	2e-sraa.uvg04Y4-wes	3j-sraa.uvg04Y4-wes	5a-sraa.uvf04Y4-wes	5b-sraa.uvh04Y4-wes	9b-sraa.uvk04Y4-wes	10-sraa.uvg04Y4-wfs	1c-sraa.uvj04Y4-wfs	2e-sraa.uvg04Y4-wfs	3j-sraa.uvg04Y4-wfs	5a-sraa.uvf04Y4-wfs
Disturbance	wes	wes	wes	wes	wes	wfs	wfs	wfs	wfs	wfs
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 13 1999 18:57	JAN 12 1999 17:59	JAN 15 1999 10:17	FEB 02 1999 14:21	JAN 19 1999 20:23	FEB 03 1999 14:31	JAN 13 1999 17:13	JAN 13 1999 19:11	JAN 12 1999 18:13	JAN 15 1999 10:31
Comments										
Steady State Flows										
NDEX / E Bias	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294
MHEX / L20D	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195
MN-WUMS / MN-IOWA	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14
TCEX / TCEX-new	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594
D602F / F601C	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601
B10T / MH>SPC	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88
OH E-W / OH>MH	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0
R50M / OH>MP	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47
Forbes SVC / MSC	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045
Roseau 500/Forbes 500	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022
Chisago 500/EauClaire 345	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000
Ifalls 115/Badoura 115	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993
Drayton 230/Groton 345	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%
B10T	397%	400%	396%	398%	400%	397%	402%	397%	400%	396%
Min/MaxTransientVltg										
Arrowhd 230	1.03 | 1.04	1.00 | 1.03	1.03 | 1.04	1.02 | 1.03	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.02 | 1.04	0.99 | 1.02	1.02 | 1.04
Boise 115	1.04 | 1.05	1.04 | 1.04	1.04 | 1.04	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.06	1.04 | 1.04	1.04 | 1.05
Arpin 345	0.93 | 0.95	0.95 | 0.99	0.95 | 0.99	0.92 | 0.96	0.92 | 0.94	0.91 | 0.95	0.86 | 0.91	0.90 | 0.95	0.94 | 0.98	0.94 | 0.98
Forbes 230	1.03 | 1.04	1.03 | 1.04	1.02 | 1.03	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.05	1.03 | 1.04	1.02 | 1.03
Weston 345	0.96 | 0.98	0.97 | 1.00	0.96 | 1.00	0.96 | 0.99	0.95 | 0.97	0.93 | 0.97	0.89 | 0.93	0.94 | 0.97	0.95 | 0.99	0.95 | 0.99
Coal Creek 230	1.02 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	1.01 | 1.05	1.02 | 1.04	1.02 | 1.04
Columbia 345	0.99 | 1.02	0.99 | 1.03	0.99 | 1.03	1.00 | 1.03	0.99 | 1.02	0.73 | 1.05	0.80 | 1.05	0.82 | 1.04	0.72 | 1.05	0.73 | 1.05
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04
Groton 345	0.99 | 1.01	1.00 | 1.00	0.99 | 1.00	0.99 | 1.00	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.98 | 1.01	0.99 | 1.01	0.99 | 1.01
Rocky Run 345	0.94 | 0.96	0.95 | 0.99	0.95 | 0.98	0.93 | 0.97	0.93 | 0.95	0.91 | 0.95	0.88 | 0.92	0.92 | 0.96	0.94 | 0.98	0.94 | 0.98
Wahpeton 230	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02	1.01 | 1.03	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	73% / 456%	73% / 475%	64% / 471%	74% / 472%	74% / 452%	70% / 437%	74% / 433%	65% / 386%	69% / 443%	60% / 440%
K22W (max +dP @ t, d-ang)	5.4@(2.50823,-0.7)	3.9@(2.58323,-0.5)	4.0@(2.58323,-0.5)	4.0@(3.44152,-0.3)	5.4@(2.52489,-0.6)	5.8@(3.63318,1.6)	6.8@(3.63318,1.5)	7.1@(2.61656,0.6)	6.3@(3.60818,1.1)	6.2@(2.68322,0.4)
K22W (max -dP @ t, d-ang)	8.3@(0.70831,2.5)	3.9@(0.81663,1.3)	4.3@(0.83330,1.4)	3.6@(0.83330,1.2)	8.4@(0.74164,2.6)	6.8@(1.05829,3.0)	7.5@(1.00829,3.0)	16.4@(0.81663,5.4)	6.6@(1.05829,3.0)	6.6@(1.04996,2.9)
K22W (max d-ang @ t, dP)	3.6@(1.08329,-2.8)	2.3@(1.46661,-2.5)	2.4@(1.48327,-2.8)	2.4@(1.62493,-2.7)	3.8@(1.24162,-3.6)	5.5@(5.00815,-1.8)	5.7@(5.00815,-2.7)	8.7@(4.98315,-5.9)	4.8@(5.00815,-1.6)	4.9@(4.97481,-1.5)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	172% / 286%	172% / 287%	167% / 275%	173% / 286%	172% / 290%	171% / 282%	173% / 288%	167% / 278%	170% / 282%	165% / 270%
L20D at Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 919%	999% / 998%	999% / 930%	999% / 962%	999% / 999%	999% / 999%
R50M / F3M	999% / 328%	999% / 320%	999% / 329%	999% / 331%	999% / 324%	999% / 322%	999% / 321%	999% / 323%	999% / 313%	999% / 322%
B10T	350%	378%	372%	377%	350%	358%	355%	311%	361%	358%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	0.00	-0.01	0.00	-0.01	0.00	0.00	-0.01	-0.01	-0.02	-0.01
Arpin 345	-0.01	-0.01	-0.01	-0.02	-0.01	-0.03	-0.04	-0.04	-0.02	-0.02
Weston 345	-0.01	-0.01	-0.01	-0.01	-0.01	-0.03	-0.03	-0.03	-0.03	-0.02
Columbia 345	-0.02	-0.02	-0.02	-0.01	-0.02	-0.28	-0.21	-0.19	-0.29	-0.28
Rocky Run 345	-0.01	-0.02	-0.01	-0.02	-0.01	-0.03	-0.04	-0.03	-0.03	-0.02

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	166	167	168	169	170	171	172	173	174	175
Case Name	5b-sraa.uvh04Y4-wfs	9b-sraa.uvk04Y4-wfs	10-sraa.uvg04Y4-wgs	1c-sraa.uvj04Y4-wgs	2e-sraa.uvg04Y4-wgs	3j-sraa.uvg04Y4-wgs	5a-sraa.uvf04Y4-wgs	5b-sraa.uvh04Y4-wgs	9b-sraa.uvk04Y4-wgs	10-sraa.uvg04Y4-whs
Disturbance	wfs	wfs	wgs	wgs	wgs	wgs	wgs	wgs	wgs	whs
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 02 1999 14:34	JAN 19 1999 20:36	FEB 03 1999 14:51	JAN 13 1999 17:29	JAN 13 1999 19:25	JAN 12 1999 18:28	JAN 15 1999 10:46	FEB 02 1999 14:48	JAN 19 1999 20:50	FEB 03 1999 15:09
Comments										
Steady State Flows										
NDEX / E Bias	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285
MHEX / L20D	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207
MN-WUMS / MN-IOWA	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15
TCEX / TCEX-new	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562
D602F / F601C	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560
B10T / MH>SPC	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87
OH E-W / OH>MH	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0
R50M / OH>MP	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54
Forbes SVC / MSC	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045
Roseau 500/Forbes 500	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028
Chisago 500/EauClaire 345	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977
Ifalls 115/Badoura 115	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995
Drayton 230/Groton 345	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%
L20Dat Prairie/Drayton	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%
R50M/F3M	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%
B10T	398%	400%	397%	402%	397%	400%	396%	398%	400%	397%
Min/MaxTransientVltg										
Arrowhd 230	1.02 | 1.03	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	0.99 | 1.03	1.02 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04
Boise 115	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05
Arpin 345	0.91 | 0.95	0.89 | 0.93	0.91 | 0.97	0.87 | 0.92	0.92 | 0.96	0.94 | 1.00	0.94 | 1.00	0.91 | 0.97	0.92 | 0.95	0.91 | 0.95
Forbes 230	1.03 | 1.04	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.05	1.03 | 1.05	1.02 | 1.04	1.03 | 1.04	1.03 | 1.05	1.03 | 1.04
Weston 345	0.95 | 0.99	0.93 | 0.96	0.93 | 0.99	0.90 | 0.94	0.96 | 0.98	0.96 | 1.02	0.95 | 1.01	0.95 | 1.00	0.94 | 0.97	0.93 | 0.97
Coal Creek 230	1.02 | 1.04	1.01 | 1.05	1.02 | 1.04	1.02 | 1.04	1.02 | 1.05	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	1.02 | 1.05	1.02 | 1.04
Columbia 345	0.73 | 1.05	0.84 | 1.03	0.86 | 1.04	0.93 | 1.03	0.91 | 1.03	0.86 | 1.04	0.86 | 1.04	0.86 | 1.04	0.91 | 1.03	0.81 | 1.04
Drayton 230	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04
Groton 345	0.99 | 1.01	0.98 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.00	0.98 | 1.01	0.99 | 1.01
Rocky Run 345	0.92 | 0.96	0.91 | 0.95	0.92 | 0.97	0.89 | 0.94	0.94 | 0.97	0.94 | 1.00	0.94 | 0.99	0.93 | 0.98	0.93 | 0.96	0.92 | 0.95
Wahpeton 230	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02	1.01 | 1.03	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02
Watertown 230	1.02 | 1.03	1.01 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.01 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	69% / 439%	66% / 379%	70% / 448%	75% / 446%	66% / 425%	68% / 453%	60% / 447%	69% / 449%	67% / 421%	72% / 447%
K22W (max +dP @ t, d-ang)	6.8@(3.64985,1.2)	6.6@(2.63322,0.8)	4.7@(2.61656,0.3)	6.1@(3.52485,0.2)	8.6@(2.54989,-1.2)	5.5@(2.61656,-0.4)	5.7@(2.63322,-0.4)	5.9@(3.49985,-0.2)	8.5@(2.56656,-1.1)	5.1@(3.59151,1.3)
K22W (max -dP @ t, d-ang)	6.3@(1.09162,2.9)	16.2@(0.84163,5.3)	6.4@(0.89163,2.2)	6.2@(0.89997,2.1)	12.8@(0.75830,4.1)	6.2@(0.88330,2.3)	6.8@(0.89163,2.3)	5.8@(0.90830,2.0)	12.8@(0.78330,4.0)	5.9@(0.94163,2.3)
K22W (max d-ang @ t, dP)	5.3@(5.00815,-1.4)	9.4@(5.00815,-6.9)	4.0@(1.63327,-5.0)	4.2@(1.72493,-4.7)	5.7@(1.13329,-4.6)	3.7@(1.52494,-4.3)	4.0@(1.54994,-4.8)	3.9@(1.69993,-4.6)	5.9@(1.26662,-5.7)	4.7@(5.00815,-1.5)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	170% / 281%	167% / 282%	171% / 282%	173% / 289%	168% / 278%	169% / 283%	164% / 270%	170% / 281%	168% / 284%	172% / 284%
L20D at Prairie/Drayton	999% / 995%	999% / 879%	999% / 999%	999% / 935%	999% / 983%	999% / 999%	999% / 999%	999% / 997%	999% / 896%	999% / 999%
R50M / F3M	999% / 324%	999% / 320%	999% / 325%	999% / 323%	999% / 321%	999% / 316%	999% / 325%	999% / 326%	999% / 317%	999% / 324%
B10T	361%	311%	362%	365%	327%	366%	359%	367%	326%	363%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(1 | 1 | 1) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.01	-0.01	0.00	0.00	0.00	-0.02	-0.01	-0.01	0.00	0.00
Arpin 345	-0.03	-0.04	-0.03	-0.03	-0.02	-0.02	-0.02	-0.03	-0.01	-0.03
Weston 345	-0.02	-0.03	-0.03	-0.02	-0.01	-0.02	-0.02	-0.02	-0.02	-0.03
Columbia 345	-0.28	-0.17	-0.15	-0.08	-0.10	-0.15	-0.15	-0.15	-0.10	-0.20
Rocky Run 345	-0.03	-0.03	-0.02	-0.03	-0.01	-0.03	-0.02	-0.02	-0.01	-0.02

LOAD FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	176	177	178	179	180	181
2	**Case Name**	1c-sraa.uvj04Y4-whs	2e-sraa.uvg04Y4-whs	3j-sraa.uvg04Y4-whs	5a-sraa.uvf04Y4-whs	5b-sraa.uvh04Y4-whs	9b-sraa.uvk04Y4-whs
3	**Disturbance**	whs	whs	whs	whs	whs	whs
4	**Prior Outage**	None	None	None	None	None	None
5	**Date/Time**	JAN 13 1999 17:45	JAN 13 1999 19:39	JAN 12 1999 18:42	JAN 15 1999 11:00	FEB 02 1999 15:02	JAN 19 1999 21:05
6	**Comments**						
7							
8	**Steady State Flows**						
9	NDEX / E Bias	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267
10	MHEX / L20D	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219
11	MN-WUMS / MN-IOWA	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342
12	TCEX / TCEX-new	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155
13	D602F / F601C	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539
14	B10T / MH>SPC	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87
15	OH E-W / OH>MH	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0
16	R50M / OH>MP	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152
17	Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
18	Dorsey Reserve / Wtrtn SVC	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65
19	Forbes SVC / MSC	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600
20	**Steady State Vltgs**						
21	Dorsey 500/Dorsey 230	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045
22	Roseau 500/Forbes 500	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035
23	Chisago 500/EauClaire 345	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955
24	Ifalls 115/Badoura 115	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996
25	Drayton 230/Groton 345	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996
26	**SS OS Relay Margins**						
27	D602F at Forbes/Dorsey	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%
28	L20Dat Prairie/Drayton	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%
29	R50M/F3M	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%
30	B10T	402%	397%	400%	396%	398%	400%
31	**Min/MaxTransientVltg**						
32	Arrowhd 230	1.03 | 1.04	1.02 | 1.04	1.00 | 1.02	1.02 | 1.04	1.02 | 1.03	1.02 | 1.04
33	Boise 115	1.04 | 1.05	1.04 | 1.06	1.04 | 1.04	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05
34	Arpin 345	0.86 | 0.91	0.91 | 0.94	0.94 | 0.98	0.94 | 0.98	0.91 | 0.96	0.89 | 0.93
35	Forbes 230	1.03 | 1.04	1.03 | 1.05	1.03 | 1.04	1.02 | 1.03	1.03 | 1.04	1.03 | 1.05
36	Weston 345	0.90 | 0.93	0.95 | 0.97	0.96 | 1.00	0.96 | 0.99	0.96 | 0.99	0.93 | 0.96
37	Coal Creek 230	1.02 | 1.04	1.02 | 1.05	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	1.02 | 1.05
38	Columbia 345	0.86 | 1.04	0.88 | 1.03	0.81 | 1.04	0.82 | 1.04	0.82 | 1.04	0.90 | 1.03
39	Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04
40	Groton 345	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.00	0.99 | 1.01
41	Rocky Run 345	0.89 | 0.92	0.93 | 0.95	0.95 | 0.98	0.94 | 0.98	0.93 | 0.96	0.92 | 0.94
42	Wahpeton 230	1.01 | 1.03	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03
43	Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
44	**Dynamic Voltage Warnings**						
45		none	none	none	none	none	none
46							
47							
48							
49							
50							
51							
52	Worst Case Angle Damping						
53	Dorsey SUVP / UdHold						
54	Forbes DC Red (SEL) / DCAR	76% / 439%	70% / 400%	70% / 452%	62% / 451%	71% / 449%	69% / 392%
55	K22W (max +dP @ t, d-ang)	5.9@(3.60818,1.1)	5.2@(2.59989,1.0)	5.4@(2.64989,0.1)	5.5@(2.64989,0.2)	5.6@(3.59985,1.0)	4.6@(2.61656,1.3)
56	K22W (max -dP @ t, d-ang)	6.5@(0.98330,2.5)	14.0@(0.79997,4.6)	5.7@(0.96663,2.4)	5.8@(0.94163,2.3)	5.3@(0.96663,2.1)	14.0@(0.82497,4.5)
57	K22W (max d-ang @ t, dP)	5.2@(5.00815,-2.4)	7.8@(4.98315,-5.2)	4.2@(5.00815,-1.3)	4.3@(4.93315,-1.2)	4.6@(5.00815,-1.2)	8.6@(5.00815,-6.2)
58	**OS Rel Trip / Marg**						
59	MH - OH						
60	D602F at Forbes/Dorsey	174% / 290%	170% / 284%	170% / 284%	166% / 272%	172% / 283%	169% / 285%
61	L20D at Prairie/Drayton	999% / 935%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 890%
62	R50M / F3M	999% / 325%	999% / 327%	999% / 316%	999% / 325%	999% / 327%	999% / 324%
63	B10T	363%	325%	367%	363%	367%	325%
64	**FSCAPS (SS/Unav/Final)**						
65	EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
66	Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
67	Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
68	Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
69	**Delta Transient Vltg**						
70	Arrowhd 230	0.00	-0.01	-0.01	-0.01	-0.01	-0.01
71	Arpin 345	-0.04	-0.03	-0.02	-0.02	-0.03	-0.04
72	Weston 345	-0.02	-0.02	-0.02	-0.01	-0.01	-0.03
73	Columbia 345	-0.15	-0.13	-0.20	-0.19	-0.19	-0.11
74	Rocky Run 345	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	182	183	184	185	186	187	188	189	190	191
Case Name	10-sraa.uvg04Y4-wis	1c-sraa.uvj04Y4-wis	2e-sraa.uvg04Y4-wis	3j-sraa.uvg04Y4-wis	5a-sraa.uvf04Y4-wis	5b-sraa.uvh04Y4-wis	9b-sraa.uvk04Y4-wis	10-sraa.uvg04Y4-wjs	1c-sraa.uvj04Y4-wjs	2e-sraa.uvg04Y4-wjs
Disturbance	wis	wis	wis	wis	wis	wis	wis	wjs	wjs	wjs
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 03 1999 09:06	JAN 17 1999 18:20	JAN 18 1999 21:30	JAN 19 1999 07:44	JAN 18 1999 15:30	FEB 02 1999 09:53	JAN 19 1999 13:14	FEB 03 1999 09:22	JAN 17 1999 18:35	JAN 18 1999 21:44
Comments										
Steady State Flows										
NDEX / E Bias	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287
MHEX / L20D	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205
MN-WUMS / MN-IOWA	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37
TCEX / TCEX-new	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652
D602F / F601C	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550
B10T / MH>SPC	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87
OH E-W / OH>MH	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0
R50M / OH>MP	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54
Forbes SVC / MSC	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045
Roseau 500/Forbes 500	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035
Chisago 500/EauClaire 345	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966
Ifalls 115/Badoura 115	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995
Drayton 230/Groton 345	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%
L20Dat Prairie/Drayton	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%
R50M/F3M	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%
B10T	397%	402%	397%	400%	396%	398%	400%	397%	402%	397%
Min/MaxTransientVltg										
Arrowhd 230	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04	1.02 | 1.05	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.05	1.03 | 1.06	1.03 | 1.05
Boise 115	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.06	1.04 | 1.05	1.04 | 1.05
Arpin 345	0.93 | 0.98	0.85 | 0.90	0.91 | 0.96	0.95 | 1.01	0.95 | 1.00	0.91 | 0.97	0.89 | 0.94	0.91 | 1.00	0.83 | 0.93	0.89 | 0.98
Forbes 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.05	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.05	1.03 | 1.05	1.03 | 1.05
Weston 345	0.94 | 0.99	0.86 | 0.91	0.93 | 0.97	0.96 | 1.02	0.96 | 1.01	0.94 | 1.00	0.91 | 0.95	0.93 | 1.01	0.85 | 0.93	0.91 | 0.98
Coal Creek 230	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.05	1.03 | 1.05	1.03 | 1.05	1.03 | 1.04	1.02 | 1.06	1.02 | 1.05	1.02 | 1.05
Columbia 345	1.01 | 1.02	1.01 | 1.02	1.00 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.00 | 1.02	1.00 | 1.03	1.00 | 1.03	0.99 | 1.03
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04
Groton 345	0.99 | 1.01	0.99 | 1.00	0.99 | 1.00	1.00 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.00	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01
Rocky Run 345	0.92 | 0.97	0.85 | 0.90	0.91 | 0.95	0.94 | 1.00	0.94 | 0.99	0.91 | 0.97	0.89 | 0.94	0.91 | 0.99	0.83 | 0.92	0.89 | 0.97
Wahpeton 230	1.02 | 1.03	1.02 | 1.03	1.01 | 1.02	1.01 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.01 | 1.03	1.02 | 1.03	1.01 | 1.03
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	83% / 389%	88% / 425%	81% / 444%	83% / 376%	75% / 368%	83% / 407%	81% / 444%	78% / 333%	77% / 376%	70% / 394%
K22W (max +dP @ t, d-ang)	0.0@(0.10000,0.0)	0.0@(0.07500,0.0)	0.0@(0.04167,0.0)	0.0@(0.10000,0.0)	0.0@(0.02500,0.0)	0.0@(0.10000,0.0)	0.0@(0.09166,0.0)	0.0@(0.10000,0.0)	1.9@(3.83317,4.2)	2.1@(3.39986,2.1)
K22W (max -dP @ t, d-ang)	14.5@(1.62493,7.4)	9.9@(1.62493,5.4)	7.5@(1.55827,4.2)	15.7@(1.64993,8.3)	16.5@(1.62493,8.5)	12.2@(1.63327,6.3)	7.6@(1.55827,4.2)	20.5@(1.59994,10.8)	14.4@(1.58327,8.1)	12.2@(1.53327,7.2)
K22W (max d-ang @ t, dP)	7.6@(1.79159,-13.7)	5.5@(1.79159,-9.4)	4.2@(1.62493,-7.4)	8.4@(1.78326,-15.1)	8.6@(1.78326,-15.6)	6.5@(1.80826,-11.4)	4.3@(5.00815,-4.0)	11.3@(5.00815,-10.5)	8.9@(1.87492,-11.9)	8.0@(5.00815,-5.0)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	179% / 294%	182% / 302%	177% / 294%	179% / 296%	174% / 284%	180% / 295%	177% / 297%	176% / 290%	175% / 292%	170% / 284%
L20D at Prairie/Drayton	999% / 957%	999% / 922%	999% / 999%	999% / 999%	999% / 999%	999% / 965%	999% / 920%	999% / 935%	999% / 906%	999% / 985%
R50M / F3M	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 334%
B10T	345%	364%	363%	342%	337%	355%	365%	328%	357%	353%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Arpin 345	-0.01	-0.05	-0.03	-0.01	-0.01	-0.03	-0.04	-0.03	-0.07	-0.05
Weston 345	-0.02	-0.06	-0.04	-0.02	-0.01	-0.03	-0.05	-0.03	-0.07	-0.06
Columbia 345	0.00	0.00	-0.01	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.02
Rocky Run 345	-0.02	-0.07	-0.04	-0.03	-0.02	-0.04	-0.05	-0.03	-0.09	-0.06

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	192	193	194	195	196	197	198	199	200	201
Case Name	3j-sraa.uvg04Y4-wjs	5a-sraa.uvf04Y4-wjs	5b-sraa.uvh04Y4-wjs	9b-sraa.uvk04Y4-wjs	10-sraa.uvg04Y4-wks	1c-sraa.uvj04Y4-wks	2e-sraa.uvg04Y4-wks	3j-sraa.uvg04Y4-wks	5a-sraa.uvf04Y4-wks	5b-sraa.uvh04Y4-wks
Disturbance	wjs	wjs	wjs	wjs	wks	wks	wks	wks	wks	wks
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 19 1999 07:57	JAN 18 1999 15:44	FEB 02 1999 10:09	JAN 19 1999 13:30	FEB 03 1999 09:35	JAN 17 1999 18:51	JAN 18 1999 21:57	JAN 19 1999 08:11	JAN 18 1999 15:58	FEB 02 1999 10:27
Comments										
Steady State Flows										
NDEX / E Bias	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282
MHEX / L20D	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208
MN-WUMS / MN-IOWA	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76
TCEX / TCEX-new	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852
D602F / F601C	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543
B10T / MH>SPC	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87
OH E-W / OH>MH	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0
R50M / OH>MP	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66
Forbes SVC / MSC	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045
Roseau 500/Forbes 500	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028
Chisago 500/EauClaire 345	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964
Ifalls 115/Badoura 115	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995
Drayton 230/Groton 345	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%
B10T	400%	396%	398%	400%	397%	402%	397%	400%	396%	398%
Min/MaxTransientVltg										
Arrowhd 230	1.01 | 1.06	1.03 | 1.05	1.03 | 1.05	1.03 | 1.05	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04	1.01 | 1.05	1.03 | 1.05	1.02 | 1.04
Boise 115	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05
Arpin 345	0.92 | 1.03	0.92 | 1.02	0.90 | 0.99	0.87 | 0.96	0.92 | 0.97	0.84 | 0.89	0.91 | 0.95	0.95 | 0.99	0.95 | 0.99	0.91 | 0.96
Forbes 230	1.03 | 1.06	1.02 | 1.05	1.03 | 1.05	1.03 | 1.05	1.03 | 1.05	1.03 | 1.05	1.03 | 1.04	1.03 | 1.05	1.02 | 1.04	1.03 | 1.04
Weston 345	0.93 | 1.04	0.94 | 1.03	0.93 | 1.02	0.90 | 0.97	0.94 | 0.98	0.86 | 0.90	0.93 | 0.96	0.96 | 1.01	0.96 | 1.00	0.94 | 0.98
Coal Creek 230	1.02 | 1.05	1.02 | 1.06	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05
Columbia 345	1.00 | 1.03	1.00 | 1.03	1.00 | 1.03	0.99 | 1.03	1.01 | 1.02	1.01 | 1.02	1.01 | 1.01	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
Groton 345	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.00	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01
Rocky Run 345	0.91 | 1.02	0.92 | 1.01	0.90 | 0.99	0.88 | 0.95	0.92 | 0.96	0.85 | 0.89	0.91 | 0.94	0.94 | 0.98	0.94 | 0.98	0.91 | 0.95
Wahpeton 230	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.02 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	74% / 309%	67% / 303%	73% / 358%	71% / 394%	82% / 386%	88% / 422%	78% / 444%	77% / 382%	75% / 368%	81% / 408%
K22W (max +dP @ t, d-ang)	0.0@(0.10000,0.0)	0.0@(0.02500,0.0)	0.0@(0.10000,0.0)	2.8@(3.41652,1.9)	0.0@(0.10000,0.0)	0.0@(0.07500,0.0)	0.0@(0.04167,0.0)	0.0@(0.10000,0.0)	0.0@(0.02500,0.0)	0.0@(0.10000,0.0)
K22W (max -dP @ t, d-ang)	21.5@(1.62493,12.2)	22.1@(1.60827,12.1)	16.6@(1.59994,9.0)	12.6@(1.54160,7.3)	16.1@(1.59160,7.6)	11.0@(1.59160,5.5)	8.4@(0.69164,2.9)	16.7@(1.63327,7.9)	18.1@(1.60827,8.5)	13.2@(1.59994,6.3)
K22W (max d-ang @ t, dP)	12.7@(1.83326,-19.5)	12.7@(1.82493,-19.8)	9.7@(1.86659,-13.8)	8.2@(5.00815,-5.5)	7.6@(1.55827,-16.0)	5.5@(1.55827,-11.0)	4.3@(4.92482,-3.9)	8.0@(1.52494,-15.8)	8.5@(1.58327,-18.0)	6.3@(1.54160,-13.0)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	172% / 288%	169% / 278%	173% / 286%	170% / 287%	179% / 294%	182% / 301%	176% / 292%	175% / 291%	174% / 284%	178% / 294%
L20D at Prairie/Drayton	999% / 999%	999% / 991%	999% / 951%	999% / 902%	999% / 944%	999% / 913%	999% / 998%	999% / 999%	999% / 999%	999% / 954%
R50M / F3M	999% / 329%	999% / 338%	999% / 341%	999% / 328%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%
B10T	332%	326%	350%	355%	325%	349%	349%	327%	321%	336%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
Arpin 345	-0.04	-0.04	-0.04	-0.06	-0.02	-0.06	-0.03	-0.01	-0.01	-0.03
Weston 345	-0.05	-0.03	-0.04	-0.06	-0.02	-0.06	-0.04	-0.02	-0.01	-0.03
Columbia 345	-0.01	-0.01	-0.01	-0.02	0.00	0.00	0.00	0.00	0.00	0.00
Rocky Run 345	-0.06	-0.04	-0.05	-0.06	-0.02	-0.07	-0.04	-0.03	-0.02	-0.04

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	202	203	204	205	206	207	208	209	210	211
Case Name	9b-sraa.uvk04Y4-wks	10-sraa.uvg04Y4-wls	1c-sraa.uvj04Y4-wls	2e-sraa.uvg04Y4-wls	3j-sraa.uvg04Y4-wls	5a-sraa.uvf04Y4-wls	5b-sraa.uvh04Y4-wls	9b-sraa.uvk04Y4-wls	10-sraa.uvg04Y4-wms	1c-sraa.uvj04Y4-wms
Disturbance	wks	wls	wls	wls	wls	wls	wls	wls	wms	wms
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 19 1999 13:44	FEB 03 1999 09:47	JAN 17 1999 19:05	JAN 18 1999 22:10	JAN 19 1999 08:25	JAN 18 1999 16:12	FEB 02 1999 10:40	JAN 19 1999 14:00	FEB 03 1999 10:00	JAN 17 1999 19:21
Comments										
Steady State Flows										
NDEX / E Bias	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267
MHEX / L20D	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218
MN-WUMS / MN-IOWA	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278
TCEX / TCEX-new	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031
D602F / F601C	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534
B10T / MH>SPC	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86
OH E-W / OH>MH	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1
R50M / OH>MP	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71
Forbes SVC / MSC	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045
Roseau 500/Forbes 500	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035
Chisago 500/EauClaire 345	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930
Ifalls 115/Badoura 115	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997
Drayton 230/Groton 345	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%
L20Dat Prairie/Drayton	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%
R50M/F3M	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%
B10T	400%	397%	402%	397%	400%	396%	398%	400%	397%	402%
Min/MaxTransientVltg										
Arrowhd 230	1.03 | 1.04	1.00 | 1.05	1.01 | 1.05	1.01 | 1.05	0.96 | 1.06	1.00 | 1.05	1.00 | 1.05	1.01 | 1.05	1.03 | 1.04	1.03 | 1.04
Boise 115	1.04 | 1.05	1.03 | 1.08	1.04 | 1.07	1.04 | 1.07	1.02 | 1.08	1.03 | 1.08	1.04 | 1.08	1.04 | 1.07	1.04 | 1.05	1.04 | 1.05
Arpin 345	0.89 | 0.93	0.78 | 0.99	0.71 | 0.93	0.77 | 0.98	0.76 | 1.02	0.80 | 1.01	0.75 | 0.99	0.75 | 0.97	0.94 | 0.96	0.85 | 0.90
Forbes 230	1.03 | 1.04	1.01 | 1.07	1.01 | 1.06	1.01 | 1.06	1.00 | 1.07	1.00 | 1.07	1.00 | 1.07	1.01 | 1.06	1.03 | 1.04	1.04 | 1.05
Weston 345	0.91 | 0.94	0.79 | 1.00	(0.43)0.68 | 0.95	0.73 | 1.00	0.75 | 1.05	0.80 | 1.03	0.75 | 1.03	0.72 | 0.98	0.93 | 0.95	0.94 | 0.95
Coal Creek 230	1.02 | 1.05	0.97 | 1.06	0.99 | 1.06	0.99 | 1.06	0.98 | 1.06	0.97 | 1.06	0.98 | 1.06	0.99 | 1.06	1.02 | 1.05	1.03 | 1.05
Columbia 345	1.01 | 1.01	1.00 | 1.02	1.00 | 1.02	0.99 | 1.02	1.00 | 1.02	1.00 | 1.02	1.00 | 1.02	0.99 | 1.02	1.01 | 1.02	1.00 | 1.01
Drayton 230	1.03 | 1.04	1.00 | 1.06	1.01 | 1.05	1.01 | 1.05	1.01 | 1.06	1.01 | 1.07	1.01 | 1.06	1.01 | 1.05	1.03 | 1.04	1.03 | 1.04
Groton 345	0.99 | 1.00	0.96 | 1.02	0.97 | 1.02	0.97 | 1.02	0.96 | 1.02	0.96 | 1.02	0.96 | 1.02	0.97 | 1.01	0.99 | 1.01	0.99 | 1.01
Rocky Run 345	0.89 | 0.93	0.76 | 0.98	(0.43)0.68 | 0.93	0.74 | 0.98	0.73 | 1.02	0.77 | 1.01	0.73 | 0.99	0.73 | 0.97	0.93 | 0.94	0.94 | 0.95
Wahpeton 230	1.01 | 1.03	0.99 | 1.06	1.00 | 1.05	0.99 | 1.04	0.99 | 1.05	0.99 | 1.06	0.99 | 1.05	1.00 | 1.04	1.01 | 1.03	1.02 | 1.03
Watertown 230	1.02 | 1.03	0.99 | 1.04	1.00 | 1.03	1.00 | 1.04	1.00 | 1.04	0.99 | 1.04	0.99 | 1.04	1.00 | 1.03	1.02 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	4161 [WESTON] 0.67 4195 [ROCKY RN] 0.67 4501 [RRN V308] 0.67 4502 [RRN W8] 0.67 4520 [WES V308] 0.67 4203 [BAKER] 0.68 204 [SARATOGA] 0.68 +mor	none	4203 [BAKER] 0.66 4206 [COYNE] 0.66 4204 [SARATOGA] 0.67 2506 [CW8 115] 0.69	4203 [BAKER] 0.69 4206 [COYNE] 0.69	4203 [BAKER] 0.68 4206 [COYNE] 0.68 4204 [SARATOGA] 0.69	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	80% / 441%	22% / 152%	55% / 249%	40% / 284%	9% / 91%	9% / 120%	32% / 183%	44% / 282%	74% / 432%	90% / 363%
K22W (max +dP @ t, d-ang)	0.0@(0.09166,0.0)	11.5@(2.62489,-1.4)	9.8@(3.45819,-0.8)	11.7@(2.54156,-1.7)	14.0@(2.79155,-3.2)	12.0@(2.66656,-2.2)	10.6@(2.64989,-1.7)	11.6@(2.56656,-1.7)	0.0@(0.10000,0.0)	0.0@(0.07500,0.0)
K22W (max -dP @ t, d-ang)	8.6@(0.69997,2.9)	40.6@(0.75830,15.1)	29.1@(0.78330,10.5)	27.1@(0.76664,10.0)	38.2@(0.74164,16.8)	40.3@(0.77497,16.7)	35.4@(0.77497,13.4)	27.3@(0.76664,9.8)	10.2@(0.67497,3.5)	17.8@(1.61660,9.0)
K22W (max d-ang @ t, dP)	4.5@(4.97481,-4.1)	21.9@(1.19162,-22.3)	16.0@(1.29162,-19.1)	14.2@(1.16662,-14.7)	25.3@(1.23328,-27.8)	23.1@(1.18329,-25.1)	19.8@(1.23328,-21.5)	14.4@(1.19162,-15.1)	4.9@(1.12496,-4.9)	9.3@(1.79993,-17.4)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	177% / 296%	139% / 235%	160% / 270%	150% / 255%	130% / 227%	130% / 222%	145% / 246%	153% / 261%	173% / 285%	183% / 303%
L20D at Prairie/Drayton	999% / 913%	810% / 806%	851% / 815%	999% / 895%	999% / 880%	902% / 858%	847% / 826%	848% / 818%	999% / 974%	999% / 887%
R50M / F3M	999% / 335%	955% / 310%	999% / 314%	999% / 315%	824% / 305%	925% / 311%	974% / 315%	999% / 309%	999% / 337%	999% / 338%
B10T	349%	203%	252%	251%	204%	199%	221%	251%	338%	339%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	0.00	-0.03	-0.02	-0.02	-0.05	-0.03	-0.03	-0.02	0.00	0.00
Arpin 345	-0.04	-0.16	-0.19	-0.17	-0.20	-0.16	-0.19	-0.18	0.00	-0.05
Weston 345	-0.05	-0.17	-0.24	-0.24	-0.23	-0.17	-0.22	-0.24	-0.03	0.02
Columbia 345	0.00	-0.01	-0.01	-0.02	-0.01	-0.01	-0.01	-0.02	0.00	-0.01
Rocky Run 345	-0.05	-0.18	-0.24	-0.21	-0.24	-0.19	-0.22	-0.21	-0.01	0.02

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	212	213	214	215	216	217	218	219	220	221
Case Name	2e-sraa.uvg04Y4-wms	3j-sraa.uvg04Y4-wms	5a-sraa.uvf04Y4-wms	5b-sraa.uvh04Y4-wms	9b-sraa.uvk04Y4-wms	10-sraa.uvg04Y4-wns	1c-sraa.uvj04Y4-wns	2e-sraa.uvg04Y4-wns	3j-sraa.uvg04Y4-wns	5a-sraa.uvf04Y4-wns
Disturbance	wms	wms	wms	wms	wms	wns	wns	wns	wns	wns
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 18 1999 22:24	JAN 19 1999 08:40	JAN 18 1999 16:26	FEB 02 1999 10:53	JAN 19 1999 14:17	FEB 03 1999 10:12	JAN 17 1999 19:37	JAN 18 1999 09:14	JAN 18 1999 12:50	JAN 18 1999 16:41
Comments										
Steady State Flows										
NDEX / E Bias	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294
MHEX / L20D	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195
MN-WUMS / MN-IOWA	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14
TCEX / TCEX-new	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594
D602F / F601C	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601
B10T / MH>SPC	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88
OH E-W / OH>MH	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0
R50M / OH>MP	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47
Forbes SVC / MSC	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045
Roseau 500/Forbes 500	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022
Chisago 500/EauClaire 345	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000
Ifalls 115/Badoura 115	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993
Drayton 230/Groton 345	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%
B10T	397%	400%	396%	398%	400%	397%	402%	397%	400%	396%
Min/MaxTransientVltg										
Arrowhd 230	1.03 | 1.04	0.98 | 1.00	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.02 | 1.05	1.03 | 1.07	1.03 | 1.06	0.91 | 0.98	1.02 | 1.05
Boise 115	1.05 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.07	1.05 | 1.07	1.05 | 1.07	1.03 | 1.07	1.04 | 1.07
Arpin 345	0.92 | 0.95	0.97 | 0.98	0.99 | 1.00	0.91 | 0.94	0.90 | 0.94	(0.42)0.00 |	(0.42)0.00 |	(0.42)0.00 |	(0.42)0.00 |	(0.42)0.00 |
Forbes 230	1.03 | 1.05	1.03 | 1.04	1.02 | 1.03	1.03 | 1.04	1.04 | 1.05	1.02 | 1.06	1.03 | 1.08	1.03 | 1.08	1.01 | 1.06	1.01 | 1.06
Weston 345	0.98 | 0.99	0.96 | 0.98	0.95 | 0.97	0.96 | 0.98	0.96 | 0.97	0.86 | 0.93	0.91 | 0.95	0.95 | 0.98	0.88 | 0.96	0.89 | 0.95
Coal Creek 230	1.02 | 1.05	1.03 | 1.05	1.02 | 1.05	1.02 | 1.05	1.03 | 1.05	1.01 | 1.05	1.01 | 1.07	1.01 | 1.06	1.01 | 1.06	1.01 | 1.06
Columbia 345	0.99 | 1.01	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	0.99 | 1.01	1.00 | 1.02	0.98 | 1.02	0.97 | 1.00	1.00 | 1.02	1.01 | 1.02
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06
Groton 345	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.98 | 1.01	0.98 | 1.02	0.98 | 1.02	0.98 | 1.02	0.98 | 1.02
Rocky Run 345	0.97 | 0.98	0.96 | 0.97	0.95 | 0.96	0.95 | 0.96	0.96 | 0.97	0.87 | 0.93	0.92 | 0.95	0.94 | 0.97	0.90 | 0.96	0.90 | 0.95
Wahpeton 230	1.01 | 1.03	1.01 | 1.02	1.01 | 1.03	1.01 | 1.03	1.02 | 1.03	1.01 | 1.04	1.01 | 1.05	1.01 | 1.05	1.00 | 1.04	1.01 | 1.04
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.01 | 1.03	1.01 | 1.04	1.01 | 1.04	1.01 | 1.03	1.01 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	85% / 399%	72% / 424%	64% / 433%	83% / 396%	86% / 393%	50% / 272%	90% / 150%	82% / 220%	61% / 225%	45% / 269%
K22W (max +dP @ t, d-ang)	0.0@(0.04167,0.0)	0.0@(0.10000,0.0)	0.0@(0.02500,0.0)	0.0@(0.10000,0.0)	0.0@(0.09166,0.0)	1.4@(2.56656,2.3)	0.0@(0.07500,0.0)	0.0@(0.04167,0.0)	0.0@(0.10000,0.0)	0.0@(0.02500,0.0)
K22W (max -dP @ t, d-ang)	13.4@(1.55827,6.9)	10.8@(1.60827,5.1)	9.5@(0.68331,3.6)	14.2@(1.57494,7.0)	14.3@(1.57494,7.2)	27.9@(0.74997,10.6)	43.0@(1.70826,21.5)	34.5@(1.65827,17.5)	34.6@(1.67493,17.1)	26.9@(1.64993,13.3)
K22W (max d-ang @ t, dP)	6.9@(1.62493,-13.2)	5.4@(1.22495,-7.8)	4.8@(1.11662,-5.2)	7.0@(1.62493,-14.1)	7.3@(1.68326,-13.9)	14.7@(1.19995,-16.3)	21.7@(1.80826,-42.3)	17.5@(1.61660,-34.3)	18.5@(5.00815,-22.9)	14.7@(5.00815,-17.5)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	180% / 298%	172% / 286%	167% / 274%	180% / 295%	180% / 301%	158% / 262%	183% / 303%	178% / 296%	165% / 274%	155% / 254%
L20D at Prairie/Drayton	999% / 971%	999% / 999%	999% / 999%	999% / 953%	999% / 889%	999% / 868%	812% / 790%	908% / 863%	999% / 972%	999% / 937%
R50M / F3M	999% / 340%	994% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 330%	999% / 338%	999% / 340%	933% / 329%	999% / 338%
B10T	339%	344%	341%	338%	341%	249%	265%	261%	264%	257%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	0.00	-0.03	0.00	-0.01	0.00	-0.01	0.00	0.00	-0.10	-0.01
Arpin 345	-0.02	0.01	0.03	-0.03	-0.03	-0.94	-0.90	-0.94	-0.96	-0.96
Weston 345	0.01	-0.02	-0.02	-0.01	0.00	-0.10	-0.01	-0.02	-0.10	-0.08
Columbia 345	-0.02	0.00	0.00	0.00	-0.02	-0.01	-0.03	-0.04	-0.01	0.00
Rocky Run 345	0.02	-0.01	-0.01	0.00	0.02	-0.07	0.00	-0.01	-0.07	-0.06

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	222	223	224	225	226	227	228	229	230	231
Case Name	5b-sraa.uvh04Y4-wns	9b-sraa.uvk04Y4-wns	10-sraa.uvg04Y4-wos	1c-sraa.uvj04Y4-wos	2e-sraa.uvg04Y4-wos	3j-sraa.uvg04Y4-wos	5a-sraa.uvf04Y4-wos	5b-sraa.uvh04Y4-wos	9b-sraa.uvk04Y4-wos	10-sraa.uvg04Y4-wps
Disturbance	wns	wns	wos	wos	wos	wos	wos	wos	wos	wps
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 02 1999 11:08	JAN 19 1999 14:31	FEB 03 1999 10:25	JAN 17 1999 19:51	JAN 18 1999 09:30	JAN 18 1999 13:04	JAN 18 1999 16:55	FEB 02 1999 11:22	JAN 19 1999 14:45	FEB 03 1999 10:38
Comments										
Steady State Flows										
NDEX / E Bias	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285
MHEX / L20D	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207
MN-WUMS / MN-IOWA	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15
TCEX / TCEX-new	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562
D602F / F601C	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560
B10T / MH>SPC	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87
OH E-W / OH>MH	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0
R50M / OH>MP	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54
Forbes SVC / MSC	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045
Roseau 500/Forbes 500	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028
Chisago 500/EauClaire 345	1.019 / 0.964	1.026 / 1.031	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977
Ifalls 115/Badoura 115	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995
Drayton 230/Groton 345	1.032 / 0.998	1.024 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%
L20Dat Prairie/Drayton	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%
R50M/F3M	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%
B10T	398%	400%	397%	402%	397%	400%	396%	398%	400%	397%
Min/MaxTransientVltg										
Arrowhd 230	1.02 | 1.05	1.03 | 1.06	1.02 | 1.05	1.03 | 1.07	1.03 | 1.06	0.91 | 0.98	1.02 | 1.05	1.02 | 1.05	1.03 | 1.07	1.03 | 1.04
Boise 115	1.04 | 1.07	1.04 | 1.07	1.03 | 1.07	1.05 | 1.07	1.05 | 1.07	1.03 | 1.07	1.04 | 1.07	1.04 | 1.07	1.04 | 1.07	1.04 | 1.05
Arpin 345	(0.42)0.00 |	(0.42)0.00 |	0.98 | 1.03	1.04 | 1.12	1.05 | 1.12	1.07 | 1.12	1.08 | 1.11	1.06 | 1.10	1.04 | 1.11	0.93 | 0.96
Forbes 230	1.02 | 1.07	1.03 | 1.08	1.02 | 1.07	1.03 | 1.09	1.03 | 1.08	1.01 | 1.07	1.01 | 1.06	1.02 | 1.07	1.03 | 1.08	1.03 | 1.04
Weston 345	0.91 | 0.96	0.94 | 0.97	0.87 | 0.94	0.92 | 0.95	0.95 | 0.98	0.88 | 0.95	0.89 | 0.95	0.91 | 0.96	0.94 | 0.97	0.93 | 0.95
Coal Creek 230	1.01 | 1.06	1.01 | 1.06	1.01 | 1.05	1.01 | 1.07	1.01 | 1.06	1.01 | 1.06	1.01 | 1.06	1.01 | 1.06	1.01 | 1.06	1.02 | 1.05
Columbia 345	1.00 | 1.02	0.97 | 1.01	1.00 | 1.02	0.98 | 1.02	0.97 | 1.00	1.00 | 1.02	1.01 | 1.02	1.00 | 1.02	0.97 | 1.00	1.01 | 1.02
Drayton 230	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.03 | 1.04
Groton 345	0.98 | 1.02	0.98 | 1.02	0.98 | 1.01	0.98 | 1.02	0.98 | 1.02	0.98 | 1.02	0.98 | 1.02	0.98 | 1.02	0.98 | 1.02	0.99 | 1.01
Rocky Run 345	0.91 | 0.95	0.94 | 0.96	0.87 | 0.93	0.92 | 0.95	0.94 | 0.97	0.90 | 0.96	0.90 | 0.95	0.91 | 0.95	0.94 | 0.96	0.93 | 0.94
Wahpeton 230	1.01 | 1.04	1.01 | 1.05	1.00 | 1.04	1.01 | 1.05	1.01 | 1.05	1.00 | 1.04	1.01 | 1.04	1.01 | 1.05	1.01 | 1.05	1.01 | 1.03
Watertown 230	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.04	1.01 | 1.04	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	80% / 190%	85% / 216%	45% / 281%	90% / 150%	83% / 220%	62% / 225%	45% / 269%	75% / 214%	86% / 217%	72% / 423%
K22W (max +dP @ t, d-ang)	0.0@(0.10000,0.0)	0.0@(0.09166,0.0)	3.7@(2.54989,1.2)	0.0@(0.07500,0.0)	0.0@(0.04167,0.0)	0.0@(0.10000,0.0)	0.0@(0.02500,0.0)	0.0@(0.10000,0.0)	0.0@(0.09166,0.0)	0.4@(2.44990,1.4)
K22W (max -dP @ t, d-ang)	37.9@(1.67493,19.1)	35.4@(1.66660,17.8)	27.5@(0.74164,10.4)	43.1@(1.70826,21.5)	34.7@(1.65827,17.5)	34.8@(1.67493,17.1)	27.2@(1.64993,13.3)	35.4@(1.67493,17.6)	35.5@(1.66660,17.8)	11.5@(0.67497,3.9)
K22W (max d-ang @ t, dP)	19.1@(1.64993,-37.8)	17.8@(1.64993,-35.4)	14.3@(1.14162,-14.9)	21.7@(1.81659,-42.2)	17.5@(1.62493,-34.5)	17.4@(1.49994,-31.3)	14.7@(1.23328,-17.7)	17.7@(1.59160,-34.6)	17.8@(1.65827,-35.5)	5.5@(1.13329,-5.5)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	178% / 291%	180% / 301%	155% / 257%	183% / 303%	179% / 297%	165% / 275%	155% / 255%	174% / 286%	180% / 301%	172% / 283%
L20D at Prairie/Drayton	875% / 838%	817% / 793%	999% / 874%	813% / 790%	999% / 864%	999% / 972%	999% / 936%	887% / 847%	818% / 794%	999% / 967%
R50M / F3M	999% / 341%	999% / 335%	999% / 327%	999% / 338%	999% / 340%	935% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 336%
B10T	257%	261%	248%	266%	262%	265%	257%	257%	262%	331%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.01	0.00	-0.01	0.00	0.00	-0.10	-0.01	-0.01	0.00	0.00
Arpin 345	-0.94	0.10	0.04	0.14	0.11	0.11	0.12	0.12	0.11	-0.01
Weston 345	-0.06	-0.02	-0.09	0.00	-0.02	-0.10	-0.08	-0.06	-0.02	-0.03
Columbia 345	-0.01	-0.04	-0.01	-0.03	-0.04	-0.01	0.00	-0.01	-0.04	0.00
Rocky Run 345	-0.04	0.00	-0.07	0.00	-0.01	-0.07	-0.06	-0.04	0.00	-0.01

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	232	233	234	235	236	237	238	239	240	241
Case Name	1c-sraa.uvj04Y4-wps	2e-sraa.uvg04Y4-wps	3j-sraa.uvg04Y4-wps	5a-sraa.uvf04Y4-wps	5b-sraa.uvh04Y4-wps	9b-sraa.uvk04Y4-wps	10-sraa.uvg04Y4-wqs	1c-sraa.uvj04Y4-wqs	2e-sraa.uvg04Y4-wqs	3j-sraa.uvg04Y4-wqs
Disturbance	wps	wps	wps	wps	wps	wps	wqs	wqs	wqs	wqs
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 17 1999 20:05	JAN 18 1999 09:45	JAN 18 1999 13:18	JAN 18 1999 17:10	FEB 02 1999 11:36	JAN 19 1999 14:58	FEB 03 1999 10:50	JAN 17 1999 20:19	JAN 18 1999 09:59	JAN 18 1999 13:32
Comments										
Steady State Flows										
NDEX / E Bias	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314
MHEX / L20D	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188
MN-WUMS / MN-IOWA	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54
TCEX / TCEX-new	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674
D602F / F601C	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221
B10T / MH>SPC	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87
OH E-W / OH>MH	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0
R50M / OH>MP	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50
Forbes SVC / MSC	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045
Roseau 500/Forbes 500	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035
Chisago 500/EauClaire 345	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993
Ifalls 115/Badoura 115	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994
Drayton 230/Groton 345	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000
SS OS Relay Margins										
D602F at Forbes/Dorsey	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%
L20Dat Prairie/Drayton	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%
R50M/F3M	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%
B10T	402%	397%	400%	396%	398%	400%	397%	402%	397%	400%
Min/MaxTransientVltg										
Arrowhd 230	1.03 | 1.04	1.03 | 1.04	0.98 | 1.00	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.01 | 1.05	1.02 | 1.05	1.02 | 1.05	1.03 | 1.17(0.44)
Boise 115	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.07	1.04 | 1.06	1.04 | 1.06	1.03 | 1.08
Arpin 345	0.84 | 0.91	0.92 | 0.96	0.96 | 0.99	0.98 | 1.00	0.91 | 0.95	0.90 | 0.94	0.88 | 0.99	0.78 | 0.94	0.85 | 0.99	0.83 | 0.96
Forbes 230	1.04 | 1.05	1.03 | 1.05	1.03 | 1.04	1.02 | 1.03	1.03 | 1.04	1.04 | 1.05	1.01 | 1.07	1.03 | 1.06	1.03 | 1.06	1.02 | 1.11
Weston 345	0.94 | 0.95	0.97 | 0.99	0.95 | 0.98	0.95 | 0.97	0.96 | 0.98	0.96 | 0.97	0.83 | 0.97	(0.42)0.00 |	(0.42)0.00 |	1.00 | 1.45(0.47)
Coal Creek 230	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	0.99 | 1.06	1.01 | 1.06	1.01 | 1.06	1.00 | 1.06
Columbia 345	1.00 | 1.01	0.99 | 1.01	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	0.99 | 1.01	1.00 | 1.03	1.00 | 1.03	0.98 | 1.02	0.99 | 1.02
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.01 | 1.06	1.03 | 1.05	1.03 | 1.05	1.02 | 1.07
Groton 345	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.97 | 1.02	0.99 | 1.01	0.99 | 1.01	0.98 | 1.02
Rocky Run 345	0.94 | 0.95	0.96 | 0.98	0.95 | 0.97	0.95 | 0.96	0.95 | 0.97	0.96 | 0.97	0.79 | 0.94	0.85 | 0.95	0.86 | 0.96	0.83 | 0.96
Wahpeton 230	1.02 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.02 | 1.03	1.00 | 1.05	1.02 | 1.04	1.01 | 1.04	1.01 | 1.05
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.01 | 1.04	1.01 | 1.03	1.02 | 1.03	1.01 | 1.04
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	4161 [WESTON] 1.45 4520 [WES V308] 1.45 4501 [RRN V308] 1.45 4246 [HI8 TAP1] 1.41 4247 [HI8 TAP2] 1.41 1318 [ARR 345] 1.21
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	90% / 357%	84% / 391%	69% / 414%	61% / 424%	83% / 389%	86% / 387%	55% / 221%	79% / 267%	72% / 305%	73% / 136%
K22W (max +dP @ t, d-ang)	0.0@(0.07500,0.0)	0.0@(0.04167,0.0)	0.0@(0.10000,0.0)	0.5@(2.44157,1.1)	0.0@(0.10000,0.0)	0.0@(0.09166,0.0)	2.1@(3.54152,4.1)	0.8@(3.89150,4.9)	0.4@(3.45819,2.9)	0.0@(0.10000,0.0)
K22W (max -dP @ t, d-ang)	18.2@(1.60827,9.3)	14.1@(1.55827,7.3)	11.7@(1.62493,5.7)	10.6@(0.68331,4.0)	15.0@(1.57494,7.5)	14.9@(1.56660,7.6)	32.0@(1.66660,16.4)	28.3@(1.66660,15.0)	23.5@(1.63327,12.7)	42.2@(1.79159,22.9)
K22W (max d-ang @ t, dP)	9.7@(1.82493,-17.7)	7.4@(1.65827,-13.7)	6.1@(1.23328,-9.1)	5.4@(1.10829,-5.8)	7.5@(1.63327,-14.8)	7.8@(1.70826,-14.2)	17.4@(1.29995,-20.6)	15.3@(1.82493,-27.1)	12.7@(1.69160,-23.2)	22.9@(1.76659,-42.1)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	183% / 303%	179% / 298%	170% / 283%	166% / 271%	180% / 295%	180% / 301%	160% / 267%	176% / 294%	172% / 286%	172% / 289%
L20D at Prairie/Drayton	999% / 886%	999% / 968%	999% / 999%	999% / 999%	999% / 950%	999% / 887%	886% / 844%	876% / 842%	999% / 919%	999% / 906%
R50M / F3M	999% / 338%	999% / 340%	984% / 329%	999% / 337%	999% / 341%	999% / 335%	999% / 330%	999% / 338%	999% / 340%	959% / 329%
B10T	339%	338%	340%	335%	336%	340%	240%	308%	304%	255%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	0.00	0.00	-0.03	0.00	-0.01	0.00	-0.02	-0.01	-0.01	0.02
Arpin 345	-0.06	-0.02	0.00	0.02	-0.03	-0.03	-0.06	-0.12	-0.09	-0.13
Weston 345	0.02	0.00	-0.03	-0.02	-0.01	0.00	-0.13	-0.92	-0.97	0.02
Columbia 345	-0.01	-0.02	0.00	0.00	0.00	-0.02	-0.01	-0.01	-0.03	-0.02
Rocky Run 345	0.02	0.01	-0.02	-0.01	0.00	0.02	-0.15	-0.07	-0.09	-0.14

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	242	243	244	245	246	247	248	249	250	251
Case Name	5a-sraa.uvf04Y4-wqs	5b-sraa.uvh04Y4-wqs	9b-sraa.uvk04Y4-wqs	10-sraa.uvg04Y4-wrs	1c-sraa.uvj04Y4-wrs	2e-sraa.uvg04Y4-wrs	3j-sraa.uvg04Y4-wrs	5a-sraa.uvf04Y4-wrs	5b-sraa.uvh04Y4-wrs	9b-sraa.uvk04Y4-wrs
Disturbance	wqs	wqs	wqs	wrs	wrs	wrs	wrs	wrs	wrs	wrs
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 18 1999 17:24	FEB 02 1999 11:50	JAN 19 1999 15:12	FEB 03 1999 11:02	JAN 17 1999 20:33	JAN 18 1999 10:13	JAN 18 1999 13:45	JAN 18 1999 17:38	FEB 02 1999 12:04	JAN 19 1999 15:30
Comments										
Steady State Flows										
NDEX / E Bias	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267
MHEX / L20D	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219
MN-WUMS / MN-IOWA	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342
TCEX / TCEX-new	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155
D602F / F601C	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539
B10T / MH>SPC	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87
OH E-W / OH>MH	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0
R50M / OH>MP	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65
Forbes SVC / MSC	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045
Roseau 500/Forbes 500	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035
Chisago 500/EauClaire 345	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955
Ifalls 115/Badoura 115	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996
Drayton 230/Groton 345	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996
SS OS Relay Margins										
D602F at Forbes/Dorsey	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%
R50M/F3M	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%
B10T	396%	398%	400%	397%	402%	397%	400%	396%	398%	400%
Min/MaxTransientVltg										
Arrowhd 230	1.01 | 1.07	1.01 | 1.07	1.02 | 1.05	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04	1.06 | 1.12	1.02 | 1.04	1.02 | 1.04	1.03 | 1.04
Boise 115	1.04 | 1.08	1.04 | 1.07	1.04 | 1.06	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.06	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05
Arpin 345	0.84 | 0.96	0.83 | 0.96	0.84 | 0.98	0.91 | 0.96	0.88 | 0.90	0.92 | 0.94	0.90 | 0.92	0.90 | 0.92	0.88 | 0.90	0.91 | 0.93
Forbes 230	1.01 | 1.09	1.02 | 1.07	1.03 | 1.06	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04	1.04 | 1.06	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04
Weston 345	0.97 | 1.17(0.44)	0.97 | 1.49(0.54)	(0.42)0.00 |	0.93 | 0.97	(0.43)0.00 |	(0.43)0.00 |	1.10 | 1.31(0.42)	1.04 | 1.09	1.04 | 1.30(0.41)	(0.43)0.00 |
Coal Creek 230	1.00 | 1.07	1.01 | 1.07	1.01 | 1.06	1.02 | 1.06	1.02 | 1.04	1.02 | 1.04	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.04
Columbia 345	0.99 | 1.02	0.99 | 1.02	0.98 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.01	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.01
Drayton 230	1.02 | 1.07	1.02 | 1.05	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
Groton 345	0.98 | 1.02	0.98 | 1.02	0.98 | 1.01	0.99 | 1.01	0.99 | 1.00	0.99 | 1.00	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.00
Rocky Run 345	0.83 | 0.95	0.82 | 0.93	0.86 | 0.96	0.90 | 0.95	0.90 | 0.91	0.93 | 0.94	0.91 | 0.93	0.91 | 0.93	0.89 | 0.90	0.92 | 0.93
Wahpeton 230	1.01 | 1.05	1.01 | 1.05	1.01 | 1.04	1.01 | 1.03	1.01 | 1.03	1.01 | 1.02	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03
Watertown 230	1.01 | 1.04	1.01 | 1.04	1.01 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	4161 [WESTON] 1.49 4520 [WES V308] 1.49 4501 [RRN V308] 1.49 4675 [WESTON 4] 1.47 4247 [HI8 TAP2] 1.40 4246 [HI8 TAP1] 1.37	none	none	none	none	4520 [WES V308] 1.31 4501 [RRN V308] 1.31 4161 [WESTON] 1.31 4247 [HI8 TAP2] 1.29 4246 [HI8 TAP1] 1.28	none	4161 [WESTON] 1.30 4520 [WES V308] 1.30 4501 [RRN V308] 1.30 4675 [WESTON 4] 1.28 4247 [HI8 TAP2] 1.25 4246 [HI8 TAP1] 1.21	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	75% / 137%	80% / 243%	73% / 305%	82% / 376%	78% / 459%	72% / 460%	82% / 366%	74% / 357%	81% / 432%	73% / 460%
K22W (max +dP @ t, d-ang)	0.0@(0.02500,0.0)	0.0@(0.10000,0.0)	1.0@(3.44985,2.5)	0.0@(0.10000,0.0)	4.3@(2.40823,-0.5)	4.1@(2.39157,-0.5)	0.0@(0.10000,0.0)	0.0@(0.02500,0.0)	0.0@(0.10000,0.0)	4.0@(2.40823,-0.4)
K22W (max -dP @ t, d-ang)	43.0@(1.70826,21.8)	32.7@(1.69160,16.4)	23.8@(1.63327,12.8)	17.2@(1.59994,8.3)	7.3@(0.64997,2.4)	7.2@(0.64997,2.5)	16.9@(1.59994,9.1)	18.7@(1.56660,9.2)	10.6@(1.54160,4.8)	7.3@(0.64997,2.4)
K22W (max d-ang @ t, dP)	21.8@(1.68326,-42.9)	16.5@(1.76659,-32.2)	12.9@(1.71660,-23.3)	8.3@(1.58327,-17.1)	3.3@(0.99163,-2.9)	3.3@(0.94996,-3.0)	9.1@(1.59160,-16.9)	9.3@(5.00815,-10.6)	5.7@(5.00815,-4.5)	3.3@(0.97496,-2.9)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	174% / 284%	177% / 293%	172% / 289%	179% / 294%	175% / 291%	171% / 285%	178% / 296%	174% / 284%	178% / 292%	172% / 289%
L20D at Prairie/Drayton	999% / 870%	999% / 868%	880% / 845%	999% / 938%	999% / 938%	999% / 999%	999% / 999%	999% / 985%	999% / 971%	999% / 928%
R50M / F3M	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 329%	999% / 332%	999% / 329%	999% / 338%	999% / 341%	999% / 326%
B10T	246%	283%	307%	322%	356%	352%	319%	310%	350%	353%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(1 | 1 | 1) / (1 | 1 | 1)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.02	-0.02	-0.01	0.00	0.00	0.00	0.05	-0.01	-0.01	0.00
Arpin 345	-0.12	-0.11	-0.09	-0.03	-0.02	-0.02	-0.06	-0.06	-0.06	-0.02
Weston 345	0.00	0.00	-0.96	-0.03	-0.92	-0.97	0.12	0.07	0.07	-0.96
Columbia 345	-0.02	-0.02	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rocky Run 345	-0.13	-0.13	-0.08	-0.04	-0.02	-0.02	-0.06	-0.05	-0.06	-0.02

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	252	253	254	255	256	257	258	259	260	261
Case Name	10-sraa.uvg04Y4-wss	1c-sraa.uvj04Y4-wss	2e-sraa.uvg04Y4-wss	3j-sraa.uvg04Y4-wss	5a-sraa.uvf04Y4-wss	5b-sraa.uvh04Y4-wss	9b-sraa.uvk04Y4-wss	10-sraa.uvg04Y4-wts	1c-sraa.uvj04Y4-wts	2e-sraa.uvg04Y4-wts
Disturbance	wss	wss	wss	wss	wss	wss	wss	wts	wts	wts
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 03 1999 11:15	JAN 17 1999 20:46	JAN 18 1999 10:27	JAN 18 1999 13:59	JAN 18 1999 17:51	FEB 02 1999 12:17	JAN 19 1999 15:44	FEB 03 1999 11:28	JAN 17 1999 20:59	JAN 18 1999 10:41
Comments										
Steady State Flows										
NDEX / E Bias	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287
MHEX / L20D	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205
MN-WUMS / MN-IOWA	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37
TCEX / TCEX-new	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652
D602F / F601C	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550
B10T / MH>SPC	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87
OH E-W / OH>MH	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0
R50M / OH>MP	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54
Forbes SVC / MSC	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045
Roseau 500/Forbes 500	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035
Chisago 500/EauClaire 345	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966
Ifalls 115/Badoura 115	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995
Drayton 230/Groton 345	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%
L20Dat Prairie/Drayton	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%
R50M/F3M	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%
B10T	397%	402%	397%	400%	396%	398%	400%	397%	402%	397%
Min/MaxTransientVltg										
Arrowhd 230	1.01 | 1.05	1.01 | 1.04	1.02 | 1.04	1.05 | 1.15	1.01 | 1.06	1.01 | 1.05	1.02 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
Boise 115	1.03 | 1.08	1.03 | 1.06	1.03 | 1.07	1.02 | 1.08	1.03 | 1.08	1.03 | 1.07	1.03 | 1.06	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05
Arpin 345	0.82 | 0.97	0.83 | 0.92	0.87 | 0.95	0.83 | 0.96	0.83 | 0.95	0.82 | 0.93	0.86 | 0.95	0.91 | 0.95	0.88 | 0.90	0.92 | 0.94
Forbes 230	1.01 | 1.07	1.02 | 1.05	1.02 | 1.05	1.02 | 1.10	1.01 | 1.08	1.01 | 1.06	1.02 | 1.05	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04
Weston 345	0.83 | 0.99	(0.42)0.00 |	(0.42)0.00 |	1.08 | 1.41(0.47)	1.02 | 1.12	1.00 | 1.42(0.52)	(0.42)0.00 |	0.93 | 0.97	(0.43)0.00 |	(0.43)0.00 |
Coal Creek 230	0.98 | 1.06	1.00 | 1.06	1.00 | 1.06	0.99 | 1.06	0.98 | 1.06	0.99 | 1.06	1.00 | 1.06	1.02 | 1.05	1.03 | 1.04	1.03 | 1.04
Columbia 345	1.00 | 1.02	1.00 | 1.03	0.99 | 1.02	0.99 | 1.02	0.99 | 1.02	0.99 | 1.03	0.99 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.01
Drayton 230	1.01 | 1.06	1.01 | 1.05	1.01 | 1.05	1.01 | 1.07	1.01 | 1.07	1.01 | 1.05	1.01 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
Groton 345	0.97 | 1.02	0.97 | 1.01	0.97 | 1.01	0.97 | 1.02	0.97 | 1.02	0.97 | 1.02	0.97 | 1.01	0.99 | 1.01	0.99 | 1.00	0.99 | 1.00
Rocky Run 345	0.80 | 0.97	0.84 | 0.93	0.87 | 0.96	0.84 | 0.96	0.84 | 0.95	0.82 | 0.93	0.87 | 0.95	0.91 | 0.95	0.90 | 0.91	0.93 | 0.94
Wahpeton 230	0.99 | 1.05	1.00 | 1.04	0.99 | 1.04	1.00 | 1.05	0.99 | 1.05	0.99 | 1.04	1.00 | 1.04	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02
Watertown 230	1.00 | 1.04	1.00 | 1.03	1.01 | 1.03	1.00 | 1.03	1.00 | 1.04	1.00 | 1.03	1.00 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	none	4501 [RRN V308] 1.42 4520 [WES V308] 1.41 4161 [WESTON] 1.41 4247 [HI8 TAP2] 1.38 4246 [HI8 TAP1] 1.37	none	4501 [RRN V308] 1.43 4161 [WESTON] 1.42 4520 [WES V308] 1.42 4675 [WESTON 4] 1.40 4247 [HI8 TAP2] 1.34 4246 [HI8 TAP1] 1.31	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	35% / 172%	46% / 340%	37% / 349%	24% / 194%	23% / 188%	36% / 295%	41% / 347%	83% / 382%	82% / 473%	76% / 473%
K22W (max +dP @ t, d-ang)	7.8@(2.60822,0.7)	15.1@(2.50823,-2.7)	15.0@(2.46656,-2.9)	8.5@(2.70822,0.0)	8.6@(2.56656,0.3)	10.8@(2.49156,-0.3)	15.0@(2.48323,-2.8)	0.0@(0.10000,0.0)	2.9@(2.41657,-0.3)	2.7@(2.39990,-0.2)
K22W (max -dP @ t, d-ang)	38.2@(0.75830,14.3)	23.2@(0.70831,7.8)	22.3@(0.69997,7.7)	30.6@(0.72497,13.9)	34.9@(0.74997,14.3)	27.0@(0.70831,9.8)	22.7@(0.70831,7.7)	16.6@(1.60827,7.9)	5.1@(0.66664,1.7)	5.2@(0.66664,1.8)
K22W (max d-ang @ t, dP)	20.6@(1.20829,-21.5)	11.1@(1.08329,-10.5)	10.6@(1.03329,-9.9)	19.6@(1.18329,-21.0)	19.4@(1.15829,-20.9)	13.8@(1.09162,-13.4)	10.7@(1.04996,-10.2)	7.9@(1.59994,-16.6)	2.3@(1.01663,-2.0)	2.4@(4.79148,-1.8)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	148% / 248%	155% / 260%	149% / 250%	140% / 240%	140% / 235%	149% / 248%	151% / 256%	179% / 294%	178% / 295%	174% / 290%
L20D at Prairie/Drayton	834% / 817%	999% / 865%	999% / 941%	999% / 915%	999% / 885%	999% / 885%	903% / 858%	999% / 942%	999% / 948%	999% / 999%
R50M / F3M	987% / 316%	999% / 304%	999% / 311%	873% / 317%	960% / 317%	999% / 315%	999% / 305%	999% / 337%	999% / 332%	999% / 334%
B10T	215%	273%	271%	225%	218%	252%	271%	326%	370%	365%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.02	-0.02	-0.01	0.04	-0.02	-0.02	-0.01	0.00	0.00	0.00
Arpin 345	-0.12	-0.07	-0.07	-0.13	-0.13	-0.12	-0.07	-0.03	-0.02	-0.02
Weston 345	-0.13	-0.92	-0.97	0.10	0.05	0.03	-0.96	-0.03	-0.92	-0.97
Columbia 345	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02	0.00	0.00	0.00
Rocky Run 345	-0.14	-0.08	-0.08	-0.13	-0.12	-0.13	-0.07	-0.03	-0.02	-0.02

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	262	263	264	265	266	267	268	269	270	271
Case Name	3j-sraa.uvg04Y4-wts	5a-sraa.uvf04Y4-wts	5b-sraa.uvh04Y4-wts	9b-sraa.uvk04Y4-wts	10-sraa.uvg04Y4-wus	1c-sraa.uvj04Y4-wus	2e-sraa.uvg04Y4-wus	3j-sraa.uvg04Y4-wus	5a-sraa.uvf04Y4-wus	5b-sraa.uvh04Y4-wus
Disturbance	wts	wts	wts	wts	wus	wus	wus	wus	wus	wus
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 18 1999 14:12	JAN 18 1999 18:07	FEB 02 1999 12:34	JAN 19 1999 15:57	FEB 03 1999 11:40	JAN 17 1999 21:14	JAN 18 1999 10:54	JAN 18 1999 14:27	JAN 18 1999 18:20	FEB 02 1999 12:49
Comments										
Steady State Flows										
NDEX / E Bias	1941 / 314	1942 / 294	1942 / 282	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282
MHEX / L20D	1978 / 188	1977 / 195	1976 / 208	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208
MN-WUMS / MN-IOWA	1005 / 54	952 / 14	1125 / 76	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76
TCEX / TCEX-new	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852
D602F / F601C	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543
B10T / MH>SPC	149 / 87	150 / 88	150 / 87	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87
OH E-W / OH>MH	-87 / 0	-88 / 0	-89 / 0	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0
R50M / OH>MP	133 / 151	121 / 151	121 / 150	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	291 / 50	243 / 47	268 / 66	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66
Forbes SVC / MSC	-8 / 600	26 / 600	14 / 600	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045
Roseau 500/Forbes 500	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028
Chisago 500/EauClaire 345	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964
Ifalls 115/Badoura 115	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995
Drayton 230/Groton 345	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	179% / 296%	174% / 284%	180% / 295%	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 329%	999% / 338%	999% / 341%	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%
B10T	400%	396%	398%	400%	397%	402%	397%	400%	396%	398%
Min/MaxTransientVltg										
Arrowhd 230	1.06 | 1.12	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.01 | 1.05	1.02 | 1.04	1.02 | 1.04	1.05 | 1.15	1.02 | 1.05	1.02 | 1.05
Boise 115	1.04 | 1.06	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.07	1.04 | 1.05	1.04 | 1.05	1.03 | 1.07	1.04 | 1.07	1.04 | 1.06
Arpin 345	0.90 | 0.92	0.90 | 0.92	0.88 | 0.90	0.91 | 0.93	0.85 | 0.96	0.86 | 0.90	0.89 | 0.94	0.85 | 0.93	0.85 | 0.93	0.85 | 0.90
Forbes 230	1.04 | 1.06	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.01 | 1.07	1.03 | 1.04	1.03 | 1.04	1.03 | 1.09	1.01 | 1.07	1.02 | 1.05
Weston 345	1.10 | 1.31(0.42)	1.04 | 1.09	1.04 | 1.30(0.41)	(0.43)0.00 |	0.86 | 0.98	(0.42)0.00 |	(0.42)0.00 |	1.07 | 1.41(0.48)	1.01 | 1.12	1.00 | 1.43(0.48)
Coal Creek 230	1.02 | 1.04	1.02 | 1.05	1.03 | 1.05	1.03 | 1.04	0.99 | 1.06	1.02 | 1.04	1.02 | 1.04	1.01 | 1.05	1.01 | 1.06	1.01 | 1.05
Columbia 345	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.01	1.01 | 1.02	1.01 | 1.02	1.00 | 1.02	1.01 | 1.02	1.00 | 1.02	1.01 | 1.02
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.01 | 1.06	1.03 | 1.04	1.03 | 1.04	1.02 | 1.05	1.02 | 1.05	1.02 | 1.04
Groton 345	0.99 | 1.01	0.99 | 1.01	0.99 | 1.00	0.99 | 1.00	0.97 | 1.02	0.99 | 1.00	0.99 | 1.00	0.99 | 1.01	0.98 | 1.01	0.99 | 1.01
Rocky Run 345	0.91 | 0.93	0.91 | 0.92	0.89 | 0.91	0.92 | 0.93	0.83 | 0.96	0.86 | 0.91	0.89 | 0.94	0.85 | 0.94	0.85 | 0.93	0.84 | 0.91
Wahpeton 230	1.01 | 1.03	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02	1.00 | 1.05	1.01 | 1.03	1.01 | 1.02	1.01 | 1.03	1.01 | 1.04	1.01 | 1.03
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.01 | 1.04	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.01 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	4520 [WES V308] 1.31 4501 [RRN V308] 1.31 4161 [WESTON] 1.31 4247 [HI8 TAP2] 1.29 4246 [HI8 TAP1] 1.28	none	4161 [WESTON] 1.30 4520 [WES V308] 1.30 4501 [RRN V308] 1.30 4675 [WESTON 4] 1.28 4247 [HI8 TAP2] 1.25 4246 [HI8 TAP1] 1.21	none	none	none	none	4520 [WES V308] 1.41 4501 [RRN V308] 1.41 4161 [WESTON] 1.41 4247 [HI8 TAP2] 1.37 4246 [HI8 TAP1] 1.37	none	4161 [WESTON] 1.43 4520 [WES V308] 1.43 4501 [RRN V308] 1.43 4675 [WESTON 4] 1.41 4247 [HI8 TAP2] 1.34 4246 [HI8 TAP1] 1.32
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	83% / 375%	75% / 365%	83% / 441%	78% / 473%	46% / 222%	80% / 443%	72% / 445%	51% / 301%	50% / 294%	66% / 396%
K22W (max +dP @ t, d-ang)	0.0@(0.10000,0.0)	0.0@(0.02500,0.0)	0.0@(0.10000,0.0)	2.5@(2.42490,-0.1)	1.7@(2.59989,2.1)	3.6@(2.49156,0.3)	4.1@(2.44990,0.0)	1.8@(3.55818,5.0)	0.0@(0.02500,0.0)	0.3@(2.40823,2.3)
K22W (max -dP @ t, d-ang)	16.0@(1.62493,8.6)	17.9@(1.57494,8.7)	9.5@(1.55827,4.3)	5.2@(0.67497,1.8)	32.7@(0.75830,12.2)	8.0@(0.74997,2.8)	8.1@(0.74997,3.0)	21.6@(1.74993,10.9)	24.4@(1.67493,11.0)	14.2@(1.66660,6.2)
K22W (max d-ang @ t, dP)	8.6@(1.64160,-16.0)	8.8@(5.00815,-10.4)	5.1@(5.00815,-4.2)	2.4@(4.83315,-1.7)	17.5@(1.20829,-18.8)	4.3@(4.99981,-2.9)	4.2@(1.15829,-4.4)	12.9@(1.22495,-15.7)	12.8@(1.19162,-15.8)	7.9@(5.00815,-6.9)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	178% / 296%	174% / 284%	180% / 295%	175% / 294%	155% / 259%	177% / 293%	172% / 286%	157% / 268%	158% / 262%	168% / 277%
L20D at Prairie/Drayton	999% / 999%	999% / 991%	999% / 979%	999% / 937%	884% / 842%	999% / 931%	999% / 999%	999% / 995%	999% / 951%	999% / 949%
R50M / F3M	999% / 329%	999% / 338%	999% / 341%	999% / 330%	999% / 331%	999% / 329%	999% / 331%	946% / 329%	999% / 338%	999% / 338%
B10T	327%	316%	360%	367%	233%	355%	349%	287%	273%	319%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(1 | 1 | 1) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	0.05	0.00	0.00	0.00	-0.02	-0.01	-0.01	0.04	-0.01	-0.01
Arpin 345	-0.06	-0.06	-0.06	-0.02	-0.09	-0.04	-0.05	-0.11	-0.11	-0.09
Weston 345	0.12	0.07	0.07	-0.96	-0.10	-0.92	-0.97	0.09	0.04	0.03
Columbia 345	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00
Rocky Run 345	-0.06	-0.05	-0.06	-0.02	-0.11	-0.06	-0.06	-0.12	-0.11	-0.11

LOAD FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	272	273	274	275	276	277	278	279
2	**Case Name**	9b-sraa.uvk04Y4-wus	10-sraa.uvg04Y4-wvs	1c-sraa.uvj04Y4-wvs	2e-sraa.uvg04Y4-wvs	3j-sraa.uvg04Y4-wvs	5a-sraa.uvf04Y4-wvs	5b-sraa.uvh04Y4-wvs	9b-sraa.uvk04Y4-wvs
3	**Disturbance**	wus	wvs	wvs	wvs	wvs	wvs	wvs	wvs
4	**Prior Outage**	None	None	None	None	None	None	None	None
5	**Date/Time**	JAN 19 1999 16:10	FEB 03 1999 11:56	JAN 17 1999 21:27	JAN 18 1999 11:08	JAN 18 1999 14:40	JAN 18 1999 18:36	FEB 02 1999 13:06	JAN 19 1999 16:23
6	**Comments**								
7									
8	**Steady State Flows**								
9	NDEX / E Bias	1942 / 267	1941 / 285	1943 / 267	1941 / 287	1941 / 314	1942 / 294	1942 / 282	1942 / 267
10	MHEX / L20D	1976 / 219	1976 / 207	1979 / 218	1977 / 205	1978 / 188	1977 / 195	1976 / 208	1976 / 219
11	MN-WUMS / MN-IOWA	1124 / 342	1005 / 15	1209 / 278	1161 / -37	1005 / 54	952 / 14	1125 / 76	1124 / 342
12	TCEX / TCEX-new	1395 / 2155	959 / 1562	1328 / 2031	1020 / 1652	987 / 1674	910 / 1594	1117 / 1852	1395 / 2155
13	D602F / F601C	1636 / 1539	1647 / 1560	1640 / 1534	1651 / 1550	1656 / 1221	1660 / 1601	1647 / 1543	1636 / 1539
14	B10T / MH>SPC	149 / 87	150 / 87	149 / 86	150 / 87	149 / 87	150 / 88	150 / 87	149 / 87
15	OH E-W / OH>MH	-87 / 0	-88 / 0	-87 / 1	-88 / 0	-87 / 0	-88 / 0	-89 / 0	-87 / 0
16	R50M / OH>MP	120 / 152	120 / 151	120 / 151	120 / 151	133 / 151	121 / 151	121 / 150	120 / 152
17	Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
18	Dorsey Reserve / Wtrtn SVC	306 / 65	268 / 54	293 / 71	288 / 54	291 / 50	243 / 47	268 / 66	306 / 65
19	Forbes SVC / MSC	53 / 600	-4 / 600	40 / 600	47 / 600	-8 / 600	26 / 600	14 / 600	53 / 600
20	**Steady State Vltgs**								
21	Dorsey 500/Dorsey 230	1.029 / 1.045	1.033 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045
22	Roseau 500/Forbes 500	1.019 / 1.035	1.017 / 1.028	1.020 / 1.035	1.017 / 1.035	1.014 / 1.035	1.016 / 1.022	1.018 / 1.028	1.019 / 1.035
23	Chisago 500/EauClaire 345	1.024 / 0.955	1.021 / 0.977	1.024 / 0.930	1.024 / 0.966	1.032 / 0.993	1.010 / 1.000	1.019 / 0.964	1.024 / 0.955
24	Ifalls 115/Badoura 115	1.041 / 0.996	1.041 / 0.995	1.042 / 0.997	1.043 / 0.995	1.039 / 0.994	1.040 / 0.993	1.043 / 0.995	1.041 / 0.996
25	Drayton 230/Groton 345	1.031 / 0.996	1.031 / 0.998	1.031 / 0.997	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996
26	**SS OS Relay Margins**								
27	D602F at Forbes/Dorsey	180% / 301%	179% / 294%	183% / 303%	180% / 298%	179% / 296%	174% / 284%	180% / 295%	180% / 301%
28	L20Dat Prairie/Drayton	999% / 964%	999% / 999%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 964%
29	R50M/F3M	999% / 335%	999% / 337%	999% / 338%	999% / 340%	999% / 329%	999% / 338%	999% / 341%	999% / 335%
30	B10T	400%	397%	402%	397%	400%	396%	398%	400%
31	**Min/MaxTransientVltg**								
32	Arrowhd 230	1.03 | 1.04	1.01 | 1.05	1.02 | 1.04	1.02 | 1.04	1.05 | 1.15	1.02 | 1.05	1.02 | 1.05	1.03 | 1.04
33	Boise 115	1.04 | 1.05	1.04 | 1.07	1.04 | 1.05	1.04 | 1.05	1.03 | 1.07	1.04 | 1.07	1.04 | 1.06	1.04 | 1.05
34	Arpin 345	0.89 | 0.93	0.85 | 0.96	0.86 | 0.90	0.89 | 0.94	0.87 | 0.93	0.87 | 0.93	0.86 | 0.90	0.89 | 0.93
35	Forbes 230	1.03 | 1.04	1.01 | 1.07	1.03 | 1.04	1.03 | 1.04	1.03 | 1.09	1.01 | 1.07	1.02 | 1.05	1.03 | 1.04
36	Weston 345	(0.42)0.00 |	0.85 | 0.98	(0.42)0.00 |	(0.42)0.00 |	1.09 | 1.44(0.48)	1.01 | 1.13	0.97 | 1.45(0.48)	(0.42)0.00 |
37	Coal Creek 230	1.02 | 1.04	0.99 | 1.06	1.02 | 1.04	1.02 | 1.04	1.01 | 1.05	1.01 | 1.06	1.01 | 1.05	1.02 | 1.04
38	Columbia 345	1.00 | 1.02	1.01 | 1.02	1.01 | 1.02	1.00 | 1.01	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.00 | 1.02
39	Drayton 230	1.03 | 1.04	1.01 | 1.06	1.03 | 1.04	1.03 | 1.04	1.02 | 1.05	1.02 | 1.05	1.02 | 1.04	1.03 | 1.04
40	Groton 345	0.99 | 1.00	0.97 | 1.02	0.99 | 1.00	0.99 | 1.00	0.99 | 1.01	0.98 | 1.01	0.99 | 1.01	0.99 | 1.00
41	Rocky Run 345	0.89 | 0.94	0.83 | 0.95	0.88 | 0.91	0.91 | 0.94	0.89 | 0.94	0.88 | 0.93	0.87 | 0.91	0.90 | 0.94
42	Wahpeton 230	1.01 | 1.03	1.00 | 1.05	1.01 | 1.03	1.01 | 1.02	1.01 | 1.03	1.01 | 1.04	1.01 | 1.03	1.01 | 1.03
43	Watertown 230	1.02 | 1.03	1.01 | 1.04	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.01 | 1.03	1.02 | 1.03	1.02 | 1.03
44	**Dynamic Voltage Warnings**								
45		none	none	none	none	4520 [WES V308] 1.44	none	4501 [RRN V308] 1.46	none
46						4501 [RRN V308] 1.44		4161 [WESTON] 1.45	
47						4161 [WESTON] 1.44		4520 [WES V308] 1.45	
48						4247 [HI8 TAP2] 1.40		4675 [WESTON 4] 1.43	
49						4246 [HI8 TAP1] 1.40		4247 [HI8 TAP2] 1.37	
50								4246 [HI8 TAP1] 1.34	
51									
52	Worst Case Angle Damping								
53	Dorsey SUVP / UdHold								
54	Forbes DC Red (SEL) / DCAR	74% / 447%	42% / 237%	80% / 447%	74% / 448%	49% / 299%	49% / 292%	66% / 397%	74% / 450%
55	K22W (max +dP @ t, d-ang)	4.2@(2.46656,-0.1)	5.0@(2.59989,0.2)	4.8@(2.56656,-0.6)	5.3@(2.52489,-0.8)	2.4@(3.51652,4.0)	0.0@(0.02500,0.0)	1.5@(2.44990,1.7)	5.5@(2.53323,-1.0)
56	K22W (max -dP @ t, d-ang)	7.9@(0.74997,2.8)	31.7@(0.75830,12.0)	7.5@(0.72497,2.6)	7.6@(0.72497,2.7)	20.7@(1.76659,10.8)	23.4@(1.69160,10.9)	13.0@(0.75830,5.3)	7.4@(0.71664,2.6)
57	K22W (max d-ang @ t, dP)	4.1@(4.90815,-3.2)	16.7@(1.16662,-17.5)	4.0@(1.29995,-5.4)	4.0@(1.21662,-4.6)	13.1@(1.24162,-16.4)	13.0@(1.20829,-16.7)	7.1@(1.16662,-8.3)	3.9@(1.24162,-4.6)
58	**OS Rel Trip / Marg**								
59	MH - OH								
60	D602F at Forbes/Dorsey	173% / 290%	152% / 255%	177% / 293%	173% / 286%	156% / 265%	157% / 260%	168% / 276%	173% / 290%
61	L20D at Prairie/Drayton	999% / 923%	892% / 849%	999% / 936%	999% / 999%	999% / 988%	999% / 953%	999% / 952%	999% / 927%
62	R50M / F3M	999% / 326%	999% / 325%	999% / 326%	999% / 328%	943% / 329%	999% / 338%	999% / 335%	999% / 322%
63	B10T	352%	235%	359%	353%	287%	274%	320%	356%
64	**FSCAPS (SS/Unav/Final)**								
65	EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
66	Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
67	Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
68	Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
69	**Delta Transient Vltg**								
70	Arrowhd 230	0.00	-0.02	-0.01	-0.01	0.04	-0.01	-0.01	0.00
71	Arpin 345	-0.04	-0.09	-0.04	-0.05	-0.09	-0.09	-0.08	-0.04
72	Weston 345	-0.96	-0.11	-0.92	-0.97	0.11	0.04	0.00	-0.96
73	Columbia 345	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	-0.01
74	Rocky Run 345	-0.05	-0.11	-0.04	-0.04	-0.08	-0.08	-0.08	-0.04

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	279	280	281	282	283	284	285	286	287	288
Case Name	1c-sraa.uvj04Y4-va3	1c-sraa.uvj04Y4-va9	2e-sraa.uvg04Y4-ve3	2e-sraa.uvg04Y4-ve9	3j-sraa.uvg04Y4-vi3	3j-sraa.uvg04Y4-vi9	3j-sraa.uvg04Y4-vj3	3j-sraa.uvg04Y4-vj9	5a-sraa.uvf04Y4-vm3	5a-sraa.uvf04Y4-vm9
Disturbance	va3	va9	ve3	ve9	vi3	vi9	vj3	vj9	vm3	vm9
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 21 1999 16:03	JAN 21 1999 16:16	JAN 21 1999 16:30	JAN 21 1999 16:44	JAN 21 1999 17:04	JAN 21 1999 17:17	JAN 21 1999 17:31	JAN 21 1999 17:45	JAN 31 1999 21:24	FEB 01 1999 10:32
Comments										
Steady State Flows										
NDEX / E Bias	1943 / 267	1943 / 267	1941 / 287	1941 / 287	1941 / 314	1941 / 314	1941 / 314	1941 / 314	1942 / 293	1942 / 293
MHEX / L20D	1979 / 218	1979 / 218	1977 / 205	1977 / 205	1978 / 188	1978 / 188	1978 / 188	1978 / 188	1977 / 195	1977 / 195
MN-WUMS / MN-IOWA	1209 / 278	1209 / 278	1161 / -37	1161 / -37	1005 / 54	1005 / 54	1005 / 54	1005 / 54	950 / 16	950 / 16
TCEX / TCEX-new	1328 / 2031	1328 / 2031	1020 / 1652	1020 / 1652	986 / 1674	986 / 1674	986 / 1674	986 / 1674	910 / 1594	910 / 1594
D602F / F601C	1640 / 1534	1640 / 1534	1651 / 1550	1651 / 1550	1656 / 1221	1656 / 1221	1656 / 1221	1656 / 1221	1659 / 1601	1659 / 1601
B10T / MH>SPC	149 / 86	149 / 86	150 / 87	150 / 87	149 / 87	149 / 87	149 / 87	149 / 87	150 / 88	150 / 88
OH E-W / OH>MH	-87 / 1	-87 / 1	-88 / 0	-88 / 0	-87 / 0	-87 / 0	-87 / 0	-87 / 0	-88 / 0	-88 / 0
R50M / OH>MP	120 / 151	120 / 151	120 / 151	120 / 151	133 / 151	133 / 151	133 / 151	133 / 151	121 / 151	121 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	293 / 71	293 / 71	288 / 54	288 / 54	291 / 50	291 / 50	291 / 50	291 / 50	243 / 47	243 / 47
Forbes SVC / MSC	40 / 600	40 / 600	47 / 600	47 / 600	-8 / 600	-8 / 600	-8 / 600	-8 / 600	27 / 600	27 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.035 / 1.045	1.035 / 1.045	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.034 / 1.045	1.034 / 1.045	1.034 / 1.045	1.032 / 1.045	1.032 / 1.045
Roseau 500/Forbes 500	1.020 / 1.035	1.020 / 1.035	1.017 / 1.035	1.017 / 1.035	1.014 / 1.035	1.014 / 1.035	1.014 / 1.035	1.014 / 1.035	1.016 / 1.022	1.016 / 1.022
Chisago 500/EauClaire 345	1.026 / 1.031	1.026 / 1.031	1.026 / 1.032	1.026 / 1.032	1.033 / 1.033	1.033 / 1.033	1.033 / 1.033	1.033 / 1.033	1.010 / 1.000	1.010 / 1.000
Ifalls 115/Badoura 115	1.042 / 0.997	1.042 / 0.997	1.043 / 0.995	1.043 / 0.995	1.039 / 0.994	1.039 / 0.994	1.039 / 0.994	1.039 / 0.994	1.040 / 0.993	1.040 / 0.993
Drayton 230/Groton 345	1.024 / 0.997	1.024 / 0.997	1.024 / 0.998	1.024 / 0.998	1.032 / 1.000	1.032 / 1.000	1.032 / 1.000	1.032 / 1.000	1.033 / 0.999	1.033 / 0.999
SS OS Relay Margins										
D602F at Forbes/Dorsey	183% / 303%	183% / 303%	180% / 298%	180% / 298%	179% / 296%	179% / 296%	179% / 296%	179% / 296%	174% / 284%	174% / 284%
L20Dat Prairie/Drayton	999% / 974%	999% / 974%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 338%	999% / 338%	999% / 340%	999% / 340%	999% / 329%	999% / 329%	999% / 329%	999% / 329%	999% / 338%	999% / 338%
B10T	402%	402%	397%	397%	400%	400%	400%	400%	396%	396%
Min/MaxTransientVltg										
Arrowhd 230	1.03 | 1.03	1.03 | 1.03	1.02 | 1.04	1.02 | 1.04	1.04 | 1.06	1.04 | 1.06	1.05 | 1.07	1.05 | 1.07	0.99 | 1.04	1.00 | 1.03
Boise 115	1.04 | 1.05	1.04 | 1.05	1.03 | 1.07	1.04 | 1.05	1.04 | 1.06	1.04 | 1.06	1.04 | 1.05	1.04 | 1.06	1.03 | 1.07	1.04 | 1.06
Arpin 345	0.88 | 0.90	0.88 | 0.90	0.85 | 0.95	0.91 | 0.93	0.89 | 0.95	0.90 | 0.95	0.92 | 0.94	0.92 | 0.95	0.87 | 0.97	0.90 | 0.96
Forbes 230	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.04 | 1.05	1.04 | 1.05	1.01 | 1.04	1.02 | 1.03
Weston 345	0.91 | 0.92	0.91 | 0.92	0.90 | 0.98	0.95 | 0.96	0.96 | 1.00	0.96 | 1.00	0.95 | 0.97	0.95 | 0.98	0.91 | 1.01	0.94 | 1.00
Coal Creek 230	1.03 | 1.04	1.03 | 1.04	1.01 | 1.06	1.02 | 1.05	1.02 | 1.04	1.02 | 1.04	1.03 | 1.04	1.02 | 1.04	1.01 | 1.05	1.01 | 1.04
Columbia 345	1.01 | 1.02	1.01 | 1.02	1.00 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.00 | 1.02	1.01 | 1.02
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.02 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.01 | 1.04	1.02 | 1.04
Groton 345	0.99 | 1.00	0.99 | 1.00	0.98 | 1.01	0.99 | 1.01	0.99 | 1.00	0.99 | 1.01	0.99 | 1.00	0.99 | 1.01	0.98 | 1.01	0.98 | 1.00
Rocky Run 345	0.90 | 0.91	0.90 | 0.91	0.88 | 0.96	0.93 | 0.95	0.92 | 0.97	0.93 | 0.97	0.94 | 0.96	0.93 | 0.96	0.89 | 0.98	0.92 | 0.97
Wahpeton 230	1.02 | 1.02	1.01 | 1.02	1.01 | 1.04	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.02	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.01 | 1.03	1.02 | 1.03	1.01 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.01 | 1.03	1.01 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold			/ 0.150						/ 0.133	/ 0.150
Forbes DC Red (SEL) / DCAR	84% / 463%	81% / 457%	30% / 224%	82% / 377%	78% / 241%	83% / 236%	81% / 381%	79% / 367%	23% / 87%	63% / 231%
K22W (max +dP @ t, d-ang)	2.1@(3.60818,1.3)	2.6@(3.59985,1.3)	9.8@(2.53323,-1.0)	0.0@(0.04167,0.0)	0.0@(0.07500,0.0)	0.0@(0.07500,0.0)	0.0@(0.07500,0.0)	0.0@(0.07500,0.0)	4.9@(2.72489,0.5)	0.0@(0.10000,0.0)
K22W (max -dP @ t, d-ang)	4.8@(0.99163,1.9)	4.8@(1.08329,2.1)	34.4@(0.69997,13.4)	17.0@(1.58327,8.3)	28.3@(1.73326,16.5)	29.0@(1.84159,16.8)	14.5@(1.69160,8.1)	15.7@(1.60827,9.0)	44.8@(0.28332,7.1)	30.3@(1.61660,15.4)
K22W (max d-ang @ t, dP)	3.6@(5.00815,-2.5)	3.9@(5.00815,-2.5)	17.6@(1.05829,-20.2)	8.3@(1.58327,-17.0)	16.8@(1.52494,-26.5)	17.1@(1.64993,-27.8)	8.2@(1.55827,-14.0)	9.1@(1.51661,-15.5)	24.0@(1.20829,-36.2)	16.5@(1.31661,-25.6)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	179% / 297%	177% / 294%	144% / 245%	178% / 295%	176% / 291%	179% / 295%	177% / 295%	176% / 292%	140% / 236%	166% / 273%
L20D at Prairie/Drayton	999% / 950%	999% / 947%	870% / 845%	999% / 949%	999% / 947%	999% / 939%	999% / 999%	999% / 999%	811% / 795%	999% / 895%
R50M / F3M	999% / 335%	999% / 334%	977% / 316%	999% / 340%	999% / 329%	999% / 329%	999% / 329%	999% / 329%	920% / 327%	999% / 338%
B10T	372%	372%	229%	317%	288%	282%	332%	320%	222%	264%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(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) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	0.00	0.00	-0.01	-0.01	0.03	0.03	0.04	0.04	-0.04	-0.03
Arpin 345	-0.02	-0.02	-0.09	-0.03	-0.07	-0.06	-0.04	-0.04	-0.09	-0.06
Weston 345	-0.01	-0.01	-0.07	-0.02	-0.02	-0.02	-0.03	-0.03	-0.06	-0.03
Columbia 345	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	-0.01	0.00
Rocky Run 345	-0.02	-0.02	-0.07	-0.02	-0.05	-0.04	-0.03	-0.04	-0.07	-0.04

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	289	290	291	292	293	294	295	296	297	298
Case Name	5a-sraa.uvf04Y4-vn3	5a-sraa.uvf04Y4-vn9	5a-sraa.uvf04Y4-vo3	5a-sraa.uvf04Y4-vo9	5b-sraa.uvh04Y4-vq3	5b-sraa.uvh04Y4-vq9	5b-sraa.uvh04Y4-vr3	5b-sraa.uvh04Y4-vr9	5b-sraa.uvh04Y4-vs3	5b-sraa.uvh04Y4-vs9
Disturbance	vn3	vn9	vo3	vo9	vq3	vq9	vr3	vr9	vs3	vs9
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	JAN 31 1999 21:42	JAN 31 1999 21:56	JAN 31 1999 22:09	JAN 31 1999 22:23	FEB 02 1999 15:41	FEB 02 1999 15:56	FEB 02 1999 16:09	FEB 02 1999 16:22	FEB 02 1999 16:35	FEB 02 1999 16:48
Comments										
Steady State Flows										
NDEX / E Bias	1942 / 293	1942 / 293	1942 / 293	1942 / 293	1942 / 282	1942 / 282	1942 / 282	1942 / 282	1942 / 282	1942 / 282
MHEX / L20D	1977 / 195	1977 / 195	1977 / 195	1977 / 195	1976 / 208	1976 / 208	1976 / 208	1976 / 208	1976 / 208	1976 / 208
MN-WUMS / MN-IOWA	950 / 16	950 / 16	950 / 16	950 / 16	1125 / 76	1125 / 76	1125 / 76	1125 / 76	1125 / 76	1125 / 76
TCEX / TCEX-new	910 / 1594	910 / 1594	910 / 1594	910 / 1594	1117 / 1852	1117 / 1852	1117 / 1852	1117 / 1852	1117 / 1852	1117 / 1852
D602F / F601C	1659 / 1601	1659 / 1601	1659 / 1601	1659 / 1601	1647 / 1543	1647 / 1543	1647 / 1543	1647 / 1543	1647 / 1543	1647 / 1543
B10T / MH>SPC	150 / 88	150 / 88	150 / 88	150 / 88	150 / 87	150 / 87	150 / 87	150 / 87	150 / 87	150 / 87
OH E-W / OH>MH	-88 / 0	-88 / 0	-88 / 0	-88 / 0	-89 / 0	-89 / 0	-89 / 0	-89 / 0	-89 / 0	-89 / 0
R50M / OH>MP	121 / 151	121 / 151	121 / 151	121 / 151	121 / 150	121 / 150	121 / 150	121 / 150	121 / 150	121 / 150
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	243 / 47	243 / 47	243 / 47	243 / 47	268 / 66	268 / 66	268 / 66	268 / 66	268 / 66	268 / 66
Forbes SVC / MSC	27 / 600	27 / 600	27 / 600	27 / 600	14 / 600	14 / 600	14 / 600	14 / 600	14 / 600	14 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.032 / 1.045	1.032 / 1.045	1.032 / 1.045	1.032 / 1.045	1.034 / 1.045	1.034 / 1.045	1.034 / 1.045	1.034 / 1.045	1.034 / 1.045	1.034 / 1.045
Roseau 500/Forbes 500	1.016 / 1.022	1.016 / 1.022	1.016 / 1.022	1.016 / 1.022	1.018 / 1.028	1.018 / 1.028	1.018 / 1.028	1.018 / 1.028	1.018 / 1.028	1.018 / 1.028
Chisago 500/EauClaire 345	1.010 / 1.000	1.010 / 1.000	1.010 / 1.000	1.010 / 1.000	1.019 / 0.964	1.019 / 0.964	1.019 / 0.964	1.019 / 0.964	1.019 / 0.964	1.019 / 0.964
Ifalls 115/Badoura 115	1.040 / 0.993	1.040 / 0.993	1.040 / 0.993	1.040 / 0.993	1.043 / 0.995	1.043 / 0.995	1.043 / 0.995	1.043 / 0.995	1.043 / 0.995	1.043 / 0.995
Drayton 230/Groton 345	1.033 / 0.999	1.033 / 0.999	1.033 / 0.999	1.033 / 0.999	1.032 / 0.998	1.032 / 0.998	1.032 / 0.998	1.032 / 0.998	1.032 / 0.998	1.032 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	174% / 284%	174% / 284%	174% / 284%	174% / 284%	180% / 295%	180% / 295%	180% / 295%	180% / 295%	180% / 295%	180% / 295%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 338%	999% / 338%	999% / 338%	999% / 338%	999% / 341%	999% / 341%	999% / 341%	999% / 341%	999% / 341%	999% / 341%
B10T	396%	396%	396%	396%	398%	398%	398%	398%	398%	398%
Min/MaxTransientVltg										
Arrowhd 230	1.02 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.01 | 1.03	1.02 | 1.03	1.02 | 1.03	1.03 | 1.03	1.03 | 1.03	1.03 | 1.03
Boise 115	1.04 | 1.06	1.04 | 1.06	1.04 | 1.05	1.04 | 1.05	1.04 | 1.06	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05
Arpin 345	0.89 | 0.94	0.90 | 0.94	0.92 | 0.95	0.92 | 0.95	0.89 | 0.95	0.91 | 0.94	0.89 | 0.92	0.90 | 0.92	0.92 | 0.93	0.92 | 0.93
Forbes 230	1.02 | 1.03	1.02 | 1.03	1.03 | 1.04	1.02 | 1.04	1.02 | 1.04	1.03 | 1.03	1.03 | 1.04	1.03 | 1.03	1.03 | 1.03	1.03 | 1.04
Weston 345	0.95 | 0.99	0.96 | 0.99	0.95 | 0.97	0.95 | 0.97	0.95 | 0.99	0.96 | 0.99	0.96 | 0.98	0.97 | 0.98	0.96 | 0.97	0.96 | 0.97
Coal Creek 230	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04
Columbia 345	1.00 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.01	1.01 | 1.02	1.01 | 1.02
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.03	1.03 | 1.04
Groton 345	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.00	0.99 | 1.00	0.99 | 1.00	0.99 | 1.00	0.99 | 1.00	0.99 | 1.00
Rocky Run 345	0.91 | 0.96	0.93 | 0.96	0.94 | 0.96	0.93 | 0.96	0.92 | 0.96	0.93 | 0.95	0.92 | 0.94	0.93 | 0.94	0.94 | 0.94	0.94 | 0.95
Wahpeton 230	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.02	1.01 | 1.03	1.02 | 1.02	1.01 | 1.02	1.01 | 1.02
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold	/ 0.150				/ 0.133					
Forbes DC Red (SEL) / DCAR	66% / 255%	75% / 281%	74% / 388%	73% / 370%	54% / 319%	77% / 379%	79% / 390%	83% / 396%	82% / 466%	81% / 459%
K22W (max +dP @ t, d-ang)	0.0@(0.10000,0.0)	0.0@(0.10000,0.0)	0.0@(0.10000,0.0)	0.0@(0.10000,0.0)	2.3@(2.67489,0.5)	0.0@(0.10000,0.0)	0.0@(0.10000,0.0)	0.0@(0.10000,0.0)	0.0@(0.10000,0.0)	0.0@(0.10000,0.0)
K22W (max -dP @ t, d-ang)	29.0@(1.63327,14.5)	26.0@(1.62493,13.7)	14.7@(1.58327,7.3)	16.5@(1.55827,8.4)	22.4@(0.26666,3.4)	15.8@(1.58327,7.7)	15.2@(1.59994,7.3)	13.5@(1.63327,7.1)	5.3@(1.56660,2.6)	6.3@(1.53327,3.1)
K22W (max d-ang @ t, dP)	15.2@(1.34995,-23.3)	13.7@(1.64160,-26.0)	7.4@(1.47494,-14.0)	8.4@(1.49994,-16.3)	11.5@(1.14995,-17.8)	8.1@(1.28328,-12.0)	7.8@(5.00815,-9.2)	7.1@(1.69160,-13.4)	2.7@(1.40828,-4.8)	3.1@(1.43328,-5.9)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	168% / 276%	174% / 284%	174% / 284%	173% / 283%	160% / 266%	175% / 288%	176% / 290%	180% / 295%	178% / 293%	178% / 292%
L20D at Prairie/Drayton	999% / 931%	999% / 936%	999% / 999%	999% / 994%	999% / 878%	999% / 920%	999% / 940%	999% / 948%	999% / 996%	999% / 990%
R50M / F3M	999% / 338%	999% / 338%	999% / 338%	999% / 338%	999% / 334%	999% / 341%	999% / 341%	999% / 341%	999% / 341%	999% / 341%
B10T	284%	295%	327%	317%	291%	316%	330%	343%	368%	362%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(1 | 1 | 1) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.01	-0.01	0.00	0.00	-0.02	-0.01	-0.01	0.00	0.00	0.00
Arpin 345	-0.07	-0.06	-0.04	-0.04	-0.05	-0.03	-0.05	-0.04	-0.02	-0.02
Weston 345	-0.02	-0.01	-0.02	-0.02	-0.02	-0.01	-0.01	0.00	-0.01	-0.01
Columbia 345	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rocky Run 345	-0.05	-0.03	-0.02	-0.03	-0.03	-0.02	-0.03	-0.02	-0.01	-0.01

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	299	300	301	302	303	304	305	306	307	308
Case Name	9b-sraa.uvk04Y4-vu3	9b-sraa.uvk04Y4-vu9	9b-sraa.uvk04Y4-vv3	9b-sraa.uvk04Y4-vv9	9b-sraa.uvk04Y4-vw3	9b-sraa.uvk04Y4-vw9	10-sraa.uvg04Y4-vx3	10-sraa.uvg04Y4-vx9	10-sraa.uvg04Y4-vxs	10-sraa.uvg04Y4-vy3
Disturbance	vu3	vu9	vv3	vv9	vw3	vw9	vx3	vx9	vxs	vy3
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 02 1999 17:45	FEB 03 1999 08:26	FEB 03 1999 08:41	FEB 02 1999 18:24	FEB 02 1999 18:37	FEB 02 1999 18:50	FEB 04 1999 09:36	FEB 04 1999 09:49	MAR 02 1999 14:11	FEB 04 1999 10:02
Comments										
Steady State Flows										
NDEX / E Bias	1942 / 267	1942 / 267	1942 / 267	1942 / 267	1942 / 267	1942 / 267	1941 / 285	1941 / 285	1941 / 285	1941 / 285
MHEX / L20D	1976 / 219	1976 / 219	1976 / 219	1976 / 219	1976 / 219	1976 / 219	1976 / 207	1976 / 207	1976 / 207	1976 / 207
MN-WUMS / MN-IOWA	1124 / 342	1124 / 342	1124 / 342	1124 / 342	1124 / 342	1124 / 342	1005 / 15	1005 / 15	1005 / 15	1005 / 15
TCEX / TCEX-new	1395 / 2155	1395 / 2155	1395 / 2155	1395 / 2155	1395 / 2155	1395 / 2155	959 / 1562	959 / 1562	959 / 1562	959 / 1562
D602F / F601C	1636 / 1539	1636 / 1539	1636 / 1539	1636 / 1539	1636 / 1539	1636 / 1539	1647 / 1560	1647 / 1560	1647 / 1560	1647 / 1560
B10T / MH>SPC	149 / 87	149 / 87	149 / 87	149 / 87	149 / 87	149 / 87	150 / 87	150 / 87	150 / 87	150 / 87
OH E-W / OH>MH	-87 / 0	-87 / 0	-87 / 0	-87 / 0	-87 / 0	-87 / 0	-88 / 0	-88 / 0	-88 / 0	-88 / 0
R50M / OH>MP	120 / 152	120 / 152	120 / 152	120 / 152	120 / 152	120 / 152	120 / 151	120 / 151	120 / 151	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	306 / 65	306 / 65	306 / 65	306 / 65	306 / 65	306 / 65	268 / 54	268 / 54	268 / 54	268 / 54
Forbes SVC / MSC	53 / 600	53 / 600	53 / 600	53 / 600	53 / 600	53 / 600	-4 / 600	-4 / 600	-4 / 600	-4 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.029 / 1.045	1.029 / 1.045	1.029 / 1.045	1.029 / 1.045	1.029 / 1.045	1.029 / 1.045	1.033 / 1.045	1.033 / 1.045	1.033 / 1.045	1.033 / 1.045
Roseau 500/Forbes 500	1.019 / 1.035	1.019 / 1.035	1.019 / 1.035	1.019 / 1.035	1.019 / 1.035	1.019 / 1.035	1.017 / 1.028	1.017 / 1.028	1.017 / 1.028	1.017 / 1.028
Chisago 500/EauClaire 345	1.024 / 0.955	1.024 / 0.955	1.024 / 0.955	1.024 / 0.955	1.024 / 0.955	1.024 / 0.955	1.021 / 0.977	1.021 / 0.977	1.021 / 0.977	1.021 / 0.977
Ifalls 115/Badoura 115	1.041 / 0.996	1.041 / 0.996	1.041 / 0.996	1.041 / 0.996	1.041 / 0.996	1.041 / 0.996	1.041 / 0.995	1.041 / 0.995	1.041 / 0.995	1.041 / 0.995
Drayton 230/Groton 345	1.031 / 0.996	1.031 / 0.996	1.031 / 0.996	1.031 / 0.996	1.031 / 0.996	1.031 / 0.996	1.031 / 0.998	1.031 / 0.998	1.031 / 0.998	1.031 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 301%	180% / 301%	180% / 301%	180% / 301%	180% / 301%	180% / 301%	179% / 294%	179% / 294%	179% / 294%	179% / 294%
L20Dat Prairie/Drayton	999% / 964%	999% / 964%	999% / 964%	999% / 964%	999% / 964%	999% / 964%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 335%	999% / 335%	999% / 335%	999% / 335%	999% / 335%	999% / 335%	999% / 337%	999% / 337%	999% / 337%	999% / 337%
B10T	400%	400%	400%	400%	400%	400%	397%	397%	397%	397%
Min/MaxTransientVltg										
Arrowhd 230	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.00 | 1.04	1.02 | 1.04	1.00 | 1.05	1.02 | 1.04
Boise 115	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.03 | 1.07	1.04 | 1.06	1.03 | 1.07	1.04 | 1.06
Arpin 345	0.91 | 0.94	0.91 | 0.94	0.90 | 0.93	0.91 | 0.92	0.89 | 0.91	0.89 | 0.92	0.84 | 0.97	0.90 | 0.95	0.86 | 0.97	0.87 | 0.92
Forbes 230	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.01 | 1.04	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04
Weston 345	0.94 | 0.96	0.94 | 0.96	0.93 | 0.95	0.94 | 0.95	0.93 | 0.95	0.92 | 0.95	0.86 | 0.98	0.92 | 0.96	0.88 | 0.98	0.91 | 0.96
Coal Creek 230	1.03 | 1.04	1.02 | 1.04	1.02 | 1.05	1.02 | 1.04	1.02 | 1.05	1.02 | 1.05	1.00 | 1.05	1.02 | 1.05	0.98 | 1.06	1.02 | 1.05
Columbia 345	1.00 | 1.01	1.00 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.00 | 1.02	1.01 | 1.02	1.00 | 1.02	1.01 | 1.02
Drayton 230	1.03 | 1.04	1.02 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.01 | 1.04	1.02 | 1.04	1.02 | 1.05	1.02 | 1.04
Groton 345	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.98 | 1.01	0.93 | 1.01	0.99 | 1.01
Rocky Run 345	0.93 | 0.95	0.92 | 0.95	0.92 | 0.94	0.93 | 0.94	0.91 | 0.93	0.91 | 0.94	0.85 | 0.97	0.91 | 0.95	0.88 | 0.97	0.89 | 0.93
Wahpeton 230	1.02 | 1.02	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.02 | 1.03	1.02 | 1.03	1.01 | 1.03	1.01 | 1.03	0.97 | 1.04	1.01 | 1.03
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	0.97 | 1.04	1.02 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping									SHERC33G / 52.90%	
Dorsey SUVP / UdHold							/ 0.133			
Forbes DC Red (SEL) / DCAR	63% / 431%	59% / 417%	68% / 392%	79% / 412%	82% / 382%	80% / 362%	1% / 131%	59% / 334%	-8% / 174%	61% / 351%
K22W (max +dP @ t, d-ang)	4.3@(2.51656,-0.8)	5.8@(2.45823,-1.1)	0.8@(2.49156,1.5)	0.0@(0.09166,0.0)	0.0@(0.09166,0.0)	0.0@(0.09166,0.0)	16.9@(2.60822,-4.6)	0.0@(0.10000,0.0)	20.2@(2.70822,-8.0)	0.2@(2.52489,1.8)
K22W (max -dP @ t, d-ang)	11.1@(0.71664,3.7)	13.5@(0.68331,4.6)	16.4@(0.69997,5.3)	12.3@(1.54994,6.2)	16.0@(1.62493,8.0)	16.9@(1.64993,9.2)	38.5@(0.29165,6.2)	21.6@(0.69164,7.9)	40.7@(0.93330,16.9)	19.6@(0.69997,7.3)
K22W (max d-ang @ t, dP)	4.9@(1.07496,-5.6)	5.9@(0.98330,-6.4)	7.8@(4.96648,-8.5)	6.3@(5.00815,-7.3)	8.0@(1.65827,-16.0)	9.4@(1.79993,-16.3)	22.4@(1.09162,-30.3)	10.9@(1.14995,-13.0)	18.8@(1.14995,-33.0)	9.9@(1.13329,-11.6)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	166% / 279%	163% / 275%	169% / 283%	176% / 294%	178% / 298%	176% / 295%	124% / 215%	164% / 270%	119% / 208%	165% / 273%
L20D at Prairie/Drayton	999% / 917%	999% / 915%	999% / 886%	999% / 905%	999% / 891%	999% / 887%	757% / 749%	999% / 907%	800% / 770%	999% / 922%
R50M / F3M	999% / 326%	999% / 322%	999% / 332%	999% / 335%	999% / 335%	999% / 335%	897% / 303%	999% / 334%	883% / 297%	999% / 334%
B10T	339%	323%	313%	339%	332%	334%	193%	282%	192%	293%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 2 | 2)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	0.00	0.00	-0.01	0.00	0.00	0.00	-0.03	-0.01	-0.03	-0.01
Arpin 345	-0.02	-0.02	-0.03	-0.02	-0.04	-0.04	-0.10	-0.04	-0.08	-0.07
Weston 345	-0.02	-0.02	-0.03	-0.02	-0.03	-0.04	-0.10	-0.04	-0.08	-0.05
Columbia 345	-0.01	-0.01	0.00	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00
Rocky Run 345	-0.01	-0.02	-0.02	-0.01	-0.03	-0.03	-0.09	-0.03	-0.06	-0.05

LOAD FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	309
2	**Case Name**	10-sraa.uvg04Y4-vy9
3	**Disturbance**	vy9
4	**Prior Outage**	None
5	**Date/Time**	FEB 04 1999 10:15
6	**Comments**	
7		
8	**Steady State Flows**	
9	NDEX / E Bias	1941 / 285
10	MHEX / L20D	1976 / 207
11	MN-WUMS / MN-IOWA	1005 / 15
12	TCEX / TCEX-new	959 / 1562
13	D602F / F601C	1647 / 1560
14	B10T / MH>SPC	150 / 87
15	OH E-W / OH>MH	-88 / 0
16	R50M / OH>MP	120 / 151
17	Dorsey BP1 / BP2	1492 / 1689
18	Dorsey Reserve / Wtrtn SVC	268 / 54
19	Forbes SVC / MSC	-4 / 600
20	**Steady State Vltgs**	
21	Dorsey 500/Dorsey 230	1.033 / 1.045
22	Roseau 500/Forbes 500	1.017 / 1.028
23	Chisago 500/EauClaire 345	1.021 / 0.977
24	Ifalls 115/Badoura 115	1.041 / 0.995
25	Drayton 230/Groton 345	1.031 / 0.998
26	**SS OS Relay Margins**	
27	D602F at Forbes/Dorsey	179% / 294%
28	L20Dat Prairie/Drayton	999% / 999%
29	R50M/F3M	999% / 337%
30	B10T	397%
31	**Min/MaxTransientVltg**	
32	Arrowhd 230	1.03 | 1.04
33	Boise 115	1.04 | 1.05
34	Arpin 345	0.89 | 0.91
35	Forbes 230	1.03 | 1.04
36	Weston 345	0.93 | 0.95
37	Coal Creek 230	1.02 | 1.05
38	Columbia 345	1.01 | 1.02
39	Drayton 230	1.03 | 1.04
40	Groton 345	0.99 | 1.01
41	Rocky Run 345	0.91 | 0.93
42	Wahpeton 230	1.01 | 1.03
43	Watertown 230	1.02 | 1.03
44	**Dynamic Voltage Warnings**	
45		none
46		
47		
48		
49		
50		
51		
52	Worst Case Angle Damping	
53	Dorsey SUVP / UdHold	
54	Forbes DC Red (SEL) / DCAR	80% / 383%
55	K22W (max +dP @ t, d-ang)	0.0@(0.10000,0.0)
56	K22W (max -dP @ t, d-ang)	15.4@(1.55827,7.8)
57	K22W (max d-ang @ t, dP)	7.8@(1.52494,-15.4)
58	**OS Rel Trip / Marg**	
59	MH - OH	
60	D602F at Forbes/Dorsey	177% / 290%
61	L20D at Prairie/Drayton	999% / 944%
62	R50M / F3M	999% / 337%
63	B10T	324%
64	**FSCAPS (SS/Unav/Final)**	
65	EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)
66	Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)
67	Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)
68	Sheyenne 115	(0 | 0 | 0)
69	**Delta Transient Vltg**	
70	Arrowhd 230	0.00
71	Arpin 345	-0.05
72	Weston 345	-0.03
73	Columbia 345	0.00
74	Rocky Run 345	-0.03

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	309	310	311	312	313	314	315	316	317	318
Case Name	1z-sraa.uug04Y4-wgs	2w-sraa.uvg04Y4-wgs	3w-sraa.uvg04Y4-wgs	5w-sraa.uvf04Y4-wgs	5z-sraa.uvh04Y4-wgs	9w-sraa.uvk04Y4-wgs	1w-sraa.uvj04Y4-whs	1z-sraa.uug04Y4-whs	2w-sraa.uvg04Y4-whs	3w-sraa.uvg04Y4-whs
Disturbance	wgs	wgs	wgs	wgs	wgs	wgs	whs	whs	whs	whs
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 19 1999 11:03	FEB 19 1999 11:19	FEB 19 1999 11:35	FEB 19 1999 11:51	FEB 19 1999 12:07	FEB 19 1999 12:23	FEB 19 1999 19:37	FEB 19 1999 19:22	FEB 19 1999 19:52	FEB 19 1999 20:06
Comments	Option 10	Option 2e	Option 3j	Option 5a	Option 5b	Option 9b	Option 1c	Option 10	Option 2e	Option 3j
Steady State Flows										
NDEX / E Bias	1942 / 284	1941 / 286	1941 / 312	1942 / 292	1943 / 280	1943 / 265	1943 / 265	1942 / 284	1941 / 286	1941 / 312
MHEX / L20D	1974 / 208	1975 / 205	1976 / 189	1975 / 196	1975 / 209	1975 / 220	1977 / 218	1974 / 208	1975 / 205	1976 / 189
MN-WUMS / MN-IOWA	1000 / 33	1152 / -18	995 / 69	943 / 32	1116 / 91	1117 / 353	1199 / 289	1000 / 33	1152 / -18	995 / 69
TCEX / TCEX-new	969 / 1566	1026 / 1656	990 / 1678	917 / 1600	1121 / 1855	1396 / 2153	1329 / 2032	969 / 1566	1026 / 1656	990 / 1678
D602F / F601C	1645 / 1557	1649 / 1548	1654 / 1222	1657 / 1598	1644 / 1541	1634 / 1536	1638 / 1532	1645 / 1557	1649 / 1548	1654 / 1222
B10T / MH>SPC	150 / 88	150 / 88	150 / 87	151 / 88	150 / 88	150 / 87	149 / 87	150 / 88	150 / 88	150 / 87
OH E-W / OH>MH	-90 / -1	-90 / 0	-89 / 0	-90 / 0	-91 / 0	-89 / 0	-88 / 0	-90 / -1	-90 / 0	-89 / 0
R50M / OH>MP	120 / 151	120 / 150	133 / 150	121 / 150	121 / 149	120 / 151	120 / 150	120 / 151	120 / 150	133 / 150
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	270 / 54	290 / 54	293 / 50	246 / 48	270 / 66	308 / 65	295 / 71	270 / 54	290 / 54	293 / 50
Forbes SVC / MSC	-8 / 600	43 / 600	-18 / 600	21 / 600	10 / 600	50 / 600	37 / 600	-8 / 600	43 / 600	-18 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.034 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.035 / 1.045	1.034 / 1.045	1.035 / 1.045	1.034 / 1.045
Roseau 500/Forbes 500	1.017 / 1.028	1.017 / 1.035	1.015 / 1.035	1.016 / 1.022	1.018 / 1.028	1.020 / 1.035	1.020 / 1.035	1.017 / 1.028	1.017 / 1.035	1.015 / 1.035
Chisago 500/EauClaire 345	1.021 / 0.976	1.024 / 0.967	1.033 / 0.994	1.011 / 1.000	1.019 / 0.965	1.024 / 0.957	1.024 / 0.932	1.021 / 0.976	1.024 / 0.967	1.033 / 0.994
Ifalls 115/Badoura 115	1.041 / 0.995	1.044 / 0.996	1.039 / 0.995	1.040 / 0.994	1.043 / 0.995	1.042 / 0.996	1.042 / 0.997	1.041 / 0.995	1.044 / 0.996	1.039 / 0.995
Drayton 230/Groton 345	1.031 / 0.998	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.997	1.031 / 0.998	1.032 / 0.998	1.033 / 1.000
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 295%	181% / 299%	179% / 297%	175% / 285%	180% / 296%	181% / 302%	184% / 304%	180% / 295%	181% / 299%	179% / 297%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 961%	999% / 972%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 340%	999% / 343%	999% / 332%	999% / 341%	999% / 344%	999% / 339%	999% / 341%	999% / 340%	999% / 343%	999% / 332%
B10T	395%	395%	398%	394%	396%	397%	401%	395%	395%	398%
Min/MaxTransientVltg										
Arrowhd 230	1.02 | 1.04	1.02 | 1.04	1.00 | 1.04	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	1.03 | 1.04	1.02 | 1.04	1.00 | 1.03
Boise 115	1.04 | 1.05	1.04 | 1.06	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.06	1.04 | 1.05
Arpin 345	0.90 | 0.97	0.92 | 0.96	0.93 | 1.00	0.93 | 1.00	0.90 | 0.98	0.91 | 0.95	0.86 | 0.90	0.90 | 0.95	0.90 | 0.94	0.93 | 0.97
Forbes 230	1.02 | 1.04	1.03 | 1.05	1.03 | 1.05	1.02 | 1.04	1.02 | 1.04	1.03 | 1.05	1.03 | 1.04	1.03 | 1.04	1.03 | 1.05	1.03 | 1.04
Weston 345	0.92 | 0.99	0.94 | 0.98	0.95 | 1.02	0.94 | 1.01	0.94 | 1.01	0.94 | 0.97	0.89 | 0.93	0.92 | 0.96	0.94 | 0.97	0.95 | 0.99
Coal Creek 230	1.02 | 1.05	1.01 | 1.05	1.02 | 1.04	1.02 | 1.05	1.02 | 1.05	1.01 | 1.05	1.02 | 1.04	1.02 | 1.04	1.01 | 1.05	1.02 | 1.04
Columbia 345	0.70 | 1.05	0.81 | 1.04	0.70 | 1.05	0.70 | 1.05	0.70 | 1.05	0.83 | 1.04	0.76 | 1.05	(0.44)0.68 | 1.05	0.81 | 1.03	(0.44)0.68 | 1.05
Drayton 230	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.03 | 1.04
Groton 345	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.98 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01	0.99 | 1.01
Rocky Run 345	0.91 | 0.97	0.92 | 0.97	0.93 | 1.00	0.93 | 0.99	0.92 | 0.99	0.92 | 0.96	0.88 | 0.92	0.91 | 0.95	0.92 | 0.95	0.94 | 0.98
Wahpeton 230	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.01 | 1.03	1.01 | 1.02	1.01 | 1.03	1.01 | 1.02
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.01 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03	1.02 | 1.03
Dynamic Voltage Warnings										
	2270 [COL 345] 0.69 2601 [F.SFL] 0.69 2602 [F.NMA] 0.69 2603 [F.COL400] 0.69 2611 [SFL3PHF] 0.69 2612 [NMA3PHF] 0.69 5022 [NMA 345] 0.69	none	2270 [COL 345] 0.69 2601 [F.SFL] 0.69 2602 [F.NMA] 0.69 2603 [F.COL400] 0.69 2611 [SFL3PHF] 0.69 2612 [NMA3PHF] 0.69 5022 [NMA 345] 0.69	2270 [COL 345] 0.69 2601 [F.SFL] 0.69 2602 [F.NMA] 0.69 2603 [F.COL400] 0.69 2611 [SFL3PHF] 0.69 2612 [NMA3PHF] 0.69 5022 [NMA 345] 0.69	2270 [COL 345] 0.69 2601 [F.SFL] 0.69 2602 [F.NMA] 0.69 2603 [F.COL400] 0.69 2611 [SFL3PHF] 0.69 2612 [NMA3PHF] 0.69 5022 [NMA 345] 0.69	none	none	2271 [COL 138] 0.67 2265 [HAM 138] 0.68 2267 [TRI 138] 0.68 2270 [COL 345] 0.68 2262 [POR 138] 0.68 2600 [F.ROE] 0.68 2604 [F.COL200] 0.68 +more	none	2271 [COL 138] 0.67 2265 [HAM 138] 0.68 2267 [TRI 138] 0.68 2270 [COL 345] 0.68 2262 [POR 138] 0.68 2600 [F.ROE] 0.68 2604 [F.COL200] 0.68 +more
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	68% / 433%	64% / 409%	67% / 437%	59% / 435%	67% / 438%	65% / 406%	75% / 427%	70% / 430%	68% / 379%	68% / 434%
K22W (max +dP @ t, d-ang)	5.7@(3.54152,0.4)	9.5@(2.57489,-1.3)	6.2@(2.66656,-0.3)	6.5@(2.66656,-0.4)	6.7@(3.54152,-0.2)	9.3@(2.59156,-1.2)	7.1@(3.65818,1.4)	6.3@(3.67484,1.9)	5.9@(2.63322,1.2)	6.6@(3.63318,1.3)
K22W (max -dP @ t, d-ang)	7.9@(0.94163,2.8)	14.8@(0.77497,4.7)	7.8@(0.94163,3.0)	8.2@(0.94163,3.0)	6.8@(0.94996,2.5)	14.6@(0.79997,4.6)	7.8@(1.04996,3.2)	7.2@(1.11662,3.5)	16.3@(0.82497,5.4)	7.2@(1.13329,3.6)
K22W (max d-ang @ t, dP)	4.9@(1.67493,-6.3)	6.7@(1.17495,-5.6)	4.8@(1.58327,-5.8)	4.8@(1.58327,-5.9)	4.7@(1.74160,-5.6)	6.8@(1.30828,-7.2)	6.1@(5.00815,-2.9)	6.1@(5.00815,-2.0)	9.3@(5.00815,-6.2)	5.6@(5.00815,-1.8)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	169% / 280%	167% / 277%	168% / 282%	164% / 270%	169% / 280%	167% / 282%	173% / 288%	171% / 282%	169% / 282%	169% / 282%
L20D at Prairie/Drayton	999% / 987%	999% / 968%	999% / 999%	999% / 999%	999% / 988%	999% / 884%	999% / 926%	999% / 991%	999% / 957%	999% / 999%
R50M / F3M	999% / 325%	999% / 323%	999% / 316%	999% / 325%	999% / 327%	999% / 319%	999% / 324%	999% / 324%	999% / 328%	999% / 315%
B10T	353%	316%	357%	351%	361%	315%	354%	354%	312%	357%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	-0.01	-0.01
Arpin 345	-0.04	-0.02	-0.03	-0.03	-0.04	-0.02	-0.04	-0.04	-0.04	-0.03
Weston 345	-0.04	-0.03	-0.03	-0.03	-0.03	-0.02	-0.03	-0.04	-0.03	-0.03
Columbia 345	-0.31	-0.20	-0.31	-0.31	-0.31	-0.18	-0.25	-0.33	-0.20	-0.33
Rocky Run 345	-0.03	-0.03	-0.04	-0.03	-0.03	-0.02	-0.04	-0.03	-0.03	-0.03

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	319	320	321	322	323	324	325	326	327	328
Case Name	5w-sraa.uvf04Y4-whs	5z-sraa.uvh04Y4-whs	9w-sraa.uvk04Y4-whs	1w-sraa.uvj04Y4-wls	1z-sraa.uug04Y4-wls	3w-sraa.uvg04Y4-wls	5w-sraa.uvf04Y4-wls	5z-sraa.uvh04Y4-wls	9w-sraa.uvk04Y4-wls	1w-sraa.uvj04Y4-wlz
Disturbance	whs	whs	whs	wls	wls	wls	wls	wls	wls	wlz
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 19 1999 20:21	FEB 19 1999 20:38	FEB 19 1999 20:53	FEB 15 1999 15:31	FEB 18 1999 10:27	FEB 12 1999 13:57	FEB 12 1999 14:14	FEB 12 1999 14:37	FEB 15 1999 16:18	FEB 22 1999 11:44
Comments	Option 5a	Option 5b	Option 9b	Option 1c	Option 10	Option 3j	Option 5a	Option 5b	Option 9b	Option 1c
Steady State Flows										
NDEX / E Bias	1942 / 292	1943 / 280	1943 / 265	1943 / 265	1942 / 284	1941 / 312	1942 / 292	1943 / 280	1943 / 265	1943 / 265
MHEX / L20D	1975 / 196	1975 / 209	1975 / 220	1977 / 218	1974 / 208	1976 / 189	1975 / 196	1975 / 209	1975 / 220	1977 / 218
MN-WUMS / MN-IOWA	943 / 32	1116 / 91	1117 / 353	1199 / 289	1000 / 33	995 / 69	943 / 32	1116 / 91	1117 / 353	1199 / 289
TCEX / TCEX-new	917 / 1600	1121 / 1855	1396 / 2153	1329 / 2032	969 / 1566	990 / 1678	917 / 1600	1121 / 1855	1396 / 2153	1329 / 2032
D602F / F601C	1657 / 1598	1644 / 1541	1634 / 1536	1638 / 1532	1645 / 1557	1654 / 1222	1657 / 1598	1644 / 1541	1634 / 1536	1638 / 1532
B10T / MH>SPC	151 / 88	150 / 88	150 / 87	149 / 87	150 / 88	150 / 87	151 / 88	150 / 88	150 / 87	149 / 87
OH E-W / OH>MH	-90 / 0	-91 / 0	-89 / 0	-88 / 0	-90 / -1	-89 / 0	-90 / 0	-91 / 0	-89 / 0	-88 / 0
R50M / OH>MP	121 / 150	121 / 149	120 / 151	120 / 150	120 / 151	133 / 150	121 / 150	121 / 149	120 / 151	120 / 150
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	246 / 48	270 / 66	308 / 65	295 / 71	270 / 54	293 / 50	246 / 48	270 / 66	308 / 65	295 / 71
Forbes SVC / MSC	21 / 600	10 / 600	50 / 600	37 / 600	-8 / 600	-18 / 600	21 / 600	10 / 600	50 / 600	37 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.035 / 1.045	1.034 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.035 / 1.045
Roseau 500/Forbes 500	1.016 / 1.022	1.018 / 1.028	1.020 / 1.035	1.020 / 1.035	1.017 / 1.028	1.015 / 1.035	1.016 / 1.022	1.018 / 1.028	1.020 / 1.035	1.020 / 1.035
Chisago 500/EauClaire 345	1.011 / 1.000	1.019 / 0.965	1.024 / 0.957	1.024 / 0.932	1.021 / 0.976	1.033 / 0.994	1.011 / 1.000	1.019 / 0.965	1.024 / 0.957	1.024 / 0.932
Ifalls 115/Badoura 115	1.040 / 0.994	1.043 / 0.995	1.042 / 0.996	1.042 / 0.997	1.041 / 0.995	1.039 / 0.995	1.040 / 0.994	1.043 / 0.995	1.042 / 0.996	1.042 / 0.997
Drayton 230/Groton 345	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.997	1.031 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.997
SS OS Relay Margins										
D602F at Forbes/Dorsey	175% / 285%	180% / 296%	181% / 302%	184% / 304%	180% / 295%	179% / 297%	175% / 285%	180% / 296%	181% / 302%	184% / 304%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 961%	999% / 972%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 961%	999% / 972%
R50M/F3M	999% / 341%	999% / 344%	999% / 339%	999% / 341%	999% / 340%	999% / 332%	999% / 341%	999% / 344%	999% / 339%	999% / 341%
B10T	394%	396%	397%	401%	395%	398%	394%	396%	397%	401%
Min/MaxTransientVltg										
Arrowhd 230	1.02 | 1.04	1.02 | 1.03	1.02 | 1.04	1.00 | 1.06	1.00 | 1.05	0.84 | 1.09	0.99 | 1.07	0.98 | 1.08	1.00 | 1.06	1.01 | 1.05
Boise 115	1.04 | 1.05	1.04 | 1.05	1.04 | 1.05	1.04 | 1.07	1.03 | 1.08	1.02 | 1.08	1.03 | 1.08	1.04 | 1.08	1.04 | 1.07	1.04 | 1.07
Arpin 345	0.93 | 0.97	0.90 | 0.95	0.89 | 0.93	(2.07)0.27 | 0.84	0.70 | 0.98	(1.30)0.37 | 1.01	0.71 | 1.04	(1.23)0.35 | 0.96	(2.13)0.33 | 0.90	0.74 | 0.93
Forbes 230	1.02 | 1.03	1.02 | 1.04	1.03 | 1.05	1.02 | 1.06	1.00 | 1.07	0.97 | 1.08	0.99 | 1.07	1.00 | 1.07	1.01 | 1.06	1.02 | 1.06
Weston 345	0.95 | 0.99	0.95 | 0.99	0.93 | 0.96	(2.27)0.13 | 0.82	(0.50)0.69 | 1.00	(1.30)0.24 | 1.01	(0.50)0.69 | 1.06	(1.23)0.24 | 0.96	(4.91)0.15 | 0.88	0.70 | 0.94
Coal Creek 230	1.02 | 1.04	1.02 | 1.04	1.01 | 1.05	0.99 | 1.06	0.97 | 1.07	0.97 | 1.08	0.97 | 1.08	0.98 | 1.07	0.99 | 1.06	1.00 | 1.06
Columbia 345	(0.44)0.68 | 1.05	(0.44)0.68 | 1.05	0.83 | 1.03	0.99 | 1.02	0.99 | 1.03	0.98 | 1.03	0.99 | 1.03	0.99 | 1.03	0.97 | 1.02	1.01 | 1.02
Drayton 230	1.03 | 1.04	1.03 | 1.04	1.02 | 1.04	1.02 | 1.05	1.00 | 1.06	1.01 | 1.07	1.00 | 1.07	1.01 | 1.07	1.02 | 1.05	1.02 | 1.05
Groton 345	0.99 | 1.01	0.99 | 1.01	0.98 | 1.01	0.97 | 1.02	0.96 | 1.02	0.95 | 1.03	0.96 | 1.04	0.97 | 1.03	0.97 | 1.01	0.97 | 1.01
Rocky Run 345	0.93 | 0.97	0.92 | 0.96	0.91 | 0.94	(2.07)0.21 | 0.82	(0.48)0.66 | 0.98	(1.30)0.30 | 0.99	(0.50)0.67 | 1.04	(1.23)0.30 | 0.94	(1.13)0.26 | 0.88	0.71 | 0.92
Wahpeton 230	1.01 | 1.02	1.01 | 1.02	1.01 | 1.03	1.01 | 1.05	0.99 | 1.06	0.99 | 1.05	0.99 | 1.06	1.00 | 1.05	1.01 | 1.04	1.00 | 1.04
Watertown 230	1.02 | 1.03	1.02 | 1.03	1.01 | 1.03	1.00 | 1.03	0.99 | 1.04	0.98 | 1.05	0.99 | 1.05	0.99 | 1.05	1.00 | 1.03	1.00 | 1.03
Dynamic Voltage Warnings										
	2271 [COL 138] 0.67	2271 [COL 138] 0.67	none	4161 [WESTON] 0.56	4188 [CLEAR LK] 0.63	2506 [CW8 115] 0.57	4171 [WHITCOMB] 0.62	2506 [CW8 115] 0.59	4186 [HODAG] 0.56	none
	2267 [TRI 138] 0.68	2267 [TRI 138] 0.68		2506 [CW8 115] 0.57	4189 [CRANBERY] 0.63	4170 [KELLY] 0.57	2506 [CW8 115] 0.64	4170 [KELLY] 0.60	4187 [HIWAY 8] 0.56	
	2270 [COL 345] 0.68	2270 [COL 345] 0.68		4171 [WHITCOMB] 0.57	4190 [THREE LK] 0.63	4171 [WHITCOMB] 0.57	4172 [CAROLINE] 0.64	4171 [WHITCOMB] 0.61	4188 [CLEAR LK] 0.56	
	2262 [POR 138] 0.68	2262 [POR 138] 0.68		4170 [KELLY] 0.58	4192 [ST GERMA] 0.63	4168 [WESTON] 0.59	4170 [KELLY] 0.65	4168 [WESTON] 0.62	4189 [CRANBERY] 0.56	
	2600 [F.ROE] 0.68	2600 [F.ROE] 0.68		4168 [WESTON] 0.59	4186 [HODAG] 0.64	4169 [MORRISON] 0.59	4169 [MORRISON] 0.67	4169 [MORRISON] 0.62	4190 [THREE LK] 0.56	
	2604 [F.COL200] 0.68	2604 [F.COL200] 0.68		4169 [MORRISON] 0.59	4187 [HIWAY 8] 0.64	4172 [CAROLINE] 0.61	3593 [CLINTNVL] 0.67	4174 [HILLTOP] 0.63	4182 [BUNKER H] 0.58	
	2610 [ROE3PHF] 0.68 +more	2610 [ROE3PHF] 0.68 +more		4174 [HILLTOP] 0.59 +more	4191 [VENUS] 0.64 +more	4161 [WESTON] 0.64 +more	4111 [HOOVER] 0.67 +more	4175 [SHRMN ST] 0.63 +mor	4183 [PINE] 0.58 +more	
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	61% / 439%	69% / 431%	68% / 374%	79% / 4%	20% / 37%	84% / -39%	7% / -4%	84% / -43%	70% / 83%	63% / 272%
K22W (max +dP @ t, d-ang)	6.8@(2.69989,0.4)	7.2@(3.68318,1.4)	5.4@(2.64989,1.4)	0.0@(0.08333,0.0)	11.7@(3.65818,3.3)	87.2@(2.87488,-24.4)	104.3@(2.94154,-36.7)	90.1@(3.56652,-25.3)	0.0@(0.09166,0.0)	6.7@(3.45819,0.2)
K22W (max -dP @ t, d-ang)	6.6@(1.05829,3.0)	7.0@(1.39161,4.4)	15.9@(0.84997,5.3)	54.3@(1.77493,29.5)	47.6@(0.79164,17.7)	51.7@(0.84163,23.7)	48.7@(0.80830,19.7)	50.9@(1.32495,32.2)	45.6@(1.74160,25.4)	26.1@(0.79164,9.5)
K22W (max d-ang @ t, dP)	5.2@(5.00815,-1.4)	5.8@(5.00815,-1.6)	9.8@(5.00815,-7.0)	30.1@(5.00815,-25.2)	28.1@(1.32495,-33.2)	34.1@(1.18329,-36.0)	-37.0@(2.85821,102.9)	32.4@(1.36661,-48.0)	28.0@(5.00815,-23.6)	14.5@(1.32495,-18.4)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	165% / 271%	170% / 281%	168% / 284%	176% / 296%	137% / 234%	179% / 297%	129% / 220%	180% / 296%	169% / 288%	165% / 279%
L20D at Prairie/Drayton	999% / 999%	999% / 988%	999% / 878%	753% / 742%	765% / 765%	999% / 859%	796% / 805%	790% / 787%	759% / 745%	862% / 825%
R50M / F3M	999% / 324%	999% / 326%	999% / 325%	999% / 341%	929% / 308%	999% / 282%	915% / 255%	999% / 294%	999% / 339%	999% / 326%
B10T	356%	357%	313%	238%	186%	245%	201%	236%	237%	265%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 2) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.01	-0.01	-0.01	-0.03	-0.03	-0.17	-0.04	-0.05	-0.03	-0.02
Arpin 345	-0.03	-0.04	-0.04	-0.63	-0.24	-0.59	-0.25	-0.59	-0.60	-0.16
Weston 345	-0.02	-0.02	-0.03	-0.79	-0.27	-0.74	-0.28	-0.73	-0.81	-0.22
Columbia 345	-0.33	-0.33	-0.18	-0.02	-0.02	-0.03	-0.02	-0.02	-0.04	0.00
Rocky Run 345	-0.03	-0.03	-0.03	-0.71	-0.28	-0.67	-0.29	-0.65	-0.68	-0.21

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	329	330	331	332	333	334	335	336	337	338
Case Name	1z-sraa.uug04Y4-wlz	2w-sraa.uvg04Y4-wlz	3w-sraa.uvg04Y4-wlz	5w-sraa.uvf04Y4-wlz	5z-sraa.uvh04Y4-wlz	9w-sraa.uvk04Y4-wlz	1w-sraa.uvj04Y4-wns	1z-sraa.uug04Y4-wns	2w-sraa.uvg04Y4-wns	3w-sraa.uvg04Y4-wns
Disturbance	wlz	wlz	wlz	wlz	wlz	wlz	wns	wns	wns	wns
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 22 1999 13:54	FEB 22 1999 12:00	FEB 22 1999 12:16	FEB 22 1999 12:31	FEB 22 1999 12:47	FEB 22 1999 13:03	FEB 19 1999 16:21	FEB 22 1999 09:02	FEB 19 1999 16:35	FEB 19 1999 16:49
Comments	Option 10	Option 2e	Option 3j	Option 5a	Option 5b	Option 9b	Option 1c	Option 10	Option 2e	Option 3j
Steady State Flows										
NDEX / E Bias	1942 / 284	1941 / 286	1941 / 312	1942 / 292	1943 / 280	1943 / 265	1943 / 265	1942 / 284	1941 / 286	1941 / 312
MHEX / L20D	1974 / 208	1975 / 205	1976 / 189	1975 / 196	1975 / 209	1975 / 220	1977 / 218	1974 / 208	1975 / 205	1976 / 189
MN-WUMS / MN-IOWA	1000 / 33	1152 / -18	995 / 69	943 / 32	1116 / 91	1117 / 353	1199 / 289	1000 / 33	1152 / -18	995 / 69
TCEX / TCEX-new	969 / 1566	1026 / 1656	990 / 1678	917 / 1600	1121 / 1855	1396 / 2153	1329 / 2032	969 / 1566	1026 / 1656	990 / 1678
D602F / F601C	1645 / 1557	1649 / 1548	1654 / 1222	1657 / 1598	1644 / 1541	1634 / 1536	1638 / 1532	1645 / 1557	1649 / 1548	1654 / 1222
B10T / MH>SPC	150 / 88	150 / 88	150 / 87	151 / 88	150 / 88	150 / 87	149 / 87	150 / 88	150 / 88	150 / 87
OH E-W / OH>MH	-90 / -1	-90 / 0	-89 / 0	-90 / 0	-91 / 0	-89 / 0	-88 / 0	-90 / -1	-90 / 0	-89 / 0
R50M / OH>MP	120 / 151	120 / 150	133 / 150	121 / 150	121 / 149	120 / 151	120 / 150	120 / 151	120 / 150	133 / 150
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	270 / 54	290 / 54	293 / 50	246 / 48	270 / 66	308 / 65	295 / 71	270 / 54	290 / 54	293 / 50
Forbes SVC / MSC	-8 / 600	43 / 600	-18 / 600	21 / 600	10 / 600	50 / 600	37 / 600	-8 / 600	43 / 600	-18 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.034 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.035 / 1.045	1.034 / 1.045	1.035 / 1.045	1.034 / 1.045
Roseau 500/Forbes 500	1.017 / 1.028	1.017 / 1.035	1.015 / 1.035	1.016 / 1.022	1.018 / 1.028	1.020 / 1.035	1.020 / 1.035	1.017 / 1.028	1.017 / 1.035	1.015 / 1.035
Chisago 500/EauClaire 345	1.021 / 0.976	1.024 / 0.967	1.033 / 0.994	1.011 / 1.000	1.019 / 0.965	1.024 / 0.957	1.024 / 0.932	1.021 / 0.976	1.024 / 0.967	1.033 / 0.994
Ifalls 115/Badoura 115	1.041 / 0.995	1.044 / 0.996	1.039 / 0.995	1.040 / 0.994	1.043 / 0.995	1.042 / 0.996	1.042 / 0.997	1.041 / 0.995	1.044 / 0.996	1.039 / 0.995
Drayton 230/Groton 345	1.031 / 0.998	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.997	1.031 / 0.998	1.032 / 0.998	1.033 / 1.000
SS OS Relay Margins										
D602F at Forbes/Dorsey	180% / 295%	181% / 299%	179% / 297%	175% / 285%	180% / 296%	181% / 302%	184% / 304%	180% / 295%	181% / 299%	179% / 297%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 961%	999% / 972%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 340%	999% / 343%	999% / 332%	999% / 341%	999% / 344%	999% / 339%	999% / 341%	999% / 340%	999% / 343%	999% / 332%
B10T	395%	395%	398%	394%	396%	397%	401%	395%	395%	398%
Min/MaxTransientVltg										
Arrowhd 230	1.01 | 1.05	1.01 | 1.05	0.97 | 1.06	1.01 | 1.05	1.00 | 1.05	1.01 | 1.05	1.03 | 1.07	1.02 | 1.05	1.03 | 1.06	0.91 | 0.98
Boise 115	1.03 | 1.07	1.04 | 1.07	1.02 | 1.08	1.03 | 1.07	1.04 | 1.07	1.04 | 1.07	1.05 | 1.07	1.04 | 1.07	1.05 | 1.07	1.03 | 1.07
Arpin 345	0.82 | 0.98	0.80 | 0.98	0.80 | 1.01	0.84 | 1.01	0.79 | 0.98	0.79 | 0.97	(0.42)0.00 |	(0.42)0.00 |	(0.42)0.00 |	(0.42)0.00 |
Forbes 230	1.01 | 1.07	1.02 | 1.06	1.01 | 1.07	1.01 | 1.07	1.01 | 1.06	1.02 | 1.06	1.03 | 1.08	1.02 | 1.07	1.03 | 1.08	1.01 | 1.06
Weston 345	0.83 | 0.99	0.76 | 1.00	0.79 | 1.04	0.84 | 1.02	0.79 | 1.02	0.75 | 0.98	0.92 | 0.95	0.86 | 0.93	0.95 | 0.98	0.88 | 0.96
Coal Creek 230	0.99 | 1.06	1.00 | 1.06	0.99 | 1.06	0.99 | 1.06	0.99 | 1.06	1.00 | 1.06	1.01 | 1.07	1.01 | 1.05	1.01 | 1.06	1.01 | 1.06
Columbia 345	1.00 | 1.02	0.99 | 1.02	1.00 | 1.02	1.00 | 1.02	1.00 | 1.02	0.99 | 1.02	0.98 | 1.01	1.00 | 1.02	0.97 | 1.00	1.00 | 1.02
Drayton 230	1.01 | 1.06	1.02 | 1.05	1.01 | 1.06	1.01 | 1.06	1.01 | 1.06	1.02 | 1.05	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06
Groton 345	0.97 | 1.02	0.98 | 1.02	0.97 | 1.02	0.97 | 1.02	0.97 | 1.02	0.97 | 1.01	0.98 | 1.02	0.98 | 1.01	0.98 | 1.02	0.98 | 1.02
Rocky Run 345	0.80 | 0.97	0.77 | 0.98	0.77 | 1.01	0.81 | 1.00	0.77 | 0.98	0.76 | 0.97	0.92 | 0.95	0.86 | 0.93	0.94 | 0.97	0.89 | 0.95
Wahpeton 230	1.00 | 1.05	1.00 | 1.04	1.00 | 1.05	1.00 | 1.05	1.00 | 1.05	1.00 | 1.04	1.01 | 1.05	1.01 | 1.04	1.01 | 1.05	1.00 | 1.04
Watertown 230	1.00 | 1.04	1.01 | 1.03	1.00 | 1.04	1.00 | 1.04	1.00 | 1.04	1.00 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.04	1.01 | 1.03
Dynamic Voltage Warnings										
	none	none	none	none	none	none	none	none	none	none
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	39% / 202%	50% / 308%	24% / 144%	28% / 173%	44% / 226%	53% / 306%	91% / 156%	51% / 271%	82% / 224%	61% / 228%
K22W (max +dP @ t, d-ang)	5.3@(2.62489,0.4)	7.8@(2.53323,-0.6)	8.8@(2.77488,-1.0)	5.9@(2.66656,-0.2)	5.7@(2.65822,-0.3)	8.0@(2.55823,-0.8)	0.0@(0.08333,0.0)	1.6@(2.57489,2.2)	0.0@(0.08333,0.0)	0.0@(-0.01667,0.0)
K22W (max -dP @ t, d-ang)	35.3@(0.75830,13.2)	24.1@(0.76664,8.9)	33.6@(0.74164,15.0)	35.6@(0.77497,14.6)	31.2@(0.77497,11.8)	24.3@(0.77497,8.9)	42.2@(1.70826,21.2)	28.0@(0.74997,10.7)	34.1@(1.65827,17.3)	34.2@(1.66660,17.0)
K22W (max d-ang @ t, dP)	18.8@(1.18329,-19.4)	12.6@(1.16662,-13.1)	22.2@(1.21662,-24.0)	20.0@(1.18329,-21.7)	17.2@(1.21662,-18.7)	12.7@(1.19995,-13.6)	21.3@(1.79159,-41.6)	14.8@(1.19162,-16.1)	17.3@(1.60827,-33.8)	18.3@(5.00815,-22.4)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	150% / 252%	157% / 265%	140% / 242%	143% / 241%	153% / 258%	158% / 270%	184% / 304%	159% / 263%	178% / 296%	165% / 274%
L20D at Prairie/Drayton	857% / 827%	999% / 905%	999% / 913%	999% / 876%	886% / 843%	865% / 828%	813% / 790%	999% / 865%	906% / 862%	999% / 972%
R50M / F3M	997% / 328%	999% / 326%	861% / 320%	971% / 328%	999% / 330%	999% / 321%	999% / 341%	999% / 333%	999% / 343%	931% / 332%
B10T	221%	263%	220%	218%	237%	264%	264%	248%	260%	263%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 1)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.02	-0.02	-0.04	-0.02	-0.03	-0.02	0.00	-0.01	0.00	-0.10
Arpin 345	-0.12	-0.14	-0.16	-0.12	-0.15	-0.14	-0.90	-0.94	-0.94	-0.96
Weston 345	-0.13	-0.21	-0.19	-0.13	-0.18	-0.21	0.00	-0.10	-0.02	-0.10
Columbia 345	-0.01	-0.02	-0.01	-0.01	-0.01	-0.02	-0.03	-0.01	-0.04	-0.01
Rocky Run 345	-0.14	-0.18	-0.20	-0.15	-0.18	-0.18	0.00	-0.08	-0.01	-0.08

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	339	340	341	342	343	344	345	346	347	348
Case Name	5w-sraa.uvf04Y4-wns	5z-sraa.uvh04Y4-wns	9w-sraa.uvk04Y4-wns	1w-sraa.uvj04Y4-wqs	1z-sraa.uug04Y4-wqs	2w-sraa.uvg04Y4-wqs	3w-sraa.uvg04Y4-wqs	5w-sraa.uvf04Y4-wqs	5z-sraa.uvh04Y4-wqs	9w-sraa.uvk04Y4-wqs
Disturbance	wns	wns	wns	wqs	wqs	wqs	wqs	wqs	wqs	wqs
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 19 1999 17:04	FEB 19 1999 17:18	FEB 19 1999 17:33	FEB 19 1999 17:55	FEB 22 1999 09:38	FEB 19 1999 18:13	FEB 19 1999 18:27	FEB 19 1999 18:42	FEB 19 1999 18:55	FEB 19 1999 19:08
Comments	Option 5a	Option 5b	Option 9b	Option 1c	Option 10	Option 2e	Option 3j	Option 5a	Option 5b	Option 9b
Steady State Flows										
NDEX / E Bias	1942 / 292	1943 / 280	1943 / 265	1943 / 265	1942 / 284	1941 / 286	1941 / 312	1942 / 292	1943 / 280	1943 / 265
MHEX / L20D	1975 / 196	1975 / 209	1975 / 220	1977 / 218	1974 / 208	1975 / 205	1976 / 189	1975 / 196	1975 / 209	1975 / 220
MN-WUMS / MN-IOWA	943 / 32	1116 / 91	1117 / 353	1199 / 289	1000 / 33	1152 / -18	995 / 69	943 / 32	1116 / 91	1117 / 353
TCEX / TCEX-new	917 / 1600	1121 / 1855	1396 / 2153	1329 / 2032	969 / 1566	1026 / 1656	990 / 1678	917 / 1600	1121 / 1855	1396 / 2153
D602F / F601C	1657 / 1598	1644 / 1541	1634 / 1536	1638 / 1532	1645 / 1557	1649 / 1548	1654 / 1222	1657 / 1598	1644 / 1541	1634 / 1536
B10T / MH>SPC	151 / 88	150 / 88	150 / 87	149 / 87	150 / 88	150 / 88	150 / 87	151 / 88	150 / 88	150 / 87
OH E-W / OH>MH	-90 / 0	-91 / 0	-89 / 0	-88 / 0	-90 / -1	-90 / 0	-89 / 0	-90 / 0	-91 / 0	-89 / 0
R50M / OH>MP	121 / 150	121 / 149	120 / 151	120 / 150	120 / 151	120 / 150	133 / 150	121 / 150	121 / 149	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	246 / 48	270 / 66	308 / 65	295 / 71	270 / 54	290 / 54	293 / 50	246 / 48	270 / 66	308 / 65
Forbes SVC / MSC	21 / 600	10 / 600	50 / 600	37 / 600	-8 / 600	43 / 600	-18 / 600	21 / 600	10 / 600	50 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045	1.035 / 1.045	1.034 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045
Roseau 500/Forbes 500	1.016 / 1.022	1.018 / 1.028	1.020 / 1.035	1.020 / 1.035	1.017 / 1.028	1.017 / 1.035	1.015 / 1.035	1.016 / 1.022	1.018 / 1.028	1.020 / 1.035
Chisago 500/EauClaire 345	1.011 / 1.000	1.019 / 0.965	1.024 / 0.957	1.024 / 0.932	1.021 / 0.976	1.024 / 0.967	1.033 / 0.994	1.011 / 1.000	1.019 / 0.965	1.024 / 0.957
Ifalls 115/Badoura 115	1.040 / 0.994	1.043 / 0.995	1.042 / 0.996	1.042 / 0.997	1.041 / 0.995	1.044 / 0.996	1.039 / 0.995	1.040 / 0.994	1.043 / 0.995	1.042 / 0.996
Drayton 230/Groton 345	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996	1.031 / 0.997	1.031 / 0.998	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996
SS OS Relay Margins										
D602F at Forbes/Dorsey	175% / 285%	180% / 296%	181% / 302%	184% / 304%	180% / 295%	181% / 299%	179% / 297%	175% / 285%	180% / 296%	181% / 302%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 961%	999% / 972%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 961%
R50M/F3M	999% / 341%	999% / 344%	999% / 339%	999% / 341%	999% / 340%	999% / 343%	999% / 332%	999% / 341%	999% / 344%	999% / 339%
B10T	394%	396%	397%	401%	395%	395%	398%	394%	396%	397%
Min/MaxTransientVltg										
Arrowhd 230	1.02 | 1.05	1.02 | 1.05	1.03 | 1.06	1.02 | 1.05	1.01 | 1.05	1.02 | 1.05	1.01 | 1.17(0.42)	1.01 | 1.07	1.01 | 1.07	1.02 | 1.05
Boise 115	1.04 | 1.07	1.04 | 1.07	1.04 | 1.07	1.04 | 1.06	1.04 | 1.07	1.04 | 1.06	1.03 | 1.08	1.04 | 1.08	1.04 | 1.07	1.04 | 1.06
Arpin 345	(0.42)0.00 |	(0.42)0.00 |	(0.42)0.00 |	(1.78)0.64 | 0.91	0.85 | 1.00	0.85 | 0.97	(1.52)0.64 | 0.99	0.82 | 0.96	0.81 | 0.94	0.85 | 0.96
Forbes 230	1.02 | 1.06	1.02 | 1.07	1.03 | 1.08	1.03 | 1.06	1.01 | 1.07	1.03 | 1.06	1.02 | 1.11	1.01 | 1.09	1.02 | 1.07	1.03 | 1.06
Weston 345	0.88 | 0.94	0.91 | 0.96	0.94 | 0.97	(0.42)0.00 |	0.75 | 0.97	(0.42)0.00 |	0.84 | 1.41(0.42)	0.96 | 1.16(0.42)	0.91 | 1.43(0.42)	(0.42)0.00 |
Coal Creek 230	1.01 | 1.06	1.01 | 1.06	1.01 | 1.06	1.02 | 1.06	0.98 | 1.06	1.01 | 1.06	1.00 | 1.06	0.99 | 1.07	1.00 | 1.07	1.01 | 1.06
Columbia 345	1.01 | 1.02	1.00 | 1.02	0.97 | 1.00	0.98 | 1.02	0.99 | 1.02	0.98 | 1.02	0.98 | 1.03	0.98 | 1.02	0.99 | 1.02	0.99 | 1.02
Drayton 230	1.02 | 1.06	1.02 | 1.06	1.02 | 1.06	1.02 | 1.05	1.01 | 1.06	1.02 | 1.05	1.02 | 1.07	1.02 | 1.07	1.02 | 1.06	1.02 | 1.05
Groton 345	0.98 | 1.02	0.98 | 1.02	0.98 | 1.02	0.98 | 1.01	0.97 | 1.02	0.99 | 1.01	0.98 | 1.03	0.98 | 1.02	0.98 | 1.02	0.98 | 1.01
Rocky Run 345	0.89 | 0.94	0.91 | 0.95	0.94 | 0.96	0.74 | 0.92	0.71 | 0.94	0.81 | 0.97	0.74 | 0.96	0.78 | 0.94	0.78 | 0.93	0.81 | 0.97
Wahpeton 230	1.01 | 1.04	1.01 | 1.04	1.01 | 1.05	1.02 | 1.04	1.00 | 1.05	1.01 | 1.04	1.00 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.04
Watertown 230	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.01 | 1.03	1.00 | 1.04	1.02 | 1.03	1.01 | 1.04	1.01 | 1.04	1.01 | 1.04	1.01 | 1.03
Dynamic Voltage Warnings										
	none	none	none	4171 [WHITCOMB] 0.62	none	4171 [WHITCOMB] 0.61	2506 [CW8 115] 0.55	2506 [CW8 115] 0.57	2506 [CW8 115] 0.59	2506 [CW8 115] 0.66
				2506 [CW8 115] 0.65		2506 [CW8 115] 0.65	4171 [WHITCOMB] 0.58	4171 [WHITCOMB] 0.62	4171 [WHITCOMB] 0.65	4188 [CLEAR LK] 0.66
				4170 [KELLY] 0.66		4172 [CAROLINE] 0.66	4170 [KELLY] 0.61	4172 [CAROLINE] 0.64	4172 [CAROLINE] 0.66	4189 [CRANBERY] 0.66
				4172 [CAROLINE] 0.66		4189 [CRANBERY] 0.66	4172 [CAROLINE] 0.61	4170 [KELLY] 0.66	3593 [CLINTNVL] 0.68	4192 [ST GERMA] 0.66
				4188 [CLEAR LK] 0.66		4192 [ST GERMA] 0.66	4169 [MORRISON] 0.63	3621 [BADGER] 0.67	4170 [KELLY] 0.68	4170 [KELLY] 0.67
				4189 [CRANBERY] 0.66		4188 [CLEAR LK] 0.67	4168 [WESTON] 0.63	3622 [WEST SHA] 0.67	3622 [WEST SHA] 0.68	4186 [HODAG] 0.67
				4186 [HODAG] 0.67 +more		4170 [KELLY] 0.67 +more	3622 [WEST SHA] 0.64 +more	3593 [CLINTNVL] 0.67 +more	3621 [BADGER] 0.69 +more	4190 [THREE LK] 0.67 +more
Worst Case Angle Damping										
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	46% / 269%	80% / 196%	85% / 219%	81% / 122%	51% / 167%	65% / 261%	84% / -16%	71% / 79%	73% / 173%	66% / 258%
K22W (max +dP @ t, d-ang)	0.0@(-0.00833,0.0)	0.0@(-0.01667,0.0)	0.0@(0.09166,0.0)	0.0@(0.08333,0.0)	4.4@(3.61651,4.2)	2.9@(3.46652,1.7)	83.0@(3.79151,-20.4)	0.0@(-0.00833,0.0)	0.7@(3.83317,6.5)	3.9@(3.50818,1.4)
K22W (max -dP @ t, d-ang)	26.9@(1.64160,13.3)	37.2@(1.67493,18.7)	35.1@(1.66660,17.7)	41.1@(1.92492,23.6)	36.0@(1.72493,19.0)	25.8@(1.57494,15.2)	49.0@(1.43328,31.1)	45.2@(1.75826,24.7)	36.0@(1.73326,20.1)	26.9@(1.59160,15.5)
K22W (max d-ang @ t, dP)	14.7@(1.23328,-17.5)	18.8@(1.63327,-37.0)	17.7@(1.64160,-35.0)	23.8@(2.04992,-40.0)	20.5@(1.34995,-25.1)	15.3@(1.64993,-25.6)	31.3@(1.44994,-48.5)	24.9@(1.62493,-43.3)	20.1@(1.71660,-35.9)	15.7@(1.69993,-26.3)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	156% / 256%	177% / 290%	180% / 301%	177% / 297%	158% / 265%	167% / 280%	179% / 297%	171% / 281%	172% / 286%	167% / 283%
L20D at Prairie/Drayton	999% / 932%	875% / 838%	815% / 792%	821% / 801%	853% / 817%	999% / 902%	999% / 877%	893% / 849%	882% / 843%	857% / 829%
R50M / F3M	999% / 341%	999% / 344%	999% / 339%	999% / 341%	999% / 332%	999% / 339%	999% / 321%	999% / 341%	999% / 344%	999% / 337%
B10T	255%	256%	260%	296%	225%	290%	248%	234%	267%	293%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 3) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg										
Arrowhd 230	-0.01	-0.01	0.00	-0.01	-0.02	-0.01	0.00	-0.02	-0.02	-0.01
Arpin 345	-0.96	-0.94	-0.93	-0.26	-0.09	-0.09	-0.32	-0.14	-0.13	-0.08
Weston 345	-0.09	-0.06	-0.02	-0.92	-0.21	-0.97	-0.14	-0.01	-0.06	-0.96
Columbia 345	0.00	-0.01	-0.04	-0.03	-0.02	-0.03	-0.03	-0.03	-0.02	-0.02
Rocky Run 345	-0.07	-0.04	0.00	-0.18	-0.23	-0.14	-0.23	-0.18	-0.17	-0.13

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	349	350	351	352	353	354	355
Case Name	1w-sraa.uvj04Y4-wqz	1z-sraa.uug04Y4-wqz	2w-sraa.uvg04Y4-wqz	3w-sraa.uvg04Y4-wqz	5w-sraa.uvf04Y4-wqz	5z-sraa.uvh04Y4-wqz	9w-sraa.uvk04Y4-wqz
Disturbance	wqz	wqz	wqz	wqz	wqz	wqz	wqz
Prior Outage	None	None	None	None	None	None	None
Date/Time	FEB 22 1999 15:18	FEB 22 1999 13:18	FEB 22 1999 13:35	FEB 22 1999 15:32	FEB 22 1999 15:46	FEB 22 1999 16:02	FEB 22 1999 14:18
Comments	Option 1c	Option 10	Option 2e	Option 3j	Option 5a	Option 5b	Option 9b
Steady State Flows							
NDEX / E Bias	1943 / 265	1942 / 284	1941 / 286	1941 / 312	1942 / 292	1943 / 280	1943 / 265
MHEX / L20D	1977 / 218	1974 / 208	1975 / 205	1976 / 189	1975 / 196	1975 / 209	1975 / 220
MN-WUMS / MN-IOWA	1199 / 289	1000 / 33	1152 / -18	995 / 69	943 / 32	1116 / 91	1117 / 353
TCEX / TCEX-new	1329 / 2032	969 / 1566	1026 / 1656	990 / 1678	917 / 1600	1121 / 1855	1396 / 2153
D602F / F601C	1638 / 1532	1645 / 1557	1649 / 1548	1654 / 1222	1657 / 1598	1644 / 1541	1634 / 1536
B10T / MH>SPC	149 / 87	150 / 88	150 / 88	150 / 87	151 / 88	150 / 88	150 / 87
OH E-W / OH>MH	-88 / 0	-90 / -1	-90 / 0	-89 / 0	-90 / 0	-91 / 0	-89 / 0
R50M / OH>MP	120 / 150	120 / 151	120 / 150	133 / 150	121 / 150	121 / 149	120 / 151
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	295 / 71	270 / 54	290 / 54	293 / 50	246 / 48	270 / 66	308 / 65
Forbes SVC / MSC	37 / 600	-8 / 600	43 / 600	-18 / 600	21 / 600	10 / 600	50 / 600
Steady State Vltgs							
Dorsey 500/Dorsey 230	1.035 / 1.045	1.034 / 1.045	1.035 / 1.045	1.034 / 1.045	1.032 / 1.045	1.034 / 1.045	1.029 / 1.045
Roseau 500/Forbes 500	1.020 / 1.035	1.017 / 1.028	1.017 / 1.035	1.015 / 1.035	1.016 / 1.022	1.018 / 1.028	1.020 / 1.035
Chisago 500/EauClaire 345	1.024 / 0.932	1.021 / 0.976	1.024 / 0.967	1.033 / 0.994	1.011 / 1.000	1.019 / 0.965	1.024 / 0.957
Ifalls 115/Badoura 115	1.042 / 0.997	1.041 / 0.995	1.044 / 0.996	1.039 / 0.995	1.040 / 0.994	1.043 / 0.995	1.042 / 0.996
Drayton 230/Groton 345	1.031 / 0.997	1.031 / 0.998	1.032 / 0.998	1.033 / 1.000	1.033 / 0.999	1.032 / 0.998	1.031 / 0.996
SS OS Relay Margins							
D602F at Forbes/Dorsey	184% / 304%	180% / 295%	181% / 299%	179% / 297%	175% / 285%	180% / 296%	181% / 302%
L20Dat Prairie/Drayton	999% / 972%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 961%
R50M/F3M	999% / 341%	999% / 340%	999% / 343%	999% / 332%	999% / 341%	999% / 344%	999% / 339%
B10T	401%	395%	395%	398%	394%	396%	397%
Min/MaxTransientVltg							
Arrowhd 230	1.02 | 1.05	1.01 | 1.05	1.02 | 1.05	1.04 | 1.17(0.42)	1.01 | 1.07	1.02 | 1.06	1.02 | 1.05
Boise 115	1.04 | 1.06	1.04 | 1.07	1.04 | 1.06	1.03 | 1.08	1.04 | 1.07	1.04 | 1.07	1.04 | 1.06
Arpin 345	0.79 | 0.92	0.88 | 0.99	0.86 | 0.98	0.83 | 0.95	0.85 | 0.96	0.83 | 0.94	0.85 | 0.97
Forbes 230	1.03 | 1.06	1.01 | 1.06	1.03 | 1.06	1.03 | 1.10	1.01 | 1.08	1.02 | 1.07	1.03 | 1.06
Weston 345	(0.42)0.00 |	0.83 | 0.96	(0.42)0.00 |	1.03 | 1.45(0.42)	1.00 | 1.18(0.42)	0.96 | 1.48(0.49)	(0.42)0.00 |
Coal Creek 230	1.01 | 1.06	1.00 | 1.07	1.01 | 1.06	1.00 | 1.06	1.00 | 1.07	1.01 | 1.07	1.01 | 1.06
Columbia 345	1.00 | 1.02	1.00 | 1.02	0.98 | 1.01	0.99 | 1.02	0.99 | 1.02	0.99 | 1.02	0.98 | 1.01
Drayton 230	1.03 | 1.05	1.02 | 1.06	1.03 | 1.05	1.02 | 1.06	1.02 | 1.06	1.03 | 1.05	1.02 | 1.04
Groton 345	0.99 | 1.01	0.98 | 1.02	0.99 | 1.01	0.98 | 1.02	0.98 | 1.02	0.98 | 1.02	0.98 | 1.01
Rocky Run 345	0.84 | 0.94	0.79 | 0.93	0.85 | 0.95	0.82 | 0.95	0.82 | 0.94	0.82 | 0.92	0.85 | 0.95
Wahpeton 230	1.02 | 1.04	1.00 | 1.05	1.01 | 1.04	1.01 | 1.05	1.01 | 1.05	1.01 | 1.04	1.01 | 1.04
Watertown 230	1.01 | 1.03	1.01 | 1.04	1.02 | 1.03	1.01 | 1.04	1.01 | 1.04	1.01 | 1.04	1.01 | 1.03
Dynamic Voltage Warnings							
	none	none	none	2506 [CW8 115] 0.64 1318 [ARR 345] 1.21 4247 [HI8 TAP2] 1.40 4246 [HI8 TAP1] 1.41 4161 [WESTON] 1.45 4501 [RRN V308] 1.45 4520 [WES V308] 1.45	none	4161 [WESTON] 1.48 4520 [WES V308] 1.48 4501 [RRN V308] 1.48 4675 [WESTON 4] 1.45 4247 [HI8 TAP2] 1.37 4246 [HI8 TAP1] 1.36	none
Worst Case Angle Damping							
Dorsey SUVP / UdHold							
Forbes DC Red (SEL) / DCAR	81% / 277%	62% / 232%	75% / 316%	75% / 136%	76% / 155%	83% / 249%	75% / 315%
K22W (max +dP @ t, d-ang)	0.0@(0.08333,0.0)	0.4@(3.55818,4.6)	0.0@(0.08333,0.0)	0.0@(-0.01667,0.0)	0.0@(-0.00833,0.0)	0.0@(-0.01667,0.0)	0.0@(0.09166,0.0)
K22W (max -dP @ t, d-ang)	26.7@(1.69160,14.5)	31.8@(1.66660,16.1)	22.0@(1.64993,12.1)	41.2@(1.78326,22.7)	41.4@(1.70826,20.9)	31.9@(1.69993,16.0)	22.2@(1.64160,12.2)
K22W (max d-ang @ t, dP)	14.6@(1.79993,-26.2)	16.7@(1.35828,-22.1)	12.1@(1.65827,-22.0)	22.8@(1.74160,-40.9)	20.9@(1.69993,-41.4)	16.1@(1.78326,-31.3)	12.2@(1.68326,-22.1)
OS Rel Trip / Marg							
MH - OH							
D602F at Forbes/Dorsey	177% / 296%	165% / 275%	173% / 289%	173% / 291%	175% / 285%	179% / 296%	173% / 291%
L20D at Prairie/Drayton	877% / 842%	887% / 845%	999% / 919%	999% / 903%	999% / 873%	999% / 867%	881% / 845%
R50M / F3M	999% / 341%	999% / 340%	999% / 343%	969% / 332%	999% / 341%	999% / 344%	999% / 339%
B10T	305%	245%	302%	255%	250%	285%	304%
FSCAPS (SS/Unav/Final)							
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (1 | 1 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)
Delta Transient Vltg							
Arrowhd 230	-0.01	-0.02	-0.01	0.03	-0.02	-0.01	-0.01
Arpin 345	-0.11	-0.06	-0.08	-0.13	-0.11	-0.11	-0.08
Weston 345	-0.92	-0.13	-0.97	0.05	0.03	-0.01	-0.96
Columbia 345	-0.01	-0.01	-0.03	-0.02	-0.02	-0.02	-0.03
Rocky Run 345	-0.08	-0.15	-0.10	-0.15	-0.14	-0.13	-0.09

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	355	356	357	358	359	360	361	362	363	364
Case Name	1c-sraa.vvl04Y4-pcs	1c-sraa.vvl04Y4-pys	1c-sraa.wvn04Y4-pcs	1c-sraa.wvn04Y4-pys	2e-sraa.vvh04Y4-pcs	2e-sraa.vvh04Y4-pys	2e-sraa.wvi04Y4-pcs	2e-sraa.wvi04Y4-pys	3j-sraa.vvh04Y4-pcs	3j-sraa.vvh04Y4-pys
Disturbance	pcs	pys	pcs	pys	pcs	pys	pcs	pys	pcs	pys
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 23 1999 11:55	FEB 23 1999 11:25	FEB 04 1999 16:09	FEB 04 1999 15:36	FEB 23 1999 12:51	FEB 23 1999 12:26	FEB 04 1999 22:09	FEB 04 1999 21:38	FEB 24 1999 12:37	FEB 23 1999 13:17
Comments										
Steady State Flows										
NDEX / E Bias	1990 / 265	1990 / 265	2037 / 263	2037 / 263	1987 / 287	1987 / 287	2034 / 287	2034 / 287	1988 / 314	1988 / 314
MHEX / L20D	1976 / 216	1976 / 216	1975 / 217	1975 / 217	1977 / 202	1977 / 202	1976 / 201	1976 / 201	1977 / 185	1977 / 185
MN-WUMS / MN-IOWA	1264 / 395	1264 / 395	1311 / 512	1311 / 512	1211 / 61	1211 / 61	1258 / 161	1258 / 161	1063 / 162	1063 / 162
TCEX / TCEX-new	1457 / 2157	1457 / 2157	1581 / 2279	1581 / 2279	1135 / 1758	1135 / 1758	1246 / 1862	1246 / 1862	1112 / 1792	1112 / 1792
D602F / F601C	1640 / 1550	1640 / 1550	1638 / 1563	1638 / 1563	1654 / 1571	1654 / 1571	1654 / 1588	1654 / 1588	1659 / 1230	1659 / 1230
B10T / MH>SPC	150 / 88	150 / 88	151 / 89	151 / 89	150 / 88	150 / 88	151 / 88	151 / 88	150 / 88	150 / 88
OH E-W / OH>MH	-90 / 0	-90 / 0	-91 / 0	-91 / 0	-90 / 0	-90 / 0	-91 / 0	-91 / 0	-90 / 0	-90 / 0
R50M / OH>MP	119 / 149	119 / 149	119 / 148	119 / 148	120 / 149	120 / 149	119 / 148	119 / 148	132 / 149	132 / 149
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	297 / 82	297 / 82	279 / 97	279 / 97	290 / 73	290 / 73	272 / 82	272 / 82	293 / 54	293 / 54
Forbes SVC / MSC	52 / 600	52 / 600	19 / 600	19 / 600	52 / 600	52 / 600	13 / 600	13 / 600	0 / 600	0 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.035 / 1.045	1.035 / 1.045	1.034 / 1.045	1.034 / 1.045	1.034 / 1.045	1.034 / 1.045	1.033 / 1.045	1.033 / 1.045	1.034 / 1.045	1.034 / 1.045
Roseau 500/Forbes 500	1.023 / 1.035	1.023 / 1.035	1.026 / 1.028	1.026 / 1.028	1.020 / 1.035	1.020 / 1.035	1.023 / 1.029	1.023 / 1.029	1.018 / 1.035	1.018 / 1.035
Chisago 500/EauClaire 345	1.022 / 0.913	1.022 / 0.913	1.016 / 0.891	1.016 / 0.891	1.024 / 0.955	1.024 / 0.955	1.020 / 0.942	1.020 / 0.942	1.032 / 0.983	1.032 / 0.983
Ifalls 115/Badoura 115	1.043 / 1.000	1.043 / 1.000	1.044 / 1.002	1.044 / 1.002	1.044 / 0.998	1.044 / 0.998	1.037 / 1.000	1.037 / 1.000	1.040 / 0.997	1.040 / 0.997
Drayton 230/Groton 345	1.034 / 0.995	1.034 / 0.995	1.037 / 0.993	1.037 / 0.993	1.035 / 0.996	1.035 / 0.996	1.037 / 0.995	1.037 / 0.995	1.036 / 0.998	1.036 / 0.998
SS OS Relay Margins										
D602F at Forbes/Dorsey	183% / 303%	183% / 303%	182% / 298%	182% / 298%	179% / 297%	179% / 297%	178% / 292%	178% / 292%	178% / 295%	178% / 295%
L20Dat Prairie/Drayton	999% / 988%	999% / 988%	999% / 986%	999% / 986%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 345%	999% / 345%	999% / 350%	999% / 350%	999% / 345%	999% / 345%	999% / 340%	999% / 340%	999% / 335%	999% / 335%
B10T	398%	398%	394%	394%	397%	397%	395%	395%	397%	397%
Min/MaxTransientVltg										
Arrowhd 230	1.02 | 1.05	1.01 | 1.04	1.01 | 1.04	0.97 | 1.05	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	1.02 | 1.04	0.85 | 0.95	0.95 | 1.01
Boise 115	1.04 | 1.08	1.04 | 1.07	1.04 | 1.08	1.04 | 1.08	1.04 | 1.08	1.04 | 1.07	1.03 | 1.07	1.03 | 1.06	1.03 | 1.06	1.03 | 1.07
Arpin 345	0.88 | 0.95	0.76 | 0.88	0.88 | 0.95	(2.14)0.54 | 0.90	0.92 | 0.98	0.87 | 0.94	0.90 | 0.98	0.84 | 0.93	0.84 | 0.96	0.86 | 0.96
Forbes 230	1.03 | 1.07	1.02 | 1.05	1.02 | 1.07	1.02 | 1.07	1.03 | 1.07	1.03 | 1.05	1.02 | 1.07	1.02 | 1.05	1.00 | 1.04	1.02 | 1.05
Weston 345	0.89 | 0.96	0.83 | 0.92	0.89 | 0.96	0.71 | 0.94	0.93 | 1.00	0.92 | 0.97	0.92 | 0.99	0.90 | 0.97	0.81 | 0.95	0.89 | 0.98
Coal Creek 230	0.99 | 1.07	0.99 | 1.06	0.99 | 1.07	0.98 | 1.07	0.99 | 1.06	0.99 | 1.06	0.99 | 1.06	0.99 | 1.06	0.98 | 1.07	0.99 | 1.06
Columbia 345	0.96 | 1.02	1.00 | 1.02	0.96 | 1.02	0.97 | 1.03	0.93 | 1.02	0.99 | 1.02	0.92 | 1.02	0.98 | 1.02	0.99 | 1.02	1.01 | 1.02
Drayton 230	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.02 | 1.05	1.01 | 1.06	1.02 | 1.05	1.02 | 1.06	1.02 | 1.05
Groton 345	0.93 | 1.01	0.93 | 1.01	0.93 | 1.01	0.89 | 1.01	0.94 | 1.01	0.94 | 1.01	0.93 | 1.01	0.93 | 1.01	0.93 | 1.02	0.94 | 1.01
Rocky Run 345	0.89 | 0.95	0.81 | 0.91	0.89 | 0.95	(2.14)0.66 | 0.92	0.92 | 0.98	0.90 | 0.96	0.91 | 0.98	0.88 | 0.95	0.84 | 0.96	0.87 | 0.96
Wahpeton 230	0.99 | 1.04	0.99 | 1.04	1.00 | 1.05	0.99 | 1.04	0.98 | 1.04	0.98 | 1.04	0.99 | 1.05	0.98 | 1.04	0.97 | 1.04	0.98 | 1.04
Watertown 230	0.97 | 1.04	0.96 | 1.04	0.96 | 1.03	0.88 | 1.03	0.97 | 1.03	0.97 | 1.03	0.96 | 1.03	0.96 | 1.04	0.96 | 1.04	0.98 | 1.03
Dynamic Voltage Warnings										
	1866 [T-CRNRS7] 0.69	none	1866 [T-CRNRS7] 0.63	1206 [MAYO] 0.27 1208 [WILLOW C] 0.27 1209 [N HILLS] 0.27 1211 [IBM 5] 0.27 1212 [ZUMBRO 5] 0.27 1215 [CASCADE5] 0.27 1217 [BAMBER V] 0.27 +more	none	none	none	none	4246 [HI8 TAP1] 0.69	none
Worst Case Angle Damping	KING 31G / 22.34%	SHERC33G / -23.21%	STANT41G / -2.47%	ANTEL31G / -64.89%	SHERC33G / 25.21%	SHERC33G / 48.48%	SHERC33G / 20.72%	SHERC33G / 43.19%	KING 31G / 13.86%	SHERC33G / 30.55%
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	69% / -97%	56% / 44%	61% / -140%	37% / -372%	43% / -53%	30% / 207%	43% / -81%	24% / 179%	28% / -30%	38% / 158%
K22W (max +dP @ t, d-ang)	0.0@(-0.01667,0.0)	2.9@(3.95817,5.4)	0.0@(0.10000,0.0)	35.4@(9.07475,6.3)	0.0@(0.01667,0.0)	7.9@(2.71655,-0.5)	0.0@(0.01667,0.0)	9.6@(2.71655,-1.3)	0.0@(0.05000,0.0)	0.7@(2.74155,3.5)
K22W (max -dP @ t, d-ang)	62.7@(0.95830,26.2)	54.0@(0.89163,18.2)	70.3@(2.19158,35.0)	100.8@(11.66638,76.2)	58.6@(0.96663,25.4)	39.5@(0.84997,13.1)	60.7@(0.95830,25.6)	42.2@(0.85830,14.1)	57.1@(0.96663,24.4)	44.1@(0.85830,14.7)
K22W (max d-ang @ t, dP)	38.1@(14.65800,-44.4)	42.0@(14.82466,-45.5)	47.7@(15.00799,-52.3)	76.2@(11.66638,-100.8)	33.0@(1.40828,-44.1)	18.0@(1.24162,-21.2)	34.4@(1.43328,-45.6)	19.5@(1.25828,-22.4)	31.7@(1.39161,-40.5)	21.3@(1.32495,-24.2)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	170% / 282%	161% / 268%	165% / 273%	149% / 252%	153% / 258%	144% / 245%	153% / 255%	140% / 237%	143% / 241%	149% / 251%
L20D at Prairie/Drayton	621% / 646%	667% / 685%	612% / 646%	638% / 666%	699% / 707%	840% / 814%	670% / 690%	796% / 783%	812% / 776%	999% / 862%
R50M / F3M	996% / 345%	999% / 340%	998% / 350%	970% / 316%	957% / 345%	986% / 330%	963% / 340%	982% / 324%	855% / 335%	905% / 330%
B10T	191%	207%	194%	207%	192%	225%	185%	210%	184%	219%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 2 | 2)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 1 | 1)
Sheyenne 115	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 0 | 0)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 2 | 2)	(0 | 1 | 1)
Delta Transient Vltg										
Arrowhd 230	-0.01	-0.02	-0.02	-0.06	-0.01	-0.01	-0.01	-0.01	-0.16	-0.06
Arpin 345	-0.02	-0.14	-0.02	-0.36	-0.02	-0.07	-0.04	-0.10	-0.12	-0.10
Weston 345	-0.03	-0.09	-0.03	-0.21	-0.04	-0.05	-0.05	-0.07	-0.17	-0.09
Columbia 345	-0.05	-0.01	-0.05	-0.04	-0.08	-0.02	-0.09	-0.03	-0.02	0.00
Rocky Run 345	-0.03	-0.11	-0.03	-0.26	-0.03	-0.05	-0.04	-0.07	-0.13	-0.10

LOAD FLOW AND STABILITY SUMMARY TABLE

Case No.	365	366	367	368	369	370	371	372	373	374
Case Name	3j-sraa.vvh04Y4-pys-dc	3j-sraa.wvi04Y4-pcs	3j-sraa.wvi04Y4-pcs-dc	3j-sraa.wvi04Y4-pys	3j-sraa.wvi04Y4-pys-dc	5a-sraa.vvg04Y4-pcs	5a-sraa.vvg04Y4-pcs-dc	5a-sraa.vvg04Y4-pys	5a-sraa.wvi04Y4-pcs	5a-sraa.wvi04Y4-pys
Disturbance	pys	pcs	pcs	pys	pys	pcs	pcs	pys	pcs	pys
Prior Outage	None	None	None	None	None	None	None	None	None	None
Date/Time	FEB 25 1999 07:50	FEB 04 1999 23:15	FEB 24 1999 15:36	FEB 04 1999 22:43	FEB 24 1999 16:13	FEB 23 1999 14:39	FEB 24 1999 13:35	FEB 23 1999 14:14	FEB 05 1999 00:20	FEB 04 1999 23:48
Comments										
Steady State Flows										
NDEX / E Bias	1988 / 314	2034 / 314	2034 / 314	2034 / 314	2034 / 314	1988 / 293	1988 / 293	1988 / 293	2035 / 292	2035 / 292
MHEX / L20D	1977 / 185	1977 / 183	1977 / 183	1977 / 183	1977 / 183	1976 / 193	1976 / 193	1976 / 193	1976 / 192	1976 / 192
MN-WUMS / MN-IOWA	1063 / 162	1116 / 274	1116 / 274	1116 / 274	1116 / 274	999 / 123	999 / 123	999 / 123	1051 / 232	1051 / 232
TCEX / TCEX-new	1112 / 1792	1237 / 1910	1237 / 1910	1237 / 1910	1237 / 1910	1028 / 1707	1028 / 1707	1028 / 1707	1150 / 1825	1150 / 1825
D602F / F601C	1659 / 1230	1661 / 1238	1661 / 1238	1661 / 1238	1661 / 1238	1662 / 1624	1662 / 1624	1662 / 1624	1664 / 1647	1664 / 1647
B10T / MH>SPC	150 / 88	150 / 88	150 / 88	150 / 88	150 / 88	150 / 88	150 / 88	150 / 88	151 / 88	151 / 88
OH E-W / OH>MH	-90 / 0	-91 / 0	-91 / 0	-91 / 0	-91 / 0	-90 / 0	-90 / 0	-90 / 0	-91 / 0	-91 / 0
R50M / OH>MP	132 / 149	132 / 148	132 / 148	132 / 148	132 / 148	121 / 149	121 / 149	121 / 149	120 / 148	120 / 148
Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
Dorsey Reserve / Wtrtn SVC	293 / 54	296 / 60	296 / 60	296 / 60	296 / 60	241 / 66	241 / 66	241 / 66	236 / 74	236 / 74
Forbes SVC / MSC	0 / 600	-2 / 600	-2 / 600	-2 / 600	-2 / 600	30 / 600	30 / 600	30 / 600	34 / 600	34 / 600
Steady State Vltgs										
Dorsey 500/Dorsey 230	1.034 / 1.045	1.034 / 1.045	1.034 / 1.045	1.034 / 1.045	1.034 / 1.045	1.032 / 1.045	1.032 / 1.045	1.032 / 1.045	1.031 / 1.045	1.031 / 1.045
Roseau 500/Forbes 500	1.018 / 1.035	1.021 / 1.035	1.021 / 1.035	1.021 / 1.035	1.021 / 1.035	1.019 / 1.021	1.019 / 1.021	1.019 / 1.021	1.022 / 1.019	1.022 / 1.019
Chisago 500/EauClaire 345	1.032 / 0.983	1.032 / 0.972	1.032 / 0.972	1.032 / 0.972	1.032 / 0.972	1.008 / 0.990	1.008 / 0.990	1.008 / 0.990	1.004 / 0.977	1.004 / 0.977
Ifalls 115/Badoura 115	1.040 / 0.997	1.039 / 1.000	1.039 / 1.000	1.039 / 1.000	1.039 / 1.000	1.041 / 0.996	1.041 / 0.996	1.041 / 0.996	1.042 / 0.998	1.042 / 0.998
Drayton 230/Groton 345	1.036 / 0.998	1.040 / 0.997	1.040 / 0.997	1.040 / 0.997	1.040 / 0.997	1.036 / 0.997	1.036 / 0.997	1.036 / 0.997	1.039 / 0.995	1.039 / 0.995
SS OS Relay Margins										
D602F at Forbes/Dorsey	178% / 295%	177% / 294%	177% / 294%	177% / 294%	177% / 294%	173% / 282%	173% / 282%	173% / 282%	172% / 280%	172% / 280%
L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 999%
R50M/F3M	999% / 335%	999% / 339%	999% / 339%	999% / 339%	999% / 339%	999% / 345%	999% / 345%	999% / 345%	999% / 349%	999% / 349%
B10T	397%	397%	397%	397%	397%	396%	396%	396%	395%	395%
Min/MaxTransientVltg										
Arrowhd 230	0.96 | 1.01	(5.36)0.81 | 0.95	0.83 | 0.94	0.95 | 1.01	0.95 | 1.01	1.00 | 1.04	1.01 | 1.03	1.02 | 1.04	1.00 | 1.04	1.02 | 1.04
Boise 115	1.03 | 1.06	1.03 | 1.07	1.03 | 1.06	1.03 | 1.07	1.03 | 1.07	1.04 | 1.08	1.04 | 1.08	1.03 | 1.07	1.04 | 1.08	1.03 | 1.07
Arpin 345	0.87 | 0.96	0.81 | 0.95	0.81 | 0.95	0.83 | 0.94	0.83 | 0.94	0.84 | 0.95	0.84 | 0.95	0.87 | 0.96	0.80 | 0.93	0.83 | 0.93
Forbes 230	1.02 | 1.05	0.99 | 1.04	0.99 | 1.03	1.02 | 1.05	1.02 | 1.05	1.01 | 1.03	1.01 | 1.03	1.02 | 1.04	1.01 | 1.03	1.01 | 1.04
Weston 345	0.89 | 0.98	0.76 | 0.94	0.77 | 0.94	0.86 | 0.97	0.86 | 0.97	0.81 | 0.94	0.81 | 0.94	0.89 | 0.97	0.77 | 0.92	0.85 | 0.95
Coal Creek 230	0.99 | 1.06	0.97 | 1.06	0.98 | 1.07	0.99 | 1.06	0.99 | 1.06	0.98 | 1.06	0.98 | 1.07	0.99 | 1.06	0.98 | 1.06	0.99 | 1.06
Columbia 345	1.01 | 1.02	0.98 | 1.03	0.98 | 1.02	1.01 | 1.02	1.01 | 1.02	0.99 | 1.02	0.99 | 1.02	1.01 | 1.02	0.99 | 1.02	1.01 | 1.02
Drayton 230	1.02 | 1.05	1.02 | 1.06	1.02 | 1.06	1.03 | 1.05	1.03 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.02 | 1.05	1.03 | 1.05
Groton 345	0.94 | 1.01	0.93 | 1.02	0.92 | 1.02	0.94 | 1.01	0.93 | 1.01	0.93 | 1.01	0.93 | 1.01	0.94 | 1.01	0.93 | 1.01	0.93 | 1.01
Rocky Run 345	0.88 | 0.96	0.81 | 0.95	0.81 | 0.95	0.84 | 0.95	0.85 | 0.95	0.84 | 0.95	0.84 | 0.94	0.87 | 0.96	0.80 | 0.93	0.84 | 0.94
Wahpeton 230	0.98 | 1.04	0.97 | 1.04	0.97 | 1.05	0.98 | 1.04	0.98 | 1.04	0.97 | 1.04	0.97 | 1.04	0.98 | 1.04	0.98 | 1.04	0.98 | 1.04
Watertown 230	0.97 | 1.03	0.96 | 1.04	0.96 | 1.04	0.97 | 1.03	0.97 | 1.03	0.97 | 1.04	0.96 | 1.03	0.97 | 1.03	0.96 | 1.04	0.96 | 1.03
Dynamic Voltage Warnings										
	none	4246 [HI8 TAP1] 0.61 4247 [HI8 TAP2] 0.67	4246 [HI8 TAP1] 0.63 4247 [HI8 TAP2] 0.69	none	none	none	none	none	4246 [HI8 TAP1] 0.69	none
Worst Case Angle Damping	SHERC33G / 32.85%	SHERC33G / -31.53%	SHERC33G / -15.43%	SHERC33G / 8.79%	SHERC33G / 13.89%	SHERC33G / 39.19%	SHERC33G / 44.80%	SHERC33G / 39.20%	SHERC33G / 33.96%	SHERC33G / 26.27%
Dorsey SUVP / UdHold										
Forbes DC Red (SEL) / DCAR	38% / 154%	31% / -102%	30% / -85%	34% / 120%	35% / 119%	1% / 45%	3% / 47%	25% / 161%	1% / 9%	22% / 126%
K22W (max +dP @ t, d-ang)	0.6@(2.79988,3.2)	1.1@(12.74970,22.7)	0.0@(0.04167,0.0)	0.7@(2.75822,3.6)	0.8@(2.82488,3.2)	4.3@(2.79155,0.3)	4.1@(2.82488,0.7)	3.7@(2.74155,1.8)	4.9@(2.79155,-0.3)	3.5@(2.75822,2.1)
K22W (max -dP @ t, d-ang)	44.4@(0.87497,14.7)	60.8@(0.95830,26.7)	60.8@(0.97496,26.0)	47.4@(0.86663,16.0)	47.5@(0.88330,15.9)	52.4@(0.95830,21.9)	53.7@(0.97496,21.6)	43.2@(0.86663,14.4)	55.4@(0.96663,23.2)	46.5@(0.87497,15.6)
K22W (max d-ang @ t, dP)	21.5@(1.36661,-25.5)	51.6@(14.85800,-54.9)	43.7@(14.72467,-45.3)	26.6@(14.10801,-25.7)	25.9@(13.99968,-24.7)	26.2@(1.28328,-38.4)	26.1@(1.29162,-38.3)	20.3@(1.29995,-23.6)	28.1@(1.29995,-40.5)	23.3@(13.80801,-23.0)
OS Rel Trip / Marg										
MH - OH										
D602F at Forbes/Dorsey	149% / 252%	145% / 243%	144% / 242%	147% / 248%	147% / 248%	125% / 211%	126% / 214%	141% / 235%	126% / 211%	140% / 231%
L20D at Prairie/Drayton	882% / 845%	776% / 771%	771% / 759%	863% / 836%	848% / 821%	803% / 782%	736% / 725%	864% / 834%	761% / 752%	819% / 801%
R50M / F3M	906% / 335%	860% / 335%	858% / 339%	898% / 334%	902% / 338%	899% / 329%	915% / 334%	978% / 337%	908% / 332%	987% / 341%
B10T	213%	183%	178%	207%	201%	189%	169%	220%	179%	207%
FSCAPS (SS/Unav/Final)										
EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 3 | 3)	(4 | 4 | 3) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 3 | 3)	(4 | 4 | 3) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 3) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 0 | 0)
Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
Roseau 230 / Runn 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)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 1 | 1)	(0 | 0 | 0) / (0 | 0 | 0)
Sheyenne 115	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 2 | 2)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)
Delta Transient Vltg										
Arrowhd 230	-0.05	-0.20	-0.18	-0.06	-0.06	-0.03	-0.02	-0.01	-0.03	-0.01
Arpin 345	-0.09	-0.15	-0.15	-0.13	-0.13	-0.12	-0.12	-0.09	-0.16	-0.13
Weston 345	-0.09	-0.22	-0.21	-0.12	-0.12	-0.16	-0.16	-0.08	-0.20	-0.12
Columbia 345	0.00	-0.03	-0.03	0.00	0.00	-0.02	-0.02	0.00	-0.02	0.00
Rocky Run 345	-0.09	-0.16	-0.16	-0.13	-0.12	-0.12	-0.12	-0.09	-0.16	-0.12

LOAD FLOW AND STABILITY SUMMARY TABLE

1	**Case No.**	375	376	377	378	379	380	381	382
2	**Case Name**	5b-sraa.vvi04Y4-pys	5b-sraa.vvi04Y4-wls	5b-sraa.wvk04Y4-pcs	5b-sraa.wvk04Y4-pys	9b-sraa.vvm04Y4-pcs	9b-sraa.vvm04Y4-pys	9b-sraa.wvo04Y4-pcs	9b-sraa.wvo04Y4-pys
3	**Disturbance**	pys	wls	pcs	pys	pcs	pys	pcs	pys
4	**Prior Outage**	None	None	None	None	None	None	None	None
5	**Date/Time**	FEB 23 1999 15:04	MAR 08 1999 15:10	FEB 05 1999 01:30	FEB 05 1999 00:58	FEB 23 1999 16:02	FEB 23 1999 15:29	FEB 05 1999 02:39	FEB 05 1999 02:04
6	**Comments**								
7									
8	**Steady State Flows**								
9	NDEX / E Bias	1989 / 280	1989 / 280	2035 / 278	2035 / 278	1990 / 266	1990 / 266	2036 / 263	2036 / 263
10	MHEX / L20D	1976 / 207	1976 / 207	1976 / 206	1976 / 206	1975 / 219	1975 / 219	1975 / 217	1975 / 217
11	MN-WUMS / MN-IOWA	1178 / 188	1178 / 188	1227 / 303	1227 / 303	1171 / 463	1171 / 463	1215 / 588	1215 / 588
12	TCEX / TCEX-new	1244 / 1975	1244 / 1975	1367 / 2098	1367 / 2098	1530 / 2286	1530 / 2286	1662 / 2419	1662 / 2419
13	D602F / F601C	1649 / 1565	1649 / 1565	1650 / 1587	1650 / 1587	1635 / 1556	1635 / 1556	1638 / 1578	1638 / 1578
14	B10T / MH>SPC	150 / 88	150 / 88	151 / 88	151 / 88	151 / 88	151 / 88	151 / 88	151 / 88
15	OH E-W / OH>MH	-90 / 0	-90 / 0	-91 / 0	-91 / 0	-90 / 0	-90 / 0	-91 / 0	-91 / 0
16	R50M / OH>MP	120 / 149	120 / 149	119 / 148	119 / 148	120 / 149	120 / 149	118 / 148	118 / 148
17	Dorsey BP1 / BP2	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689	1492 / 1689
18	Dorsey Reserve / Wtrtn SVC	268 / 73	268 / 73	265 / 85	265 / 85	291 / 91	291 / 91	276 / 104	276 / 104
19	Forbes SVC / MSC	16 / 600	16 / 600	21 / 600	21 / 600	17 / 600	17 / 600	3 / 600	3 / 600
20	**Steady State Vltgs**								
21	Dorsey 500/Dorsey 230	1.033 / 1.045	1.033 / 1.045	1.033 / 1.045	1.033 / 1.045	1.028 / 1.045	1.028 / 1.045	1.034 / 1.045	1.034 / 1.045
22	Roseau 500/Forbes 500	1.021 / 1.027	1.021 / 1.027	1.024 / 1.026	1.024 / 1.026	1.022 / 1.029	1.022 / 1.029	1.026 / 1.027	1.026 / 1.027
23	Chisago 500/EauClaire 345	1.017 / 0.951	1.017 / 0.951	1.015 / 0.935	1.015 / 0.935	1.020 / 0.941	1.020 / 0.941	1.017 / 0.924	1.017 / 0.924
24	Ifalls 115/Badoura 115	1.044 / 0.998	1.044 / 0.998	1.037 / 1.000	1.037 / 1.000	1.042 / 0.998	1.042 / 0.998	1.043 / 1.000	1.043 / 1.000
25	Drayton 230/Groton 345	1.035 / 0.996	1.035 / 0.996	1.038 / 0.994	1.038 / 0.994	1.033 / 0.994	1.033 / 0.994	1.036 / 0.992	1.036 / 0.992
26	**SS OS Relay Margins**								
27	D602F at Forbes/Dorsey	179% / 293%	179% / 293%	178% / 291%	178% / 291%	179% / 297%	179% / 297%	182% / 298%	182% / 298%
28	L20Dat Prairie/Drayton	999% / 999%	999% / 999%	999% / 999%	999% / 999%	999% / 971%	999% / 971%	999% / 982%	999% / 982%
29	R50M/F3M	999% / 346%	999% / 346%	999% / 341%	999% / 341%	999% / 345%	999% / 345%	999% / 350%	999% / 350%
30	B10T	397%	397%	395%	395%	394%	394%	395%	395%
31	**Min/MaxTransientVltg**								
32	Arrowhd 230	1.01 | 1.04	1.03 | 1.03	0.99 | 1.04	1.00 | 1.04	1.02 | 1.04	1.02 | 1.04	1.01 | 1.05	1.00 | 1.06
33	Boise 115	1.04 | 1.07	1.04 | 1.04	1.03 | 1.08	1.03 | 1.07	1.03 | 1.08	1.04 | 1.07	1.04 | 1.08	1.04 | 1.08
34	Arpin 345	0.82 | 0.93	0.93 | 0.93	0.83 | 0.95	0.78 | 0.91	0.91 | 0.97	0.81 | 0.92	0.90 | 0.97	0.72 | 0.92
35	Forbes 230	1.02 | 1.05	1.03 | 1.03	1.01 | 1.05	1.02 | 1.05	1.02 | 1.07	1.02 | 1.05	1.02 | 1.07	1.02 | 1.05
36	Weston 345	0.88 | 0.98	0.97 | 0.97	0.82 | 0.95	0.84 | 0.97	0.92 | 0.98	0.87 | 0.96	0.91 | 0.98	0.82 | 0.96
37	Coal Creek 230	0.99 | 1.06	1.03 | 1.03	0.99 | 1.07	0.99 | 1.06	0.99 | 1.07	0.99 | 1.06	0.99 | 1.07	0.99 | 1.07
38	Columbia 345	1.01 | 1.02	1.01 | 1.01	0.97 | 1.02	1.00 | 1.02	0.93 | 1.02	0.99 | 1.02	0.92 | 1.02	0.98 | 1.03
39	Drayton 230	1.02 | 1.05	1.04 | 1.04	1.01 | 1.06	1.02 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05	1.01 | 1.05
40	Groton 345	0.93 | 1.01	1.00 | 1.00	0.93 | 1.01	0.93 | 1.01	0.93 | 1.01	0.92 | 1.01	0.92 | 1.01	0.92 | 1.01
41	Rocky Run 345	0.85 | 0.95	0.94 | 0.94	0.84 | 0.95	0.81 | 0.93	0.91 | 0.97	0.85 | 0.94	0.90 | 0.97	0.79 | 0.94
42	Wahpeton 230	0.98 | 1.04	1.02 | 1.02	0.99 | 1.05	0.98 | 1.05	0.99 | 1.05	0.98 | 1.04	0.99 | 1.04	0.98 | 1.04
43	Watertown 230	0.97 | 1.03	1.02 | 1.02	0.96 | 1.04	0.96 | 1.04	0.96 | 1.04	0.95 | 1.04	0.95 | 1.04	0.95 | 1.04
44	**Dynamic Voltage Warnings**								
45		none	none	4246 [HI8 TAP1] 0.61	none	none	none	none	1853 [EAU CL 3] 0.68
46				4247 [HI8 TAP2] 0.67					
47									
48									
49									
50									
51									
52	Worst Case Angle Damping	SHERC33G / 12.56%		SHERC33G / -2.67%	SHERC33G / -29.90%	SHERC33G / 11.97%	SHERC33G / -7.88%	SHERC33G / -4.48%	SHERC33G / -39.42%
53	Dorsey SUVP / UdHold								
54	Forbes DC Red (SEL) / DCAR	37% / 108%	82% / 506%	50% / -113%	44% / 37%	34% / -40%	38% / 54%	58% / -155%	48% / -131%
55	K22W (max +dP @ t, d-ang)	0.6@(2.77488,3.8)	0.2@(1.26662,0.1)	0.4@(3.94983,10.3)	7.5@(12.77470,16.5)	0.0@(0.05000,0.0)	0.0@(0.05000,0.0)	1.1@(3.94150,10.0)	28.6@(12.90803,10.9)
56	K22W (max -dP @ t, d-ang)	49.0@(0.87497,16.4)	0.0@(0.34165,0.0)	64.1@(0.94163,26.1)	54.0@(0.89163,18.3)	58.6@(0.91663,24.2)	53.8@(0.88330,18.2)	66.8@(0.96663,28.0)	74.0@(15.00799,61.5)
57	K22W (max d-ang @ t, dP)	27.1@(14.11634,-26.6)	0.2@(5.00815,0.1)	45.5@(14.99966,-51.2)	45.4@(15.00799,-49.6)	32.2@(1.35828,-40.9)	34.5@(14.29967,-36.1)	47.2@(14.62467,-53.2)	61.5@(15.00799,-74.0)
58	**OS Rel Trip / Marg**								
59	MH - OH								
60	D602F at Forbes/Dorsey	149% / 248%	179% / 293%	158% / 259%	154% / 254%	146% / 249%	150% / 252%	163% / 268%	156% / 261%
61	L20D at Prairie/Drayton	726% / 727%	999% / 999%	635% / 658%	705% / 717%	594% / 619%	637% / 656%	584% / 619%	619% / 650%
62	R50M / F3M	987% / 340%	999% / 345%	967% / 341%	992% / 331%	936% / 345%	982% / 335%	979% / 350%	999% / 332%
63	B10T	204%	396%	178%	203%	171%	194%	179%	195%
64	**FSCAPS (SS/Unav/Final)**								
65	EauCl 345 / Park Lk 115	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 3 | 3)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 0 | 0)	(4 | 4 | 4) / (0 | 3 | 3)
66	Prairie 115 / Ramsey 230	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)	(1 | 1 | 1) / (1 | 1 | 1)
67	Roseau 230 / Runn 230	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 1 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)	(0 | 0 | 0) / (0 | 0 | 0)
68	Sheyenne 115	(0 | 1 | 1)	(0 | 0 | 0)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 1 | 1)	(0 | 0 | 0)	(0 | 0 | 0)
69	**Delta Transient Vltg**								
70	Arrowhd 230	-0.02	0.00	-0.04	-0.03	-0.01	-0.01	-0.02	-0.03
71	Arpin 345	-0.12	-0.01	-0.11	-0.16	-0.02	-0.12	-0.03	-0.21
72	Weston 345	-0.09	0.00	-0.15	-0.13	-0.04	-0.09	-0.05	-0.14
73	Columbia 345	0.00	0.00	-0.04	-0.01	-0.08	-0.02	-0.09	-0.03
74	Rocky Run 345	-0.10	-0.01	-0.11	-0.14	-0.03	-0.09	-0.04	-0.15

APPENDIX B2

STABILITY CASE DOCUMENTATION

Selected Stability Plots

MAPP disturbances:

AG1 4 cycle slgf @ Leland Olds 345 on Ft. Thompson line, Leland Olds breaker 2692 stuck. Clear @ 11 cycles by tripping faulted line.

EI2 Permanent bipole fault on the CUDC line. Both Coal Creek units tripped at 0.30 sec.

NBS Three-phase fault at Chisago on Chisago County-Forbes 500 kV line.

PCS Single line to ground fault with breaker fail at King with 8P6 stuck. Trip King - Eau Claire - Arpin 345 kV line and King to Chisago County 345 kV line.

PYS 14 cycle SLG fault at Prairie Island 345 kV, trip Prairie Island-Byron 345 kV line.

WUMS area disturbances:

WLS 3 phase fault at Rocky Run on Rocky Run – North Appleton 345 line, 6-1 breaker failure at Rocky Run (18 cycle clearing)

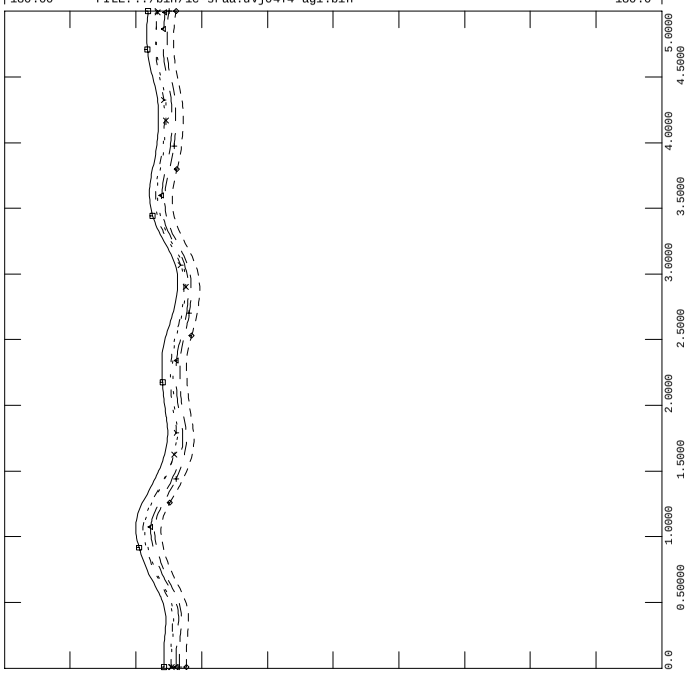
WLZ 3 phase fault at Rocky Run on Rocky Run – North Appleton 345 line, 6-1 breaker failure at Rocky Run (14 cycle clearing)

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40

BOSWELL 4 GEN ANGLE

CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin -180.0



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40

COLUMBIA GEN ANGLE

CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin -180.0
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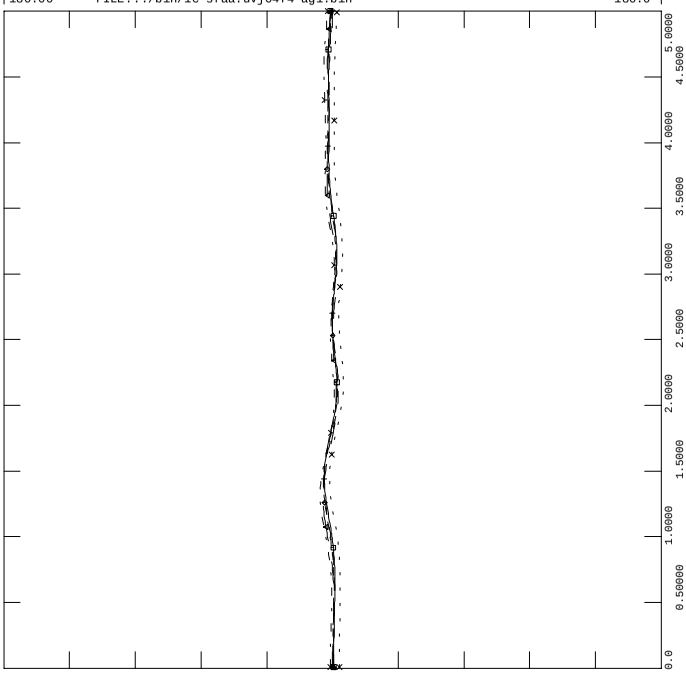

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40

SHERCO GEN ANGLE

CHNL# 27: [ANG3SHERC33G]
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CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin -180.0
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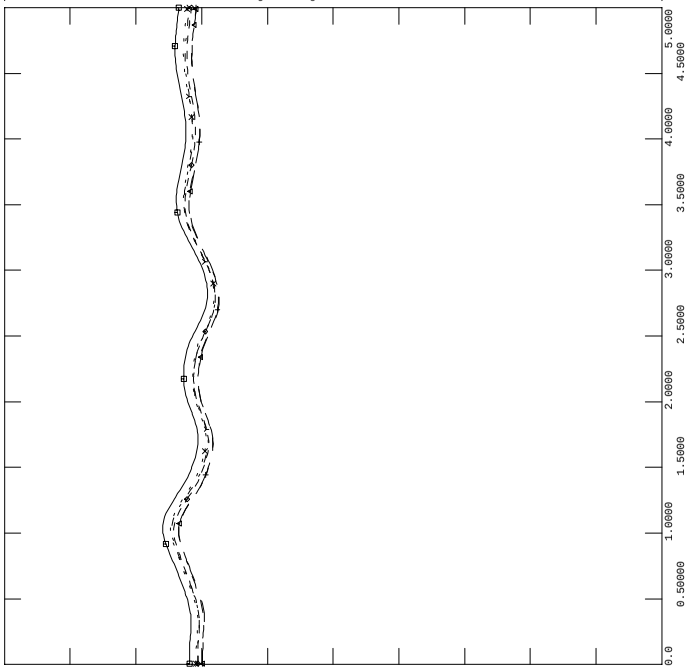

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40

AVS 1 GEN ANGLE

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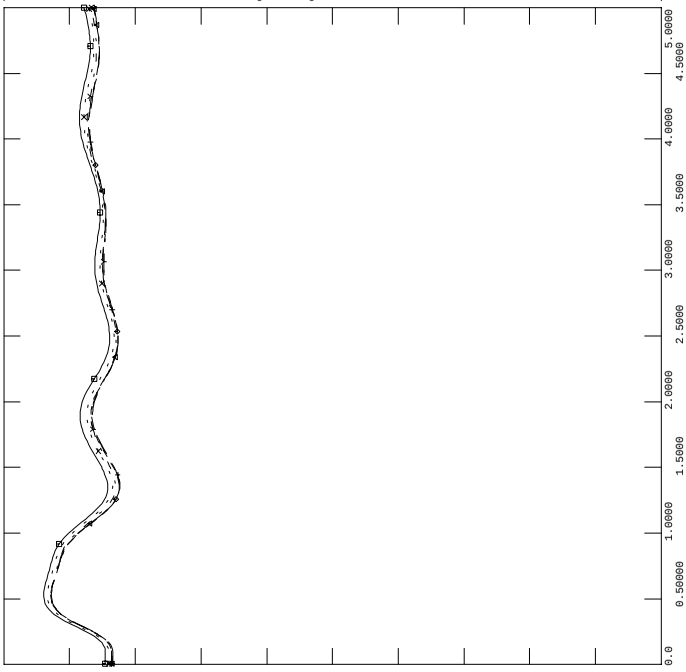
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin -180.0



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40

KEWAUNEE GEN ANGLE

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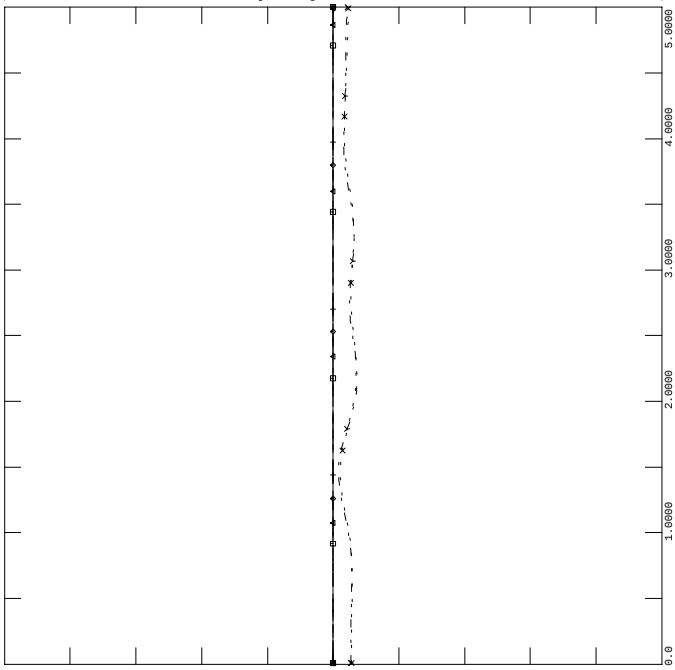
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin -180.0

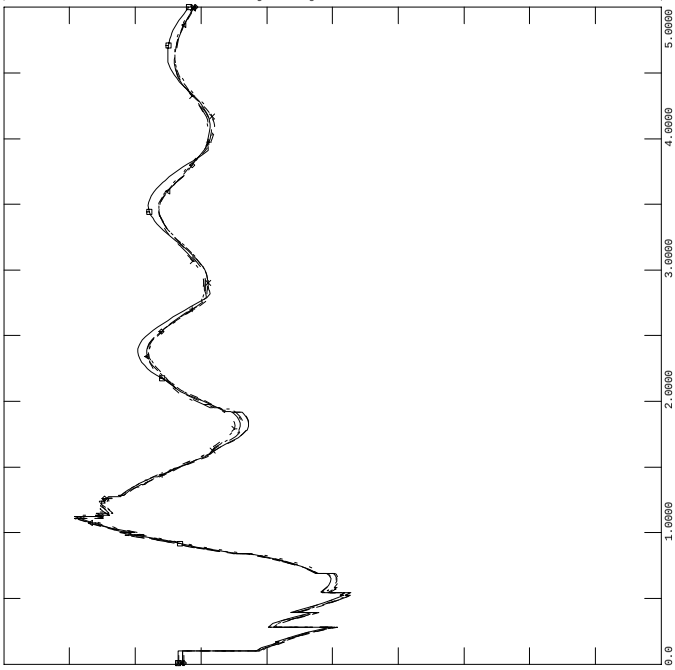


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40

V - WHAPETON 230

CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000

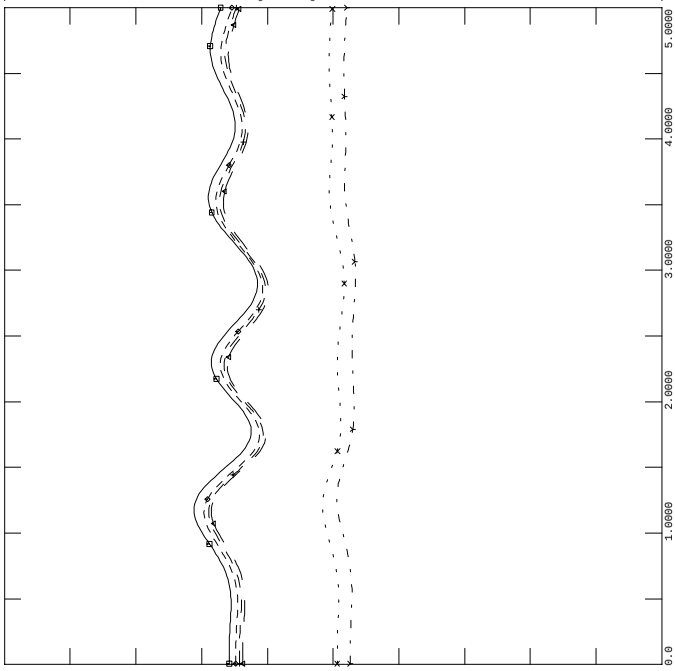


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40

WESTON GEN ANGLE

CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin -180.0

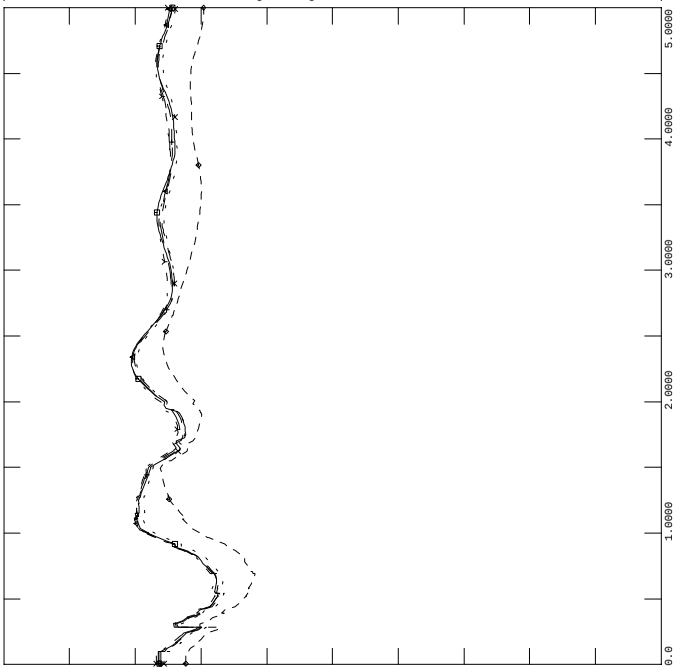


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40

V - ARROWHEAD 230

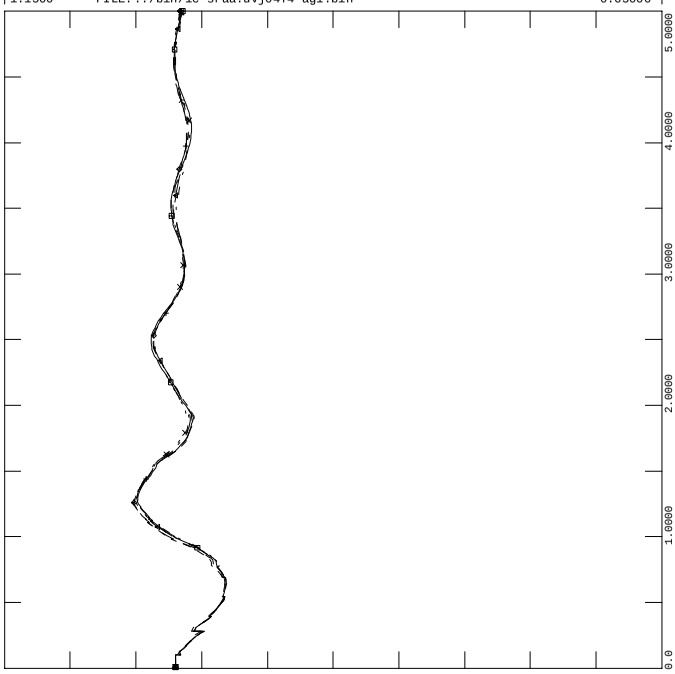
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - SHERCO 345

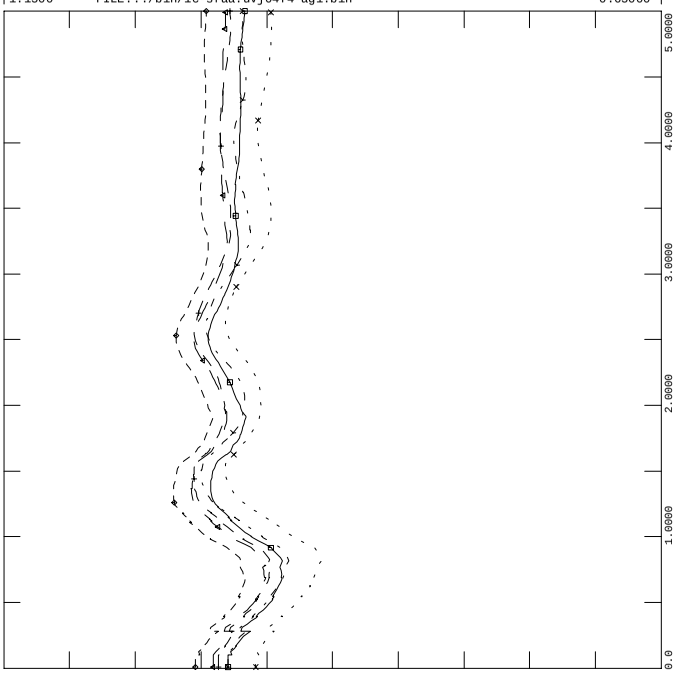
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - APP RIVER

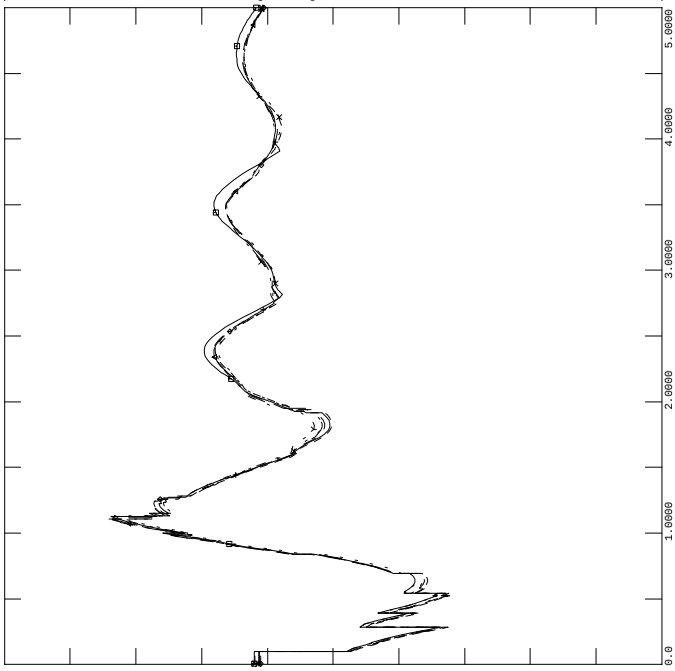
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - MAPLE RIV 345

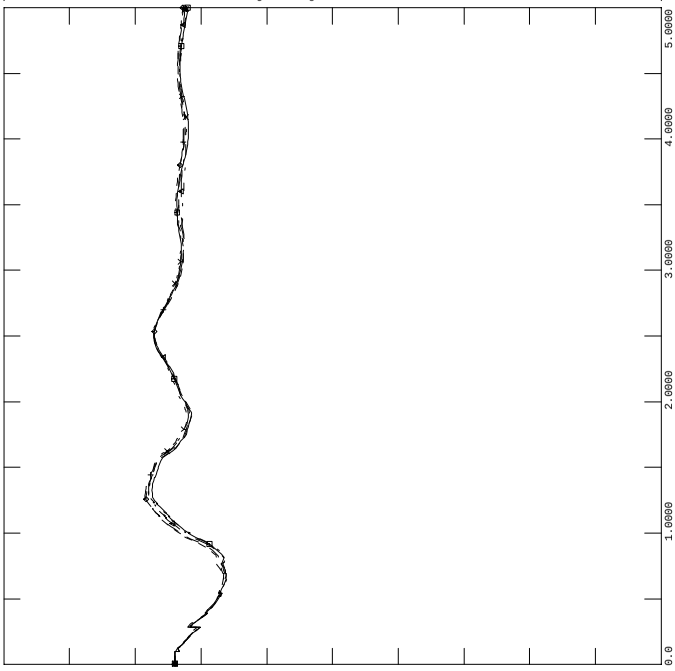
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - KING 345

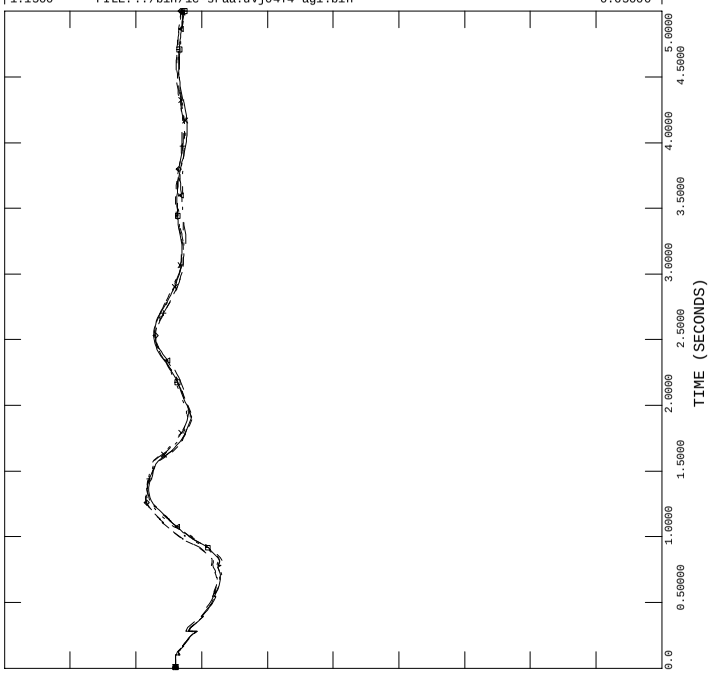
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - PRA ISLD 3

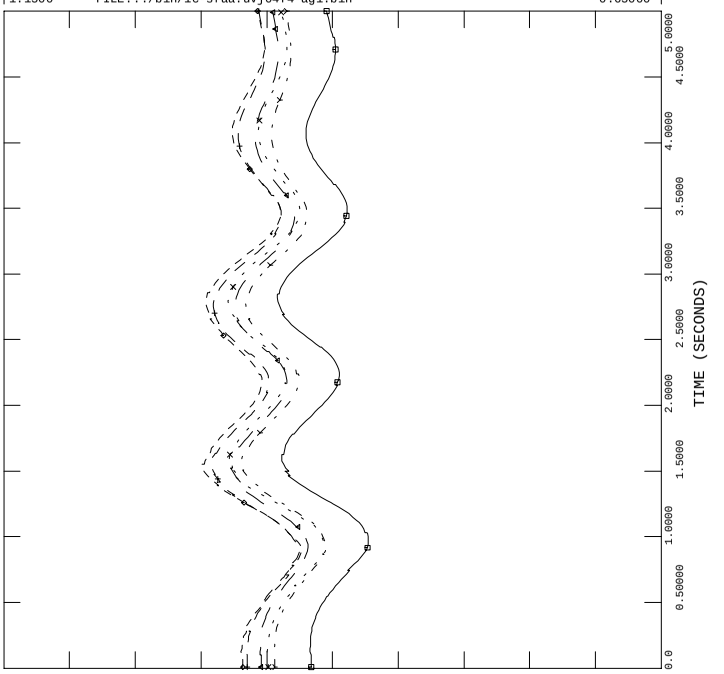
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - ROCKY RUN 345

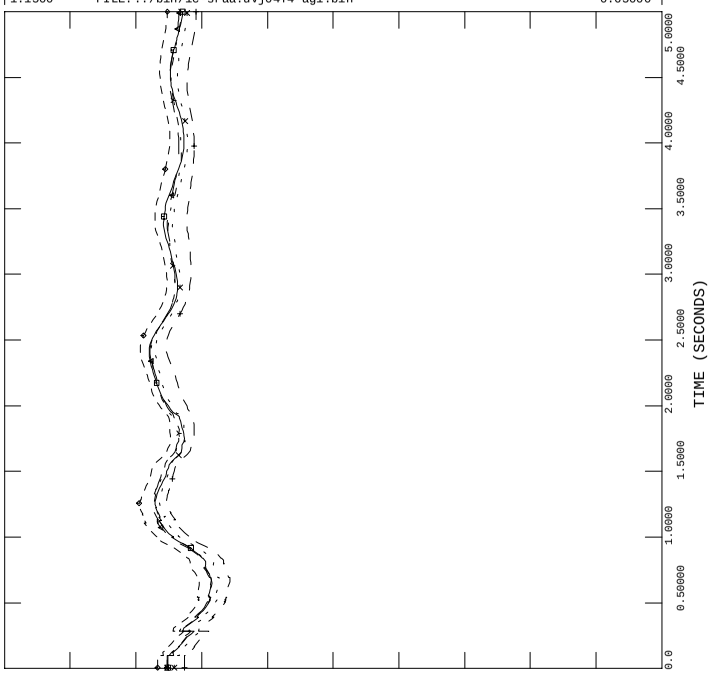
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - CHISAGO 345

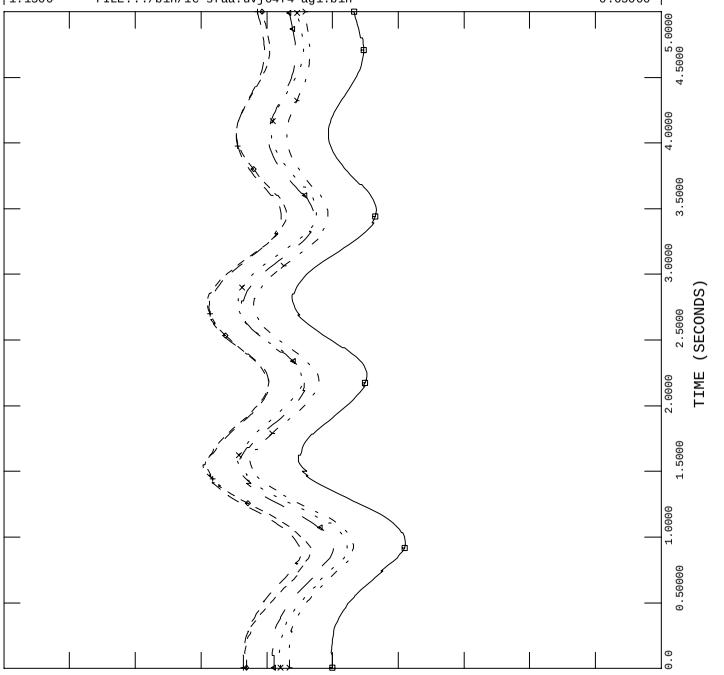
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - ARPIN 345

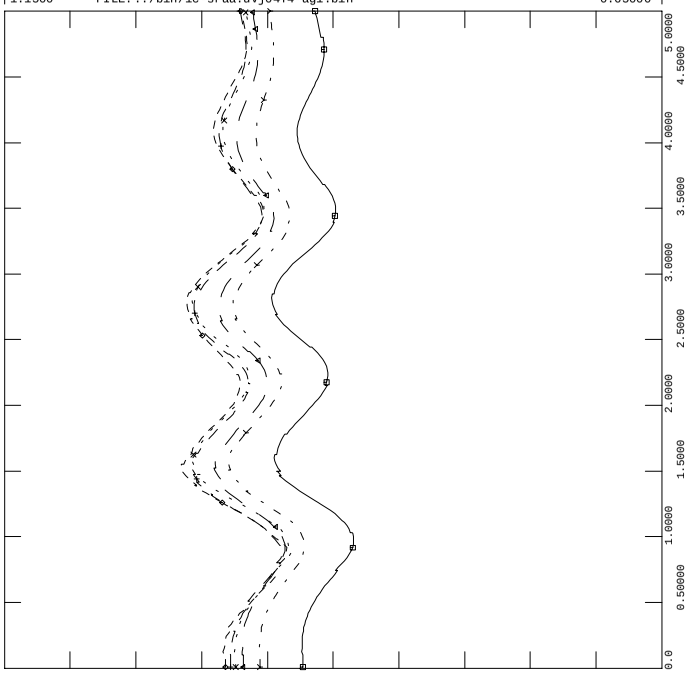
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - WESTON 345

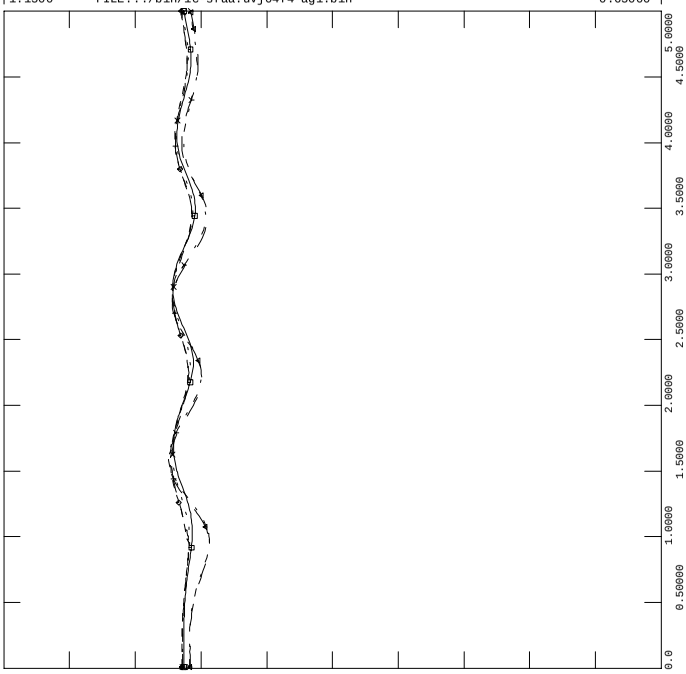
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - COLUMBIA 345

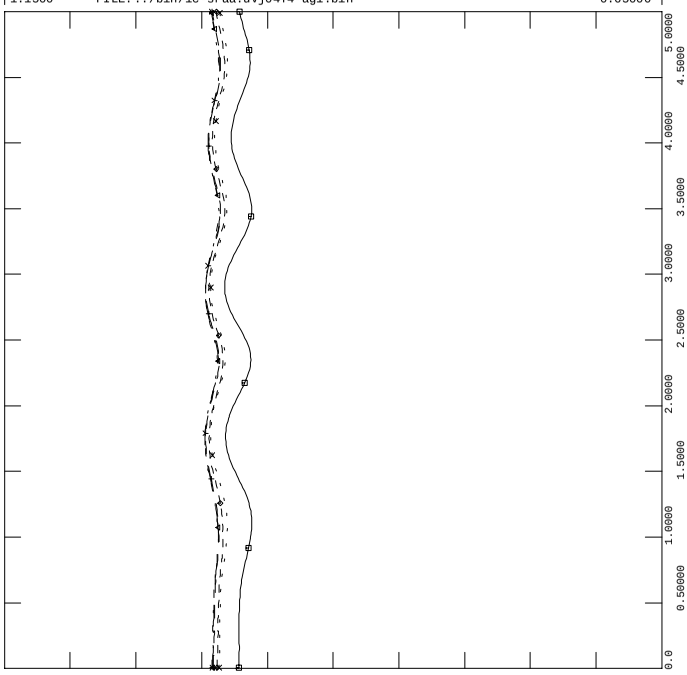
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - SALEM 345

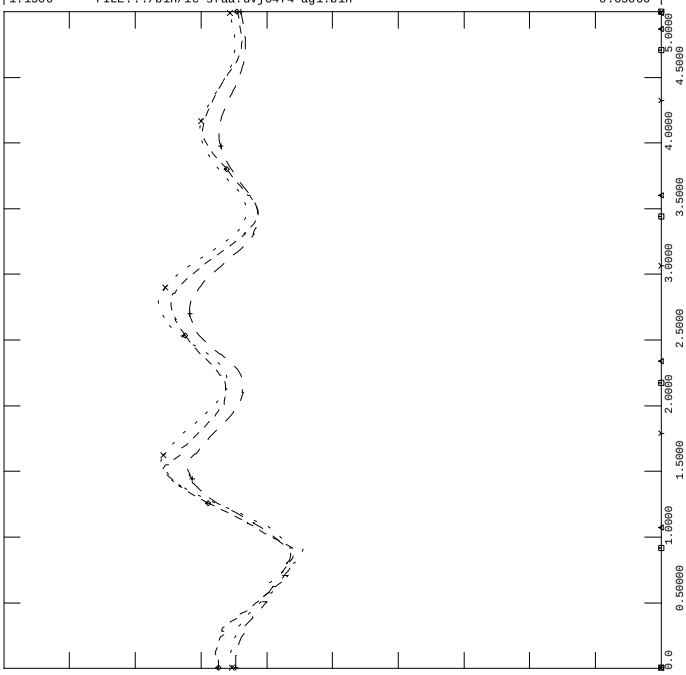
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - HWY 8 TP 345

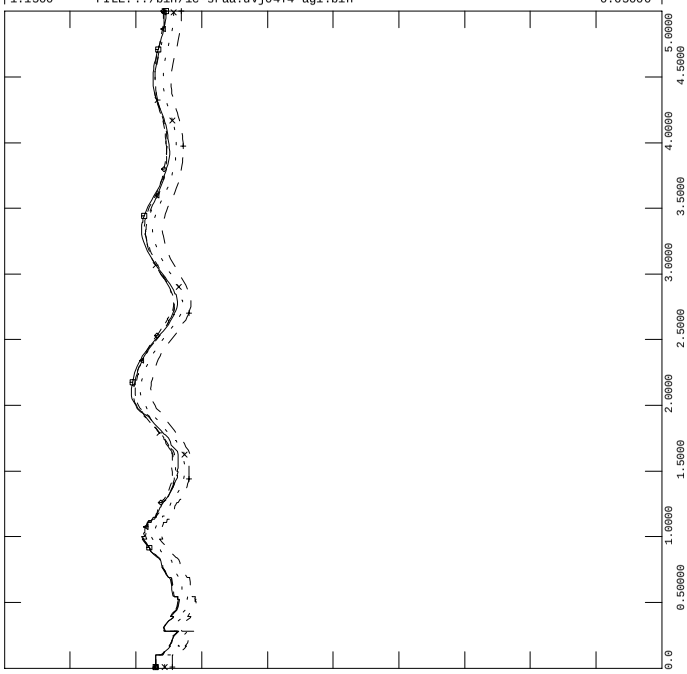
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - FORBES 500

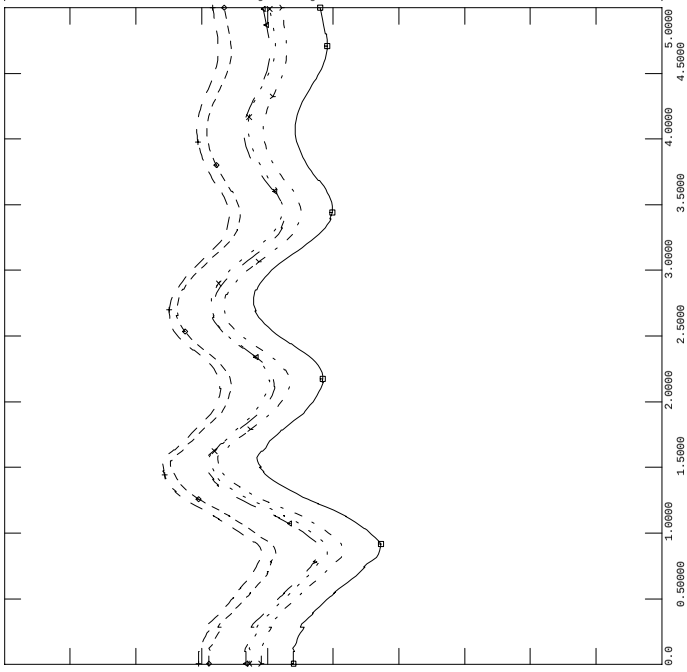
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
V - EAU CLAIRE 345

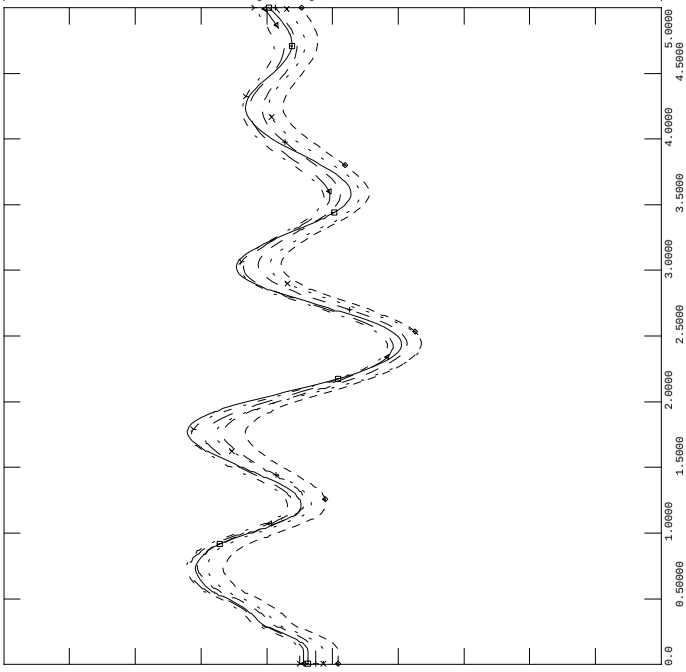
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CY SLGF @ L.OLD 345 ON FTTHOMP LINE, LO BRKR 2692 STK
CLR @ 11 CY BY TRIPPING FLTD LINE

FRI, MAY 28 1999 08:40
Q - FORBES SVS

CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/9b-sraa.uvk04Y4-ag1.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/5b-sraa.uvh04Y4-ag1.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/5a-sraa.uvf04Y4-ag1.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/3j-sraa.uvg04Y4-ag1.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/2e-sraa.uvg04Y4-ag1.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/1c-sraa.uvj04Y4-ag1.bin -5.000

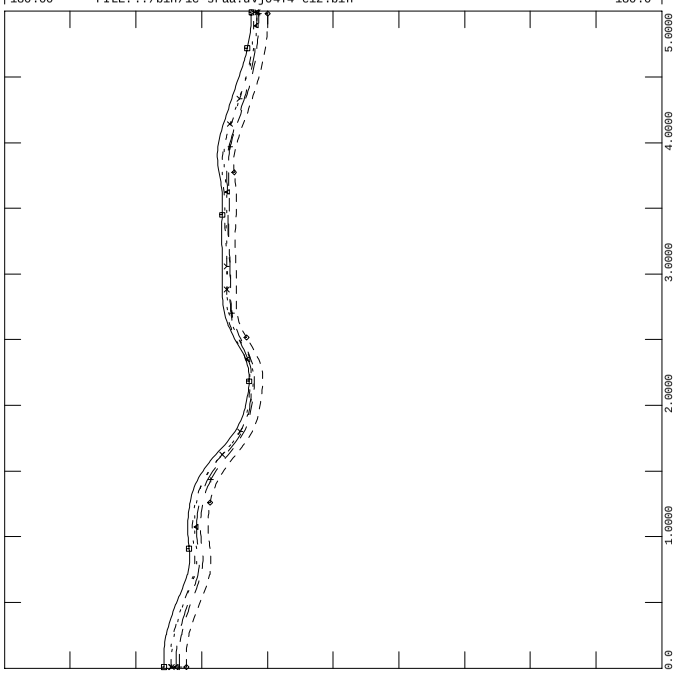


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

BOSWELL 4 GEN ANGLE

CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin -180.0

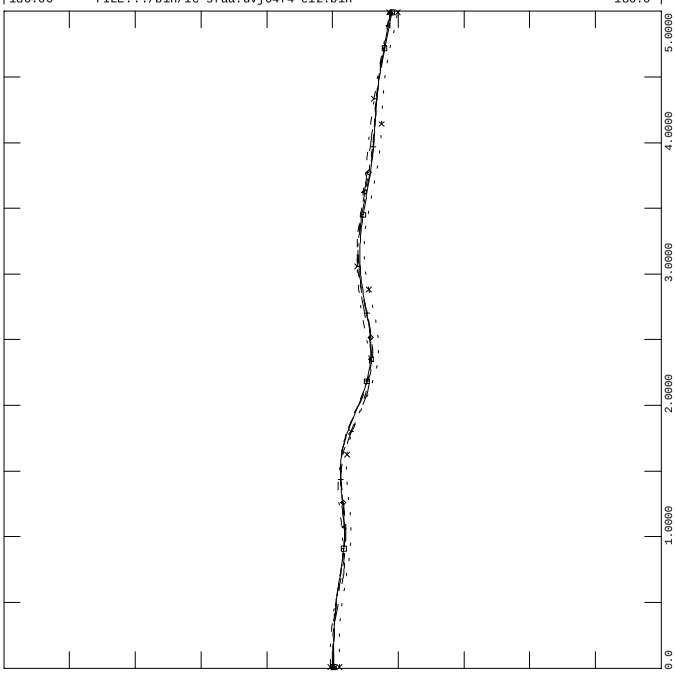


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

COLUMBIA GEN ANGLE

CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin -180.0

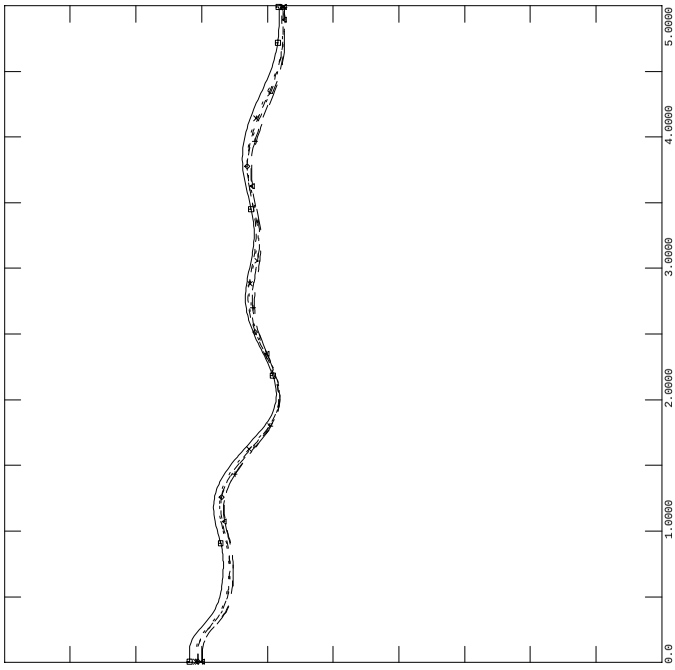


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

SHERCO GEN ANGLE

CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin -180.0

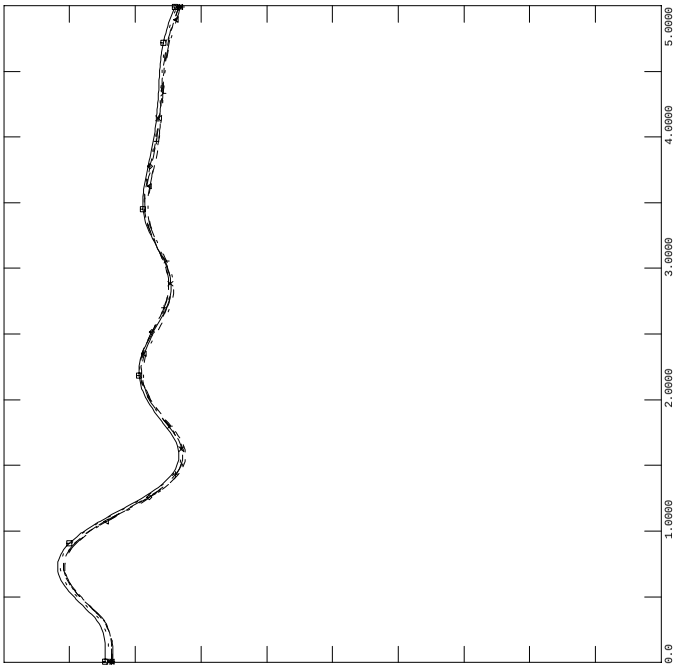


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

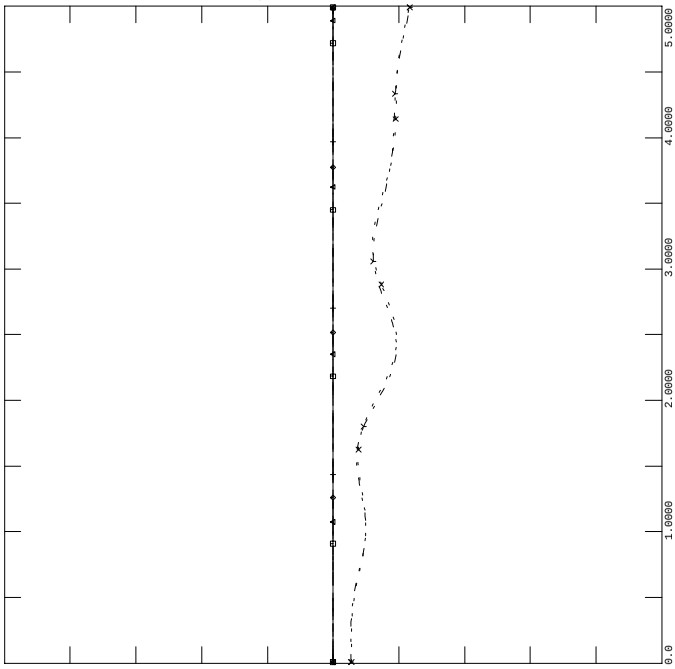
AVS 1 GEN ANGLE

CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin -180.0



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

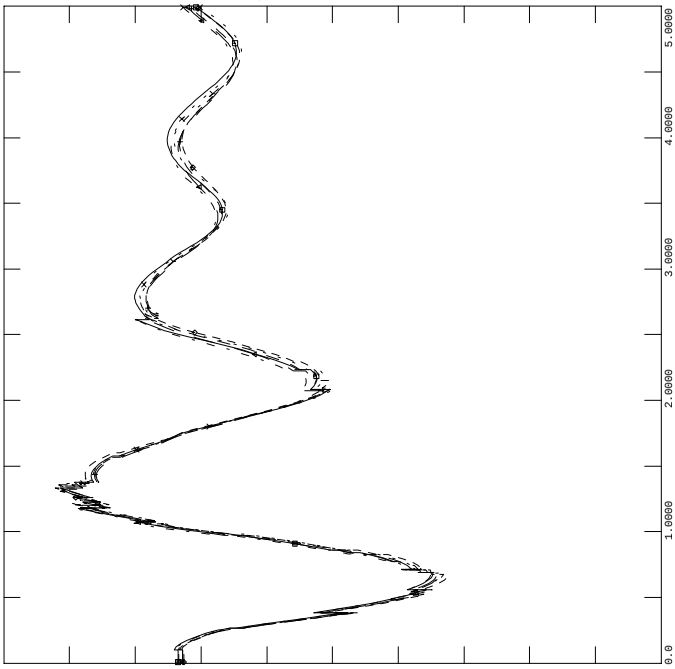
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin -180.0



FRI, MAY 28 1999 08:56
KEWAUNEE GEN ANGLE

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

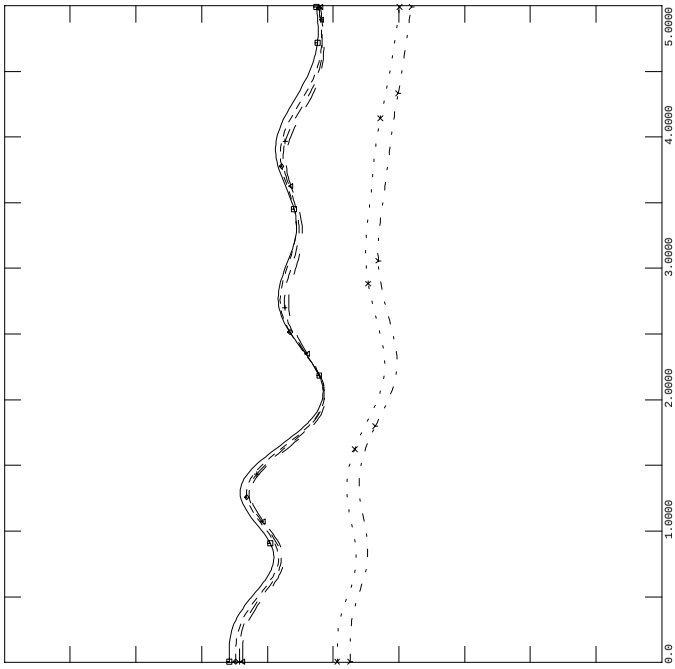
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000



FRI, MAY 28 1999 08:56
V - WHAPETON 230

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

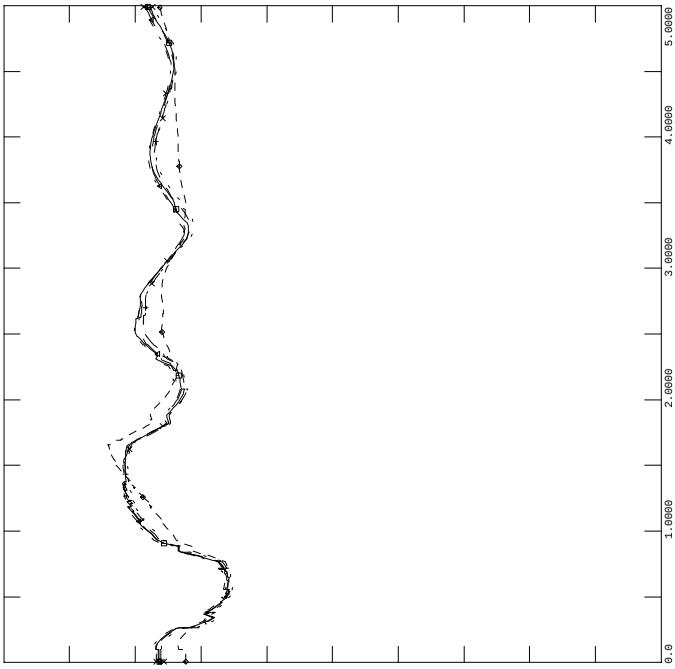
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin -180.0



FRI, MAY 28 1999 08:56
WESTON GEN ANGLE

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

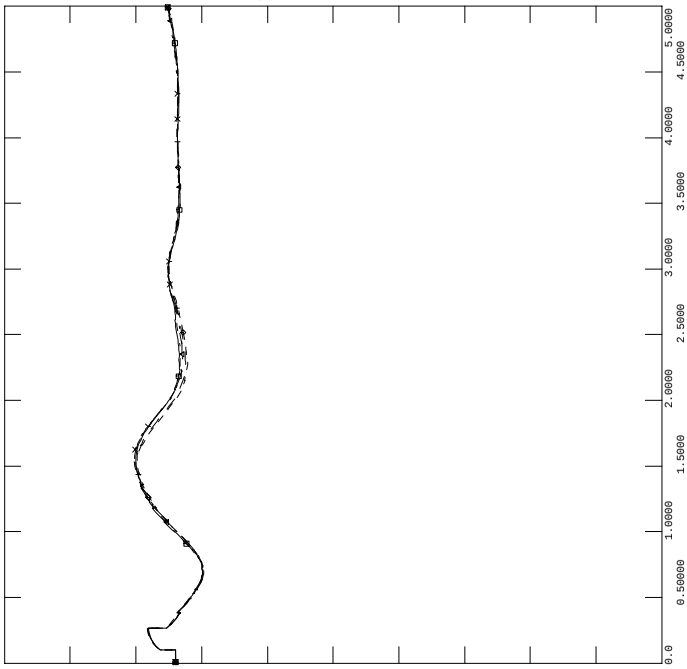
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000



FRI, MAY 28 1999 08:56
V - ARROWHEAD 230

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

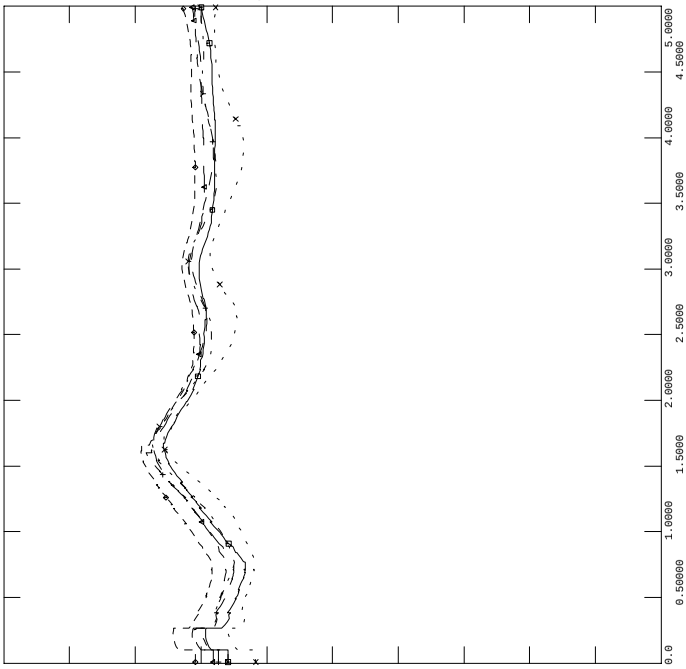
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000



FRI, MAY 28 1999 08:56
V - SHERCO 345

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

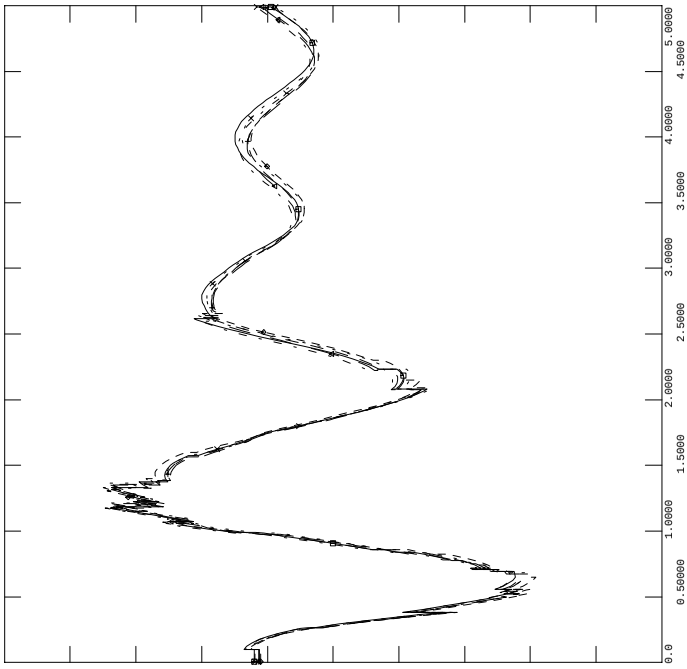
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000



FRI, MAY 28 1999 08:56
V - APP RIVER

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

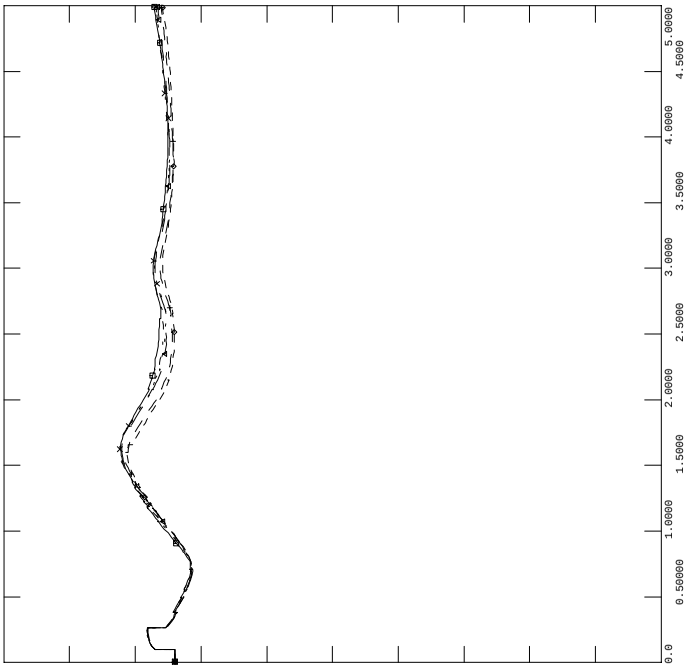
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000



FRI, MAY 28 1999 08:56
V - MAPLE RIV 345

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000



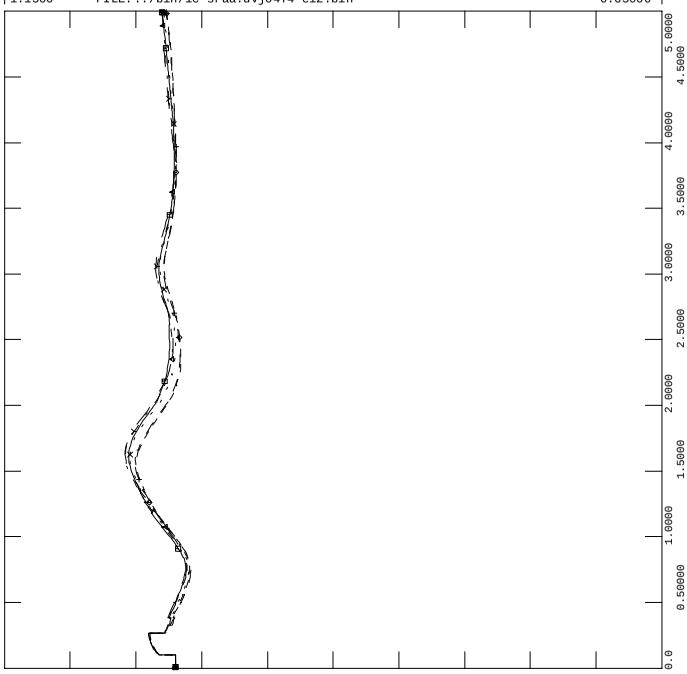
FRI, MAY 28 1999 08:56
V - KING 345

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

V - PRA ISLD 3

CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000

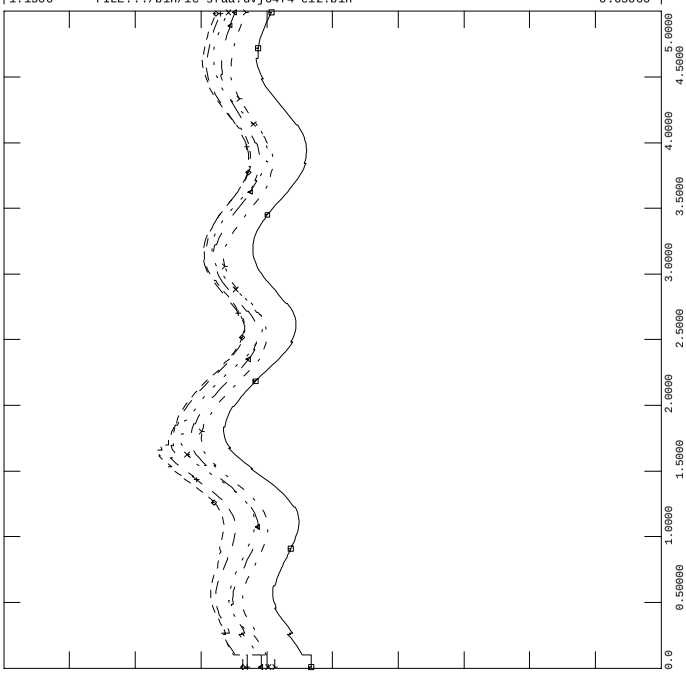


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

V - ROCKY RUN 345

CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000

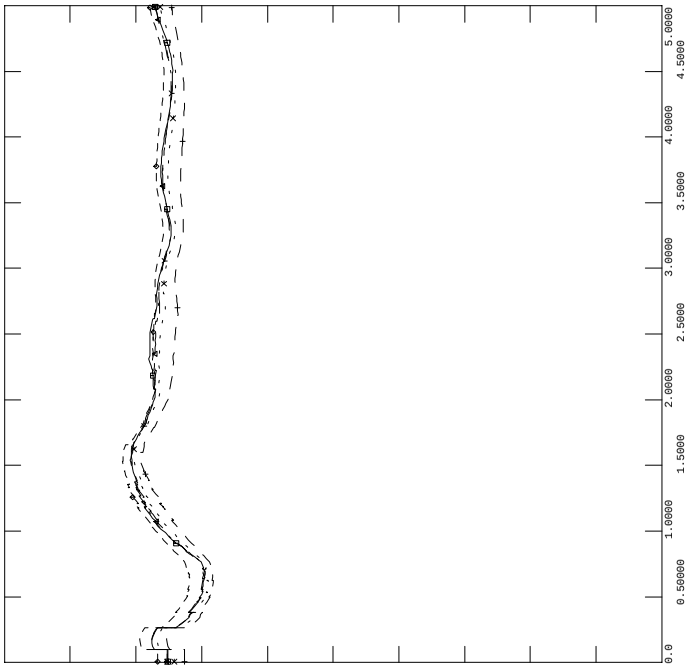


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

V - CHISAGO 345

CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000

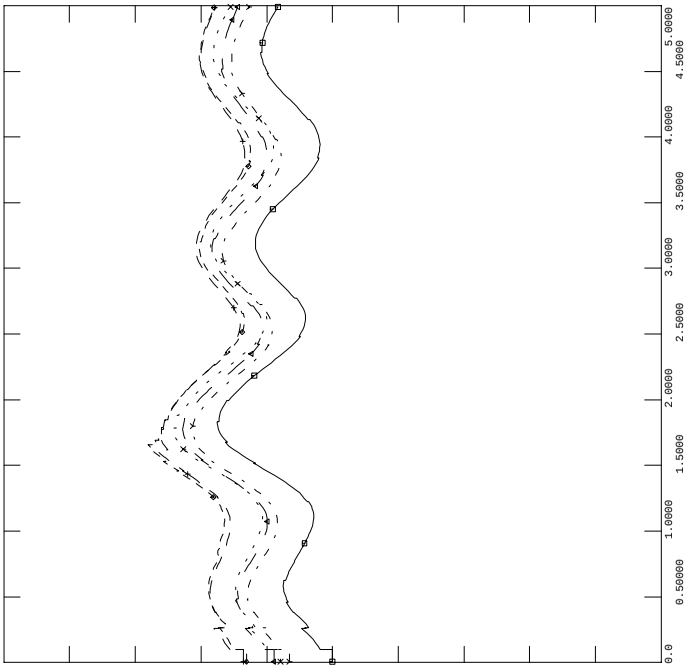


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

V - ARPIN 345

CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000

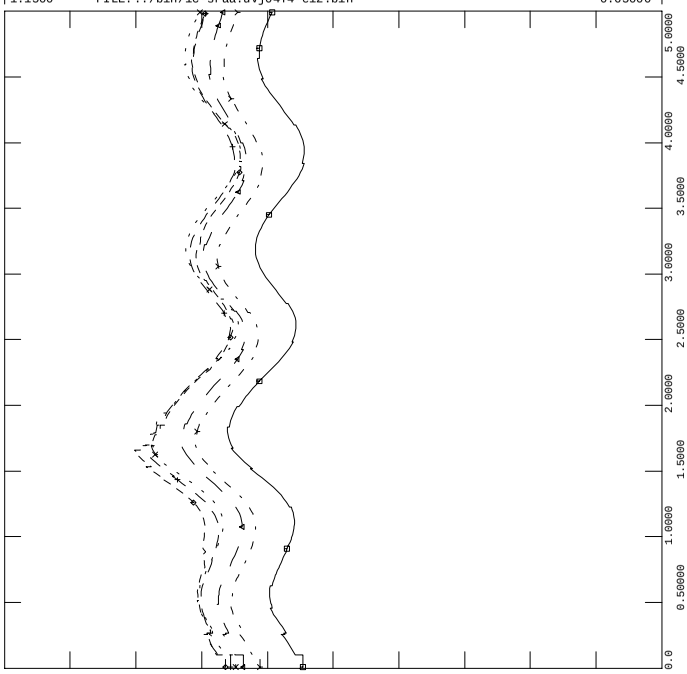


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

V - WESTON 345

CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000

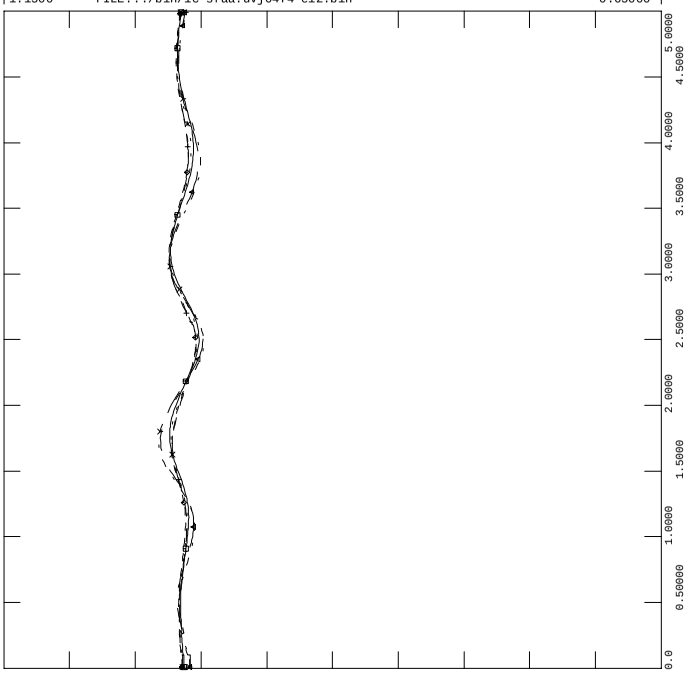


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

V - COLUMBIA 345

CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000

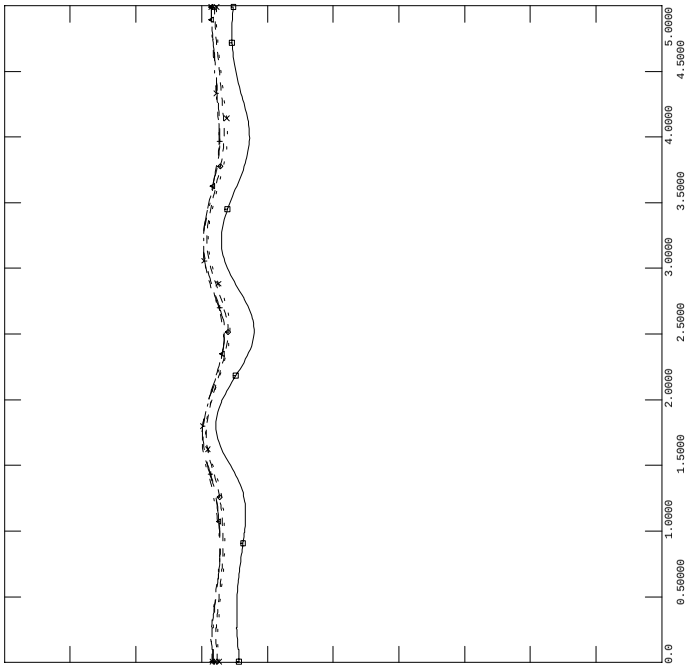


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

V - SALEM 345

CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000

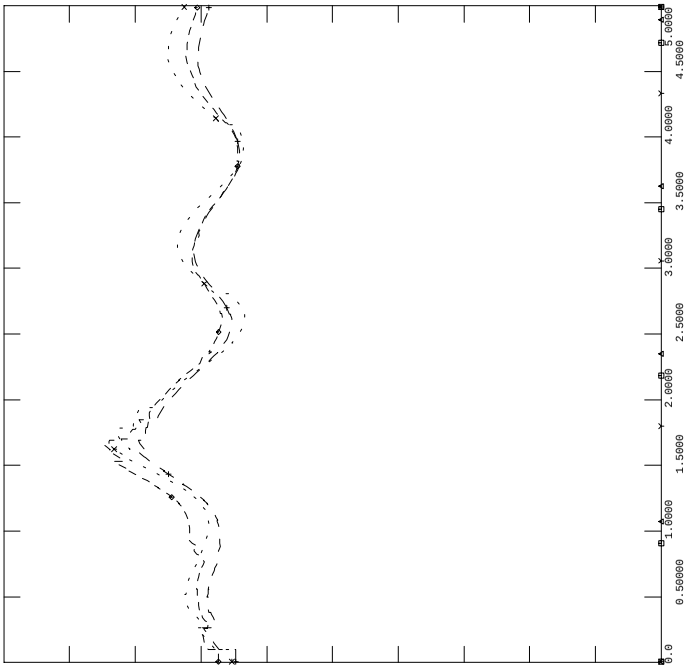


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

V - HWY 8 TP 345

CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000

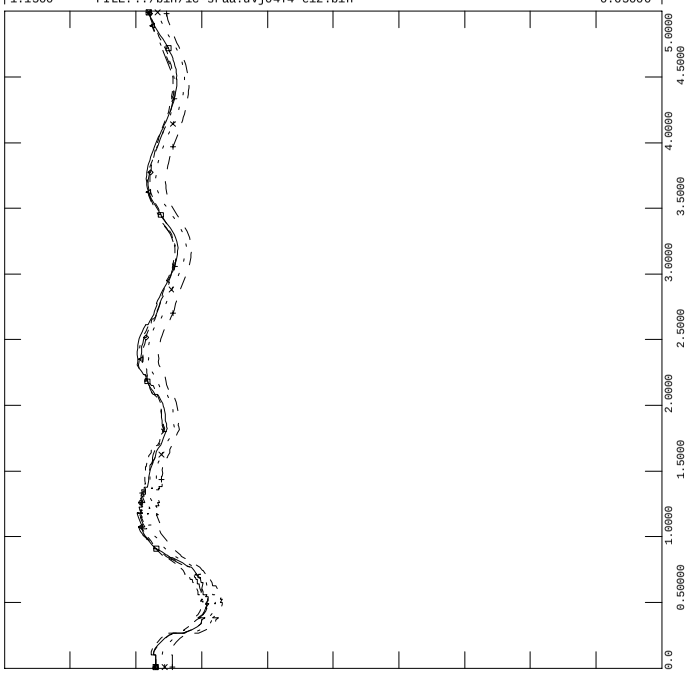


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

V - FORBES 500

CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000

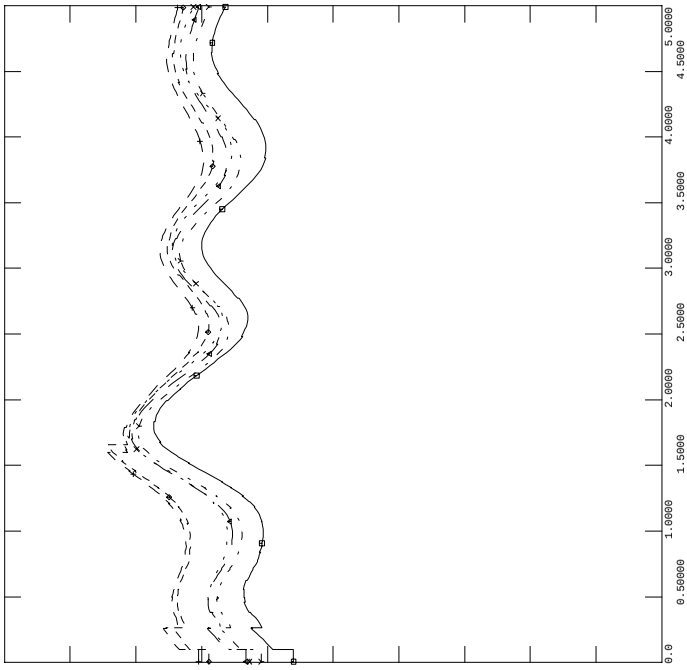


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

V - EAU CLAIRE 345

CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin 0.65000

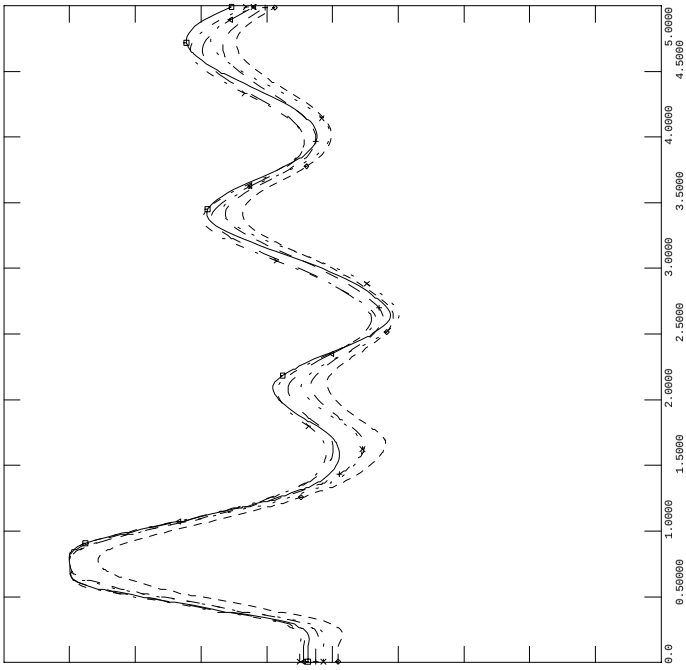


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
PERMANENT BIPOLE FAULT ON THE CU DC LINE
BOTH COAL CREEK UNITS TRIPPED AT 0.28 SEC

FRI, MAY 28 1999 08:56

Q - FORBES SVS

CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/9b-sraa.uvk04Y4-ei2.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/5b-sraa.uvh04Y4-ei2.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/5a-sraa.uvf04Y4-ei2.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/3j-sraa.uvg04Y4-ei2.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/2e-sraa.uvg04Y4-ei2.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/1c-sraa.uvj04Y4-ei2.bin -5.000

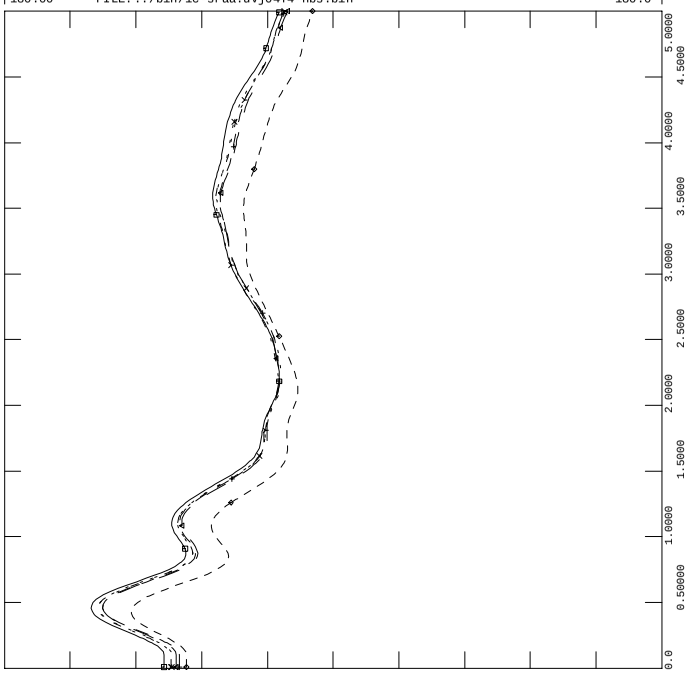


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04

BOSWELL 4 GEN ANGLE

CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin -180.0

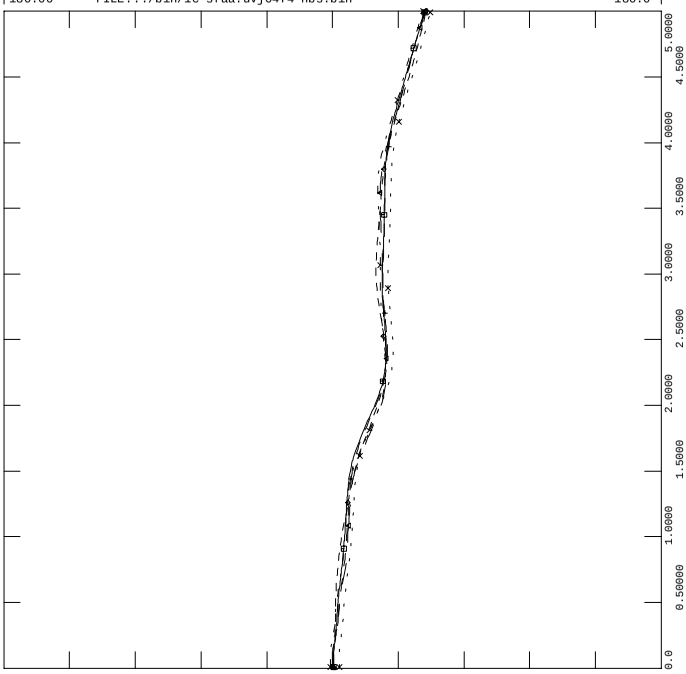


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04

COLUMBIA GEN ANGLE

CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin -180.0

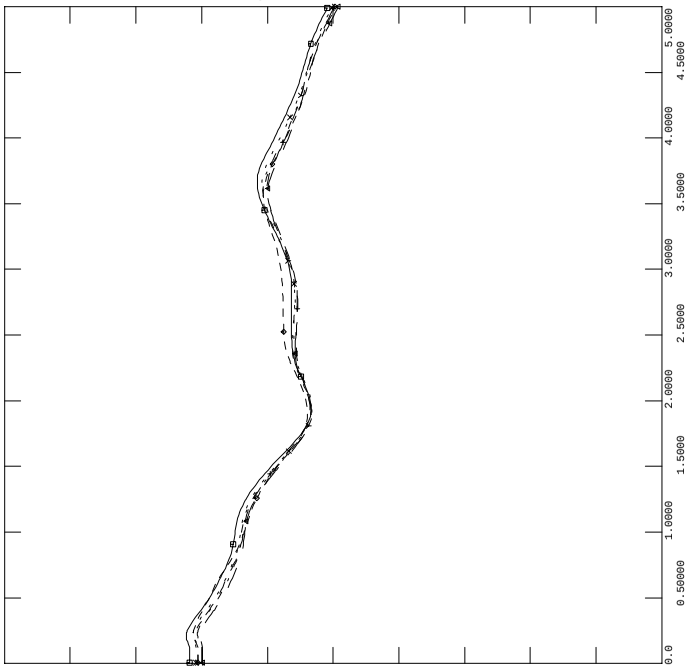


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04

SHERCO GEN ANGLE

CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin -180.0

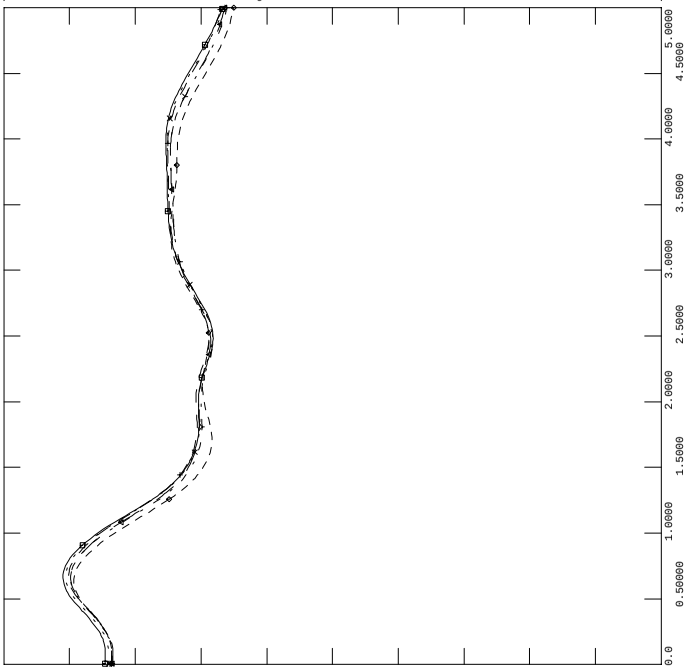


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04

AVS 1 GEN ANGLE

CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin -180.0

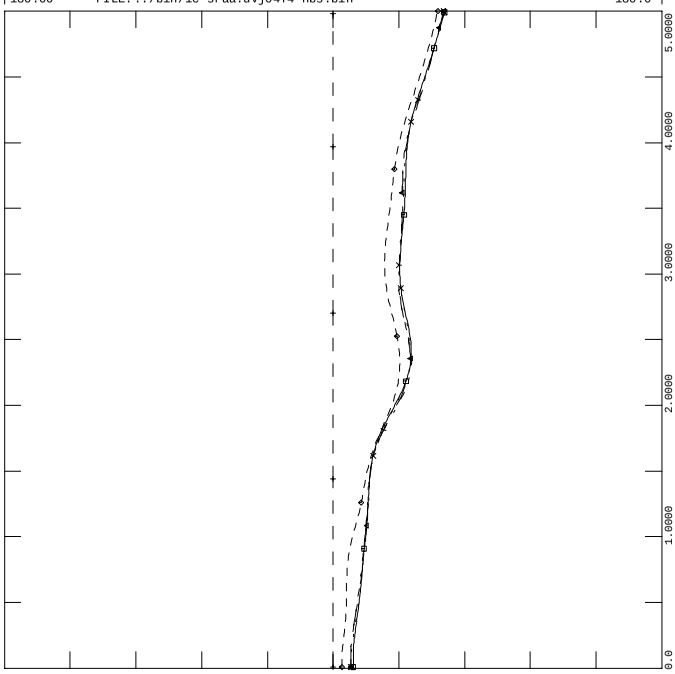


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04

KEWAUNEE GEN ANGLE

CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin -180.0

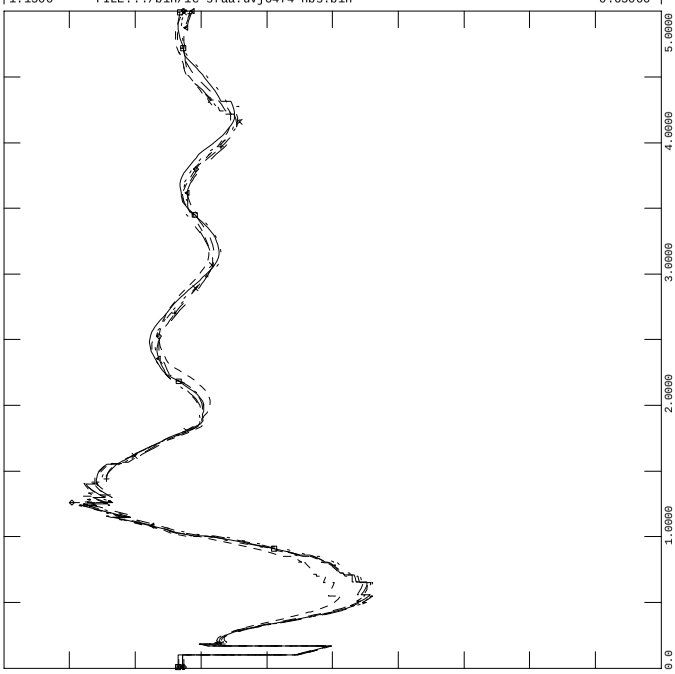


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04

V - WHAPETON 230

CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000

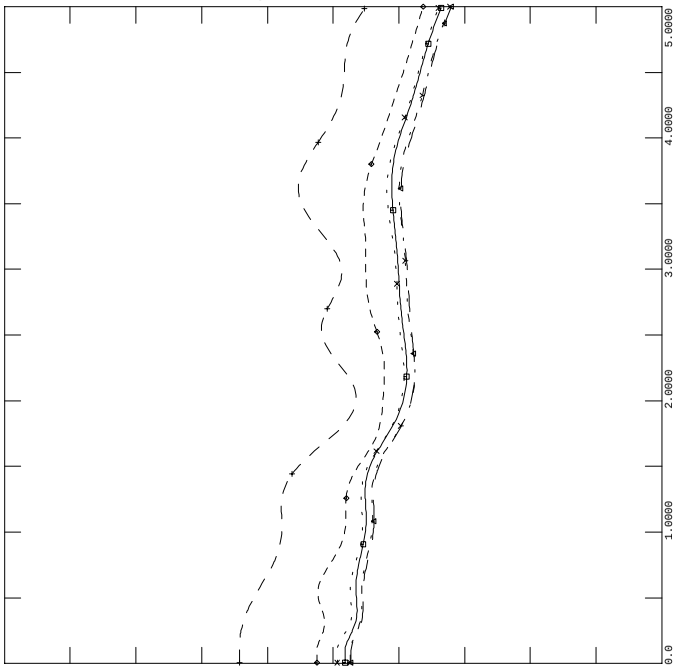


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04

WESTON GEN ANGLE

CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin -180.0

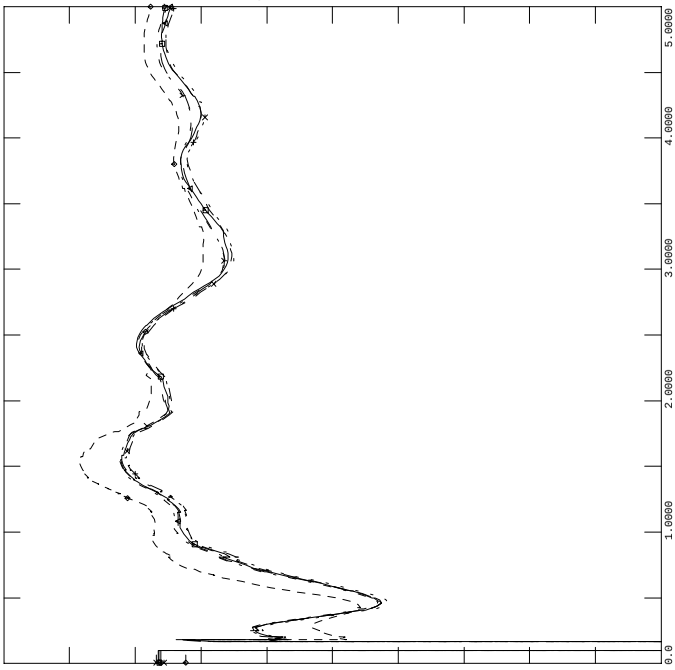


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04

V - ARROWHEAD 230

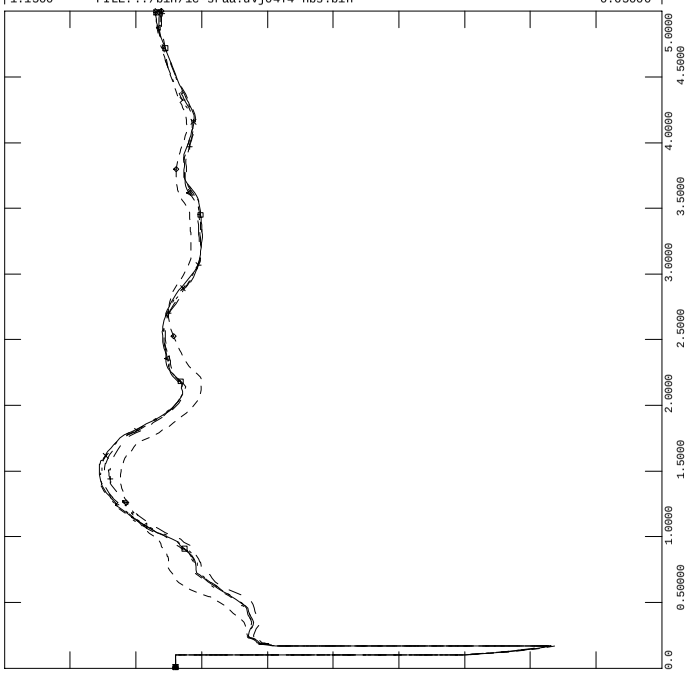
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04
V - SHERCO 345

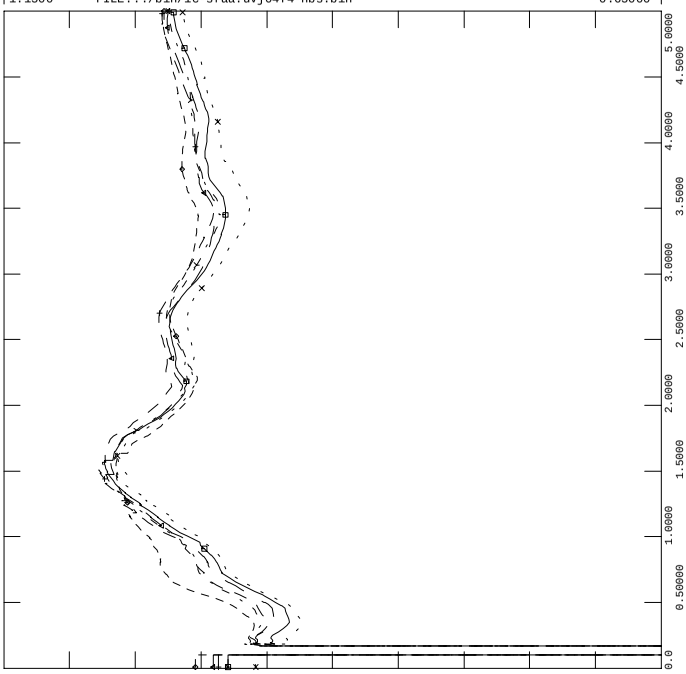
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04
V - APP RIVER

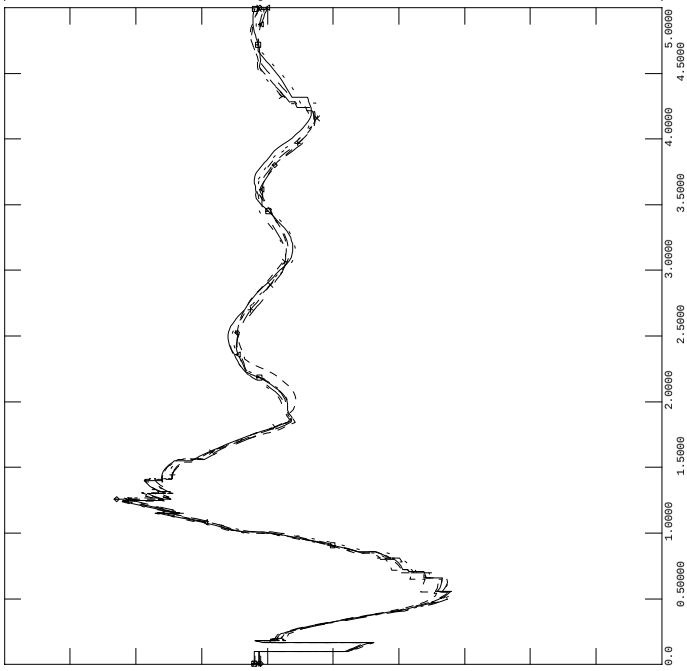
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04
V - MAPLE RIV 345

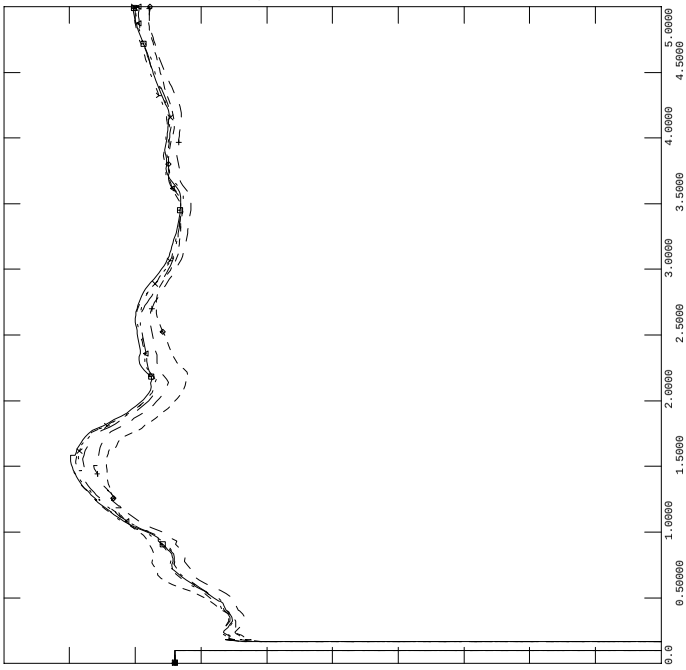
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

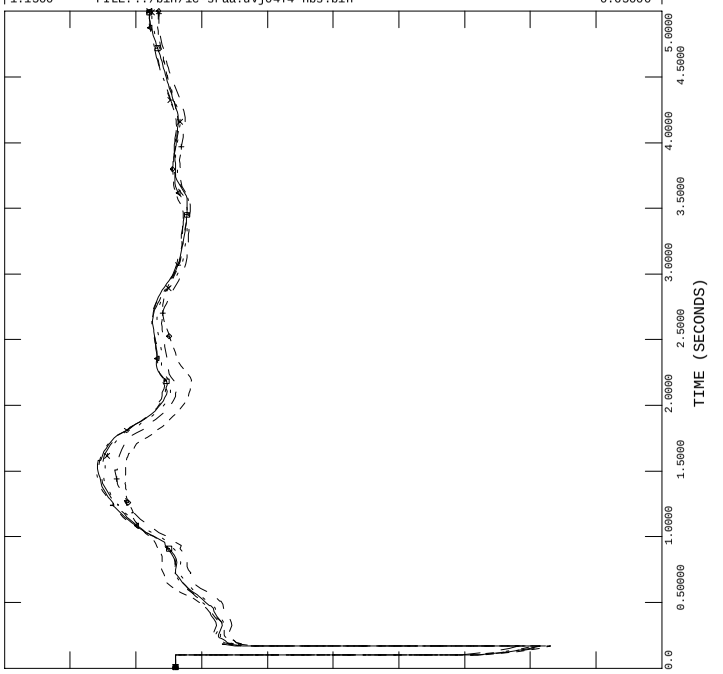
FRI, MAY 28 1999 09:04
V - KING 345

CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000



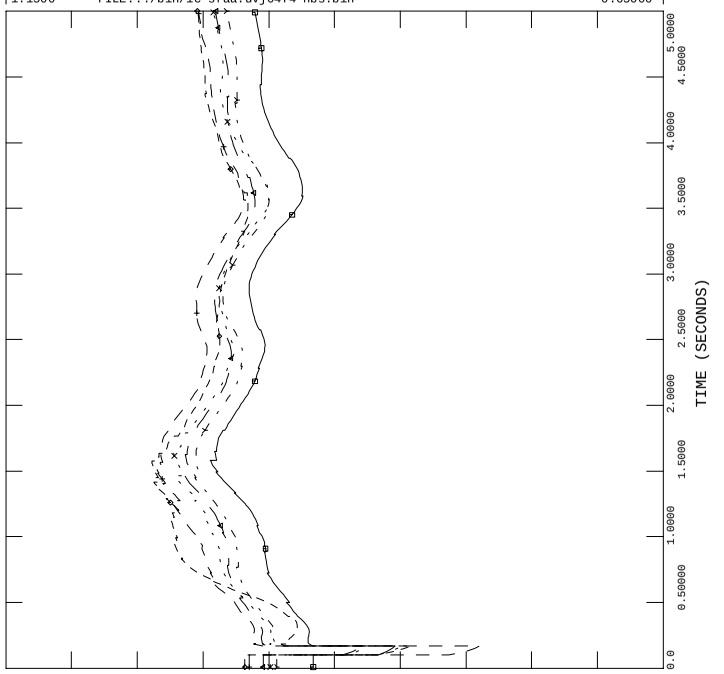
1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04
V - PRA ISLD 3



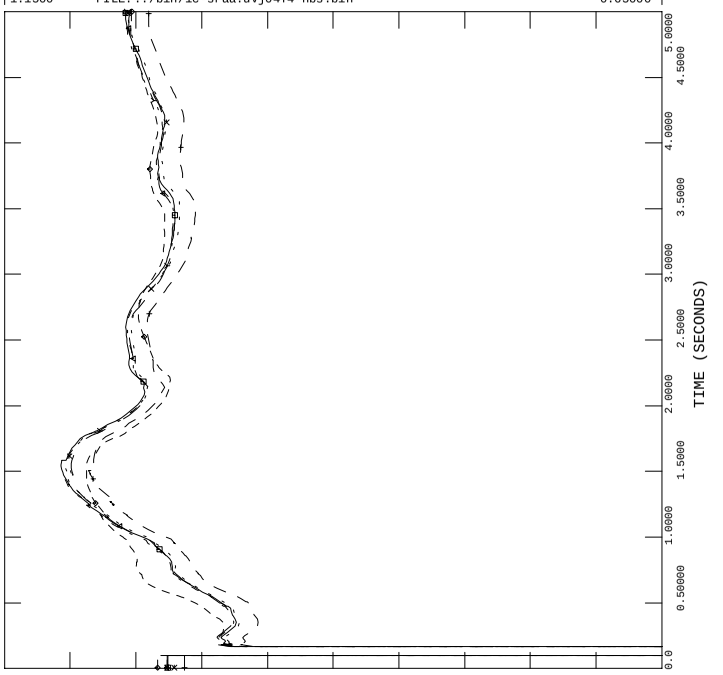
1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04
V - ROCKY RUN 345



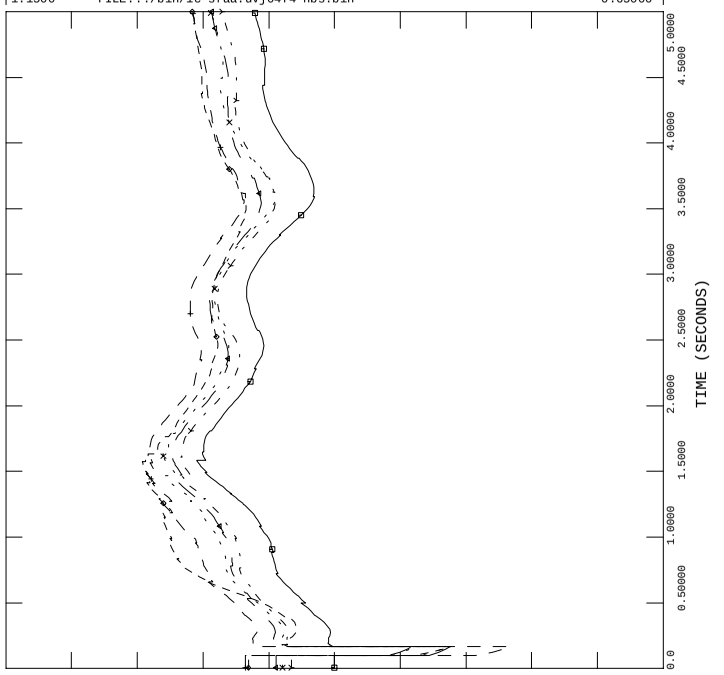
1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04
V - CHISAGO 345



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

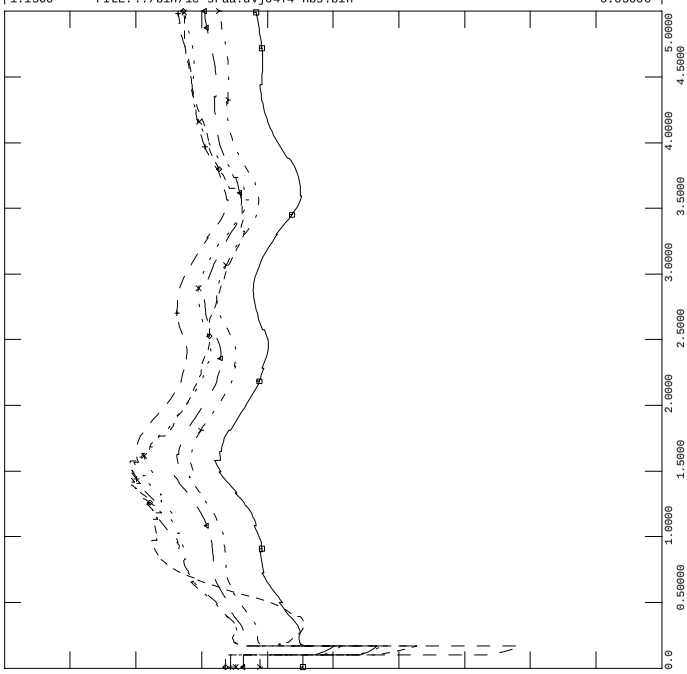
FRI, MAY 28 1999 09:04
V - ARPIN 345



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04
V - WESTON 345

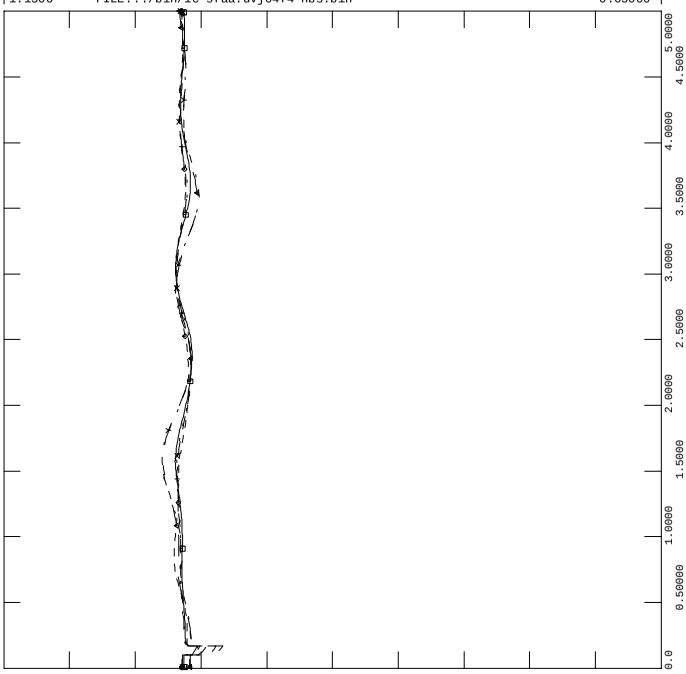
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04
V - COLUMBIA 345

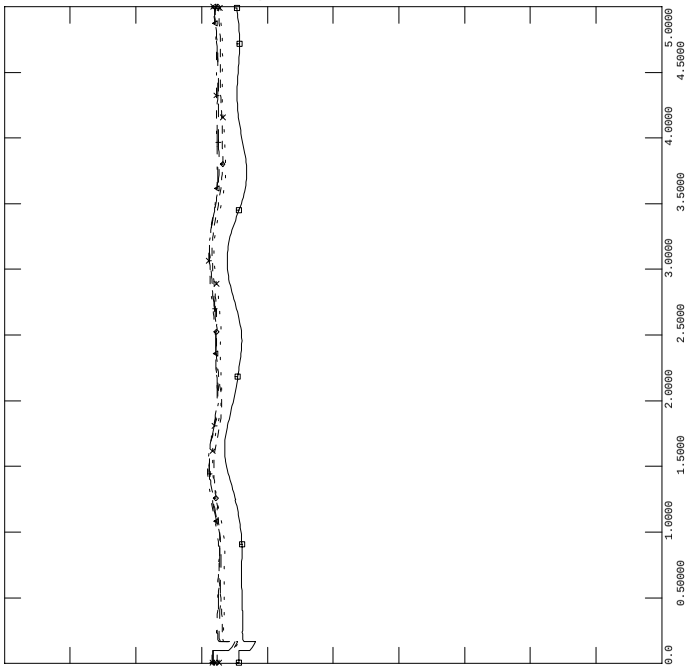
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04
V - SALEM 345

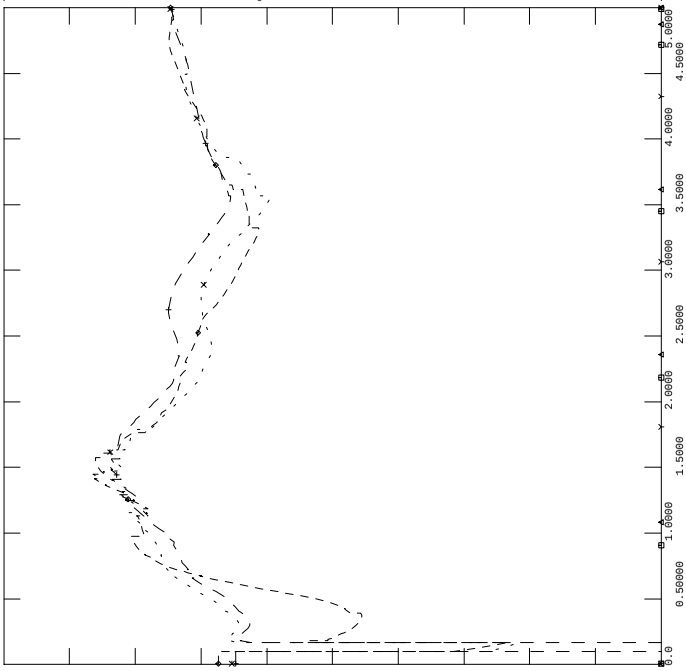
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04
V - HWY 8 TP 345

CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000

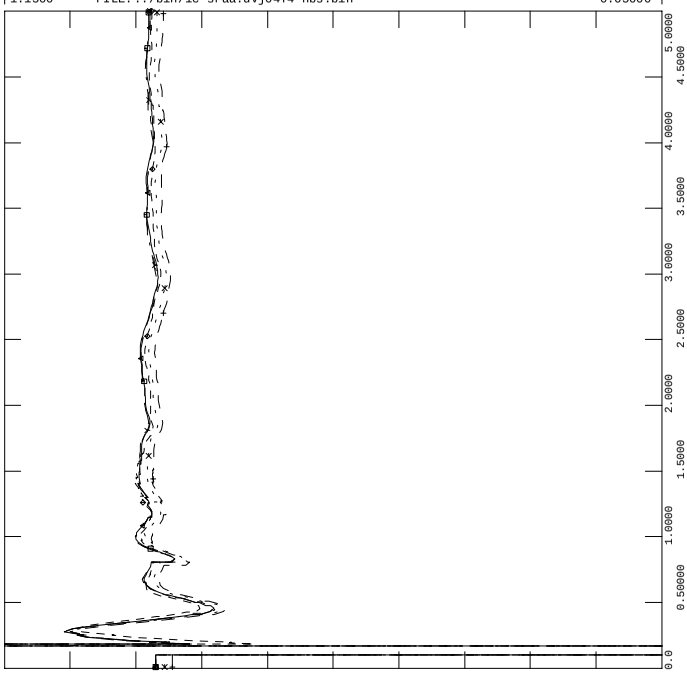


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04

V - FORBES 500

CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000

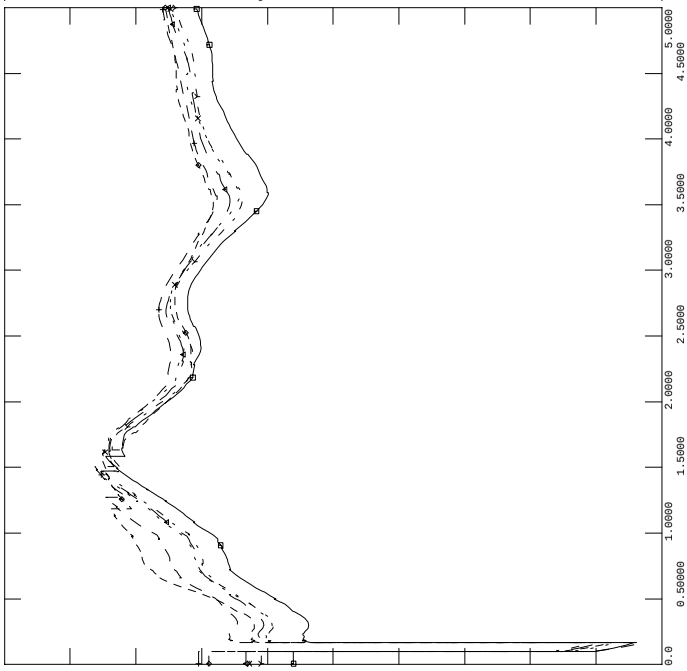


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04

V - EAU CLAIRE 345

CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin 0.65000

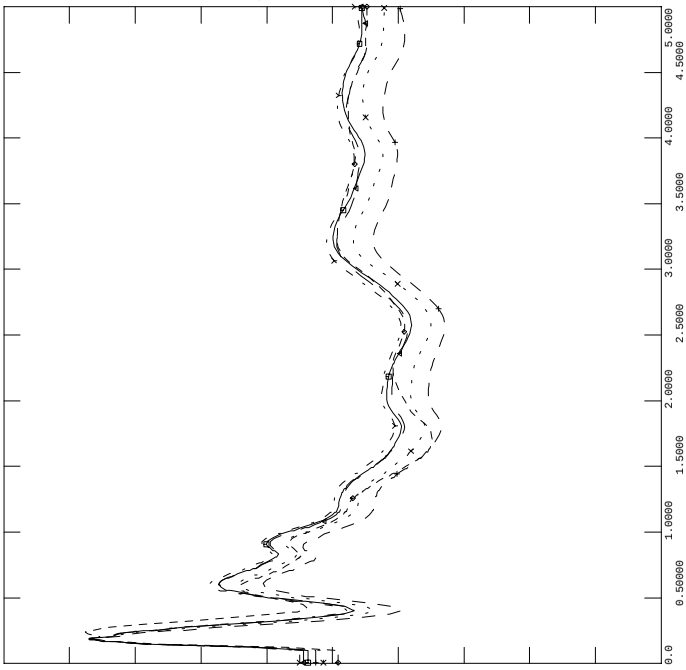


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
4 CYCLE, THREE PHASE FAULT AT CHISAGO COUNTY
TRIP CHISAGO TO FORBES CROSS TRIP D602F

FRI, MAY 28 1999 09:04

Q - FORBES SVS

CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/9b-sraa.uvk04Y4-nbs.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/5b-sraa.uvh04Y4-nbs.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/5a-sraa.uvf04Y4-nbs.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/3j-sraa.uvg04Y4-nbs.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/2e-sraa.uvg04Y4-nbs.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin/1c-sraa.uvj04Y4-nbs.bin -5.000

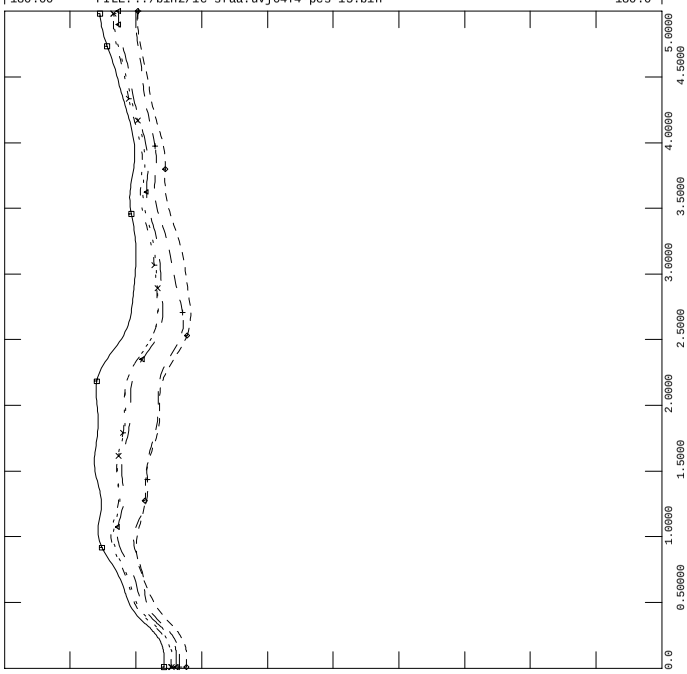


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

BOSWELL 4 GEN ANGLE

CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin -180.0

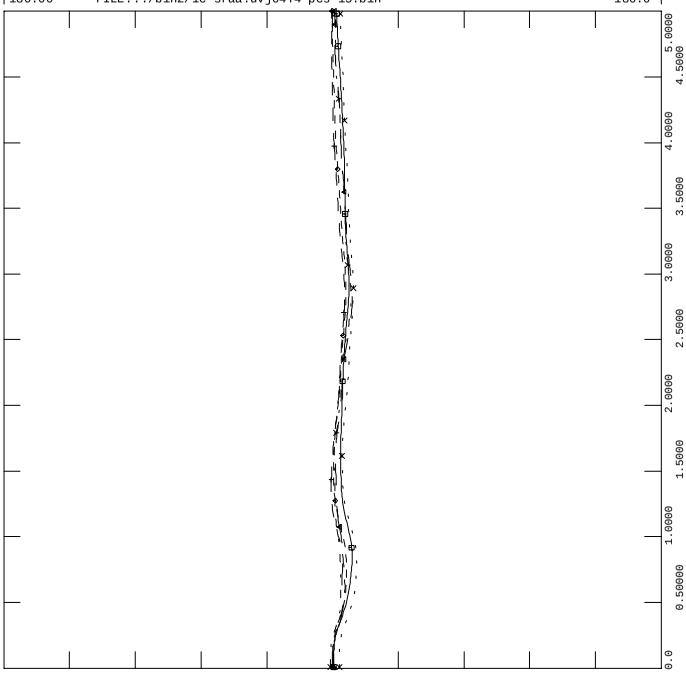


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

COLUMBIA GEN ANGLE

CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin -180.0

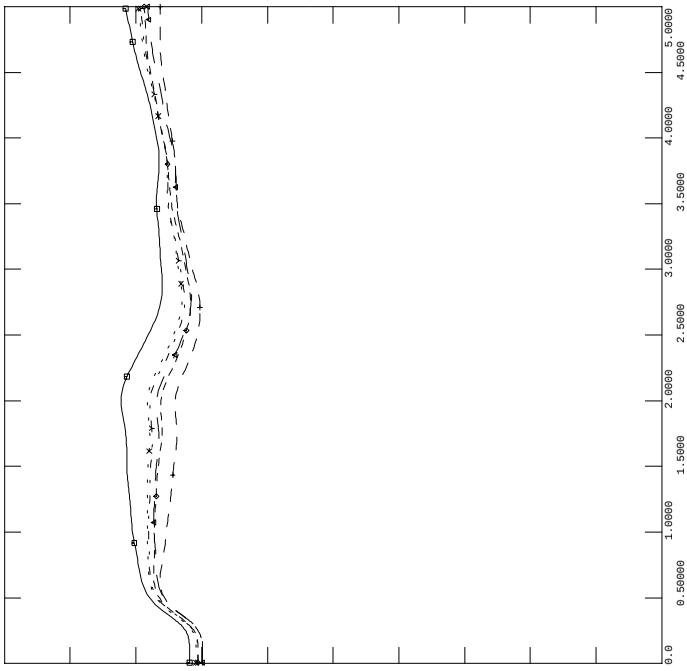


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

SHERCO GEN ANGLE

CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin -180.0

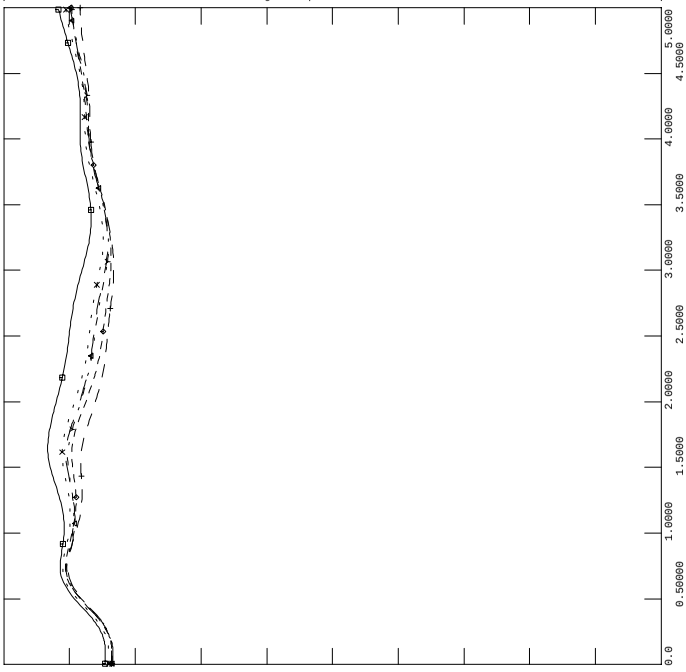


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

AVS 1 GEN ANGLE

CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin -180.0

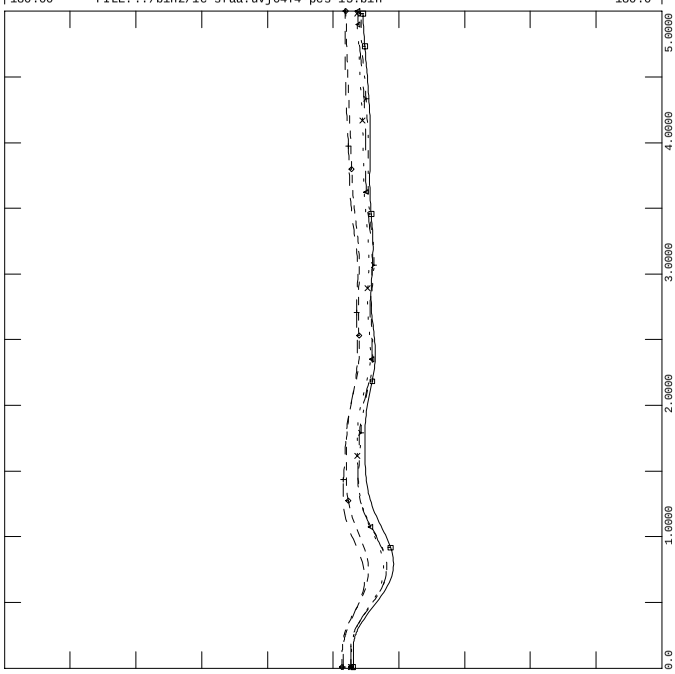


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

KEWAUNEE GEN ANGLE

CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin -180.0

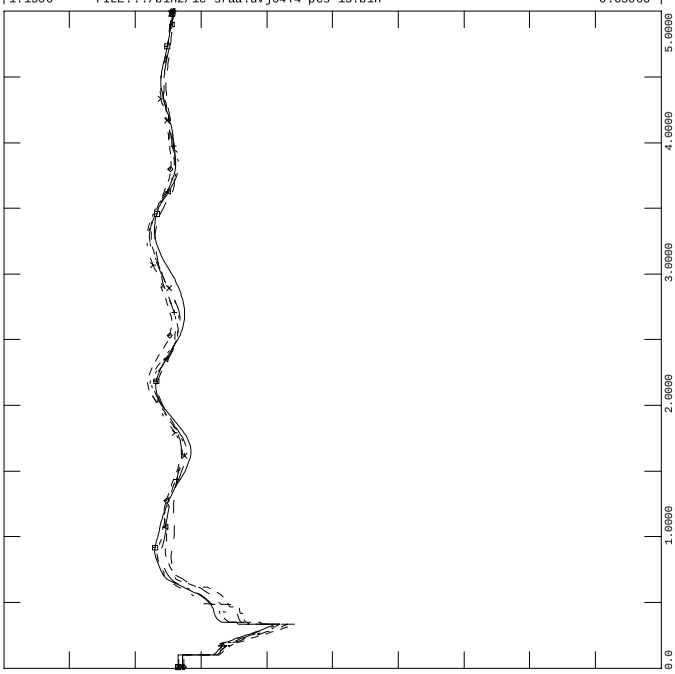


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

V - WHAPETON 230

CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin 0.65000

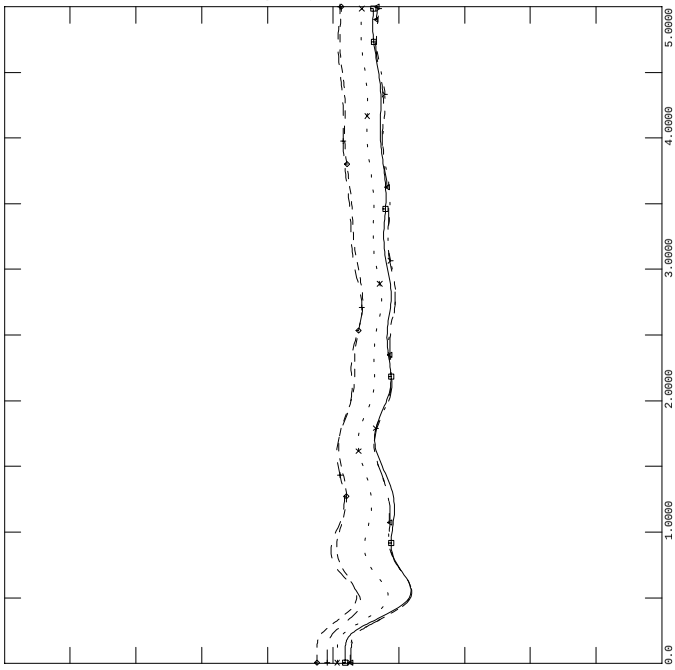


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

WESTON GEN ANGLE

CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin -180.0

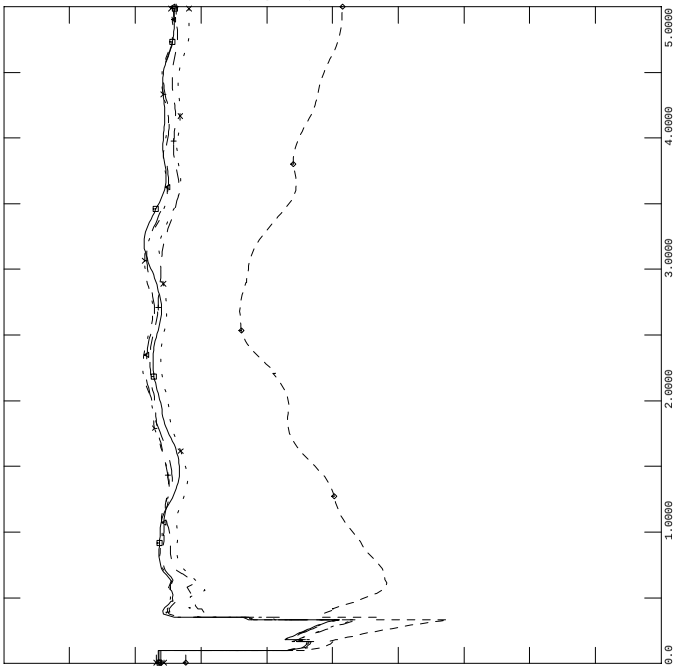


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

V - ARROWHEAD 230

CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin 0.65000

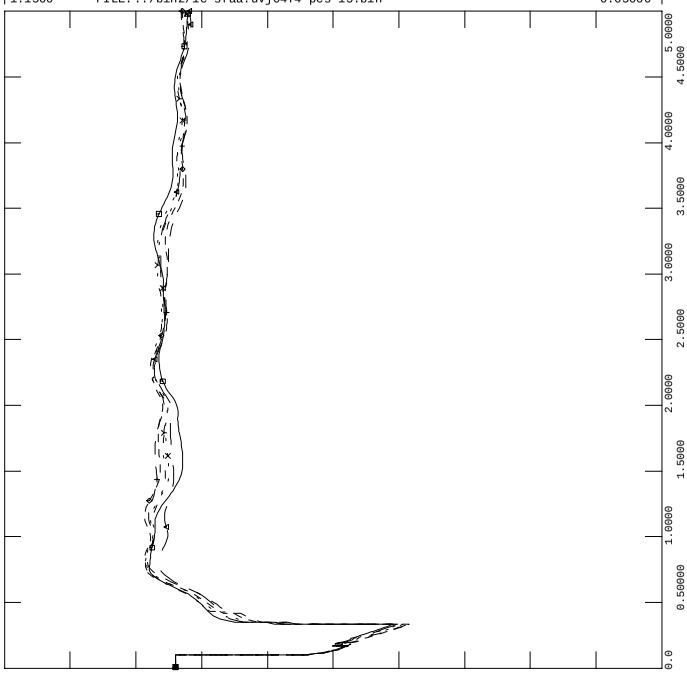


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

V - SHERCO 345

CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin 0.65000

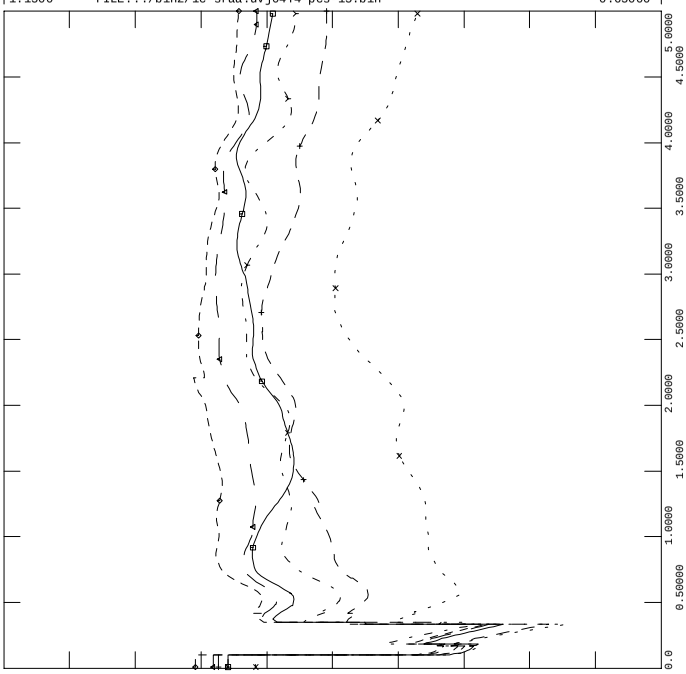


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

V - APP RIVER

CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin 0.65000

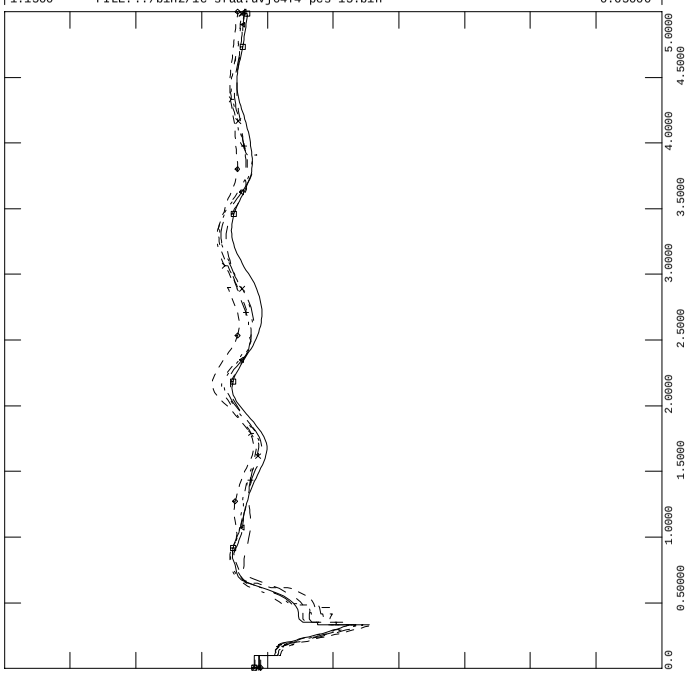


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

V - MAPLE RIV 345

CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin 0.65000

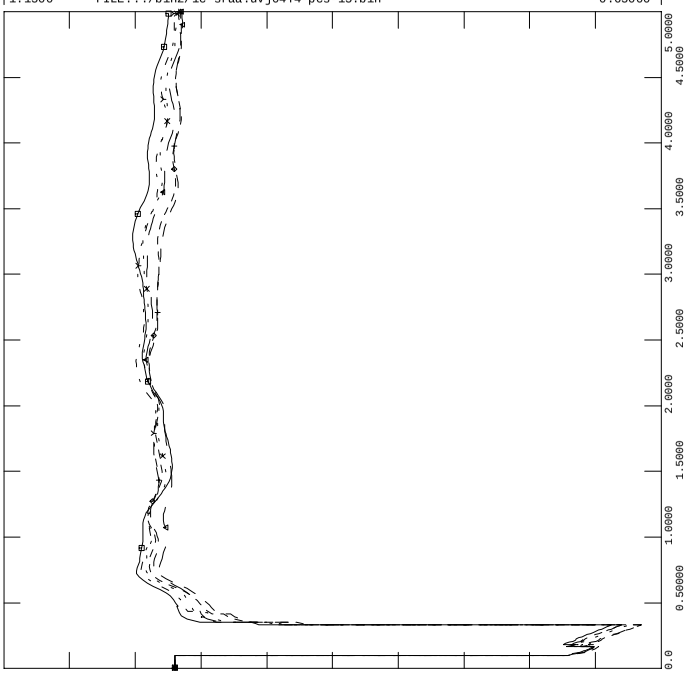


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

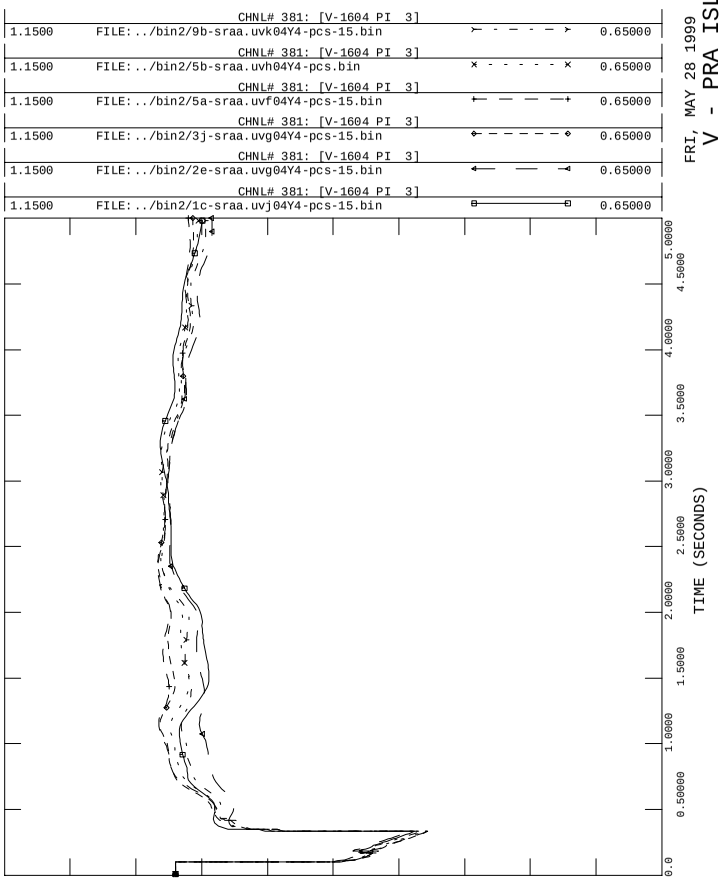
FRI, MAY 28 1999 09:07

V - KING 345

CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin 0.65000

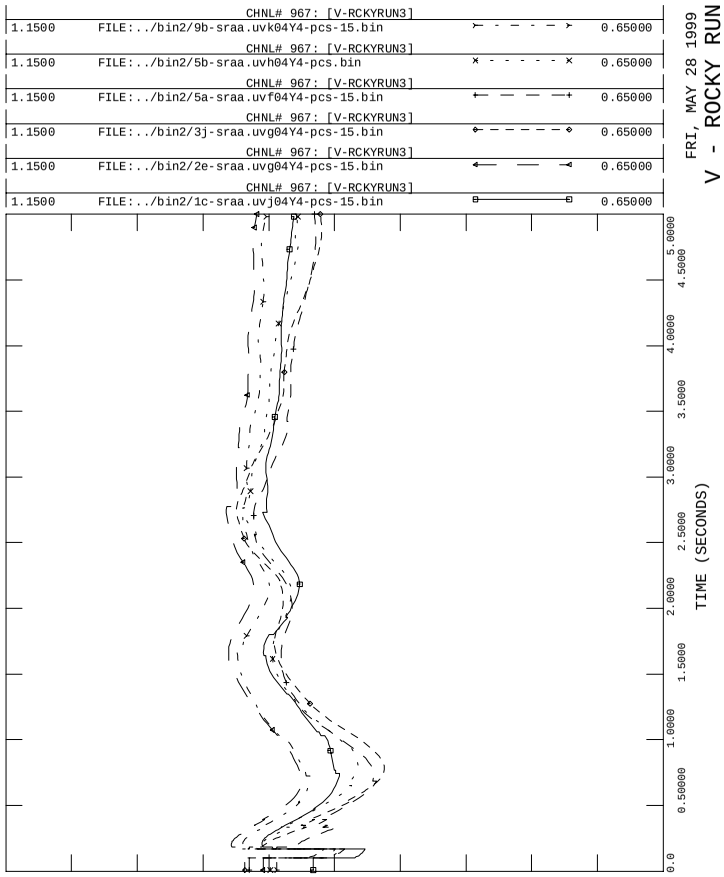


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE



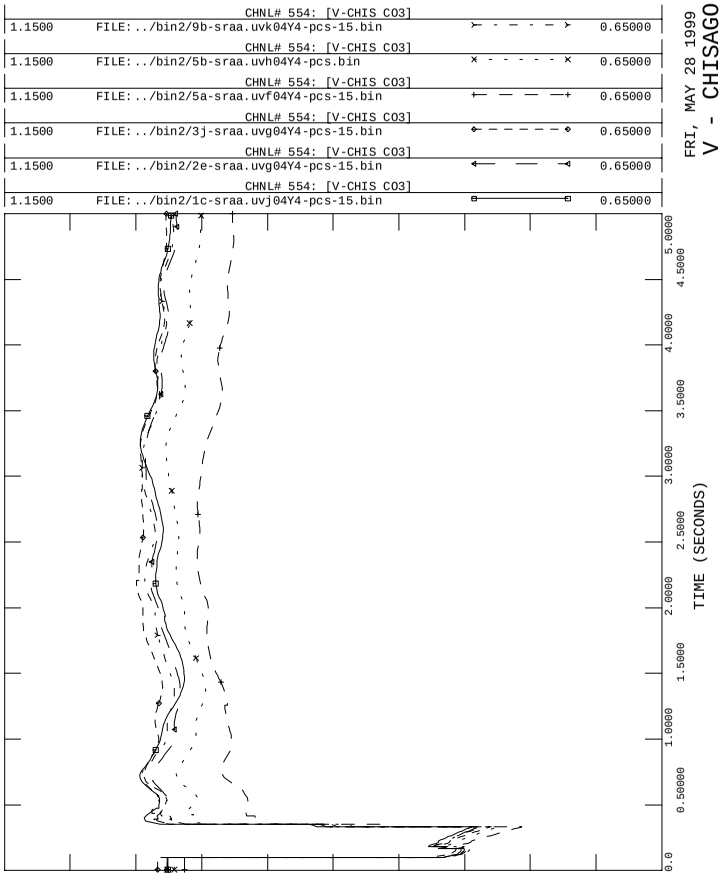
FRI, MAY 28 1999 09:07
V - PRA ISLD 3

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE



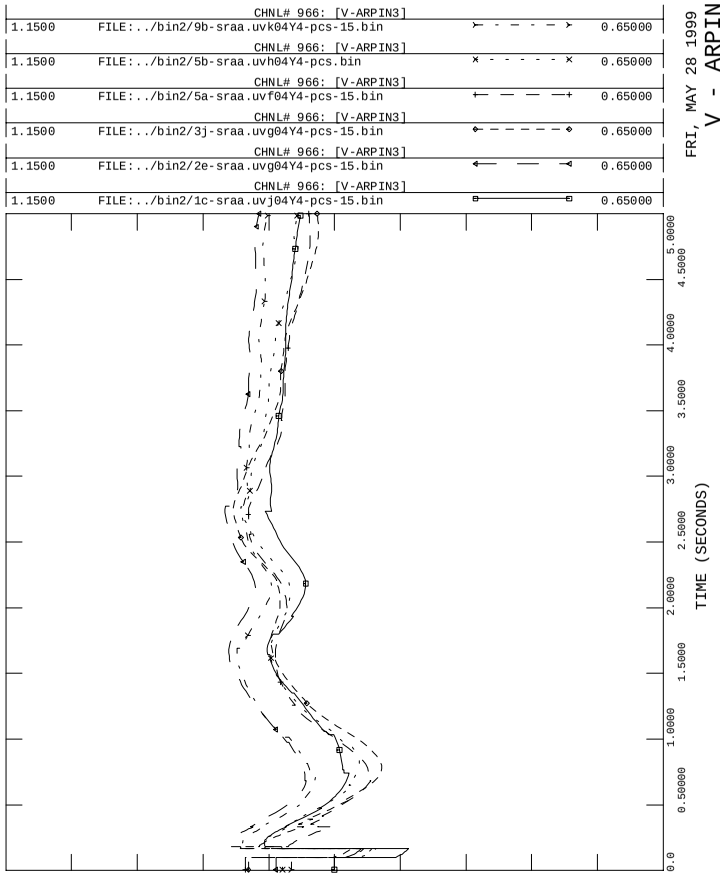
FRI, MAY 28 1999 09:07
V - ROCKY RUN 345

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE



FRI, MAY 28 1999 09:07
V - CHISAGO 345

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

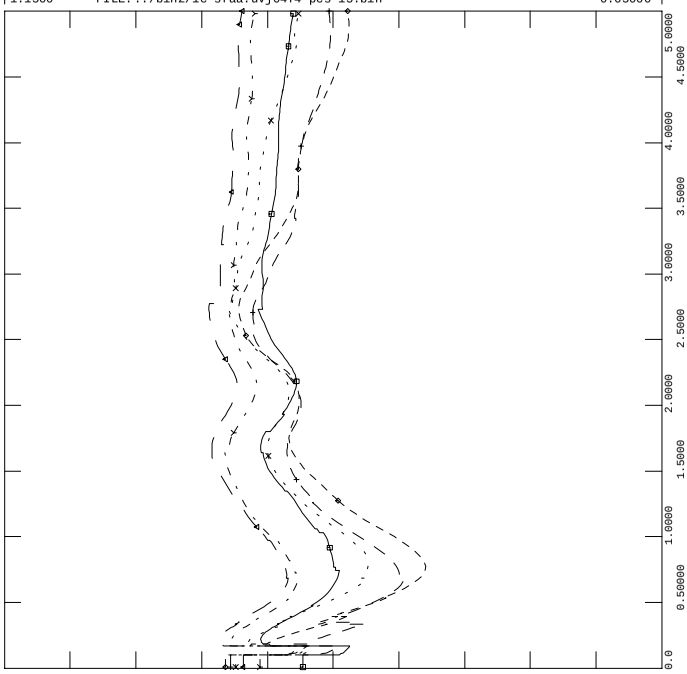


FRI, MAY 28 1999 09:07
V - ARPIN 345

1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

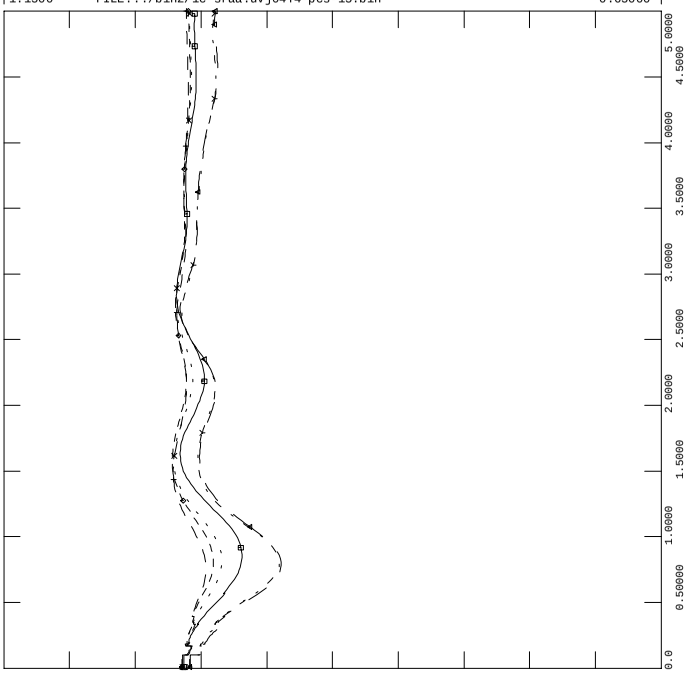
V - WESTON 345



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

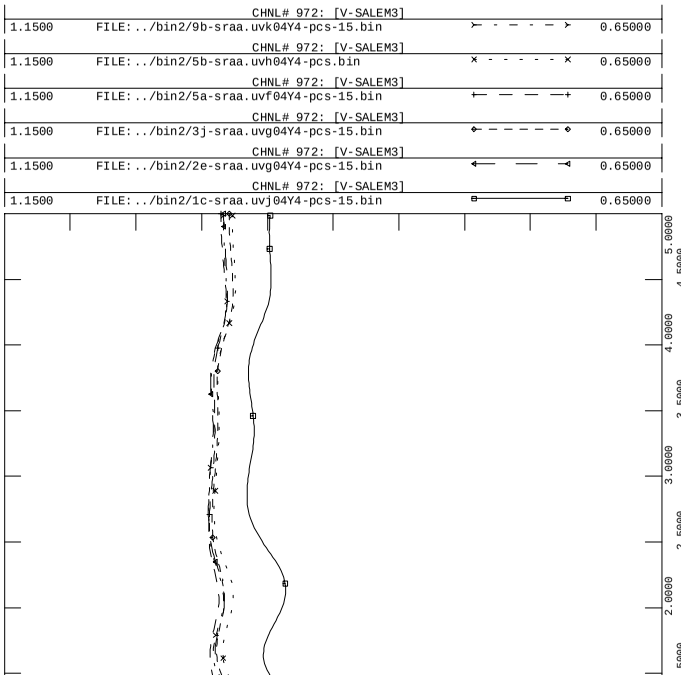
V - COLUMBIA 345



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

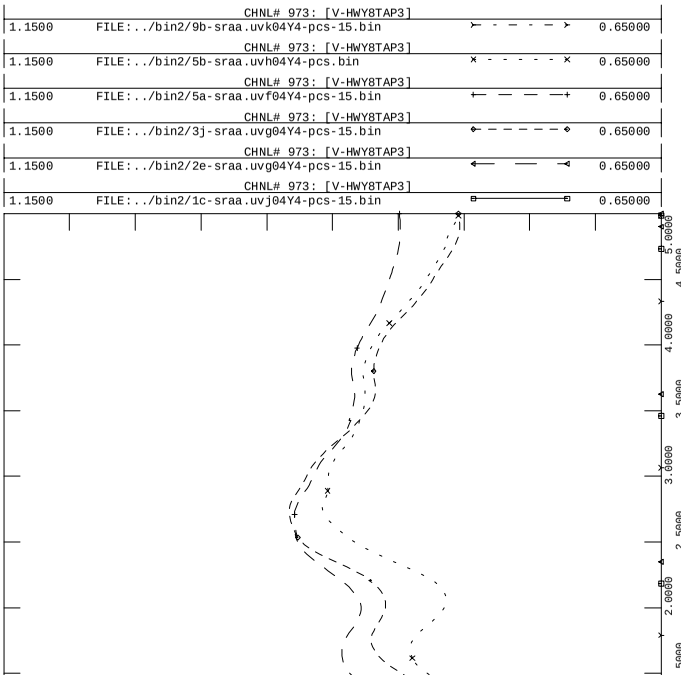
V - SALEM 345



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

V - HWY 8 TP 345

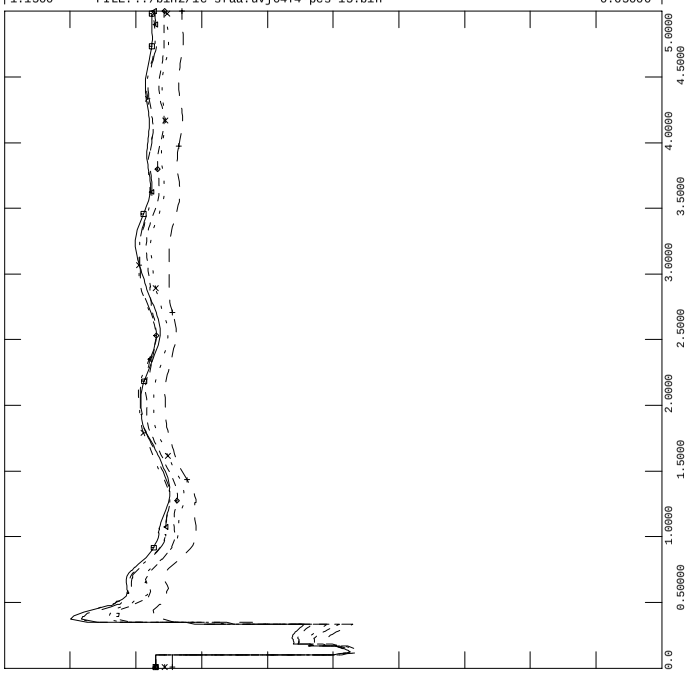


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

V - FORBES 500

CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin 0.65000

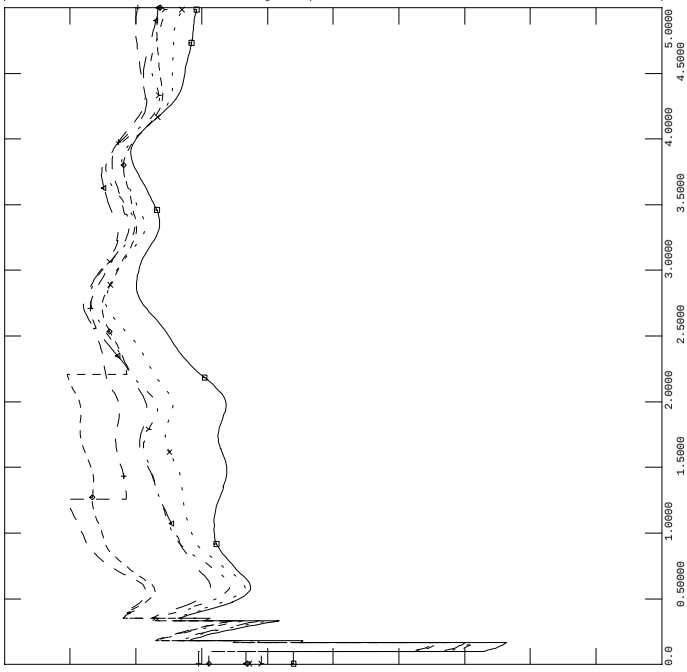


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

V - EAU CLAIRE 345

CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin 0.65000

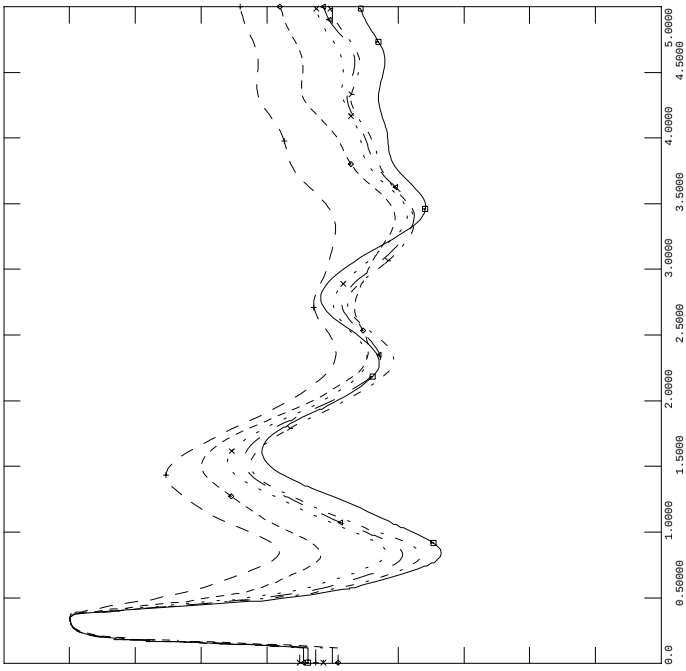


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
SLG FAULT AT KING-EAU CLAIRE LINE WITH B.F. AT KING
TRIPS KING-ECL,ECL-ARP,AND ASK-CHI LINE

FRI, MAY 28 1999 09:07

Q - FORBES SVS

CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/9b-sraa.uvk04Y4-pcs-15.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/5b-sraa.uvh04Y4-pcs.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/5a-sraa.uvf04Y4-pcs-15.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/3j-sraa.uvg04Y4-pcs-15.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/2e-sraa.uvg04Y4-pcs-15.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/1c-sraa.uvj04Y4-pcs-15.bin -5.000

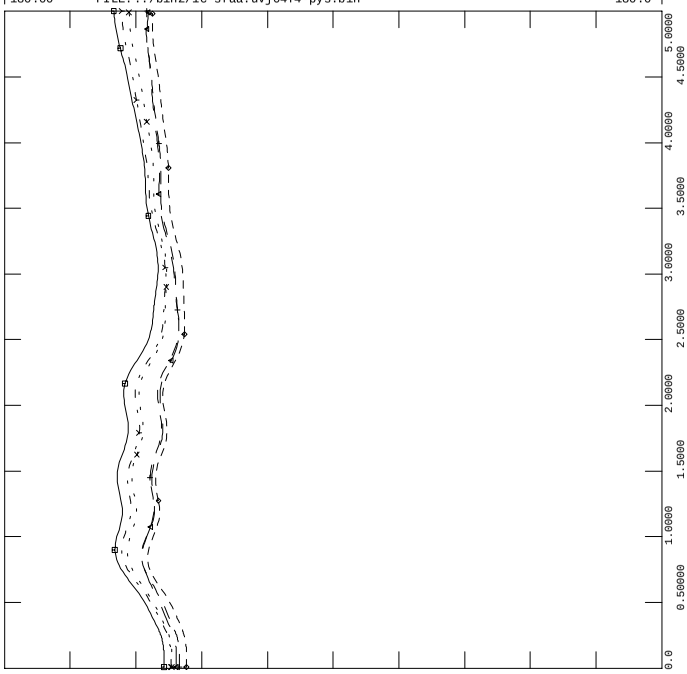


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08

BOSWELL 4 GEN ANGLE

CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin -180.0

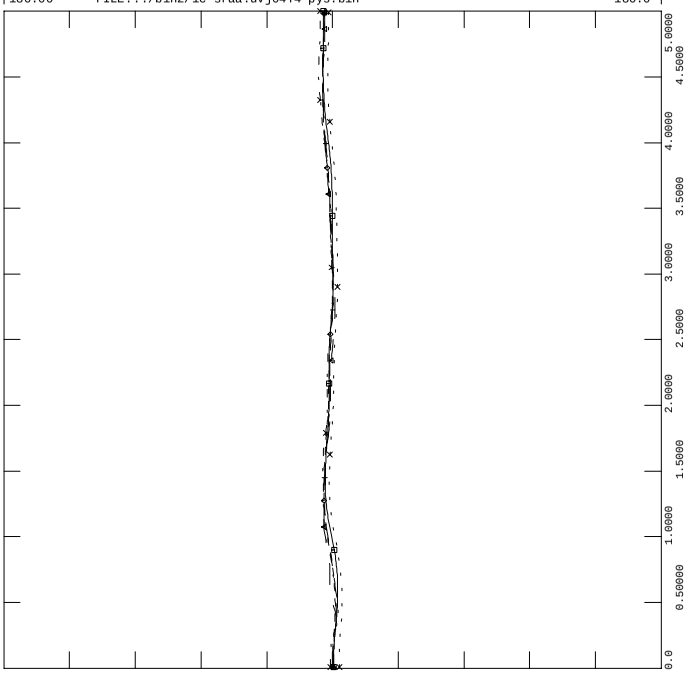


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08

COLUMBIA GEN ANGLE

CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin -180.0

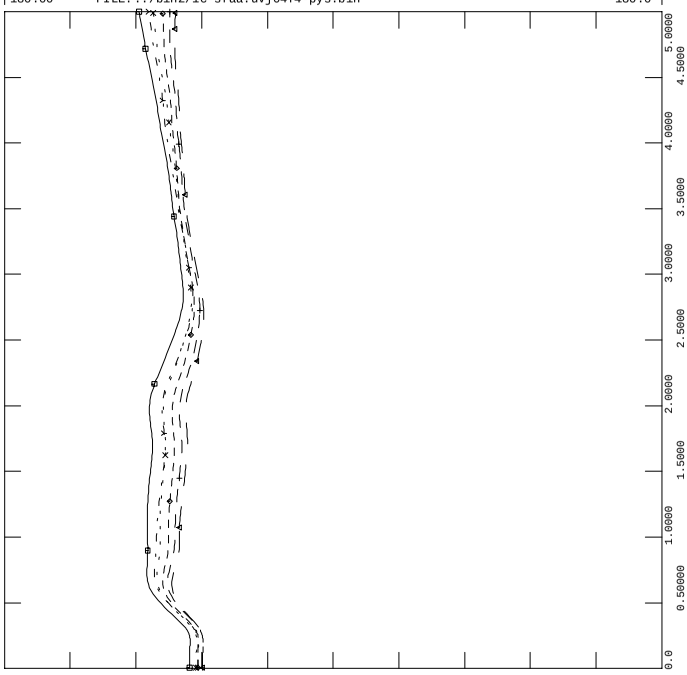


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08

SHERCO GEN ANGLE

CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin -180.0

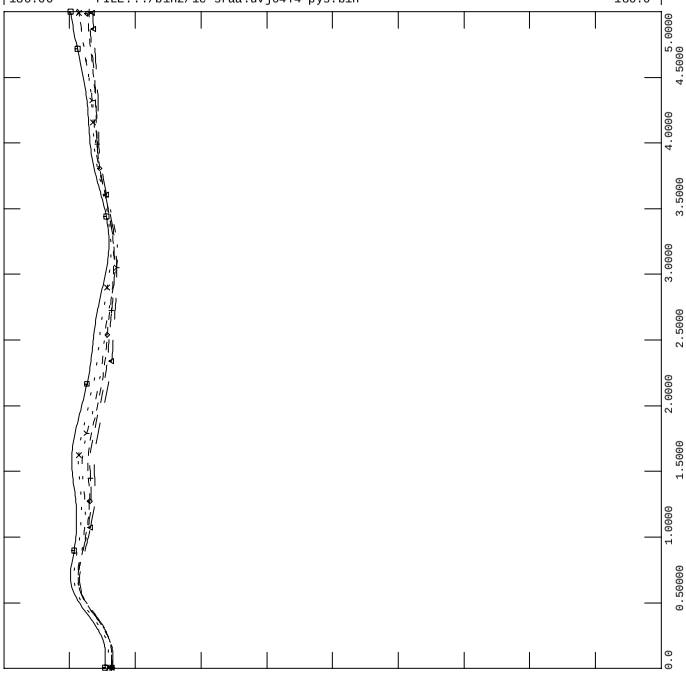


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08

AVS 1 GEN ANGLE

CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin -180.0

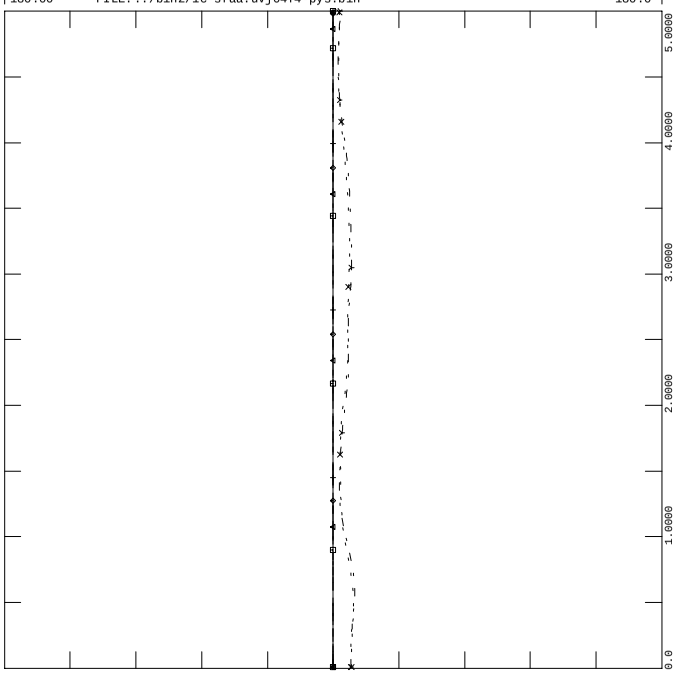


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08

KEWAUNEE GEN ANGLE

CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin -180.0

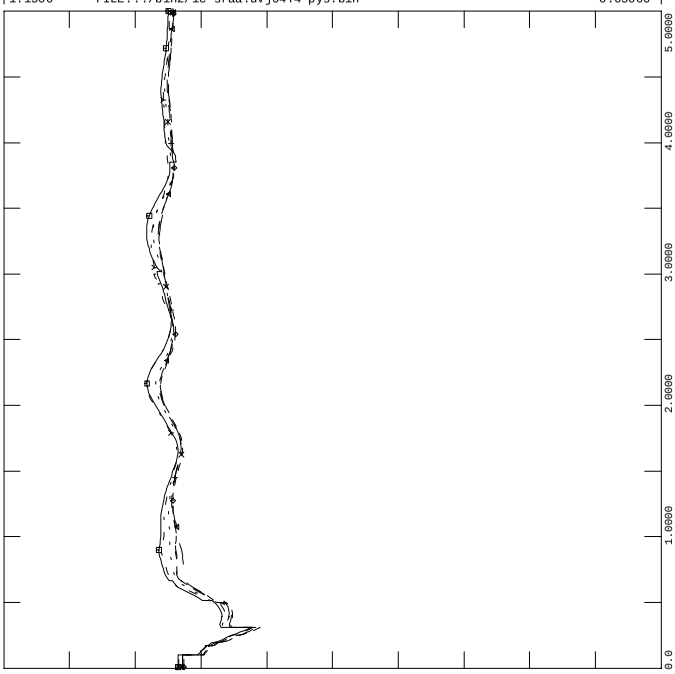


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08

V - WHAPETON 230

CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000

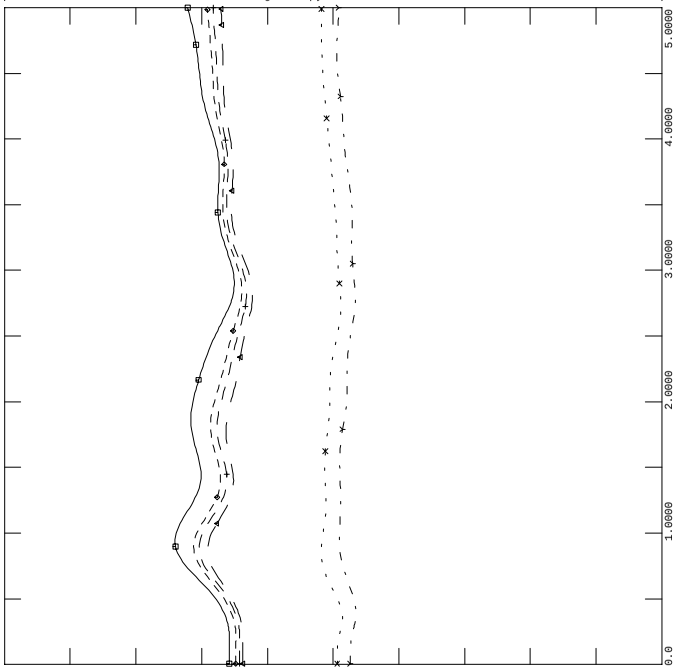


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08

WESTON GEN ANGLE

CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin -180.0
CHNL# 68: [ANG1WESTON]
180.00 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin -180.0

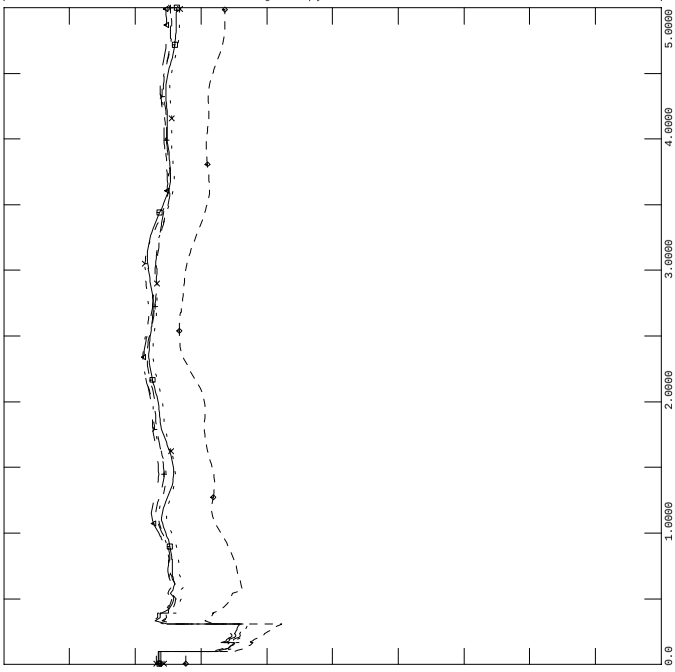


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08

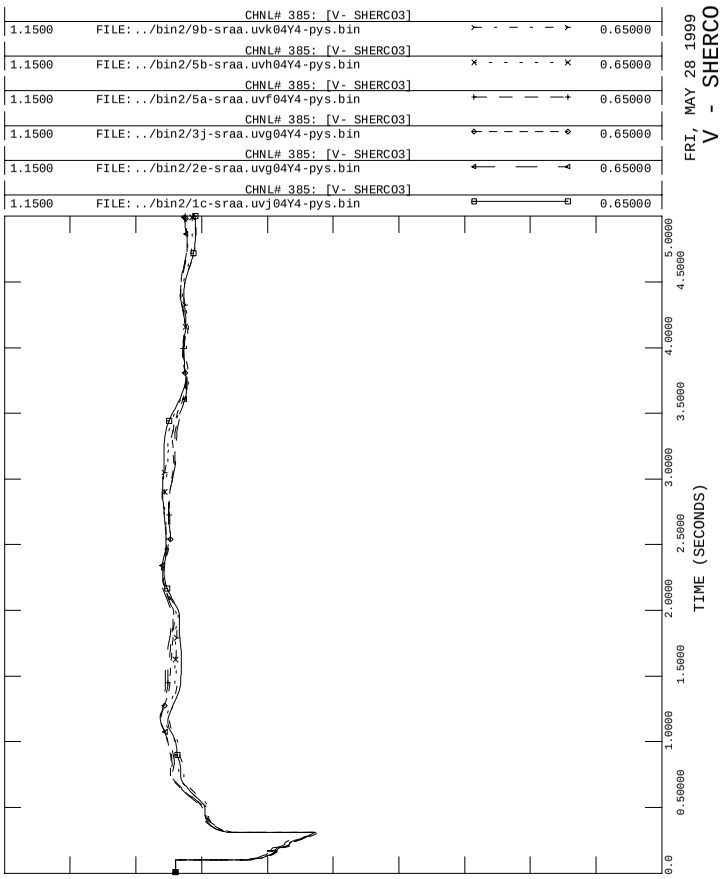
V - ARROWHEAD 230

CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000



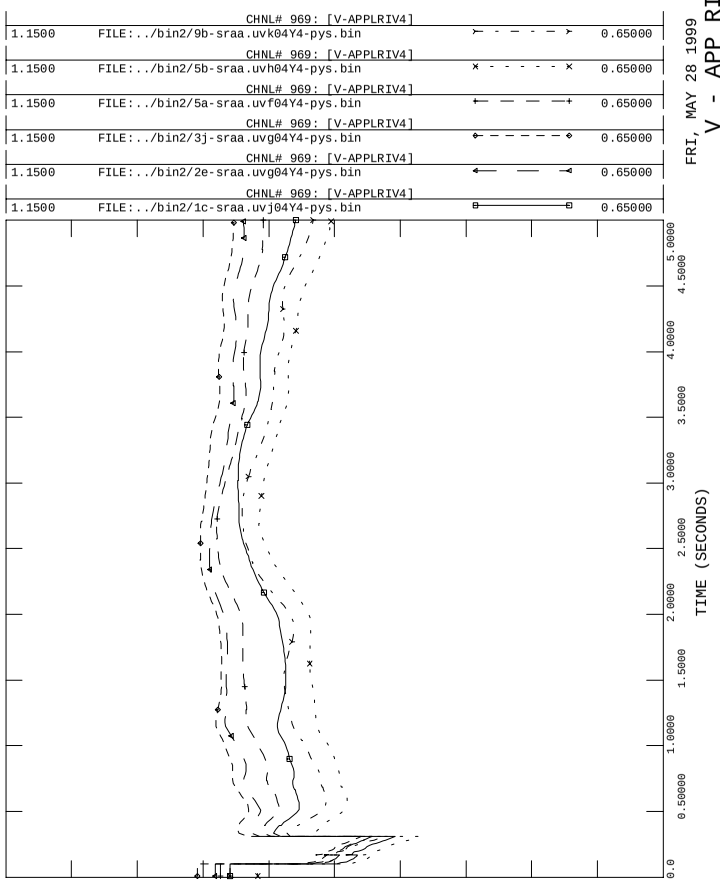
1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08
V - SHERCO 345



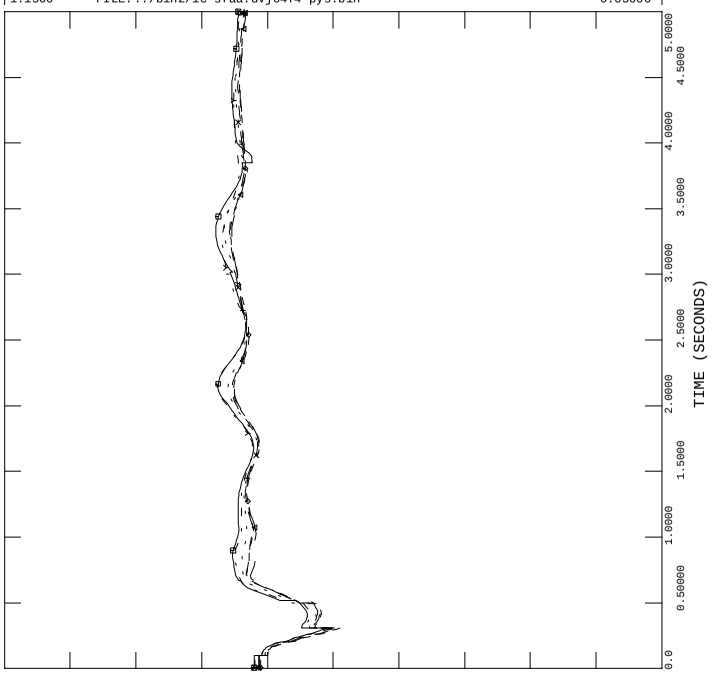
1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08
V - APP RIVER



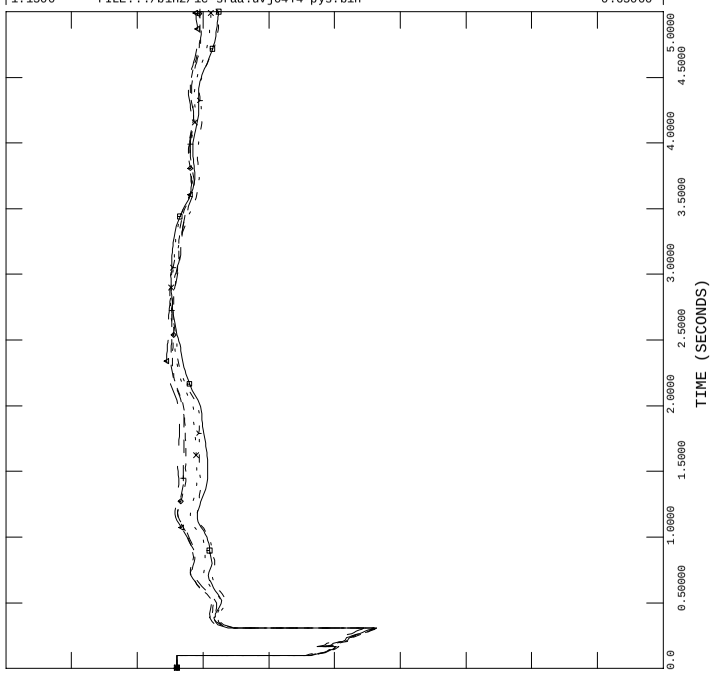
1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08
V - MAPLE RIV 345



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

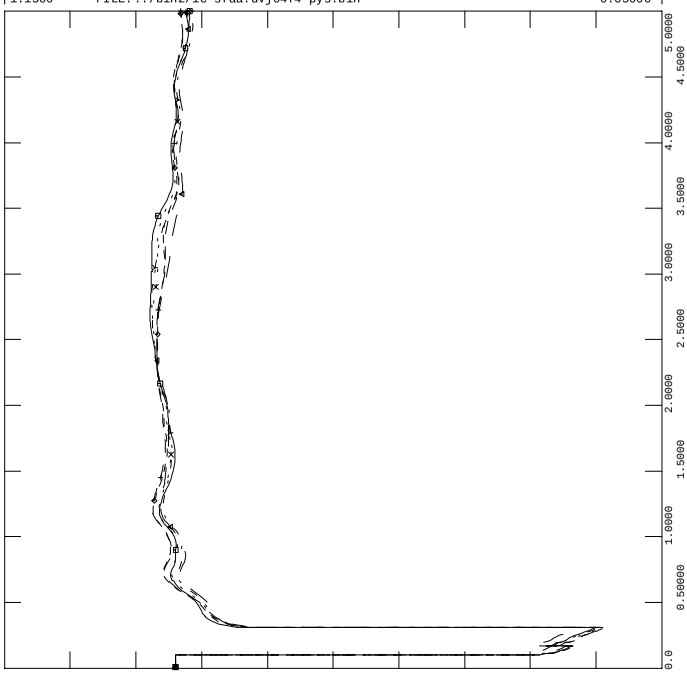
FRI, MAY 28 1999 09:08
V - KING 345



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08
V - PRA ISLD 3

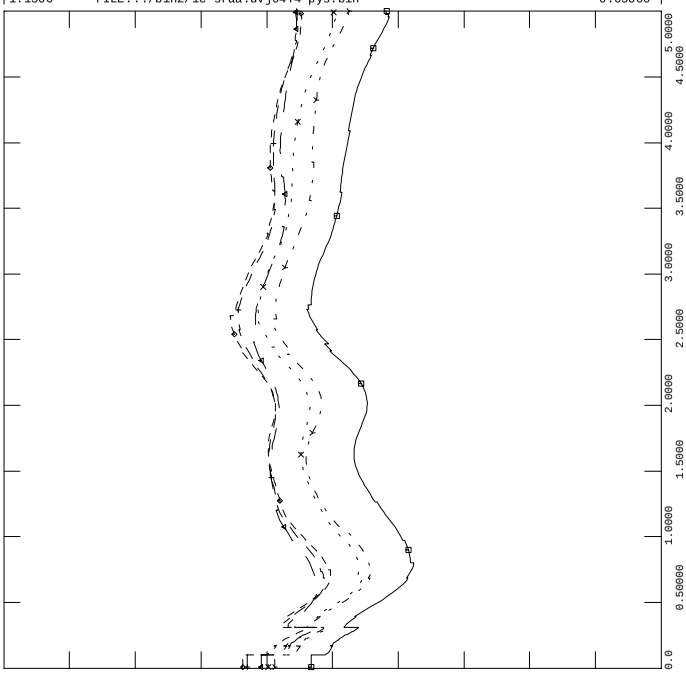
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08
V - ROCKY RUN 345

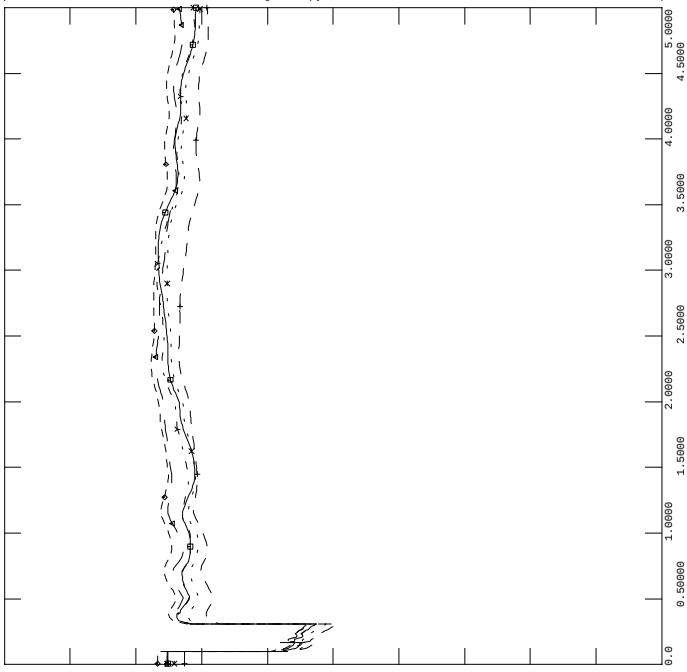
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08
V - CHISAGO 345

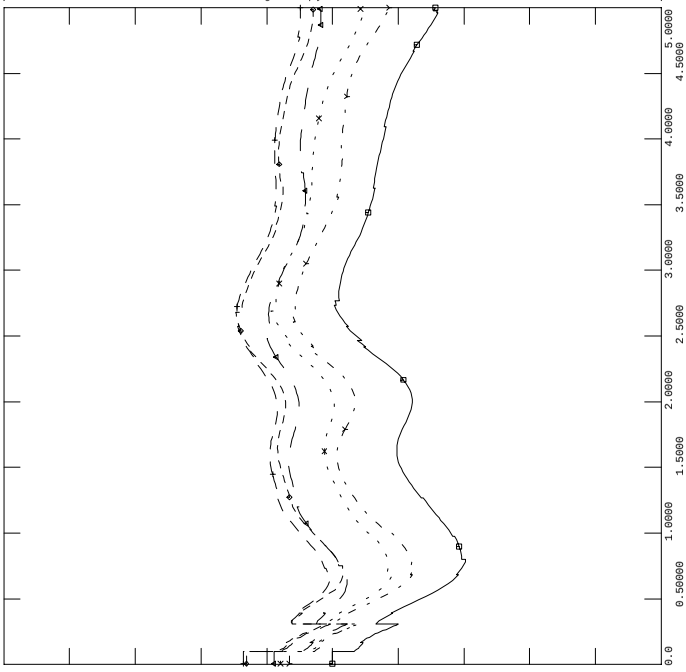
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08
V - ARPIN 345

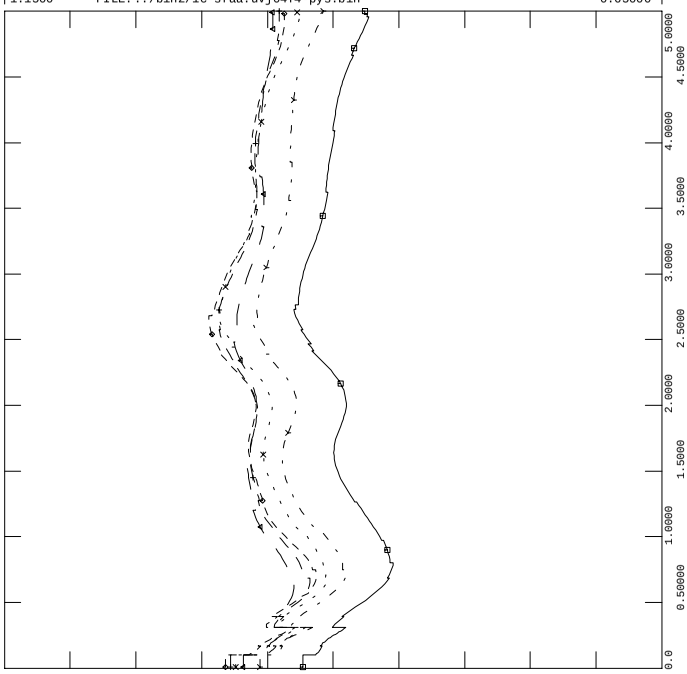
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08
V - WESTON 345

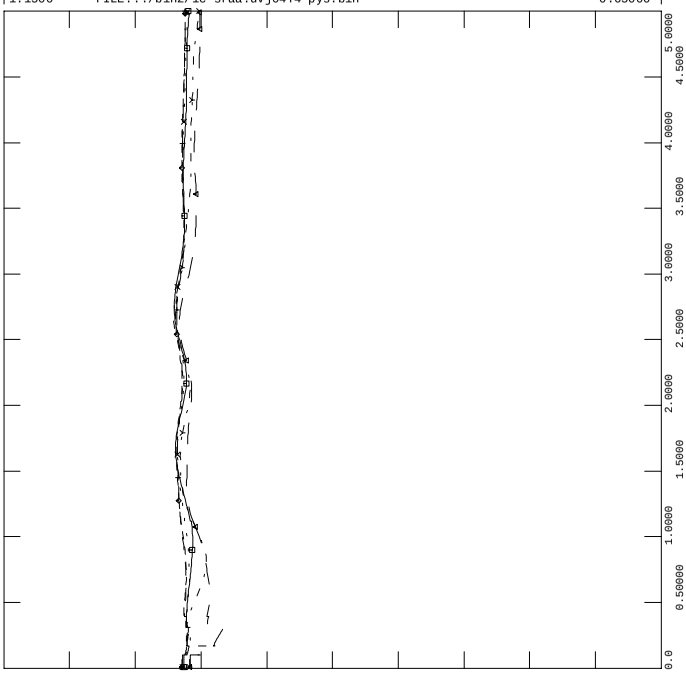
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08
V - COLUMBIA 345

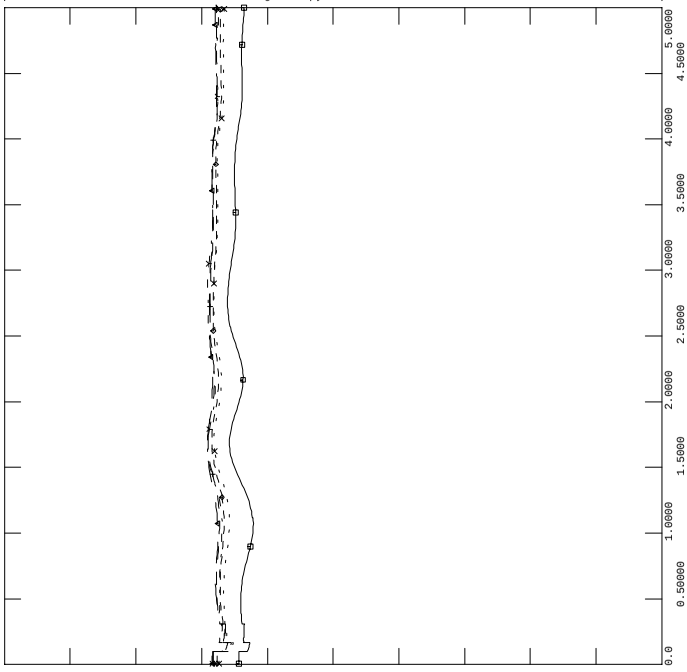
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08
V - SALEM 345

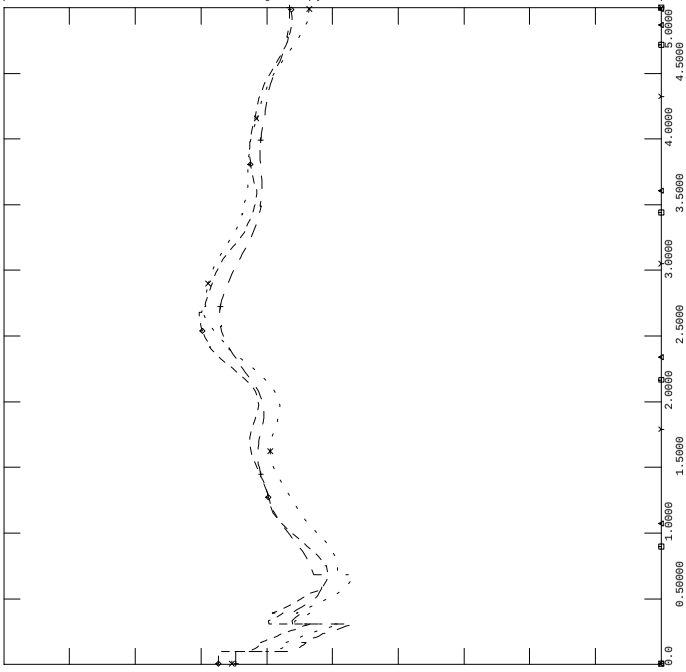
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000



1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08
V - HWY 8 TP 345

CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000

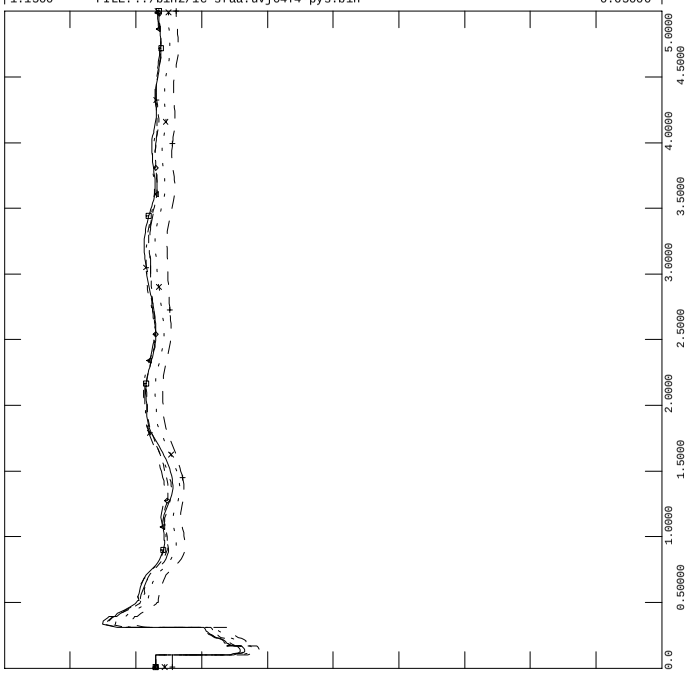


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08

V - FORBES 500

CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000

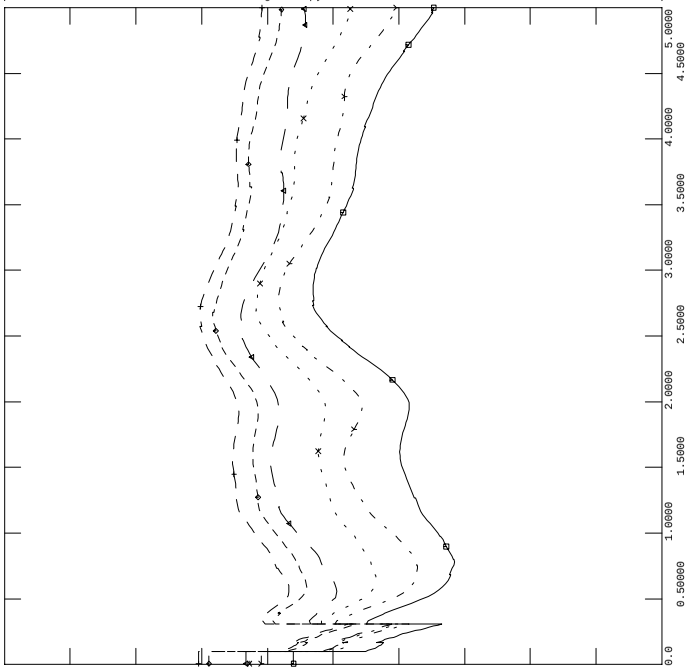


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08

V - EAU CLAIRE 345

CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin 0.65000

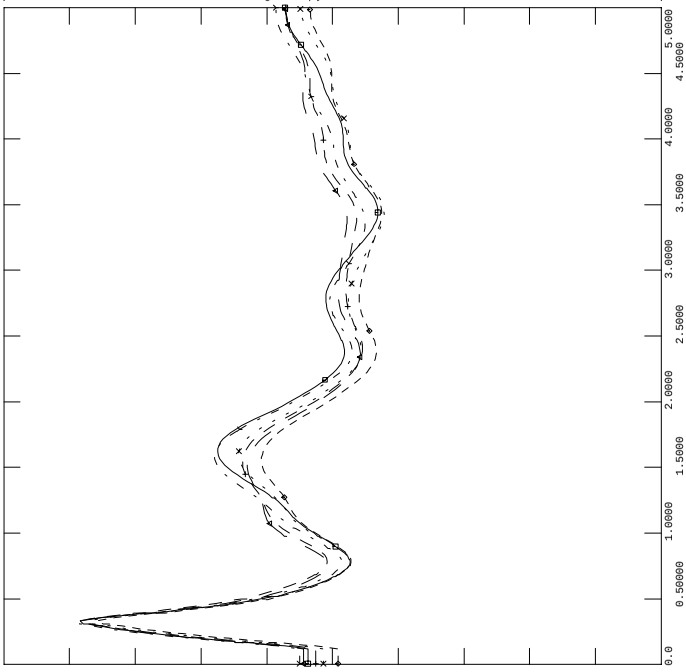


1C-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1322,MHOH=1,OHMP=151,EWTW=-87,BD=149
14 CYCLE SLG AT AT PRAIRIE ISLAND
TRIP PRI-BYN LINE

FRI, MAY 28 1999 09:08

Q - FORBES SVS

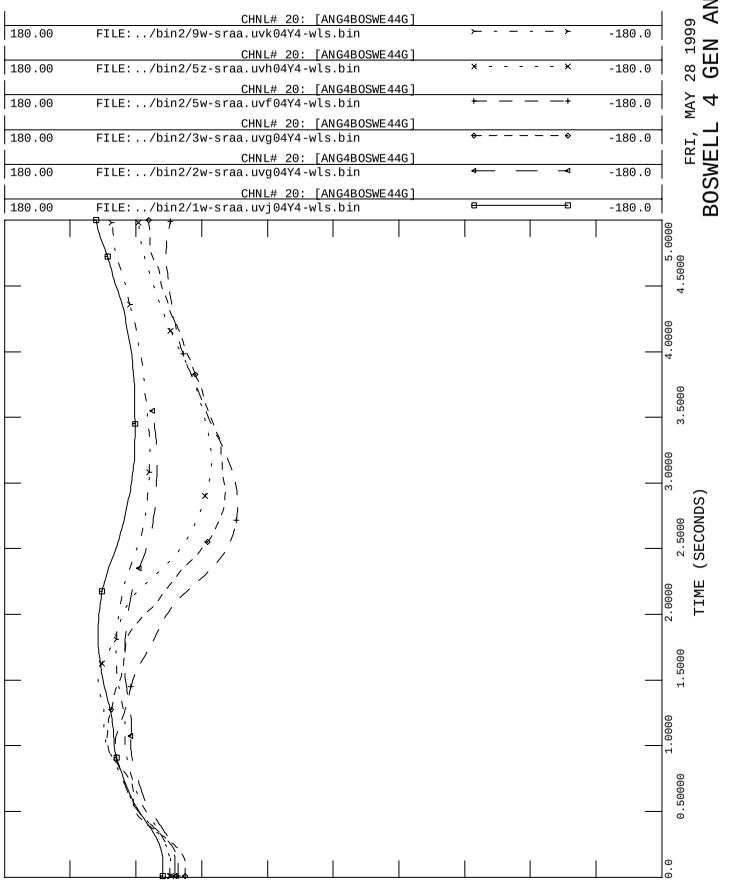
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/9b-sraa.uvk04Y4-pys.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/5b-sraa.uvh04Y4-pys.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/5a-sraa.uvf04Y4-pys.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/3j-sraa.uvg04Y4-pys.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/2e-sraa.uvg04Y4-pys.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/1c-sraa.uvj04Y4-pys.bin -5.000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13

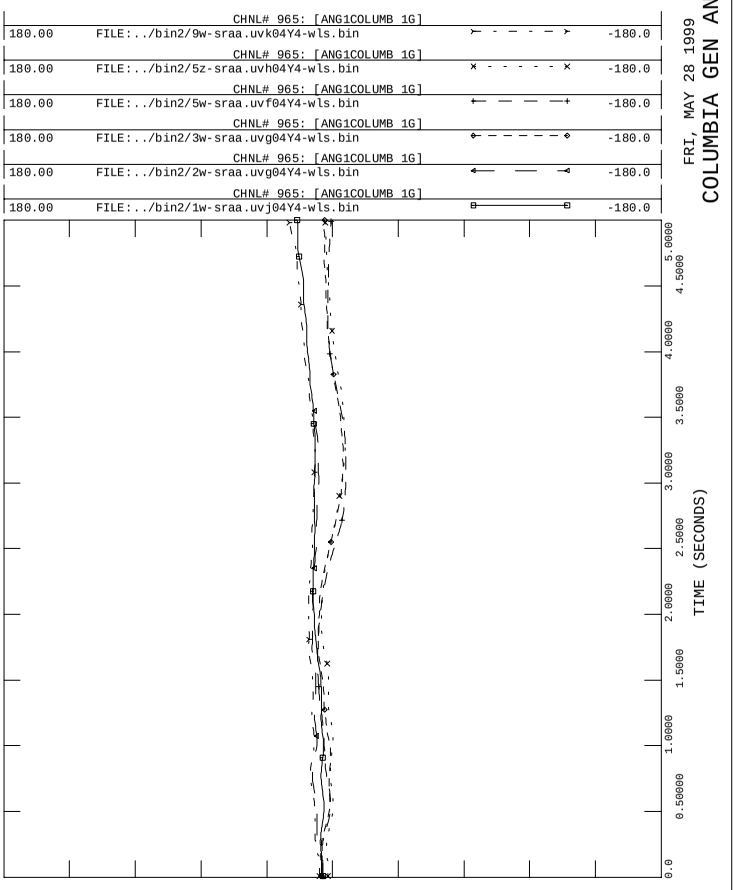
BOSWELL 4 GEN ANGLE



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13

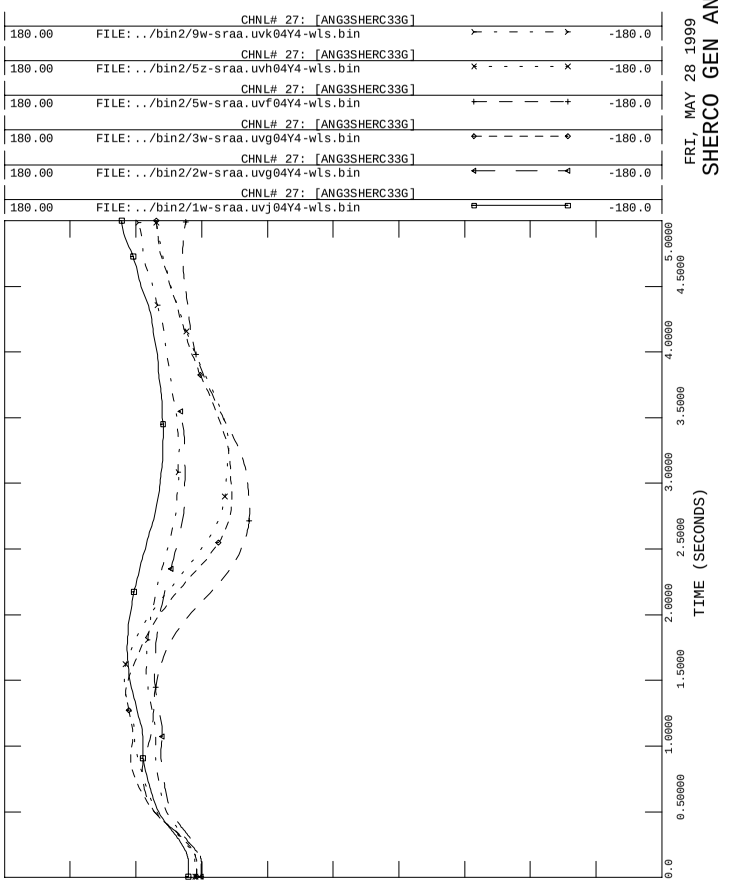
COLUMBIA GEN ANGLE



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13

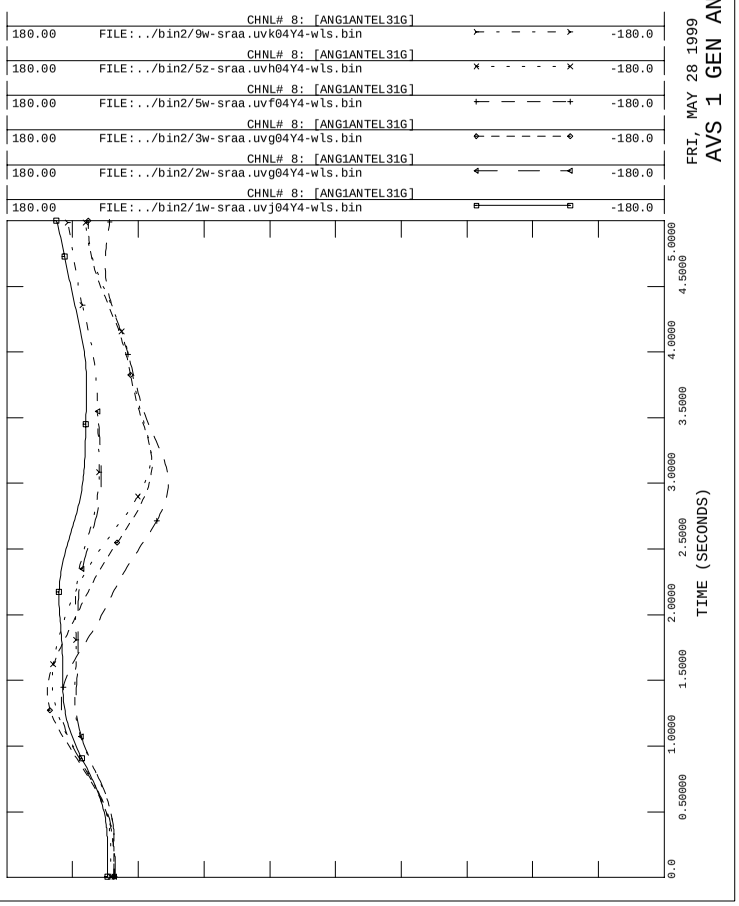
SHERCO GEN ANGLE



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13

AVS 1 GEN ANGLE

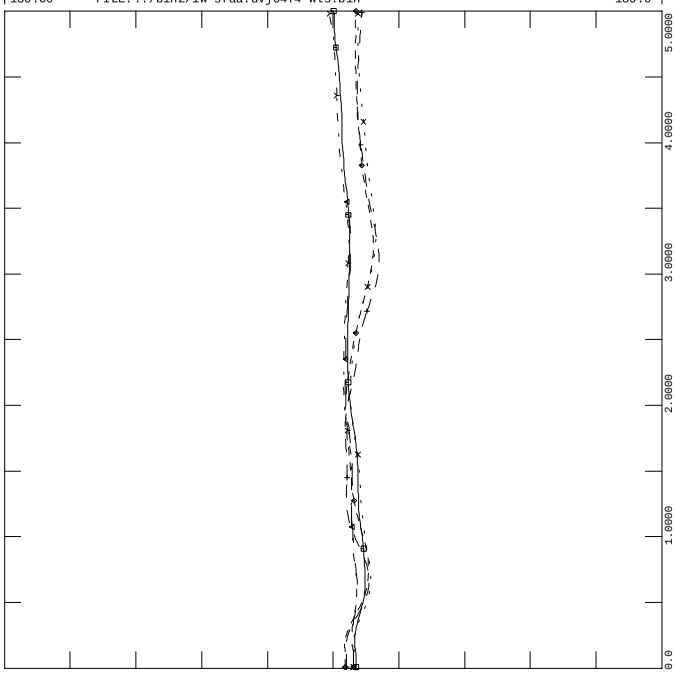


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13

KEWAUNEE GEN ANGLE

CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin -180.0

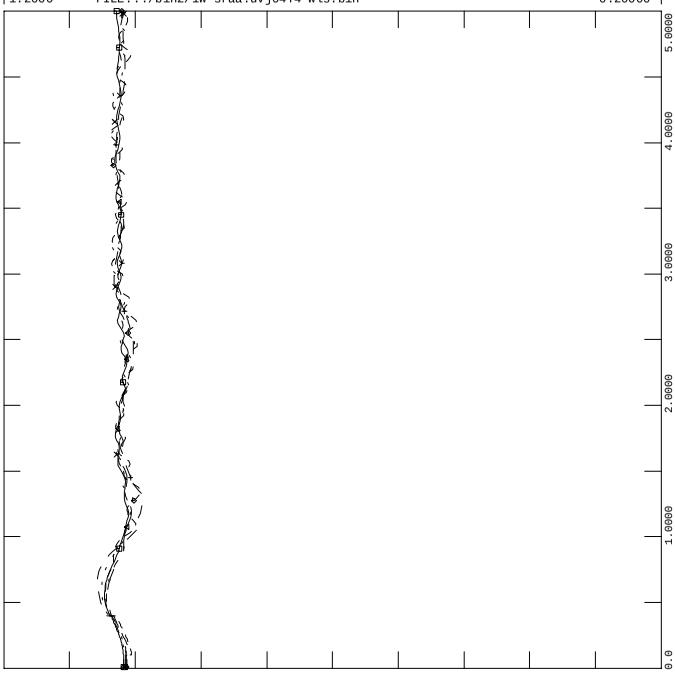


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13

V - WHAPETON 230

CHNL# 528: [V-WAHPETN4]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 528: [V-WAHPETN4]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 528: [V-WAHPETN4]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 528: [V-WAHPETN4]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 528: [V-WAHPETN4]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 528: [V-WAHPETN4]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000

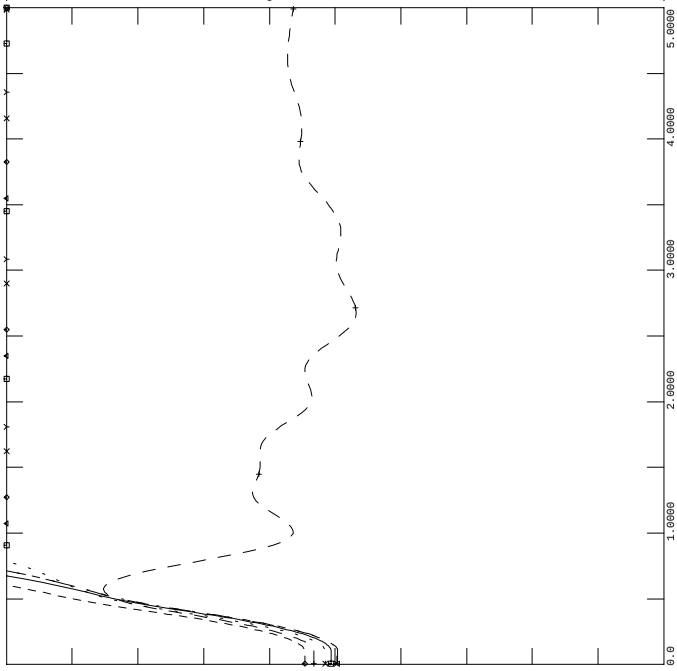


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13

WESTON GEN ANGLE

CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin -180.0

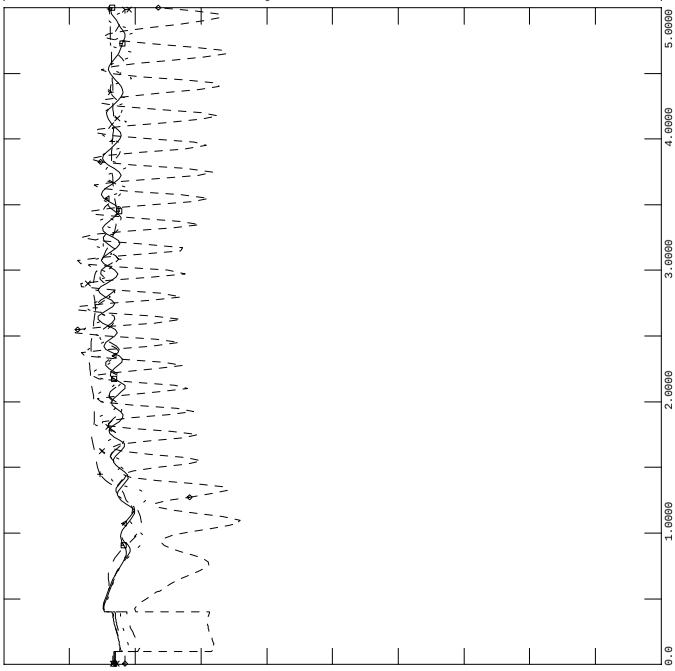


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13

V - ARROWHEAD 230

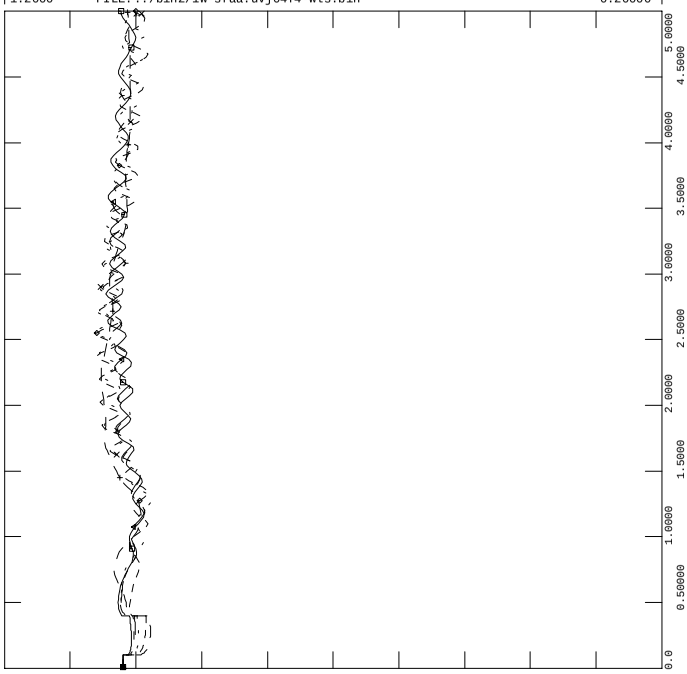
CHNL# 369: [V-1315 ARRH4]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 369: [V-1315 ARRH4]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 369: [V-1315 ARRH4]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 369: [V-1315 ARRH4]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 369: [V-1315 ARRH4]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 369: [V-1315 ARRH4]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - SHERCO 345

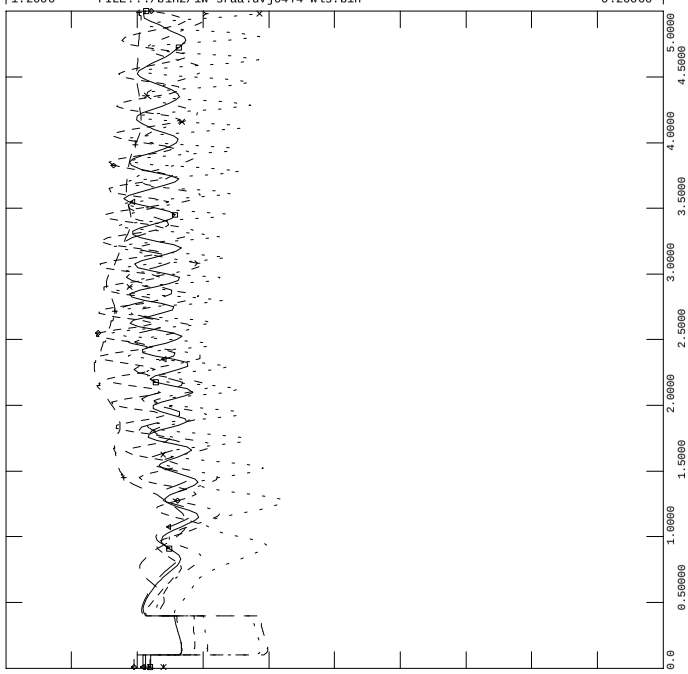
CHNL# 385: [V- SHERCO3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 385: [V- SHERCO3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 385: [V- SHERCO3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 385: [V- SHERCO3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 385: [V- SHERCO3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 385: [V- SHERCO3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - APP RIVER

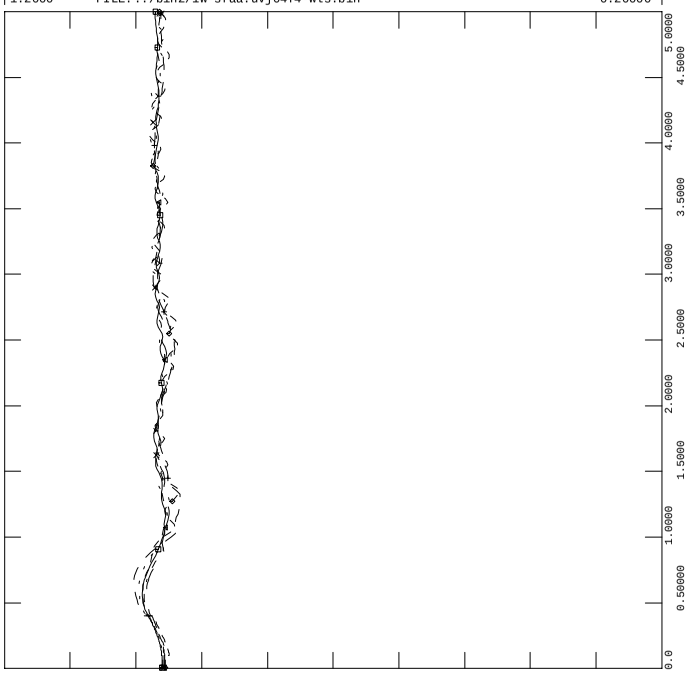
CHNL# 969: [V-APPLRIV4]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 969: [V-APPLRIV4]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 969: [V-APPLRIV4]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 969: [V-APPLRIV4]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 969: [V-APPLRIV4]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 969: [V-APPLRIV4]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - MAPLE RIV 345

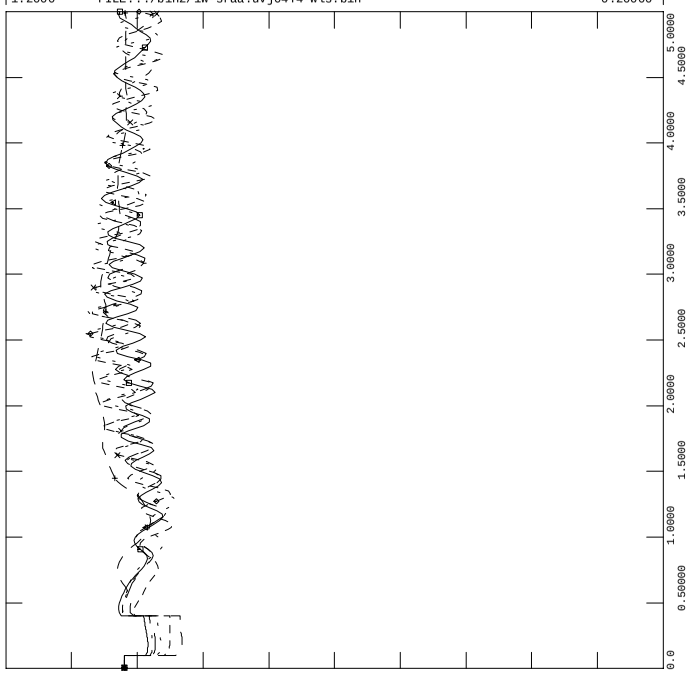
CHNL# 359: [V- 792 MAPR3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 359: [V- 792 MAPR3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 359: [V- 792 MAPR3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 359: [V- 792 MAPR3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 359: [V- 792 MAPR3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 359: [V- 792 MAPR3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - KING 345

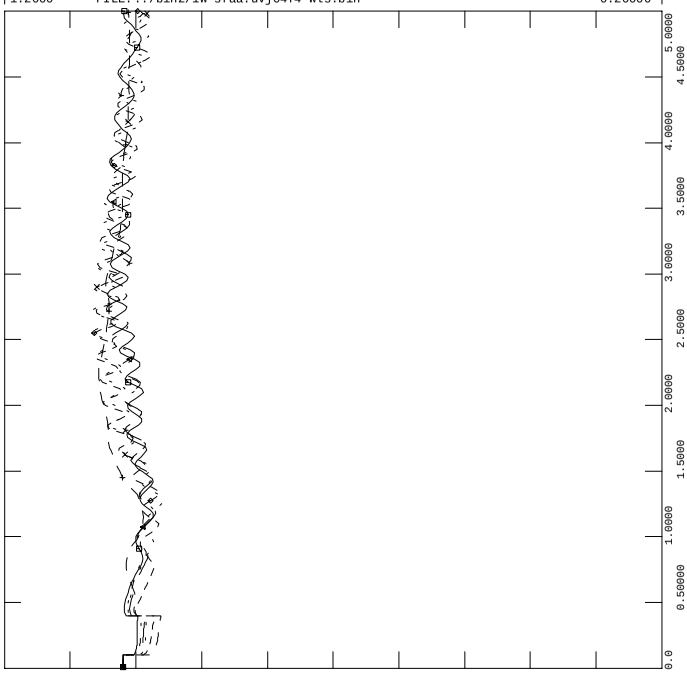
CHNL# 389: [V-1695 KING3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 389: [V-1695 KING3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 389: [V-1695 KING3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 389: [V-1695 KING3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 389: [V-1695 KING3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 389: [V-1695 KING3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - PRA ISLD 3

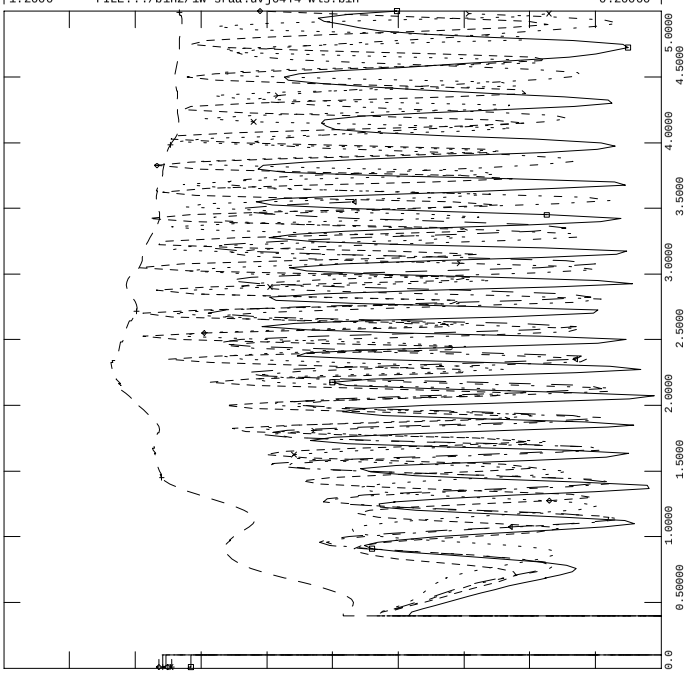
CHNL# 381: [V-1604 PI 3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 381: [V-1604 PI 3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 381: [V-1604 PI 3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 381: [V-1604 PI 3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 381: [V-1604 PI 3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 381: [V-1604 PI 3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - ROCKY RUN 345

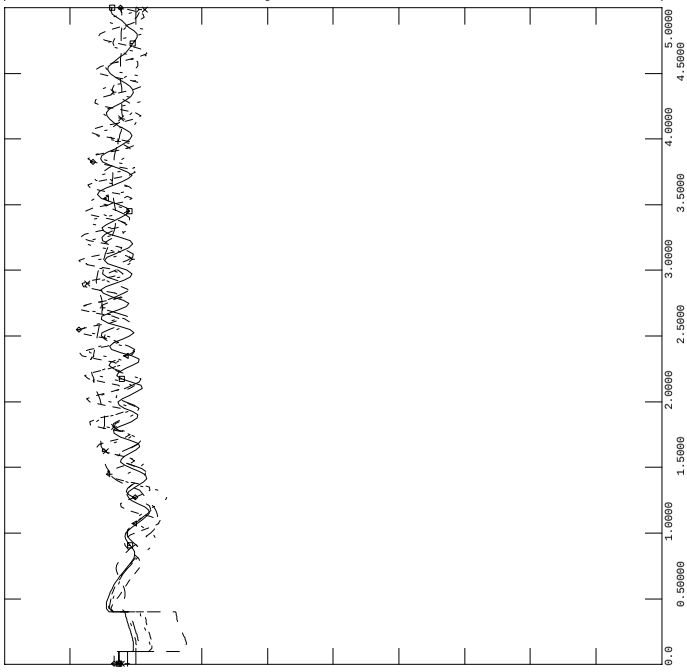
CHNL# 967: [V-RCKYRUN3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 967: [V-RCKYRUN3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 967: [V-RCKYRUN3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 967: [V-RCKYRUN3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 967: [V-RCKYRUN3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 967: [V-RCKYRUN3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - CHISAGO 345

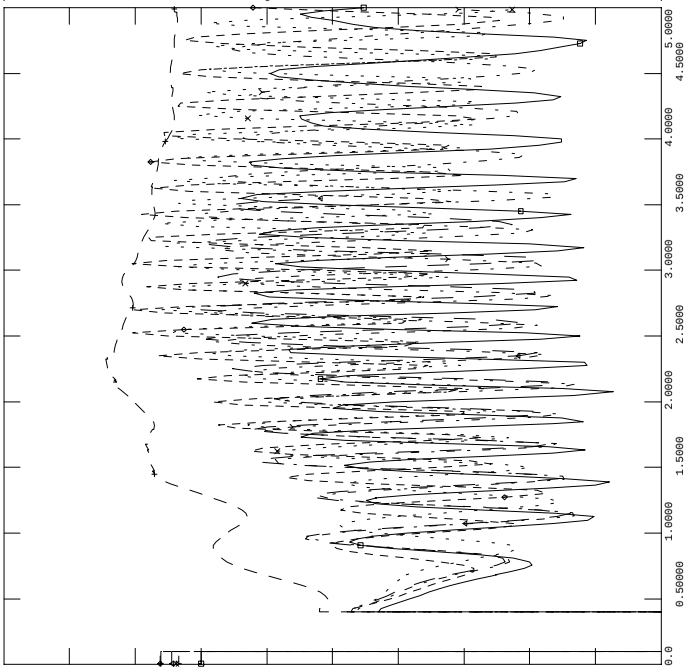
CHNL# 554: [V-CHIS CO3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 554: [V-CHIS CO3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 554: [V-CHIS CO3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 554: [V-CHIS CO3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 554: [V-CHIS CO3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 554: [V-CHIS CO3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - ARPIN 345

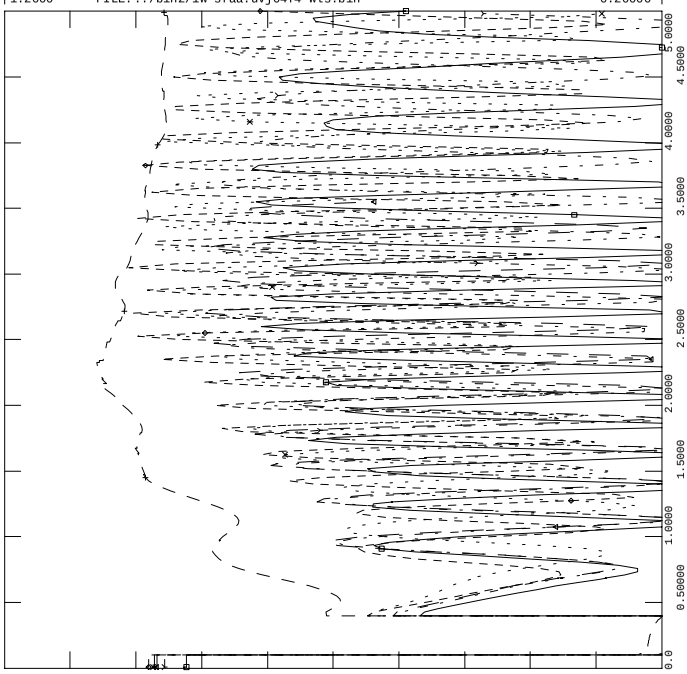
CHNL# 966: [V-ARPIN3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 966: [V-ARPIN3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 966: [V-ARPIN3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 966: [V-ARPIN3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 966: [V-ARPIN3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 966: [V-ARPIN3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - WESTON 345

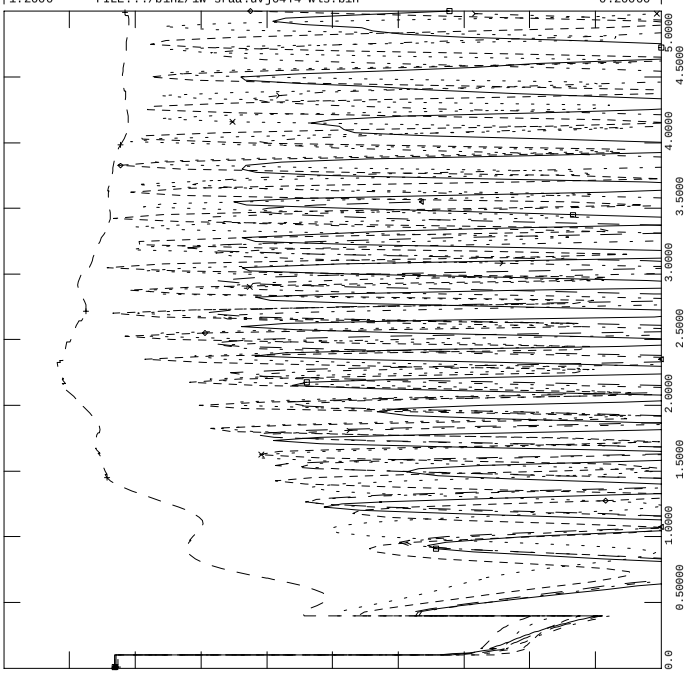
CHNL# 971: [V-WESTON3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 971: [V-WESTON3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 971: [V-WESTON3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 971: [V-WESTON3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 971: [V-WESTON3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 971: [V-WESTON3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - HWY 8 115

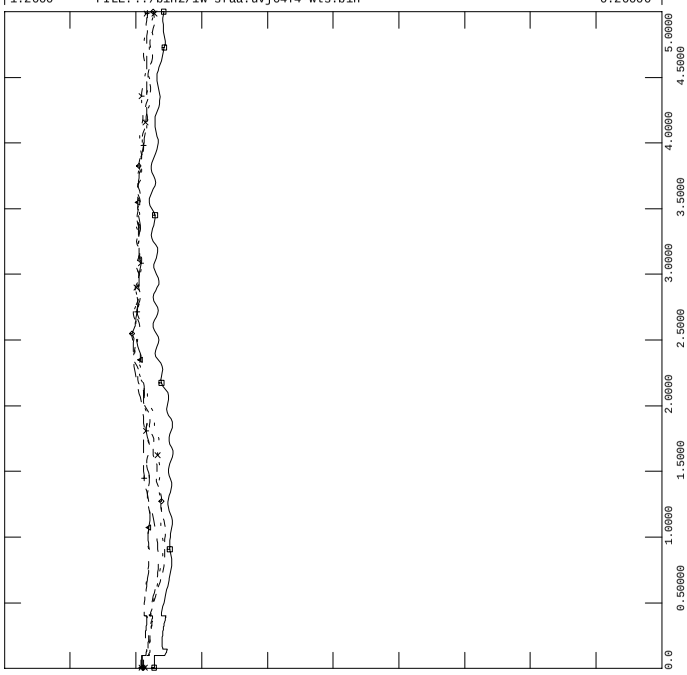
CHNL# 994: [V-HWY8 7]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 994: [V-HWY8 7]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 994: [V-HWY8 7]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 994: [V-HWY8 7]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 994: [V-HWY8 7]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 994: [V-HWY8 7]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - SALEM 345

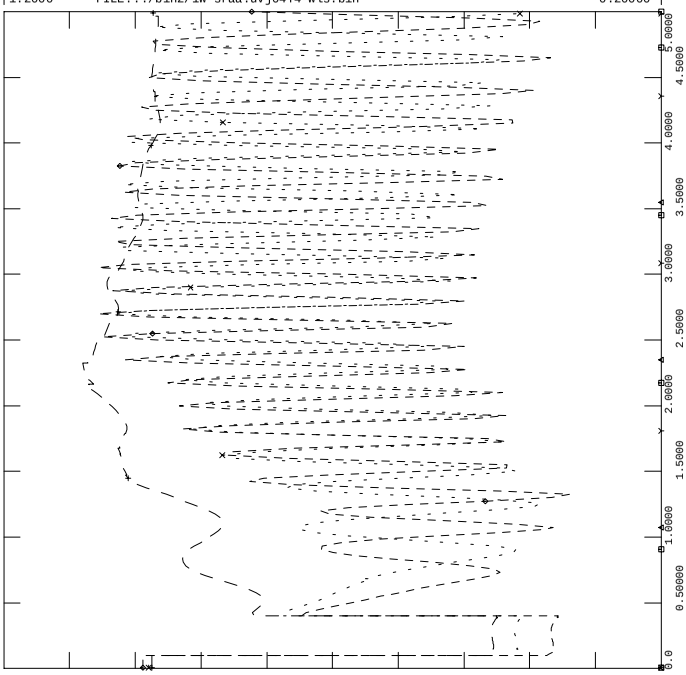
CHNL# 972: [V-SALEM3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 972: [V-SALEM3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 972: [V-SALEM3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 972: [V-SALEM3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 972: [V-SALEM3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 972: [V-SALEM3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

FRI, MAY 28 1999 09:13
V - HWY 8 TP 345

CHNL# 973: [V-HWY8TAP3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 973: [V-HWY8TAP3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 973: [V-HWY8TAP3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 973: [V-HWY8TAP3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 973: [V-HWY8TAP3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 973: [V-HWY8TAP3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

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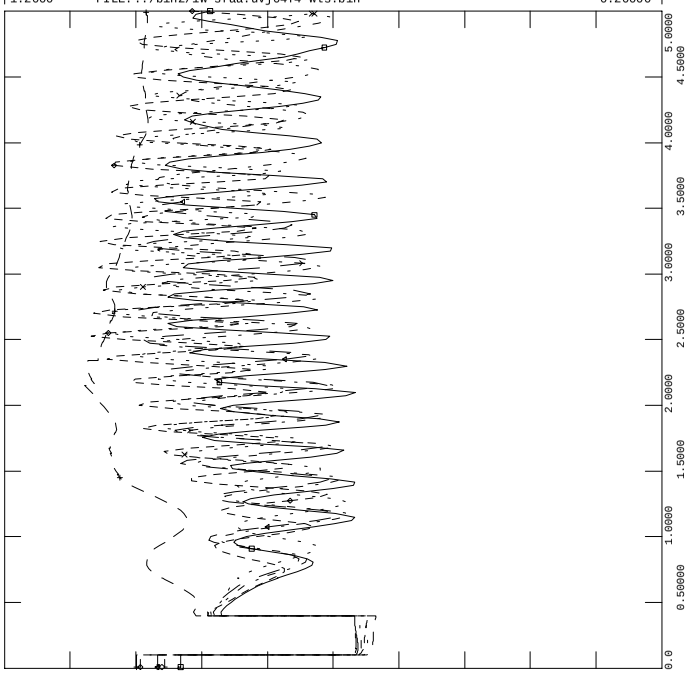
V - EAU CLAIRE 345

CHNL# 560: [V-EAU CL 3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 560: [V-EAU CL 3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 560: [V-EAU CL 3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 560: [V-EAU CL 3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 560: [V-EAU CL 3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 560: [V-EAU CL 3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

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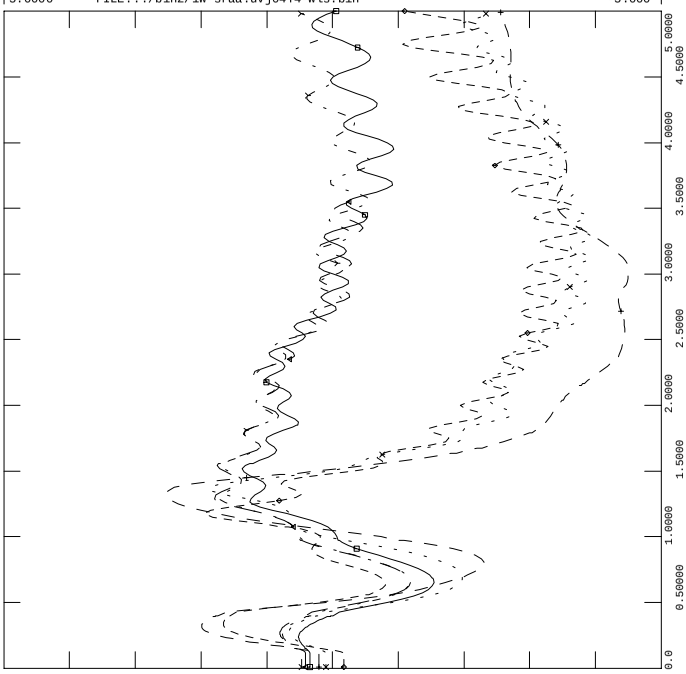
Q - FORBES SVS

CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin -5.000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

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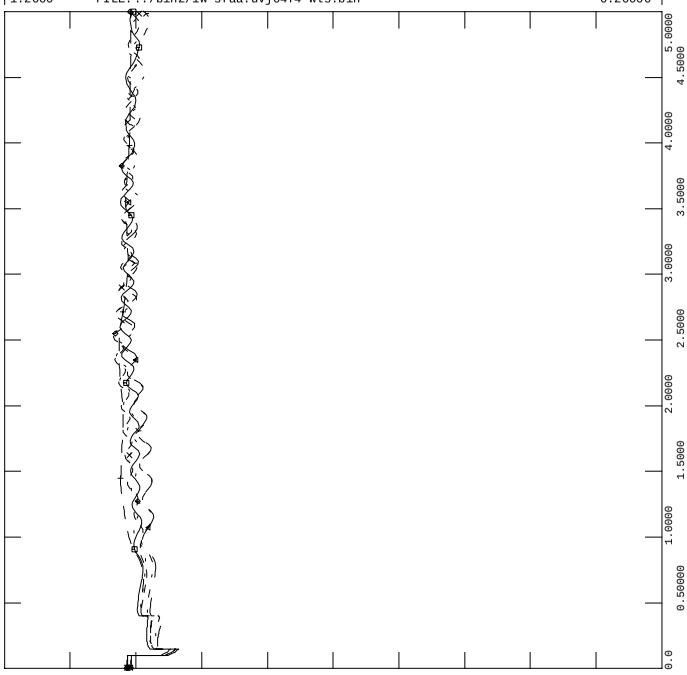
V - COLUMBIA 345

CHNL# 970: [V-COLUMB3]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 970: [V-COLUMB3]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 970: [V-COLUMB3]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 970: [V-COLUMB3]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 970: [V-COLUMB3]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 970: [V-COLUMB3]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 18 CYCLE

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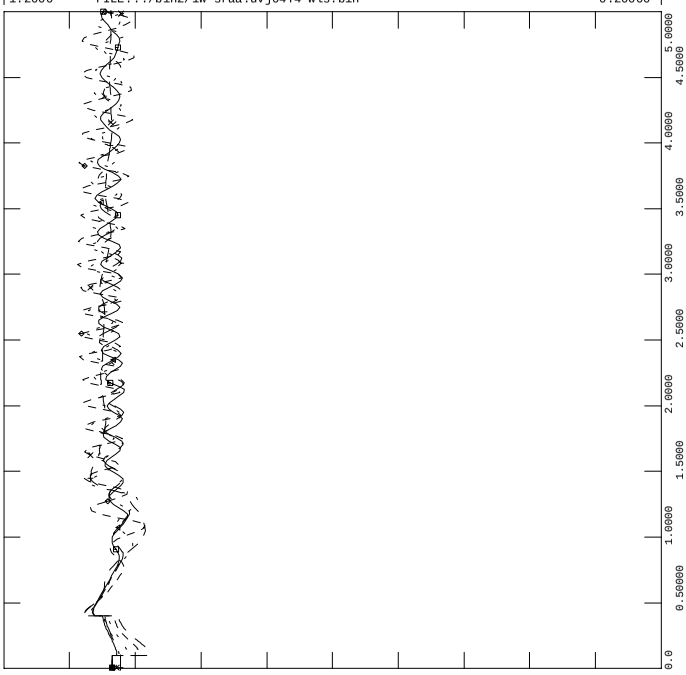
V - FORBES 500

CHNL# 365: [V-1307 FORB2]
1.2000 FILE:../bin2/9w-sraa.uvk04Y4-wls.bin 0.20000
CHNL# 365: [V-1307 FORB2]
1.2000 FILE:../bin2/5z-sraa.uvh04Y4-wls.bin 0.20000
CHNL# 365: [V-1307 FORB2]
1.2000 FILE:../bin2/5w-sraa.uvf04Y4-wls.bin 0.20000
CHNL# 365: [V-1307 FORB2]
1.2000 FILE:../bin2/3w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 365: [V-1307 FORB2]
1.2000 FILE:../bin2/2w-sraa.uvg04Y4-wls.bin 0.20000
CHNL# 365: [V-1307 FORB2]
1.2000 FILE:../bin2/1w-sraa.uvj04Y4-wls.bin 0.20000

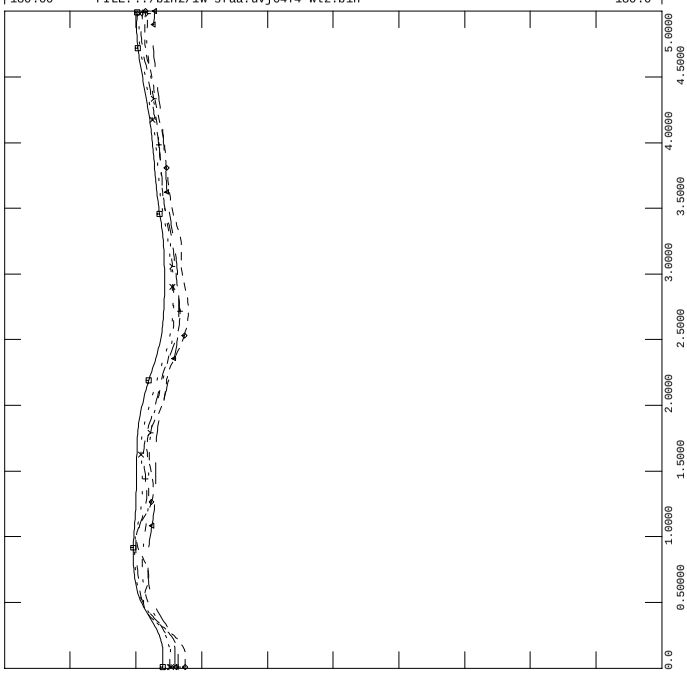


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

BOSWELL 4 GEN ANGLE

CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 20: [ANG4BOSWE44G]
180.00 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin -180.0

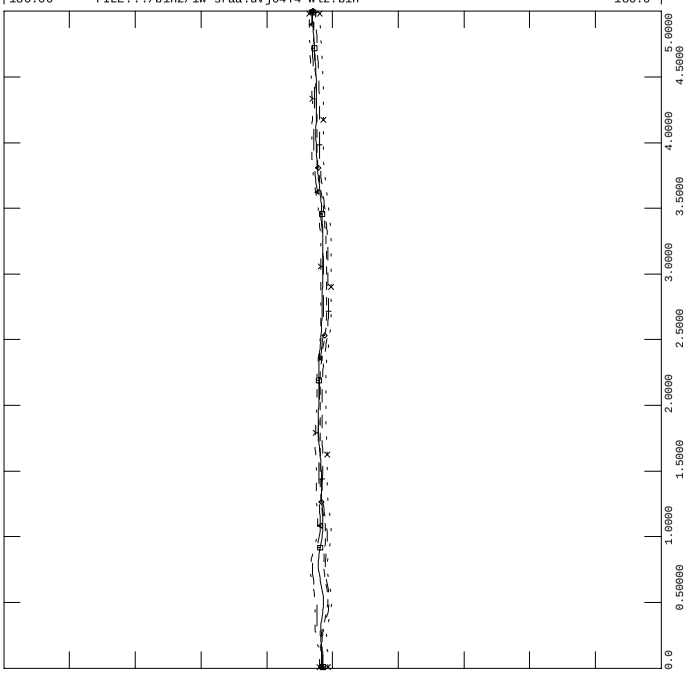


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

COLUMBIA GEN ANGLE

CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 965: [ANG1COLUMB 1G]
180.00 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin -180.0

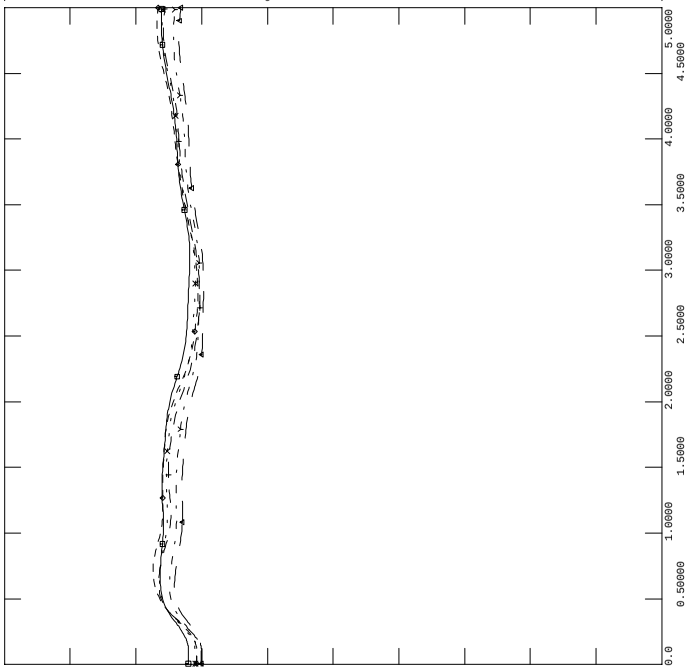


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

SHERCO GEN ANGLE

CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 27: [ANG3SHERC33G]
180.00 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin -180.0

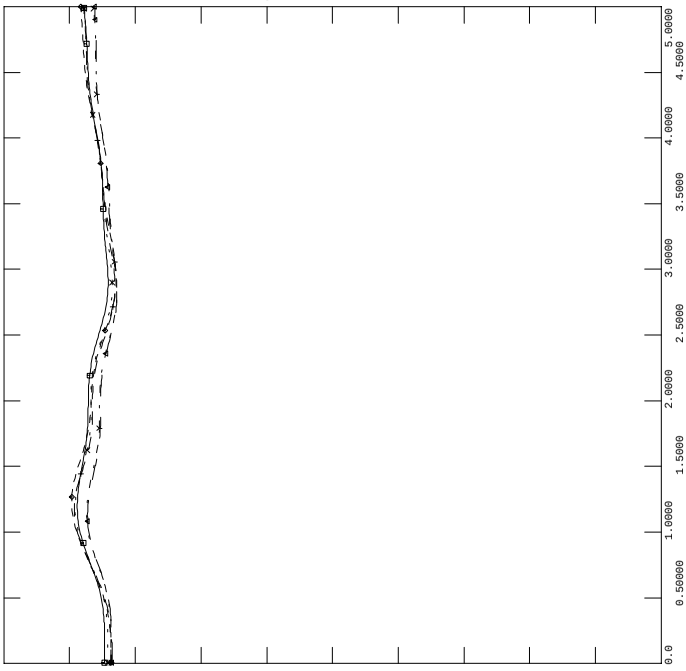


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

AVS 1 GEN ANGLE

CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 8: [ANG1ANTEL31G]
180.00 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin -180.0

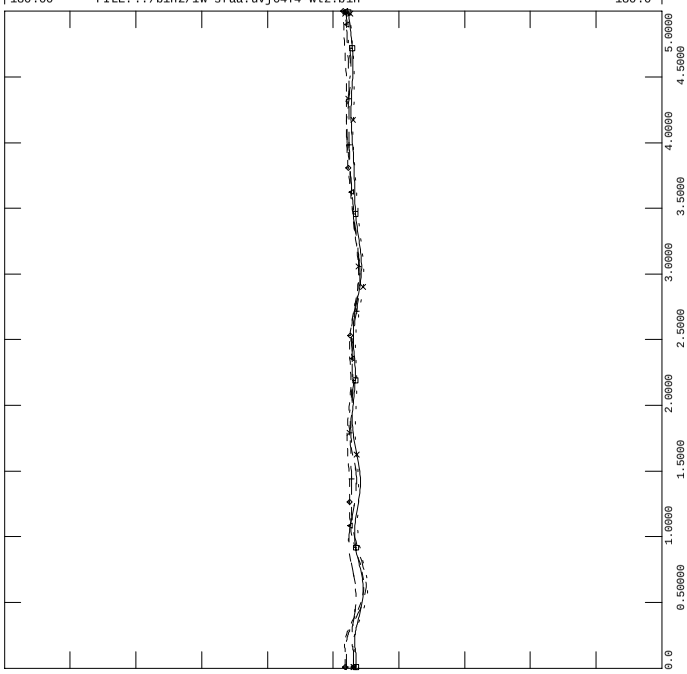


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

KEWAUNEE GEN ANGLE

CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 67: [ANG1KEWAUNEE]
180.00 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin -180.0

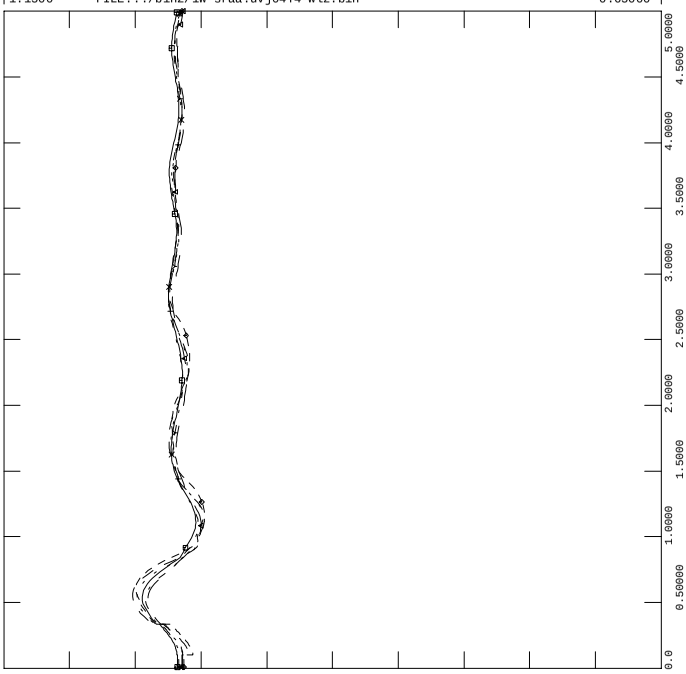


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

V - WHAPETON 230

CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 528: [V-WAHPETN4]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000

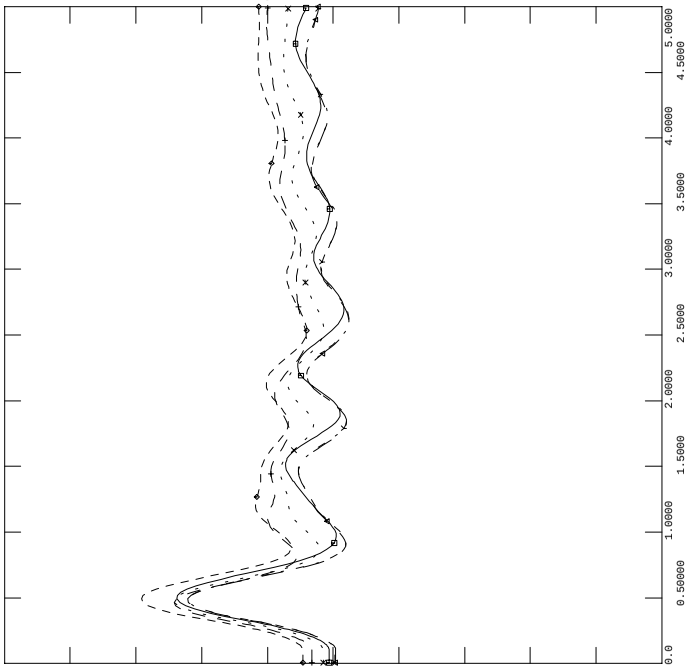


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

WESTON GEN ANGLE

CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin -180.0
CHNL# 68: [ANG3WESTON]
180.00 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin -180.0

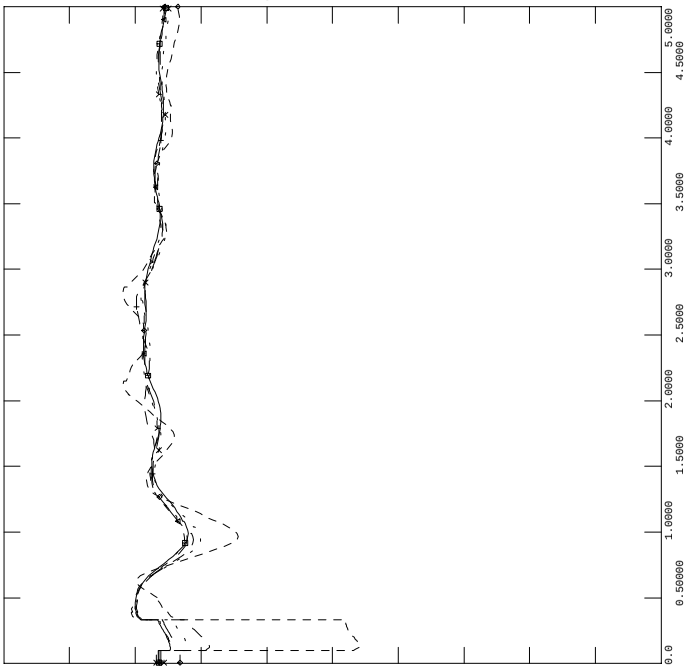


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

V - ARROWHEAD 230

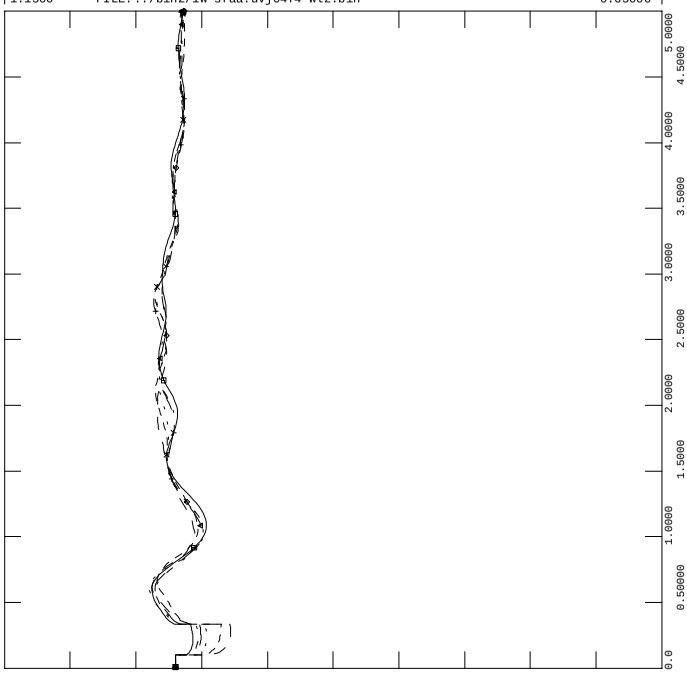
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 369: [V-1315 ARRH4]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - SHERCO 345

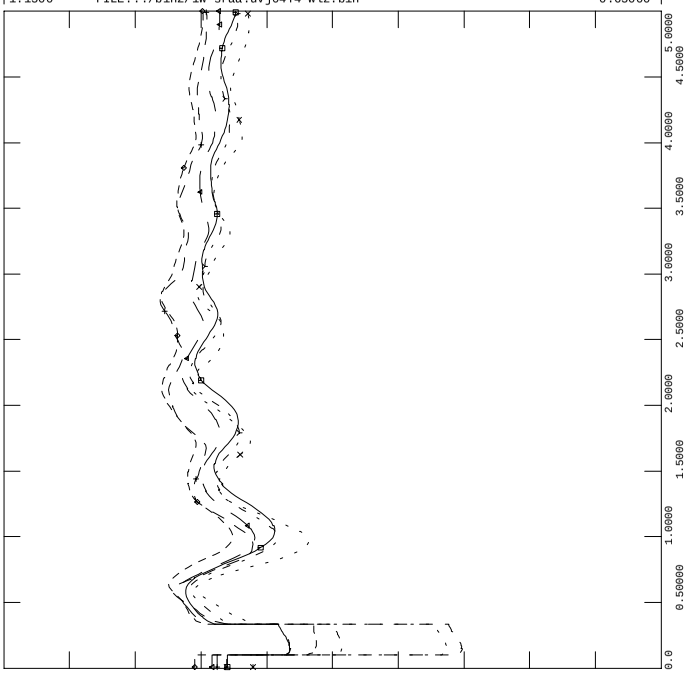
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 385: [V- SHERCO3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - APP RIVER

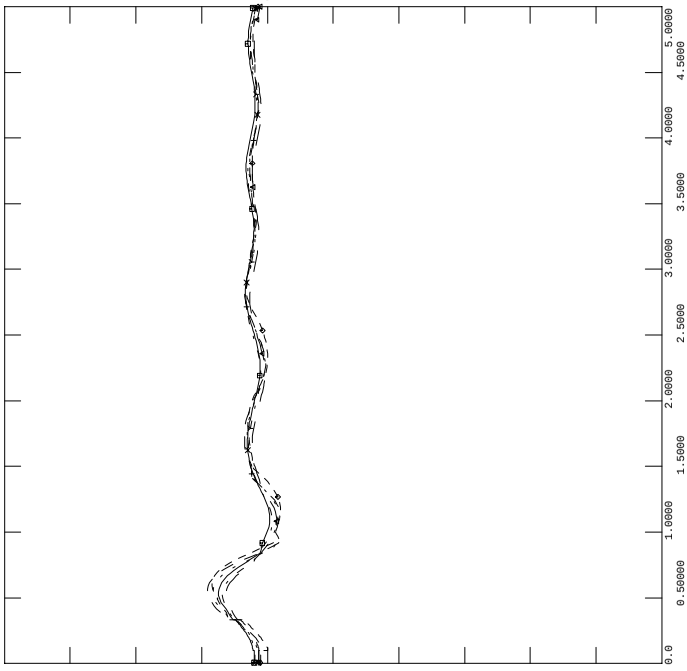
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 969: [V-APPLRIV4]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - MAPLE RIV 345

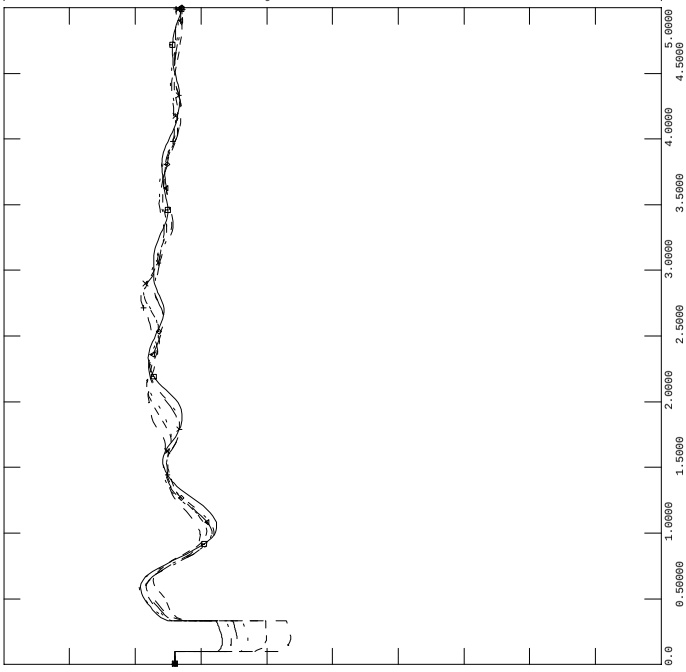
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 359: [V- 792 MAPR3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - KING 345

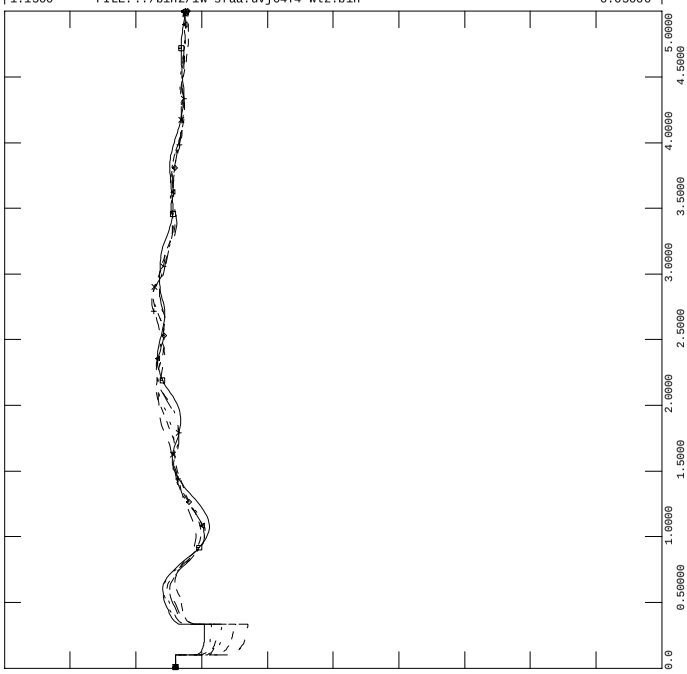
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 389: [V-1695 KING3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - PRA ISLD 3

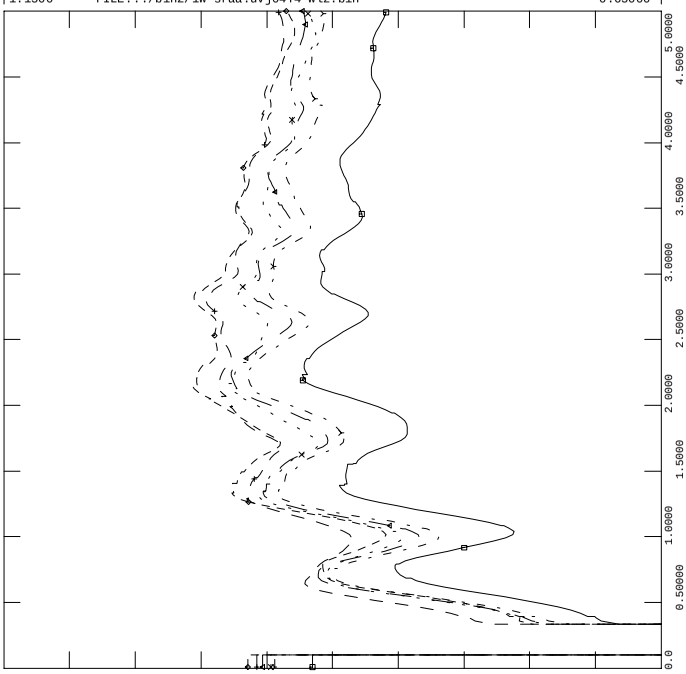
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 381: [V-1604 PI 3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - ROCKY RUN 345

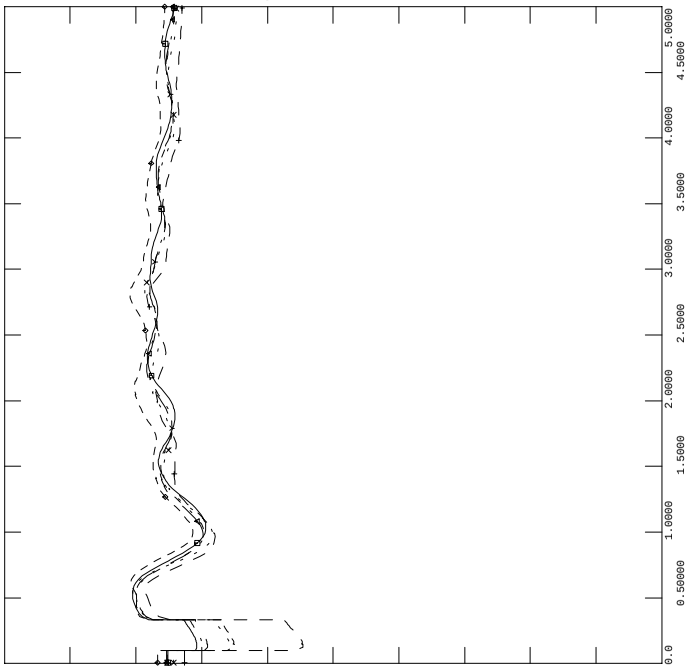
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 967: [V-RCKYRUN3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - CHISAGO 345

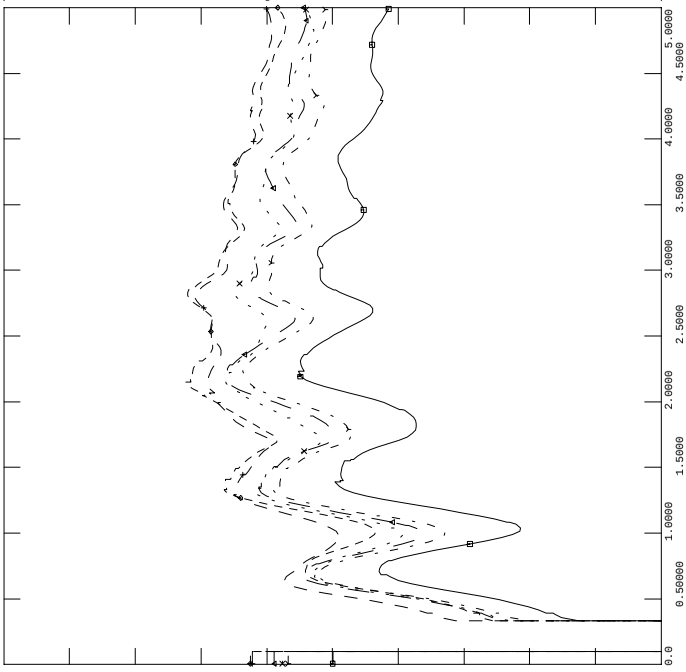
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 554: [V-CHIS CO3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - ARPIN 345

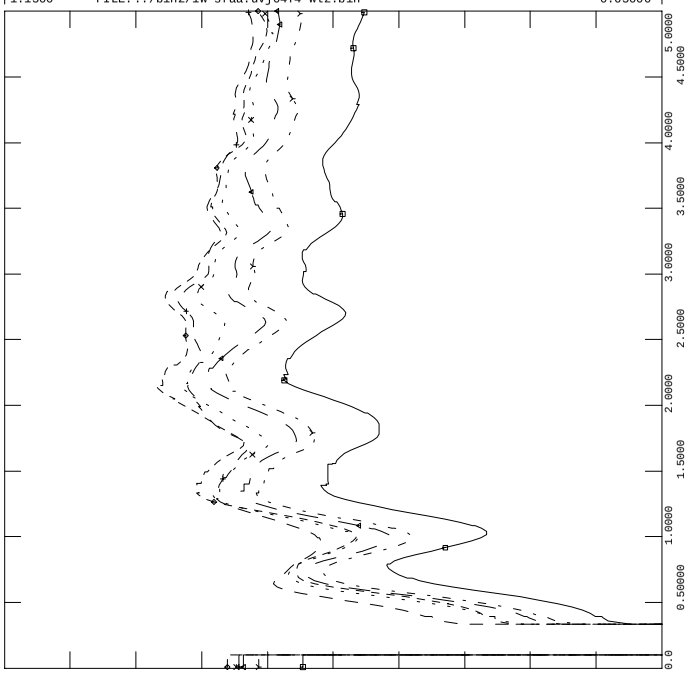
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 966: [V-ARPIN3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - WESTON 345

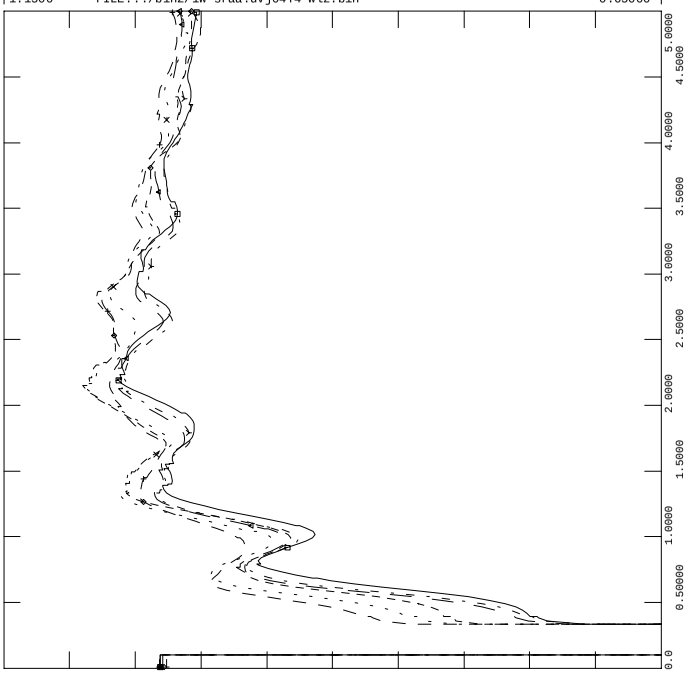
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 971: [V-WESTON3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - HWY 8 115

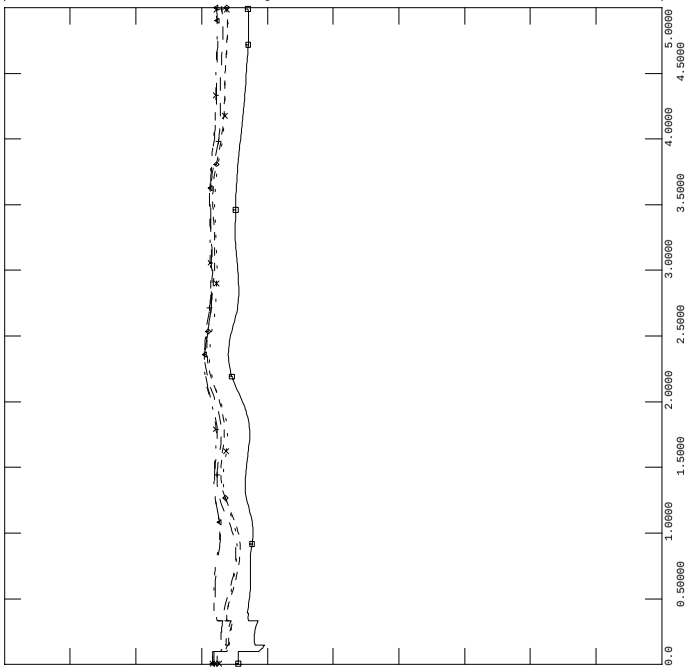
CHNL# 994: [V-HWY8 7]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 994: [V-HWY8 7]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 994: [V-HWY8 7]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 994: [V-HWY8 7]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 994: [V-HWY8 7]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 994: [V-HWY8 7]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - SALEM 345

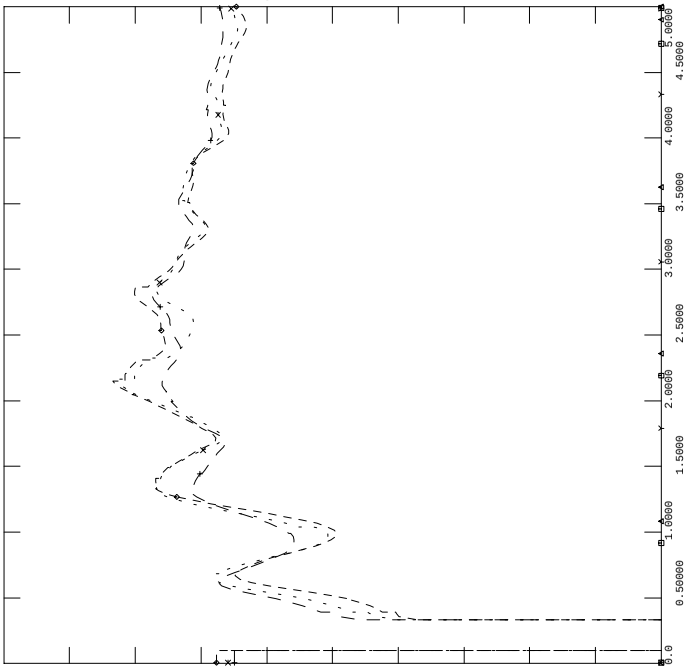
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 972: [V-SALEM3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20
V - HWY 8 TP 345

CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 973: [V-HWY8TAP3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000

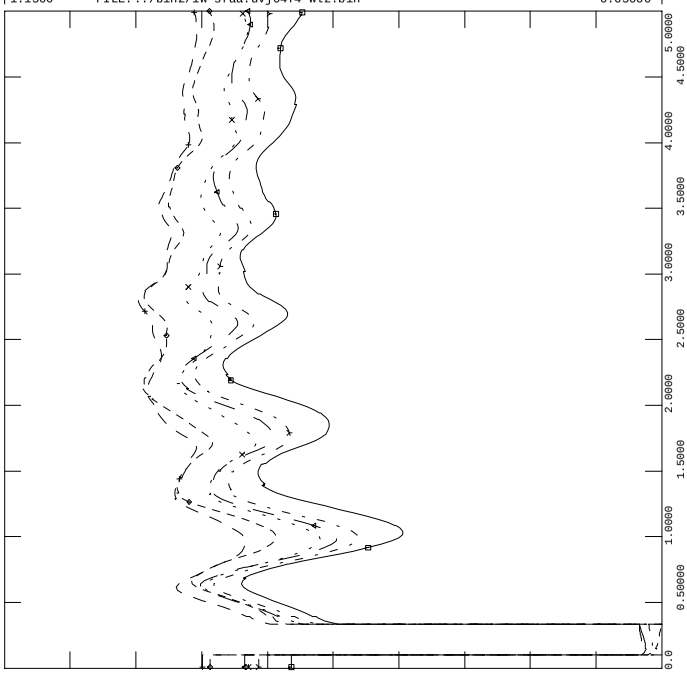


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

V - EAU CLAIRE 345

CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 560: [V-EAU CL 3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000

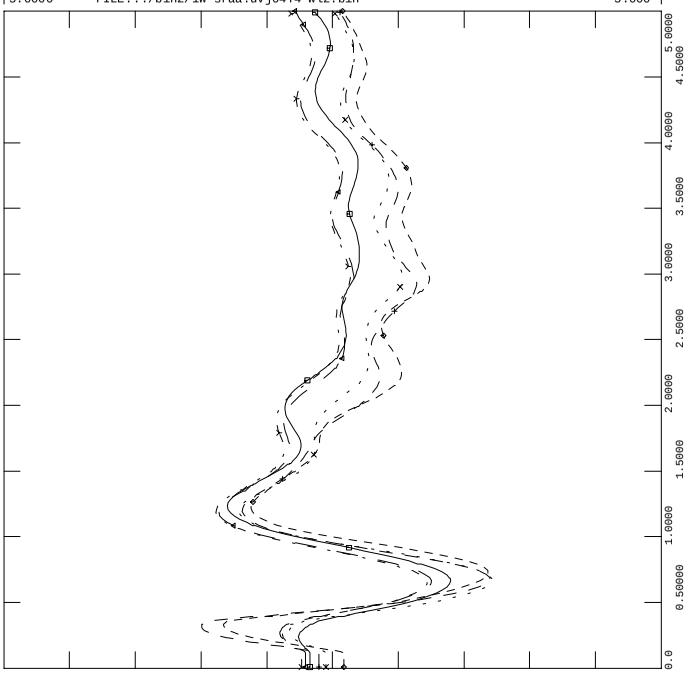


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

Q - FORBES SVS

CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin -5.000
CHNL# 956: [Y FORBES SVC]
5.0000 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin -5.000

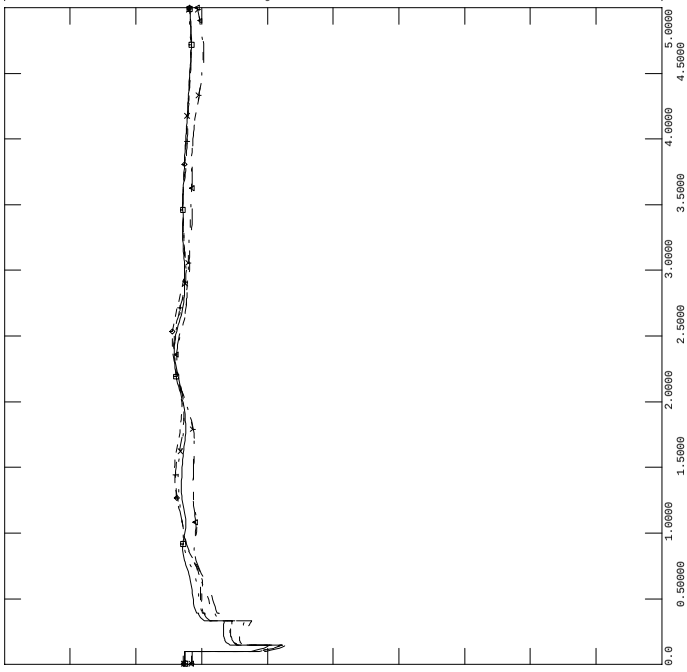


1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

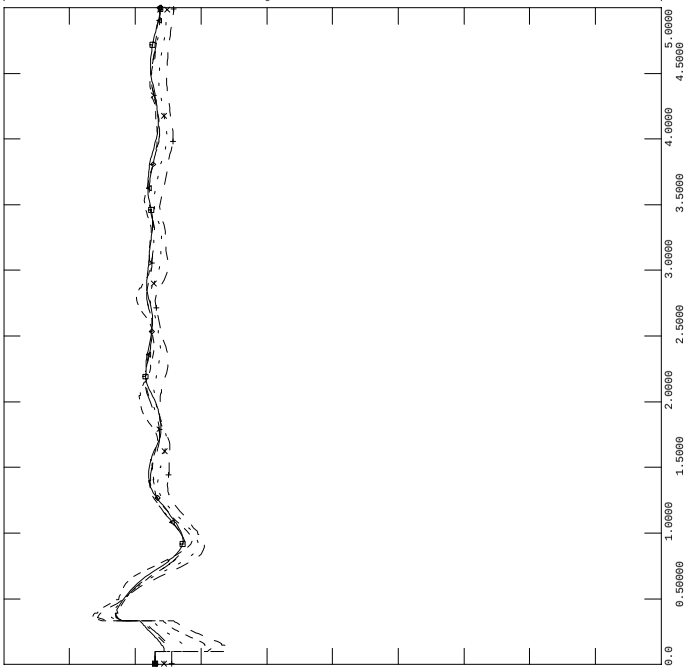
V - COLUMBIA 345

CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 970: [V-COLUMB3]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000



1W-SRAA.UVJ04Y4.SAV;SUMMER;OP LD 2002;SYSTEM INTACT
ND=1943,MH=1977,TC=1329,MHOH=0,OHMP=150,EWTW=-88,BD=149
6831 ROCKY RUN-NORTH APPLETON,FAULT AT ROCKY RUN
ROCKY RUN 6-1 BREAKER FAILURE 14 CYCLE

FRI, MAY 28 1999 09:20

V - FORBES 500

CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/9w-sraa.uvk04Y4-wlz.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/5z-sraa.uvh04Y4-wlz.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/5w-sraa.uvf04Y4-wlz.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/3w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/2w-sraa.uvg04Y4-wlz.bin 0.65000
CHNL# 365: [V-1307 FORB2]
1.1500 FILE:../bin2/1w-sraa.uvj04Y4-wlz.bin 0.65000