Project 4

Appendices

UPPER GREAT PLAINS REGION
Transmission Planning

JULY 2002

A. GENERATION AND TRANSMISSION FACILITY PARAMETERS

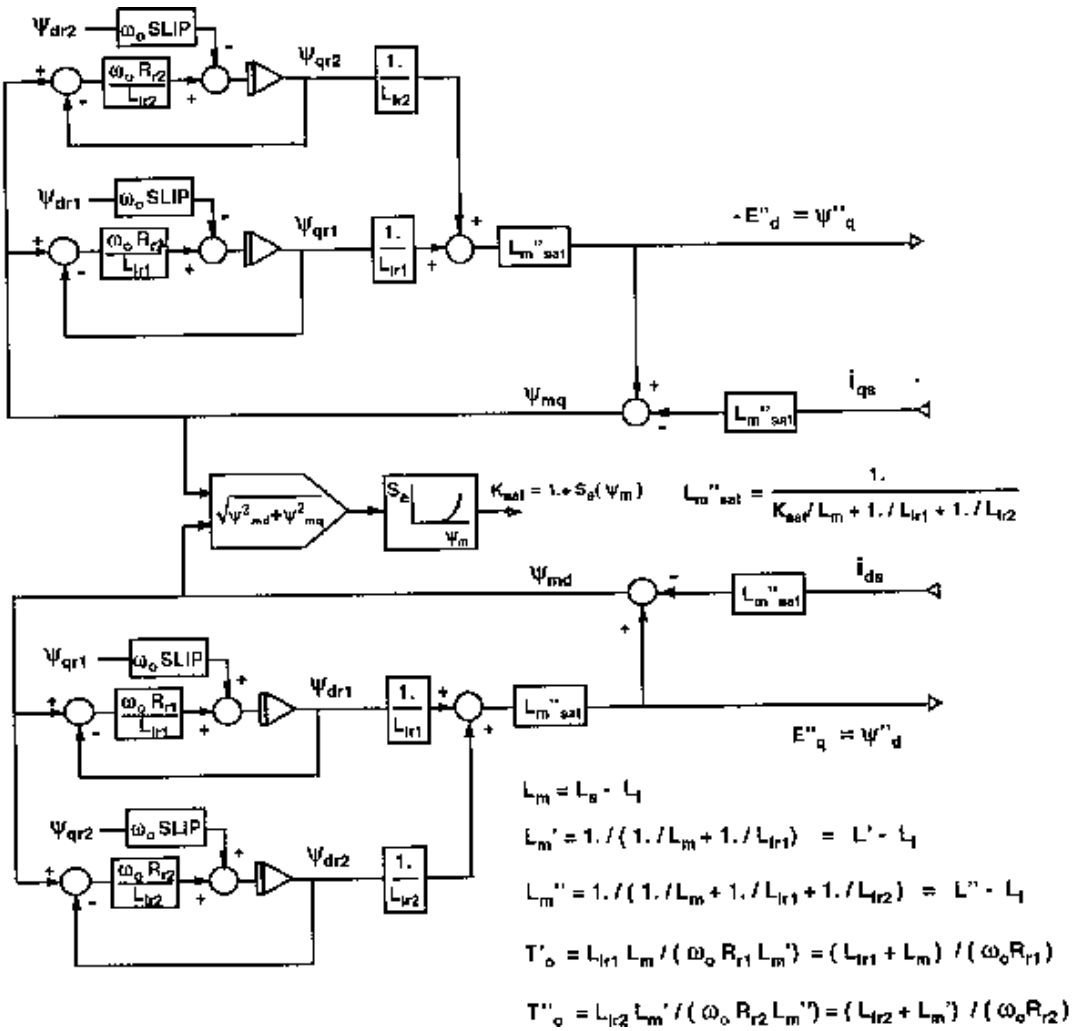
A.1 Generator Parameters

Wind Farm Model

Generator Group (approximately 31 wind turbines at 800 kW each)

Rated kVA	29,330	
Rated kW	24,931	
Max kvar	15,451	(0.85 pf)
Min kvar	-9,158	(-0.95 pf)
Voltage	34,500	
Amps	491	
P.F.	0.85	
Hertz	60	

Dynamic Model: motor1
Description: “Two-cage” or “one-cage” induction machine



Value	*Name*	*EPCL Variable*	*Description*
3.2920	L	ls	Synchronous reactance, pu
0.3001	L'	lp	Transient reactance, pu
0.0063	Ra	ra	Stator resistance, p.u.
1.2116	T'	tpo	Transient rotor time constant, seconds
5.0400	H	h	Inertia constant, sec
0.0200	D	d	Damping factor, p.u.
0.1000	Se1.0	se1	Saturation factor at 1 p.u. flux
0.4000	Se1.2	se2	Saturation factor at 1.2 p.u. flux
0.8000	Vt	vt	Voltage threshold for tripping (default = 0), p.u.
999	Tv	tv	Voltage trip pickup time (default = 999), sec.
0.0	Ft	ft	Frequency threshold for tripping (default = 0), Hz
999	Tf	tf	Frequency trip pickup time (default = 999), sec.
1.2000	Vr	vr	Voltage at which reconnection is permitted (default = 1.2), p.u.
999	Tvr	tvr	Time delay for reconnection (default = 999), sec.
0.5000	Acc	acc	Acceleration factor for initialization

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0.2011  lpp    lpp      Subtransient reactance, pu
0.0907  ll     ll       Stator leakage reactance, pu
0.0300  tppo   tppo     Subtransient rotor time constant, seconds
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B. CATEGORY A (PRE-CONTINGENCY) DATA

Legend for filenames and abbreviations:

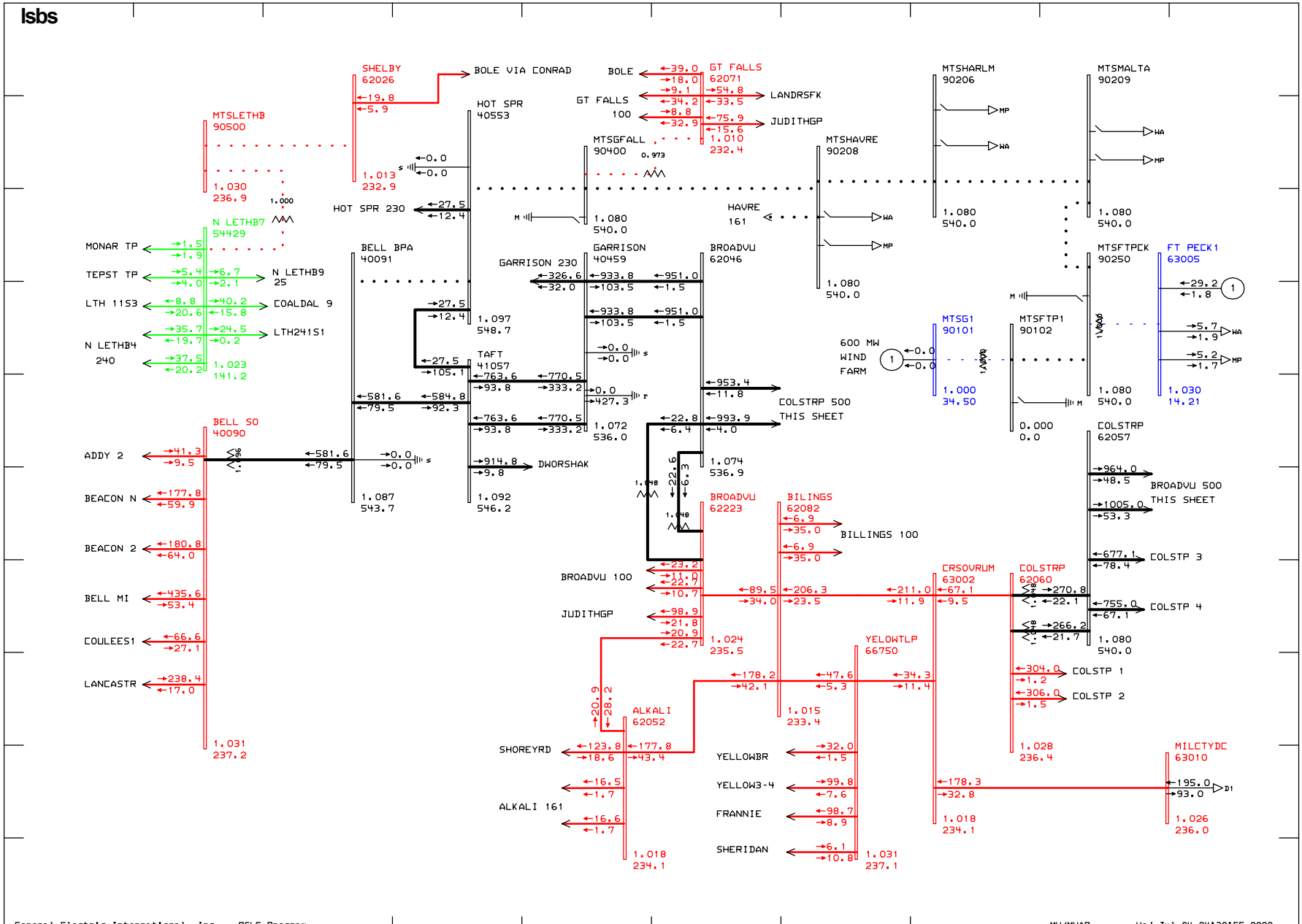
- G1 through G5 - Generator number, synonymous with Project number.
- lsbs - Light Summer Base
- hsbs - Heavy Summer Base
- sp - schedule to Spokane
- slc - schedule to Salt Lake City
- den - schedule to Denver
- lb or let - schedule to N. Lethbridge

Example: A filename or title description containing the string “G1sp_l2” represents Project 1 Line 2 scheduled to Spokane.

Each case includes the following data:

- Power Flow Plots
- Rate Reports
- Voltage Reports
- Area Interchange Summaries
- Area Tie Line Summaries
- Loss Reports

B.1 **lsbs**



General Electric International, Inc. PSLF Program MW/MVAR Wed Jul 24 04:32:55 2002

PEAK POWER ENGINEERING, INC. 303-462-1100

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 LS BASE CASE

600 MW WIND FARM AT FORT PECK
BASE CASE

mts\g4\g4sp.drw
c:\uwk\mts\g4\model\g4ls_lnbs.
Rating = 1

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002

Percent Loading Summary -- using rating 1 - 100.0 percent of rating

----------from----------				---------- to ----------								rate	per cent	
--no.--	--name--	-kv-	-ar-	--no.--	--name--	-kv-	-ar-	ck	---mw---	-mvar-	-mva--	------	loading	
54083	E EDMON9	138	54	55938	STEL TAP	138	54	22	197.9	1.5	197.9	468.6A	169.9	F
54503	STELCOA9	138	54	55938	STEL TAP	138	54	22	-197.3	-0.1	197.3	497.9A	159.8	F
55015	DOME EA9	14	54	55525	163ST2	240	54	T2	-66.0	-5.3	66.2	45.0M	148.3	T
54506	BELLAMY4	240	54	54518	ARGYLL E	240	54	04	81.2	84.2	117.0	240.6A	134.0	T
54062	BARDO 7	138	54	54065	N HOLDE9	138	54	74	82.0	-53.0	97.7	355.6A	111.9	F
54154	E CALGAR	240	54	54161	SARCEE 4	240	54	16	-91.2	365.6	376.8	801.1A	110.9	T
54681	NEVIS 7	138	54	54823	NEVIS 9	138	54	1	33.2	15.6	36.7	33.3M	110.2	F
50459	KIT287	287	50	51075	KIT B5	13	50	5	80.3	23.6	83.7	79.0M	106.0	F
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	12	144.0	-51.7	153.0	156.5M	103.0	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	34	144.0	-51.7	153.0	156.5M	103.0	T
54290	BALZAC G	138	54	55290	BALZAC 1	14	54	T1	107.1	13.1	107.9	105.0M	102.8	F
41304	COUGAR T	7	40	46211	COUGAR T	115	40	1	28.0	-7.9	29.1	30.0M	100.8	T
54079	MILLAR 7	138	54	55102	MILLARA9	14	54	T2	55.6	29.0	62.7	62.5M	100.4	F

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V12.0
WESTERN SYSTEMS COORDINATING COUNCIL
2002 LS2B APPROVED OPERATING CASE

overvoltage summary > 1.100000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
54054	LAMOURE4	240	1.1046	54081	METIS644	240	1.1120	54090	BICKERD4	240	1.1205
54103	DEERLAN4	240	1.1029	54121	ELLERSLI	240	1.1124	54126	WABAMUN4	240	1.1072
54128	SUNDANM9	240	1.1080	54129	E EDMON4	240	1.1084	54130	N CALDE4	240	1.1056
54131	N BARRH4	240	1.1049	54150	LANGDON2	500	1.1250	54329	KEEPHIL4	240	1.1222
54441	946/947X	240	1.1124	54505	JASPER 4	240	1.1078	54506	BELLAMY4	240	1.1213
54509	ARGYLL W	240	1.1206	54512	DOME T29	240	1.1119	54513	LAMBTON4	240	1.1090
54514	CLOVERB4	240	1.1050	54518	ARGYLL E	240	1.1201	54519	CASTLTX2	240	1.1045
54521	PETROLIA	240	1.1140	54524	GENESEE4	240	1.1210	54675	PAINTRT7	240	1.1015
54681	NEVIS 7	138	1.1099	54806	946/947N	240	1.1084	54844	709S702T	138	1.1092
54978	EAST IN4	240	1.1085	55891	904AL TP	240	1.1085	55969	770S701T	138	1.1087
51017	KMS230	230	1.1064								

overvoltage summary > 1.050000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
54003	COLINTO9	138	1.0523	54007	BOYLE 9	138	1.0564	54012	FOX CREE	138	1.0666
54013	KAYBOB 9	138	1.0717	54014	GULF RO9	138	1.0819	54015	MTN COA9	138	1.0653
54016	FLATBUS9	138	1.0542	54017	COLD CR7	138	1.0666	54019	WESGEN T	138	1.0531
54020	EDSON A9	138	1.0624	54021	WESGEN 7	138	1.0556	54054	LAMOURE4	240	1.1046
54069	JARROW 9	138	1.0542	54073	IPPL ST9	138	1.0585	54075	SEDGEWI9	138	1.0508
54076	BUFFALO9	138	1.0545	54077	BIGSTON4	240	1.0949	54078	CHEVRON7	138	1.0717
54081	METIS644	240	1.1120	54082	BICKERD7	138	1.0718	54090	BICKERD4	240	1.1205
54097	BIG HOR9	138	1.0675	54103	DEERLAN4	240	1.1029	54111	SANDHIL7	138	1.0794
54121	ELLERSLI	240	1.1124	54125	SUNDANL9	138	1.0654	54126	WABAMUN4	240	1.1072
54128	SUNDANM9	240	1.1080	54129	E EDMON4	240	1.1084	54130	N CALDE4	240	1.1056
54131	N BARRH4	240	1.1049	54134	DALEHUR9	138	1.0656	54139	GAETZ 4	240	1.0751
54141	HIGHVAL9	138	1.0652	54142	WILLESD4	240	1.0883	54144	RED DEE4	240	1.0671
54147	BENALTO4	240	1.0665	54148	E CROSS4	240	1.0574	54150	LANGDON2	500	1.1250
54153	BRAZEAU4	240	1.0977	54155	SAGITAW4	240	1.0591	54157	PEIGAN 4	240	1.0705
54159	N LETHB4	240	1.0856	54200	848S901T	240	1.0730	54232	PANCAN 9	138	1.0792
54233	DOME EM7	138	1.0794	54258	PLAMOND9	138	1.0551	54259	LAC LA 9	138	1.0996
54260	WINEFRE9	138	1.0966	54269	COALSPU7	138	1.0846	54281	MILO 2	240	1.0684
54285	LEISMER9	240	1.0825	54287	GREGG R9	138	1.0959	54298	ALB NEWS	240	1.0502
54302	MARIONA9	138	1.0652	54308	FLATLK-3	138	1.0559	54325	CHEV KG9	138	1.0717
54326	COAL VA9	138	1.0834	54329	KEEPHIL4	240	1.1222	54335	W BROOK4	240	1.0589
54362	EDGERTO7	138	1.0548	54381	FLATLK-1	138	1.0558	54412	BENBOW 9	138	1.0717
54441	946/947X	240	1.1124	54505	JASPER 4	240	1.1078	54506	BELLAMY4	240	1.1213
54509	ARGYLL W	240	1.1206	54512	DOME T29	240	1.1119	54513	LAMBTON4	240	1.1090
54514	CLOVERB4	240	1.1050	54518	ARGYLL E	240	1.1201	54519	CASTLTX2	240	1.1045
54521	PETROLIA	240	1.1140	54524	GENESEE4	240	1.1210	54557	WESLY C4	240	1.0613
54558	WESLY C7	138	1.0651	54559	CARMON 9	138	1.0630	54560	PEACE/29	138	1.0623
54561	DIASHOW7	138	1.0624	54567	FRIEDEN7	138	1.0537	54571	MERCER 9	138	1.0735
54572	MERC TAP	138	1.0738	54576	CRYST L7	138	1.0749	54578	SADHL TP	138	1.0598
54579	SADDLE 9	138	1.0529	54580	FLYSHT/2	138	1.0630	54581	WAP JCT7	138	1.0513
54584	ALBRIGHT	138	1.0569	54585	P&G 7	138	1.0570	54588	BIG MTN7	138	1.0614
54589	DOME CU7	138	1.0736	54590	BRDGE C7	138	1.0619	54593	DONNELL9	138	1.0661
54594	TAP7L487	138	1.0690	54595	TRIANGL7	138	1.0645	54596	VALLEYV9	138	1.0777
54598	BEZANSON	138	1.0756	54599	L. SMOKY	240	1.0645	54600	L.SMOKY7	138	1.0840
54601	STURGEO7	138	1.0838	54606	SIMONET9	138	1.0843	54607	FOXCRK/2	138	1.0643
54608	GOOSE R9	138	1.0662	54612	RUTH LA7	138	1.0925	54613	RUTH LK7	138	1.0929
54618	PARS CR7	138	1.0897	54619	HANGSTO9	138	1.0871	54621	MITS E.4	240	1.0748
54622	MITS E.7	138	1.0980	54623	AEC MILL	138	1.0970	54624	OTAUWAU7	138	1.0978
54632	LOU CR.4	240	1.0638	54633	LOU CR.7	138	1.0596	54634	SARHLK/2	138	1.0532
54636	ESSO JU7	138	1.0543	54637	MORSE RV	138	1.0548	54639	VIRGINI9	138	1.0521
54643	WOLF LK9	138	1.0698	54646	MARG LK4	240	1.0781	54647	MARG LK7	138	1.0829
54648	LACOREY9	138	1.0806	54649	ETHEL L7	138	1.0671	54652	BONNY 9	138	1.0838
54654	BONN SVC	138	1.0838	54655	WHITFISH	240	1.0951	54656	WHITBY 7	138	1.0841
54657	VILNA 9	138	1.0819	54663	IRISH C9	138	1.0616	54665	BUFALOTP	138	1.0545
54666	VERMILO7	138	1.0596	54670	HILL 9	138	1.0685	54675	PAINTRT7	240	1.1015
54680	NEVIS 4	240	1.0776	54681	NEVIS 7	138	1.1099	54685	3HILLS/3	138	1.0615
54691	MICH. C9	138	1.0997	54693	WINT HI9	138	1.0934	54694	BULLPON9	138	1.0872
54700	MCNEILL	138	1.0795	54701	OYEN 7	138	1.0600	54707	SHEER 14	240	1.0545
54709	ANDERSO4	240	1.0547	54710	ANDERSON	138	1.0846	54711	SHEER 24	240	1.0535
54714	JAROW TP	138	1.0542	54715	BAT. RV7	138	1.0809	54721	BAT RV79	240	1.0990
54723	CORDEL 4	240	1.0990	54729	PRIM TAP	138	1.0650	54730	PRIMROSE	138	1.0710
54798	800S701T	138	1.0612	54802	STURGEO9	138	1.0860	54806	946/947N	240	1.1084
54809	732S901T	240	1.0752	54814	717S701T	138	1.0634	54818	VERMILA9	138	1.0803
54819	TER 70A9	138	1.0630	54822	766S901T	240	1.0624	54823	NEVIS 9	138	1.0747
54827	MONITOR9	138	1.0519	54828	767S701T	138	1.0935	54836	MILNERB9	138	1.0720
54838	848S902T	240	1.0734	54840	732S902T	240	1.0517	54844	709S702T	138	1.1092
54847	BAT RV80	240	1.0990	54962	KAYBOBTP	138	1.0717	54978	EAST IN4	240	1.1085
54983	MARION T	138	1.0653	54984	HIGHVL T	138	1.0652	54988	CROSSF T	240	1.0574
54995	W.GRN TP	240	1.0883	55003	SANDYPT9	138	1.0794	55007	ALGAR-39	138	1.0918
55008	MARIANA7	138	1.0931	55072	SYNC_D04	240	1.0652	55073	AURORA 4	240	1.0698

55117	CLAIR L	138	1.0736	55118	POPLAR 7	138	1.0599	55147	MILNERC9	138	1.0825
55226	WABASCA9	240	1.0677	55260	EMP LIQ7	138	1.0774	55272	FIELDGA9	138	1.0534
55280	BRINTNEL	240	1.0629	55352	GRND CTR	138	1.0684	55367	VEGREVL9	138	1.0539
55515	PRIMROSE	138	1.0563	55820	FICKLE 9	138	1.0675	55891	904AL TP	240	1.1085
55909	DALEH TP	138	1.0656	55910	OBED TAP	138	1.0656	55911	EMPLIQTP	138	1.0779
55912	740L JNC	138	1.0846	55913	G.ROBB T	138	1.0825	55924	CH KGT T	138	1.0717
55943	MILO 1	240	1.0684	55969	770S701T	138	1.1087	50010	COM132	132	1.0509
50016	CKY230	230	1.0520	50020	CMS230	230	1.0500	50036	RBW230	230	1.0582
50037	PEM230	230	1.0614	50038	RBW230-1	230	1.0573	50182	ARN132	132	1.0675
50185	ALZ230	230	1.0610	50186	ROS230	230	1.0718	50187	BRT230	230	1.0684
50188	BUT230	230	1.0500	50190	CBN230	230	1.0531	50191	ROS360	360	1.0530
50192	WAH360	360	1.0535	50193	BRT360	360	1.0500	50313	VIT132	132	1.0704
50314	PVO133	132	1.0699	50315	PVO132	132	1.0703	50316	LDY132	132	1.0524
50318	JPT132	132	1.0715	50319	COC132	132	1.0681	50320	HMC132	132	1.0679
50321	PHY132	132	1.0566	50322	CFT132	132	1.0661	50323	DMR132	132	1.0838
50324	PAL132	132	1.0666	50325	GCL132	132	1.0681	50326	NFD132	132	1.0725
50327	ASH132	132	1.0718	50328	PUN132	132	1.0563	50330	LDR132	132	1.0500
50334	KGH132	132	1.0609	50335	UTA132	132	1.0612	50336	PVL132-2	132	1.0732
50337	LDY122	132	1.0712	50338	CMX132	132	1.0578	50339	PVL132	132	1.0732
50342	SCA132	132	1.0500	50343	KSH132-2	132	1.0732	50344	SHA1	132	1.0715
50345	KSH132	132	1.0726	50346	SHA2	132	1.0757	50347	GOW132	132	1.0862
50348	GTP132	132	1.0901	50349	CLD132	132	1.0940	50350	SOO132	132	1.0954
50351	JOR132	132	1.0991	50352	PML132	132	1.0592	50353	WOS132	132	1.0561
50354	GLSTP17	132	1.0748	50355	GLSTP18	132	1.0719	50356	DND132	132	1.0855
50357	LTZ115	132	1.0713	50358	LTZ116	132	1.0713	50359	JHT132	132	1.0500
50377	LDYTP138	132	1.0526	50381	PVLTP116	132	1.0732	50382	HWDTP122	132	1.0716
50383	LDYTP122	132	1.0712	50385	CMXTP102	132	1.0559	50386	CMXTP101	132	1.0598
50387	PVLTP115	132	1.0732	50390	KSHTP11	132	1.0728	50391	KSHTP14	132	1.0735
50393	SHATP10	132	1.0716	50394	SHATP14	132	1.0757	50395	SALTP17	132	1.0733
50396	SALTP18	132	1.0733	50399	LTZTP115	132	1.0713	50400	LTZTP116	132	1.0713
50403	CMX132-2	132	1.0543	50460	KMO287	287	1.0539	50463	SKA500	500	1.0502
50545	BLW230	230	1.0703	50546	SCK230	230	1.0657	50547	HMH230	230	1.0629
50548	BLM230	230	1.0525	50549	QNT230	230	1.0518	50550	QRP230	230	1.0700
50551	TLR230	230	1.0523	50553	BCR230	230	1.0523	50554	RBF230	230	1.0714
50556	LAP230	230	1.0501	50557	SNK230	230	1.0517	50560	KDS500	500	1.0565
50562	GLN500	500	1.0556	50677	MCK138	138	1.0538	50678	AVO138	138	1.0559
50679	BLU138	138	1.0629	50680	VLM138	138	1.0694	50686	SCO138	138	1.0688
50687	ABA138	138	1.0686	50701	REV500	500	1.0500	50729	PRI138TP	138	1.0687
50782	CBK230	230	1.0502	50783	SEL230	230	1.0534	50785	SEV230	230	1.0519
50786	INV230	230	1.0514	50789	AAL230	230	1.0506	50791	CBK500	500	1.0802
50792	SEL500	500	1.0500	50899	ABA138TP	138	1.0686	50913	HWD132-2	132	1.0694
50914	HWDTP112	132	1.0694	50922	DNDTAP	132	1.0861	50923	HSY-PH	132	1.0904
50924	ESQ-PH	132	1.0855	50928	SCG IPP	132	1.0500	50932	IPH132	132	1.0679
50933	JUL132	132	1.0578	50934	JULTP130	132	1.0609	51017	KMS230	230	1.1064
51019	OYR132B1	132	1.0540	51020	OYR132B2	132	1.0563	51021	OYR T101	132	1.0545
51022	OYR T119	132	1.0570	51024	QLC132B1	132	1.0757	51025	QLC132B2	132	1.0756
51040	ICG132	132	1.0500	51045	ALH230	230	1.0547	51051	PGS132	132	1.0699
51052	PGS-105T	132	1.0699	51053	PGS-114T	132	1.0699	60085	BRIDGER	345	1.0500
60240	MIDPOINT	500	1.0630	62012	TOWN2	500	1.0852	62013	TOWN1	500	1.0852
62033	ANA BPA	115	1.0512	62046	BROADVU	500	1.0706	62053	BROADV&2	500	1.0634
62054	BROADV&1	500	1.0641	62057	COLSTRP	500	1.0800	40045	ALLSTON	500	1.0769
40051	ALVEY	500	1.0813	40061	ASHE	500	1.0800	41184	BALD MT	115	1.0514
40091	BELL BPA	500	1.0511	40111	BIG EDDY	500	1.0803	43049	BOARD F	500	1.0800
47013	BRIDGPRT	115	1.0548	40155	BUCKLEY	500	1.0832	45029	BURNS	500	1.0668
45035	CAPTJACK	500	1.0755	46209	CARMEN	115	1.0524	42315	CASCADEP	115	1.0582
41311	CELILO1	500	1.0801	41312	CELILO2	500	1.0801	40233	CHIEF JO	500	1.0800
42316	CLE ELUM	115	1.0586	40269	CONNEL T	115	1.0510	40271	CONNELL	115	1.0541
40287	COULEE	500	1.0810	40302	COVINGT4	500	1.0770	40306	COVINGT5	500	1.0775
43123	COYOTE	500	1.0834	40323	CUSTER W	500	1.0538	45095	DIXONVLE	500	1.0779
40369	DWORSHAK	500	1.0722	42395	EASTON	115	1.0601	40381	ECHOLAKE	500	1.0825
40451	GAR1EAST	500	1.0817	40453	GAR2EAST	500	1.0817	40459	GARRISON	500	1.0613
40485	GREEN PT	115	1.0520	40489	GRIZZLY	500	1.0725	40499	HANFORD	500	1.0872
47165	HANLY R1	115	1.0509	40517	HATTON T	115	1.0522	40521	HATWAI	500	1.0739
45137	HERMIST	230	1.0509	41212	HILLS CR	115	1.0500	40553	HOT SPR	500	1.0641
42405	HYAK	115	1.0609	40585	JOHN DAY	500	1.0800	40601	KEELER	500	1.0758
45262	KFALLS	500	1.0794	42411	KITTITAS	115	1.0609	40629	LANE	500	1.0717
40665	LIT GOOS	500	1.0805	40679	LOW GRAN	500	1.0800	40683	LOW MON	500	1.0800
40687	MALIN	500	1.0736	40693	MAPLE VL	500	1.0842	40699	MARION	500	1.0807
40711	MCLOUGLN	500	1.0802	40721	MCNARY	345	1.0513	40723	MCNARY	500	1.0815
45197	MERIDINP	500	1.0798	40749	MONROE	500	1.0787	42429	NCLE ELM	115	1.0582
40797	OLYMPIA	500	1.0799	40809	OSTRNDER	500	1.0796	40821	PAUL	500	1.0800
40827	PEARL	500	1.0798	40837	PONDROSA	500	1.0761	40869	RAVER	500	1.0806
40887	RINGOLD	115	1.0500	43485	ROUND BU	500	1.0696	40913	SACJAWEA	500	1.0813
40917	SACJWA T	500	1.0817	40941	SANTIAM	500	1.0804	40949	SATSOP	500	1.0820
40957	SCHULTZ	500	1.0926	40973	SICKLER	500	1.0842	40989	SLATT	500	1.0825
41043	SUMMER L	500	1.0736	45289	SWIFT	230	1.0500	41051	TACOMA	500	1.0815
41057	TAFT	500	1.0697	41095	TROUTDAL	500	1.0825	41103	UNDRWOOD	115	1.0513
41113	VANTAGE	500	1.0905	47099	WELLS	115	1.0623	42467	WOLDALE	115	1.0597
42314	X-POINT	200	1.0597	65510	EMERY	345	1.0500	64074	MILLERS	120	1.0556
64165	SQAW VLY	120	1.0605	64182	SANDIA	120	1.0555	64229	SUMMIT 2	115	1.0507
52226	PRI138	138	1.0696	52229	KER138	138	1.0766	52230	HED138	138	1.0745
52291	DKL138	138	1.0582	52300	LEE138T3	138	1.0580	52301	LEE138T4	138	1.0580

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  52302 LEE138C   138 1.0580    52303 JOR138TP  138 1.0576    52304 DGB138    138 1.0568
  52306 SEX138    138 1.0583    52307 GLE138    138 1.0584    52308 REC138    138 1.0587
  52309 SAU138    138 1.0572    52310 SPR138TP  138 1.0572    52313 HOL138    138 1.0571
  52314 OKM138    138 1.0564    52319 JOR138    138 1.0574    52426 MAS138    138 1.0745
  52809 LEE-T3    230 1.0588    52810 LEE-T4A   230 1.0581    52811 LEE-T4B   230 1.0599
  52812 LEE-T4C   230 1.0585    52813 LEE-T4D   230 1.0586    52815 PRI-T2    138 1.0729


    undervoltage summary < 0.900000
--no.-- --name-- -kv- (v pu)  --no.-- --name-- -kv- (v pu)  --no.-- --name-- -kv- (v pu)



    undervoltage summary < 0.950000
--no.-- --name-- -kv- (v pu)  --no.-- --name-- -kv- (v pu)  --no.-- --name-- -kv- (v pu)

  54551 RING CK7  138 0.9484    54796 791S701T  138 0.9196    54835 791S702T  138 0.9260
  50781 NTL VR    138 0.9447
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GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V12.0
WESTERN SYSTEMS COORDINATING COUNCIL
2002 LS2B APPROVED OPERATING CASE

		generation capacity	generation on-line	--- load categories ---- power	current	imped.	shunt	-- svd --	net inter	losses	slack bus
area name	ALBERTA										
	mw	10743.6	6887.3	6274.4	0.0	0.0	0.0	0.0	200.4	412.4	37.5
54	mvar	4941.5	852.3	1997.1	0.0	0.0	-21.7	-1195.6	-19.2	91.8	20.4
area name	B.C.HYDRO										
	mw	14043.0	8254.7	6035.1	0.0	0.0	0.0	0.0	1799.8	419.8	260.9
50	mvar	6475.0	225.2	2359.8	0.0	0.0	2924.0	2703.5	-386.1	-7376.0	1.1
area name	IDAHO										
	mw	4676.4	3192.7	1955.0	0.0	0.0	0.0	0.0	1066.3	171.4	177.3
60	mvar	2192.5	558.8	501.3	0.0	0.0	-96.2	0.0	-377.3	531.0	25.7
area name	MONTANA										
	mw	3502.2	3004.4	1207.7	0.0	0.0	0.4	0.0	1700.6	95.7	736.4
62	mvar	1309.0	404.9	524.8	0.0	0.0	-121.3	26.4	-444.0	419.0	152.8
area name	NORTHWEST										
	mw	43404.3	17473.9	16651.6	0.0	0.0	0.0	0.0	253.5	568.8	579.5
40	mvar	15534.6	198.7	5157.0	0.0	0.0	-1726.4	2143.4	1169.1	-6544.3	-308.9
area name	PACE										
	mw	6242.0	5528.2	4750.0	0.0	0.0	0.0	0.0	589.7	188.5	77.2
65	mvar	3201.9	530.2	1528.0	0.0	0.0	-528.2	0.0	-173.8	-295.8	12.6
area name	PSCOLORADO										
	mw	5792.0	4234.7	4858.1	0.0	0.0	0.0	0.0	-744.4	121.0	102.7
70	mvar	3667.3	621.6	1835.0	0.0	0.0	0.0	-1397.7	49.8	134.4	3.8
area name	SIERRA										
	mw	1901.7	1069.7	1075.2	0.0	0.0	0.0	0.0	-36.3	30.8	99.7
64	mvar	925.4	-25.6	280.4	0.0	0.0	-158.5	73.9	16.2	-237.5	7.8
area name	W KOOTENAY										
	mw	763.5	498.0	486.1	0.0	0.0	0.0	0.0	0.4	11.5	98.0
52	mvar	450.0	8.4	160.7	0.0	0.0	-79.2	-71.9	-8.8	7.6	-3.5
area name	WAPA R.M.										
	mw	6091.6	3956.3	2784.2	0.0	0.0	0.0	0.0	1050.4	121.7	411.4
73	mvar	2883.8	-184.9	950.8	0.0	0.0	-299.3	-177.1	-206.0	-453.5	16.2
area name	WAPA U.M.										
	mw	61.8	28.9	-120.2	0.0	0.0	0.0	0.0	140.8	8.3	28.9
63	mvar	34.0	1.8	117.5	0.0	0.0	-79.0	4.5	-5.8	-35.4	1.8
TOTL	mw	97222.1	54128.8	45957.1	0.0	0.0	0.4	0.0	6021.3	2150.0	
	mvar	41615.0	3191.5	15412.5	0.0	0.0	-185.8	2109.5	-386.0	-13758.7	

Area Interchange Summary

		mw	mvar
FROM AREA	54 ALBERTA		
TO AREA	50 B.C.HYDRO	200.4	-19.2
TOTAL		200.4	-19.2

FROM AREA	50 B.C.HYDRO	mw	mvar
TO AREA	54 ALBERTA	-200.4	19.2
TO AREA	40 NORTHWEST	2000.7	-414.2
TO AREA	52 W KOOTENAY	-0.4	8.8
TOTAL		1799.8	-386.1
FROM AREA	60 IDAHO	mw	mvar
TO AREA	40 NORTHWEST	948.9	-336.3
TO AREA	65 PACE	249.9	-23.4
TO AREA	64 SIERRA	-132.6	-17.5
TOTAL		1066.3	-377.3
FROM AREA	62 MONTANA	mw	mvar
TO AREA	40 NORTHWEST	1784.2	-451.3
TO AREA	65 PACE	21.7	4.7
TO AREA	63 WAPA U.M.	-105.3	2.6
TOTAL		1700.6	-444.0
FROM AREA	40 NORTHWEST	mw	mvar
TO AREA	50 B.C.HYDRO	-2000.7	414.2
TO AREA	60 IDAHO	-948.9	336.3
TO AREA	26 LADWP	1956.0	411.8
TO AREA	62 MONTANA	-1784.2	451.3
TO AREA	30 PG AND E	2897.8	-424.5
TO AREA	64 SIERRA	133.4	-20.1
TOTAL		253.5	1169.1
FROM AREA	65 PACE	mw	mvar
TO AREA	14 ARIZONA	270.5	36.8
TO AREA	60 IDAHO	-249.9	23.4
TO AREA	26 LADWP	66.9	-133.0
TO AREA	62 MONTANA	-21.7	-4.7
TO AREA	18 NEVADA	154.8	-81.3
TO AREA	64 SIERRA	23.7	9.1
TO AREA	19 WAPA L.C.	177.1	-26.4
TO AREA	73 WAPA R.M.	168.4	2.3
TOTAL		589.7	-173.8
FROM AREA	70 PSCOLORADO	mw	mvar
TO AREA	73 WAPA R.M.	-744.4	49.8
TOTAL		-744.4	49.8
FROM AREA	64 SIERRA	mw	mvar
TO AREA	60 IDAHO	132.6	17.5
TO AREA	26 LADWP	-30.7	6.3
TO AREA	40 NORTHWEST	-133.4	20.1
TO AREA	65 PACE	-23.7	-9.1
TO AREA	30 PG AND E	6.2	-15.5
TO AREA	24 SOCALIF	12.9	-3.1
TOTAL		-36.3	16.2
FROM AREA	52 W KOOTENAY	mw	mvar
TO AREA	50 B.C.HYDRO	0.4	-8.8
TOTAL		0.4	-8.8
FROM AREA	73 WAPA R.M.	mw	mvar
TO AREA	10 NEW MEXICO	334.8	-92.9
TO AREA	65 PACE	-168.4	-2.3
TO AREA	70 PSCOLORADO	744.4	-49.8
TO AREA	19 WAPA L.C.	175.1	-64.2
TO AREA	63 WAPA U.M.	-35.5	3.2

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  TOTAL                                          1050.4     -206.0

FROM AREA   63 WAPA U.M.                           mw        mvar
  TO AREA   62 MONTANA                           105.3       -2.6
  TO AREA   73 WAPA R.M.                          35.5       -3.2
  TOTAL                                          140.8       -5.8
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AREA TIE LINE SUMMARY

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V12.0
WESTERN SYSTEMS COORDINATING COUNCIL
2002 LS2B APPROVED OPERATING CASE

--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck	---mw----	---mvar--	meter
54150	LANGDON2	500	50791	CBK500	500	1	193.16	4.17	f
54205	COLEMAN7	138	50776	NTL138	138	1	6.34	-20.67	t
54273	POCATER7	138	50830	FRO T274	138	1	0.92	-2.70	t
from area 54 to area 50 B.C.HYDRO							200.41	-19.20	
Total from area 54 ALBERTA							200.41	-19.20	

---------from--------			--------- to --------						
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck	---mw----	---mvar--	meter
62004	ANACOND	230	40457	GARRISON	230	1	-80.48	6.94	f
62004	ANACOND	230	40457	GARRISON	230	2	-87.58	3.85	f
62009	RATTLE S	161	40867	RATTLE S	230	1	-63.16	-22.36	t
62012	TOWN2	500	40453	GAR2EAST	500	2	930.26	-199.40	t
62013	TOWN1	500	40451	GAR1EAST	500	1	930.26	-199.40	t
62066	KERR	115	40391	ELMO	115	1	15.82	-22.16	f
62072	OVANDO	230	40457	GARRISON	230	1	-48.80	11.23	t
62072	OVANDO	230	40551	HOT SPR	230	1	94.14	6.41	t
62085	CROWCR B	115	48055	BURKAVAB	115	1	45.54	-18.10	t
62086	THOMSON	115	48053	BURKAVAA	115	1	48.17	-18.31	t
from area 62 to area 40 NORTHWEST							1784.16	-451.31	
62030	PTRSNFLT	230	65025	AMPS	230	1	69.42	12.47	t
62045	BLGS PHA	230	66750	YELOWTLP	230	1	-46.01	-5.99	t
62061	RMRK PHA	161	66755	YELOWTLP	161	1	-22.96	-5.87	f
62084	DILLON S	161	65155	BIGGRASS	161	1	21.27	4.09	t
from area 62 to area 65 PACE							21.71	4.70	
62023	GT FALLS	161	63008	HAVRE	161	1	18.48	-10.61	f
62024	RAINBOW	161	63015	VERONA	161	1	16.74	-10.83	f
62027	SHELBY	115	63014	TIBERTAP	115	1	2.16	0.14	f
62051	HARDIN	230	63002	CRSOVRUM	230	1	69.16	16.54	t
62056	HUNTLEY	230	63002	CRSOVRUM	230	1	-211.84	7.35	t
from area 62 to area 63 WAPA U.M.							-105.30	2.58	
Total from area 62 MONTANA							1700.57	-444.02	

---------from--------			--------- to --------						
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck	---mw----	---mvar--	meter
40145	BOUNDARY	230	50822	NLYPHS	230	1	-239.74	2.37	f
40323	CUSTER W	500	50194	ING500	500	1	-887.85	207.14	t
40323	CUSTER W	500	50194	ING500	500	2	-873.08	204.67	t
from area 40 to area 50 B.C.HYDRO							-2000.67	414.18	
45029	BURNS	500	60240	MIDPOINT	500	1	-995.66	360.71	t
45103	ENTERPRS	230	60150	HELLSCYN	230	1	-19.06	-13.65	f
40507	HARNEY	115	61826	HINES	115	1	-15.61	10.68	f
40621	LAGRANDE	230	60192	LADD	230	1	9.25	-10.91	f
48197	LOLO	230	60278	IMNAHA	230	1	72.13	-10.49	t
from area 40 to area 60 IDAHO							-948.94	336.34	
41311	CELILO1	500	26097	SYLMAR1	230	1	388.82	62.88	f
41313	CELILO3	230	26098	SYLMAR3	230	1	589.18	142.96	f
41312	CELILO2	500	26099	SYLMAR2	230	1	388.82	62.86	f
41314	CELILO4	230	26100	SYLMAR4	230	1	589.18	143.08	f
from area 40 to area 26 LADWP							1956.00	411.78	
48053	BURKAVAA	115	62086	THOMSON	115	1	-48.17	18.31	f
48055	BURKAVAB	115	62085	CROWCR B	115	1	-45.54	18.10	f
40391	ELMO	115	62066	KERR	115	1	-15.82	22.16	t
40451	GAR1EAST	500	62013	TOWN1	500	1	-930.26	199.40	f
40453	GAR2EAST	500	62012	TOWN2	500	2	-930.26	199.40	f
40457	GARRISON	230	62072	OVANDO	230	1	48.80	-11.23	f
40457	GARRISON	230	62004	ANACOND	230	1	80.48	-6.94	t
40457	GARRISON	230	62004	ANACOND	230	2	87.58	-3.85	t
40551	HOT SPR	230	62072	OVANDO	230	1	-94.14	-6.41	f
40867	RATTLE S	230	62009	RATTLE S	161	1	63.16	22.36	f
from area 40 to area 62 MONTANA							-1784.16	451.31	
45035	CAPTJACK	500	30020	OLINDA	500	1	1067.90	-144.52	f
45087	DELTA	115	31468	CASCADE	115	1	71.13	-19.39	f
40687	MALIN	500	30005	ROUND MT	500	1	875.77	-122.30	f
40687	MALIN	500	30005	ROUND MT	500	2	883.03	-138.25	f

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from area  40 to area  30 PG AND E                              2897.83   -424.45

   40537 HIL TOP   230        64058 HIL TOP   345  1             133.44    -20.10   f
from area  40 to area  64 SIERRA                                 133.44    -20.10

Total from area  40 NORTHWEST                                    253.50   1169.05

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   66235 PINTO PS  345        14101 FOURCORN  345  1             270.45     36.79   t
from area  65 to area  14 ARIZONA                                270.45     36.79

   65075 ANTLOPE   230        60073 BRADY     230  1              35.55    -19.18   f
   65135 BENLOMND  345        60060 BORAH     345  1             -10.57     94.46   t
   65220 BRIDGER   230        60085 BRIDGER   345  1              -5.29     -4.20   t
   65220 BRIDGER   230        60085 BRIDGER   345  2              -5.38     -4.27   t
   65220 BRIDGER   230        60085 BRIDGER   345  3              -5.29     -4.20   t
   65665 GOSHEN    345        60085 BRIDGER   345  1            -606.31    -57.46   f
   65665 GOSHEN    345        60190 KINPORT   345  1             306.99      2.16   t
   65670 GOSHEN    161        60030 BLACKFT   161  1              81.95     -2.31   f
   65920 MALAD     138        60020 AMFLS     138  1             -19.95      0.72   t
   66565 TREASTON  230        60073 BRADY     230  1             -21.63     17.73   t
from area  65 to area  60 IDAHO                                 -249.93     23.45

   65995 MONA      345        26043 INTERMT   345  1              33.46    -66.48   f
   65995 MONA      345        26043 INTERMT   345  2              33.46    -66.48   f
from area  65 to area  26 LADWP                                   66.93   -132.96

   65025 AMPS      230        62030 PTRSNFLT  230  1             -69.42    -12.47   f
   65155 BIGGRASS  161        62084 DILLON S  161  1             -21.27     -4.09   f
   66750 YELOWTLP  230        62045 BLGS PHA  230  1              46.01      5.99   f
   66755 YELOWTLP  161        62061 RMRK PHA  161  1              22.96      5.87   t
from area  65 to area  62 MONTANA                                -21.71     -4.70

   66280 REDBUTTE  345        18002 HA PS     345  1             154.76    -81.31   f
from area  65 to area  18 NEVADA                                 154.76    -81.31

   66210 PAVANT    230        64124 UTAH-NEV  230  1              23.74      9.12   t
from area  65 to area  64 SIERRA                                  23.74      9.12

   66355 SIGURDPS  230        79031 GLENCANY  230  1             177.11    -26.45   t
from area  65 to area  19 WAPA L.C.                              177.11    -26.45

   65060 ANT MINE  230        73276 TEKLA     230  1              36.54     12.75   f
   65085 ASHLEY    138        79067 VERNAL    138  1             -47.98      5.37   t
   65192 BONANZA   138        79067 VERNAL    138  1              48.34     -2.78   t
   65193 BONANZA   345        79005 BEARS     345  1            -187.44    -11.13   f
   65305 CASPERPP  115        73167 REFNRYTP  115  1             -38.85     -0.18   f
   65305 CASPERPP  115        73042 CASPERLM  115  1              -0.02     -8.25   t
   65420 DAVEJOHN  230        73107 LAR.RIVR  230  1              84.19    -20.15   f
   65420 DAVEJOHN  230        73190 STEGALL   230  1              88.41    -18.23   f
   65425 DAVEJOHN  115        73070 GLENRCKN  115  1              70.85     -2.91   f
   65425 DAVEJOHN  115        73071 GLENRCKS  115  1              80.84     -0.09   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  1             -52.19      9.17   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  2             -52.19      9.17   f
   66278 RANGELY   138        79001 ARTESIA   138  1              -5.64     -6.18   f
   66278 RANGELY   138        79046 MEEKER    138  1              18.46     -4.80   f
   66305 RIVERTON  230        73170 RIVERTON  115  1               4.60      5.21   f
   66535 THERMOPL  230        73197 THERMOPL  115  1               2.59      5.93   t
   66540 THERPACE  115        73197 THERMOPL  115  1               6.82      4.38   t
   66720 WORLAND   115        73222 WORLANTP  115  1              -5.56      4.25   t
   66725 WYODAK    230        73148 OSAGE     230  1             102.62    -11.96   t
   66725 WYODAK    230        73168 RENO      230  1              54.09     -0.83   f
   66725 WYODAK    230        73294 HUGHES    230  1             107.11     -2.53   f
   66725 WYODAK    230        73282 WYODAK     69  1              11.61     13.90   f
   66725 WYODAK    230        73282 WYODAK     69  2               7.85      9.40   f
   66725 WYODAK    230        74016 WYGEN      14  1               0.00      0.00   f
   66750 YELOWTLP  230        73229 YELLOWBR  230  1            -166.68     12.77   t
from area  65 to area  73 WAPA R.M.                              168.39      2.27

Total from area  65 PACE                                         589.73   -173.79

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   70005 BRUSHCPP  115        73013 B.CK PS   115  1              42.00      2.48   f
   70005 BRUSHCPP  115        73013 B.CK PS   115  2              44.57      4.60   f
   70116 COBBLAKE  115        73044 COBBLKTP  115  1             -11.50     -1.10   f
   70122 COMANCHE  230        73477 FULLER    230  1              85.18     16.97   t
   70139 DANIELPK  230        73477 FULLER    230  1             -23.06      2.09   t
   70193 FTN VALL  115        73412 MIDWAYBR  115  1              11.71     -5.84   t
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70205	GRANDJCT	230	79036	GRANDJCT	345	1	-21.68	-12.02	f
70256	LAPORTPS	115	73105	LAPORTE	115	1	-13.32	-5.91	t
70274	MALTA	230	73138	MT.ELBRT	230	1	-69.85	6.78	f
70285	MIDWAYPS	115	73412	MIDWAYBR	115	1	20.22	-43.14	f
70286	MIDWAYPS	230	73413	MIDWAYBR	230	1	152.43	51.05	t
70287	MILL	115	73296	FRASER	115	1	-35.27	5.40	f
70308	PALMER	115	73414	MONUMENT	115	1	-14.44	3.39	t
70311	PAWNEE	230	73192	STORY	230	1	-88.07	-29.76	t
70327	PONCHA	115	79037	GUNNISON	115	1	-3.83	4.19	f
70350	RAWHIDE	24	73165	RAWHIDE	230	1	262.21	33.58	t
70358	RIFLE PS	230	79059	RIFLE WA	230	1	-67.89	27.21	f
70358	RIFLE PS	230	79250	AMATLAS	230	1	-49.95	-13.05	f
70375	SAN LUIS	230	79054	PONCHABR	230	1	-60.01	13.25	t
70410	ST.VRAIN	230	73116	LONGPEAK	230	1	-30.82	32.07	f
70470	WELD PS	115	73211	WELD LM	115	1	-16.11	122.25	f
70471	WELD PS	230	73212	WELD LM	230	1	-272.04	-84.74	f
70474	WINDSOR	230	73011	AULT	230	1	-223.63	-11.97	t
70476	WOODLAND	115	73400	EMIL AND	115	1	11.49	-0.05	f
70525	MTHARRIS	138	79038	HAYDEN	138	1	-5.59	-1.05	t
79033	GOREPASS	230	79039	HAYDEN	230	1	-188.03	-0.69	t
79033	GOREPASS	230	73072	GOREPASS	138	1	-3.11	5.45	f
79034	GRANDJCT	115	79048	MONTROSE	115	1	29.82	-6.64	t
79056	RIFLE CU	138	79046	MEEKER	138	1	-44.03	0.67	f
79057	RIFLE CU	230	79059	RIFLE WA	230	1	1.18	-52.22	t
79058	RIFLE CU	345	79014	CRAIG	345	1	-399.54	-18.61	f
79058	RIFLE CU	345	79036	GRANDJCT	345	1	393.86	18.81	f
79091	WOLCOTTP	230	79039	HAYDEN	230	1	-151.73	6.59	f
79173	COLBRAN	115	79174	MOLINA-L	115	1	0.00	-0.53	f
70351	RAWHIDEA	14	73165	RAWHIDE	230	1	0.00	0.00	t
70550	W CANON	115	73551	W CANON	230	1	-5.58	-19.68	t
from area 70 to area 73 WAPA R.M.							-744.38	49.82	
Total from area 70 PSCOLORADO							-744.38	49.82	

---------from--------			--------- to --------						
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck	---mw----	---mvar--	meter
79060	SANJN PS	345	10292	SAN_JUAN	345	1	334.78	-92.93	t
from area 73 to area 10 NEW MEXICO							334.78	-92.93	
73042	CASPERLM	115	65305	CASPERPP	115	1	0.02	8.25	f
73070	GLENRCKN	115	65425	DAVEJOHN	115	1	-70.85	2.91	t
73071	GLENRCKS	115	65425	DAVEJOHN	115	1	-80.84	0.09	t
73107	LAR.RIVR	230	65420	DAVEJOHN	230	1	-84.19	20.15	t
73148	OSAGE	230	66725	WYODAK	230	1	-102.62	11.96	f
73167	REFNRYTP	115	65305	CASPERPP	115	1	38.85	0.18	t
73168	RENO	230	66725	WYODAK	230	1	-54.09	0.83	t
73170	RIVERTON	115	66305	RIVERTON	230	1	-4.60	-5.21	t
73190	STEGALL	230	65420	DAVEJOHN	230	1	-88.41	18.23	t
73197	THERMOPL	115	66540	THERPACE	115	1	-6.82	-4.38	f
73197	THERMOPL	115	66535	THERMOPL	230	1	-2.59	-5.93	f
73222	WORLANTP	115	66720	WORLAND	115	1	5.56	-4.25	f
73229	YELLOWBR	230	66750	YELOWTLP	230	1	166.68	-12.77	f
73276	TEKLA	230	65060	ANT MINE	230	1	-36.54	-12.75	t
73282	WYODAK	69	66725	WYODAK	230	1	-11.61	-13.90	t
73282	WYODAK	69	66725	WYODAK	230	2	-7.85	-9.40	t
73294	HUGHES	230	66725	WYODAK	230	1	-107.11	2.53	t
79001	ARTESIA	138	66278	RANGELY	138	1	5.64	6.18	t
79005	BEARS	345	65193	BONANZA	345	1	187.44	11.13	t
79026	FLAMGORG	138	65565	FLAMGORG	230	1	52.19	-9.17	t
79026	FLAMGORG	138	65565	FLAMGORG	230	2	52.19	-9.17	t
79046	MEEKER	138	66278	RANGELY	138	1	-18.46	4.80	t
79067	VERNAL	138	65085	ASHLEY	138	1	47.98	-5.37	f
79067	VERNAL	138	65192	BONANZA	138	1	-48.34	2.78	f
74016	WYGEN	14	66725	WYODAK	230	1	0.00	0.00	t
from area 73 to area 65 PACE							-168.39	-2.27	
73011	AULT	230	70474	WINDSOR	230	1	223.63	11.97	f
73013	B.CK PS	115	70005	BRUSHCPP	115	1	-42.00	-2.48	t
73013	B.CK PS	115	70005	BRUSHCPP	115	2	-44.57	-4.60	t
73044	COBBLKTP	115	70116	COBBLAKE	115	1	11.50	1.10	t
73072	GOREPASS	138	79033	GOREPASS	230	1	3.11	-5.45	t
73105	LAPORTE	115	70256	LAPORTPS	115	1	13.32	5.91	f
73116	LONGPEAK	230	70410	ST.VRAIN	230	1	30.82	-32.07	t
73138	MT.ELBRT	230	70274	MALTA	230	1	69.85	-6.78	t
73165	RAWHIDE	230	70350	RAWHIDE	24	1	-262.21	-33.58	f
73165	RAWHIDE	230	70351	RAWHIDEA	14	1	-0.00	-0.00	f
73192	STORY	230	70311	PAWNEE	230	1	88.07	29.76	f
73211	WELD LM	115	70470	WELD PS	115	1	16.11	-122.25	t
73212	WELD LM	230	70471	WELD PS	230	1	272.04	84.74	t
73296	FRASER	115	70287	MILL	115	1	35.27	-5.40	t
73400	EMIL AND	115	70476	WOODLAND	115	1	-11.49	0.05	t

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   73412 MIDWAYBR  115        70193 FTN VALL  115  1            -11.71      5.84   f
   73412 MIDWAYBR  115        70285 MIDWAYPS  115  1            -20.22     43.14   t
   73413 MIDWAYBR  230        70286 MIDWAYPS  230  1           -152.43    -51.05   f
   73414 MONUMENT  115        70308 PALMER    115  1             14.44     -3.39   f
   73477 FULLER    230        70122 COMANCHE  230  1            -85.18    -16.97   f
   73477 FULLER    230        70139 DANIELPK  230  1             23.06     -2.09   f
   79014 CRAIG     345        79058 RIFLE CU  345  1            399.54     18.61   t
   79036 GRANDJCT  345        79058 RIFLE CU  345  1           -393.86    -18.81   t
   79036 GRANDJCT  345        70205 GRANDJCT  230  1             21.68     12.02   t
   79037 GUNNISON  115        70327 PONCHA    115  1              3.83     -4.19   t
   79038 HAYDEN    138        70525 MTHARRIS  138  1              5.59      1.05   f
   79039 HAYDEN    230        79033 GOREPASS  230  1            188.03      0.69   f
   79039 HAYDEN    230        79091 WOLCOTTP  230  1            151.73     -6.59   t
   79046 MEEKER    138        79056 RIFLE CU  138  1             44.03     -0.67   t
   79048 MONTROSE  115        79034 GRANDJCT  115  1            -29.82      6.64   f
   79054 PONCHABR  230        70375 SAN LUIS  230  1             60.01    -13.25   f
   79059 RIFLE WA  230        70358 RIFLE PS  230  1             67.89    -27.21   t
   79059 RIFLE WA  230        79057 RIFLE CU  230  1             -1.18     52.22   f
   79174 MOLINA-L  115        79173 COLBRAN   115  1             -0.00      0.53   t
   79250 AMATLAS   230        70358 RIFLE PS  230  1             49.95     13.05   t
   73551 W CANON   230        70550 W CANON   115  1              5.58     19.68   f
from area  73 to area  70 PSCOLORADO                            744.38    -49.82

   79061 SHIP PS   230        79063 SHIPROCK  230  1            149.59    -43.11   t
   79260 ELPASOTP  115        79105 GLADETAP  115  1             25.56    -21.05   t
from area  73 to area  19 WAPA L.C.                             175.14    -64.16

   73229 YELLOWBR  230        63001 CROS PHA  230  1            -35.48      3.23   f
from area  73 to area  63 WAPA U.M.                             -35.48      3.23

Total from area  73 WAPA R.M.                                  1050.44   -205.95

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   63002 CRSOVRUM  230        62051 HARDIN    230  1            -69.16    -16.54   f
   63002 CRSOVRUM  230        62056 HUNTLEY   230  1            211.84     -7.35   f
   63008 HAVRE     161        62023 GT FALLS  161  1            -18.48     10.61   t
   63014 TIBERTAP  115        62027 SHELBY    115  1             -2.16     -0.14   t
   63015 VERONA    161        62024 RAINBOW   161  1            -16.74     10.83   t
from area  63 to area  62 MONTANA                               105.30     -2.58

   63001 CROS PHA  230        73229 YELLOWBR  230  1             35.48     -3.23   t
from area  63 to area  73 WAPA R.M.                              35.48     -3.23

Total from area  63 WAPA U.M.                                   140.78     -5.81
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WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
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Summation of selected system

	-----MW----	----MVAR---		
Generation	54128.789	3025.492	Generators	2550
Actual Load	45957.066	15412.540	Loads	6811
Net actual shunt	0.405	-185.823	Shunts	1294
Net actual svd	0.000	2107.439	Svd	587
Loss	2150.197	-13922.676	Buses	13159
			Lines	10964
			Transformers	5120
MVA-miles	4534994.0	1050228.6	DC buses	6
Miles	46968.402		DC converters	10
			DC lines	3

WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
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Area 54 [ALBERTA]

	-----MW----	----MVAR---		
Generation	6887.254	852.430	Generators	136
Actual Load	6274.402	1997.100	Loads	517
Net actual shunt	0.000	-21.744	Shunts	9
Net actual svd	0.000	-1195.581	Svd	76
Net Interchange	200.408	-19.199	Buses	989
Sched Interchange	200.000		Lines	782
Loss	412.444	91.859	Transformers	406
MVA-miles	1164695.4	291562.3	DC buses	0
Miles	18668.695		DC converters	0
			DC lines	0
Loss at 13.20 Kv	1.466	19.090		
Loss at 13.80 Kv	3.240	76.348		
Loss at 14.40 Kv	0.440	14.459		
Loss at 25.00 Kv	1.465	16.921		
Loss at 34.00 Kv	0.046	0.759		
Loss at 69.00 Kv	14.504	-22.349		
Loss at 138.00 Kv	157.645	-309.209		
Loss at 240.00 Kv	217.491	-426.238		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	16.147	722.078		
Largest mismatch MVA	0.0084	0.0499		

WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
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Area 50 [B.C.HYDRO]

	-----MW----	----MVAR---		
Generation	8254.719	225.159	Generators	106
Actual Load	6035.052	2359.838	Loads	395
Net actual shunt	0.000	2924.022	Shunts	104
Net actual svd	0.000	2703.485	Svd	125
Net Interchange	1799.825	-386.142	Buses	1054
Sched Interchange	1800.000		Lines	719
Loss	419.843	-7376.047	Transformers	644
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.045	1.966		
Loss at 13.80 Kv	6.690	399.883		
Loss at 34.00 Kv	0.000	0.002		
Loss at 46.00 Kv	0.301	0.082		
Loss at 132.00 Kv	25.089	36.375		
Loss at 138.00 Kv	11.037	-136.497		
Loss at 230.00 Kv	39.633	-770.071		
Loss at 500.00 Kv	290.678	-7381.497		
Loss at other Kv	46.369	473.712		
Largest mismatch MVA	0.0337	0.0390		

WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
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Area 60 [IDAHO]

-----MW---- ----MVAR---

Generation	3192.674	558.774	Generators	49
Actual Load	1955.000	501.300	Loads	64
Net actual shunt	0.000	-96.193	Shunts	2
Net actual svd	0.000	0.000	Svd	0
Net Interchange	1066.273	-377.224	Buses	156
Sched Interchange	1066.000		Lines	120
Loss	171.401	530.889	Transformers	96
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.271	5.817		
Loss at 13.80 Kv	1.166	43.754		
Loss at 14.40 Kv	0.390	15.211		
Loss at 34.50 Kv	0.000	0.000		
Loss at 100.00 Kv	0.913	81.895		
Loss at 115.00 Kv	0.434	0.343		
Loss at 138.00 Kv	14.241	-58.646		
Loss at 161.00 Kv	1.197	0.908		
Loss at 230.00 Kv	15.301	-301.093		
Loss at 345.00 Kv	132.482	579.176		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	5.007	163.526		
Largest mismatch MVA	0.0071	0.0083		

WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
G1

Area 62 [MONTANA]

	-----MW----	----MVAR---		
Generation	3004.414	236.578	Generators	22
Actual Load	1207.745	524.807	Loads	200
Net actual shunt	0.405	-121.249	Shunts	56
Net actual svd	0.000	26.439	Svd	11
Net Interchange	1700.345	-448.191	Buses	310
Sched Interchange	1701.000		Lines	317
Loss	95.919	254.774	Transformers	89
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	0.000	39.319		
Loss at 69.00 Kv	0.539	1.671		
Loss at 100.00 Kv	12.469	-55.300		
Loss at 115.00 Kv	2.839	-16.732		
Loss at 161.00 Kv	9.961	-96.772		
Loss at 230.00 Kv	12.995	-182.797		
Loss at 500.00 Kv	56.492	381.151		
Loss at other Kv	0.625	184.233		
Largest mismatch MVA	0.0038	0.0158		

WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
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Area 40 [NORTHWEST]

	-----MW----	----MVAR---		
Generation	17473.885	199.058	Generators	290
Actual Load	16651.566	5157.048	Loads	1663
Net actual shunt	0.000	-1726.490	Shunts	46
Net actual svd	0.000	2143.414	Svd	163
Net Interchange	253.510	1169.405	Buses	2740
Sched Interchange	253.000		Lines	2709
Loss	568.792	-6544.327	Transformers	632
MVA-miles	2866149.5	635845.3	DC buses	4
Miles	18402.309		DC converters	4
			DC lines	2
Loss at 11.00 Kv	-0.000	0.223		
Loss at 13.20 Kv	0.000	2.267		
Loss at 13.80 Kv	4.466	150.383		
Loss at 14.40 Kv	-0.000	0.000		
Loss at 25.00 Kv	3.293	174.030		
Loss at 34.50 Kv	0.069	-0.965		
Loss at 69.00 Kv	7.427	2.567		
Loss at 100.00 Kv	0.120	-0.323		
Loss at 115.00 Kv	126.826	-36.380		
Loss at 230.00 Kv	137.422	-744.993		
Loss at 345.00 Kv	7.065	-312.695		

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Loss at 500.00 Kv         221.623    -6635.248
Loss at other Kv           60.479      856.816

Largest mismatch MVA       0.0240       0.0529

WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
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Area  65 [PACE                           ]

                      -----MW----  ----MVAR---
Generation               5528.244      530.654        Generators           53
Actual Load              4749.998     1528.040        Loads               273
Net actual shunt            0.000     -528.263        Shunts               51
Net actual svd              0.000        0.000        Svd                   2
Net Interchange           589.741     -173.419        Buses               564
Sched Interchange         590.300                     Lines               408
Loss                      188.505     -295.706        Transformers        336

MVA-miles                     3.4          1.1        DC buses              0
Miles                       1.900                     DC converters         0
                                                      DC lines              0
Loss at  13.80 Kv           0.819       22.935
Loss at  34.50 Kv           1.010        7.109
Loss at  46.00 Kv           3.908       70.489
Loss at  69.00 Kv           0.728        8.212
Loss at 100.00 Kv           0.017        0.583
Loss at 115.00 Kv           2.786       -8.588
Loss at 138.00 Kv          40.604       35.466
Loss at 161.00 Kv           7.688      -26.374
Loss at 230.00 Kv          63.918     -105.762
Loss at 345.00 Kv          64.589     -358.180
Loss at other Kv            2.440       58.404

Largest mismatch MVA       0.0273       0.0779

WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
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Area  70 [PSCOLORADO                     ]

                      -----MW----  ----MVAR---
Generation               4234.680      621.565        Generators           46
Actual Load              4858.050     1835.016        Loads               358
Net actual shunt            0.000        0.000        Shunts                0
Net actual svd              0.000    -1397.656        Svd                  43
Net Interchange          -744.395       49.817        Buses               500
Sched Interchange        -743.800                     Lines               461
Loss                      121.026      134.431        Transformers        147

MVA-miles                 22717.3       6310.8        DC buses              0
Miles                     564.500                     DC converters         0
                                                      DC lines              0
Loss at  13.80 Kv           2.115       74.404
Loss at  14.40 Kv           0.081        0.808
Loss at  25.00 Kv           0.013        0.166
Loss at  46.00 Kv           0.190        0.001
Loss at  69.00 Kv           3.820      -11.984
Loss at 100.00 Kv           0.007       -0.105
Loss at 115.00 Kv          21.169     -103.917
Loss at 138.00 Kv           0.647       -3.754
Loss at 230.00 Kv          85.921      -46.552
Loss at 345.00 Kv           0.000        0.004
Loss at other Kv            7.063      225.361

Largest mismatch MVA       0.0098       0.0537

WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
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Area  64 [SIERRA                         ]

                      -----MW----  ----MVAR---
Generation               1069.690      -25.558        Generators           19
Actual Load              1075.167      280.355        Loads               115
Net actual shunt            0.000     -158.467        Shunts               23
Net actual svd              0.000       73.889        Svd                   5
Net Interchange           -36.245       16.165        Buses               275
Sched Interchange         -36.000                     Lines               197
Loss                       30.770     -237.521        Transformers        117

MVA-miles                 51756.4      28302.4        DC buses              0
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Miles	1042.600		DC converters	0
			DC lines	0
Loss at 13.80 Kv	1.784	32.653		
Loss at 69.00 Kv	0.000	0.000		
Loss at 115.00 Kv	0.298	-7.513		
Loss at 230.00 Kv	0.902	-112.910		
Loss at 345.00 Kv	7.224	-180.866		
Loss at other Kv	20.563	31.115		
Largest mismatch MVA	0.0106	0.0203		

WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
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Area 52 [W KOOTENAY]

	-----MW----	----MVAR---		
Generation	498.040	8.446	Generators	18
Actual Load	486.100	160.700	Loads	65
Net actual shunt	0.000	-79.194	Shunts	27
Net actual svd	0.000	-71.873	Svd	4
Net Interchange	0.430	-8.836	Buses	260
Sched Interchange	0.000		Lines	166
Loss	11.510	7.649	Transformers	116
MVA-miles	18675.5	6123.0	DC buses	0
Miles	1005.200		DC converters	0
			DC lines	0
Loss at 13.20 Kv	-0.000	9.145		
Loss at 13.80 Kv	0.000	0.000		
Loss at 14.40 Kv	0.000	21.896		
Loss at 25.00 Kv	0.000	0.000		
Loss at 138.00 Kv	0.104	-8.447		
Loss at 161.00 Kv	2.006	-19.726		
Loss at 230.00 Kv	0.710	-19.318		
Loss at other Kv	8.690	24.098		
Largest mismatch MVA	0.0025	0.0087		

WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
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Area 73 [WAPA R.M.]

	-----MW----	----MVAR---		
Generation	3956.307	-183.442	Generators	74
Actual Load	2784.180	950.836	Loads	356
Net actual shunt	0.000	-299.295	Shunts	4
Net actual svd	0.000	-177.105	Svd	53
Net Interchange	1050.453	-204.383	Buses	620
Sched Interchange	1050.700		Lines	567
Loss	121.673	-453.515	Transformers	174
MVA-miles	410996.3	82083.9	DC buses	0
Miles	7283.200		DC converters	0
			DC lines	0
Loss at 13.80 Kv	3.825	48.729		
Loss at 34.50 Kv	0.149	2.098		
Loss at 69.00 Kv	3.015	-20.123		
Loss at 115.00 Kv	43.509	-234.484		
Loss at 138.00 Kv	3.351	-37.193		
Loss at 230.00 Kv	29.696	-352.339		
Loss at 345.00 Kv	33.755	-54.281		
Loss at other Kv	4.373	194.078		
Largest mismatch MVA	0.0128	0.0823		

WESTERN SYSTEMS COORDINATING COUNCIL, WAPA UGP, JUNE 2002
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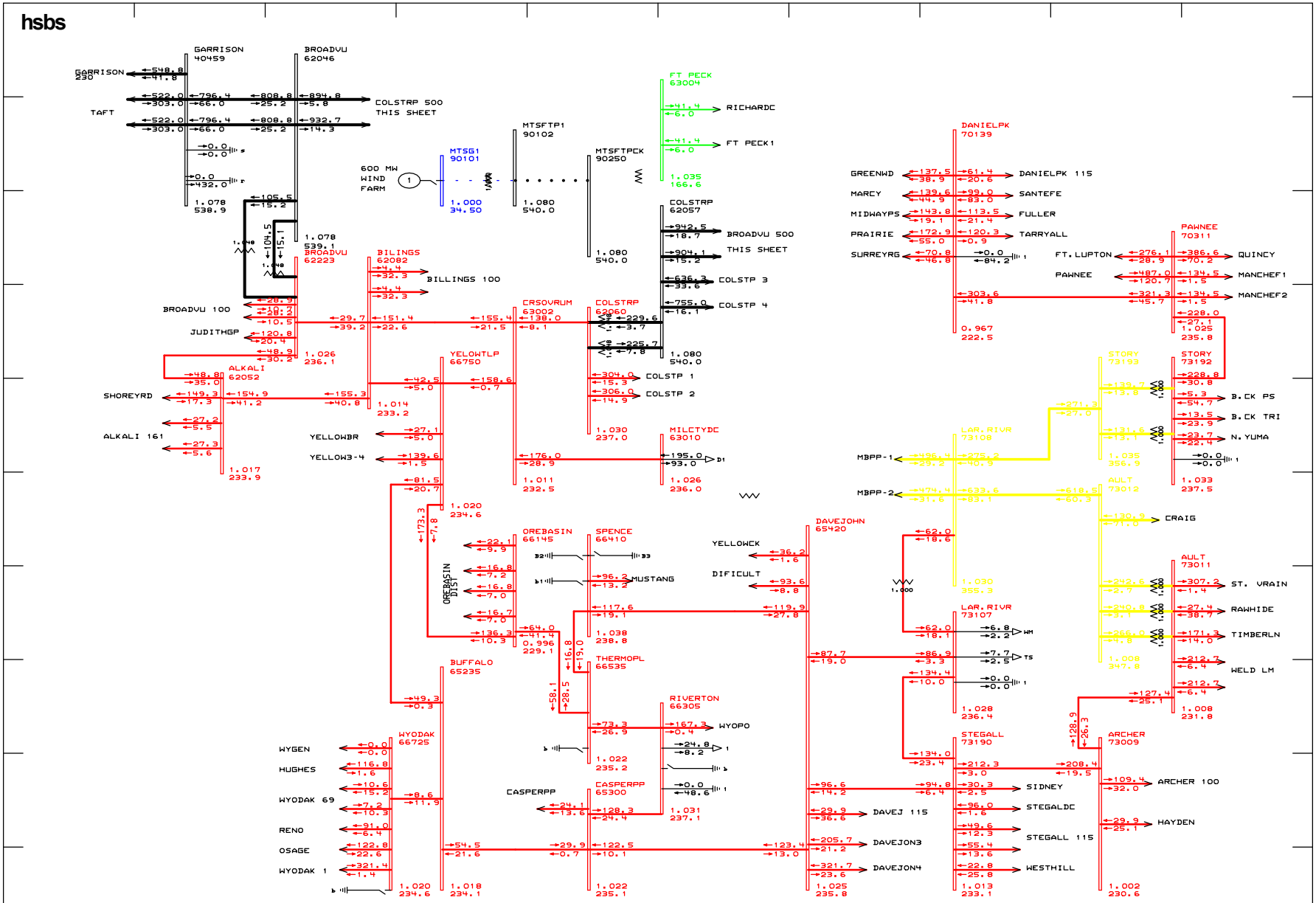
Area 63 [WAPA U.M.]

	-----MW----	----MVAR---		
Generation	28.882	1.828	Generators	1
Actual Load	-120.200	117.500	Loads	17
Net actual shunt	0.000	-78.951	Shunts	1
Net actual svd	0.000	2.427	Svd	4
Net Interchange	140.768	-3.986	Buses	15
Sched Interchange	141.000		Lines	12
Loss	8.314	-35.163	Transformers	3
MVA-miles	0.0	0.0	DC buses	0

Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	0.041	1.533		
Loss at 115.00 Kv	0.038	-6.833		
Loss at 161.00 Kv	0.580	-50.345		
Loss at 230.00 Kv	7.654	20.481		
Largest mismatch MVA	0.0001	0.0007		

B.2

hsbs



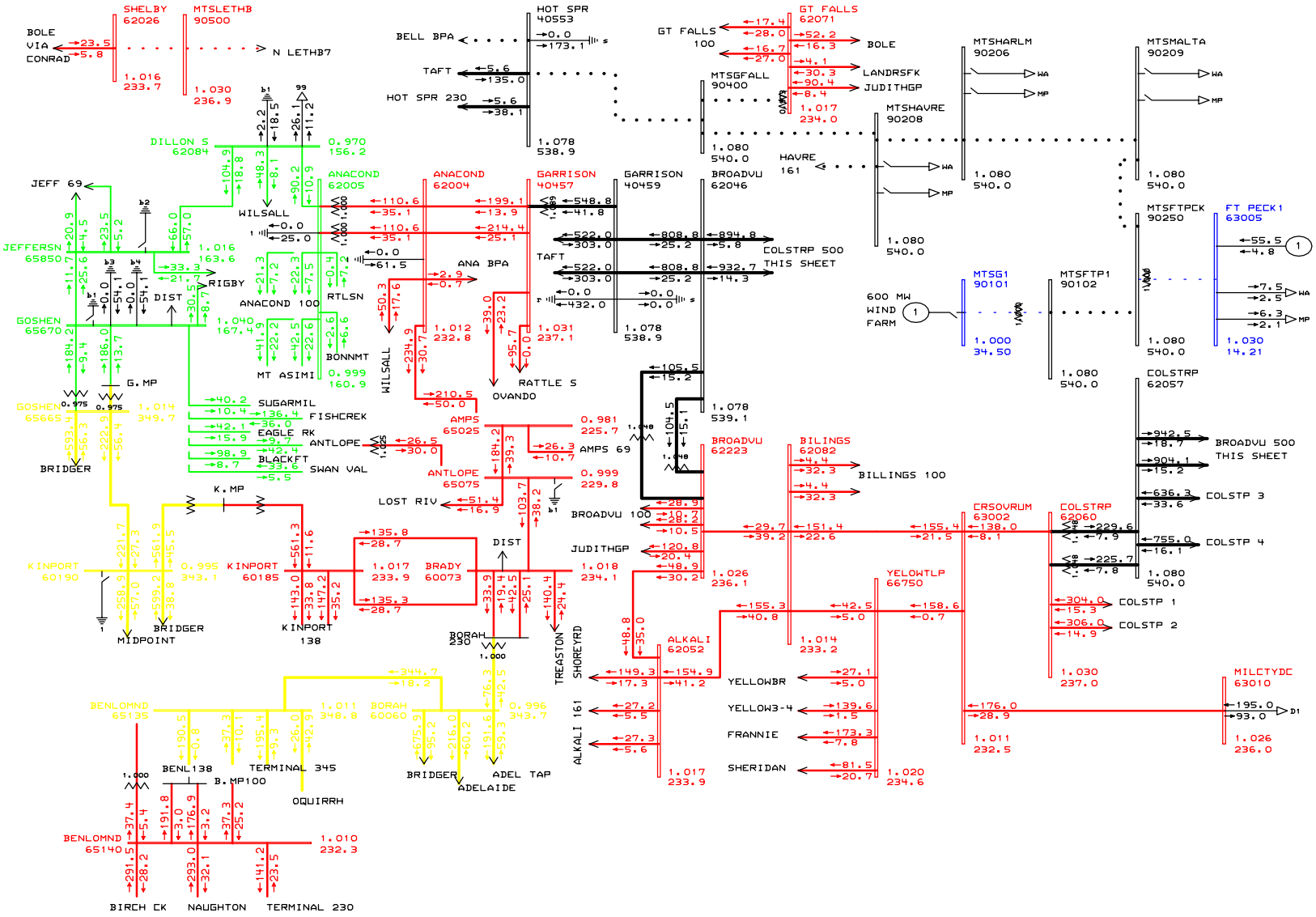
General Electric International, Inc. PSLF Program MW/MVAR Wed Jul 24 04:33:32 2002

PEAK POWER ENGINEERING, INC. 303-462-1100

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 HS BASE CASE

600 MW WIND FARM AT FORT PECK
BASE CASE

mts\g4\g4den.drw
c:\uwk\mts\g4\model\g4hs_lnbs.
Rating = 1



General Electric International, Inc. PSLF Program MW/MVAR Wed Jul 24 04:33:56 2002

PEAK POWER ENGINEERING, INC. 303-462-1100	MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002 G4 HS BASE CASE	600 MW WIND FARM AT FORT PECK BASE CASE	mts\g4\g4slcl1.drw c:\uwk\mts\g4\model\g4hs_lnbs. Rating = 1

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002

Percent Loading Summary -- using rating 1 - 100.0 percent of rating

----------from----------				---------- to ----------									rate	per cent	
--no.--	--name--	-kv-	-ar-	--no.--	--name--	-kv-	-ar-	ck	---mw---	-mvar-	-mva--	------	loading		
54611	RUTH LK8	69	54	54839	RUTH LK1	138	54	1	57.9	13.8	59.5	45.0M	132.3	T	
64026	CARSON	120	64	64027	CARSON T	120	64	1	-55.6	-6.6	56.0	216.5A	130.5	F	
55015	DOME EA9	14	54	55525	163ST2	240	54	T2	-57.3	-4.6	57.5	45.0M	128.6	T	
64194	DAYTON	120	64	64254	DAYTON	25	64	1	16.6	6.5	17.8	14.0M	127.5	F	
79026	FLAMGORG	138	73	79029	FLAMGORG	69	73	1	22.1	6.0	22.9	19.0M	120.4	F	
64099	SPAN SPG	120	64	64114	TRACY	120	64	1	-128.2	-2.8	128.2	514.8A	118.8	F	
64091	RENO	120	64	64263	RENO	25	64	1	50.3	20.5	54.3	46.7M	116.3	F	
70249	LAJUNTAW	115	70	70250	LAJUNTAW	69	70	1	26.2	12.4	29.0	25.0M	116.0	F	
64127	VAL ROAD	120	64	64274	VAL ROAD	25	64	1	50.2	20.3	54.2	46.7M	116.0	F	
64091	RENO	120	64	64263	RENO	25	64	2	50.2	20.3	54.2	46.7M	116.0	F	
64127	VAL ROAD	120	64	64274	VAL ROAD	25	64	2	47.8	19.3	51.6	46.7M	110.4	F	
64202	HAN CRTP	120	64	64203	TWN CRTP	120	64	1	74.2	19.8	76.8	356.0A	109.1	F	
64201	PINSN TP	120	64	64202	HAN CRTP	120	64	1	74.6	20.6	77.4	356.0A	109.1	F	
64200	REDHOUSE	120	64	64201	PINSN TP	120	64	1	75.9	23.6	79.5	356.0A	109.0	T	
64129	VALMY	120	64	64200	REDHOUSE	120	64	1	77.0	26.3	81.4	356.0A	108.6	T	
54234	CASTLE R	138	54	55972	CASTLE-1	25	54	1	-50.0	21.0	54.2	50.0M	108.4	F	
50459	KIT287	287	50	51075	KIT B5	13	50	5	80.3	24.1	83.8	79.0M	106.1	F	
54232	PANCAN 9	138	54	55386	EMPRESS9	25	54	T1	15.7	1.0	15.7	15.0M	104.7	F	
64114	TRACY	120	64	64118	TRACY G2	14	64	1	-82.5	-4.0	82.6	81.0M	104.0	T	
48319	PLEASANT	115	40	48355	RATHDRUM	115	40	1	-84.1	-16.2	85.6	430.8A	103.3	F	
43017	BEAVER	14	40	43021	BEAVER	230	40	1	356.8	44.1	359.6	348.0M	103.3	F	
54052	BLUERIDG	138	54	55281	BLUERDGE	14	54	T1	20.8	15.2	25.7	25.0M	102.9	F	
54154	E CALGAR	240	54	54189	ENMX2SD9	138	54	T1	234.1	-169.4	289.0	300.0M	102.8	T	
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	9A	155.0	-10.5	155.4	155.0M	101.9	T	
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	BC	155.0	-10.5	155.4	155.0M	101.9	T	
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	78	155.0	-10.5	155.4	155.0M	101.9	T	
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	56	155.0	-10.5	155.4	155.0M	101.9	T	
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	34	155.0	-10.5	155.4	155.0M	101.9	T	
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	DE	155.0	-10.5	155.4	155.0M	101.9	T	
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	12	155.0	-10.5	155.4	155.0M	101.9	T	
41304	COUGAR T	7	40	46211	COUGAR T	115	40	1	28.0	-8.7	29.3	30.0M	101.9	T	
46733	LAGRND5	14	40	46735	LGBK5	115	40	1	40.0	6.8	40.6	40.0M	101.4	F	

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V12.0
WESTERN SYSTEMS COORDINATING COUNCIL
2002 HS3A APPROVED OPERATING CASE

overvoltage summary > 1.100000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
54090	BICKERD4	240	1.1047	54153	BRAZEAU4	240	1.1053	54329	KEEPHIL4	240	1.1117
54524	GENESEE4	240	1.1086	54681	NEVIS 7	138	1.1101	54802	STURGEO9	138	1.1003
55969	770S701T	138	1.1052	51017	KMS230	230	1.1081	62012	TOWN2	500	1.1014
62013	TOWN1	500	1.1014								

overvoltage summary > 1.050000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
54012	FOX CREE	138	1.0510	54013	KAYBOB 9	138	1.0517	54014	GULF RO9	138	1.0592
54021	WESGEN 7	138	1.0507	54050	RBCUPIL7	138	1.0507	54054	LAMOURE4	240	1.0795
54073	IPPL ST9	138	1.0575	54077	BIGSTON4	240	1.0600	54078	CHEVRON7	138	1.0515
54081	METIS644	240	1.0853	54082	BICKERD7	138	1.0557	54090	BICKERD4	240	1.1047
54097	BIG HOR9	138	1.0817	54098	STRACHA9	138	1.0577	54103	DEERLAN4	240	1.0820
54121	ELLERSLI	240	1.0759	54125	SUNDANL9	138	1.0543	54126	WABAMUN4	240	1.0869
54128	SUNDANM9	240	1.0965	54129	E EDMON4	240	1.0709	54130	N CALDE4	240	1.0645
54131	N BARRH4	240	1.0836	54139	GAETZ 4	240	1.0597	54141	HIGHVAL9	138	1.0538
54142	WILLESD4	240	1.0961	54144	RED DEE4	240	1.0636	54147	BENALTO4	240	1.0767
54148	E CROSS4	240	1.0586	54150	LANGDON2	500	1.0533	54152	JANET 4	240	1.0533
54153	BRAZEAU4	240	1.1053	54157	PEIGAN 4	240	1.0748	54159	N LETHB4	240	1.0648
54184	SARCEE 7	138	1.0530	54195	RUNDLE S	138	1.0504	54223	WARE JCT	240	1.0511
54249	RP05103S	138	1.0669	54261	SPRAY S	138	1.0508	54269	COALSPU7	138	1.0609
54281	MILO 2	240	1.0605	54285	LEISMER9	240	1.0749	54287	GREGG R9	138	1.0701
54302	MARIONA9	138	1.0540	54325	CHEV KG9	138	1.0515	54326	COAL VA9	138	1.0582
54329	KEEPHIL4	240	1.1117	54335	W BROOK4	240	1.0550	54384	ENMX28S9	138	1.0523
54412	BENBOW 9	138	1.0518	54441	946/947X	240	1.0759	54444	SPRINGB9	138	1.0505
54505	JASPER 4	240	1.0658	54506	BELLAMY4	240	1.0757	54509	ARGYLL W	240	1.0758
54512	DOME T29	240	1.0764	54513	LAMBTON4	240	1.0705	54514	CLOVERB4	240	1.0694
54518	ARGYLL E	240	1.0760	54519	CASTLTX2	240	1.0705	54521	PETROLIA	240	1.0746
54524	GENESEE4	240	1.1086	54542	RBW LAK7	138	1.0505	54546	CHINCHA7	138	1.0575
54547	KEG RVR7	138	1.0561	54548	KEMP RV9	138	1.0578	54549	HOTCHKS7	138	1.0596
54552	CADOTTE9	138	1.0585	54553	NORCEN 9	138	1.0552	54554	LUBICON7	138	1.0582
54555	CRANBER9	138	1.0591	54558	WESLY C7	138	1.0791	54559	CARMON 9	138	1.0767
54560	PEACE/29	138	1.0753	54561	DIASHOW7	138	1.0736	54589	DOME CU7	138	1.0672
54593	DONNELL9	138	1.0669	54594	TAP7L487	138	1.0686	54595	TRIANGL7	138	1.0619
54596	VALLEYV9	138	1.0782	54600	L.SMOKY7	138	1.0848	54601	STURGEO7	138	1.0844
54606	SIMONET9	138	1.0846	54607	FOXCRK/2	138	1.0515	54608	GOOSE R9	138	1.0666
54612	RUTH LA7	138	1.0600	54613	RUTH LK7	138	1.0603	54618	PARS CR7	138	1.0508
54621	MITS E.4	240	1.0565	54622	MITS E.7	138	1.0892	54623	AEC MILL	138	1.0881
54624	OTAUWAU7	138	1.0890	54633	LOU CR.7	138	1.0570	54634	SARHLK/2	138	1.0511
54636	ESSO JU7	138	1.0519	54637	MORSE RV	138	1.0524	54639	VIRGINI9	138	1.0529
54643	WOLF LK9	138	1.0709	54646	MARG LK4	240	1.0740	54647	MARG LK7	138	1.0861
54648	LACOREY9	138	1.0683	54652	BONNY 9	138	1.0544	54654	BONN SVC	138	1.0544
54655	WHITFISH	240	1.0857	54675	PAINTRT7	240	1.0896	54680	NEVIS 4	240	1.0748
54681	NEVIS 7	138	1.1101	54685	3HILLS/3	138	1.0581	54691	MICH. C9	138	1.0735
54693	WINT HI9	138	1.0749	54694	BULLPON9	138	1.0750	54707	SHEER 14	240	1.0625
54709	ANDERSO4	240	1.0630	54710	ANDERSON	138	1.0850	54711	SHEER 24	240	1.0625
54715	BAT. RV7	138	1.0821	54721	BAT RV79	240	1.0926	54723	CORDEL 4	240	1.0926
54729	PRIM TAP	138	1.0652	54730	PRIMROSE	138	1.0712	54796	791S701T	138	1.0628
54802	STURGEO9	138	1.1003	54806	946/947N	240	1.0709	54809	732S901T	240	1.0667
54818	VERMILA9	138	1.0798	54822	766S901T	240	1.0628	54823	NEVIS 9	138	1.0878
54835	791S702T	138	1.0631	54836	MILNERB9	138	1.0779	54844	709S702T	138	1.0732
54847	BAT RV80	240	1.0926	54848	791S703T	138	1.0530	54962	KAYBOBTP	138	1.0517
54963	CANMORE9	138	1.0506	54978	EAST IN4	240	1.0705	54983	MARION T	138	1.0541
54984	HIGHVL T	138	1.0538	54988	CROSSF T	240	1.0586	54995	W.GRN TP	240	1.0962
55012	BASSET 7	138	1.0562	55013	HAIGRIVE	138	1.0572	55067	FTNELSON	138	1.0665
55072	SYNC_D04	240	1.0563	55073	AURORA 4	240	1.0619	55075	SEAL LK9	138	1.0643
55147	MILNERC9	138	1.0880	55226	WABASCA9	240	1.0532	55272	FIELDGA9	138	1.0513
55280	BRINTNEL	240	1.0504	55515	PRIMROSE	138	1.0565	55763	BC BORDE	138	1.0627
55891	904AL TP	240	1.0705	55894	SARCEE M	138	1.0512	55912	740L JNC	138	1.0609
55913	G.ROBB T	138	1.0600	55924	CH KGT T	138	1.0515	55943	MILO 1	240	1.0605
55969	770S701T	138	1.1052	50010	COM132	132	1.0725	50020	CMS230	230	1.0500
50036	RBW230	230	1.0549	50037	PEM230	230	1.0586	50038	RBW230-1	230	1.0534
50182	ARN132	132	1.0822	50185	ALZ230	230	1.0521	50186	ROS230	230	1.0620
50187	BRT230	230	1.0698	50188	BUT230	230	1.0500	50193	BRT360	360	1.0500
50313	VIT132	132	1.0518	50314	PVO133	132	1.0507	50315	PVO132	132	1.0512
50323	DMR132	132	1.0557	50330	LDR132	132	1.0504	50331	GLD132	132	1.0518
50334	KGH132	132	1.0529	50335	UTA132	132	1.0531	50342	SCA132	132	1.0500
50343	KSH132-2	132	1.0501	50346	SHA2	132	1.0504	50347	GOW132	132	1.0518
50348	GTP132	132	1.0553	50349	CLD132	132	1.0571	50350	SOO132	132	1.0577
50351	JOR132	132	1.0614	50352	PML132	132	1.0518	50353	WOS132	132	1.0536
50354	GLSTP17	132	1.0562	50355	GLSTP18	132	1.0548	50356	DND132	132	1.0521
50391	KSHTP14	132	1.0504	50394	SHATP14	132	1.0504	50395	SALTP17	132	1.0547
50396	SALTP18	132	1.0549	50447	TKW138	138	1.0535	50463	SKA500	500	1.0632
50464	TKW500	500	1.0688	50540	GMS230	230	1.0548	50541	KDS230	230	1.0544

50545	BLW230	230	1.0657	50546	SCK230	230	1.0598	50547	HMH230	230	1.0581
50548	BLM230	230	1.0587	50549	QNT230	230	1.0579	50550	QRP230	230	1.0653
50551	TLR230	230	1.0585	50553	BCR230	230	1.0585	50554	RBF230	230	1.0665
50556	LAP230	230	1.0569	50557	SNK230	230	1.0589	50558	GMS500	500	1.0500
50560	KDS500	500	1.0620	50561	WSN500	500	1.0502	50562	GLN500	500	1.0681
50653	NIC138	138	1.0529	50655	VVW138	138	1.0510	50656	SVA138	138	1.0521
50659	BDM138	138	1.0513	50660	WGS138	138	1.0610	50661	MON138	138	1.0582
50672	BKL138	138	1.0520	50679	BLU138	138	1.0539	50680	VLM138	138	1.0591
50686	SCO138	138	1.0679	50687	ABA138	138	1.0586	50691	NIC230	230	1.0502
50700	MCA500	500	1.0500	50701	REV500	500	1.0500	50729	PRI138TP	138	1.0678
50776	NTL138	138	1.0539	50783	SEL230	230	1.0589	50785	SEV230	230	1.0580
50792	SEL500	500	1.0500	50899	ABA138TP	138	1.0586	50902	BDM138TP	138	1.0513
50922	DNDTAP	132	1.0529	50923	HSY-PH	132	1.0556	50924	ESQ-PH	132	1.0521
50928	SCG IPP	132	1.0684	50934	JULTP130	132	1.0529	51017	KMS230	230	1.1081
51045	ALH230	230	1.0578	60085	BRIDGER	345	1.0500	60240	MIDPOINT	500	1.0687
62012	TOWN2	500	1.1014	62013	TOWN1	500	1.1014	62033	ANA BPA	115	1.0568
62046	BROADVU	500	1.0783	62053	BROADV&2	500	1.0737	62054	BROADV&1	500	1.0745
62057	COLSTRP	500	1.0800	40045	ALLSTON	500	1.0726	40051	ALVEY	500	1.0801
40061	ASHE	500	1.0800	40091	BELL BPA	500	1.0665	40111	BIG EDDY	500	1.0768
43049	BOARD F	500	1.0840	40139	BONNVILE	115	1.0500	47013	BRIDGPRT	115	1.0540
40155	BUCKLEY	500	1.0780	45029	BURNS	500	1.0552	45035	CAPTJACK	500	1.0772
46209	CARMEN	115	1.0621	41311	CELILO1	500	1.0767	41312	CELILO2	500	1.0767
40233	CHIEF JO	500	1.0800	40287	COULEE	500	1.0810	40302	COVINGT4	500	1.0754
40306	COVINGT5	500	1.0759	43115	COYO M1	500	1.0557	43123	COYOTE	500	1.0848
45095	DIXONVLE	500	1.0806	40369	DWORSHAK	500	1.0749	40381	ECHOLAKE	500	1.0786
40451	GAR1EAST	500	1.0938	40453	GAR2EAST	500	1.0938	40459	GARRISON	500	1.0778
40485	GREEN PT	115	1.0520	40489	GRIZZLY	500	1.0747	40499	HANFORD	500	1.0816
40521	HATWAI	500	1.0720	45137	HERMIST	230	1.0509	41212	HILLS CR	115	1.0500
40553	HOT SPR	500	1.0778	40585	JOHN DAY	500	1.0850	40601	KEELER	500	1.0823
45262	KFALLS	500	1.0799	40629	LANE	500	1.0733	40665	LIT GOOS	500	1.0800
40679	LOW GRAN	500	1.0800	40683	LOW MON	500	1.0800	40687	MALIN	500	1.0758
40693	MAPLE VL	500	1.0776	40699	MARION	500	1.0809	40711	MCLOUGLN	500	1.0700
40721	MCNARY	345	1.0510	40723	MCNARY	500	1.0800	45197	MERIDINP	500	1.0785
40749	MONROE	500	1.0797	40797	OLYMPIA	500	1.0791	40809	OSTRNDER	500	1.0723
40821	PAUL	500	1.0800	40827	PEARL	500	1.0789	40837	PONDROSA	500	1.0798
40869	RAVER	500	1.0797	43485	ROUND BU	500	1.0713	40913	SACJAWEA	500	1.0755
40917	SACJWA T	500	1.0768	40941	SANTIAM	500	1.0802	40949	SATSOP	500	1.0799
40957	SCHULTZ	500	1.0843	40973	SICKLER	500	1.0795	40989	SLATT	500	1.0812
41043	SUMMER L	500	1.0785	45289	SWIFT	230	1.0500	41051	TACOMA	500	1.0794
41057	TAFT	500	1.0867	41095	TROUTDAL	500	1.0646	41113	VANTAGE	500	1.0749
45337	WEED JPS	115	1.0507	47099	WELLS	115	1.0630	66225	PINTO	345	1.0511
66235	PINTO PS	345	1.0501	52226	PRI138	138	1.0679	52229	KER138	138	1.0714
52230	HED138	138	1.0704	52426	MAS138	138	1.0703	52815	PRI-T2	138	1.0686

undervoltage summary < 0.900000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)

undervoltage summary < 0.950000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
50781	NTL VR	138	0.9499	48069	CHESTER	115	0.9447	48165	IRVIN	115	0.9489
48310	OPORTUNE	115	0.9494	48299	OPPORTUN	115	0.9468	48306	OTIS	230	0.9384
70249	LAJUNTAW	115	0.9285	64072	MEYERS	120	0.9484	64092	RND HILL	120	0.9466
64102	STATELIN	120	0.9457	64203	TWN CRTP	120	0.9452				

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V12.0
WESTERN SYSTEMS COORDINATING COUNCIL
2002 HS3A APPROVED OPERATING CASE

		generation capacity	generation on-line	--- load categories ---- power	current	imped.	shunt	-- svd --	net inter	losses	slack bus
area name		ALBERTA									
	mw	10743.6	7862.7	7899.2	0.0	0.0	0.0	0.0	-399.4	363.0	59.3
54	mvar	4916.5	857.1	2641.0	0.0	0.0	-22.5	-1851.9	-37.0	127.6	11.7
area name		B.C.HYDRO									
	mw	14693.0	10251.1	6889.1	0.0	0.0	0.0	0.0	2850.1	511.8	197.5
50	mvar	6719.0	925.9	2565.8	0.0	0.0	2957.8	2143.6	-276.4	-6464.9	9.1
area name		IDAHO									
	mw	4676.4	4111.5	2984.0	0.0	0.0	0.0	0.0	919.9	207.6	144.1
60	mvar	2192.5	457.6	711.6	0.0	0.0	-595.5	0.0	-311.2	652.6	0.1
area name		MONTANA									
	mw	3502.2	2908.3	1422.9	0.0	0.0	0.3	0.0	1367.7	117.4	696.3
62	mvar	1309.0	313.5	610.2	0.0	0.0	-122.0	-90.5	-448.3	364.1	109.1
area name		NORTHWEST									
	mw	43502.3	27331.8	22671.3	0.0	0.0	0.0	0.0	3513.9	1146.6	664.7
40	mvar	15475.0	3752.3	6850.3	0.0	0.0	-1855.3	-4060.1	1035.8	1781.6	35.3
area name		PACE									
	mw	6212.0	5584.9	6293.7	0.0	0.0	0.0	0.0	-981.2	272.3	163.9
65	mvar	3201.9	755.6	1960.1	0.0	0.0	-1762.6	-48.6	36.6	569.9	32.1
area name		PSCOLORADO									
	mw	5806.0	5191.5	6332.7	0.0	0.0	0.0	0.0	-1332.4	191.1	112.5
70	mvar	3667.3	1771.8	2372.6	0.0	0.0	0.0	-1672.0	285.5	785.7	33.2
area name		SIERRA									
	mw	1901.7	1375.4	1719.1	0.0	0.0	0.0	0.0	-399.9	56.2	109.4
64	mvar	925.4	126.5	458.7	0.0	0.0	-188.1	69.0	57.3	-270.4	24.2
area name		W KOOTENAY									
	mw	763.5	596.5	722.4	0.0	0.0	0.0	0.0	-150.5	24.7	104.6
52	mvar	450.0	100.1	210.2	0.0	0.0	-77.8	-130.7	-8.1	106.5	25.3
area name		WAPA R.M.									
	mw	6091.6	5379.5	3608.3	0.0	0.0	0.0	0.0	1611.9	159.3	497.1
73	mvar	2883.8	217.9	1237.0	0.0	0.0	-296.1	-271.8	-388.5	-62.7	58.0
area name		WAPA U.M.									
	mw	61.8	55.5	-102.1	0.0	0.0	0.0	0.0	146.9	10.7	55.5
63	mvar	34.0	4.8	123.6	0.0	0.0	-79.0	-15.8	-28.2	4.2	4.8
TOTL	mw	97954.1	70648.6	60440.6	0.0	0.0	0.3	0.0	7147.1	3060.6	
	mvar	41774.4	9282.9	19741.2	0.0	0.0	-2041.1	-5929.0	-82.5	-2405.6	

Area Interchange Summary

		mw	mvar
FROM AREA	54 ALBERTA		
TO AREA	50 B.C.HYDRO	-399.4	-37.0
TOTAL		-399.4	-37.0

		mw	mvar
FROM AREA	50 B.C.HYDRO		

```
  TO AREA   54 ALBERTA                          399.4       37.0
  TO AREA   40 NORTHWEST                       2300.2     -321.6
  TO AREA   52 W KOOTENAY                       150.5        8.1
  TOTAL                                        2850.1     -276.4

FROM AREA   60 IDAHO                             mw        mvar
  TO AREA   40 NORTHWEST                        -56.8     -295.4
  TO AREA   65 PACE                             843.9       36.2
  TO AREA   64 SIERRA                           132.8      -52.0
  TOTAL                                         919.9     -311.2

FROM AREA   62 MONTANA                           mw        mvar
  TO AREA   40 NORTHWEST                       1118.8     -362.7
  TO AREA   65 PACE                             239.2      -88.3
  TO AREA   63 WAPA U.M.                          9.7        2.8
  TOTAL                                        1367.7     -448.3

FROM AREA   40 NORTHWEST                         mw        mvar
  TO AREA   50 B.C.HYDRO                      -2300.2      321.6
  TO AREA   60 IDAHO                             56.8      295.4
  TO AREA   26 LADWP                           2806.7      607.1
  TO AREA   62 MONTANA                        -1118.8      362.7
  TO AREA   30 PG AND E                        3884.1     -501.7
  TO AREA   64 SIERRA                           185.3      -49.3
  TOTAL                                        3513.9     1035.8

FROM AREA   65 PACE                              mw        mvar
  TO AREA   14 ARIZONA                          -37.5       92.9
  TO AREA   60 IDAHO                           -843.9      -36.2
  TO AREA   26 LADWP                            -27.7     -168.6
  TO AREA   62 MONTANA                         -239.2       88.3
  TO AREA   18 NEVADA                           251.8      -58.1
  TO AREA   64 SIERRA                            36.2       13.4
  TO AREA   19 WAPA L.C.                         42.0       31.7
  TO AREA   73 WAPA R.M.                       -162.9       73.2
  TOTAL                                        -981.2       36.6

FROM AREA   70 PSCOLORADO                        mw        mvar
  TO AREA   73 WAPA R.M.                      -1332.4      285.5
  TOTAL                                       -1332.4      285.5

FROM AREA   64 SIERRA                            mw        mvar
  TO AREA   60 IDAHO                           -132.8       52.0
  TO AREA   26 LADWP                            -51.3        1.5
  TO AREA   40 NORTHWEST                       -185.3       49.3
  TO AREA   65 PACE                             -36.2      -13.4
  TO AREA   30 PG AND E                          -7.7      -29.1
  TO AREA   24 SOCALIF                           13.4       -2.9
  TOTAL                                        -399.9       57.3

FROM AREA   52 W KOOTENAY                        mw        mvar
  TO AREA   50 B.C.HYDRO                       -150.5       -8.1
  TOTAL                                        -150.5       -8.1

FROM AREA   73 WAPA R.M.                         mw        mvar
  TO AREA   10 NEW MEXICO                       186.5      -27.2
  TO AREA   65 PACE                             162.9      -73.2
  TO AREA   70 PSCOLORADO                      1332.4     -285.5
  TO AREA   19 WAPA L.C.                         86.8      -28.1
  TO AREA   63 WAPA U.M.                       -156.6       25.4
  TOTAL                                        1611.9     -388.5
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		mw	mvar
FROM AREA	63 WAPA U.M.		
TO AREA	62 MONTANA	-9.7	-2.8
TO AREA	73 WAPA R.M.	156.6	-25.4
TOTAL		146.9	-28.2

AREA TIE LINE SUMMARY

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V12.0
WESTERN SYSTEMS COORDINATING COUNCIL
2002 HS3A APPROVED OPERATING CASE

---------from--------			--------- to --------					---mw----	---mvar--	meter
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck				
54150	LANGDON2	500	50791	CBK500	500	1		-359.38	-36.30	f
54205	COLEMAN7	138	50776	NTL138	138	1		-14.09	-8.93	t
54273	POCATER7	138	50830	FRO T274	138	1		-25.95	8.19	t
from area 54 to area 50 B.C.HYDRO								-399.42	-37.04	
Total from area 54 ALBERTA								-399.42	-37.04	

---------from--------			--------- to --------					---mw----	---mvar--	meter
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck				
62004	ANACOND	230	40457	GARRISON	230	1		-196.40	-5.63	f
62004	ANACOND	230	40457	GARRISON	230	2		-212.29	-15.45	f
62009	RATTLE S	161	40867	RATTLE S	230	1		-122.28	-32.74	t
62012	TOWN2	500	40453	GAR2EAST	500	2		796.40	-152.91	t
62013	TOWN1	500	40451	GAR1EAST	500	1		796.40	-152.91	t
62066	KERR	115	40391	ELMO	115	1		5.85	-15.09	f
62072	OVANDO	230	40457	GARRISON	230	1		-39.03	23.15	t
62072	OVANDO	230	40551	HOT SPR	230	1		33.20	13.65	t
62085	CROWCR B	115	48055	BURKAVAB	115	1		25.37	-12.00	t
62086	THOMSON	115	48053	BURKAVAA	115	1		31.63	-12.79	t
from area 62 to area 40 NORTHWEST								1118.84	-362.73	
62030	PTRSNFLT	230	65025	AMPS	230	1		210.53	-50.02	t
62045	BLGS PHA	230	66750	YELOWTLP	230	1		-42.51	5.04	t
62061	RMRK PHA	161	66755	YELOWTLP	161	1		-22.35	-2.61	f
62084	DILLON S	161	65155	BIGGRASS	161	1		93.49	-40.75	t
from area 62 to area 65 PACE								239.16	-88.34	
62023	GT FALLS	161	63008	HAVRE	161	1		14.01	-12.26	f
62024	RAINBOW	161	63015	VERONA	161	1		12.92	-12.05	f
62027	SHELBY	115	63014	TIBERTAP	115	1		0.19	-2.50	f
62051	HARDIN	230	63002	CRSOVRUM	230	1		137.96	8.14	t
62056	HUNTLEY	230	63002	CRSOVRUM	230	1		-155.40	21.46	t
from area 62 to area 63 WAPA U.M.								9.68	2.79	
Total from area 62 MONTANA								1367.68	-448.28	

---------from--------			--------- to --------					---mw----	---mvar--	meter
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck				
40145	BOUNDARY	230	50822	NLYPHS	230	1		-306.33	-0.42	f
40323	CUSTER W	500	50194	ING500	500	1		-1005.27	161.80	t
40323	CUSTER W	500	50194	ING500	500	2		-988.60	160.18	t
from area 40 to area 50 B.C.HYDRO								-2300.20	321.56	
45029	BURNS	500	60240	MIDPOINT	500	1		-239.39	368.00	t
45103	ENTERPRS	230	60150	HELLSCYN	230	1		25.68	-34.46	f
40507	HARNEY	115	61826	HINES	115	1		-13.43	15.60	f
40621	LAGRANDE	230	60192	LADD	230	1		68.93	-28.95	f
48197	LOLO	230	60278	IMNAHA	230	1		215.04	-24.83	t
from area 40 to area 60 IDAHO								56.83	295.37	
41311	CELILO1	500	26097	SYLMAR1	230	1		529.60	58.88	f
41313	CELILO3	230	26098	SYLMAR3	230	1		873.73	244.48	f
41312	CELILO2	500	26099	SYLMAR2	230	1		529.60	58.81	f
41314	CELILO4	230	26100	SYLMAR4	230	1		873.73	244.92	f
from area 40 to area 26 LADWP								2806.66	607.09	
48053	BURKAVAA	115	62086	THOMSON	115	1		-31.63	12.79	f
48055	BURKAVAB	115	62085	CROWCR B	115	1		-25.37	12.00	f
40391	ELMO	115	62066	KERR	115	1		-5.85	15.09	t
40451	GAR1EAST	500	62013	TOWN1	500	1		-796.40	152.91	f
40453	GAR2EAST	500	62012	TOWN2	500	2		-796.40	152.91	f
40457	GARRISON	230	62072	OVANDO	230	1		39.03	-23.15	f
40457	GARRISON	230	62004	ANACOND	230	1		196.40	5.63	t
40457	GARRISON	230	62004	ANACOND	230	2		212.29	15.45	t
40551	HOT SPR	230	62072	OVANDO	230	1		-33.20	-13.65	f
40867	RATTLE S	230	62009	RATTLE S	161	1		122.28	32.74	f
from area 40 to area 62 MONTANA								-1118.84	362.73	
45035	CAPTJACK	500	30020	OLINDA	500	1		1373.16	-223.88	f
45087	DELTA	115	31468	CASCADE	115	1		71.53	-15.41	f

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   40687 MALIN     500        30005 ROUND MT  500  1            1214.33   -122.22   f
   40687 MALIN     500        30005 ROUND MT  500  2            1225.10   -140.17   f
from area  40 to area  30 PG AND E                              3884.11   -501.68

   40537 HIL TOP   230        64058 HIL TOP   345  1             185.34    -49.27   f
from area  40 to area  64 SIERRA                                 185.34    -49.27

Total from area  40 NORTHWEST                                   3513.89   1035.81

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   66235 PINTO PS  345        14101 FOURCORN  345  1             -37.50     92.91   t
from area  65 to area  14 ARIZONA                                -37.50     92.91

   65075 ANTLOPE   230        60073 BRADY     230  1             103.66    -38.16   f
   65135 BENLOMND  345        60060 BORAH     345  1            -344.66     18.24   t
   65220 BRIDGER   230        60085 BRIDGER   345  1             -41.56     -8.45   t
   65220 BRIDGER   230        60085 BRIDGER   345  2             -42.24     -8.57   t
   65220 BRIDGER   230        60085 BRIDGER   345  3             -41.56     -8.45   t
   65665 GOSHEN    345        60085 BRIDGER   345  1            -593.41    -56.31   f
   65665 GOSHEN    345        60190 KINPORT   345  1             221.69     27.34   t
   65670 GOSHEN    161        60030 BLACKFT   161  1             100.67     11.42   f
   65920 MALAD     138        60020 AMFLS     138  1             -66.06      2.40   t
   66565 TREASTON  230        60073 BRADY     230  1            -140.43     24.37   t
from area  65 to area  60 IDAHO                                 -843.90    -36.18

   65995 MONA      345        26043 INTERMT   345  1             -13.85    -84.32   f
   65995 MONA      345        26043 INTERMT   345  2             -13.85    -84.32   f
from area  65 to area  26 LADWP                                  -27.71   -168.65

   65025 AMPS      230        62030 PTRSNFLT  230  1            -210.53     50.02   f
   65155 BIGGRASS  161        62084 DILLON S  161  1             -93.49     40.75   f
   66750 YELOWTLP  230        62045 BLGS PHA  230  1              42.51     -5.04   f
   66755 YELOWTLP  161        62061 RMRK PHA  161  1              22.35      2.61   t
from area  65 to area  62 MONTANA                               -239.16     88.34

   66280 REDBUTTE  345        18002 HA PS     345  1             251.84    -58.11   f
from area  65 to area  18 NEVADA                                 251.84    -58.11

   66210 PAVANT    230        64124 UTAH-NEV  230  1              36.17     13.41   t
from area  65 to area  64 SIERRA                                  36.17     13.41

   66355 SIGURDPS  230        79031 GLENCANY  230  1              41.97     31.68   t
from area  65 to area  19 WAPA L.C.                               41.97     31.68

   65060 ANT MINE  230        73276 TEKLA     230  1              30.13     18.58   f
   65085 ASHLEY    138        79067 VERNAL    138  1             -80.81      5.97   t
   65192 BONANZA   138        79067 VERNAL    138  1              49.69      6.29   t
   65193 BONANZA   345        79005 BEARS     345  1            -351.43      0.36   f
   65305 CASPERPP  115        73167 REFNRYTP  115  1             -35.74     -4.03   f
   65305 CASPERPP  115        73042 CASPERLM  115  1              -4.99     -5.24   t
   65420 DAVEJOHN  230        73107 LAR.RIVR  230  1              87.72    -19.04   f
   65420 DAVEJOHN  230        73190 STEGALL   230  1              96.56    -14.22   f
   65425 DAVEJOHN  115        73070 GLENRCKN  115  1              73.50      2.46   f
   65425 DAVEJOHN  115        73071 GLENRCKS  115  1              85.03      6.33   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  1             -45.92      5.94   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  2             -45.92      5.94   f
   66278 RANGELY   138        79001 ARTESIA   138  1              -6.99     -5.16   f
   66278 RANGELY   138        79046 MEEKER    138  1              -7.98     -0.75   f
   66305 RIVERTON  230        73170 RIVERTON  115  1               6.22     10.15   f
   66535 THERMOPL  230        73197 THERMOPL  115  1               0.84      8.85   t
   66540 THERPACE  115        73197 THERMOPL  115  1              11.47      9.05   t
   66720 WORLAND   115        73222 WORLANTP  115  1             -12.52      9.03   t
   66725 WYODAK    230        73148 OSAGE     230  1             121.55    -16.48   t
   66725 WYODAK    230        73168 RENO      230  1              91.00      6.36   f
   66725 WYODAK    230        73294 HUGHES    230  1             116.77     -1.57   f
   66725 WYODAK    230        73282 WYODAK     69  1             -10.63     15.21   f
   66725 WYODAK    230        73282 WYODAK     69  2              -7.19     10.28   f
   66725 WYODAK    230        74016 WYGEN      14  1               0.00      0.00   f
   66750 YELOWTLP  230        73229 YELLOWBR  230  1            -323.22     18.92   t
from area  65 to area  73 WAPA R.M.                             -162.88     73.22

Total from area  65 PACE                                        -981.16     36.63

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   70005 BRUSHCPP  115        73013 B.CK PS   115  1             118.30     23.01   f
   70005 BRUSHCPP  115        73013 B.CK PS   115  2             124.81     30.01   f
   70116 COBBLAKE  115        73044 COBBLKTP  115  1             -15.34     -1.44   f
   70122 COMANCHE  230        73477 FULLER    230  1              95.49     31.36   t
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70139	DANIELPK	230	73477	FULLER	230	1	-115.06	-18.30	t
70193	FTN VALL	115	73412	MIDWAYBR	115	1	4.47	-0.15	t
70205	GRANDJCT	230	79036	GRANDJCT	345	1	-46.91	-23.06	f
70256	LAPORTPS	115	73105	LAPORTE	115	1	-14.74	-6.25	t
70274	MALTA	230	73138	MT.ELBRT	230	1	-145.52	-6.88	f
70285	MIDWAYPS	115	73412	MIDWAYBR	115	1	18.43	-22.63	f
70286	MIDWAYPS	230	73413	MIDWAYBR	230	1	132.07	79.33	t
70287	MILL	115	73296	FRASER	115	1	-41.68	9.51	f
70308	PALMER	115	73414	MONUMENT	115	1	-47.42	17.72	t
70311	PAWNEE	230	73192	STORY	230	1	-228.76	-30.81	t
70327	PONCHA	115	79037	GUNNISON	115	1	-23.83	10.86	f
70350	RAWHIDE	24	73165	RAWHIDE	230	1	262.16	80.95	t
70358	RIFLE PS	230	79059	RIFLE WA	230	1	-90.98	11.09	f
70358	RIFLE PS	230	79250	AMATLAS	230	1	-75.90	-3.66	f
70375	SAN LUIS	230	79054	PONCHABR	230	1	-80.57	6.69	t
70410	ST.VRAIN	230	73116	LONGPEAK	230	1	-51.99	66.34	f
70470	WELD PS	115	73211	WELD LM	115	1	-20.39	61.43	f
70471	WELD PS	230	73212	WELD LM	230	1	-369.21	1.17	f
70474	WINDSOR	230	73011	AULT	230	1	-307.19	1.38	t
70476	WOODLAND	115	73400	EMIL AND	115	1	14.70	2.51	f
70525	MTHARRIS	138	79038	HAYDEN	138	1	-7.21	-1.37	t
79033	GOREPASS	230	79039	HAYDEN	230	1	-250.97	-22.33	t
79033	GOREPASS	230	73072	GOREPASS	138	1	2.66	3.44	f
79034	GRANDJCT	115	79048	MONTROSE	115	1	22.95	-4.66	t
79056	RIFLE CU	138	79046	MEEKER	138	1	-18.96	-2.19	f
79057	RIFLE CU	230	79059	RIFLE WA	230	1	9.38	-24.09	t
79058	RIFLE CU	345	79014	CRAIG	345	1	-336.13	-1.45	f
79058	RIFLE CU	345	79036	GRANDJCT	345	1	306.73	-2.71	f
79091	WOLCOTTP	230	79039	HAYDEN	230	1	-183.00	0.02	f
79173	COLBRAN	115	79174	MOLINA-L	115	1	-0.00	-0.53	f
70351	RAWHIDEA	14	73165	RAWHIDE	230	1	50.81	40.24	t
70550	W CANON	115	73551	W CANON	230	1	-23.57	-19.05	t

from area 70 to area 73 WAPA R.M. -1332.36 285.47

Total from area 70 PSCOLORADO -1332.36 285.47

---------from--------			--------- to --------						
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck	---mw----	---mvar--	meter
79060	SANJN PS	345	10292	SAN_JUAN	345	1	186.46	-27.16	t

from area 73 to area 10 NEW MEXICO 186.46 -27.16

73042	CASPERLM	115	65305	CASPERPP	115	1	4.99	5.24	f
73070	GLENRCKN	115	65425	DAVEJOHN	115	1	-73.50	-2.46	t
73071	GLENRCKS	115	65425	DAVEJOHN	115	1	-85.03	-6.33	t
73107	LAR.RIVR	230	65420	DAVEJOHN	230	1	-87.72	19.04	t
73148	OSAGE	230	66725	WYODAK	230	1	-121.55	16.48	f
73167	REFNRYTP	115	65305	CASPERPP	115	1	35.74	4.03	t
73168	RENO	230	66725	WYODAK	230	1	-91.00	-6.36	t
73170	RIVERTON	115	66305	RIVERTON	230	1	-6.22	-10.15	t
73190	STEGALL	230	65420	DAVEJOHN	230	1	-96.56	14.22	t
73197	THERMOPL	115	66540	THERPACE	115	1	-11.47	-9.05	f
73197	THERMOPL	115	66535	THERMOPL	230	1	-0.84	-8.85	f
73222	WORLANTP	115	66720	WORLAND	115	1	12.52	-9.03	f
73229	YELLOWBR	230	66750	YELOWTLP	230	1	323.22	-18.92	f
73276	TEKLA	230	65060	ANT MINE	230	1	-30.13	-18.58	t
73282	WYODAK	69	66725	WYODAK	230	1	10.63	-15.21	t
73282	WYODAK	69	66725	WYODAK	230	2	7.19	-10.28	t
73294	HUGHES	230	66725	WYODAK	230	1	-116.77	1.57	t
79001	ARTESIA	138	66278	RANGELY	138	1	6.99	5.16	t
79005	BEARS	345	65193	BONANZA	345	1	351.43	-0.36	t
79026	FLAMGORG	138	65565	FLAMGORG	230	1	45.92	-5.94	t
79026	FLAMGORG	138	65565	FLAMGORG	230	2	45.92	-5.94	t
79046	MEEKER	138	66278	RANGELY	138	1	7.98	0.75	t
79067	VERNAL	138	65085	ASHLEY	138	1	80.81	-5.97	f
79067	VERNAL	138	65192	BONANZA	138	1	-49.69	-6.29	f
74016	WYGEN	14	66725	WYODAK	230	1	0.00	0.00	t

from area 73 to area 65 PACE 162.88 -73.22

73011	AULT	230	70474	WINDSOR	230	1	307.19	-1.38	f
73013	B.CK PS	115	70005	BRUSHCPP	115	1	-118.30	-23.01	t
73013	B.CK PS	115	70005	BRUSHCPP	115	2	-124.81	-30.01	t
73044	COBBLKTP	115	70116	COBBLAKE	115	1	15.34	1.44	t
73072	GOREPASS	138	79033	GOREPASS	230	1	-2.66	-3.44	t
73105	LAPORTE	115	70256	LAPORTPS	115	1	14.74	6.25	f
73116	LONGPEAK	230	70410	ST.VRAIN	230	1	51.99	-66.34	t
73138	MT.ELBRT	230	70274	MALTA	230	1	145.52	6.88	t
73165	RAWHIDE	230	70350	RAWHIDE	24	1	-262.16	-80.95	f
73165	RAWHIDE	230	70351	RAWHIDEA	14	1	-50.81	-40.24	f
73192	STORY	230	70311	PAWNEE	230	1	228.76	30.81	f
73211	WELD LM	115	70470	WELD PS	115	1	20.39	-61.43	t
73212	WELD LM	230	70471	WELD PS	230	1	369.21	-1.17	t

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   73296 FRASER    115        70287 MILL      115  1             41.68     -9.51   t
   73400 EMIL AND  115        70476 WOODLAND  115  1            -14.70     -2.51   t
   73412 MIDWAYBR  115        70193 FTN VALL  115  1             -4.47      0.15   f
   73412 MIDWAYBR  115        70285 MIDWAYPS  115  1            -18.43     22.63   t
   73413 MIDWAYBR  230        70286 MIDWAYPS  230  1           -132.07    -79.33   f
   73414 MONUMENT  115        70308 PALMER    115  1             47.42    -17.72   f
   73477 FULLER    230        70122 COMANCHE  230  1            -95.49    -31.36   f
   73477 FULLER    230        70139 DANIELPK  230  1            115.06     18.30   f
   79014 CRAIG     345        79058 RIFLE CU  345  1            336.13      1.45   t
   79036 GRANDJCT  345        79058 RIFLE CU  345  1           -306.73      2.71   t
   79036 GRANDJCT  345        70205 GRANDJCT  230  1             46.91     23.06   t
   79037 GUNNISON  115        70327 PONCHA    115  1             23.83    -10.86   t
   79038 HAYDEN    138        70525 MTHARRIS  138  1              7.21      1.37   f
   79039 HAYDEN    230        79033 GOREPASS  230  1            250.97     22.33   f
   79039 HAYDEN    230        79091 WOLCOTTP  230  1            183.00     -0.02   t
   79046 MEEKER    138        79056 RIFLE CU  138  1             18.96      2.19   t
   79048 MONTROSE  115        79034 GRANDJCT  115  1            -22.95      4.66   f
   79054 PONCHABR  230        70375 SAN LUIS  230  1             80.57     -6.69   f
   79059 RIFLE WA  230        70358 RIFLE PS  230  1             90.98    -11.09   t
   79059 RIFLE WA  230        79057 RIFLE CU  230  1             -9.38     24.09   f
   79174 MOLINA-L  115        79173 COLBRAN   115  1              0.00      0.53   t
   79250 AMATLAS   230        70358 RIFLE PS  230  1             75.90      3.66   t
   73551 W CANON   230        70550 W CANON   115  1             23.57     19.05   f
from area  73 to area  70 PSCOLORADO                           1332.36   -285.47

   79061 SHIP PS   230        79063 SHIPROCK  230  1             87.43    -14.92   t
   79260 ELPASOTP  115        79105 GLADETAP  115  1             -0.61    -13.17   t
from area  73 to area  19 WAPA L.C.                              86.82    -28.08

   73229 YELLOWBR  230        63001 CROS PHA  230  1           -156.57     25.41   f
from area  73 to area  63 WAPA U.M.                            -156.57     25.41

Total from area  73 WAPA R.M.                                  1611.95   -388.52

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   63002 CRSOVRUM  230        62051 HARDIN    230  1           -137.96     -8.14   f
   63002 CRSOVRUM  230        62056 HUNTLEY   230  1            155.40    -21.46   f
   63008 HAVRE     161        62023 GT FALLS  161  1            -14.01     12.26   t
   63014 TIBERTAP  115        62027 SHELBY    115  1             -0.19      2.50   t
   63015 VERONA    161        62024 RAINBOW   161  1            -12.92     12.05   t
from area  63 to area  62 MONTANA                                -9.68     -2.79

   63001 CROS PHA  230        73229 YELLOWBR  230  1            156.57    -25.41   t
from area  63 to area  73 WAPA R.M.                             156.57    -25.41

Total from area  63 WAPA U.M.                                   146.89    -28.20
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MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Summation of selected system

	-----MW----	----MVAR---		
Generation	70648.648	9117.936	Generators	2564
Actual Load	60440.602	19741.215	Loads	6813
Net actual shunt	0.321	-2041.117	Shunts	1297
Net actual svd	0.000	-5930.230	Svd	585
Loss	3060.728	-2569.394	Buses	13183
			Lines	10961
			Transformers	5140
MVA-miles	6287675.5	972363.3	DC buses	6
Miles	46985.316		DC converters	10
			DC lines	3

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Area 54 [ALBERTA]

	-----MW----	----MVAR---		
Generation	7862.734	857.197	Generators	142
Actual Load	7899.199	2641.000	Loads	512
Net actual shunt	0.000	-22.487	Shunts	9
Net actual svd	0.000	-1851.936	Svd	76
Net Interchange	-399.428	-37.039	Buses	991
Sched Interchange	-400.000		Lines	781
Loss	362.961	127.660	Transformers	406
MVA-miles	1111698.0	226120.4	DC buses	0
Miles	18637.697		DC converters	0
			DC lines	0
Loss at 13.20 Kv	1.733	25.322		
Loss at 13.80 Kv	3.367	88.111		
Loss at 14.40 Kv	0.019	2.275		
Loss at 25.00 Kv	1.931	27.273		
Loss at 34.00 Kv	0.053	0.877		
Loss at 69.00 Kv	18.964	-3.364		
Loss at 138.00 Kv	151.490	-263.415		
Loss at 240.00 Kv	167.689	-572.756		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	17.714	823.337		
Largest mismatch MVA	0.0121	0.1179		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Area 50 [B.C.HYDRO]

	-----MW----	----MVAR---		
Generation	10251.102	925.883	Generators	112
Actual Load	6889.125	2565.790	Loads	395
Net actual shunt	0.000	2957.812	Shunts	104
Net actual svd	0.000	2143.605	Svd	125
Net Interchange	2850.135	-276.386	Buses	1054
Sched Interchange	2849.900		Lines	718
Loss	511.839	-6464.939	Transformers	645
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.307	7.922		
Loss at 13.80 Kv	10.057	491.737		
Loss at 34.00 Kv	0.000	0.002		
Loss at 46.00 Kv	0.302	0.084		
Loss at 132.00 Kv	36.981	105.857		
Loss at 138.00 Kv	15.076	-120.952		
Loss at 230.00 Kv	53.123	-614.115		
Loss at 500.00 Kv	338.766	-7000.631		
Loss at other Kv	57.226	665.161		
Largest mismatch MVA	0.0312	0.0351		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Area 60 [IDAHO]

	-----MW----	----MVAR---

Generation	4111.463	457.600	Generators	62
Actual Load	2984.000	711.600	Loads	64
Net actual shunt	0.000	-595.478	Shunts	15
Net actual svd	0.000	0.000	Svd	0
Net Interchange	919.864	-311.091	Buses	156
Sched Interchange	920.000		Lines	120
Loss	207.600	652.570	Transformers	96
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.272	5.839		
Loss at 13.80 Kv	3.375	116.064		
Loss at 14.40 Kv	0.878	34.174		
Loss at 34.50 Kv	0.000	0.000		
Loss at 100.00 Kv	0.590	27.429		
Loss at 115.00 Kv	0.438	0.380		
Loss at 138.00 Kv	19.680	-4.774		
Loss at 161.00 Kv	1.800	2.733		
Loss at 230.00 Kv	72.395	-34.598		
Loss at 345.00 Kv	102.916	335.740		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	5.255	169.583		
Largest mismatch MVA	0.0024	0.0082		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Area 62 [MONTANA]

	-----MW----	----MVAR---		
Generation	2908.334	146.846	Generators	22
Actual Load	1422.895	610.184	Loads	200
Net actual shunt	0.321	-121.986	Shunts	56
Net actual svd	0.000	-90.512	Svd	11
Net Interchange	1367.597	-450.856	Buses	310
Sched Interchange	1368.000		Lines	317
Loss	117.521	200.016	Transformers	89
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	0.000	36.356		
Loss at 69.00 Kv	0.538	2.554		
Loss at 100.00 Kv	15.820	-45.784		
Loss at 115.00 Kv	2.234	-18.339		
Loss at 161.00 Kv	30.178	-13.233		
Loss at 230.00 Kv	24.146	-80.848		
Loss at 500.00 Kv	43.958	143.897		
Loss at other Kv	0.648	175.413		
Largest mismatch MVA	0.0045	0.0081		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Area 40 [NORTHWEST]

	-----MW----	----MVAR---		
Generation	27331.773	3752.767	Generators	383
Actual Load	22671.295	6850.328	Loads	1652
Net actual shunt	0.000	-1855.398	Shunts	43
Net actual svd	0.000	-4060.109	Svd	159
Net Interchange	3513.902	1036.054	Buses	2740
Sched Interchange	3514.000		Lines	2710
Loss	1146.586	1781.908	Transformers	654
MVA-miles	4582896.5	611580.2	DC buses	4
Miles	18469.418		DC converters	4
			DC lines	2
Loss at 11.00 Kv	-0.000	0.606		
Loss at 13.20 Kv	0.000	4.928		
Loss at 13.80 Kv	4.807	207.596		
Loss at 14.40 Kv	0.284	13.035		
Loss at 25.00 Kv	3.168	165.818		
Loss at 34.50 Kv	0.345	6.193		
Loss at 69.00 Kv	14.912	42.575		
Loss at 100.00 Kv	0.121	-0.183		
Loss at 115.00 Kv	218.081	502.353		
Loss at 230.00 Kv	338.233	1624.930		
Loss at 345.00 Kv	16.041	-175.694		

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Loss at 500.00 Kv         425.745    -1920.996
Loss at other Kv          124.848     1310.747

Largest mismatch MVA       0.0286       0.0790

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Area  65 [PACE                           ]

                      -----MW----  ----MVAR---
Generation               5584.900      755.788        Generators           52
Actual Load              6293.716     1960.150        Loads               274
Net actual shunt            0.000    -1762.570        Shunts               74
Net actual svd              0.000      -48.571        Svd                   2
Net Interchange          -981.147       36.871        Buses               564
Sched Interchange        -981.200                     Lines               407
Loss                      272.334      569.904        Transformers        337

MVA-miles                     5.0          1.6        DC buses              0
Miles                       1.900                     DC converters         0
                                                      DC lines              0
Loss at  13.80 Kv           0.868       28.077
Loss at  34.50 Kv           0.990        7.429
Loss at  46.00 Kv           6.339      137.414
Loss at  69.00 Kv           1.672       22.771
Loss at 100.00 Kv           0.056        1.037
Loss at 115.00 Kv           3.001       -9.332
Loss at 138.00 Kv          71.155      198.499
Loss at 161.00 Kv          15.087        2.871
Loss at 230.00 Kv          80.593       61.975
Loss at 345.00 Kv          88.501       20.527
Loss at other Kv            4.074       98.636

Largest mismatch MVA       0.0031       0.0248

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Area  70 [PSCOLORADO                     ]

                      -----MW----  ----MVAR---
Generation               5191.508     1771.750        Generators           66
Actual Load              6332.696     2372.604        Loads               362
Net actual shunt            0.000        0.000        Shunts                0
Net actual svd              0.000    -1672.031        Svd                  43
Net Interchange         -1332.337      285.456        Buses               500
Sched Interchange       -1332.800                     Lines               461
Loss                      191.144      785.742        Transformers        147

MVA-miles                 30598.7       6263.1        DC buses              0
Miles                     564.500                     DC converters         0
                                                      DC lines              0
Loss at  13.80 Kv           4.007      136.179
Loss at  14.40 Kv           0.080        0.798
Loss at  25.00 Kv           0.010        0.140
Loss at  46.00 Kv           0.196        0.009
Loss at  69.00 Kv           7.173        1.660
Loss at 100.00 Kv           0.032       -0.501
Loss at 115.00 Kv          33.096      -37.718
Loss at 138.00 Kv           0.225       -5.718
Loss at 230.00 Kv         138.902      449.863
Loss at 345.00 Kv           0.002        0.112
Loss at other Kv            7.423      240.917

Largest mismatch MVA       0.0243       0.0264

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Area  64 [SIERRA                         ]

                      -----MW----  ----MVAR---
Generation               1375.351      126.528        Generators           22
Actual Load              1719.091      458.744        Loads               121
Net actual shunt            0.000     -188.116        Shunts               30
Net actual svd              0.000       68.967        Svd                   5
Net Interchange          -399.899       57.299        Buses               275
Sched Interchange        -399.000                     Lines               197
Loss                       56.159     -270.358        Transformers        117

MVA-miles                 66649.6      38456.5        DC buses              0
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Miles	1042.600		DC converters	0
			DC lines	0
Loss at 13.80 Kv	2.542	51.449		
Loss at 69.00 Kv	0.000	0.000		
Loss at 115.00 Kv	0.479	-6.145		
Loss at 230.00 Kv	1.908	-99.624		
Loss at 345.00 Kv	9.075	-441.238		
Loss at other Kv	42.154	225.200		
Largest mismatch MVA	0.0067	0.0424		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Area 52 [W KOOTENAY]

	-----MW----	----MVAR---		
Generation	596.550	100.091	Generators	20
Actual Load	722.400	210.200	Loads	64
Net actual shunt	0.000	-77.820	Shunts	27
Net actual svd	0.000	-130.690	Svd	4
Net Interchange	-150.510	-8.137	Buses	260
Sched Interchange	-149.900		Lines	165
Loss	24.660	106.536	Transformers	117
MVA-miles	30835.6	4863.4	DC buses	0
Miles	986.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.000	8.258		
Loss at 13.80 Kv	0.000	0.000		
Loss at 14.40 Kv	0.000	29.986		
Loss at 25.00 Kv	0.000	0.000		
Loss at 138.00 Kv	0.396	-0.490		
Loss at 161.00 Kv	9.043	11.279		
Loss at 230.00 Kv	1.525	-8.685		
Loss at other Kv	13.696	66.188		
Largest mismatch MVA	0.0008	0.0060		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Area 73 [WAPA R.M.]

	-----MW----	----MVAR---		
Generation	5379.477	218.708	Generators	80
Actual Load	3608.290	1237.018	Loads	355
Net actual shunt	0.000	-296.124	Shunts	4
Net actual svd	0.000	-271.844	Svd	53
Net Interchange	1611.933	-387.598	Buses	620
Sched Interchange	1612.000		Lines	567
Loss	159.255	-62.738	Transformers	174
MVA-miles	464992.6	85078.0	DC buses	0
Miles	7283.200		DC converters	0
			DC lines	0
Loss at 13.80 Kv	6.221	91.895		
Loss at 34.50 Kv	0.315	4.024		
Loss at 69.00 Kv	5.364	-11.099		
Loss at 115.00 Kv	64.437	-116.586		
Loss at 138.00 Kv	4.687	-30.251		
Loss at 230.00 Kv	36.118	-278.216		
Loss at 345.00 Kv	34.875	-45.982		
Loss at other Kv	7.239	323.477		
Largest mismatch MVA	0.0228	0.0342		

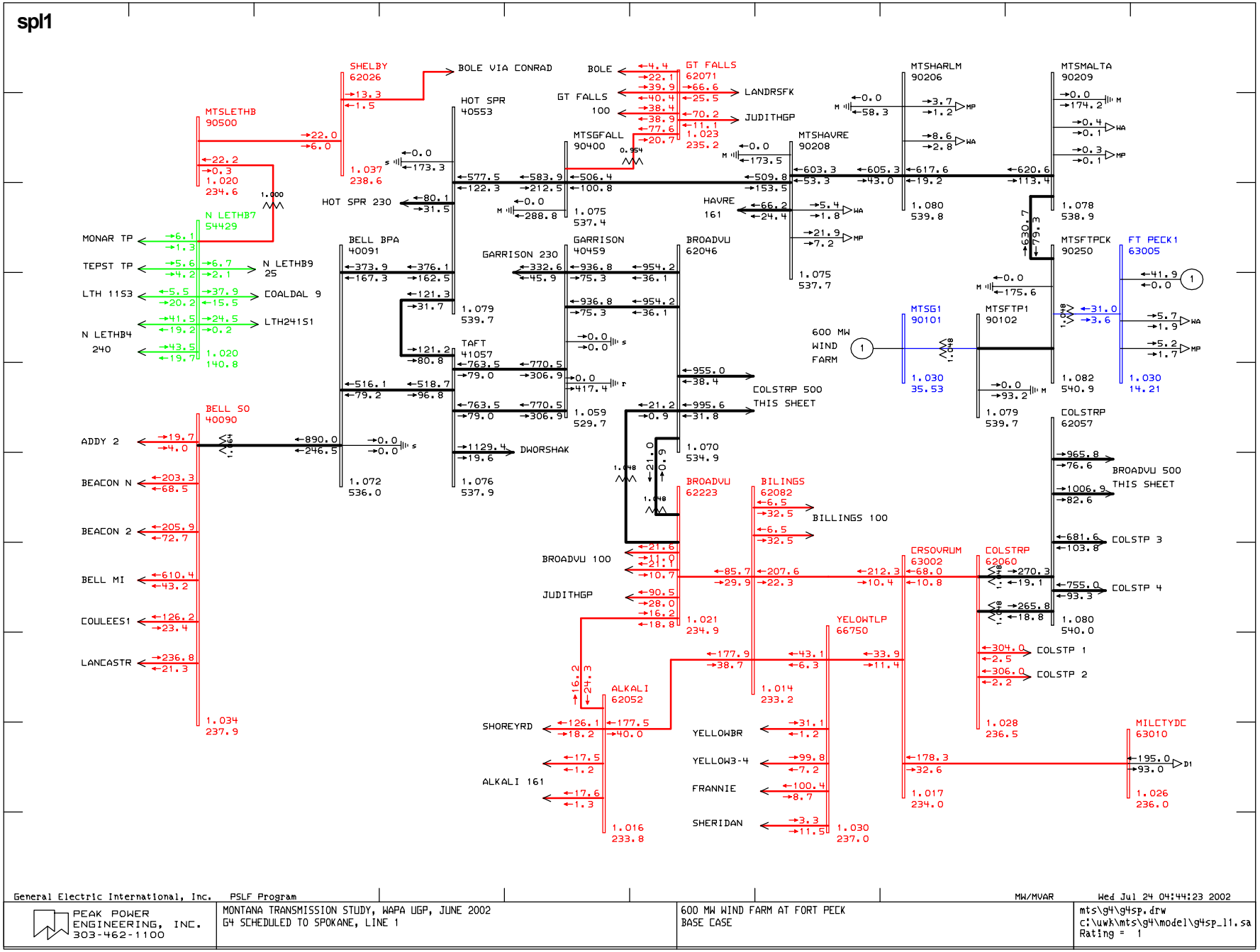
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G1

Area 63 [WAPA U.M.]

	-----MW----	----MVAR---		
Generation	55.454	4.779	Generators	1
Actual Load	-102.100	123.600	Loads	17
Net actual shunt	0.000	-78.951	Shunts	1
Net actual svd	0.000	-17.109	Svd	4
Net Interchange	146.885	-27.065	Buses	15
Sched Interchange	147.000		Lines	12
Loss	10.669	4.305	Transformers	3
MVA-miles	0.0	0.0	DC buses	0

Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	0.219	6.218		
Loss at 115.00 Kv	0.025	-7.077		
Loss at 161.00 Kv	0.926	-47.969		
Loss at 230.00 Kv	9.498	53.134		
Largest mismatch MVA	0.0001	0.0010		

B.3 **spl1**



General Electric International, Inc. PSLF Program MW/MVAR Wed Jul 24 04:44:23 2002

PEAK POWER ENGINEERING, INC. 303-462-1100

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

600 MW WIND FARM AT FORT PECK
BASE CASE

mts\g4\g4sp.drw
c:\uwk\mts\g4\model\g4sp_l1.sa
Rating = 1

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Percent Loading Summary -- using rating 1 - 100.0 percent of rating

----------from----------				---------- to ----------									rate	per cent
--no.--	--name--	-kv-	-ar-	--no.--	--name--	-kv-	-ar-	ck	---mw---	-mvar-	-mva--	------	loading	
54083	E EDMON9	138	54	55938	STEL TAP	138	54	22	197.9	1.5	197.9	468.6A	170.0	F
54503	STELCOA9	138	54	55938	STEL TAP	138	54	22	-197.3	-0.1	197.3	497.9A	159.8	F
55015	DOME EA9	14	54	55525	163ST2	240	54	T2	-66.0	-5.3	66.2	45.0M	148.3	T
54506	BELLAMY4	240	54	54518	ARGYLL E	240	54	04	81.2	84.3	117.1	240.6A	134.1	T
54062	BARDO 7	138	54	54065	N HOLDE9	138	54	74	82.4	-52.7	97.8	355.6A	112.1	F
54154	E CALGAR	240	54	54161	SARCEE 4	240	54	16	-90.6	365.5	376.5	801.1A	110.8	T
54681	NEVIS 7	138	54	54823	NEVIS 9	138	54	1	33.3	15.7	36.8	33.3M	110.5	F
50459	KIT287	287	50	51075	KIT B5	13	50	5	80.3	23.6	83.7	79.0M	106.0	F
54290	BALZAC G	138	54	55290	BALZAC 1	14	54	T1	107.1	13.1	107.9	105.0M	102.8	F
54079	MILLAR 7	138	54	55102	MILLARA9	14	54	T2	55.6	29.0	62.7	62.5M	100.4	F
62047	COLSTP 4	26	62	62057	COLSTRP	500	62	1	755.0	158.2	771.4	770.0M	100.2	F

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Processing file c:\uwk\mts\g4\rvoltls_lnbs.out
Processing file c:\uwk\mts\g4\rvoltspl1.out

Compvolt found the following for comparisons:
     475 Voltage Violations read from c:\uwk\mts\g4\rvoltls_lnbs.out
     485 Voltage Violations read from c:\uwk\mts\g4\rvoltspl1.out


**** VOLTS:  NEW ****
Component                   w/o Prj         w/ Prj  Rating

**** VOLTS: WORSE ****
Component             w/o Prj  w/ Prj  Rating

**** VOLTS: BETTER ****
Component             w/o Prj  w/ Prj  Rating

**** VOLTS:  AWAY ****
Component             w/o Prj      w/ Prj          Rating
40887 RINGOLD   115   1.0500  0.95 <= pu <= 1.05   1.00 pu kV
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GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

overvoltage summary > 1.100000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
54054	LAMOURE4	240	1.1045	54081	METIS644	240	1.1100	54090	BICKERD4	240	1.1204
54103	DEERLAN4	240	1.1028	54121	ELLERSLI	240	1.1123	54126	WABAMUN4	240	1.1072
54128	SUNDANM9	240	1.1079	54129	E EDMON4	240	1.1083	54130	N CALDE4	240	1.1055
54131	N BARRH4	240	1.1049	54150	LANGDON2	500	1.1252	54329	KEEPHIL4	240	1.1222
54441	946/947X	240	1.1123	54505	JASPER 4	240	1.1077	54506	BELLAMY4	240	1.1212
54509	ARGYLL W	240	1.1206	54512	DOME T29	240	1.1119	54513	LAMBTON4	240	1.1089
54514	CLOVERB4	240	1.1050	54518	ARGYLL E	240	1.1201	54519	CASTLTX2	240	1.1045
54521	PETROLIA	240	1.1139	54524	GENESEE4	240	1.1210	54675	PAINTRT7	240	1.1005
54681	NEVIS 7	138	1.1093	54806	946/947N	240	1.1083	54844	709S702T	138	1.1082
54978	EAST IN4	240	1.1084	55891	904AL TP	240	1.1084	55969	770S701T	138	1.1078
51017	KMS230	230	1.1059								

overvoltage summary > 1.050000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
90102	MTSFTP1	500	1.0793	90202	MTSFTP2	500	1.0793	90302	MTSFTP3	500	1.0793
90402	MTSFTP4	500	1.0793	90502	MTSFTP5	500	1.0793	90602	MTSFTP6	500	1.0793
90250	MTSFTPCK	500	1.0819	90206	MTSHARLM	500	1.0795	90208	MTSHAVRE	500	1.0754
90209	MTSMALTA	500	1.0778	90211	MTSRICHC	500	1.0829	90400	MTSGFALL	500	1.0747
54003	COLINTO9	138	1.0522	54007	BOYLE 9	138	1.0564	54012	FOX CREE	138	1.0666
54013	KAYBOB 9	138	1.0716	54014	GULF RO9	138	1.0818	54015	MTN COA9	138	1.0653
54016	FLATBUS9	138	1.0541	54017	COLD CR7	138	1.0665	54019	WESGEN T	138	1.0531
54020	EDSON A9	138	1.0624	54021	WESGEN 7	138	1.0556	54054	LAMOURE4	240	1.1045
54069	JARROW 9	138	1.0527	54073	IPPL ST9	138	1.0577	54076	BUFFALO9	138	1.0530
54077	BIGSTON4	240	1.0948	54078	CHEVRON7	138	1.0716	54081	METIS644	240	1.1100
54082	BICKERD7	138	1.0718	54090	BICKERD4	240	1.1204	54097	BIG HOR9	138	1.0675
54103	DEERLAN4	240	1.1028	54111	SANDHIL7	138	1.0619	54121	ELLERSLI	240	1.1123
54125	SUNDANL9	138	1.0654	54126	WABAMUN4	240	1.1072	54128	SUNDANM9	240	1.1079
54129	E EDMON4	240	1.1083	54130	N CALDE4	240	1.1055	54131	N BARRH4	240	1.1049
54134	DALEHUR9	138	1.0655	54139	GAETZ 4	240	1.0750	54141	HIGHVAL9	138	1.0652
54142	WILLESD4	240	1.0882	54144	RED DEE4	240	1.0670	54147	BENALTO4	240	1.0665
54148	E CROSS4	240	1.0573	54150	LANGDON2	500	1.1252	54153	BRAZEAU4	240	1.0977
54155	SAGITAW4	240	1.0591	54157	PEIGAN 4	240	1.0692	54159	N LETHB4	240	1.0835
54200	848S901T	240	1.0730	54223	WARE JCT	240	1.0500	54232	PANCAN 9	138	1.0617
54233	DOME EM7	138	1.0619	54258	PLAMOND9	138	1.0551	54259	LAC LA 9	138	1.0987
54260	WINEFRE9	138	1.0956	54269	COALSPU7	138	1.0845	54281	MILO 2	240	1.0679
54285	LEISMER9	240	1.0823	54287	GREGG R9	138	1.0959	54298	ALB NEWS	240	1.0501
54302	MARIONA9	138	1.0652	54308	FLATLK-3	138	1.0558	54325	CHEV KG9	138	1.0716
54326	COAL VA9	138	1.0834	54329	KEEPHIL4	240	1.1222	54335	W BROOK4	240	1.0592
54362	EDGERTO7	138	1.0523	54381	FLATLK-1	138	1.0558	54412	BENBOW 9	138	1.0716
54441	946/947X	240	1.1123	54505	JASPER 4	240	1.1077	54506	BELLAMY4	240	1.1212
54509	ARGYLL W	240	1.1206	54512	DOME T29	240	1.1119	54513	LAMBTON4	240	1.1089
54514	CLOVERB4	240	1.1050	54518	ARGYLL E	240	1.1201	54519	CASTLTX2	240	1.1045
54521	PETROLIA	240	1.1139	54524	GENESEE4	240	1.1210	54557	WESLY C4	240	1.0613
54558	WESLY C7	138	1.0650	54559	CARMON 9	138	1.0630	54560	PEACE/29	138	1.0622
54561	DIASHOW7	138	1.0623	54567	FRIEDEN7	138	1.0536	54571	MERCER 9	138	1.0734
54572	MERC TAP	138	1.0738	54576	CRYST L7	138	1.0749	54578	SADHL TP	138	1.0598
54579	SADDLE 9	138	1.0529	54580	FLYSHT/2	138	1.0630	54581	WAP JCT7	138	1.0513
54584	ALBRIGHT	138	1.0569	54585	P&G 7	138	1.0570	54588	BIG MTN7	138	1.0614
54589	DOME CU7	138	1.0736	54590	BRDGE C7	138	1.0619	54593	DONNELL9	138	1.0661

54594	TAP7L487	138	1.0689	54595	TRIANGL7	138	1.0645	54596	VALLEYV9	138	1.0777
54598	BEZANSON	138	1.0756	54599	L. SMOKY	240	1.0644	54600	L.SMOKY7	138	1.0840
54601	STURGEO7	138	1.0837	54606	SIMONET9	138	1.0843	54607	FOXCRK/2	138	1.0643
54608	GOOSE R9	138	1.0661	54612	RUTH LA7	138	1.0925	54613	RUTH LK7	138	1.0929
54618	PARS CR7	138	1.0897	54619	HANGSTO9	138	1.0871	54621	MITS E.4	240	1.0747
54622	MITS E.7	138	1.0979	54623	AEC MILL	138	1.0970	54624	OTAUWAU7	138	1.0978
54632	LOU CR.4	240	1.0637	54633	LOU CR.7	138	1.0595	54634	SARHLK/2	138	1.0531
54636	ESSO JU7	138	1.0542	54637	MORSE RV	138	1.0547	54639	VIRGINI9	138	1.0521
54643	WOLF LK9	138	1.0694	54646	MARG LK4	240	1.0778	54647	MARG LK7	138	1.0825
54648	LACOREY9	138	1.0801	54649	ETHEL L7	138	1.0665	54652	BONNY 9	138	1.0830
54654	BONN SVC	138	1.0830	54655	WHITFISH	240	1.0949	54656	WHITBY 7	138	1.0832
54657	VILNA 9	138	1.0809	54663	IRISH C9	138	1.0603	54665	BUFALOTP	138	1.0530
54666	VERMILO7	138	1.0580	54670	HILL 9	138	1.0664	54675	PAINTRT7	240	1.1005
54680	NEVIS 4	240	1.0771	54681	NEVIS 7	138	1.1093	54685	3HILLS/3	138	1.0607
54691	MICH. C9	138	1.0993	54693	WINT HI9	138	1.0933	54694	BULLPON9	138	1.0873
54700	MCNEILL	138	1.0619	54707	SHEER 14	240	1.0552	54709	ANDERSO4	240	1.0555
54710	ANDERSON	138	1.0851	54711	SHEER 24	240	1.0543	54714	JAROW TP	138	1.0527
54715	BAT. RV7	138	1.0801	54721	BAT RV79	240	1.0983	54723	CORDEL 4	240	1.0983
54729	PRIM TAP	138	1.0646	54730	PRIMROSE	138	1.0707	54798	800S701T	138	1.0611
54802	STURGEO9	138	1.0860	54806	946/947N	240	1.1083	54809	732S901T	240	1.0752
54814	717S701T	138	1.0629	54818	VERMILA9	138	1.0786	54819	TER 70A9	138	1.0610
54822	766S901T	240	1.0618	54823	NEVIS 9	138	1.0740	54828	767S701T	138	1.0834
54836	MILNERB9	138	1.0720	54838	848S902T	240	1.0734	54840	732S902T	240	1.0517
54844	709S702T	138	1.1082	54847	BAT RV80	240	1.0983	54962	KAYBOBTP	138	1.0716
54978	EAST IN4	240	1.1084	54983	MARION T	138	1.0653	54984	HIGHVL T	138	1.0652
54988	CROSSF T	240	1.0573	54995	W.GRN TP	240	1.0882	55003	SANDYPT9	138	1.0618
55007	ALGAR-39	138	1.0918	55008	MARIANA7	138	1.0930	55072	SYNC_D04	240	1.0652
55073	AURORA 4	240	1.0698	55117	CLAIR L	138	1.0736	55118	POPLAR 7	138	1.0599
55147	MILNERC9	138	1.0825	55226	WABASCA9	240	1.0676	55260	EMP LIQ7	138	1.0601
55272	FIELDGA9	138	1.0534	55280	BRINTNEL	240	1.0628	55352	GRND CTR	138	1.0677
55367	VEGREVL9	138	1.0529	55515	PRIMROSE	138	1.0562	55820	FICKLE 9	138	1.0674
55891	904AL TP	240	1.1084	55909	DALEH TP	138	1.0655	55910	OBED TAP	138	1.0655
55911	EMPLIQTP	138	1.0607	55912	740L JNC	138	1.0845	55913	G.ROBB T	138	1.0825
55924	CH KGT T	138	1.0716	55943	MILO 1	240	1.0679	55969	770S701T	138	1.1078
50010	COM132	132	1.0509	50016	CKY230	230	1.0519	50020	CMS230	230	1.0500
50036	RBW230	230	1.0581	50037	PEM230	230	1.0612	50038	RBW230-1	230	1.0572
50182	ARN132	132	1.0666	50185	ALZ230	230	1.0602	50186	ROS230	230	1.0712
50187	BRT230	230	1.0682	50188	BUT230	230	1.0500	50190	CBN230	230	1.0522
50191	ROS360	360	1.0525	50192	WAH360	360	1.0530	50193	BRT360	360	1.0500
50313	VIT132	132	1.0701	50314	PVO133	132	1.0696	50315	PVO132	132	1.0700
50316	LDY132	132	1.0521	50318	JPT132	132	1.0712	50319	COC132	132	1.0677
50320	HMC132	132	1.0675	50321	PHY132	132	1.0563	50322	CFT132	132	1.0659
50323	DMR132	132	1.0834	50324	PAL132	132	1.0662	50325	GCL132	132	1.0678
50326	NFD132	132	1.0721	50327	ASH132	132	1.0715	50328	PUN132	132	1.0561
50330	LDR132	132	1.0500	50334	KGH132	132	1.0606	50335	UTA132	132	1.0609
50336	PVL132-2	132	1.0728	50337	LDY122	132	1.0709	50338	CMX132	132	1.0576
50339	PVL132	132	1.0728	50342	SCA132	132	1.0500	50343	KSH132-2	132	1.0729
50344	SHA1	132	1.0712	50345	KSH132	132	1.0723	50346	SHA2	132	1.0754
50347	GOW132	132	1.0859	50348	GTP132	132	1.0897	50349	CLD132	132	1.0937
50350	SOO132	132	1.0950	50351	JOR132	132	1.0987	50352	PML132	132	1.0589
50353	WOS132	132	1.0558	50354	GLSTP17	132	1.0745	50355	GLSTP18	132	1.0716
50356	DND132	132	1.0851	50357	LTZ115	132	1.0710	50358	LTZ116	132	1.0710
50359	JHT132	132	1.0500	50377	LDYTP138	132	1.0523	50381	PVLTP116	132	1.0728
50382	HWDTP122	132	1.0712	50383	LDYTP122	132	1.0709	50385	CMXTP102	132	1.0557
50386	CMXTP101	132	1.0595	50387	PVLTP115	132	1.0729	50390	KSHTP11	132	1.0725

50391	KSHTP14	132	1.0732	50393	SHATP10	132	1.0713	50394	SHATP14	132	1.0754
50395	SALTP17	132	1.0730	50396	SALTP18	132	1.0730	50399	LTZTP115	132	1.0710
50400	LTZTP116	132	1.0710	50403	CMX132-2	132	1.0541	50460	KMO287	287	1.0540
50463	SKA500	500	1.0500	50545	BLW230	230	1.0698	50546	SCK230	230	1.0652
50547	HMH230	230	1.0624	50548	BLM230	230	1.0525	50549	QNT230	230	1.0518
50550	QRP230	230	1.0695	50551	TLR230	230	1.0523	50553	BCR230	230	1.0523
50554	RBF230	230	1.0709	50556	LAP230	230	1.0501	50557	SNK230	230	1.0517
50560	KDS500	500	1.0561	50562	GLN500	500	1.0552	50677	MCK138	138	1.0527
50678	AVO138	138	1.0549	50679	BLU138	138	1.0618	50680	VLM138	138	1.0683
50686	SCO138	138	1.0679	50687	ABA138	138	1.0675	50701	REV500	500	1.0500
50729	PRI138TP	138	1.0678	50782	CBK230	230	1.0512	50783	SEL230	230	1.0539
50785	SEV230	230	1.0525	50786	INV230	230	1.0525	50789	AAL230	230	1.0517
50791	CBK500	500	1.0809	50792	SEL500	500	1.0500	50899	ABA138TP	138	1.0675
50913	HWD132-2	132	1.0690	50914	HWDTP112	132	1.0690	50922	DNDTAP	132	1.0857
50923	HSY-PH	132	1.0900	50924	ESQ-PH	132	1.0851	50928	SCG IPP	132	1.0500
50932	IPH132	132	1.0675	50933	JUL132	132	1.0575	50934	JULTP130	132	1.0606
51017	KMS230	230	1.1059	51019	OYR132B1	132	1.0539	51020	OYR132B2	132	1.0562
51021	OYR T101	132	1.0544	51022	OYR T119	132	1.0569	51024	QLC132B1	132	1.0753
51025	QLC132B2	132	1.0753	51040	ICG132	132	1.0500	51045	ALH230	230	1.0550
51051	PGS132	132	1.0695	51052	PGS-105T	132	1.0695	51053	PGS-114T	132	1.0695
60085	BRIDGER	345	1.0500	60240	MIDPOINT	500	1.0615	62012	TOWN2	500	1.0834
62013	TOWN1	500	1.0834	62046	BROADVU	500	1.0698	62053	BROADV&2	500	1.0624
62054	BROADV&1	500	1.0630	62057	COLSTRP	500	1.0800	40045	ALLSTON	500	1.0769
40051	ALVEY	500	1.0813	40061	ASHE	500	1.0800	41184	BALD MT	115	1.0514
40091	BELL BPA	500	1.0721	40111	BIG EDDY	500	1.0803	43049	BOARD F	500	1.0800
47013	BRIDGPRT	115	1.0533	40155	BUCKLEY	500	1.0829	45029	BURNS	500	1.0669
45035	CAPTJACK	500	1.0753	46209	CARMEN	115	1.0531	42315	CASCADEP	115	1.0581
41311	CELILO1	500	1.0801	41312	CELILO2	500	1.0801	40233	CHIEF JO	500	1.0800
42316	CLE ELUM	115	1.0584	40269	CONNEL T	115	1.0507	40271	CONNELL	115	1.0538
40287	COULEE	500	1.0810	40302	COVINGT4	500	1.0765	40306	COVINGT5	500	1.0770
43123	COYOTE	500	1.0832	40323	CUSTER W	500	1.0528	45095	DIXONVLE	500	1.0779
40369	DWORSHAK	500	1.0682	42395	EASTON	115	1.0599	40381	ECHOLAKE	500	1.0820
40451	GAR1EAST	500	1.0797	40453	GAR2EAST	500	1.0797	40459	GARRISON	500	1.0593
40485	GREEN PT	115	1.0520	40489	GRIZZLY	500	1.0722	40499	HANFORD	500	1.0870
47165	HANLY R1	115	1.0500	40517	HATTON T	115	1.0519	40521	HATWAI	500	1.0701
45137	HERMIST	230	1.0509	41212	HILLS CR	115	1.0500	40553	HOT SPR	500	1.0794
42405	HYAK	115	1.0608	40585	JOHN DAY	500	1.0800	40601	KEELER	500	1.0757
45262	KFALLS	500	1.0794	42411	KITTITAS	115	1.0607	40629	LANE	500	1.0691
40665	LIT GOOS	500	1.0805	40679	LOW GRAN	500	1.0800	40683	LOW MON	500	1.0800
40687	MALIN	500	1.0734	40693	MAPLE VL	500	1.0837	40699	MARION	500	1.0801
40711	MCLOUGLN	500	1.0799	40721	MCNARY	345	1.0513	40723	MCNARY	500	1.0813
45197	MERIDINP	500	1.0798	40749	MONROE	500	1.0780	42429	NCLE ELM	115	1.0581
40797	OLYMPIA	500	1.0798	40809	OSTRNDER	500	1.0793	40821	PAUL	500	1.0800
40827	PEARL	500	1.0796	40837	PONDROSA	500	1.0756	40869	RAVER	500	1.0802
43485	ROUND BU	500	1.0692	40913	SACJAWEA	500	1.0811	40917	SACJWA T	500	1.0815
40941	SANTIAM	500	1.0799	40949	SATSOP	500	1.0819	40957	SCHULTZ	500	1.0923
40973	SICKLER	500	1.0841	40989	SLATT	500	1.0824	41043	SUMMER L	500	1.0728
45289	SWIFT	230	1.0500	41051	TACOMA	500	1.0811	41057	TAFT	500	1.0759
41095	TROUTDAL	500	1.0823	41103	UNDRWOOD	115	1.0513	41113	VANTAGE	500	1.0903
47099	WELLS	115	1.0613	42467	WOLDALE	115	1.0595	42314	X-POINT	200	1.0595
65510	EMERY	345	1.0500	64004	ANACONDA	120	1.0503	64074	MILLERS	120	1.0577
64165	SQAW VLY	120	1.0606	64182	SANDIA	120	1.0576	64229	SUMMIT 2	115	1.0507
52226	PRI138	138	1.0687	52229	KER138	138	1.0757	52230	HED138	138	1.0736
52291	DKL138	138	1.0577	52300	LEE138T3	138	1.0575	52301	LEE138T4	138	1.0575
52302	LEE138C	138	1.0575	52303	JOR138TP	138	1.0571	52304	DGB138	138	1.0563

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GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
          MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
          G4 SCHEDULED TO SPOKANE, LINE 1

            52306 SEX138    138 1.0578    52307 GLE138    138 1.0579    52308 REC138    138 1.0582
            52309 SAU138    138 1.0566    52310 SPR138TP  138 1.0566    52313 HOL138    138 1.0566
            52314 OKM138    138 1.0559    52319 JOR138    138 1.0569    52426 MAS138    138 1.0736
            52809 LEE-T3    230 1.0583    52810 LEE-T4A   230 1.0576    52811 LEE-T4B   230 1.0593
            52812 LEE-T4C   230 1.0580    52813 LEE-T4D   230 1.0580    52815 PRI-T2    138 1.0720


               undervoltage summary < 0.900000
          --no.-- --name-- -kv- (v pu)  --no.-- --name-- -kv- (v pu)  --no.-- --name-- -kv- (v pu)



               undervoltage summary < 0.950000
          --no.-- --name-- -kv- (v pu)  --no.-- --name-- -kv- (v pu)  --no.-- --name-- -kv- (v pu)

            54551 RING CK7  138 0.9483    54796 791S701T  138 0.9196    54835 791S702T  138 0.9260
            50781 NTL VR    138 0.9401
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GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

	generation capacity	generation on-line	--- load categories ---- power	current	imped.	shunt	-- svd --	net inter	losses	slack bus
area name ALBERTA										
mw	10743.6	6887.0	6274.4	0.0	0.0	0.0	0.0	200.5	412.1	37.3
54 mvar	4941.5	856.4	1997.1	0.0	0.0	-21.7	-1162.7	-10.7	54.4	20.4
area name B.C.HYDRO										
mw	14043.0	8259.5	6035.1	0.0	0.0	0.0	0.0	1799.9	424.6	265.7
50 mvar	6475.0	278.5	2359.8	0.0	0.0	2922.0	2700.2	-377.7	-7325.8	1.9
area name IDAHO										
mw	4676.4	3193.7	1955.0	0.0	0.0	0.0	0.0	1066.0	172.7	178.4
60 mvar	2192.5	575.5	501.3	0.0	0.0	-96.6	0.0	-376.2	546.9	25.9
area name MONTANA										
mw	3502.2	3009.6	1207.7	0.0	0.0	0.4	0.0	1701.5	100.0	741.6
62 mvar	1309.0	397.7	524.8	0.0	0.0	-120.9	822.3	-877.6	455.1	187.3
area name NORTHWEST										
mw	43404.3	16902.1	16651.6	0.0	0.0	0.0	0.0	-346.9	597.4	587.5
40 mvar	15534.6	342.3	5157.0	0.0	0.0	-1727.7	2422.2	1465.4	-6974.5	-293.7
area name PACE										
mw	6242.0	5529.5	4750.0	0.0	0.0	0.0	0.0	590.2	189.3	78.5
65 mvar	3201.9	543.1	1528.0	0.0	0.0	-528.4	0.0	-168.7	-287.8	12.7
area name PSCOLORADO										
mw	5792.0	4234.7	4858.1	0.0	0.0	0.0	0.0	-744.6	121.2	102.7
70 mvar	3667.3	623.7	1835.0	0.0	0.0	0.0	-1397.6	50.7	135.6	3.9
area name SIERRA										
mw	1901.7	1069.5	1075.2	0.0	0.0	0.0	0.0	-36.0	30.4	99.5
64 mvar	925.4	-25.9	280.4	0.0	0.0	-158.4	74.0	18.1	-239.9	7.7
area name W KOOTENAY										
mw	763.5	498.0	486.1	0.0	0.0	0.0	0.0	0.5	11.4	98.0
52 mvar	450.0	4.6	160.7	0.0	0.0	-79.1	-71.9	-12.5	7.4	-4.6
area name WAPA R.M.										
mw	6091.6	3957.4	2784.2	0.0	0.0	0.0	0.0	1050.7	122.5	412.5
73 mvar	2883.8	-178.4	950.8	0.0	0.0	-299.3	-177.0	-208.8	-444.1	16.7

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G4 SCHEDULED TO SPOKANE, LINE 1

		generation capacity	generation on-line	load categories power	load categories current	load categories imped.	shunt	svd	inter	net losses	slack bus
area name		WAPA U.M.									
	mw	661.8	641.9	-120.2	0.0	0.0	0.0	0.0	741.1	21.0	41.9
63	mvar	154.0	34.3	117.5	0.0	0.0	-79.0	746.1	101.1	-1257.5	0.0
TOTL	mw	97822.1	54182.9	45957.1	0.0	0.0	0.4	0.0	6022.9	2202.6	
	mvar	41735.0	3451.9	15412.5	0.0	0.0	-189.1	3955.6	-396.9	-15330.2	

Area Interchange Summary

FROM AREA	54 ALBERTA	mw	mvar
TO AREA	50 B.C.HYDRO	178.4	-16.7
TO AREA	62 MONTANA	22.0	6.0
TOTAL		200.5	-10.7
FROM AREA	50 B.C.HYDRO	mw	mvar
TO AREA	54 ALBERTA	-178.4	16.7
TO AREA	40 NORTHWEST	1978.9	-406.8
TO AREA	52 W KOOTENAY	-0.5	12.5
TOTAL		1799.9	-377.7
FROM AREA	60 IDAHO	mw	mvar
TO AREA	40 NORTHWEST	968.5	-338.5
TO AREA	65 PACE	227.5	-18.7
TO AREA	64 SIERRA	-129.9	-19.0
TOTAL		1066.0	-376.2
FROM AREA	62 MONTANA	mw	mvar
TO AREA	54 ALBERTA	-22.0	-6.0
TO AREA	40 NORTHWEST	2373.9	-757.3
TO AREA	65 PACE	56.9	-8.7
TO AREA	63 WAPA U.M.	-707.3	-105.6
TOTAL		1701.5	-877.6
FROM AREA	40 NORTHWEST	mw	mvar
TO AREA	50 B.C.HYDRO	-1978.9	406.8
TO AREA	60 IDAHO	-968.5	338.5
TO AREA	26 LADWP	1956.0	411.8
TO AREA	62 MONTANA	-2373.9	757.3
TO AREA	30 PG AND E	2887.1	-428.9
TO AREA	64 SIERRA	131.2	-20.2
TOTAL		-346.9	1465.4
FROM AREA	65 PACE	mw	mvar
TO AREA	14 ARIZONA	273.7	35.0
TO AREA	60 IDAHO	-227.5	18.7
TO AREA	26 LADWP	66.9	-133.3
TO AREA	62 MONTANA	-56.9	8.7
TO AREA	18 NEVADA	158.1	-81.6
TO AREA	64 SIERRA	23.4	9.0
TO AREA	19 WAPA L.C.	178.5	-27.6
TO AREA	73 WAPA R.M.	173.8	2.4
TOTAL		590.2	-168.7
FROM AREA	70 PSCOLORADO	mw	mvar
TO AREA	73 WAPA R.M.	-744.6	50.7
TOTAL		-744.6	50.7
FROM AREA	64 SIERRA	mw	mvar
TO AREA	60 IDAHO	129.9	19.0
TO AREA	26 LADWP	-30.7	6.4
TO AREA	40 NORTHWEST	-131.2	20.2
TO AREA	65 PACE	-23.4	-9.0

TO AREA	30 PG AND E	7.8	-15.9
TO AREA	24 SOCALIF	11.6	-2.7
TOTAL		-36.0	18.1
FROM AREA	52 W KOOTENAY	mw	mvar
TO AREA	50 B.C.HYDRO	0.5	-12.5
TOTAL		0.5	-12.5
FROM AREA	73 WAPA R.M.	mw	mvar
TO AREA	10 NEW MEXICO	337.4	-95.1
TO AREA	65 PACE	-173.8	-2.4
TO AREA	70 PSCOLORADO	744.6	-50.7
TO AREA	19 WAPA L.C.	176.5	-65.2
TO AREA	63 WAPA U.M.	-33.8	4.5
TOTAL		1050.7	-208.8
FROM AREA	63 WAPA U.M.	mw	mvar
TO AREA	62 MONTANA	707.3	105.6
TO AREA	73 WAPA R.M.	33.8	-4.5
TOTAL		741.1	101.1

AREA TIE LINE SUMMARY

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

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  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    54150 LANGDON2  500        50791 CBK500    500  1             173.93      2.95   f
    54205 COLEMAN7  138        50776 NTL138    138  1               4.10    -18.26   t
    54273 POCATER7  138        50830 FRO T274  138  1               0.43     -1.38   t
 from area  54 to area  50 B.C.HYDRO                              178.45    -16.69

    90500 MTSLETHB  230        62026 SHELBY    230  1              22.03      6.01   t
 from area  54 to area  62 MONTANA                                 22.03      6.01

 Total from area  54 ALBERTA                                      200.48    -10.68

  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    62026 SHELBY    230        90500 MTSLETHB  230  1             -22.03     -6.01   f
 from area  62 to area  54 ALBERTA                                -22.03     -6.01

    90400 MTSGFALL  500        40553 HOT SPR   500  1             583.92   -212.49   f
    62004 ANACOND   230        40457 GARRISON  230  1             -88.95    -19.72   f
    62004 ANACOND   230        40457 GARRISON  230  2             -95.43    -25.40   f
    62009 RATTLE S  161        40867 RATTLE S  230  1             -69.49    -29.45   t
    62012 TOWN2     500        40453 GAR2EAST  500  2             936.76   -199.66   t
    62013 TOWN1     500        40451 GAR1EAST  500  1             936.76   -199.66   t
    62066 KERR      115        40391 ELMO      115  1              15.40    -22.10   f
    62072 OVANDO    230        40457 GARRISON  230  1             -35.96     -6.35   t
    62072 OVANDO    230        40551 HOT SPR   230  1              92.52     -4.13   t
    62085 CROWCR B  115        48055 BURKAVAB  115  1              48.12    -19.16   t
    62086 THOMSON   115        48053 BURKAVAA  115  1              50.25    -19.18   t
 from area  62 to area  40 NORTHWEST                             2373.91   -757.30

    62030 PTRSNFLT  230        65025 AMPS      230  1              89.79      5.22   t
    62045 BLGS PHA  230        66750 YELOWTLP  230  1             -43.06     -6.32   t
    62061 RMRK PHA  161        66755 YELOWTLP  161  1             -22.08     -6.08   f
    62084 DILLON S  161        65155 BIGGRASS  161  1              32.20     -1.49   t
 from area  62 to area  65 PACE                                    56.86     -8.67

    90400 MTSGFALL  500        90208 MTSHAVRE  500  1            -506.36   -100.79   f
    62023 GT FALLS  161        63008 HAVRE     161  1             -22.57    -15.48   f
    62024 RAINBOW   161        63015 VERONA    161  1             -19.50    -13.47   f
    62027 SHELBY    115        63014 TIBERTAP  115  1             -14.52      2.91   f
    62051 HARDIN    230        63002 CRSOVRUM  230  1              67.98     10.79   t
    62056 HUNTLEY   230        63002 CRSOVRUM  230  1            -212.32     10.42   t
 from area  62 to area  63 WAPA U.M.                             -707.28   -105.62

 Total from area  62 MONTANA                                    1701.46   -877.59

  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    40145 BOUNDARY  230        50822 NLYPHS    230  1            -169.24     -8.73   f
    40323 CUSTER W  500        50194 ING500    500  1            -912.41    209.01   t
    40323 CUSTER W  500        50194 ING500    500  2            -897.23    206.53   t
 from area  40 to area  50 B.C.HYDRO                            -1978.88    406.81

    45029 BURNS     500        60240 MIDPOINT  500  1           -1022.67    359.52   t
    45103 ENTERPRS  230        60150 HELLSCYN  230  1             -20.27    -13.05   f
    40507 HARNEY    115        61826 HINES     115  1             -16.41     11.00   f
    40621 LAGRANDE  230        60192 LADD      230  1               4.38    -10.03   f
    48197 LOLO      230        60278 IMNAHA    230  1              86.51     -8.94   t
 from area  40 to area  60 IDAHO                                 -968.46    338.50

    41311 CELILO1   500        26097 SYLMAR1   230  1             388.82     62.86   f
    41313 CELILO3   230        26098 SYLMAR3   230  1             589.18    143.00   f
    41312 CELILO2   500        26099 SYLMAR2   230  1             388.82     62.84   f
    41314 CELILO4   230        26100 SYLMAR4   230  1             589.18    143.13   f
 from area  40 to area  26 LADWP                                 1956.00    411.83

    48053 BURKAVAA  115        62086 THOMSON   115  1             -50.25     19.18   f
    48055 BURKAVAB  115        62085 CROWCR B  115  1             -48.12     19.16   f
    40391 ELMO      115        62066 KERR      115  1             -15.40     22.10   t
    40451 GAR1EAST  500        62013 TOWN1     500  1            -936.76    199.66   f
    40453 GAR2EAST  500        62012 TOWN2     500  2            -936.76    199.66   f
    40457 GARRISON  230        62072 OVANDO    230  1              35.96      6.35   f
    40457 GARRISON  230        62004 ANACOND   230  1              88.95     19.72   t
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   40457 GARRISON  230        62004 ANACOND   230  2             95.43     25.40   t
   40551 HOT SPR   230        62072 OVANDO    230  1            -92.52      4.13   f
   40553 HOT SPR   500        90400 MTSGFALL  500  1           -583.92    212.49   t
   40867 RATTLE S  230        62009 RATTLE S  161  1             69.49     29.45   f
from area  40 to area  62 MONTANA                              -2373.91    757.30

   45035 CAPTJACK  500        30020 OLINDA    500  1           1063.99   -146.12   f
   45087 DELTA     115        31468 CASCADE   115  1             70.84    -19.20   f
   40687 MALIN     500        30005 ROUND MT  500  1            872.53   -123.81   f
   40687 MALIN     500        30005 ROUND MT  500  2            879.75   -139.75   f
from area  40 to area  30 PG AND E                             2887.12   -428.88

   40537 HIL TOP   230        64058 HIL TOP   345  1            131.19    -20.21   f
from area  40 to area  64 SIERRA                                131.19    -20.21

Total from area  40 NORTHWEST                                  -346.94   1465.35

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   66235 PINTO PS  345        14101 FOURCORN  345  1            273.68     35.05   t
from area  65 to area  14 ARIZONA                               273.68     35.05

   65075 ANTLOPE   230        60073 BRADY     230  1             50.92    -24.05   f
   65135 BENLOMND  345        60060 BORAH     345  1            -13.34     95.71   t
   65220 BRIDGER   230        60085 BRIDGER   345  1             -6.19     -4.15   t
   65220 BRIDGER   230        60085 BRIDGER   345  2             -6.29     -4.21   t
   65220 BRIDGER   230        60085 BRIDGER   345  3             -6.19     -4.15   t
   65665 GOSHEN    345        60085 BRIDGER   345  1           -603.05    -59.18   f
   65665 GOSHEN    345        60190 KINPORT   345  1            315.89      1.95   t
   65670 GOSHEN    161        60030 BLACKFT   161  1             83.67     -2.56   f
   65920 MALAD     138        60020 AMFLS     138  1            -20.31      0.84   t
   66565 TREASTON  230        60073 BRADY     230  1            -22.58     18.50   t
from area  65 to area  60 IDAHO                                 -227.46     18.69

   65995 MONA      345        26043 INTERMT   345  1             33.45    -66.65   f
   65995 MONA      345        26043 INTERMT   345  2             33.45    -66.65   f
from area  65 to area  26 LADWP                                  66.91   -133.30

   65025 AMPS      230        62030 PTRSNFLT  230  1            -89.79     -5.22   f
   65155 BIGGRASS  161        62084 DILLON S  161  1            -32.20      1.49   f
   66750 YELOWTLP  230        62045 BLGS PHA  230  1             43.06      6.32   f
   66755 YELOWTLP  161        62061 RMRK PHA  161  1             22.08      6.08   t
from area  65 to area  62 MONTANA                               -56.86      8.67

   66280 REDBUTTE  345        18002 HA PS     345  1            158.11    -81.58   f
from area  65 to area  18 NEVADA                                158.11    -81.58

   66210 PAVANT    230        64124 UTAH-NEV  230  1             23.44      8.95   t
from area  65 to area  64 SIERRA                                 23.44      8.95

   66355 SIGURDPS  230        79031 GLENCANY  230  1            178.49    -27.57   t
from area  65 to area  19 WAPA L.C.                             178.49    -27.57

   65060 ANT MINE  230        73276 TEKLA     230  1             36.35     12.77   f
   65085 ASHLEY    138        79067 VERNAL    138  1            -48.19      5.41   t
   65192 BONANZA   138        79067 VERNAL    138  1             47.68     -2.68   t
   65193 BONANZA   345        79005 BEARS     345  1           -186.89    -11.26   f
   65305 CASPERPP  115        73167 REFNRYTP  115  1            -38.75     -0.22   f
   65305 CASPERPP  115        73042 CASPERLM  115  1              0.21     -8.27   t
   65420 DAVEJOHN  230        73107 LAR.RIVR  230  1             85.28    -20.13   f
   65420 DAVEJOHN  230        73190 STEGALL   230  1             89.01    -18.13   f
   65425 DAVEJOHN  115        73070 GLENRCKN  115  1             70.92     -2.88   f
   65425 DAVEJOHN  115        73071 GLENRCKS  115  1             80.88     -0.06   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  1            -51.56      9.07   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  2            -51.56      9.07   f
   66278 RANGELY   138        79001 ARTESIA   138  1             -5.90     -6.14   f
   66278 RANGELY   138        79046 MEEKER    138  1             18.72     -4.78   f
   66305 RIVERTON  230        73170 RIVERTON  115  1              4.57      5.22   f
   66535 THERMOPL  230        73197 THERMOPL  115  1              2.54      5.94   t
   66540 THERPACE  115        73197 THERMOPL  115  1              6.86      4.32   t
   66720 WORLAND   115        73222 WORLANTP  115  1             -5.65      4.29   t
   66725 WYODAK    230        73148 OSAGE     230  1            102.93    -11.97   t
   66725 WYODAK    230        73168 RENO      230  1             54.29     -0.85   f
   66725 WYODAK    230        73294 HUGHES    230  1            107.32     -2.50   f
   66725 WYODAK    230        73282 WYODAK     69  1             11.62     13.90   f
   66725 WYODAK    230        73282 WYODAK     69  2              7.86      9.40   f
   66725 WYODAK    230        74016 WYGEN      14  1              0.00      0.00   f
   66750 YELOWTLP  230        73229 YELLOWBR  230  1           -164.69     12.83   t
from area  65 to area  73 WAPA R.M.                             173.84      2.35

Total from area  65 PACE                                        590.17   -168.74
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 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   70005 BRUSHCPP  115        73013 B.CK PS   115  1              42.00      2.51   f
   70005 BRUSHCPP  115        73013 B.CK PS   115  2              44.57      4.64   f
   70116 COBBLAKE  115        73044 COBBLKTP  115  1             -11.50     -1.07   f
   70122 COMANCHE  230        73477 FULLER    230  1              85.12     16.99   t
   70139 DANIELPK  230        73477 FULLER    230  1             -22.77      2.04   t
   70193 FTN VALL  115        73412 MIDWAYBR  115  1              11.69     -5.82   t
   70205 GRANDJCT  230        79036 GRANDJCT  345  1             -21.34    -11.91   f
   70256 LAPORTPS  115        73105 LAPORTE   115  1             -13.32     -5.94   t
   70274 MALTA     230        73138 MT.ELBRT  230  1             -69.85      6.72   f
   70285 MIDWAYPS  115        73412 MIDWAYBR  115  1              20.17    -43.15   f
   70286 MIDWAYPS  230        73413 MIDWAYBR  230  1             152.68     51.14   t
   70287 MILL      115        73296 FRASER    115  1             -35.25      5.39   f
   70308 PALMER    115        73414 MONUMENT  115  1             -14.33      3.36   t
   70311 PAWNEE    230        73192 STORY     230  1             -88.89    -29.61   t
   70327 PONCHA    115        79037 GUNNISON  115  1              -3.61      4.09   f
   70350 RAWHIDE    24        73165 RAWHIDE   230  1             262.21     33.69   t
   70358 RIFLE PS  230        79059 RIFLE WA  230  1             -67.54     27.46   f
   70358 RIFLE PS  230        79250 AMATLAS   230  1             -49.95    -13.25   f
   70375 SAN LUIS  230        79054 PONCHABR  230  1             -59.97     13.26   t
   70410 ST.VRAIN  230        73116 LONGPEAK  230  1             -31.07     32.19   f
   70470 WELD  PS  115        73211 WELD  LM  115  1             -16.12    122.24   f
   70471 WELD  PS  230        73212 WELD  LM  230  1            -272.42    -84.56   f
   70474 WINDSOR   230        73011 AULT      230  1            -223.98    -11.83   t
   70476 WOODLAND  115        73400 EMIL AND  115  1              11.48     -0.05   f
   70525 MTHARRIS  138        79038 HAYDEN    138  1              -5.59     -1.05   t
   79033 GOREPASS  230        79039 HAYDEN    230  1            -187.83     -0.68   t
   79033 GOREPASS  230        73072 GOREPASS  138  1              -3.15      5.46   f
   79034 GRANDJCT  115        79048 MONTROSE  115  1              30.03     -6.66   t
   79056 RIFLE CU  138        79046 MEEKER    138  1             -44.35      0.68   f
   79057 RIFLE CU  230        79059 RIFLE WA  230  1               0.91    -52.56   t
   79058 RIFLE CU  345        79014 CRAIG     345  1            -401.16    -19.26   f
   79058 RIFLE CU  345        79036 GRANDJCT  345  1             395.88     19.85   f
   79091 WOLCOTTP  230        79039 HAYDEN    230  1            -151.79      6.55   f
   79173 COLBRAN   115        79174 MOLINA-L  115  1              -0.00     -0.53   f
   70351 RAWHIDEA   14        73165 RAWHIDE   230  1              -0.00     -0.00   t
   70550 W CANON   115        73551 W CANON   230  1              -5.53    -19.64   t
from area  70 to area  73 WAPA R.M.                              -744.56     50.66

Total from area  70 PSCOLORADO                                   -744.56     50.66

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   79060 SANJN PS  345        10292 SAN_JUAN  345  1             337.37    -95.07   t
from area  73 to area  10 NEW MEXICO                             337.37    -95.07

   73042 CASPERLM  115        65305 CASPERPP  115  1              -0.21      8.27   f
   73070 GLENRCKN  115        65425 DAVEJOHN  115  1             -70.92      2.88   t
   73071 GLENRCKS  115        65425 DAVEJOHN  115  1             -80.88      0.06   t
   73107 LAR.RIVR  230        65420 DAVEJOHN  230  1             -85.28     20.13   t
   73148 OSAGE     230        66725 WYODAK    230  1            -102.93     11.97   f
   73167 REFNRYTP  115        65305 CASPERPP  115  1              38.75      0.22   t
   73168 RENO      230        66725 WYODAK    230  1             -54.29      0.85   t
   73170 RIVERTON  115        66305 RIVERTON  230  1              -4.57     -5.22   t
   73190 STEGALL   230        65420 DAVEJOHN  230  1             -89.01     18.13   t
   73197 THERMOPL  115        66540 THERPACE  115  1              -6.86     -4.32   f
   73197 THERMOPL  115        66535 THERMOPL  230  1              -2.54     -5.94   f
   73222 WORLANTP  115        66720 WORLAND   115  1               5.65     -4.29   f
   73229 YELLOWBR  230        66750 YELOWTLP  230  1             164.69    -12.83   f
   73276 TEKLA     230        65060 ANT MINE  230  1             -36.35    -12.77   t
   73282 WYODAK     69        66725 WYODAK    230  1             -11.62    -13.90   t
   73282 WYODAK     69        66725 WYODAK    230  2              -7.86     -9.40   t
   73294 HUGHES    230        66725 WYODAK    230  1            -107.32      2.50   t
   79001 ARTESIA   138        66278 RANGELY   138  1               5.90      6.14   t
   79005 BEARS     345        65193 BONANZA   345  1             186.89     11.26   t
   79026 FLAMGORG  138        65565 FLAMGORG  230  1              51.56     -9.07   t
   79026 FLAMGORG  138        65565 FLAMGORG  230  2              51.56     -9.07   t
   79046 MEEKER    138        66278 RANGELY   138  1             -18.72      4.78   t
   79067 VERNAL    138        65085 ASHLEY    138  1              48.19     -5.41   f
   79067 VERNAL    138        65192 BONANZA   138  1             -47.68      2.68   f
   74016 WYGEN      14        66725 WYODAK    230  1               0.00      0.00   t
from area  73 to area  65 PACE                                   -173.84     -2.35

   73011 AULT      230        70474 WINDSOR   230  1             223.98     11.83   f
   73013 B.CK PS   115        70005 BRUSHCPP  115  1             -42.00     -2.51   t
   73013 B.CK PS   115        70005 BRUSHCPP  115  2             -44.57     -4.64   t
   73044 COBBLKTP  115        70116 COBBLAKE  115  1              11.50      1.07   t
   73072 GOREPASS  138        79033 GOREPASS  230  1               3.15     -5.46   t
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73105	LAPORTE	115	70256	LAPORTPS	115	1	13.32	5.94	f
73116	LONGPEAK	230	70410	ST.VRAIN	230	1	31.07	-32.19	t
73138	MT.ELBRT	230	70274	MALTA	230	1	69.85	-6.72	t
73165	RAWHIDE	230	70350	RAWHIDE	24	1	-262.21	-33.69	f
73165	RAWHIDE	230	70351	RAWHIDEA	14	1	0.00	0.00	f
73192	STORY	230	70311	PAWNEE	230	1	88.89	29.61	f
73211	WELD LM	115	70470	WELD PS	115	1	16.12	-122.24	t
73212	WELD LM	230	70471	WELD PS	230	1	272.42	84.56	t
73296	FRASER	115	70287	MILL	115	1	35.25	-5.39	t
73400	EMIL AND	115	70476	WOODLAND	115	1	-11.48	0.05	t
73412	MIDWAYBR	115	70193	FTN VALL	115	1	-11.69	5.82	f
73412	MIDWAYBR	115	70285	MIDWAYPS	115	1	-20.17	43.15	t
73413	MIDWAYBR	230	70286	MIDWAYPS	230	1	-152.68	-51.14	f
73414	MONUMENT	115	70308	PALMER	115	1	14.33	-3.36	f
73477	FULLER	230	70122	COMANCHE	230	1	-85.12	-16.99	f
73477	FULLER	230	70139	DANIELPK	230	1	22.77	-2.04	f
79014	CRAIG	345	79058	RIFLE CU	345	1	401.16	19.26	t
79036	GRANDJCT	345	79058	RIFLE CU	345	1	-395.88	-19.85	t
79036	GRANDJCT	345	70205	GRANDJCT	230	1	21.34	11.91	t
79037	GUNNISON	115	70327	PONCHA	115	1	3.61	-4.09	t
79038	HAYDEN	138	70525	MTHARRIS	138	1	5.59	1.05	f
79039	HAYDEN	230	79033	GOREPASS	230	1	187.83	0.68	f
79039	HAYDEN	230	79091	WOLCOTTP	230	1	151.79	-6.55	t
79046	MEEKER	138	79056	RIFLE CU	138	1	44.35	-0.68	t
79048	MONTROSE	115	79034	GRANDJCT	115	1	-30.03	6.66	f
79054	PONCHABR	230	70375	SAN LUIS	230	1	59.97	-13.26	f
79059	RIFLE WA	230	70358	RIFLE PS	230	1	67.54	-27.46	t
79059	RIFLE WA	230	79057	RIFLE CU	230	1	-0.91	52.56	f
79174	MOLINA-L	115	79173	COLBRAN	115	1	0.00	0.53	t
79250	AMATLAS	230	70358	RIFLE PS	230	1	49.95	13.25	t
73551	W CANON	230	70550	W CANON	115	1	5.53	19.64	f
from area 73 to area 70 PSCOLORADO							744.56	-50.66	
79061	SHIP PS	230	79063	SHIPROCK	230	1	150.66	-43.88	t
79260	ELPASOTP	115	79105	GLADETAP	115	1	25.81	-21.29	t
from area 73 to area 19 WAPA L.C.							176.47	-65.17	
73229	YELLOWBR	230	63001	CROS PHA	230	1	-33.83	4.48	f
from area 73 to area 63 WAPA U.M.							-33.83	4.48	
Total from area 73 WAPA R.M.							1050.73	-208.77	

---------from--------			--------- to --------						
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck	---mw----	---mvar--	meter
90208	MTSHAVRE	500	90400	MTSGFALL	500	1	506.36	100.79	t
63002	CRSOVRUM	230	62051	HARDIN	230	1	-67.98	-10.79	f
63002	CRSOVRUM	230	62056	HUNTLEY	230	1	212.32	-10.42	f
63008	HAVRE	161	62023	GT FALLS	161	1	22.57	15.48	t
63014	TIBERTAP	115	62027	SHELBY	115	1	14.52	-2.91	t
63015	VERONA	161	62024	RAINBOW	161	1	19.50	13.47	t
from area 63 to area 62 MONTANA							707.28	105.62	
63001	CROS PHA	230	73229	YELLOWBR	230	1	33.83	-4.48	t
from area 63 to area 73 WAPA R.M.							33.83	-4.48	
Total from area 63 WAPA U.M.							741.11	101.13	

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Summation of selected system

	-----MW----	----MVAR---		
Generation	54182.906	3451.928	Generators	2572
Actual Load	45957.066	15412.540	Loads	6819
Net actual shunt	0.399	-189.126	Shunts	1294
Net actual svd	0.000	3955.563	Svd	600
Loss	2202.568	-15330.182	Buses	13175
			Lines	10972
			Transformers	5128
MVA-miles	4641243.0	1047421.3	DC buses	6
Miles	46968.402		DC converters	10
			DC lines	3

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Area 54 [ALBERTA]

	-----MW----	----MVAR---		
Generation	6887.005	856.378	Generators	136
Actual Load	6274.402	1997.100	Loads	517
Net actual shunt	0.000	-21.742	Shunts	9
Net actual svd	0.000	-1162.687	Svd	77
Net Interchange	200.475	-10.682	Buses	990
Sched Interchange	200.000		Lines	782
Loss	412.128	54.394	Transformers	407
MVA-miles	1166967.6	287644.3	DC buses	0
Miles	18668.695		DC converters	0
			DC lines	0
Loss at 13.20 Kv	1.467	19.108		
Loss at 13.80 Kv	3.241	76.419		
Loss at 14.40 Kv	0.440	14.464		
Loss at 25.00 Kv	1.465	16.931		
Loss at 34.00 Kv	0.045	0.743		
Loss at 69.00 Kv	14.428	-22.494		
Loss at 138.00 Kv	157.421	-307.457		
Loss at 230.00 Kv	0.131	-37.550		
Loss at 240.00 Kv	217.344	-427.864		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	16.147	722.094		
Largest mismatch MVA	0.0074	0.0350		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Area 50 [B.C.HYDRO]

	-----MW----	----MVAR---		
Generation	8259.532	278.493	Generators	106
Actual Load	6035.052	2359.838	Loads	395
Net actual shunt	0.000	2921.981	Shunts	104
Net actual svd	0.000	2700.181	Svd	125
Net Interchange	1799.907	-377.665	Buses	1054
Sched Interchange	1800.000		Lines	719
Loss	424.573	-7325.845	Transformers	644
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.044	1.961		
Loss at 13.80 Kv	6.657	398.632		
Loss at 34.00 Kv	0.000	0.002		
Loss at 46.00 Kv	0.301	0.082		
Loss at 132.00 Kv	25.092	36.481		
Loss at 138.00 Kv	11.123	-136.009		
Loss at 230.00 Kv	39.428	-772.651		
Loss at 500.00 Kv	295.523	-7328.488		
Loss at other Kv	46.405	474.146		
Largest mismatch MVA	0.0439	0.0477		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Area 60 [IDAHO]

	-----MW----	----MVAR---		
Generation	3193.700	575.477	Generators	49
Actual Load	1955.000	501.300	Loads	64
Net actual shunt	0.000	-96.561	Shunts	2
Net actual svd	0.000	0.000	Svd	0
Net Interchange	1066.005	-376.188	Buses	156
Sched Interchange	1066.000		Lines	120
Loss	172.696	546.927	Transformers	96
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.271	5.817		
Loss at 13.80 Kv	1.171	43.979		
Loss at 14.40 Kv	0.390	15.214		
Loss at 34.50 Kv	0.000	0.000		
Loss at 100.00 Kv	0.955	86.250		
Loss at 115.00 Kv	0.437	0.362		
Loss at 138.00 Kv	14.538	-57.503		
Loss at 161.00 Kv	1.248	1.064		
Loss at 230.00 Kv	15.604	-298.222		
Loss at 345.00 Kv	133.074	586.421		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	5.008	163.544		
Largest mismatch MVA	0.0039	0.0116		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Area 62 [MONTANA]

	-----MW----	----MVAR---		
Generation	3009.555	397.697	Generators	20
Actual Load	1207.745	524.807	Loads	200
Net actual shunt	0.399	-120.913	Shunts	56
Net actual svd	0.000	822.299	Svd	15
Net Interchange	1701.457	-877.592	Buses	308
Sched Interchange	1701.000		Lines	317
Loss	99.954	455.072	Transformers	88
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	-0.000	38.919		
Loss at 69.00 Kv	0.542	1.690		
Loss at 100.00 Kv	14.297	-48.503		
Loss at 115.00 Kv	2.968	-17.046		
Loss at 161.00 Kv	11.048	-91.988		
Loss at 230.00 Kv	13.496	-178.852		
Loss at 500.00 Kv	56.989	564.328		
Loss at other Kv	0.615	186.525		
Largest mismatch MVA	0.0061	0.0241		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Area 40 [NORTHWEST]

	-----MW----	----MVAR---		
Generation	16902.051	342.345	Generators	290
Actual Load	16651.566	5157.048	Loads	1663
Net actual shunt	0.000	-1727.702	Shunts	46
Net actual svd	0.000	2422.157	Svd	164
Net Interchange	-346.938	1465.352	Buses	2740
Sched Interchange	-347.000		Lines	2710
Loss	597.396	-6974.499	Transformers	632
MVA-miles	2969064.0	636903.8	DC buses	4
Miles	18402.309		DC converters	4
			DC lines	2
Loss at 11.00 Kv	-0.000	0.209		
Loss at 13.20 Kv	0.000	2.177		
Loss at 13.80 Kv	4.219	140.747		
Loss at 14.40 Kv	-0.000	0.000		
Loss at 25.00 Kv	3.093	161.646		
Loss at 34.50 Kv	0.075	-0.812		
Loss at 69.00 Kv	7.457	2.759		
Loss at 100.00 Kv	0.120	-0.152		
Loss at 115.00 Kv	125.853	-54.818		
Loss at 230.00 Kv	143.969	-717.399		

Loss at 345.00 Kv	7.314	-308.884
Loss at 500.00 Kv	244.915	-7037.467
Loss at other Kv	60.381	837.492
Largest mismatch MVA	0.0224	0.0707

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Area 65 [PACE]

	-----MW----	----MVAR---		
Generation	5529.492	543.130	Generators	53
Actual Load	4749.998	1528.040	Loads	273
Net actual shunt	0.000	-528.394	Shunts	51
Net actual svd	0.000	0.000	Svd	2
Net Interchange	590.172	-168.742	Buses	564
Sched Interchange	590.300		Lines	408
Loss	189.323	-287.770	Transformers	336
MVA-miles	3.4	1.1	DC buses	0
Miles	1.900		DC converters	0
			DC lines	0
Loss at 13.80 Kv	0.810	22.715		
Loss at 34.50 Kv	1.010	7.109		
Loss at 46.00 Kv	3.907	70.489		
Loss at 69.00 Kv	0.730	8.233		
Loss at 100.00 Kv	0.017	0.583		
Loss at 115.00 Kv	2.785	-8.593		
Loss at 138.00 Kv	40.613	35.476		
Loss at 161.00 Kv	7.633	-26.196		
Loss at 230.00 Kv	64.411	-101.171		
Loss at 345.00 Kv	64.967	-354.822		
Loss at other Kv	2.440	58.407		
Largest mismatch MVA	0.0087	0.0249		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Area 70 [PSCOLORADO]

	-----MW----	----MVAR---		
Generation	4234.680	623.699	Generators	46
Actual Load	4858.050	1835.016	Loads	358
Net actual shunt	0.000	0.000	Shunts	0
Net actual svd	0.000	-1397.597	Svd	43
Net Interchange	-744.560	50.665	Buses	500
Sched Interchange	-743.800		Lines	461
Loss	121.184	135.598	Transformers	147
MVA-miles	22704.7	6337.5	DC buses	0
Miles	564.500		DC converters	0
			DC lines	0
Loss at 13.80 Kv	2.115	74.410		
Loss at 14.40 Kv	0.081	0.808		
Loss at 25.00 Kv	0.013	0.165		
Loss at 46.00 Kv	0.190	0.001		
Loss at 69.00 Kv	3.823	-11.958		
Loss at 100.00 Kv	0.007	-0.106		
Loss at 115.00 Kv	21.205	-103.783		
Loss at 138.00 Kv	0.655	-3.713		
Loss at 230.00 Kv	86.033	-45.606		
Loss at 345.00 Kv	0.000	0.004		
Loss at other Kv	7.063	225.375		
Largest mismatch MVA	0.0052	0.0318		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Area 64 [SIERRA]

	-----MW----	----MVAR---		
Generation	1069.527	-25.853	Generators	19
Actual Load	1075.167	280.355	Loads	115
Net actual shunt	0.000	-158.433	Shunts	23
Net actual svd	0.000	74.016	Svd	5
Net Interchange	-36.024	18.080	Buses	275
Sched Interchange	-36.000		Lines	197
Loss	30.388	-239.881	Transformers	117

MVA-miles	51618.5	28071.9	DC buses	0
Miles	1042.600		DC converters	0
			DC lines	0
Loss at 13.80 Kv	1.783	32.640		
Loss at 69.00 Kv	0.000	0.000		
Loss at 115.00 Kv	0.298	-7.511		
Loss at 230.00 Kv	0.882	-113.193		
Loss at 345.00 Kv	7.015	-182.620		
Loss at other Kv	20.411	30.803		
Largest mismatch MVA	0.0081	0.0260		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Area 52 [W KOOTENAY]

	-----MW----	----MVAR---		
Generation	498.040	4.640	Generators	18
Actual Load	486.100	160.700	Loads	65
Net actual shunt	0.000	-79.146	Shunts	27
Net actual svd	0.000	-71.874	Svd	4
Net Interchange	0.521	-12.453	Buses	260
Sched Interchange	0.000		Lines	166
Loss	11.419	7.414	Transformers	116
MVA-miles	18603.4	6159.4	DC buses	0
Miles	1005.200		DC converters	0
			DC lines	0
Loss at 13.20 Kv	-0.000	9.143		
Loss at 13.80 Kv	0.000	0.000		
Loss at 14.40 Kv	0.000	21.974		
Loss at 25.00 Kv	0.000	0.000		
Loss at 138.00 Kv	0.104	-8.429		
Loss at 161.00 Kv	2.006	-19.728		
Loss at 230.00 Kv	0.702	-19.484		
Loss at other Kv	8.606	23.938		
Largest mismatch MVA	0.0026	0.0049		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Area 73 [WAPA R.M.]

	-----MW----	----MVAR---		
Generation	3957.415	-178.359	Generators	74
Actual Load	2784.180	950.836	Loads	356
Net actual shunt	0.000	-299.266	Shunts	4
Net actual svd	0.000	-177.016	Svd	53
Net Interchange	1050.733	-208.773	Buses	620
Sched Interchange	1050.700		Lines	567
Loss	122.509	-444.128	Transformers	174
MVA-miles	412281.7	82303.3	DC buses	0
Miles	7283.200		DC converters	0
			DC lines	0
Loss at 13.80 Kv	3.825	48.742		
Loss at 34.50 Kv	0.149	2.098		
Loss at 69.00 Kv	3.018	-20.112		
Loss at 115.00 Kv	43.748	-233.505		
Loss at 138.00 Kv	3.363	-37.218		
Loss at 230.00 Kv	29.962	-349.297		
Loss at 345.00 Kv	34.070	-48.969		
Loss at other Kv	4.374	194.133		
Largest mismatch MVA	0.0072	0.0496		

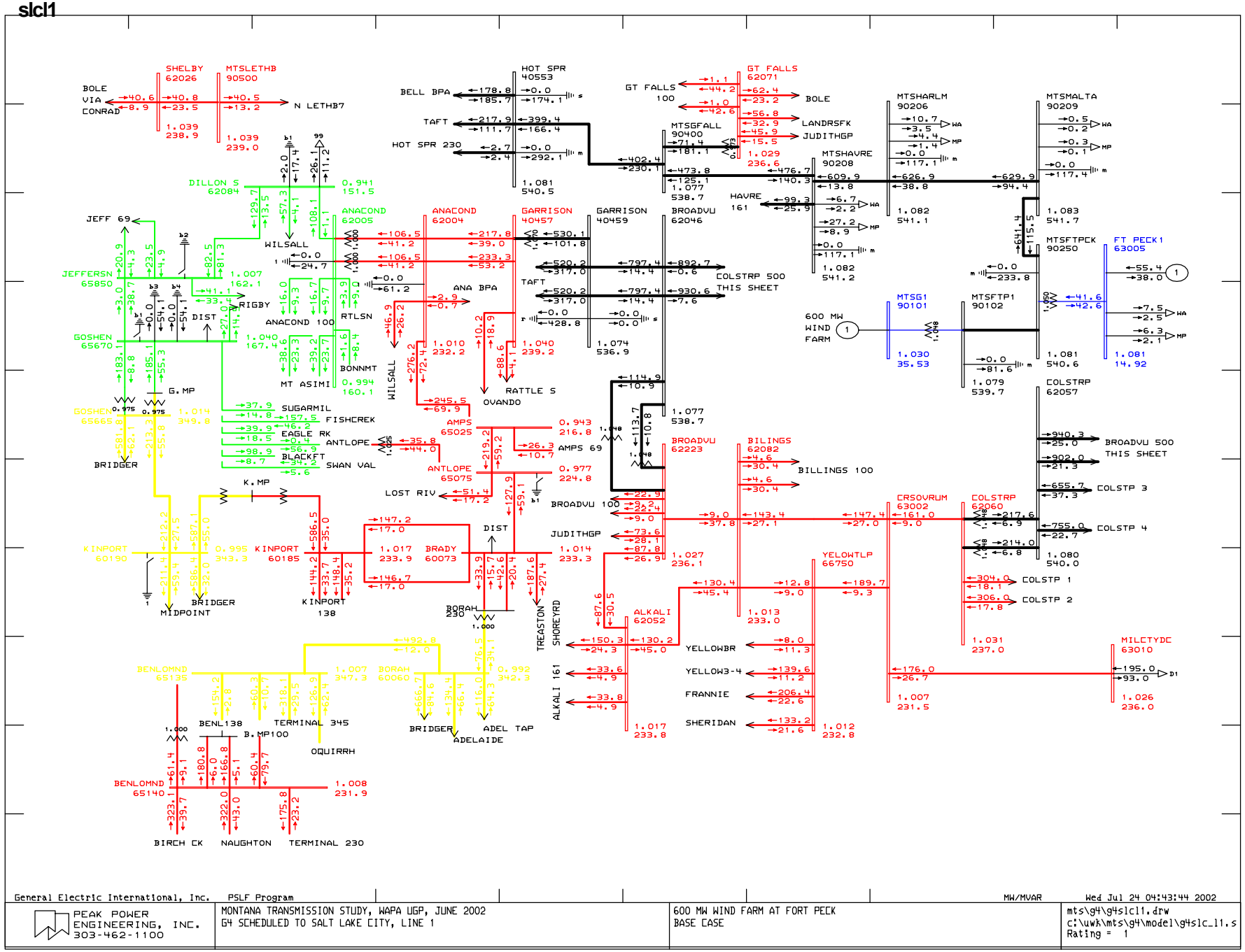
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SPOKANE, LINE 1

Area 63 [WAPA U.M.]

	-----MW----	----MVAR---		
Generation	641.909	34.280	Generators	25
Actual Load	-120.200	117.500	Loads	17
Net actual shunt	0.000	-78.951	Shunts	1
Net actual svd	0.000	746.085	Svd	11
Net Interchange	741.110	101.133	Buses	32
Sched Interchange	741.000		Lines	19
Loss	20.999	-1257.465	Transformers	10

MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	-0.000	0.459		
Loss at 34.50 Kv	0.000	6.736		
Loss at 115.00 Kv	0.621	-5.422		
Loss at 161.00 Kv	0.731	-25.635		
Loss at 230.00 Kv	7.641	20.245		
Loss at 500.00 Kv	12.006	-1253.849		
Largest mismatch MVA	0.0002	0.0094		

B.4 slcl1



General Electric International, Inc. PSLF Program MW/MVAR Wed Jul 24 04:43:44 2002

PEAK POWER ENGINEERING, INC. 303-462-1100

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

600 MW WIND FARM AT FORT PECK
BASE CASE

mts\g4\g4slcl1.drw
c:\uwk\mts\g4\model\g4slc_l1.s
Rating = 1

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Percent Loading Summary -- using rating 1 - 100.0 percent of rating

----------from----------				---------- to ----------									rate	per cent	
--no.--	--name--	-kv-	-ar-	--no.--	--name--	-kv-	-ar-	ck	---mw---	-mvar-	-mva--	------		loading	
54611	RUTH LK8	69	54	54839	RUTH LK1	138	54	1	57.9	13.8	59.5	45.0M		132.3	T
64026	CARSON	120	64	64027	CARSON T	120	64	1	-56.4	-6.1	56.7	216.5A		132.3	F
55015	DOME EA9	14	54	55525	163ST2	240	54	T2	-57.3	-4.6	57.5	45.0M		128.6	T
64194	DAYTON	120	64	64254	DAYTON	25	64	1	16.6	6.5	17.8	14.0M		127.5	F
79026	FLAMGORG	138	73	79029	FLAMGORG	69	73	1	22.1	6.0	22.9	19.0M		120.4	F
64099	SPAN SPG	120	64	64114	TRACY	120	64	1	-127.0	-2.7	127.0	514.8A		117.6	F
64091	RENO	120	64	64263	RENO	25	64	1	50.3	20.4	54.3	46.7M		116.3	F
70249	LAJUNTAW	115	70	70250	LAJUNTAW	69	70	1	26.2	12.4	29.0	25.0M		116.0	F
64127	VAL ROAD	120	64	64274	VAL ROAD	25	64	1	50.2	20.3	54.2	46.7M		116.0	F
64091	RENO	120	64	64263	RENO	25	64	2	50.2	20.3	54.2	46.7M		116.0	F
65850	JEFFERSN	161	65	65860	JFRSNPHA	161	65	1	-82.5	81.3	115.9	100.0M		115.9	F
64127	VAL ROAD	120	64	64274	VAL ROAD	25	64	2	47.8	19.3	51.6	46.7M		110.4	F
65560	FISHCREK	161	65	65670	GOSHEN	161	65	1	-157.5	46.2	164.2	531.1A		110.3	T
64202	HAN CRTP	120	64	64203	TWN CRTP	120	64	1	74.2	19.8	76.8	356.0A		109.1	F
64201	PINSN TP	120	64	64202	HAN CRTP	120	64	1	74.6	20.6	77.4	356.0A		109.0	F
64200	REDHOUSE	120	64	64201	PINSN TP	120	64	1	75.9	23.6	79.5	356.0A		109.0	T
64129	VALMY	120	64	64200	REDHOUSE	120	64	1	77.0	26.3	81.4	356.0A		108.6	T
54234	CASTLE R	138	54	55972	CASTLE-1	25	54	1	-50.0	20.9	54.2	50.0M		108.4	F
65560	FISHCREK	161	65	65690	GRACE	161	65	1	153.9	-47.4	161.1	530.7A		107.5	F
50459	KIT287	287	50	51075	KIT B5	13	50	5	80.3	24.1	83.8	79.0M		106.1	F
54232	PANCAN 9	138	54	55386	EMPRESS9	25	54	T1	15.7	1.0	15.7	15.0M		104.7	F
64114	TRACY	120	64	64118	TRACY G2	14	64	1	-82.5	-3.9	82.6	81.0M		104.0	T
43017	BEAVER	14	40	43021	BEAVER	230	40	1	356.8	45.8	359.8	348.0M		103.4	F
48319	PLEASANT	115	40	48355	RATHDRUM	115	40	1	-84.1	-16.2	85.6	430.8A		103.1	F
54052	BLUERIDG	138	54	55281	BLUERDGE	14	54	T1	20.8	15.2	25.7	25.0M		102.9	F
54154	E CALGAR	240	54	54189	ENMX2SD9	138	54	T1	233.5	-169.7	288.7	300.0M		102.7	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	9A	155.0	-9.3	155.3	155.0M		101.7	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	BC	155.0	-9.3	155.3	155.0M		101.7	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	56	155.0	-9.3	155.3	155.0M		101.7	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	78	155.0	-9.3	155.3	155.0M		101.7	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	34	155.0	-9.3	155.3	155.0M		101.7	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	DE	155.0	-9.3	155.3	155.0M		101.7	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	12	155.0	-9.3	155.3	155.0M		101.7	T
41304	COUGAR T	7	40	46211	COUGAR T	115	40	1	28.0	-8.5	29.3	30.0M		101.7	T
46733	LAGRND5	14	40	46735	LGBK5	115	40	1	40.0	7.3	40.7	40.0M		101.7	F
65193	BONANZA	345	65	65995	MONA	345	65	1	660.7	31.8	661.5	1087.8A		101.0	F

```
Processing file c:\uwk\mts\g4\rvolths_lnbs.out
Processing file c:\uwk\mts\g4\rvoltslcl1.out

Compvolt found the following for comparisons:
     348 Voltage Violations read from c:\uwk\mts\g4\rvolths_lnbs.out
     354 Voltage Violations read from c:\uwk\mts\g4\rvoltslcl1.out


**** VOLTS:  NEW ****
Component                   w/o Prj         w/ Prj  Rating
54183 JUMPPND9  138   0.95 <= pu <= 1.05    1.0503  1.00 pu kV
54259 LAC LA 9  138   0.95 <= pu <= 1.05    1.0506  1.00 pu kV
54965 54L JNC   138   0.95 <= pu <= 1.05    1.0502  1.00 pu kV
55925 JUMP TP2  138   0.95 <= pu <= 1.05    1.0503  1.00 pu kV
50791 CBK500    500   0.95 <= pu <= 1.05    1.0505  1.00 pu kV
63008 HAVRE     161   0.95 <= pu <= 1.05    1.0505  1.00 pu kV
62030 PTRSNFLT  230   0.95 <= pu <= 1.05    0.9287  1.00 pu kV
62084 DILLON S  161   0.95 <= pu <= 1.05    0.9411  1.00 pu kV
65025 AMPS      230   0.95 <= pu <= 1.05    0.9428  1.00 pu kV
65155 BIGGRASS  161   0.95 <= pu <= 1.05    0.9267  1.00 pu kV
73348 CORLETT   115   0.95 <= pu <= 1.05    0.9485  1.00 pu kV
73375 WARRENLM  115   0.95 <= pu <= 1.05    0.9497  1.00 pu kV

**** VOLTS: WORSE ****
Component             w/o Prj  w/ Prj  Rating

**** VOLTS: BETTER ****
Component             w/o Prj  w/ Prj  Rating

**** VOLTS:  AWAY ****
Component             w/o Prj      w/ Prj          Rating
50343 KSH132-2  132   1.0501  0.95 <= pu <= 1.05   1.00 pu kV
50346 SHA2      132   1.0504  0.95 <= pu <= 1.05   1.00 pu kV
50391 KSHTP14   132   1.0504  0.95 <= pu <= 1.05   1.00 pu kV
50394 SHATP14   132   1.0504  0.95 <= pu <= 1.05   1.00 pu kV
50561 WSN500    500   1.0502  0.95 <= pu <= 1.05   1.00 pu kV
50655 VVW138    138   1.0510  0.95 <= pu <= 1.05   1.00 pu kV
50659 BDM138    138   1.0513  0.95 <= pu <= 1.05   1.00 pu kV
50691 NIC230    230   1.0502  0.95 <= pu <= 1.05   1.00 pu kV
50902 BDM138TP  138   1.0513  0.95 <= pu <= 1.05   1.00 pu kV
62033 ANA BPA   115   1.0505  0.95 <= pu <= 1.05   1.00 pu kV
45337 WEED JPS  115   1.0507  0.95 <= pu <= 1.05   1.00 pu kV
66225 PINTO     345   1.0511  0.95 <= pu <= 1.05   1.00 pu kV
66235 PINTO PS  345   1.0501  0.95 <= pu <= 1.05   1.00 pu kV
50781 NTL VR    138   0.9499  0.95 <= pu <= 1.05   1.00 pu kV
48165 IRVIN     115   0.9489  0.95 <= pu <= 1.05   1.00 pu kV
48310 OPORTUNE  115   0.9494  0.95 <= pu <= 1.05   1.00 pu kV
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GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

overvoltage summary > 1.100000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
54090	BICKERD4	240	1.1049	54153	BRAZEAU4	240	1.1055	54329	KEEPHIL4	240	1.1118
54524	GENESEE4	240	1.1087	54681	NEVIS 7	138	1.1110	54802	STURGEO9	138	1.1005
55969	770S701T	138	1.1066	51017	KMS230	230	1.1073				

overvoltage summary > 1.050000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
90250	MTSFTPCK	500	1.0812	90202	MTSFTP2	500	1.0795	90302	MTSFTP3	500	1.0795
90402	MTSFTP4	500	1.0795	90502	MTSFTP5	500	1.0795	90602	MTSFTP6	500	1.0795
90102	MTSFTP1	500	1.0795	90206	MTSHARLM	500	1.0821	90208	MTSHAVRE	500	1.0824
90209	MTSMALTA	500	1.0833	90211	MTSRICHC	500	1.0843	90400	MTSGFALL	500	1.0775
54012	FOX CREE	138	1.0511	54013	KAYBOB 9	138	1.0518	54014	GULF RO9	138	1.0594
54021	WESGEN 7	138	1.0508	54050	RBCUPIL7	138	1.0507	54054	LAMOURE4	240	1.0797
54073	IPPL ST9	138	1.0582	54077	BIGSTON4	240	1.0603	54078	CHEVRON7	138	1.0517
54081	METIS644	240	1.0867	54082	BICKERD7	138	1.0558	54090	BICKERD4	240	1.1049
54097	BIG HOR9	138	1.0818	54098	STRACHA9	138	1.0580	54103	DEERLAN4	240	1.0822
54121	ELLERSLI	240	1.0761	54125	SUNDANL9	138	1.0544	54126	WABAMUN4	240	1.0870
54128	SUNDANM9	240	1.0966	54129	E EDMON4	240	1.0711	54130	N CALDE4	240	1.0647
54131	N BARRH4	240	1.0837	54139	GAETZ 4	240	1.0602	54141	HIGHVAL9	138	1.0539
54142	WILLESD4	240	1.0964	54144	RED DEE4	240	1.0641	54147	BENALTO4	240	1.0772
54148	E CROSS4	240	1.0594	54150	LANGDON2	500	1.0552	54152	JANET 4	240	1.0544
54153	BRAZEAU4	240	1.1055	54157	PEIGAN 4	240	1.0802	54159	N LETHB4	240	1.0744
54183	JUMPPND9	138	1.0503	54184	SARCEE 7	138	1.0539	54195	RUNDLE S	138	1.0507
54223	WARE JCT	240	1.0539	54249	RP05103S	138	1.0671	54259	LAC LA 9	138	1.0506
54261	SPRAY S	138	1.0511	54269	COALSPU7	138	1.0611	54281	MILO 2	240	1.0653
54285	LEISMER9	240	1.0750	54287	GREGG R9	138	1.0702	54302	MARIONA9	138	1.0542
54325	CHEV KG9	138	1.0517	54326	COAL VA9	138	1.0584	54329	KEEPHIL4	240	1.1118
54335	W BROOK4	240	1.0589	54384	ENMX28S9	138	1.0533	54412	BENBOW 9	138	1.0519
54441	946/947X	240	1.0761	54444	SPRINGB9	138	1.0513	54505	JASPER 4	240	1.0659
54506	BELLAMY4	240	1.0759	54509	ARGYLL W	240	1.0760	54512	DOME T29	240	1.0766
54513	LAMBTON4	240	1.0707	54514	CLOVERB4	240	1.0696	54518	ARGYLL E	240	1.0762
54519	CASTLTX2	240	1.0707	54521	PETROLIA	240	1.0748	54524	GENESEE4	240	1.1087
54542	RBW LAK7	138	1.0505	54546	CHINCHA7	138	1.0576	54547	KEG RVR7	138	1.0563
54548	KEMP RV9	138	1.0579	54549	HOTCHKS7	138	1.0597	54552	CADOTTE9	138	1.0586
54553	NORCEN 9	138	1.0554	54554	LUBICON7	138	1.0584	54555	CRANBER9	138	1.0592
54558	WESLY C7	138	1.0792	54559	CARMON 9	138	1.0768	54560	PEACE/29	138	1.0755
54561	DIASHOW7	138	1.0737	54589	DOME CU7	138	1.0673	54593	DONNELL9	138	1.0671
54594	TAP7L487	138	1.0687	54595	TRIANGL7	138	1.0620	54596	VALLEYV9	138	1.0784
54600	L.SMOKY7	138	1.0849	54601	STURGEO7	138	1.0846	54606	SIMONET9	138	1.0847
54607	FOXCRK/2	138	1.0517	54608	GOOSE R9	138	1.0668	54612	RUTH LA7	138	1.0600
54613	RUTH LK7	138	1.0604	54618	PARS CR7	138	1.0509	54621	MITS E.4	240	1.0567
54622	MITS E.7	138	1.0893	54623	AEC MILL	138	1.0883	54624	OTAUWAU7	138	1.0891
54633	LOU CR.7	138	1.0572	54634	SARHLK/2	138	1.0513	54636	ESSO JU7	138	1.0520
54637	MORSE RV	138	1.0525	54639	VIRGINI9	138	1.0530	54643	WOLF LK9	138	1.0711
54646	MARG LK4	240	1.0743	54647	MARG LK7	138	1.0864	54648	LACOREY9	138	1.0686
54652	BONNY 9	138	1.0549	54654	BONN SVC	138	1.0549	54655	WHITFISH	240	1.0859
54675	PAINTRT7	240	1.0908	54680	NEVIS 4	240	1.0756	54681	NEVIS 7	138	1.1110
54685	3HILLS/3	138	1.0593	54691	MICH. C9	138	1.0753	54693	WINT HI9	138	1.0767
54694	BULLPON9	138	1.0769	54707	SHEER 14	240	1.0643	54709	ANDERSO4	240	1.0648
54710	ANDERSON	138	1.0869	54711	SHEER 24	240	1.0643	54715	BAT. RV7	138	1.0829

54721	BAT RV79	240	1.0937	54723	CORDEL 4	240	1.0937	54729	PRIM TAP	138	1.0655
54730	PRIMROSE	138	1.0714	54796	791S701T	138	1.0628	54802	STURGEO9	138	1.1005
54806	946/947N	240	1.0711	54809	732S901T	240	1.0669	54818	VERMILA9	138	1.0808
54822	766S901T	240	1.0637	54823	NEVIS 9	138	1.0887	54835	791S702T	138	1.0631
54836	MILNERB9	138	1.0779	54844	709S702T	138	1.0739	54847	BAT RV80	240	1.0937
54848	791S703T	138	1.0531	54962	KAYBOBTP	138	1.0519	54963	CANMORE9	138	1.0509
54965	54L JNC	138	1.0502	54978	EAST IN4	240	1.0708	54983	MARION T	138	1.0542
54984	HIGHVL T	138	1.0539	54988	CROSSF T	240	1.0594	54995	W.GRN TP	240	1.0964
55012	BASSET 7	138	1.0562	55013	HAIGRIVE	138	1.0572	55067	FTNELSON	138	1.0665
55072	SYNC_D04	240	1.0563	55073	AURORA 4	240	1.0619	55075	SEAL LK9	138	1.0644
55147	MILNERC9	138	1.0881	55226	WABASCA9	240	1.0533	55272	FIELDGA9	138	1.0515
55280	BRINTNEL	240	1.0505	55515	PRIMROSE	138	1.0566	55763	BC BORDE	138	1.0627
55891	904AL TP	240	1.0708	55894	SARCEE M	138	1.0522	55912	740L JNC	138	1.0611
55913	G.ROBB T	138	1.0601	55924	CH KGT T	138	1.0517	55925	JUMP TP2	138	1.0503
55943	MILO 1	240	1.0653	55969	770S701T	138	1.1066	50010	COM132	132	1.0717
50020	CMS230	230	1.0500	50036	RBW230	230	1.0547	50037	PEM230	230	1.0583
50038	RBW230-1	230	1.0532	50182	ARN132	132	1.0802	50185	ALZ230	230	1.0505
50186	ROS230	230	1.0606	50187	BRT230	230	1.0695	50188	BUT230	230	1.0500
50193	BRT360	360	1.0500	50313	VIT132	132	1.0512	50314	PVO133	132	1.0500
50315	PVO132	132	1.0506	50323	DMR132	132	1.0549	50330	LDR132	132	1.0503
50331	GLD132	132	1.0513	50334	KGH132	132	1.0523	50335	UTA132	132	1.0525
50342	SCA132	132	1.0500	50347	GOW132	132	1.0510	50348	GTP132	132	1.0545
50349	CLD132	132	1.0562	50350	SOO132	132	1.0568	50351	JOR132	132	1.0605
50352	PML132	132	1.0512	50353	WOS132	132	1.0530	50354	GLSTP17	132	1.0556
50355	GLSTP18	132	1.0542	50356	DND132	132	1.0513	50395	SALTP17	132	1.0541
50396	SALTP18	132	1.0543	50447	TKW138	138	1.0530	50463	SKA500	500	1.0629
50464	TKW500	500	1.0684	50540	GMS230	230	1.0548	50541	KDS230	230	1.0538
50545	BLW230	230	1.0648	50546	SCK230	230	1.0590	50547	HMH230	230	1.0572
50548	BLM230	230	1.0587	50549	QNT230	230	1.0579	50550	QRP230	230	1.0645
50551	TLR230	230	1.0585	50553	BCR230	230	1.0585	50554	RBF230	230	1.0657
50556	LAP230	230	1.0569	50557	SNK230	230	1.0589	50558	GMS500	500	1.0500
50560	KDS500	500	1.0613	50562	GLN500	500	1.0675	50653	NIC138	138	1.0515
50656	SVA138	138	1.0508	50660	WGS138	138	1.0606	50661	MON138	138	1.0578
50672	BKL138	138	1.0505	50679	BLU138	138	1.0521	50680	VLM138	138	1.0574
50686	SCO138	138	1.0664	50687	ABA138	138	1.0568	50700	MCA500	500	1.0500
50701	REV500	500	1.0500	50729	PRI138TP	138	1.0663	50776	NTL138	138	1.0566
50783	SEL230	230	1.0586	50785	SEV230	230	1.0577	50791	CBK500	500	1.0505
50792	SEL500	500	1.0500	50899	ABA138TP	138	1.0568	50922	DNDTAP	132	1.0521
50923	HSY-PH	132	1.0547	50924	ESQ-PH	132	1.0513	50928	SCG IPP	132	1.0676
50934	JULTP130	132	1.0523	51017	KMS230	230	1.1073	51045	ALH230	230	1.0577
60085	BRIDGER	345	1.0500	60240	MIDPOINT	500	1.0683	62012	TOWN2	500	1.0976
62013	TOWN1	500	1.0976	62046	BROADVU	500	1.0774	62053	BROADV&2	500	1.0723
62054	BROADV&1	500	1.0731	62057	COLSTRP	500	1.0800	40045	ALLSTON	500	1.0715
40051	ALVEY	500	1.0777	40061	ASHE	500	1.0800	40091	BELL BPA	500	1.0792
40111	BIG EDDY	500	1.0766	43049	BOARD F	500	1.0840	40139	BONNVILE	115	1.0500
47013	BRIDGPRT	115	1.0533	40155	BUCKLEY	500	1.0783	45029	BURNS	500	1.0551
45035	CAPTJACK	500	1.0771	46209	CARMEN	115	1.0618	41311	CELILO1	500	1.0765
41312	CELILO2	500	1.0765	40233	CHIEF JO	500	1.0800	40287	COULEE	500	1.0810
40302	COVINGT4	500	1.0739	40306	COVINGT5	500	1.0745	43115	COYO M1	500	1.0552
43123	COYOTE	500	1.0839	45095	DIXONVLE	500	1.0781	40369	DWORSHAK	500	1.0690
40381	ECHOLAKE	500	1.0769	40451	GAR1EAST	500	1.0876	40453	GAR2EAST	500	1.0876
40459	GARRISON	500	1.0738	40485	GREEN PT	115	1.0520	40489	GRIZZLY	500	1.0804
40499	HANFORD	500	1.0803	40521	HATWAI	500	1.0674	45137	HERMIST	230	1.0509
41212	HILLS CR	115	1.0500	40553	HOT SPR	500	1.0810	40585	JOHN DAY	500	1.0850
40601	KEELER	500	1.0804	45262	KFALLS	500	1.0791	40629	LANE	500	1.0713

40665	LIT GOOS	500	1.0800	40679	LOW GRAN	500	1.0800	40683	LOW MON	500	1.0800
40687	MALIN	500	1.0758	40693	MAPLE VL	500	1.0761	40699	MARION	500	1.0790
40711	MCLOUGLN	500	1.0683	40721	MCNARY	345	1.0509	40723	MCNARY	500	1.0792
45197	MERIDINP	500	1.0763	40749	MONROE	500	1.0779	40797	OLYMPIA	500	1.0790
40809	OSTRNDER	500	1.0706	40821	PAUL	500	1.0800	40827	PEARL	500	1.0770
40837	PONDROSA	500	1.0841	40869	RAVER	500	1.0782	43485	ROUND BU	500	1.0767
40913	SACJAWEA	500	1.0749	40917	SACJWA T	500	1.0762	40941	SANTIAM	500	1.0783
40949	SATSOP	500	1.0797	40957	SCHULTZ	500	1.0831	40973	SICKLER	500	1.0788
40989	SLATT	500	1.0806	41043	SUMMER L	500	1.0806	45289	SWIFT	230	1.0500
41051	TACOMA	500	1.0780	41057	TAFT	500	1.0862	41095	TROUTDAL	500	1.0631
41113	VANTAGE	500	1.0731	47099	WELLS	115	1.0625	52226	PRI138	138	1.0664
52229	KER138	138	1.0699	52230	HED138	138	1.0689	52426	MAS138	138	1.0688
52815	PRI-T2	138	1.0671	63008	HAVRE	161	1.0505				

undervoltage summary < 0.900000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)

undervoltage summary < 0.950000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
62030	PTRSNFLT	230	0.9287	62084	DILLON S	161	0.9411	48069	CHESTER	115	0.9464
48299	OPPORTUN	115	0.9485	48306	OTIS	230	0.9400	65025	AMPS	230	0.9428
65155	BIGGRASS	161	0.9267	70249	LAJUNTAW	115	0.9285	64072	MEYERS	120	0.9485
64092	RND HILL	120	0.9467	64102	STATELIN	120	0.9458	64203	TWN CRTP	120	0.9453
73348	CORLETT	115	0.9485	73375	WARRENLM	115	0.9497				

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

	generation capacity	generation on-line	--- load categories ---- power	current	imped.	shunt	-- svd --	net inter	losses	slack bus
area name	ALBERTA									
mw	10743.6	7861.7	7899.2	0.0	0.0	0.0	0.0	-399.6	362.1	58.3
54 mvar	4916.5	815.8	2641.0	0.0	0.0	-22.5	-1856.2	-22.6	76.1	11.5
area name	B.C.HYDRO									
mw	14693.0	10255.8	6889.1	0.0	0.0	0.0	0.0	2849.5	517.2	202.2
50 mvar	6719.0	991.9	2565.8	0.0	0.0	2954.7	2139.2	-257.0	-6410.8	10.1
area name	IDAHO									
mw	4676.4	4118.7	2984.0	0.0	0.0	0.0	0.0	919.8	214.9	151.4
60 mvar	2192.5	586.3	711.6	0.0	0.0	-595.3	0.0	-201.4	671.4	7.2
area name	MONTANA									
mw	3502.2	2927.7	1422.9	0.0	0.0	0.3	0.0	1367.5	137.1	715.7
62 mvar	1309.0	341.0	610.2	0.0	0.0	-120.9	620.8	-872.2	454.7	115.7
area name	NORTHWEST									
mw	43502.3	27401.2	22671.3	0.0	0.0	0.0	0.0	3514.2	1215.7	639.1
40 mvar	15475.0	4224.1	6850.3	0.0	0.0	-1855.8	-3996.2	1300.6	1925.1	44.8
area name	PACE									
mw	6212.0	5035.1	6293.7	0.0	0.0	0.0	0.0	-1566.1	307.6	165.7
65 mvar	3201.9	894.1	1960.1	0.0	0.0	-1760.3	-47.1	0.4	741.0	42.9
area name	PSCOLORADO									
mw	5806.0	5191.5	6332.7	0.0	0.0	0.0	0.0	-1332.3	191.2	112.5
70 mvar	3667.3	1789.8	2372.6	0.0	0.0	0.0	-1671.3	304.4	784.0	33.5
area name	SIERRA									
mw	1901.7	1375.4	1719.1	0.0	0.0	0.0	0.0	-398.7	55.0	109.4
64 mvar	925.4	123.2	458.7	0.0	0.0	-187.9	69.8	61.6	-279.0	23.9
area name	W KOOTENAY									
mw	763.5	596.5	722.4	0.0	0.0	0.0	0.0	-150.5	24.6	104.6
52 mvar	450.0	99.2	210.2	0.0	0.0	-77.7	-130.7	-8.9	106.3	25.0
area name	WAPA R.M.									
mw	6091.6	5390.5	3608.3	0.0	0.0	0.0	0.0	1611.8	170.4	508.1
73 mvar	2883.8	276.4	1237.0	0.0	0.0	-295.3	-287.4	-390.9	13.0	69.4

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

		generation capacity	generation on-line	load categories power	load categories current	load categories imped.	shunt	-- svd --	net inter	losses	slack bus
area name		WAPA U.M.									
	mw	661.8	655.4	-102.1	0.0	0.0	0.0	0.0	732.7	24.8	55.4
63	mvar	154.0	-11.2	123.6	0.0	0.0	-79.0	728.1	76.7	-1212.3	-38.0
TOTL	mw	98554.1	70809.5	60440.6	0.0	0.0	0.3	0.0	7148.1	3220.5	
	mvar	41894.4	10130.6	19741.2	0.0	0.0	-2040.1	-4430.9	-9.2	-3130.4	

Area Interchange Summary

		mw	mvar
FROM AREA	54 ALBERTA		
TO AREA	50 B.C.HYDRO	-358.8	-46.1
TO AREA	62 MONTANA	-40.8	23.5
TOTAL		-399.6	-22.6
FROM AREA	50 B.C.HYDRO	mw	mvar
TO AREA	54 ALBERTA	358.8	46.1
TO AREA	40 NORTHWEST	2340.2	-312.0
TO AREA	52 W KOOTENAY	150.5	8.9
TOTAL		2849.5	-257.0
FROM AREA	60 IDAHO	mw	mvar
TO AREA	40 NORTHWEST	-281.4	-266.4
TO AREA	65 PACE	1068.1	117.2
TO AREA	64 SIERRA	133.0	-52.2
TOTAL		919.8	-201.4
FROM AREA	62 MONTANA	mw	mvar
TO AREA	54 ALBERTA	40.8	-23.5
TO AREA	40 NORTHWEST	1507.2	-619.1
TO AREA	65 PACE	365.5	-120.4
TO AREA	63 WAPA U.M.	-546.0	-109.1
TOTAL		1367.5	-872.2
FROM AREA	40 NORTHWEST	mw	mvar
TO AREA	50 B.C.HYDRO	-2340.2	312.0
TO AREA	60 IDAHO	281.4	266.4
TO AREA	26 LADWP	2806.7	605.3
TO AREA	62 MONTANA	-1507.2	619.1
TO AREA	30 PG AND E	4089.7	-452.7
TO AREA	64 SIERRA	183.9	-49.5
TOTAL		3514.2	1300.6
FROM AREA	65 PACE	mw	mvar
TO AREA	14 ARIZONA	-149.5	90.6
TO AREA	60 IDAHO	-1068.1	-117.2
TO AREA	26 LADWP	-31.6	-169.6
TO AREA	62 MONTANA	-365.5	120.4
TO AREA	18 NEVADA	251.5	-56.8
TO AREA	64 SIERRA	29.4	13.9
TO AREA	19 WAPA L.C.	-7.1	39.6
TO AREA	73 WAPA R.M.	-225.2	79.4
TOTAL		-1566.1	0.4
FROM AREA	70 PSCOLORADO	mw	mvar
TO AREA	73 WAPA R.M.	-1332.3	304.4
TOTAL		-1332.3	304.4
FROM AREA	64 SIERRA	mw	mvar
TO AREA	60 IDAHO	-133.0	52.2
TO AREA	26 LADWP	-47.6	2.6
TO AREA	40 NORTHWEST	-183.9	49.5
TO AREA	65 PACE	-29.4	-13.9

TO AREA	30 PG AND E	-17.3	-26.1
TO AREA	24 SOCALIF	12.4	-2.7
TOTAL		-398.7	61.6
FROM AREA	52 W KOOTENAY	mw	mvar
TO AREA	50 B.C.HYDRO	-150.5	-8.9
TOTAL		-150.5	-8.9
FROM AREA	73 WAPA R.M.	mw	mvar
TO AREA	10 NEW MEXICO	164.0	-16.3
TO AREA	65 PACE	225.2	-79.4
TO AREA	70 PSCOLORADO	1332.3	-304.4
TO AREA	19 WAPA L.C.	76.9	-23.2
TO AREA	63 WAPA U.M.	-186.7	32.4
TOTAL		1611.8	-390.9
FROM AREA	63 WAPA U.M.	mw	mvar
TO AREA	62 MONTANA	546.0	109.1
TO AREA	73 WAPA R.M.	186.7	-32.4
TOTAL		732.7	76.7

AREA TIE LINE SUMMARY

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

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  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    54150 LANGDON2  500        50791 CBK500    500  1            -324.50    -43.98   f
    54205 COLEMAN7  138        50776 NTL138    138  1              -9.33     -9.40   t
    54273 POCATER7  138        50830 FRO T274  138  1             -24.95      7.27   t
 from area  54 to area  50 B.C.HYDRO                              -358.79    -46.11

    90500 MTSLETHB  230        62026 SHELBY    230  1             -40.81     23.49   t
 from area  54 to area  62 MONTANA                                 -40.81     23.49

 Total from area  54 ALBERTA                                      -399.60    -22.62

  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    62026 SHELBY    230        90500 MTSLETHB  230  1              40.81    -23.49   f
 from area  62 to area  54 ALBERTA                                 40.81    -23.49

    90400 MTSGFALL  500        40553 HOT SPR   500  1             402.43   -230.13   f
    62004 ANACOND   230        40457 GARRISON  230  1            -214.50    -27.17   f
    62004 ANACOND   230        40457 GARRISON  230  2            -230.80    -39.63   f
    62009 RATTLE S  161        40867 RATTLE S  230  1            -128.94    -41.40   t
    62012 TOWN2     500        40453 GAR2EAST  500  2             785.28   -136.60   t
    62013 TOWN1     500        40451 GAR1EAST  500  1             785.28   -136.60   t
    62066 KERR      115        40391 ELMO      115  1              -0.36    -11.94   f
    62072 OVANDO    230        40457 GARRISON  230  1              10.20     18.91   t
    62072 OVANDO    230        40551 HOT SPR   230  1              36.29     12.48   t
    62085 CROWCR B  115        48055 BURKAVAB  115  1              28.20    -13.13   t
    62086 THOMSON   115        48053 BURKAVAA  115  1              34.08    -13.89   t
 from area  62 to area  40 NORTHWEST                              1507.17   -619.11

    62030 PTRSNFLT  230        65025 AMPS      230  1             245.49    -69.88   t
    62045 BLGS PHA  230        66750 YELOWTLP  230  1              12.76      9.03   t
    62061 RMRK PHA  161        66755 YELOWTLP  161  1              -4.04     -2.42   f
    62084 DILLON S  161        65155 BIGGRASS  161  1             111.30    -57.17   t
 from area  62 to area  65 PACE                                    365.51   -120.44

    90400 MTSGFALL  500        90208 MTSHAVRE  500  1            -473.79   -125.09   f
    62023 GT FALLS  161        63008 HAVRE     161  1             -32.63    -14.56   f
    62024 RAINBOW   161        63015 VERONA    161  1             -28.11    -12.14   f
    62027 SHELBY    115        63014 TIBERTAP  115  1             -25.11      6.68   f
    62051 HARDIN    230        63002 CRSOVRUM  230  1             161.01      8.99   t
    62056 HUNTLEY   230        63002 CRSOVRUM  230  1            -147.36     27.00   t
 from area  62 to area  63 WAPA U.M.                              -546.00   -109.12

 Total from area  62 MONTANA                                      1367.48   -872.16

  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    40145 BOUNDARY  230        50822 NLYPHS    230  1            -270.25     -6.95   f
    40323 CUSTER W  500        50194 ING500    500  1           -1043.64    160.23   t
    40323 CUSTER W  500        50194 ING500    500  2           -1026.34    158.67   t
 from area  40 to area  50 B.C.HYDRO                             -2340.23    311.95

    45029 BURNS     500        60240 MIDPOINT  500  1             -96.54    362.82   t
    45103 ENTERPRS  230        60150 HELLSCYN  230  1              53.98    -43.11   f
    40507 HARNEY    115        61826 HINES     115  1             -12.56     15.44   f
    40621 LAGRANDE  230        60192 LADD      230  1              83.63    -31.58   f
    48197 LOLO      230        60278 IMNAHA    230  1             252.84    -37.16   t
 from area  40 to area  60 IDAHO                                   281.35    266.41

    41311 CELILO1   500        26097 SYLMAR1   230  1             529.60     58.74   f
    41313 CELILO3   230        26098 SYLMAR3   230  1             873.73    243.74   f
    41312 CELILO2   500        26099 SYLMAR2   230  1             529.60     58.65   f
    41314 CELILO4   230        26100 SYLMAR4   230  1             873.73    244.21   f
 from area  40 to area  26 LADWP                                  2806.66    605.33

    48053 BURKAVAA  115        62086 THOMSON   115  1             -34.08     13.89   f
    48055 BURKAVAB  115        62085 CROWCR B  115  1             -28.20     13.13   f
    40391 ELMO      115        62066 KERR      115  1               0.36     11.94   t
    40451 GAR1EAST  500        62013 TOWN1     500  1            -785.28    136.60   f
    40453 GAR2EAST  500        62012 TOWN2     500  2            -785.28    136.60   f
    40457 GARRISON  230        62072 OVANDO    230  1             -10.20    -18.91   f
    40457 GARRISON  230        62004 ANACOND   230  1             214.50     27.17   t
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   40457 GARRISON  230        62004 ANACOND   230  2            230.80     39.63   t
   40551 HOT SPR   230        62072 OVANDO    230  1            -36.29    -12.48   f
   40553 HOT SPR   500        90400 MTSGFALL  500  1           -402.43    230.13   t
   40867 RATTLE S  230        62009 RATTLE S  161  1            128.94     41.40   f
from area  40 to area  62 MONTANA                              -1507.17    619.11

   45035 CAPTJACK  500        30020 OLINDA    500  1           1444.55   -204.20   f
   45087 DELTA     115        31468 CASCADE   115  1             72.57    -16.39   f
   40687 MALIN     500        30005 ROUND MT  500  1           1280.49   -106.97   f
   40687 MALIN     500        30005 ROUND MT  500  2           1292.03   -125.14   f
from area  40 to area  30 PG AND E                             4089.65   -452.71

   40537 HIL TOP   230        64058 HIL TOP   345  1            183.90    -49.48   f
from area  40 to area  64 SIERRA                                183.90    -49.48

Total from area  40 NORTHWEST                                  3514.16   1300.62

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   66235 PINTO PS  345        14101 FOURCORN  345  1           -149.45     90.62   t
from area  65 to area  14 ARIZONA                              -149.45     90.62

   65075 ANTLOPE   230        60073 BRADY     230  1            127.86    -59.14   f
   65135 BENLOMND  345        60060 BORAH     345  1           -492.79    -12.00   t
   65220 BRIDGER   230        60085 BRIDGER   345  1            -53.82    -17.63   t
   65220 BRIDGER   230        60085 BRIDGER   345  2            -54.71    -17.90   t
   65220 BRIDGER   230        60085 BRIDGER   345  3            -53.82    -17.63   t
   65665 GOSHEN    345        60085 BRIDGER   345  1           -581.76    -62.07   f
   65665 GOSHEN    345        60190 KINPORT   345  1            212.17     27.52   t
   65670 GOSHEN    161        60030 BLACKFT   161  1            100.71     11.40   f
   65920 MALAD     138        60020 AMFLS     138  1            -84.37      2.92   t
   66565 TREASTON  230        60073 BRADY     230  1           -187.62     27.36   t
from area  65 to area  60 IDAHO                                -1068.13   -117.16

   65995 MONA      345        26043 INTERMT   345  1            -15.80    -84.78   f
   65995 MONA      345        26043 INTERMT   345  2            -15.80    -84.78   f
from area  65 to area  26 LADWP                                 -31.60   -169.55

   65025 AMPS      230        62030 PTRSNFLT  230  1           -245.49     69.88   f
   65155 BIGGRASS  161        62084 DILLON S  161  1           -111.30     57.17   f
   66750 YELOWTLP  230        62045 BLGS PHA  230  1            -12.76     -9.03   f
   66755 YELOWTLP  161        62061 RMRK PHA  161  1              4.04      2.42   t
from area  65 to area  62 MONTANA                               -365.51    120.44

   66280 REDBUTTE  345        18002 HA PS     345  1            251.51    -56.83   f
from area  65 to area  18 NEVADA                                251.51    -56.83

   66210 PAVANT    230        64124 UTAH-NEV  230  1             29.38     13.88   t
from area  65 to area  64 SIERRA                                 29.38     13.88

   66355 SIGURDPS  230        79031 GLENCANY  230  1             -7.12     39.58   t
from area  65 to area  19 WAPA L.C.                              -7.12     39.58

   65060 ANT MINE  230        73276 TEKLA     230  1             18.23     20.33   f
   65085 ASHLEY    138        79067 VERNAL    138  1            -89.72      7.47   t
   65192 BONANZA   138        79067 VERNAL    138  1             24.05     12.84   t
   65193 BONANZA   345        79005 BEARS     345  1           -431.77     12.56   f
   65305 CASPERPP  115        73167 REFNRYTP  115  1            -33.00     -6.16   f
   65305 CASPERPP  115        73042 CASPERLM  115  1              0.22     -7.43   t
   65420 DAVEJOHN  230        73107 LAR.RIVR  230  1            112.31    -18.10   f
   65420 DAVEJOHN  230        73190 STEGALL   230  1            108.72    -11.43   f
   65425 DAVEJOHN  115        73070 GLENRCKN  115  1             74.39      4.40   f
   65425 DAVEJOHN  115        73071 GLENRCKS  115  1             85.31      8.63   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  1            -29.16      0.93   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  2            -29.16      0.93   f
   66278 RANGELY   138        79001 ARTESIA   138  1            -13.58     -2.97   f
   66278 RANGELY   138        79046 MEEKER    138  1            -21.37      2.08   f
   66305 RIVERTON  230        73170 RIVERTON  115  1              3.11      9.85   f
   66535 THERMOPL  230        73197 THERMOPL  115  1             -3.74      5.84   t
   66540 THERPACE  115        73197 THERMOPL  115  1             12.04      8.26   t
   66720 WORLAND   115        73222 WORLANTP  115  1            -17.50      6.54   t
   66725 WYODAK    230        73148 OSAGE     230  1            130.83    -16.38   t
   66725 WYODAK    230        73168 RENO      230  1            103.06      5.98   f
   66725 WYODAK    230        73294 HUGHES    230  1            123.22     -0.16   f
   66725 WYODAK    230        73282 WYODAK     69  1            -10.35     15.23   f
   66725 WYODAK    230        73282 WYODAK     69  2             -7.00     10.30   f
   66725 WYODAK    230        74016 WYGEN      14  1              0.00      0.00   f
   66750 YELOWTLP  230        73229 YELLOWBR  230  1           -334.34      9.88   t
from area  65 to area  73 WAPA R.M.                             -225.19     79.41

Total from area  65 PACE                                       -1566.13      0.39
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---------from--------			--------- to --------						
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck	---mw----	---mvar--	meter
70005	BRUSHCPP	115	73013	B.CK PS	115	1	118.32	23.75	f
70005	BRUSHCPP	115	73013	B.CK PS	115	2	124.79	30.80	f
70116	COBBLAKE	115	73044	COBBLKTP	115	1	-15.33	-1.45	f
70122	COMANCHE	230	73477	FULLER	230	1	95.48	31.41	t
70139	DANIELPK	230	73477	FULLER	230	1	-114.90	-18.54	t
70193	FTN VALL	115	73412	MIDWAYBR	115	1	4.40	-0.09	t
70205	GRANDJCT	230	79036	GRANDJCT	345	1	-49.58	-23.77	f
70256	LAPORTPS	115	73105	LAPORTE	115	1	-14.74	-6.26	t
70274	MALTA	230	73138	MT.ELBRT	230	1	-145.53	-4.56	f
70285	MIDWAYPS	115	73412	MIDWAYBR	115	1	18.41	-22.59	f
70286	MIDWAYPS	230	73413	MIDWAYBR	230	1	131.85	79.33	t
70287	MILL	115	73296	FRASER	115	1	-40.21	9.04	f
70308	PALMER	115	73414	MONUMENT	115	1	-47.11	17.50	t
70311	PAWNEE	230	73192	STORY	230	1	-242.76	-28.33	t
70327	PONCHA	115	79037	GUNNISON	115	1	-23.90	11.11	f
70350	RAWHIDE	24	73165	RAWHIDE	230	1	262.16	82.68	t
70358	RIFLE PS	230	79059	RIFLE WA	230	1	-83.34	8.89	f
70358	RIFLE PS	230	79250	AMATLAS	230	1	-75.90	-2.28	f
70375	SAN LUIS	230	79054	PONCHABR	230	1	-80.88	6.64	t
70410	ST.VRAIN	230	73116	LONGPEAK	230	1	-54.07	68.21	f
70470	WELD PS	115	73211	WELD LM	115	1	-20.77	61.66	f
70471	WELD PS	230	73212	WELD LM	230	1	-371.75	4.36	f
70474	WINDSOR	230	73011	AULT	230	1	-309.66	3.93	t
70476	WOODLAND	115	73400	EMIL AND	115	1	13.92	2.92	f
70525	MTHARRIS	138	79038	HAYDEN	138	1	-7.21	-1.37	t
79033	GOREPASS	230	79039	HAYDEN	230	1	-240.40	-19.24	t
79033	GOREPASS	230	73072	GOREPASS	138	1	2.82	3.41	f
79034	GRANDJCT	115	79048	MONTROSE	115	1	20.50	-3.99	t
79056	RIFLE CU	138	79046	MEEKER	138	1	-9.73	-3.15	f
79057	RIFLE CU	230	79059	RIFLE WA	230	1	0.59	-21.52	t
79058	RIFLE CU	345	79014	CRAIG	345	1	-313.69	0.76	f
79058	RIFLE CU	345	79036	GRANDJCT	345	1	286.74	-7.51	f
79091	WOLCOTTP	230	79039	HAYDEN	230	1	-177.67	1.34	f
79173	COLBRAN	115	79174	MOLINA-L	115	1	0.00	-0.54	f
70351	RAWHIDEA	14	73165	RAWHIDE	230	1	50.81	41.00	t
70550	W CANON	115	73551	W CANON	230	1	-24.00	-19.08	t
from area 70 to area 73 WAPA R.M.							-1332.35	304.44	

Total from area 70 PSCOLORADO -1332.35 304.44

---------from--------			--------- to --------						
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck	---mw----	---mvar--	meter
79060	SANJN PS	345	10292	SAN_JUAN	345	1	164.03	-16.32	t
from area 73 to area 10 NEW MEXICO							164.03	-16.32	
73042	CASPERLM	115	65305	CASPERPP	115	1	-0.22	7.43	f
73070	GLENRCKN	115	65425	DAVEJOHN	115	1	-74.39	-4.40	t
73071	GLENRCKS	115	65425	DAVEJOHN	115	1	-85.31	-8.63	t
73107	LAR.RIVR	230	65420	DAVEJOHN	230	1	-112.31	18.10	t
73148	OSAGE	230	66725	WYODAK	230	1	-130.83	16.38	f
73167	REFNRYTP	115	65305	CASPERPP	115	1	33.00	6.16	t
73168	RENO	230	66725	WYODAK	230	1	-103.06	-5.98	t
73170	RIVERTON	115	66305	RIVERTON	230	1	-3.11	-9.85	t
73190	STEGALL	230	65420	DAVEJOHN	230	1	-108.72	11.43	t
73197	THERMOPL	115	66540	THERPACE	115	1	-12.04	-8.26	f
73197	THERMOPL	115	66535	THERMOPL	230	1	3.74	-5.84	f
73222	WORLANTP	115	66720	WORLAND	115	1	17.50	-6.54	f
73229	YELLOWBR	230	66750	YELOWTLP	230	1	334.34	-9.88	f
73276	TEKLA	230	65060	ANT MINE	230	1	-18.23	-20.33	t
73282	WYODAK	69	66725	WYODAK	230	1	10.35	-15.23	t
73282	WYODAK	69	66725	WYODAK	230	2	7.00	-10.30	t
73294	HUGHES	230	66725	WYODAK	230	1	-123.22	0.16	t
79001	ARTESIA	138	66278	RANGELY	138	1	13.58	2.97	t
79005	BEARS	345	65193	BONANZA	345	1	431.77	-12.56	t
79026	FLAMGORG	138	65565	FLAMGORG	230	1	29.16	-0.93	t
79026	FLAMGORG	138	65565	FLAMGORG	230	2	29.16	-0.93	t
79046	MEEKER	138	66278	RANGELY	138	1	21.37	-2.08	t
79067	VERNAL	138	65085	ASHLEY	138	1	89.72	-7.47	f
79067	VERNAL	138	65192	BONANZA	138	1	-24.05	-12.84	f
74016	WYGEN	14	66725	WYODAK	230	1	0.00	0.00	t
from area 73 to area 65 PACE							225.19	-79.41	
73011	AULT	230	70474	WINDSOR	230	1	309.66	-3.93	f
73013	B.CK PS	115	70005	BRUSHCPP	115	1	-118.32	-23.75	t
73013	B.CK PS	115	70005	BRUSHCPP	115	2	-124.79	-30.80	t
73044	COBBLKTP	115	70116	COBBLAKE	115	1	15.33	1.45	t
73072	GOREPASS	138	79033	GOREPASS	230	1	-2.82	-3.41	t

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   73105 LAPORTE   115        70256 LAPORTPS  115  1             14.74      6.26   f
   73116 LONGPEAK  230        70410 ST.VRAIN  230  1             54.07    -68.21   t
   73138 MT.ELBRT  230        70274 MALTA     230  1            145.53      4.56   t
   73165 RAWHIDE   230        70350 RAWHIDE    24  1           -262.16    -82.68   f
   73165 RAWHIDE   230        70351 RAWHIDEA   14  1            -50.81    -41.00   f
   73192 STORY     230        70311 PAWNEE    230  1            242.76     28.33   f
   73211 WELD  LM  115        70470 WELD  PS  115  1             20.77    -61.66   t
   73212 WELD  LM  230        70471 WELD  PS  230  1            371.75     -4.36   t
   73296 FRASER    115        70287 MILL      115  1             40.21     -9.04   t
   73400 EMIL AND  115        70476 WOODLAND  115  1            -13.92     -2.92   t
   73412 MIDWAYBR  115        70193 FTN VALL  115  1             -4.40      0.09   f
   73412 MIDWAYBR  115        70285 MIDWAYPS  115  1            -18.41     22.59   t
   73413 MIDWAYBR  230        70286 MIDWAYPS  230  1           -131.85    -79.33   f
   73414 MONUMENT  115        70308 PALMER    115  1             47.11    -17.50   f
   73477 FULLER    230        70122 COMANCHE  230  1            -95.48    -31.41   f
   73477 FULLER    230        70139 DANIELPK  230  1            114.90     18.54   f
   79014 CRAIG     345        79058 RIFLE CU  345  1            313.69     -0.76   t
   79036 GRANDJCT  345        79058 RIFLE CU  345  1           -286.74      7.51   t
   79036 GRANDJCT  345        70205 GRANDJCT  230  1             49.58     23.77   t
   79037 GUNNISON  115        70327 PONCHA    115  1             23.90    -11.11   t
   79038 HAYDEN    138        70525 MTHARRIS  138  1              7.21      1.37   f
   79039 HAYDEN    230        79033 GOREPASS  230  1            240.40     19.24   f
   79039 HAYDEN    230        79091 WOLCOTTP  230  1            177.66     -1.34   t
   79046 MEEKER    138        79056 RIFLE CU  138  1              9.73      3.15   t
   79048 MONTROSE  115        79034 GRANDJCT  115  1            -20.50      3.99   f
   79054 PONCHABR  230        70375 SAN LUIS  230  1             80.88     -6.64   f
   79059 RIFLE WA  230        70358 RIFLE PS  230  1             83.34     -8.89   t
   79059 RIFLE WA  230        79057 RIFLE CU  230  1             -0.59     21.52   f
   79174 MOLINA-L  115        79173 COLBRAN   115  1             -0.00      0.54   t
   79250 AMATLAS   230        70358 RIFLE PS  230  1             75.90      2.28   t
   73551 W CANON   230        70550 W CANON   115  1             24.00     19.08   f
from area  73 to area  70 PSCOLORADO                           1332.35   -304.44

   79061 SHIP PS   230        79063 SHIPROCK  230  1             79.68    -11.44   t
   79260 ELPASOTP  115        79105 GLADETAP  115  1             -2.74    -11.74   t
from area  73 to area  19 WAPA L.C.                               76.95    -23.18

   73229 YELLOWBR  230        63001 CROS PHA  230  1           -186.74     32.41   f
from area  73 to area  63 WAPA U.M.                             -186.74     32.41

Total from area  73 WAPA R.M.                                   1611.77   -390.94

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   90208 MTSHAVRE  500        90400 MTSGFALL  500  1            473.79    125.09   t
   63002 CRSOVRUM  230        62051 HARDIN    230  1           -161.01     -8.99   f
   63002 CRSOVRUM  230        62056 HUNTLEY   230  1            147.36    -27.00   f
   63008 HAVRE     161        62023 GT FALLS  161  1             32.63     14.56   t
   63014 TIBERTAP  115        62027 SHELBY    115  1             25.11     -6.68   t
   63015 VERONA    161        62024 RAINBOW   161  1             28.11     12.14   t
from area  63 to area  62 MONTANA                                546.00    109.12

   63001 CROS PHA  230        73229 YELLOWBR  230  1            186.74    -32.41   t
from area  63 to area  73 WAPA R.M.                              186.74    -32.41

Total from area  63 WAPA U.M.                                    732.74     76.71
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MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Summation of selected system

	-----MW----	----MVAR---		
Generation	70809.523	10130.607	Generators	2586
Actual Load	60440.602	19741.215	Loads	6821
Net actual shunt	0.289	-2040.086	Shunts	1297
Net actual svd	0.000	-4430.905	Svd	599
Loss	3220.478	-3130.385	Buses	13199
			Lines	10969
			Transformers	5148
MVA-miles	6491382.5	976748.0	DC buses	6
Miles	46985.316		DC converters	10
			DC lines	3

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Area 54 [ALBERTA]

	-----MW----	----MVAR---		
Generation	7861.694	815.763	Generators	142
Actual Load	7899.199	2641.000	Loads	512
Net actual shunt	0.000	-22.530	Shunts	9
Net actual svd	0.000	-1856.222	Svd	77
Net Interchange	-399.597	-22.618	Buses	992
Sched Interchange	-400.000		Lines	781
Loss	362.089	76.139	Transformers	407
MVA-miles	1108725.0	227889.3	DC buses	0
Miles	18637.697		DC converters	0
			DC lines	0
Loss at 13.20 Kv	1.733	25.329		
Loss at 13.80 Kv	3.368	88.051		
Loss at 14.40 Kv	0.019	2.274		
Loss at 25.00 Kv	1.930	27.208		
Loss at 34.00 Kv	0.052	0.867		
Loss at 69.00 Kv	18.895	-3.561		
Loss at 138.00 Kv	150.811	-267.773		
Loss at 230.00 Kv	0.327	-36.731		
Loss at 240.00 Kv	167.247	-582.440		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	17.707	822.916		
Largest mismatch MVA	0.0085	0.1094		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Area 50 [B.C.HYDRO]

	-----MW----	----MVAR---		
Generation	10255.760	991.880	Generators	112
Actual Load	6889.125	2565.790	Loads	395
Net actual shunt	0.000	2954.659	Shunts	104
Net actual svd	0.000	2139.160	Svd	125
Net Interchange	2849.482	-256.969	Buses	1054
Sched Interchange	2849.900		Lines	718
Loss	517.152	-6410.754	Transformers	645
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.306	7.902		
Loss at 13.80 Kv	10.065	491.920		
Loss at 34.00 Kv	0.000	0.002		
Loss at 46.00 Kv	0.302	0.084		
Loss at 132.00 Kv	37.004	106.172		
Loss at 138.00 Kv	15.117	-120.575		
Loss at 230.00 Kv	52.708	-617.340		
Loss at 500.00 Kv	344.413	-6945.446		
Loss at other Kv	57.236	666.527		
Largest mismatch MVA	0.0253	0.0526		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Area 60 [IDAHO]

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                      -----MW----  ----MVAR---
Generation               4118.709      586.331        Generators           62
Actual Load              2984.000      711.600        Loads                64
Net actual shunt            0.000     -595.257        Shunts               15
Net actual svd              0.000        0.000        Svd                   0
Net Interchange           919.784     -201.439        Buses               156
Sched Interchange         920.000                     Lines               120
Loss                      214.926      671.428        Transformers         96

MVA-miles                     0.0          0.0        DC buses              0
Miles                       0.000                     DC converters         0
                                                      DC lines              0
Loss at  13.20 Kv           0.272        5.839
Loss at  13.80 Kv           3.378      116.505
Loss at  14.40 Kv           0.881       34.266
Loss at  34.50 Kv           0.000        0.000
Loss at 100.00 Kv           0.562       25.005
Loss at 115.00 Kv           0.436        0.363
Loss at 138.00 Kv          19.878       -4.383
Loss at 161.00 Kv           1.801        2.737
Loss at 230.00 Kv          85.068       38.505
Loss at 345.00 Kv          97.386      282.760
Loss at 500.00 Kv           0.000        0.000
Loss at other Kv            5.264      169.832

Largest mismatch MVA       0.0024       0.0055

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Area  62 [MONTANA                        ]

                      -----MW----  ----MVAR---
Generation               2927.744      341.032        Generators           20
Actual Load              1422.895      610.184        Loads               200
Net actual shunt            0.289     -120.855        Shunts               56
Net actual svd              0.000      620.797        Svd                  16
Net Interchange          1367.484     -872.157        Buses               308
Sched Interchange        1368.000                     Lines               317
Loss                      137.077      454.665        Transformers         88

MVA-miles                     0.0          0.0        DC buses              0
Miles                       0.000                     DC converters         0
                                                      DC lines              0
Loss at  13.80 Kv          -0.000       36.297
Loss at  69.00 Kv           0.601        2.672
Loss at 100.00 Kv          20.214      -34.768
Loss at 115.00 Kv           2.693      -17.327
Loss at 161.00 Kv          40.083       19.716
Loss at 230.00 Kv          29.615      -34.847
Loss at 500.00 Kv          43.226      304.941
Loss at other Kv            0.645      177.982

Largest mismatch MVA       0.0031       0.0058

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Area  40 [NORTHWEST                      ]

                      -----MW----  ----MVAR---
Generation              27401.170     4224.120        Generators          384
Actual Load             22671.295     6850.328        Loads              1652
Net actual shunt            0.000    -1855.811        Shunts               43
Net actual svd              0.000    -3996.154        Svd                 160
Net Interchange          3514.164     1300.620        Buses              2740
Sched Interchange        3514.000                     Lines              2711
Loss                     1215.717     1925.108        Transformers        654

MVA-miles               4790460.5     611468.4        DC buses              4
Miles                  18469.418                      DC converters         4
                                                      DC lines              2
Loss at  11.00 Kv           0.000        0.608
Loss at  13.20 Kv           0.000        4.930
Loss at  13.80 Kv           4.795      207.417
Loss at  14.40 Kv           0.284       13.025
Loss at  25.00 Kv           3.140      163.765
Loss at  34.50 Kv           0.347        6.248
Loss at  69.00 Kv          15.334       43.188
Loss at 100.00 Kv           0.120       -0.103
Loss at 115.00 Kv         223.052      520.010
Loss at 230.00 Kv         357.050     1788.217
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Loss at 345.00 Kv	16.160	-173.617
Loss at 500.00 Kv	469.863	-1967.473
Loss at other Kv	125.573	1318.892
Largest mismatch MVA	0.0223	0.0634

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Area 65 [PACE]

	-----MW----	----MVAR---		
Generation	5035.141	894.105	Generators	52
Actual Load	6293.716	1960.150	Loads	274
Net actual shunt	0.000	-1760.332	Shunts	74
Net actual svd	0.000	-47.100	Svd	2
Net Interchange	-1566.130	0.385	Buses	564
Sched Interchange	-1566.200		Lines	407
Loss	307.558	741.010	Transformers	337
MVA-miles	5.0	1.6	DC buses	0
Miles	1.900		DC converters	0
			DC lines	0
Loss at 13.80 Kv	0.955	36.316		
Loss at 34.50 Kv	1.013	7.614		
Loss at 46.00 Kv	6.381	137.802		
Loss at 69.00 Kv	1.675	22.802		
Loss at 100.00 Kv	0.056	1.044		
Loss at 115.00 Kv	3.094	-8.600		
Loss at 138.00 Kv	79.603	212.598		
Loss at 161.00 Kv	21.194	26.669		
Loss at 230.00 Kv	101.510	249.268		
Loss at 345.00 Kv	87.963	-43.694		
Loss at other Kv	4.115	99.193		
Largest mismatch MVA	0.0100	0.0575		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Area 70 [PSCOLORADO]

	-----MW----	----MVAR---		
Generation	5191.508	1789.791	Generators	66
Actual Load	6332.696	2372.604	Loads	362
Net actual shunt	0.000	0.000	Shunts	0
Net actual svd	0.000	-1671.260	Svd	43
Net Interchange	-1332.346	304.440	Buses	500
Sched Interchange	-1332.800		Lines	461
Loss	191.156	784.004	Transformers	147
MVA-miles	29543.2	6080.6	DC buses	0
Miles	564.500		DC converters	0
			DC lines	0
Loss at 13.80 Kv	4.008	136.215		
Loss at 14.40 Kv	0.080	0.798		
Loss at 25.00 Kv	0.010	0.140		
Loss at 46.00 Kv	0.196	0.010		
Loss at 69.00 Kv	7.160	1.552		
Loss at 100.00 Kv	0.031	-0.494		
Loss at 115.00 Kv	32.836	-38.512		
Loss at 138.00 Kv	0.171	-6.000		
Loss at 230.00 Kv	139.230	448.832		
Loss at 345.00 Kv	0.001	0.098		
Loss at other Kv	7.433	241.366		
Largest mismatch MVA	0.0083	0.0152		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Area 64 [SIERRA]

	-----MW----	----MVAR---		
Generation	1375.359	123.232	Generators	22
Actual Load	1719.091	458.744	Loads	121
Net actual shunt	0.000	-187.944	Shunts	30
Net actual svd	0.000	69.826	Svd	5
Net Interchange	-398.749	61.593	Buses	275
Sched Interchange	-399.000		Lines	197
Loss	55.017	-278.983	Transformers	117

MVA-miles	64075.5	38316.1	DC buses	0
Miles	1042.600		DC converters	0
			DC lines	0
Loss at 13.80 Kv	2.541	51.411		
Loss at 69.00 Kv	0.000	0.000		
Loss at 115.00 Kv	0.479	-6.150		
Loss at 230.00 Kv	1.456	-103.653		
Loss at 345.00 Kv	8.942	-442.514		
Loss at other Kv	41.599	221.922		
Largest mismatch MVA	0.0027	0.0183		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Area 52 [W KOOTENAY]

	-----MW----	----MVAR---		
Generation	596.550	99.212	Generators	20
Actual Load	722.400	210.200	Loads	64
Net actual shunt	0.000	-77.740	Shunts	27
Net actual svd	0.000	-130.657	Svd	4
Net Interchange	-150.464	-8.878	Buses	260
Sched Interchange	-149.900		Lines	165
Loss	24.614	106.286	Transformers	117
MVA-miles	30783.1	4866.7	DC buses	0
Miles	986.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.000	8.259		
Loss at 13.80 Kv	0.000	0.000		
Loss at 14.40 Kv	-0.000	29.951		
Loss at 25.00 Kv	0.000	0.000		
Loss at 138.00 Kv	0.397	-0.448		
Loss at 161.00 Kv	9.043	11.286		
Loss at 230.00 Kv	1.519	-8.805		
Loss at other Kv	13.654	66.043		
Largest mismatch MVA	0.0009	0.0046		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Area 73 [WAPA R.M.]

	-----MW----	----MVAR---		
Generation	5390.457	276.375	Generators	80
Actual Load	3608.290	1237.018	Loads	355
Net actual shunt	0.000	-295.325	Shunts	4
Net actual svd	0.000	-287.406	Svd	53
Net Interchange	1611.774	-390.939	Buses	620
Sched Interchange	1612.000		Lines	567
Loss	170.391	13.018	Transformers	174
MVA-miles	467790.5	88125.5	DC buses	0
Miles	7283.200		DC converters	0
			DC lines	0
Loss at 13.80 Kv	6.224	91.908		
Loss at 34.50 Kv	0.315	4.024		
Loss at 69.00 Kv	5.479	-10.534		
Loss at 115.00 Kv	70.226	-93.894		
Loss at 138.00 Kv	5.742	-26.805		
Loss at 230.00 Kv	38.076	-261.014		
Loss at 345.00 Kv	37.056	-15.603		
Loss at other Kv	7.273	324.937		
Largest mismatch MVA	0.0177	0.0439		

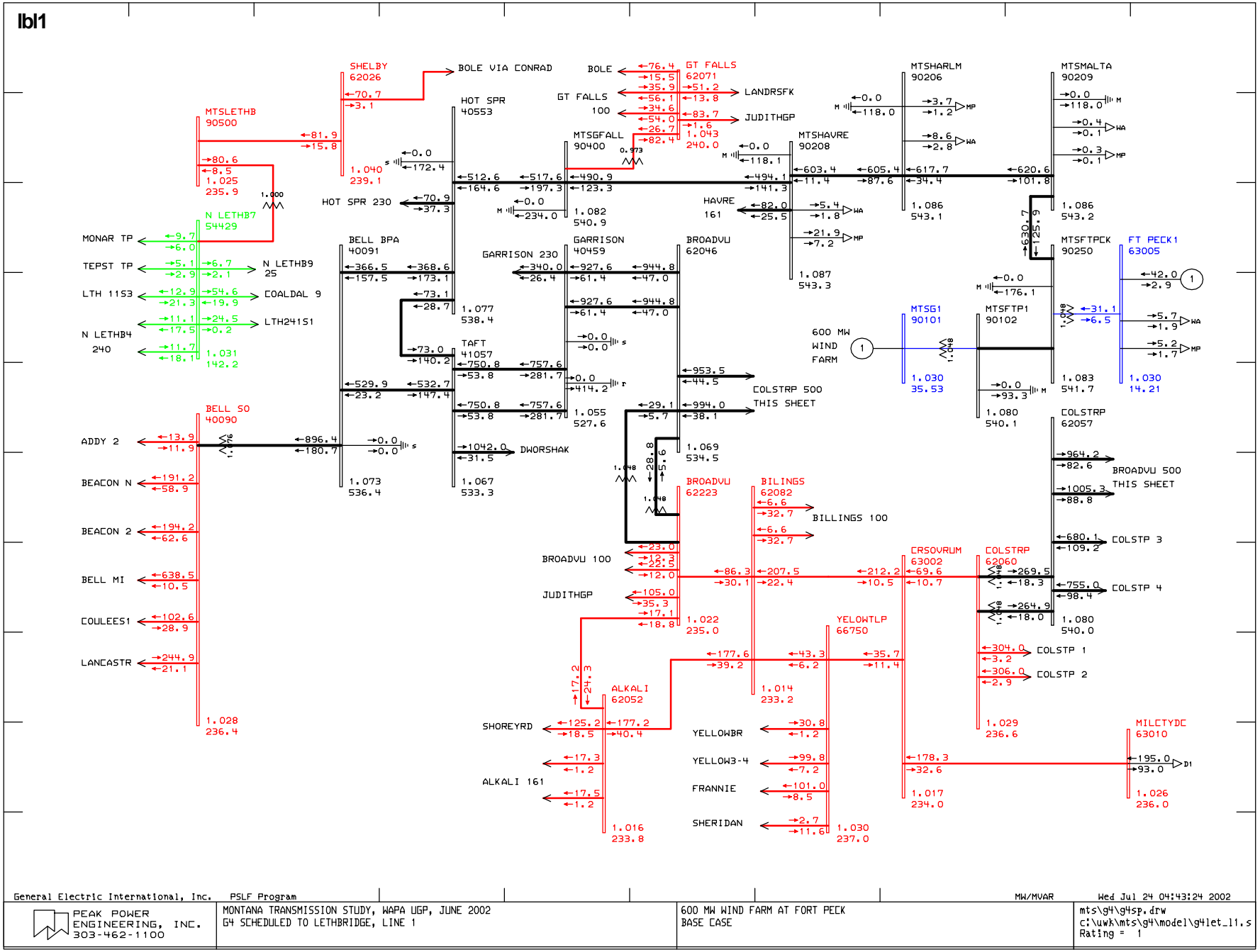
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 1

Area 63 [WAPA U.M.]

	-----MW----	----MVAR---		
Generation	655.426	-11.232	Generators	25
Actual Load	-102.100	123.600	Loads	17
Net actual shunt	0.000	-78.951	Shunts	1
Net actual svd	0.000	728.112	Svd	11
Net Interchange	732.745	76.712	Buses	32
Sched Interchange	732.000		Lines	19
Loss	24.782	-1212.306	Transformers	10

MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	0.000	1.744		
Loss at 34.50 Kv	-0.000	6.742		
Loss at 115.00 Kv	1.695	-2.077		
Loss at 161.00 Kv	1.393	-23.046		
Loss at 230.00 Kv	10.408	68.838		
Loss at 500.00 Kv	11.285	-1264.507		
Largest mismatch MVA	0.0023	0.0016		

B.5 **lbl1**



General Electric International, Inc. PSLF Program MW/MVAR Wed Jul 24 04:43:24 2002

PEAK POWER ENGINEERING, INC. 303-462-1100

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

600 MW WIND FARM AT FORT PECK
BASE CASE

mts\g4\g4sp.drw
c:\uwk\mts\g4\model\g4let_l1.s
Rating = 1

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Percent Loading Summary -- using rating 1 - 100.0 percent of rating

----------from----------				---------- to ----------									rate	per cent
--no.--	--name--	-kv-	-ar-	--no.--	--name--	-kv-	-ar-	ck	---mw---	-mvar-	-mva--	------	loading	
54083	E EDMON9	138	54	55938	STEL TAP	138	54	22	197.9	1.5	197.9	468.6A	168.6	F
54503	STELCOA9	138	54	55938	STEL TAP	138	54	22	-197.3	-0.2	197.3	497.9A	158.5	F
55015	DOME EA9	14	54	55525	163ST2	240	54	T2	-62.8	-5.3	63.0	45.0M	141.1	T
54506	BELLAMY4	240	54	54518	ARGYLL E	240	54	04	71.3	73.4	102.3	240.6A	120.7	T
54681	NEVIS 7	138	54	54823	NEVIS 9	138	54	1	32.7	16.4	36.6	33.3M	109.9	F
50459	KIT287	287	50	51075	KIT B5	13	50	5	80.3	23.6	83.7	79.0M	106.0	F
54290	BALZAC G	138	54	55290	BALZAC 1	14	54	T1	107.1	12.7	107.9	105.0M	102.7	F
54395	ENMX36S7	138	54	54421	ENMX36S8	69	54	T5	2.4	-47.9	47.9	50.0M	101.9	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	12	144.0	-48.2	151.8	156.5M	101.8	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	34	144.0	-48.2	151.8	156.5M	101.8	T
41304	COUGAR T	7	40	46211	COUGAR T	115	40	1	28.0	-7.9	29.1	30.0M	100.8	T
62047	COLSTP 4	26	62	62057	COLSTRP	500	62	1	755.0	163.5	772.5	770.0M	100.3	F

```
Processing file c:\uwk\mts\g4\rvoltls_lnbs.out
Processing file c:\uwk\mts\g4\rvoltletl1.out

Compvolt found the following for comparisons:
     475 Voltage Violations read from c:\uwk\mts\g4\rvoltls_lnbs.out
     563 Voltage Violations read from c:\uwk\mts\g4\rvoltletl1.out


**** VOLTS:  NEW ****
Component                    w/o Prj         w/ Prj  Rating
54004 WESTLOC9  138   0.95 <= pu <= 1.05    1.0526  1.00 pu kV
54006 CLYDE  9  138   0.95 <= pu <= 1.05    1.0535  1.00 pu kV
54037 HRT EXP9  138   0.95 <= pu <= 1.05    1.0530  1.00 pu kV
54065 N HOLDE9  138   0.95 <= pu <= 1.05    1.0658  1.00 pu kV
54070 HARDIST9  138   0.95 <= pu <= 1.05    1.0532  1.00 pu kV
54071 METIS649  138   0.95 <= pu <= 1.05    1.0626  1.00 pu kV
54072 HUGHEND9  138   0.95 <= pu <= 1.05    1.0542  1.00 pu kV
54075 SEDGEWI9  138   0.95 <= pu <= 1.05    1.0647  1.00 pu kV
54105 METISKO9  138   0.95 <= pu <= 1.05    1.0624  1.00 pu kV
54152 JANET  4  240   0.95 <= pu <= 1.05    1.0616  1.00 pu kV
54219 KILLARN9  138   0.95 <= pu <= 1.05    1.0589  1.00 pu kV
54249 RP05103S  138   0.95 <= pu <= 1.05    1.0525  1.00 pu kV
54297 WAINWRI7  138   0.95 <= pu <= 1.05    1.0553  1.00 pu kV
54317 NITON  9  138   0.95 <= pu <= 1.05    1.0583  1.00 pu kV
54373 IPL HAR7  138   0.95 <= pu <= 1.05    1.0528  1.00 pu kV
54423 KEEPHIL7  138   0.95 <= pu <= 1.05    1.0505  1.00 pu kV
54564 RYCROFT9  138   0.95 <= pu <= 1.05    1.0583  1.00 pu kV
54565 BOUCH C7  138   0.95 <= pu <= 1.05    1.0611  1.00 pu kV
54583 WAPITI 9  138   0.95 <= pu <= 1.05    1.0520  1.00 pu kV
54627 EDITH L7  138   0.95 <= pu <= 1.05    1.0515  1.00 pu kV
54698 MONITOR7  138   0.95 <= pu <= 1.05    1.0590  1.00 pu kV
54701 OYEN   7  138   0.95 <= pu <= 1.05    1.0662  1.00 pu kV
54827 MONITOR9  138   0.95 <= pu <= 1.05    1.0653  1.00 pu kV
54831 801S901T  240   0.95 <= pu <= 1.05    1.0501  1.00 pu kV
54848 791S703T  138   0.95 <= pu <= 1.05    1.0505  1.00 pu kV
54897 GENESE T  138   0.95 <= pu <= 1.05    1.0509  1.00 pu kV
54934 FLAT TAP  138   0.95 <= pu <= 1.05    1.0528  1.00 pu kV
54948 802S701T  138   0.95 <= pu <= 1.05    1.0660  1.00 pu kV
54989 703ALTAP  138   0.95 <= pu <= 1.05    1.0624  1.00 pu kV
55075 SEAL LK9  138   0.95 <= pu <= 1.05    1.0571  1.00 pu kV
55303 MAHIHKB9  138   0.95 <= pu <= 1.05    1.0551  1.00 pu kV
55310 LEMING 9  138   0.95 <= pu <= 1.05    1.0541  1.00 pu kV
55521 LANGDOB9  240   0.95 <= pu <= 1.05    1.0512  1.00 pu kV
55525 163ST2    240   0.95 <= pu <= 1.05    1.0594  1.00 pu kV
55539 163ST1    240   0.95 <= pu <= 1.05    1.0594  1.00 pu kV
55809 EXPRESTP  138   0.95 <= pu <= 1.05    1.0530  1.00 pu kV
55814 KILRY TP  138   0.95 <= pu <= 1.05    1.0635  1.00 pu kV
55892 WAIN TP7  138   0.95 <= pu <= 1.05    1.0613  1.00 pu kV
50031 KI2230    230   0.95 <= pu <= 1.05    1.0511  1.00 pu kV
50032 SPG230    230   0.95 <= pu <= 1.05    1.0524  1.00 pu kV
50033 CSN230    230   0.95 <= pu <= 1.05    1.0535  1.00 pu kV
50039 CAM230    230   0.95 <= pu <= 1.05    1.0500  1.00 pu kV
50047 MDN500    500   0.95 <= pu <= 1.05    1.0510  1.00 pu kV
50184 MLN230    230   0.95 <= pu <= 1.05    1.0501  1.00 pu kV
50194 ING500    500   0.95 <= pu <= 1.05    1.0542  1.00 pu kV
50331 GLD132    132   0.95 <= pu <= 1.05    1.0500  1.00 pu kV
50464 TKW500    500   0.95 <= pu <= 1.05    1.0513  1.00 pu kV
50655 VVW138    138   0.95 <= pu <= 1.05    1.0511  1.00 pu kV
50660 WGS138    138   0.95 <= pu <= 1.05    1.0504  1.00 pu kV
50672 BKL138    138   0.95 <= pu <= 1.05    1.0529  1.00 pu kV
50673 HFY138    138   0.95 <= pu <= 1.05    1.0502  1.00 pu kV
50674 BAR138    138   0.95 <= pu <= 1.05    1.0506  1.00 pu kV
50675 CLW138    138   0.95 <= pu <= 1.05    1.0546  1.00 pu kV
50676 VBY138    138   0.95 <= pu <= 1.05    1.0557  1.00 pu kV
50688 DFD138    138   0.95 <= pu <= 1.05    1.0513  1.00 pu kV
50691 NIC230    230   0.95 <= pu <= 1.05    1.0552  1.00 pu kV
50695 SVA230    230   0.95 <= pu <= 1.05    1.0515  1.00 pu kV
50702 ACK500    500   0.95 <= pu <= 1.05    1.0503  1.00 pu kV
50703 NIC500    500   0.95 <= pu <= 1.05    1.0533  1.00 pu kV
50860 CBN500    500   0.95 <= pu <= 1.05    1.0563  1.00 pu kV
50897 DFD138TP  138   0.95 <= pu <= 1.05    1.0513  1.00 pu kV
50898 CLW138TP  138   0.95 <= pu <= 1.05    1.0547  1.00 pu kV
50929 TOK138    138   0.95 <= pu <= 1.05    1.0503  1.00 pu kV
51016 MAN TP56  230   0.95 <= pu <= 1.05    1.0542  1.00 pu kV
62070 GT FALLS  115   0.95 <= pu <= 1.05    1.0570  1.00 pu kV
42312 CASCADEP  230   0.95 <= pu <= 1.05    1.0501  1.00 pu kV
63008 HAVRE     161   0.95 <= pu <= 1.05    1.0547  1.00 pu kV

**** VOLTS: WORSE ****
Component             w/o Prj  w/ Prj  Rating

**** VOLTS: BETTER ****
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Component             w/o Prj  w/ Prj  Rating

**** VOLTS:  AWAY ****
Component             w/o Prj      w/ Prj          Rating
54840 732S902T  240   1.0517  0.95 <= pu <= 1.05   1.00 pu kV
50782 CBK230    230   1.0510  0.95 <= pu <= 1.05   1.00 pu kV
50785 SEV230    230   1.0518  0.95 <= pu <= 1.05   1.00 pu kV
50786 INV230    230   1.0522  0.95 <= pu <= 1.05   1.00 pu kV
50789 AAL230    230   1.0510  0.95 <= pu <= 1.05   1.00 pu kV
40887 RINGOLD   115   1.0500  0.95 <= pu <= 1.05   1.00 pu kV
54551 RING CK7  138   0.9484  0.95 <= pu <= 1.05   1.00 pu kV
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GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

overvoltage summary > 1.100000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
54054	LAMOURE4	240	1.1117	54077	BIGSTON4	240	1.1117	54081	METIS644	240	1.1255
54090	BICKERD4	240	1.1282	54103	DEERLAN4	240	1.1097	54121	ELLERSLI	240	1.1218
54126	WABAMUN4	240	1.1146	54128	SUNDANM9	240	1.1148	54129	E EDMON4	240	1.1170
54130	N CALDE4	240	1.1133	54131	N BARRH4	240	1.1123	54142	WILLESD4	240	1.1042
54150	LANGDON2	500	1.1246	54153	BRAZEAU4	240	1.1090	54259	LAC LA 9	138	1.1184
54260	WINEFRE9	138	1.1155	54287	GREGG R9	138	1.1036	54329	KEEPHIL4	240	1.1313
54441	946/947X	240	1.1218	54505	JASPER 4	240	1.1158	54506	BELLAMY4	240	1.1298
54509	ARGYLL W	240	1.1292	54512	DOME T29	240	1.1212	54513	LAMBTON4	240	1.1178
54514	CLOVERB4	240	1.1128	54518	ARGYLL E	240	1.1288	54519	CASTLTX2	240	1.1118
54521	PETROLIA	240	1.1227	54524	GENESEE4	240	1.1280	54655	WHITFISH	240	1.1019
54656	WHITBY 7	138	1.1021	54657	VILNA 9	138	1.1003	54675	PAINTRT7	240	1.1137
54681	NEVIS 7	138	1.1279	54691	MICH. C9	138	1.1123	54693	WINT HI9	138	1.1056
54721	BAT RV79	240	1.1108	54723	CORDEL 4	240	1.1108	54806	946/947N	240	1.1170
54828	767S701T	138	1.1043	54844	709S702T	138	1.1433	54847	BAT RV80	240	1.1108
54978	EAST IN4	240	1.1171	54995	W.GRN TP	240	1.1043	55891	904AL TP	240	1.1171
55969	770S701T	138	1.1268	50351	JOR132	132	1.1015	51017	KMS230	230	1.1092

overvoltage summary > 1.050000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
90102	MTSFTP1	500	1.0802	90202	MTSFTP2	500	1.0802	90302	MTSFTP3	500	1.0802
90402	MTSFTP4	500	1.0802	90502	MTSFTP5	500	1.0802	90602	MTSFTP6	500	1.0802
90250	MTSFTPCK	500	1.0834	90206	MTSHARLM	500	1.0863	90208	MTSHAVRE	500	1.0867
90209	MTSMALTA	500	1.0865	90211	MTSRICHC	500	1.0868	90400	MTSGFALL	500	1.0818
54003	COLINTO9	138	1.0593	54004	WESTLOC9	138	1.0526	54006	CLYDE 9	138	1.0535
54007	BOYLE 9	138	1.0636	54012	FOX CREE	138	1.0729	54013	KAYBOB 9	138	1.0785
54014	GULF RO9	138	1.0895	54015	MTN COA9	138	1.0733	54016	FLATBUS9	138	1.0598
54017	COLD CR7	138	1.0744	54019	WESGEN T	138	1.0587	54020	EDSON A9	138	1.0709
54021	WESGEN 7	138	1.0607	54037	HRT EXP9	138	1.0530	54054	LAMOURE4	240	1.1117
54065	N HOLDE9	138	1.0658	54069	JARROW 9	138	1.0693	54070	HARDIST9	138	1.0532
54071	METIS649	138	1.0626	54072	HUGHEND9	138	1.0542	54073	IPPL ST9	138	1.0776
54075	SEDGEWI9	138	1.0647	54076	BUFFALO9	138	1.0714	54077	BIGSTON4	240	1.1117
54078	CHEVRON7	138	1.0785	54081	METIS644	240	1.1255	54082	BICKERD7	138	1.0792
54090	BICKERD4	240	1.1282	54097	BIG HOR9	138	1.0736	54103	DEERLAN4	240	1.1097
54105	METISKO9	138	1.0624	54111	SANDHIL7	138	1.0761	54121	ELLERSLI	240	1.1218
54125	SUNDANL9	138	1.0719	54126	WABAMUN4	240	1.1146	54128	SUNDANM9	240	1.1148
54129	E EDMON4	240	1.1170	54130	N CALDE4	240	1.1133	54131	N BARRH4	240	1.1123
54134	DALEHUR9	138	1.0736	54139	GAETZ 4	240	1.0956	54141	HIGHVAL9	138	1.0718
54142	WILLESD4	240	1.1042	54144	RED DEE4	240	1.0890	54147	BENALTO4	240	1.0910
54148	E CROSS4	240	1.0770	54150	LANGDON2	500	1.1246	54152	JANET 4	240	1.0616
54153	BRAZEAU4	240	1.1090	54155	SAGITAW4	240	1.0675	54157	PEIGAN 4	240	1.0817
54159	N LETHB4	240	1.0951	54200	848S901T	240	1.0741	54219	KILLARN9	138	1.0589
54223	WARE JCT	240	1.0597	54232	PANCAN 9	138	1.0759	54233	DOME EM7	138	1.0761
54249	RP05103S	138	1.0525	54258	PLAMOND9	138	1.0623	54259	LAC LA 9	138	1.1184
54260	WINEFRE9	138	1.1155	54269	COALSPU7	138	1.0922	54281	MILO 2	240	1.0766
54285	LEISMER9	240	1.0866	54287	GREGG R9	138	1.1036	54297	WAINWRI7	138	1.0553
54298	ALB NEWS	240	1.0586	54302	MARIONA9	138	1.0718	54308	FLATLK-3	138	1.0630
54317	NITON 9	138	1.0583	54325	CHEV KG9	138	1.0785	54326	COAL VA9	138	1.0911
54329	KEEPHIL4	240	1.1313	54335	W BROOK4	240	1.0682	54362	EDGERTO7	138	1.0715

54373	IPL HAR7	138	1.0528	54381	FLATLK-1	138	1.0630	54412	BENBOW 9	138	1.0785
54423	KEEPHIL7	138	1.0505	54441	946/947X	240	1.1218	54505	JASPER 4	240	1.1158
54506	BELLAMY4	240	1.1298	54509	ARGYLL W	240	1.1292	54512	DOME T29	240	1.1212
54513	LAMBTON4	240	1.1178	54514	CLOVERB4	240	1.1128	54518	ARGYLL E	240	1.1288
54519	CASTLTX2	240	1.1118	54521	PETROLIA	240	1.1227	54524	GENESEE4	240	1.1280
54557	WESLY C4	240	1.0795	54558	WESLY C7	138	1.0882	54559	CARMON 9	138	1.0862
54560	PEACE/29	138	1.0787	54561	DIASHOW7	138	1.0759	54564	RYCROFT9	138	1.0583
54565	BOUCH C7	138	1.0611	54567	FRIEDEN7	138	1.0662	54571	MERCER 9	138	1.0778
54572	MERC TAP	138	1.0782	54576	CRYST L7	138	1.0790	54578	SADHL TP	138	1.0626
54579	SADDLE 9	138	1.0557	54580	FLYSHT/2	138	1.0667	54581	WAP JCT7	138	1.0547
54583	WAPITI 9	138	1.0520	54584	ALBRIGHT	138	1.0602	54585	P&G 7	138	1.0603
54588	BIG MTN7	138	1.0649	54589	DOME CU7	138	1.0760	54590	BRDGE C7	138	1.0653
54593	DONNELL9	138	1.0775	54594	TAP7L487	138	1.0785	54595	TRIANGL7	138	1.0741
54596	VALLEYV9	138	1.0842	54598	BEZANSON	138	1.0801	54599	L. SMOKY	240	1.0765
54600	L.SMOKY7	138	1.0892	54601	STURGEO7	138	1.0889	54606	SIMONET9	138	1.0877
54607	FOXCRK/2	138	1.0703	54608	GOOSE R9	138	1.0728	54612	RUTH LA7	138	1.0936
54613	RUTH LK7	138	1.0940	54618	PARS CR7	138	1.0908	54619	HANGSTO9	138	1.0883
54621	MITS E.4	240	1.0839	54622	MITS E.7	138	1.0923	54623	AEC MILL	138	1.0913
54624	OTAUWAU7	138	1.0922	54627	EDITH L7	138	1.0515	54632	LOU CR.4	240	1.0731
54633	LOU CR.7	138	1.0683	54634	SARHLK/2	138	1.0618	54636	ESSO JU7	138	1.0630
54637	MORSE RV	138	1.0635	54639	VIRGINI9	138	1.0604	54643	WOLF LK9	138	1.0762
54646	MARG LK4	240	1.0851	54647	MARG LK7	138	1.0894	54648	LACOREY9	138	1.0901
54649	ETHEL L7	138	1.0747	54652	BONNY 9	138	1.0948	54654	BONN SVC	138	1.0948
54655	WHITFISH	240	1.1019	54656	WHITBY 7	138	1.1021	54657	VILNA 9	138	1.1003
54663	IRISH C9	138	1.0781	54665	BUFALOTP	138	1.0714	54666	VERMILO7	138	1.0782
54670	HILL 9	138	1.0871	54675	PAINTRT7	240	1.1137	54680	NEVIS 4	240	1.0951
54681	NEVIS 7	138	1.1279	54685	3HILLS/3	138	1.0808	54691	MICH. C9	138	1.1123
54693	WINT HI9	138	1.1056	54694	BULLPON9	138	1.0987	54698	MONITOR7	138	1.0590
54700	MCNEILL	138	1.0761	54701	OYEN 7	138	1.0662	54707	SHEER 14	240	1.0632
54709	ANDERSO4	240	1.0637	54710	ANDERSON	138	1.0952	54711	SHEER 24	240	1.0625
54714	JAROW TP	138	1.0694	54715	BAT. RV7	138	1.0930	54721	BAT RV79	240	1.1108
54723	CORDEL 4	240	1.1108	54729	PRIM TAP	138	1.0713	54730	PRIMROSE	138	1.0762
54798	800S701T	138	1.0740	54802	STURGEO9	138	1.0909	54806	946/947N	240	1.1170
54809	732S901T	240	1.0698	54814	717S701T	138	1.0711	54818	VERMILA9	138	1.0985
54819	TER 70A9	138	1.0832	54822	766S901T	240	1.0797	54823	NEVIS 9	138	1.0914
54827	MONITOR9	138	1.0653	54828	767S701T	138	1.1043	54831	801S901T	240	1.0501
54836	MILNERB9	138	1.0733	54838	848S902T	240	1.0745	54844	709S702T	138	1.1433
54847	BAT RV80	240	1.1108	54848	791S703T	138	1.0505	54897	GENESE T	138	1.0509
54934	FLAT TAP	138	1.0528	54948	802S701T	138	1.0660	54962	KAYBOBTP	138	1.0785
54978	EAST IN4	240	1.1171	54983	MARION T	138	1.0718	54984	HIGHVL T	138	1.0718
54988	CROSSF T	240	1.0770	54989	703ALTAP	138	1.0624	54995	W.GRN TP	240	1.1043
55003	SANDYPT9	138	1.0760	55007	ALGAR-39	138	1.0929	55008	MARIANA7	138	1.0942
55072	SYNC_D04	240	1.0671	55073	AURORA 4	240	1.0715	55075	SEAL LK9	138	1.0571
55117	CLAIR L	138	1.0781	55118	POPLAR 7	138	1.0624	55147	MILNERC9	138	1.0838
55226	WABASCA9	240	1.0744	55260	EMP LIQ7	138	1.0746	55272	FIELDGA9	138	1.0621
55280	BRINTNEL	240	1.0685	55303	MAHIHKB9	138	1.0551	55310	LEMING 9	138	1.0541
55352	GRND CTR	138	1.0773	55367	VEGREVL9	138	1.0773	55515	PRIMROSE	138	1.0595
55521	LANGDOB9	240	1.0512	55525	163ST2	240	1.0594	55539	163ST1	240	1.0594
55809	EXPRESTP	138	1.0530	55814	KILRY TP	138	1.0635	55820	FICKLE 9	138	1.0752
55891	904AL TP	240	1.1171	55892	WAIN TP7	138	1.0613	55909	DALEH TP	138	1.0736
55910	OBED TAP	138	1.0736	55911	EMPLIQTP	138	1.0752	55912	740L JNC	138	1.0922
55913	G.ROBB T	138	1.0901	55924	CH KGT T	138	1.0785	55943	MILO 1	240	1.0766
55969	770S701T	138	1.1268	50010	COM132	132	1.0509	50016	CKY230	230	1.0524
50020	CMS230	230	1.0500	50031	KI2230	230	1.0511	50032	SPG230	230	1.0524
50033	CSN230	230	1.0535	50036	RBW230	230	1.0590	50037	PEM230	230	1.0623

50038	RBW230-1	230	1.0580	50039	CAM230	230	1.0500	50047	MDN500	500	1.0510
50182	ARN132	132	1.0740	50184	MLN230	230	1.0501	50185	ALZ230	230	1.0662
50186	ROS230	230	1.0761	50187	BRT230	230	1.0695	50188	BUT230	230	1.0500
50190	CBN230	230	1.0593	50191	ROS360	360	1.0563	50192	WAH360	360	1.0567
50193	BRT360	360	1.0500	50194	ING500	500	1.0542	50313	VIT132	132	1.0722
50314	PVO133	132	1.0717	50315	PVO132	132	1.0722	50316	LDY132	132	1.0544
50318	JPT132	132	1.0738	50319	COC132	132	1.0704	50320	HMC132	132	1.0702
50321	PHY132	132	1.0584	50322	CFT132	132	1.0680	50323	DMR132	132	1.0863
50324	PAL132	132	1.0690	50325	GCL132	132	1.0704	50326	NFD132	132	1.0748
50327	ASH132	132	1.0738	50328	PUN132	132	1.0576	50330	LDR132	132	1.0500
50331	GLD132	132	1.0500	50334	KGH132	132	1.0627	50335	UTA132	132	1.0630
50336	PVL132-2	132	1.0756	50337	LDY122	132	1.0733	50338	CMX132	132	1.0591
50339	PVL132	132	1.0757	50342	SCA132	132	1.0500	50343	KSH132-2	132	1.0752
50344	SHA1	132	1.0736	50345	KSH132	132	1.0746	50346	SHA2	132	1.0778
50347	GOW132	132	1.0886	50348	GTP132	132	1.0924	50349	CLD132	132	1.0964
50350	SOO132	132	1.0978	50351	JOR132	132	1.1015	50352	PML132	132	1.0610
50353	WOS132	132	1.0577	50354	GLSTP17	132	1.0767	50355	GLSTP18	132	1.0738
50356	DND132	132	1.0878	50357	LTZ115	132	1.0737	50358	LTZ116	132	1.0737
50359	JHT132	132	1.0500	50377	LDYTP138	132	1.0546	50381	PVLTP116	132	1.0756
50382	HWDTP122	132	1.0738	50383	LDYTP122	132	1.0733	50385	CMXTP102	132	1.0571
50386	CMXTP101	132	1.0611	50387	PVLTP115	132	1.0757	50390	KSHTP11	132	1.0748
50391	KSHTP14	132	1.0755	50393	SHATP10	132	1.0737	50394	SHATP14	132	1.0778
50395	SALTP17	132	1.0752	50396	SALTP18	132	1.0752	50399	LTZTP115	132	1.0737
50400	LTZTP116	132	1.0737	50403	CMX132-2	132	1.0555	50460	KMO287	287	1.0533
50463	SKA500	500	1.0514	50464	TKW500	500	1.0513	50545	BLW230	230	1.0733
50546	SCK230	230	1.0686	50547	HMH230	230	1.0660	50548	BLM230	230	1.0525
50549	QNT230	230	1.0518	50550	QRP230	230	1.0730	50551	TLR230	230	1.0523
50553	BCR230	230	1.0523	50554	RBF230	230	1.0744	50556	LAP230	230	1.0501
50557	SNK230	230	1.0517	50560	KDS500	500	1.0588	50562	GLN500	500	1.0576
50655	VVW138	138	1.0511	50660	WGS138	138	1.0504	50672	BKL138	138	1.0529
50673	HFY138	138	1.0502	50674	BAR138	138	1.0506	50675	CLW138	138	1.0546
50676	VBY138	138	1.0557	50677	MCK138	138	1.0601	50678	AVO138	138	1.0623
50679	BLU138	138	1.0693	50680	VLM138	138	1.0759	50686	SCO138	138	1.0743
50687	ABA138	138	1.0750	50688	DFD138	138	1.0513	50691	NIC230	230	1.0552
50695	SVA230	230	1.0515	50701	REV500	500	1.0500	50702	ACK500	500	1.0503
50703	NIC500	500	1.0533	50729	PRI138TP	138	1.0742	50783	SEL230	230	1.0515
50791	CBK500	500	1.0768	50792	SEL500	500	1.0500	50860	CBN500	500	1.0563
50897	DFD138TP	138	1.0513	50898	CLW138TP	138	1.0547	50899	ABA138TP	138	1.0751
50913	HWD132-2	132	1.0717	50914	HWDTP112	132	1.0717	50922	DNDTAP	132	1.0884
50923	HSY-PH	132	1.0927	50924	ESQ-PH	132	1.0878	50928	SCG IPP	132	1.0500
50929	TOK138	138	1.0503	50932	IPH132	132	1.0702	50933	JUL132	132	1.0596
50934	JULTP130	132	1.0627	51016	MAN TP56	230	1.0542	51017	KMS230	230	1.1092
51019	OYR132B1	132	1.0547	51020	OYR132B2	132	1.0570	51021	OYR T101	132	1.0552
51022	OYR T119	132	1.0577	51024	QLC132B1	132	1.0782	51025	QLC132B2	132	1.0781
51040	ICG132	132	1.0500	51045	ALH230	230	1.0536	51051	PGS132	132	1.0724
51052	PGS-105T	132	1.0724	51053	PGS-114T	132	1.0724	60085	BRIDGER	345	1.0500
60240	MIDPOINT	500	1.0621	62012	TOWN2	500	1.0796	62013	TOWN1	500	1.0796
62046	BROADVU	500	1.0690	62053	BROADV&2	500	1.0611	62054	BROADV&1	500	1.0617
62057	COLSTRP	500	1.0800	62070	GT FALLS	115	1.0570	40045	ALLSTON	500	1.0771
40051	ALVEY	500	1.0813	40061	ASHE	500	1.0800	41184	BALD MT	115	1.0514
40091	BELL BPA	500	1.0728	40111	BIG EDDY	500	1.0803	43049	BOARD F	500	1.0800
47013	BRIDGPRT	115	1.0539	40155	BUCKLEY	500	1.0831	45029	BURNS	500	1.0669
45035	CAPTJACK	500	1.0754	46209	CARMEN	115	1.0525	42315	CASCADEP	115	1.0586
42312	CASCADEP	230	1.0501	41311	CELILO1	500	1.0801	41312	CELILO2	500	1.0801
40233	CHIEF JO	500	1.0800	42316	CLE ELUM	115	1.0590	40269	CONNEL T	115	1.0510

40271	CONNELL	115	1.0540	40287	COULEE	500	1.0810	40302	COVINGT4	500	1.0784
40306	COVINGT5	500	1.0789	43123	COYOTE	500	1.0832	40323	CUSTER W	500	1.0606
45095	DIXONVLE	500	1.0779	40369	DWORSHAK	500	1.0671	42395	EASTON	115	1.0605
40381	ECHOLAKE	500	1.0849	40451	GAR1EAST	500	1.0735	40453	GAR2EAST	500	1.0735
40459	GARRISON	500	1.0553	40485	GREEN PT	115	1.0520	40489	GRIZZLY	500	1.0724
40499	HANFORD	500	1.0874	47165	HANLY R1	115	1.0504	40517	HATTON T	115	1.0522
40521	HATWAI	500	1.0700	45137	HERMIST	230	1.0509	41212	HILLS CR	115	1.0500
40553	HOT SPR	500	1.0768	42405	HYAK	115	1.0613	40585	JOHN DAY	500	1.0800
40601	KEELER	500	1.0761	45262	KFALLS	500	1.0794	42411	KITTITAS	115	1.0612
40629	LANE	500	1.0717	40665	LIT GOOS	500	1.0805	40679	LOW GRAN	500	1.0800
40683	LOW MON	500	1.0800	40687	MALIN	500	1.0735	40693	MAPLE VL	500	1.0865
40699	MARION	500	1.0807	40711	MCLOUGLN	500	1.0803	40721	MCNARY	345	1.0513
40723	MCNARY	500	1.0814	45197	MERIDINP	500	1.0798	40749	MONROE	500	1.0831
42429	NCLE ELM	115	1.0586	40797	OLYMPIA	500	1.0799	40809	OSTRNDER	500	1.0797
40821	PAUL	500	1.0800	40827	PEARL	500	1.0800	40837	PONDROSA	500	1.0759
40869	RAVER	500	1.0821	43485	ROUND BU	500	1.0694	40913	SACJAWEA	500	1.0812
40917	SACJWA T	500	1.0816	40941	SANTIAM	500	1.0804	40949	SATSOP	500	1.0820
40957	SCHULTZ	500	1.0932	40973	SICKLER	500	1.0845	40989	SLATT	500	1.0825
41043	SUMMER L	500	1.0732	45289	SWIFT	230	1.0500	41051	TACOMA	500	1.0830
41057	TAFT	500	1.0665	41095	TROUTDAL	500	1.0826	41103	UNDRWOOD	115	1.0514
41113	VANTAGE	500	1.0908	47099	WELLS	115	1.0618	42467	WOLDALE	115	1.0600
42314	X-POINT	200	1.0600	65510	EMERY	345	1.0500	64004	ANACONDA	120	1.0504
64074	MILLERS	120	1.0579	64165	SQAW VLY	120	1.0605	64182	SANDIA	120	1.0578
64229	SUMMIT 2	115	1.0507	52226	PRI138	138	1.0751	52229	KER138	138	1.0822
52230	HED138	138	1.0800	52291	DKL138	138	1.0613	52300	LEE138T3	138	1.0611
52301	LEE138T4	138	1.0611	52302	LEE138C	138	1.0611	52303	JOR138TP	138	1.0607
52304	DGB138	138	1.0599	52306	SEX138	138	1.0614	52307	GLE138	138	1.0615
52308	REC138	138	1.0617	52309	SAU138	138	1.0602	52310	SPR138TP	138	1.0602
52313	HOL138	138	1.0602	52314	OKM138	138	1.0595	52319	JOR138	138	1.0604
52426	MAS138	138	1.0800	52809	LEE-T3	230	1.0619	52810	LEE-T4A	230	1.0611
52811	LEE-T4B	230	1.0629	52812	LEE-T4C	230	1.0616	52813	LEE-T4D	230	1.0616
52815	PRI-T2	138	1.0784	63008	HAVRE	161	1.0547				

undervoltage summary < 0.900000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)

undervoltage summary < 0.950000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
54796	791S701T	138	0.9173	54835	791S702T	138	0.9237	50781	NTL VR	138	0.9443

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

	generation capacity	generation on-line	--- load categories ---- power	current	imped.	shunt	-- svd --	net inter	losses	slack bus
area name ALBERTA										
mw	10743.6	6201.8	6274.4	0.0	0.0	0.0	0.0	-399.6	326.9	34.4
54 mvar	4941.5	268.0	1997.1	0.0	0.0	-22.4	-1239.4	68.5	-556.8	7.4
area name B.C.HYDRO										
mw	14043.0	8231.9	6035.1	0.0	0.0	0.0	0.0	1800.1	396.7	238.0
50 mvar	6475.0	-57.2	2359.8	0.0	0.0	2936.9	2724.0	-436.0	-7641.9	-3.1
area name IDAHO										
mw	4676.4	3193.4	1955.0	0.0	0.0	0.0	0.0	1066.1	172.4	178.1
60 mvar	2192.5	568.9	501.3	0.0	0.0	-96.4	0.0	-378.2	542.3	25.9
area name MONTANA										
mw	3502.2	3008.1	1207.7	0.0	0.0	0.4	0.0	1700.3	99.6	740.1
62 mvar	1309.0	385.2	524.8	0.0	0.0	-121.4	738.0	-829.2	448.2	192.6
area name NORTHWEST										
mw	43404.3	17478.6	16651.6	0.0	0.0	0.0	0.0	253.1	573.9	584.2
40 mvar	15534.6	257.9	5157.0	0.0	0.0	-1732.4	2684.0	1378.6	-7229.3	-306.7
area name PACE										
mw	6242.0	5529.5	4750.0	0.0	0.0	0.0	0.0	590.3	189.2	78.5
65 mvar	3201.9	540.2	1528.0	0.0	0.0	-528.4	0.0	-170.4	-289.1	12.7
area name PSCOLORADO										
mw	5792.0	4234.7	4858.1	0.0	0.0	0.0	0.0	-744.5	121.2	102.7
70 mvar	3667.3	623.3	1835.0	0.0	0.0	0.0	-1397.6	50.6	135.3	3.9
area name SIERRA										
mw	1901.7	1069.6	1075.2	0.0	0.0	0.0	0.0	-36.0	30.4	99.6
64 mvar	925.4	-25.8	280.4	0.0	0.0	-158.4	74.0	17.6	-239.3	7.7
area name W KOOTENAY										
mw	763.5	498.0	486.1	0.0	0.0	0.0	0.0	0.6	11.3	98.0
52 mvar	450.0	9.6	160.7	0.0	0.0	-79.5	-71.9	-6.3	6.5	-3.9
area name WAPA R.M.										
mw	6091.6	3957.4	2784.2	0.0	0.0	0.0	0.0	1050.9	122.4	412.5
73 mvar	2883.8	-179.3	950.8	0.0	0.0	-299.3	-177.0	-207.8	-446.0	16.6

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

		generation capacity	generation on-line	--- load categories ---- power	current	imped.	shunt	-- svd -- inter	net losses	slack bus
area name		WAPA U.M.								
	mw	661.8	642.0	-120.2	0.0	0.0	0.0	0.0	740.2	22.0	42.0
63	mvar	154.0	-12.1	117.5	0.0	0.0	-79.0	747.9	120.3	-1273.0	-2.9
TOTL	mw	97822.1	54044.9	45957.1	0.0	0.0	0.4	0.0	6021.4	2066.0	
	mvar	41735.0	2378.7	15412.5	0.0	0.0	-180.3	4082.1	-392.5	-16543.2	

Area Interchange Summary

		mw	mvar
FROM AREA	54 ALBERTA		
TO AREA	50 B.C.HYDRO	-317.7	52.6
TO AREA	62 MONTANA	-81.9	15.8
TOTAL		-399.6	68.5
FROM AREA	50 B.C.HYDRO		
TO AREA	54 ALBERTA	317.7	-52.6
TO AREA	40 NORTHWEST	1483.0	-389.6
TO AREA	52 W KOOTENAY	-0.6	6.3
TOTAL		1800.1	-436.0
FROM AREA	60 IDAHO		
TO AREA	40 NORTHWEST	962.1	-340.2
TO AREA	65 PACE	235.1	-19.6
TO AREA	64 SIERRA	-131.2	-18.4
TOTAL		1066.1	-378.2
FROM AREA	62 MONTANA		
TO AREA	54 ALBERTA	81.9	-15.8
TO AREA	40 NORTHWEST	2280.0	-683.8
TO AREA	65 PACE	43.0	-4.7
TO AREA	63 WAPA U.M.	-704.5	-124.9
TOTAL		1700.3	-829.2
FROM AREA	40 NORTHWEST		
TO AREA	50 B.C.HYDRO	-1483.0	389.6
TO AREA	60 IDAHO	-962.1	340.2
TO AREA	26 LADWP	1956.0	411.8
TO AREA	62 MONTANA	-2280.0	683.8
TO AREA	30 PG AND E	2890.2	-426.7
TO AREA	64 SIERRA	132.1	-20.1
TOTAL		253.1	1378.6
FROM AREA	65 PACE		
TO AREA	14 ARIZONA	272.5	35.7
TO AREA	60 IDAHO	-235.1	19.6
TO AREA	26 LADWP	66.7	-133.3
TO AREA	62 MONTANA	-43.0	4.7
TO AREA	18 NEVADA	156.9	-81.5
TO AREA	64 SIERRA	23.4	9.0
TO AREA	19 WAPA L.C.	178.0	-27.2
TO AREA	73 WAPA R.M.	170.8	2.5
TOTAL		590.3	-170.4
FROM AREA	70 PSCOLORADO		
TO AREA	73 WAPA R.M.	-744.5	50.6
TOTAL		-744.5	50.6
FROM AREA	64 SIERRA		
TO AREA	60 IDAHO	131.2	18.4
TO AREA	26 LADWP	-30.6	6.4
TO AREA	40 NORTHWEST	-132.1	20.1
TO AREA	65 PACE	-23.4	-9.0

TO AREA	30 PG AND E	7.2	-15.7
TO AREA	24 SOCALIF	11.6	-2.7
TOTAL		-36.0	17.6
FROM AREA	52 W KOOTENAY	mw	mvar
TO AREA	50 B.C.HYDRO	0.6	-6.3
TOTAL		0.6	-6.3
FROM AREA	73 WAPA R.M.	mw	mvar
TO AREA	10 NEW MEXICO	336.7	-94.5
TO AREA	65 PACE	-170.8	-2.5
TO AREA	70 PSCOLORADO	744.5	-50.6
TO AREA	19 WAPA L.C.	176.1	-64.9
TO AREA	63 WAPA U.M.	-35.6	4.6
TOTAL		1050.9	-207.8
FROM AREA	63 WAPA U.M.	mw	mvar
TO AREA	62 MONTANA	704.5	124.9
TO AREA	73 WAPA R.M.	35.6	-4.6
TOTAL		740.2	120.3

AREA TIE LINE SUMMARY

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

```
  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    54150 LANGDON2  500        50791 CBK500    500  1            -273.22     53.89   f
    54205 COLEMAN7  138        50776 NTL138    138  1             -17.69     -8.58   t
    54273 POCATER7  138        50830 FRO T274  138  1             -26.81      7.33   t
 from area  54 to area  50 B.C.HYDRO                             -317.71     52.64

    90500 MTSLETHB  230        62026 SHELBY    230  1             -81.87     15.82   t
 from area  54 to area  62 MONTANA                                -81.87     15.82

 Total from area  54 ALBERTA                                     -399.58     68.46

  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    62026 SHELBY    230        90500 MTSLETHB  230  1              81.87    -15.82   f
 from area  62 to area  54 ALBERTA                                81.87    -15.82

    90400 MTSGFALL  500        40553 HOT SPR   500  1             517.58   -197.28   f
    62004 ANACOND   230        40457 GARRISON  230  1             -86.16    -16.51   f
    62004 ANACOND   230        40457 GARRISON  230  2             -92.57    -21.79   f
    62009 RATTLE S  161        40867 RATTLE S  230  1             -68.07    -27.97   t
    62012 TOWN2     500        40453 GAR2EAST  500  2             927.59   -184.02   t
    62013 TOWN1     500        40451 GAR1EAST  500  1             927.59   -184.02   t
    62066 KERR      115        40391 ELMO      115  1              15.07    -21.93   f
    62072 OVANDO    230        40457 GARRISON  230  1             -48.64      5.23   t
    62072 OVANDO    230        40551 HOT SPR   230  1              90.13     -0.21   t
    62085 CROWCR B  115        48055 BURKAVAB  115  1              47.64    -17.60   t
    62086 THOMSON   115        48053 BURKAVAA  115  1              49.88    -17.67   t
 from area  62 to area  40 NORTHWEST                            2280.05   -683.76

    62030 PTRSNFLT  230        65025 AMPS      230  1              80.97      7.01   t
    62045 BLGS PHA  230        66750 YELOWTLP  230  1             -43.30     -6.20   t
    62061 RMRK PHA  161        66755 YELOWTLP  161  1             -22.12     -6.02   f
    62084 DILLON S  161        65155 BIGGRASS  161  1              27.43      0.54   t
 from area  62 to area  65 PACE                                    42.98     -4.67

    90400 MTSGFALL  500        90208 MTSHAVRE  500  1            -490.89   -123.26   f
    62023 GT FALLS  161        63008 HAVRE     161  1             -23.44    -16.09   f
    62024 RAINBOW   161        63015 VERONA    161  1             -20.29    -13.98   f
    62027 SHELBY    115        63014 TIBERTAP  115  1             -27.39      7.15   f
    62051 HARDIN    230        63002 CRSOVRUM  230  1              69.64     10.70   t
    62056 HUNTLEY   230        63002 CRSOVRUM  230  1            -212.18     10.53   t
 from area  62 to area  63 WAPA U.M.                             -704.55   -124.95

 Total from area  62 MONTANA                                     1700.35   -829.20

  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    40145 BOUNDARY  230        50822 NLYPHS    230  1             -27.90    -16.78   f
    40323 CUSTER W  500        50194 ING500    500  1            -733.67    204.49   t
    40323 CUSTER W  500        50194 ING500    500  2            -721.43    201.92   t
 from area  40 to area  50 B.C.HYDRO                            -1483.00    389.63

    45029 BURNS     500        60240 MIDPOINT  500  1           -1012.26    360.30   t
    45103 ENTERPRS  230        60150 HELLSCYN  230  1             -20.31    -12.52   f
    40507 HARNEY    115        61826 HINES     115  1             -16.08     10.87   f
    40621 LAGRANDE  230        60192 LADD      230  1               6.68    -10.44   f
    48197 LOLO      230        60278 IMNAHA    230  1              79.82     -8.02   t
 from area  40 to area  60 IDAHO                                 -962.15    340.20

    41311 CELILO1   500        26097 SYLMAR1   230  1             388.82     62.89   f
    41313 CELILO3   230        26098 SYLMAR3   230  1             589.18    142.98   f
    41312 CELILO2   500        26099 SYLMAR2   230  1             388.82     62.86   f
    41314 CELILO4   230        26100 SYLMAR4   230  1             589.18    143.10   f
 from area  40 to area  26 LADWP                                 1956.00    411.83

    48053 BURKAVAA  115        62086 THOMSON   115  1             -49.88     17.67   f
    48055 BURKAVAB  115        62085 CROWCR B  115  1             -47.64     17.60   f
    40391 ELMO      115        62066 KERR      115  1             -15.07     21.93   t
    40451 GAR1EAST  500        62013 TOWN1     500  1            -927.59    184.02   f
    40453 GAR2EAST  500        62012 TOWN2     500  2            -927.59    184.02   f
    40457 GARRISON  230        62072 OVANDO    230  1              48.64     -5.23   f
    40457 GARRISON  230        62004 ANACOND   230  1              86.16     16.51   t
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   40457 GARRISON  230        62004 ANACOND   230  2             92.57     21.79   t
   40551 HOT SPR   230        62072 OVANDO    230  1            -90.13      0.21   f
   40553 HOT SPR   500        90400 MTSGFALL  500  1           -517.58    197.28   t
   40867 RATTLE S  230        62009 RATTLE S  161  1             68.07     27.97   f
from area  40 to area  62 MONTANA                              -2280.05    683.76

   45035 CAPTJACK  500        30020 OLINDA    500  1           1065.20   -145.36   f
   45087 DELTA     115        31468 CASCADE   115  1             71.04    -19.34   f
   40687 MALIN     500        30005 ROUND MT  500  1            873.36   -123.03   f
   40687 MALIN     500        30005 ROUND MT  500  2            880.59   -138.98   f
from area  40 to area  30 PG AND E                             2890.21   -426.71

   40537 HIL TOP   230        64058 HIL TOP   345  1            132.06    -20.15   f
from area  40 to area  64 SIERRA                                132.06    -20.15

Total from area  40 NORTHWEST                                   253.07   1378.56

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   66235 PINTO PS  345        14101 FOURCORN  345  1            272.49     35.69   t
from area  65 to area  14 ARIZONA                               272.49     35.69

   65075 ANTLOPE   230        60073 BRADY     230  1             44.33    -22.77   f
   65135 BENLOMND  345        60060 BORAH     345  1            -11.68     95.24   t
   65220 BRIDGER   230        60085 BRIDGER   345  1             -5.37     -4.35   t
   65220 BRIDGER   230        60085 BRIDGER   345  2             -5.46     -4.41   t
   65220 BRIDGER   230        60085 BRIDGER   345  3             -5.37     -4.35   t
   65665 GOSHEN    345        60085 BRIDGER   345  1           -604.82    -58.29   f
   65665 GOSHEN    345        60190 KINPORT   345  1            312.33      2.01   t
   65670 GOSHEN    161        60030 BLACKFT   161  1             82.97     -2.46   f
   65920 MALAD     138        60020 AMFLS     138  1            -20.09      0.78   t
   66565 TREASTON  230        60073 BRADY     230  1            -21.95     18.22   t
from area  65 to area  60 IDAHO                                 -235.12     19.61

   65995 MONA      345        26043 INTERMT   345  1             33.37    -66.63   f
   65995 MONA      345        26043 INTERMT   345  2             33.37    -66.63   f
from area  65 to area  26 LADWP                                  66.74   -133.25

   65025 AMPS      230        62030 PTRSNFLT  230  1            -80.97     -7.01   f
   65155 BIGGRASS  161        62084 DILLON S  161  1            -27.43     -0.54   f
   66750 YELOWTLP  230        62045 BLGS PHA  230  1             43.30      6.20   f
   66755 YELOWTLP  161        62061 RMRK PHA  161  1             22.12      6.02   t
from area  65 to area  62 MONTANA                               -42.98      4.67

   66280 REDBUTTE  345        18002 HA PS     345  1            156.94    -81.48   f
from area  65 to area  18 NEVADA                                156.94    -81.48

   66210 PAVANT    230        64124 UTAH-NEV  230  1             23.40      8.97   t
from area  65 to area  64 SIERRA                                 23.40      8.97

   66355 SIGURDPS  230        79031 GLENCANY  230  1            178.00    -27.17   t
from area  65 to area  19 WAPA L.C.                             178.00    -27.17

   65060 ANT MINE  230        73276 TEKLA     230  1             36.13     12.80   f
   65085 ASHLEY    138        79067 VERNAL    138  1            -48.14      5.41   t
   65192 BONANZA   138        79067 VERNAL    138  1             47.96     -2.71   t
   65193 BONANZA   345        79005 BEARS     345  1           -187.47    -11.21   f
   65305 CASPERPP  115        73167 REFNRYTP  115  1            -38.72     -0.24   f
   65305 CASPERPP  115        73042 CASPERLM  115  1              0.20     -8.29   t
   65420 DAVEJOHN  230        73107 LAR.RIVR  230  1             85.04    -20.13   f
   65420 DAVEJOHN  230        73190 STEGALL   230  1             88.88    -18.15   f
   65425 DAVEJOHN  115        73070 GLENRCKN  115  1             70.87     -2.86   f
   65425 DAVEJOHN  115        73071 GLENRCKS  115  1             80.82     -0.04   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  1            -51.82      9.08   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  2            -51.82      9.08   f
   66278 RANGELY   138        79001 ARTESIA   138  1             -5.79     -6.16   f
   66278 RANGELY   138        79046 MEEKER    138  1             18.58     -4.77   f
   66305 RIVERTON  230        73170 RIVERTON  115  1              4.50      5.23   f
   66535 THERMOPL  230        73197 THERMOPL  115  1              2.44      5.94   t
   66540 THERPACE  115        73197 THERMOPL  115  1              6.84      4.31   t
   66720 WORLAND   115        73222 WORLANTP  115  1             -5.74      4.31   t
   66725 WYODAK    230        73148 OSAGE     230  1            102.96    -11.97   t
   66725 WYODAK    230        73168 RENO      230  1             54.50     -0.87   f
   66725 WYODAK    230        73294 HUGHES    230  1            107.35     -2.50   f
   66725 WYODAK    230        73282 WYODAK     69  1             11.62     13.90   f
   66725 WYODAK    230        73282 WYODAK     69  2              7.86      9.40   f
   66725 WYODAK    230        74016 WYGEN      14  1              0.00      0.00   f
   66750 YELOWTLP  230        73229 YELLOWBR  230  1           -166.19     12.97   t
from area  65 to area  73 WAPA R.M.                             170.85      2.53

Total from area  65 PACE                                        590.33   -170.43
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 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   70005 BRUSHCPP  115        73013 B.CK PS   115  1              42.00      2.51   f
   70005 BRUSHCPP  115        73013 B.CK PS   115  2              44.57      4.63   f
   70116 COBBLAKE  115        73044 COBBLKTP  115  1             -11.50     -1.11   f
   70122 COMANCHE  230        73477 FULLER    230  1              85.13     16.99   t
   70139 DANIELPK  230        73477 FULLER    230  1             -22.83      2.05   t
   70193 FTN VALL  115        73412 MIDWAYBR  115  1              11.69     -5.83   t
   70205 GRANDJCT  230        79036 GRANDJCT  345  1             -21.43    -11.94   f
   70256 LAPORTPS  115        73105 LAPORTE   115  1             -13.32     -5.94   t
   70274 MALTA     230        73138 MT.ELBRT  230  1             -69.85      6.74   f
   70285 MIDWAYPS  115        73412 MIDWAYBR  115  1              20.19    -43.15   f
   70286 MIDWAYPS  230        73413 MIDWAYBR  230  1             152.63     51.12   t
   70287 MILL      115        73296 FRASER    115  1             -35.24      5.39   f
   70308 PALMER    115        73414 MONUMENT  115  1             -14.35      3.37   t
   70311 PAWNEE    230        73192 STORY     230  1             -88.79    -29.63   t
   70327 PONCHA    115        79037 GUNNISON  115  1              -3.66      4.11   f
   70350 RAWHIDE    24        73165 RAWHIDE   230  1             262.21     33.68   t
   70358 RIFLE PS  230        79059 RIFLE WA  230  1             -67.57     27.37   f
   70358 RIFLE PS  230        79250 AMATLAS   230  1             -49.95    -13.20   f
   70375 SAN LUIS  230        79054 PONCHABR  230  1             -59.98     13.26   t
   70410 ST.VRAIN  230        73116 LONGPEAK  230  1             -31.03     32.17   f
   70470 WELD  PS  115        73211 WELD  LM  115  1             -16.12    122.26   f
   70471 WELD  PS  230        73212 WELD  LM  230  1            -272.35    -84.57   f
   70474 WINDSOR   230        73011 AULT      230  1            -223.92    -11.84   t
   70476 WOODLAND  115        73400 EMIL AND  115  1              11.48     -0.05   f
   70525 MTHARRIS  138        79038 HAYDEN    138  1              -5.59     -1.05   t
   79033 GOREPASS  230        79039 HAYDEN    230  1            -187.81     -0.67   t
   79033 GOREPASS  230        73072 GOREPASS  138  1              -3.14      5.46   f
   79034 GRANDJCT  115        79048 MONTROSE  115  1              29.97     -6.65   t
   79056 RIFLE CU  138        79046 MEEKER    138  1             -44.23      0.66   f
   79057 RIFLE CU  230        79059 RIFLE WA  230  1               0.92    -52.46   t
   79058 RIFLE CU  345        79014 CRAIG     345  1            -400.68    -19.09   f
   79058 RIFLE CU  345        79036 GRANDJCT  345  1             395.32     19.57   f
   79091 WOLCOTTP  230        79039 HAYDEN    230  1            -151.74      6.56   f
   79173 COLBRAN   115        79174 MOLINA-L  115  1              -0.00     -0.53   f
   70351 RAWHIDEA   14        73165 RAWHIDE   230  1              -0.00     -0.00   t
   70550 W CANON   115        73551 W CANON   230  1              -5.55    -19.65   t
from area  70 to area  73 WAPA R.M.                              -744.52     50.55

Total from area  70 PSCOLORADO                                   -744.52     50.55

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   79060 SANJN PS  345        10292 SAN_JUAN  345  1             336.68    -94.49   t
from area  73 to area  10 NEW MEXICO                             336.68    -94.49

   73042 CASPERLM  115        65305 CASPERPP  115  1              -0.20      8.29   f
   73070 GLENRCKN  115        65425 DAVEJOHN  115  1             -70.87      2.86   t
   73071 GLENRCKS  115        65425 DAVEJOHN  115  1             -80.82      0.04   t
   73107 LAR.RIVR  230        65420 DAVEJOHN  230  1             -85.04     20.13   t
   73148 OSAGE     230        66725 WYODAK    230  1            -102.96     11.97   f
   73167 REFNRYTP  115        65305 CASPERPP  115  1              38.72      0.24   t
   73168 RENO      230        66725 WYODAK    230  1             -54.50      0.87   t
   73170 RIVERTON  115        66305 RIVERTON  230  1              -4.50     -5.23   t
   73190 STEGALL   230        65420 DAVEJOHN  230  1             -88.88     18.15   t
   73197 THERMOPL  115        66540 THERPACE  115  1              -6.84     -4.31   f
   73197 THERMOPL  115        66535 THERMOPL  230  1              -2.44     -5.94   f
   73222 WORLANTP  115        66720 WORLAND   115  1               5.74     -4.31   f
   73229 YELLOWBR  230        66750 YELOWTLP  230  1             166.19    -12.97   f
   73276 TEKLA     230        65060 ANT MINE  230  1             -36.13    -12.80   t
   73282 WYODAK     69        66725 WYODAK    230  1             -11.62    -13.90   t
   73282 WYODAK     69        66725 WYODAK    230  2              -7.86     -9.40   t
   73294 HUGHES    230        66725 WYODAK    230  1            -107.35      2.50   t
   79001 ARTESIA   138        66278 RANGELY   138  1               5.79      6.16   t
   79005 BEARS     345        65193 BONANZA   345  1             187.47     11.21   t
   79026 FLAMGORG  138        65565 FLAMGORG  230  1              51.82     -9.08   t
   79026 FLAMGORG  138        65565 FLAMGORG  230  2              51.82     -9.08   t
   79046 MEEKER    138        66278 RANGELY   138  1             -18.58      4.77   t
   79067 VERNAL    138        65085 ASHLEY    138  1              48.14     -5.41   f
   79067 VERNAL    138        65192 BONANZA   138  1             -47.96      2.71   f
   74016 WYGEN      14        66725 WYODAK    230  1               0.00      0.00   t
from area  73 to area  65 PACE                                   -170.85     -2.53

   73011 AULT      230        70474 WINDSOR   230  1             223.92     11.84   f
   73013 B.CK PS   115        70005 BRUSHCPP  115  1             -42.00     -2.51   t
   73013 B.CK PS   115        70005 BRUSHCPP  115  2             -44.57     -4.63   t
   73044 COBBLKTP  115        70116 COBBLAKE  115  1              11.50      1.11   t
   73072 GOREPASS  138        79033 GOREPASS  230  1               3.14     -5.46   t
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73105	LAPORTE	115	70256	LAPORTPS	115	1	13.32	5.94	f
73116	LONGPEAK	230	70410	ST.VRAIN	230	1	31.03	-32.17	t
73138	MT.ELBRT	230	70274	MALTA	230	1	69.85	-6.74	t
73165	RAWHIDE	230	70350	RAWHIDE	24	1	-262.21	-33.68	f
73165	RAWHIDE	230	70351	RAWHIDEA	14	1	0.00	0.00	f
73192	STORY	230	70311	PAWNEE	230	1	88.79	29.63	f
73211	WELD LM	115	70470	WELD PS	115	1	16.12	-122.26	t
73212	WELD LM	230	70471	WELD PS	230	1	272.35	84.57	t
73296	FRASER	115	70287	MILL	115	1	35.24	-5.39	t
73400	EMIL AND	115	70476	WOODLAND	115	1	-11.48	0.05	t
73412	MIDWAYBR	115	70193	FTN VALL	115	1	-11.69	5.83	f
73412	MIDWAYBR	115	70285	MIDWAYPS	115	1	-20.19	43.15	t
73413	MIDWAYBR	230	70286	MIDWAYPS	230	1	-152.63	-51.12	f
73414	MONUMENT	115	70308	PALMER	115	1	14.35	-3.37	f
73477	FULLER	230	70122	COMANCHE	230	1	-85.13	-16.99	f
73477	FULLER	230	70139	DANIELPK	230	1	22.83	-2.05	f
79014	CRAIG	345	79058	RIFLE CU	345	1	400.68	19.09	t
79036	GRANDJCT	345	79058	RIFLE CU	345	1	-395.32	-19.57	t
79036	GRANDJCT	345	70205	GRANDJCT	230	1	21.43	11.94	t
79037	GUNNISON	115	70327	PONCHA	115	1	3.66	-4.11	t
79038	HAYDEN	138	70525	MTHARRIS	138	1	5.59	1.05	f
79039	HAYDEN	230	79033	GOREPASS	230	1	187.81	0.67	f
79039	HAYDEN	230	79091	WOLCOTTP	230	1	151.74	-6.56	t
79046	MEEKER	138	79056	RIFLE CU	138	1	44.23	-0.66	t
79048	MONTROSE	115	79034	GRANDJCT	115	1	-29.97	6.65	f
79054	PONCHABR	230	70375	SAN LUIS	230	1	59.98	-13.26	f
79059	RIFLE WA	230	70358	RIFLE PS	230	1	67.57	-27.37	t
79059	RIFLE WA	230	79057	RIFLE CU	230	1	-0.92	52.46	f
79174	MOLINA-L	115	79173	COLBRAN	115	1	0.00	0.53	t
79250	AMATLAS	230	70358	RIFLE PS	230	1	49.95	13.20	t
73551	W CANON	230	70550	W CANON	115	1	5.55	19.65	f
from area 73 to area 70 PSCOLORADO							744.52	-50.55	
79061	SHIP PS	230	79063	SHIPROCK	230	1	150.38	-43.68	t
79260	ELPASOTP	115	79105	GLADETAP	115	1	25.74	-21.22	t
from area 73 to area 19 WAPA L.C.							176.12	-64.91	
73229	YELLOWBR	230	63001	CROS PHA	230	1	-35.61	4.64	f
from area 73 to area 63 WAPA U.M.							-35.61	4.64	
Total from area 73 WAPA R.M.							1050.88	-207.84	

---------from--------			--------- to --------				---mw----	---mvar--	meter
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck			
90208	MTSHAVRE	500	90400	MTSGFALL	500	1	490.89	123.26	t
63002	CRSOVRUM	230	62051	HARDIN	230	1	-69.64	-10.70	f
63002	CRSOVRUM	230	62056	HUNTLEY	230	1	212.18	-10.53	f
63008	HAVRE	161	62023	GT FALLS	161	1	23.44	16.09	t
63014	TIBERTAP	115	62027	SHELBY	115	1	27.39	-7.15	t
63015	VERONA	161	62024	RAINBOW	161	1	20.29	13.98	t
from area 63 to area 62 MONTANA							704.55	124.95	
63001	CROS PHA	230	73229	YELLOWBR	230	1	35.61	-4.64	t
from area 63 to area 73 WAPA R.M.							35.61	-4.64	
Total from area 63 WAPA U.M.							740.16	120.30	

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Summation of selected system

	-----MW----	----MVAR---		
Generation	54044.914	2378.690	Generators	2572
Actual Load	45957.066	15412.540	Loads	6819
Net actual shunt	0.401	-180.339	Shunts	1294
Net actual svd	0.000	4082.125	Svd	600
Loss	2066.013	-16543.154	Buses	13175
			Lines	10972
			Transformers	5128
MVA-miles	4417567.0	1051694.5	DC buses	6
Miles	46968.402		DC converters	10
			DC lines	3

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Area 54 [ALBERTA]

	-----MW----	----MVAR---		
Generation	6201.761	267.969	Generators	136
Actual Load	6274.402	1997.100	Loads	517
Net actual shunt	0.000	-22.436	Shunts	9
Net actual svd	0.000	-1239.351	Svd	76
Net Interchange	-399.581	68.465	Buses	990
Sched Interchange	-400.000		Lines	782
Loss	326.941	-556.834	Transformers	407
MVA-miles	1037104.7	297956.8	DC buses	0
Miles	18668.695		DC converters	0
			DC lines	0
Loss at 13.20 Kv	1.401	17.451		
Loss at 13.80 Kv	3.033	70.315		
Loss at 14.40 Kv	0.378	12.477		
Loss at 25.00 Kv	1.441	16.799		
Loss at 34.00 Kv	0.044	0.734		
Loss at 69.00 Kv	13.336	-35.685		
Loss at 138.00 Kv	140.679	-368.223		
Loss at 230.00 Kv	1.304	-28.322		
Loss at 240.00 Kv	151.461	-851.917		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	13.864	609.538		
Largest mismatch MVA	0.0149	0.0418		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Area 50 [B.C.HYDRO]

	-----MW----	----MVAR---		
Generation	8231.872	-57.183	Generators	106
Actual Load	6035.052	2359.838	Loads	395
Net actual shunt	0.000	2936.879	Shunts	104
Net actual svd	0.000	2723.952	Svd	125
Net Interchange	1800.095	-435.990	Buses	1054
Sched Interchange	1800.000		Lines	719
Loss	396.727	-7641.870	Transformers	644
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.047	2.010		
Loss at 13.80 Kv	6.797	404.130		
Loss at 34.00 Kv	0.000	0.002		
Loss at 46.00 Kv	0.301	0.082		
Loss at 132.00 Kv	25.082	35.740		
Loss at 138.00 Kv	11.707	-135.964		
Loss at 230.00 Kv	40.982	-767.020		
Loss at 500.00 Kv	265.196	-7655.960		
Loss at other Kv	46.615	475.110		
Largest mismatch MVA	0.0132	0.0255		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Area 60 [IDAHO]

	-----MW----	----MVAR---		
Generation	3193.434	568.938	Generators	49
Actual Load	1955.000	501.300	Loads	64
Net actual shunt	0.000	-96.418	Shunts	2
Net actual svd	0.000	0.000	Svd	0
Net Interchange	1066.074	-378.203	Buses	156
Sched Interchange	1066.000		Lines	120
Loss	172.360	542.260	Transformers	96
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.271	5.817		
Loss at 13.80 Kv	1.170	43.919		
Loss at 14.40 Kv	0.390	15.218		
Loss at 34.50 Kv	0.000	0.000		
Loss at 100.00 Kv	0.939	84.581		
Loss at 115.00 Kv	0.436	0.354		
Loss at 138.00 Kv	14.433	-57.899		
Loss at 161.00 Kv	1.226	1.000		
Loss at 230.00 Kv	15.458	-299.545		
Loss at 345.00 Kv	133.030	585.267		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	5.008	163.549		
Largest mismatch MVA	0.0093	0.0168		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Area 62 [MONTANA]

	-----MW----	----MVAR---		
Generation	3008.129	385.237	Generators	20
Actual Load	1207.745	524.807	Loads	200
Net actual shunt	0.401	-121.447	Shunts	56
Net actual svd	0.000	738.027	Svd	16
Net Interchange	1700.347	-829.200	Buses	308
Sched Interchange	1701.000		Lines	317
Loss	99.636	448.221	Transformers	88
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	-0.000	38.497		
Loss at 69.00 Kv	0.790	2.021		
Loss at 100.00 Kv	13.337	-49.477		
Loss at 115.00 Kv	3.574	-14.866		
Loss at 161.00 Kv	10.517	-93.941		
Loss at 230.00 Kv	14.404	-175.923		
Loss at 500.00 Kv	56.400	554.795		
Loss at other Kv	0.615	187.115		
Largest mismatch MVA	0.0061	0.0126		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Area 40 [NORTHWEST]

	-----MW----	----MVAR---		
Generation	17478.561	257.860	Generators	290
Actual Load	16651.566	5157.048	Loads	1663
Net actual shunt	0.000	-1732.436	Shunts	46
Net actual svd	0.000	2684.040	Svd	164
Net Interchange	253.068	1378.556	Buses	2740
Sched Interchange	253.000		Lines	2710
Loss	573.910	-7229.347	Transformers	632
MVA-miles	2875578.3	630832.7	DC buses	4
Miles	18402.309		DC converters	4
			DC lines	2
Loss at 11.00 Kv	0.000	0.223		
Loss at 13.20 Kv	0.000	2.412		
Loss at 13.80 Kv	4.506	150.482		
Loss at 14.40 Kv	-0.000	0.000		
Loss at 25.00 Kv	3.294	174.075		
Loss at 34.50 Kv	0.071	-0.930		
Loss at 69.00 Kv	7.465	2.739		
Loss at 100.00 Kv	0.119	-0.259		
Loss at 115.00 Kv	126.293	-41.661		
Loss at 230.00 Kv	135.674	-761.793		

```
Loss at 345.00 Kv           7.712     -303.007
Loss at 500.00 Kv         228.147    -7311.484
Loss at other Kv           60.628      859.859

Largest mismatch MVA       0.0336       0.0449

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Area  65 [PACE                           ]

                      -----MW----  ----MVAR---
Generation              5529.492      540.192        Generators           53
Actual Load             4749.998     1528.040        Loads               273
Net actual shunt           0.000     -528.353        Shunts               51
Net actual svd             0.000        0.000        Svd                   2
Net Interchange          590.329     -170.430        Buses               564
Sched Interchange        590.300                     Lines               408
Loss                     189.165     -289.055        Transformers        336

MVA-miles                    3.4          1.1        DC buses              0
Miles                      1.900                     DC converters         0
                                                     DC lines              0
Loss at  13.80 Kv          0.813       22.773
Loss at  34.50 Kv          1.010        7.111
Loss at  46.00 Kv          3.907       70.489
Loss at  69.00 Kv          0.730        8.234
Loss at 100.00 Kv          0.017        0.583
Loss at 115.00 Kv          2.786       -8.586
Loss at 138.00 Kv         40.625       35.543
Loss at 161.00 Kv          7.640      -26.343
Loss at 230.00 Kv         64.348     -101.620
Loss at 345.00 Kv         64.849     -355.647
Loss at other Kv           2.440       58.408

Largest mismatch MVA       0.0136       0.0420

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Area  70 [PSCOLORADO                     ]

                      -----MW----  ----MVAR---
Generation              4234.680      623.328        Generators           46
Actual Load             4858.050     1835.016        Loads               358
Net actual shunt           0.000        0.000        Shunts                0
Net actual svd             0.000    -1397.603        Svd                  43
Net Interchange         -744.522       50.555        Buses               500
Sched Interchange       -743.800                     Lines               461
Loss                     121.151      135.341        Transformers        147

MVA-miles                22701.0       6329.6        DC buses              0
Miles                    564.500                     DC converters         0
                                                     DC lines              0
Loss at  13.80 Kv          2.115       74.409
Loss at  14.40 Kv          0.081        0.808
Loss at  25.00 Kv          0.013        0.165
Loss at  46.00 Kv          0.190        0.001
Loss at  69.00 Kv          3.822      -11.965
Loss at 100.00 Kv          0.007       -0.106
Loss at 115.00 Kv         21.195     -103.818
Loss at 138.00 Kv          0.653       -3.725
Loss at 230.00 Kv         86.012      -45.806
Loss at 345.00 Kv          0.000        0.004
Loss at other Kv           7.063      225.373

Largest mismatch MVA       0.0059       0.0241

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Area  64 [SIERRA                         ]

                      -----MW----  ----MVAR---
Generation              1069.579      -25.811        Generators           19
Actual Load             1075.167      280.355        Loads               115
Net actual shunt           0.000     -158.430        Shunts               23
Net actual svd             0.000       74.032        Svd                   5
Net Interchange          -36.029       17.587        Buses               275
Sched Interchange        -36.000                     Lines               197
Loss                      30.440     -239.344        Transformers        117
```

MVA-miles	51558.9	28178.5	DC buses	0
Miles	1042.600		DC converters	0
			DC lines	0
Loss at 13.80 Kv	1.783	32.647		
Loss at 69.00 Kv	0.000	0.000		
Loss at 115.00 Kv	0.298	-7.512		
Loss at 230.00 Kv	0.876	-113.252		
Loss at 345.00 Kv	7.101	-181.888		
Loss at other Kv	20.382	30.661		
Largest mismatch MVA	0.0069	0.0195		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Area 52 [W KOOTENAY]

	-----MW----	----MVAR---		
Generation	498.040	9.575	Generators	18
Actual Load	486.100	160.700	Loads	65
Net actual shunt	0.000	-79.478	Shunts	27
Net actual svd	0.000	-71.872	Svd	4
Net Interchange	0.619	-6.278	Buses	260
Sched Interchange	0.000		Lines	166
Loss	11.321	6.503	Transformers	116
MVA-miles	18530.4	6140.5	DC buses	0
Miles	1005.200		DC converters	0
			DC lines	0
Loss at 13.20 Kv	-0.000	9.153		
Loss at 13.80 Kv	0.000	0.000		
Loss at 14.40 Kv	0.000	21.912		
Loss at 25.00 Kv	0.000	0.000		
Loss at 138.00 Kv	0.104	-8.549		
Loss at 161.00 Kv	2.006	-19.697		
Loss at 230.00 Kv	0.684	-20.127		
Loss at other Kv	8.527	23.811		
Largest mismatch MVA	0.0010	0.0024		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

Area 73 [WAPA R.M.]

	-----MW----	----MVAR---		
Generation	3957.415	-179.332	Generators	74
Actual Load	2784.180	950.836	Loads	356
Net actual shunt	0.000	-299.269	Shunts	4
Net actual svd	0.000	-177.040	Svd	53
Net Interchange	1050.875	-207.841	Buses	620
Sched Interchange	1050.700		Lines	567
Loss	122.362	-446.010	Transformers	174
MVA-miles	412090.4	82255.2	DC buses	0
Miles	7283.200		DC converters	0
			DC lines	0
Loss at 13.80 Kv	3.825	48.738		
Loss at 34.50 Kv	0.149	2.098		
Loss at 69.00 Kv	3.018	-20.108		
Loss at 115.00 Kv	43.727	-233.588		
Loss at 138.00 Kv	3.358	-37.202		
Loss at 230.00 Kv	29.907	-349.961		
Loss at 345.00 Kv	34.003	-50.131		
Loss at other Kv	4.375	194.143		
Largest mismatch MVA	0.0109	0.0511		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO LETHBRIDGE, LINE 1

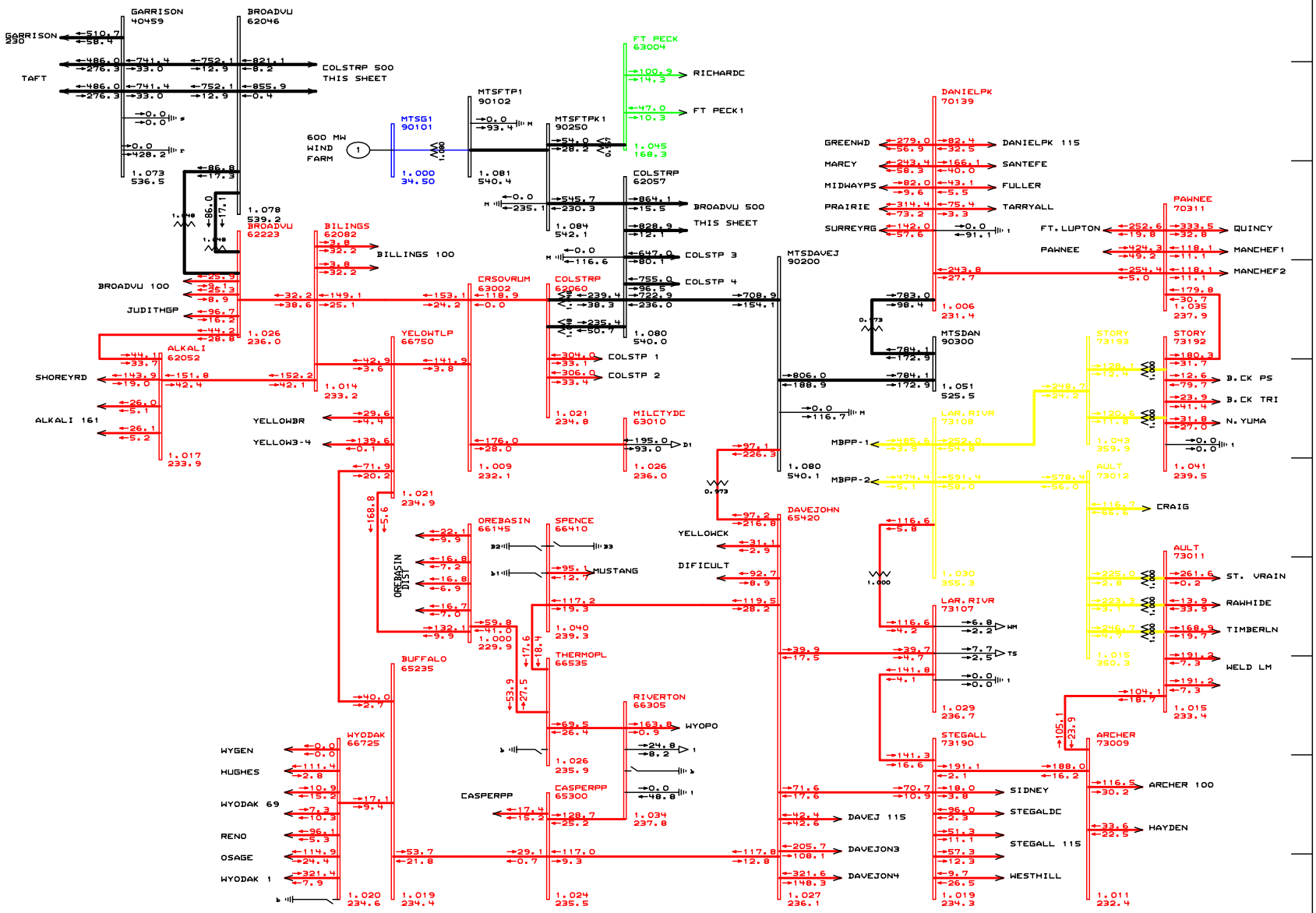
Area 63 [WAPA U.M.]

	-----MW----	----MVAR---		
Generation	641.955	-12.083	Generators	25
Actual Load	-120.200	117.500	Loads	17
Net actual shunt	0.000	-78.951	Shunts	1
Net actual svd	0.000	747.939	Svd	11
Net Interchange	740.156	120.303	Buses	32
Sched Interchange	741.000		Lines	19
Loss	21.999	-1273.018	Transformers	10

MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	0.000	0.474		
Loss at 34.50 Kv	-0.000	6.716		
Loss at 115.00 Kv	1.901	-1.512		
Loss at 161.00 Kv	0.777	-26.012		
Loss at 230.00 Kv	7.651	20.413		
Loss at 500.00 Kv	11.670	-1273.096		
Largest mismatch MVA	0.0007	0.0060		

B.6

denl2



General Electric International, Inc. PSLF Program MW/MVAR Wed Jul 24 04:42:52 2002

PEAK POWER ENGINEERING, INC. 303-462-1100

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

600 MW WIND FARM AT FORT PECK
BASE CASE

mts\g4\g4den.drw
c:\uwk\mts\g4\model\g4den_l2.s
Rating = 1

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Percent Loading Summary -- using rating 1 - 100.0 percent of rating

----------from----------				---------- to ----------									rate	per cent	
--no.--	--name--	-kv-	-ar-	--no.--	--name--	-kv-	-ar-	ck	---mw---	-mvar-	-mva--	------		loading	
54611	RUTH LK8	69	54	54839	RUTH LK1	138	54	1	57.9	13.8	59.5	45.0M		132.3	T
64026	CARSON	120	64	64027	CARSON T	120	64	1	-55.7	-6.5	56.1	216.5A		130.8	F
55015	DOME EA9	14	54	55525	163ST2	240	54	T2	-57.3	-4.6	57.5	45.0M		128.6	T
64194	DAYTON	120	64	64254	DAYTON	25	64	1	16.6	6.5	17.8	14.0M		127.5	F
79026	FLAMGORG	138	73	79029	FLAMGORG	69	73	1	22.1	6.0	22.9	19.0M		120.4	F
64099	SPAN SPG	120	64	64114	TRACY	120	64	1	-128.1	-2.6	128.1	514.8A		118.7	F
64091	RENO	120	64	64263	RENO	25	64	1	50.3	20.5	54.3	46.7M		116.3	F
70249	LAJUNTAW	115	70	70250	LAJUNTAW	69	70	1	26.3	12.4	29.0	25.0M		116.1	F
64127	VAL ROAD	120	64	64274	VAL ROAD	25	64	1	50.2	20.3	54.2	46.7M		116.0	F
64091	RENO	120	64	64263	RENO	25	64	2	50.2	20.3	54.2	46.7M		116.0	F
64127	VAL ROAD	120	64	64274	VAL ROAD	25	64	2	47.8	19.3	51.6	46.7M		110.4	F
64202	HAN CRTP	120	64	64203	TWN CRTP	120	64	1	74.2	19.8	76.8	356.0A		109.1	F
64201	PINSN TP	120	64	64202	HAN CRTP	120	64	1	74.6	20.6	77.4	356.0A		109.0	F
64200	REDHOUSE	120	64	64201	PINSN TP	120	64	1	75.9	23.6	79.5	356.0A		109.0	T
64129	VALMY	120	64	64200	REDHOUSE	120	64	1	77.0	26.3	81.4	356.0A		108.6	T
54234	CASTLE R	138	54	55972	CASTLE-1	25	54	1	-50.0	21.0	54.2	50.0M		108.4	F
50459	KIT287	287	50	51075	KIT B5	13	50	5	80.3	24.1	83.8	79.0M		106.1	F
54232	PANCAN 9	138	54	55386	EMPRESS9	25	54	T1	15.7	1.0	15.7	15.0M		104.7	F
64114	TRACY	120	64	64118	TRACY G2	14	64	1	-82.5	-3.9	82.6	81.0M		104.0	T
48319	PLEASANT	115	40	48355	RATHDRUM	115	40	1	-84.1	-16.2	85.6	430.8A		103.5	F
43017	BEAVER	14	40	43021	BEAVER	230	40	1	356.8	43.5	359.5	348.0M		103.3	F
54052	BLUERIDG	138	54	55281	BLUERDGE	14	54	T1	20.8	15.2	25.7	25.0M		102.9	F
54154	E CALGAR	240	54	54189	ENMX2SD9	138	54	T1	234.1	-169.4	289.0	300.0M		102.8	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	BC	155.0	-10.5	155.4	155.0M		101.9	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	DE	155.0	-10.5	155.4	155.0M		101.9	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	34	155.0	-10.5	155.4	155.0M		101.9	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	12	155.0	-10.5	155.4	155.0M		101.9	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	9A	155.0	-10.5	155.4	155.0M		101.9	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	78	155.0	-10.5	155.4	155.0M		101.9	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	56	155.0	-10.5	155.4	155.0M		101.9	T
41304	COUGAR T	7	40	46211	COUGAR T	115	40	1	28.0	-8.6	29.3	30.0M		101.8	T
65193	BONANZA	345	65	65995	MONA	345	65	1	664.2	36.3	665.2	1087.8A		101.5	F
46733	LAGRND5	14	40	46735	LGBK5	115	40	1	40.0	6.6	40.5	40.0M		101.4	F

```
Processing file c:\uwk\mts\g4\rvolths_lnbs.out
Processing file c:\uwk\mts\g4\rvoltdenl2.out

Compvolt found the following for comparisons:
     348 Voltage Violations read from c:\uwk\mts\g4\rvolths_lnbs.out
     355 Voltage Violations read from c:\uwk\mts\g4\rvoltdenl2.out


**** VOLTS:  NEW ****
Component                   w/o Prj         w/ Prj  Rating

**** VOLTS: WORSE ****
Component             w/o Prj  w/ Prj  Rating

**** VOLTS: BETTER ****
Component             w/o Prj  w/ Prj  Rating

**** VOLTS:  AWAY ****
Component             w/o Prj      w/ Prj          Rating
66235 PINTO PS  345   1.0501  0.95 <= pu <= 1.05   1.00 pu kV
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GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

overvoltage summary > 1.100000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
54090	BICKERD4	240	1.1047	54153	BRAZEAU4	240	1.1053	54329	KEEPHIL4	240	1.1116
54524	GENESEE4	240	1.1086	54681	NEVIS 7	138	1.1100	54802	STURGEO9	138	1.1003
55969	770S701T	138	1.1052	51017	KMS230	230	1.1081				

overvoltage summary > 1.050000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
90200	MTSDAVEJ	500	1.0620	90250	MTSFTPK1	500	1.0805	90251	MTSFTPK2	500	1.0800
90400	MTSGFALL	500	1.0800	54012	FOX CREE	138	1.0510	54013	KAYBOB 9	138	1.0517
54014	GULF RO9	138	1.0592	54021	WESGEN 7	138	1.0507	54050	RBCUPIL7	138	1.0507
54054	LAMOURE4	240	1.0795	54073	IPPL ST9	138	1.0575	54077	BIGSTON4	240	1.0600
54078	CHEVRON7	138	1.0515	54081	METIS644	240	1.0853	54082	BICKERD7	138	1.0557
54090	BICKERD4	240	1.1047	54097	BIG HOR9	138	1.0817	54098	STRACHA9	138	1.0577
54103	DEERLAN4	240	1.0820	54121	ELLERSLI	240	1.0759	54125	SUNDANL9	138	1.0543
54126	WABAMUN4	240	1.0869	54128	SUNDANM9	240	1.0965	54129	E EDMON4	240	1.0709
54130	N CALDE4	240	1.0645	54131	N BARRH4	240	1.0836	54139	GAETZ 4	240	1.0597
54141	HIGHVAL9	138	1.0538	54142	WILLESD4	240	1.0961	54144	RED DEE4	240	1.0636
54147	BENALTO4	240	1.0767	54148	E CROSS4	240	1.0585	54150	LANGDON2	500	1.0533
54152	JANET 4	240	1.0533	54153	BRAZEAU4	240	1.1053	54157	PEIGAN 4	240	1.0747
54159	N LETHB4	240	1.0647	54184	SARCEE 7	138	1.0530	54195	RUNDLE S	138	1.0504
54223	WARE JCT	240	1.0511	54249	RP05103S	138	1.0669	54261	SPRAY S	138	1.0508
54269	COALSPU7	138	1.0609	54281	MILO 2	240	1.0605	54285	LEISMER9	240	1.0749
54287	GREGG R9	138	1.0701	54302	MARIONA9	138	1.0540	54325	CHEV KG9	138	1.0515
54326	COAL VA9	138	1.0582	54329	KEEPHIL4	240	1.1116	54335	W BROOK4	240	1.0550
54384	ENMX28S9	138	1.0523	54412	BENBOW 9	138	1.0517	54441	946/947X	240	1.0759
54444	SPRINGB9	138	1.0505	54505	JASPER 4	240	1.0658	54506	BELLAMY4	240	1.0757
54509	ARGYLL W	240	1.0758	54512	DOME T29	240	1.0764	54513	LAMBTON4	240	1.0705
54514	CLOVERB4	240	1.0694	54518	ARGYLL E	240	1.0760	54519	CASTLTX2	240	1.0705
54521	PETROLIA	240	1.0746	54524	GENESEE4	240	1.1086	54542	RBW LAK7	138	1.0505
54546	CHINCHA7	138	1.0575	54547	KEG RVR7	138	1.0561	54548	KEMP RV9	138	1.0578
54549	HOTCHKS7	138	1.0596	54552	CADOTTE9	138	1.0585	54553	NORCEN 9	138	1.0552
54554	LUBICON7	138	1.0582	54555	CRANBER9	138	1.0591	54558	WESLY C7	138	1.0791
54559	CARMON 9	138	1.0767	54560	PEACE/29	138	1.0753	54561	DIASHOW7	138	1.0736
54589	DOME CU7	138	1.0672	54593	DONNELL9	138	1.0669	54594	TAP7L487	138	1.0686
54595	TRIANGL7	138	1.0619	54596	VALLEYV9	138	1.0782	54600	L.SMOKY7	138	1.0848
54601	STURGEO7	138	1.0844	54606	SIMONET9	138	1.0846	54607	FOXCRK/2	138	1.0515
54608	GOOSE R9	138	1.0666	54612	RUTH LA7	138	1.0600	54613	RUTH LK7	138	1.0603
54618	PARS CR7	138	1.0508	54621	MITS E.4	240	1.0565	54622	MITS E.7	138	1.0892
54623	AEC MILL	138	1.0881	54624	OTAUWAU7	138	1.0890	54633	LOU CR.7	138	1.0570
54634	SARHLK/2	138	1.0511	54636	ESSO JU7	138	1.0519	54637	MORSE RV	138	1.0524
54639	VIRGINI9	138	1.0529	54643	WOLF LK9	138	1.0709	54646	MARG LK4	240	1.0740
54647	MARG LK7	138	1.0861	54648	LACOREY9	138	1.0683	54652	BONNY 9	138	1.0544
54654	BONN SVC	138	1.0544	54655	WHITFISH	240	1.0857	54675	PAINTRT7	240	1.0896
54680	NEVIS 4	240	1.0748	54681	NEVIS 7	138	1.1100	54685	3HILLS/3	138	1.0581
54691	MICH. C9	138	1.0735	54693	WINT HI9	138	1.0749	54694	BULLPON9	138	1.0750
54707	SHEER 14	240	1.0625	54709	ANDERSO4	240	1.0630	54710	ANDERSON	138	1.0850
54711	SHEER 24	240	1.0625	54715	BAT. RV7	138	1.0821	54721	BAT RV79	240	1.0926
54723	CORDEL 4	240	1.0926	54729	PRIM TAP	138	1.0652	54730	PRIMROSE	138	1.0712
54796	791S701T	138	1.0628	54802	STURGEO9	138	1.1003	54806	946/947N	240	1.0709
54809	732S901T	240	1.0667	54818	VERMILA9	138	1.0797	54822	766S901T	240	1.0628

54823	NEVIS 9	138	1.0878	54835	791S702T	138	1.0631	54836	MILNERB9	138	1.0779
54844	709S702T	138	1.0732	54847	BAT RV80	240	1.0926	54848	791S703T	138	1.0530
54962	KAYBOBTP	138	1.0517	54963	CANMORE9	138	1.0506	54978	EAST IN4	240	1.0705
54983	MARION T	138	1.0541	54984	HIGHVL T	138	1.0538	54988	CROSSF T	240	1.0585
54995	W.GRN TP	240	1.0961	55012	BASSET 7	138	1.0562	55013	HAIGRIVE	138	1.0572
55067	FTNELSON	138	1.0665	55072	SYNC_D04	240	1.0563	55073	AURORA 4	240	1.0619
55075	SEAL LK9	138	1.0643	55147	MILNERC9	138	1.0880	55226	WABASCA9	240	1.0532
55272	FIELDGA9	138	1.0513	55280	BRINTNEL	240	1.0504	55515	PRIMROSE	138	1.0565
55763	BC BORDE	138	1.0627	55891	904AL TP	240	1.0705	55894	SARCEE M	138	1.0512
55912	740L JNC	138	1.0609	55913	G.ROBB T	138	1.0600	55924	CH KGT T	138	1.0515
55943	MILO 1	240	1.0604	55969	770S701T	138	1.1052	50010	COM132	132	1.0725
50020	CMS230	230	1.0500	50036	RBW230	230	1.0549	50037	PEM230	230	1.0586
50038	RBW230-1	230	1.0534	50182	ARN132	132	1.0822	50185	ALZ230	230	1.0521
50186	ROS230	230	1.0620	50187	BRT230	230	1.0698	50188	BUT230	230	1.0500
50193	BRT360	360	1.0500	50313	VIT132	132	1.0518	50314	PVO133	132	1.0507
50315	PVO132	132	1.0512	50323	DMR132	132	1.0557	50330	LDR132	132	1.0504
50331	GLD132	132	1.0518	50334	KGH132	132	1.0529	50335	UTA132	132	1.0531
50342	SCA132	132	1.0500	50343	KSH132-2	132	1.0501	50346	SHA2	132	1.0504
50347	GOW132	132	1.0518	50348	GTP132	132	1.0553	50349	CLD132	132	1.0571
50350	SOO132	132	1.0577	50351	JOR132	132	1.0614	50352	PML132	132	1.0518
50353	WOS132	132	1.0536	50354	GLSTP17	132	1.0562	50355	GLSTP18	132	1.0548
50356	DND132	132	1.0521	50391	KSHTP14	132	1.0504	50394	SHATP14	132	1.0504
50395	SALTP17	132	1.0547	50396	SALTP18	132	1.0549	50447	TKW138	138	1.0534
50463	SKA500	500	1.0632	50464	TKW500	500	1.0688	50540	GMS230	230	1.0548
50541	KDS230	230	1.0544	50545	BLW230	230	1.0657	50546	SCK230	230	1.0598
50547	HMH230	230	1.0581	50548	BLM230	230	1.0587	50549	QNT230	230	1.0579
50550	QRP230	230	1.0653	50551	TLR230	230	1.0585	50553	BCR230	230	1.0585
50554	RBF230	230	1.0665	50556	LAP230	230	1.0569	50557	SNK230	230	1.0589
50558	GMS500	500	1.0500	50560	KDS500	500	1.0620	50561	WSN500	500	1.0502
50562	GLN500	500	1.0681	50653	NIC138	138	1.0529	50655	VVW138	138	1.0510
50656	SVA138	138	1.0521	50659	BDM138	138	1.0513	50660	WGS138	138	1.0610
50661	MON138	138	1.0582	50672	BKL138	138	1.0519	50679	BLU138	138	1.0539
50680	VLM138	138	1.0591	50686	SCO138	138	1.0679	50687	ABA138	138	1.0586
50691	NIC230	230	1.0501	50700	MCA500	500	1.0500	50701	REV500	500	1.0500
50729	PRI138TP	138	1.0678	50776	NTL138	138	1.0539	50783	SEL230	230	1.0589
50785	SEV230	230	1.0580	50792	SEL500	500	1.0500	50899	ABA138TP	138	1.0586
50902	BDM138TP	138	1.0513	50922	DNDTAP	132	1.0529	50923	HSY-PH	132	1.0556
50924	ESQ-PH	132	1.0521	50928	SCG IPP	132	1.0684	50934	JULTP130	132	1.0529
51017	KMS230	230	1.1081	51045	ALH230	230	1.0578	60085	BRIDGER	345	1.0500
60240	MIDPOINT	500	1.0693	62012	TOWN2	500	1.0936	62013	TOWN1	500	1.0936
62046	BROADVU	500	1.0778	62053	BROADV&2	500	1.0712	62054	BROADV&1	500	1.0719
62057	COLSTRP	500	1.0800	40045	ALLSTON	500	1.0731	40051	ALVEY	500	1.0814
40061	ASHE	500	1.0800	40111	BIG EDDY	500	1.0769	43049	BOARD F	500	1.0840
40139	BONNVILE	115	1.0500	47013	BRIDGPRT	115	1.0539	40155	BUCKLEY	500	1.0791
45029	BURNS	500	1.0574	45035	CAPTJACK	500	1.0790	46209	CARMEN	115	1.0620
41311	CELILO1	500	1.0768	41312	CELILO2	500	1.0768	40233	CHIEF JO	500	1.0800
40287	COULEE	500	1.0810	40302	COVINGT4	500	1.0758	40306	COVINGT5	500	1.0764
43115	COYO M1	500	1.0559	43123	COYOTE	500	1.0851	45095	DIXONVLE	500	1.0821
40369	DWORSHAK	500	1.0708	40381	ECHOLAKE	500	1.0789	40451	GAR1EAST	500	1.0773
40453	GAR2EAST	500	1.0773	40459	GARRISON	500	1.0692	40485	GREEN PT	115	1.0520
40489	GRIZZLY	500	1.0762	40499	HANFORD	500	1.0822	40521	HATWAI	500	1.0709
45137	HERMIST	230	1.0509	41212	HILLS CR	115	1.0500	40553	HOT SPR	500	1.0741
40585	JOHN DAY	500	1.0850	40601	KEELER	500	1.0831	45262	KFALLS	500	1.0814
40629	LANE	500	1.0752	40665	LIT GOOS	500	1.0800	40679	LOW GRAN	500	1.0800
40683	LOW MON	500	1.0800	40687	MALIN	500	1.0775	40693	MAPLE VL	500	1.0780

40699	MARION	500	1.0820	40711	MCLOUGLN	500	1.0707	40721	MCNARY	345	1.0510
40723	MCNARY	500	1.0802	45197	MERIDINP	500	1.0801	40749	MONROE	500	1.0799
40797	OLYMPIA	500	1.0792	40809	OSTRNDER	500	1.0730	40821	PAUL	500	1.0800
40827	PEARL	500	1.0798	40837	PONDROSA	500	1.0813	40869	RAVER	500	1.0801
43485	ROUND BU	500	1.0728	40913	SACJAWEA	500	1.0756	40917	SACJWA T	500	1.0769
40941	SANTIAM	500	1.0813	40949	SATSOP	500	1.0800	40957	SCHULTZ	500	1.0847
40973	SICKLER	500	1.0797	40989	SLATT	500	1.0816	41043	SUMMER L	500	1.0800
45289	SWIFT	230	1.0500	41051	TACOMA	500	1.0798	41057	TAFT	500	1.0701
41095	TROUTDAL	500	1.0652	41113	VANTAGE	500	1.0756	45337	WEED JPS	115	1.0518
47099	WELLS	115	1.0630	66225	PINTO	345	1.0509	52226	PRI138	138	1.0679
52229	KER138	138	1.0714	52230	HED138	138	1.0704	52426	MAS138	138	1.0703
52815	PRI-T2	138	1.0686								

undervoltage summary < 0.900000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)

undervoltage summary < 0.950000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
50781	NTL VR	138	0.9499	48069	CHESTER	115	0.9437	48165	IRVIN	115	0.9479
48310	OPORTUNE	115	0.9484	48299	OPPORTUN	115	0.9458	48306	OTIS	230	0.9374
70249	LAJUNTAW	115	0.9343	64072	MEYERS	120	0.9486	64092	RND HILL	120	0.9468
64102	STATELIN	120	0.9459	64203	TWN CRTP	120	0.9453				

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

		generation capacity	generation on-line	--- load categories ---- power	current	imped.	shunt	-- svd --	net inter	losses	slack bus
area name		ALBERTA									
	mw	10743.6	7862.7	7899.2	0.0	0.0	0.0	0.0	-399.5	363.1	59.3
54	mvar	4916.5	857.7	2641.0	0.0	0.0	-22.5	-1851.9	-37.0	128.1	11.7
area name		B.C.HYDRO									
	mw	14693.0	10250.9	6889.1	0.0	0.0	0.0	0.0	2849.8	512.0	197.3
50	mvar	6719.0	926.8	2565.8	0.0	0.0	2957.8	2143.5	-276.8	-6463.5	9.1
area name		IDAHO									
	mw	4676.4	4110.9	2984.0	0.0	0.0	0.0	0.0	919.5	207.4	143.5
60	mvar	2192.5	453.8	711.6	0.0	0.0	-595.4	0.0	-323.1	660.7	-1.3
area name		MONTANA									
	mw	3502.2	2912.5	1422.9	0.0	0.0	0.3	0.0	1368.2	121.0	700.5
62	mvar	1309.0	279.2	610.2	0.0	0.0	-122.5	348.5	100.5	-657.4	85.5
area name		NORTHWEST									
	mw	43502.3	27317.6	22671.3	0.0	0.0	0.0	0.0	3514.5	1131.9	555.6
40	mvar	15475.0	3554.3	6850.3	0.0	0.0	-1863.1	-3989.3	971.3	1585.1	26.5
area name		PACE									
	mw	6212.0	5585.4	6293.7	0.0	0.0	0.0	0.0	-981.3	273.0	164.4
65	mvar	3201.9	700.4	1960.1	0.0	0.0	-1761.3	523.0	-394.9	606.9	31.8
area name		PSCOLORADO									
	mw	5806.0	4670.2	6332.7	0.0	0.0	0.0	0.0	-1832.1	169.6	83.1
70	mvar	3667.3	1272.5	2372.6	0.0	0.0	0.0	-1675.9	528.7	47.0	29.8
area name		SIERRA									
	mw	1901.7	1375.3	1719.1	0.0	0.0	0.0	0.0	-399.3	55.6	109.3
64	mvar	925.4	124.4	458.7	0.0	0.0	-188.2	69.4	58.6	-274.2	24.0
area name		W KOOTENAY									
	mw	763.5	596.5	722.4	0.0	0.0	0.0	0.0	-150.5	24.7	104.6
52	mvar	450.0	99.9	210.2	0.0	0.0	-77.8	-130.7	-8.3	106.5	25.3
area name		WAPA R.M.									
	mw	6091.6	5367.4	3608.3	0.0	0.0	0.0	0.0	1611.4	147.7	485.0
73	mvar	2883.8	50.6	1237.0	0.0	0.0	-297.6	-323.1	-425.4	-140.3	28.8

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

		generation capacity	generation on-line	load categories power	load categories current	load categories imped.	shunt	svd	inter	net losses	slack bus
area name		WAPA U.M.									
	mw	561.8	560.9	-102.1	0.0	0.0	0.0	0.0	646.9	16.2	60.9
63	mvar	344.0	-40.1	123.6	0.0	0.0	-79.0	-14.8	-288.2	-15.3	1.3
TOTL	mw	98454.1	70610.4	60440.6	0.0	0.0	0.3	0.0	7147.5	3022.0	
	mvar	42084.4	8279.6	19741.2	0.0	0.0	-2049.5	-4901.3	-94.6	-4416.3	

Area Interchange Summary

		mw	mvar
FROM AREA	54 ALBERTA		
TO AREA	50 B.C.HYDRO	-399.5	-37.0
TOTAL		-399.5	-37.0
FROM AREA	50 B.C.HYDRO		
TO AREA	54 ALBERTA	399.5	37.0
TO AREA	40 NORTHWEST	2299.7	-322.1
TO AREA	52 W KOOTENAY	150.5	8.3
TOTAL		2849.8	-276.8
FROM AREA	60 IDAHO		
TO AREA	40 NORTHWEST	-13.1	-296.6
TO AREA	65 PACE	797.6	25.5
TO AREA	64 SIERRA	135.0	-52.0
TOTAL		919.5	-323.1
FROM AREA	62 MONTANA		
TO AREA	40 NORTHWEST	1004.3	-286.5
TO AREA	65 PACE	874.4	119.2
TO AREA	63 WAPA U.M.	-510.4	267.8
TOTAL		1368.2	100.5
FROM AREA	40 NORTHWEST		
TO AREA	50 B.C.HYDRO	-2299.7	322.1
TO AREA	60 IDAHO	13.1	296.6
TO AREA	26 LADWP	2806.6	608.4
TO AREA	62 MONTANA	-1004.3	286.5
TO AREA	30 PG AND E	3814.3	-493.5
TO AREA	64 SIERRA	184.4	-48.9
TOTAL		3514.5	971.3
FROM AREA	65 PACE		
TO AREA	14 ARIZONA	-38.3	93.1
TO AREA	60 IDAHO	-797.6	-25.5
TO AREA	26 LADWP	-29.4	-183.8
TO AREA	62 MONTANA	-874.4	-119.2
TO AREA	18 NEVADA	257.9	-59.6
TO AREA	70 PSCOLORADO	764.5	-217.1
TO AREA	64 SIERRA	34.0	12.9
TO AREA	19 WAPA L.C.	43.7	31.2
TO AREA	73 WAPA R.M.	-341.7	73.1
TOTAL		-981.3	-394.9
FROM AREA	70 PSCOLORADO		
TO AREA	65 PACE	-764.5	217.1
TO AREA	73 WAPA R.M.	-1067.6	311.6
TOTAL		-1832.1	528.7
FROM AREA	64 SIERRA		
TO AREA	60 IDAHO	-135.0	52.0
TO AREA	26 LADWP	-49.7	1.8
TO AREA	40 NORTHWEST	-184.4	48.9
TO AREA	65 PACE	-34.0	-12.9

TO AREA	30 PG AND E	-8.1	-28.9
TO AREA	24 SOCALIF	11.9	-2.2
TOTAL		-399.3	58.6
FROM AREA	52 W KOOTENAY	mw	mvar
TO AREA	50 B.C.HYDRO	-150.5	-8.3
TOTAL		-150.5	-8.3
FROM AREA	73 WAPA R.M.	mw	mvar
TO AREA	10 NEW MEXICO	226.5	-31.2
TO AREA	65 PACE	341.7	-73.1
TO AREA	70 PSCOLORADO	1067.6	-311.6
TO AREA	19 WAPA L.C.	112.1	-29.9
TO AREA	63 WAPA U.M.	-136.4	20.4
TOTAL		1611.4	-425.4
FROM AREA	63 WAPA U.M.	mw	mvar
TO AREA	62 MONTANA	510.4	-267.8
TO AREA	73 WAPA R.M.	136.4	-20.4
TOTAL		646.9	-288.2

AREA TIE LINE SUMMARY

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

```
  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    54150 LANGDON2  500        50791 CBK500    500  1            -359.41    -36.29   f
    54205 COLEMAN7  138        50776 NTL138    138  1             -14.18     -8.92   t
    54273 POCATER7  138        50830 FRO T274  138  1             -25.94      8.19   t
 from area  54 to area  50 B.C.HYDRO                              -399.53    -37.03

 Total from area  54 ALBERTA                                      -399.53    -37.03

  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    62004 ANACOND   230        40457 GARRISON  230  1            -191.54     -3.91   f
    62004 ANACOND   230        40457 GARRISON  230  2            -207.12    -13.35   f
    62009 RATTLE S  161        40867 RATTLE S  230  1            -120.25    -30.40   t
    62012 TOWN2     500        40453 GAR2EAST  500  2             741.36   -108.59   t
    62013 TOWN1     500        40451 GAR1EAST  500  1             741.36   -108.59   t
    62066 KERR      115        40391 ELMO      115  1               0.95    -12.55   f
    62072 OVANDO    230        40457 GARRISON  230  1             -18.72     -5.51   t
    62072 OVANDO    230        40551 HOT SPR   230  1              30.93      1.52   t
    62085 CROWCR B  115        48055 BURKAVAB  115  1              25.18    -11.34   t
    62086 THOMSON   115        48053 BURKAVAA  115  1              31.56    -12.49   t
 from area  62 to area  40 NORTHWEST                              1033.71   -305.21

    62030 PTRSNFLT  230        65025 AMPS      230  1             206.41    -47.64   t
    62045 BLGS PHA  230        66750 YELOWTLP  230  1             -42.95      3.62   t
    62057 COLSTRP   500        90200 MTSDAVEJ  500  1             708.92    154.09   t
    62061 RMRK PHA  161        66755 YELOWTLP  161  1             -22.26     -3.01   f
    62084 DILLON S  161        65155 BIGGRASS  161  1              91.35    -38.90   t
 from area  62 to area  65 PACE                                    941.47     68.17

    62023 GT FALLS  161        63008 HAVRE     161  1              -9.71     -4.56   f
    62024 RAINBOW   161        63015 VERONA    161  1              -7.59     -4.33   f
    62027 SHELBY    115        63014 TIBERTAP  115  1             -10.17      2.43   f
    62051 HARDIN    230        63002 CRSOVRUM  230  1             118.94      0.03   t
    62056 HUNTLEY   230        63002 CRSOVRUM  230  1            -153.09     24.17   t
    62057 COLSTRP   500        90250 MTSFTPK1  500  1            -545.71    230.26   t
 from area  62 to area  63 WAPA U.M.                              -607.32    248.01

 Total from area  62 MONTANA                                      1367.86     10.97

  ---------from--------      --------- to --------
  --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

    40145 BOUNDARY  230        50822 NLYPHS    230  1            -301.30     -1.37   f
    40323 CUSTER W  500        50194 ING500    500  1           -1007.50    162.31   t
    40323 CUSTER W  500        50194 ING500    500  2            -990.80    160.69   t
 from area  40 to area  50 B.C.HYDRO                             -2299.60    321.63

    45029 BURNS     500        60240 MIDPOINT  500  1            -257.73    373.14   t
    45103 ENTERPRS  230        60150 HELLSCYN  230  1              21.07    -35.38   f
    40507 HARNEY    115        61826 HINES     115  1             -13.47     15.68   f
    40621 LAGRANDE  230        60192 LADD      230  1              66.50    -28.58   f
    48197 LOLO      230        60278 IMNAHA    230  1             208.57    -29.90   t
 from area  40 to area  60 IDAHO                                    24.94    294.96

    41311 CELILO1   500        26097 SYLMAR1   230  1             529.54     58.96   f
    41313 CELILO3   230        26098 SYLMAR3   230  1             873.78    244.89   f
    41312 CELILO2   500        26099 SYLMAR2   230  1             529.54     58.88   f
    41314 CELILO4   230        26100 SYLMAR4   230  1             873.78    245.33   f
 from area  40 to area  26 LADWP                                  2806.64    608.05

    48053 BURKAVAA  115        62086 THOMSON   115  1             -31.56     12.49   f
    48055 BURKAVAB  115        62085 CROWCR B  115  1             -25.18     11.34   f
    40391 ELMO      115        62066 KERR      115  1              -0.95     12.55   t
    40451 GAR1EAST  500        62013 TOWN1     500  1            -741.36    108.59   f
    40453 GAR2EAST  500        62012 TOWN2     500  2            -741.36    108.59   f
    40457 GARRISON  230        62072 OVANDO    230  1              18.72      5.51   f
    40457 GARRISON  230        62004 ANACOND   230  1             191.54      3.91   t
    40457 GARRISON  230        62004 ANACOND   230  2             207.12     13.35   t
    40551 HOT SPR   230        62072 OVANDO    230  1             -30.93     -1.52   f
    40867 RATTLE S  230        62009 RATTLE S  161  1             120.25     30.40   f
 from area  40 to area  62 MONTANA                               -1033.71    305.21

    45035 CAPTJACK  500        30020 OLINDA    500  1            1354.34   -224.18   f
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   45087 DELTA     115        31468 CASCADE   115  1             71.21    -15.24   f
   40687 MALIN     500        30005 ROUND MT  500  1           1197.07   -120.74   f
   40687 MALIN     500        30005 ROUND MT  500  2           1207.66   -138.60   f
from area  40 to area  30 PG AND E                             3830.28   -498.75

   40537 HIL TOP   230        64058 HIL TOP   345  1            184.98    -48.91   f
from area  40 to area  64 SIERRA                                184.98    -48.91

Total from area  40 NORTHWEST                                  3513.53    982.19

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   66235 PINTO PS  345        14101 FOURCORN  345  1            -38.31     93.08   t
from area  65 to area  14 ARIZONA                               -38.31     93.08

   65075 ANTLOPE   230        60073 BRADY     230  1            100.95    -35.94   f
   65135 BENLOMND  345        60060 BORAH     345  1           -326.09     20.62   t
   65220 BRIDGER   230        60085 BRIDGER   345  1            -38.15     -7.12   t
   65220 BRIDGER   230        60085 BRIDGER   345  2            -38.78     -7.22   t
   65220 BRIDGER   230        60085 BRIDGER   345  3            -38.15     -7.12   t
   65665 GOSHEN    345        60085 BRIDGER   345  1           -596.37    -54.93   f
   65665 GOSHEN    345        60190 KINPORT   345  1            224.13     27.07   t
   65670 GOSHEN    161        60030 BLACKFT   161  1            100.84     11.39   f
   65920 MALAD     138        60020 AMFLS     138  1            -63.76      2.23   t
   66565 TREASTON  230        60073 BRADY     230  1           -134.21     23.96   t
from area  65 to area  60 IDAHO                                 -809.60    -27.07

   65995 MONA      345        26043 INTERMT   345  1            -14.98    -90.04   f
   65995 MONA      345        26043 INTERMT   345  2            -14.98    -90.04   f
from area  65 to area  26 LADWP                                  -29.96   -180.08

   90200 MTSDAVEJ  500        62057 COLSTRP   500  1           -708.92   -154.09   f
   65025 AMPS      230        62030 PTRSNFLT  230  1           -206.41     47.64   f
   65155 BIGGRASS  161        62084 DILLON S  161  1            -91.35     38.90   f
   66750 YELOWTLP  230        62045 BLGS PHA  230  1             42.95     -3.62   f
   66755 YELOWTLP  161        62061 RMRK PHA  161  1             22.26      3.01   t
from area  65 to area  62 MONTANA                               -941.47    -68.17

   66280 REDBUTTE  345        18002 HA PS     345  1            256.55    -59.32   f
from area  65 to area  18 NEVADA                                 256.55    -59.32

   90200 MTSDAVEJ  500        90300 MTSDAN    500  1            806.04   -188.92   f
from area  65 to area  70 PSCOLORADO                             806.04   -188.92

   66210 PAVANT    230        64124 UTAH-NEV  230  1             33.72     12.93   t
from area  65 to area  64 SIERRA                                  33.72     12.93

   66355 SIGURDPS  230        79031 GLENCANY  230  1             43.23     31.31   t
from area  65 to area  19 WAPA L.C.                               43.23     31.31

   65060 ANT MINE  230        73276 TEKLA     230  1             25.05     20.20   f
   65085 ASHLEY    138        79067 VERNAL    138  1            -81.80      5.88   t
   65192 BONANZA   138        79067 VERNAL    138  1             57.09      5.69   t
   65193 BONANZA   345        79005 BEARS     345  1           -387.42      2.59   f
   65305 CASPERPP  115        73167 REFNRYTP  115  1            -35.33     -3.54   f
   65305 CASPERPP  115        73042 CASPERLM  115  1            -12.09     -4.06   t
   65420 DAVEJOHN  230        73107 LAR.RIVR  230  1             39.89    -17.47   f
   65420 DAVEJOHN  230        73190 STEGALL   230  1             71.61    -17.55   f
   65425 DAVEJOHN  115        73070 GLENRCKN  115  1             67.09      1.43   f
   65425 DAVEJOHN  115        73071 GLENRCKS  115  1             78.91      5.12   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  1            -53.37      7.15   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  2            -53.37      7.15   f
   66278 RANGELY   138        79001 ARTESIA   138  1             -4.80     -5.65   f
   66278 RANGELY   138        79046 MEEKER    138  1            -13.79      0.64   f
   66305 RIVERTON  230        73170 RIVERTON  115  1              6.36     10.18   f
   66535 THERMOPL  230        73197 THERMOPL  115  1              1.01      8.88   t
   66540 THERPACE  115        73197 THERMOPL  115  1             10.95      9.36   t
   66720 WORLAND   115        73222 WORLANTP  115  1            -11.83      8.85   t
   66725 WYODAK    230        73148 OSAGE     230  1            113.81    -16.84   t
   66725 WYODAK    230        73168 RENO      230  1             96.14      5.27   f
   66725 WYODAK    230        73294 HUGHES    230  1            111.39     -2.85   f
   66725 WYODAK    230        73282 WYODAK     69  1            -10.87     15.19   f
   66725 WYODAK    230        73282 WYODAK     69  2             -7.35     10.27   f
   66725 WYODAK    230        74016 WYGEN      14  1              0.00      0.00   f
   66750 YELOWTLP  230        73229 YELLOWBR  230  1           -309.43     18.85   t
from area  65 to area  73 WAPA R.M.                             -302.15     74.74

Total from area  65 PACE                                        -981.95   -311.49

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter
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   90300 MTSDAN    500        90200 MTSDAVEJ  500  1            -806.04    188.92   t
from area  70 to area  65 PACE                                  -806.04    188.92

   70005 BRUSHCPP  115        73013 B.CK PS   115  1             104.12     25.68   f
   70005 BRUSHCPP  115        73013 B.CK PS   115  2             109.59     32.19   f
   70116 COBBLAKE  115        73044 COBBLKTP  115  1             -15.32     -1.44   f
   70122 COMANCHE  230        73477 FULLER    230  1              69.52     30.74   t
   70139 DANIELPK  230        73477 FULLER    230  1             -43.30      8.01   t
   70193 FTN VALL  115        73412 MIDWAYBR  115  1              -3.58      0.41   t
   70205 GRANDJCT  230        79036 GRANDJCT  345  1             -45.10    -23.40   f
   70256 LAPORTPS  115        73105 LAPORTE   115  1             -14.73     -6.25   t
   70274 MALTA     230        73138 MT.ELBRT  230  1            -145.53     10.52   f
   70285 MIDWAYPS  115        73412 MIDWAYBR  115  1               6.73    -22.50   f
   70286 MIDWAYPS  230        73413 MIDWAYBR  230  1             120.90     91.33   t
   70287 MILL      115        73296 FRASER    115  1             -36.57      9.52   f
   70308 PALMER    115        73414 MONUMENT  115  1             -32.94     10.57   t
   70311 PAWNEE    230        73192 STORY     230  1            -180.33    -31.72   t
   70327 PONCHA    115        79037 GUNNISON  115  1             -19.11      8.61   f
   70350 RAWHIDE    24        73165 RAWHIDE   230  1             228.20     74.71   t
   70358 RIFLE PS  230        79059 RIFLE WA  230  1             -67.50      7.44   f
   70358 RIFLE PS  230        79250 AMATLAS   230  1             -75.90     -4.15   f
   70375 SAN LUIS  230        79054 PONCHABR  230  1             -82.02      5.45   t
   70410 ST.VRAIN  230        73116 LONGPEAK  230  1             -12.43     63.70   f
   70470 WELD  PS  115        73211 WELD  LM  115  1             -27.57     75.77   f
   70471 WELD  PS  230        73212 WELD  LM  230  1            -321.11    -18.75   f
   70474 WINDSOR   230        73011 AULT      230  1            -261.58     -0.19   t
   70476 WOODLAND  115        73400 EMIL AND  115  1              16.41      0.27   f
   70525 MTHARRIS  138        79038 HAYDEN    138  1              -7.21     -1.37   t
   79033 GOREPASS  230        79039 HAYDEN    230  1            -224.64     -7.86   t
   79033 GOREPASS  230        73072 GOREPASS  138  1               4.39      4.04   f
   79034 GRANDJCT  115        79048 MONTROSE  115  1              23.46     -6.01   t
   79056 RIFLE CU  138        79046 MEEKER    138  1             -17.85     -2.63   f
   79057 RIFLE CU  230        79059 RIFLE WA  230  1             -11.81    -22.59   t
   79058 RIFLE CU  345        79014 CRAIG     345  1            -343.56     -2.24   f
   79058 RIFLE CU  345        79036 GRANDJCT  345  1             330.80     -1.44   f
   79091 WOLCOTTP  230        79039 HAYDEN    230  1            -168.73      1.75   f
   79173 COLBRAN   115        79174 MOLINA-L  115  1               0.00     -0.54   f
   70351 RAWHIDEA   14        73165 RAWHIDE   230  1              44.68     36.27   t
   70550 W CANON   115        73551 W CANON   230  1             -27.07    -20.96   t
from area  70 to area  73 WAPA R.M.                            -1126.69    322.95

Total from area  70 PSCOLORADO                                 -1932.73    511.87

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   79060 SANJN PS  345        10292 SAN_JUAN  345  1             217.09    -29.57   t
from area  73 to area  10 NEW MEXICO                             217.09    -29.57

   73042 CASPERLM  115        65305 CASPERPP  115  1              12.09      4.06   f
   73070 GLENRCKN  115        65425 DAVEJOHN  115  1             -67.09     -1.43   t
   73071 GLENRCKS  115        65425 DAVEJOHN  115  1             -78.91     -5.12   t
   73107 LAR.RIVR  230        65420 DAVEJOHN  230  1             -39.89     17.47   t
   73148 OSAGE     230        66725 WYODAK    230  1            -113.81     16.84   f
   73167 REFNRYTP  115        65305 CASPERPP  115  1              35.33      3.54   t
   73168 RENO      230        66725 WYODAK    230  1             -96.14     -5.27   t
   73170 RIVERTON  115        66305 RIVERTON  230  1              -6.36    -10.18   t
   73190 STEGALL   230        65420 DAVEJOHN  230  1             -71.61     17.55   t
   73197 THERMOPL  115        66540 THERPACE  115  1             -10.95     -9.36   f
   73197 THERMOPL  115        66535 THERMOPL  230  1              -1.01     -8.88   f
   73222 WORLANTP  115        66720 WORLAND   115  1              11.83     -8.85   f
   73229 YELLOWBR  230        66750 YELOWTLP  230  1             309.43    -18.85   f
   73276 TEKLA     230        65060 ANT MINE  230  1             -25.05    -20.20   t
   73282 WYODAK     69        66725 WYODAK    230  1              10.87    -15.19   t
   73282 WYODAK     69        66725 WYODAK    230  2               7.35    -10.27   t
   73294 HUGHES    230        66725 WYODAK    230  1            -111.39      2.85   t
   79001 ARTESIA   138        66278 RANGELY   138  1               4.80      5.65   t
   79005 BEARS     345        65193 BONANZA   345  1             387.42     -2.59   t
   79026 FLAMGORG  138        65565 FLAMGORG  230  1              53.37     -7.15   t
   79026 FLAMGORG  138        65565 FLAMGORG  230  2              53.37     -7.15   t
   79046 MEEKER    138        66278 RANGELY   138  1              13.79     -0.64   t
   79067 VERNAL    138        65085 ASHLEY    138  1              81.80     -5.88   f
   79067 VERNAL    138        65192 BONANZA   138  1             -57.09     -5.69   f
   74016 WYGEN      14        66725 WYODAK    230  1               0.00      0.00   t
from area  73 to area  65 PACE                                   302.15    -74.74

   73011 AULT      230        70474 WINDSOR   230  1             261.58      0.19   f
   73013 B.CK PS   115        70005 BRUSHCPP  115  1            -104.12    -25.68   t
   73013 B.CK PS   115        70005 BRUSHCPP  115  2            -109.59    -32.19   t
   73044 COBBLKTP  115        70116 COBBLAKE  115  1              15.32      1.44   t
   73072 GOREPASS  138        79033 GOREPASS  230  1              -4.39     -4.04   t
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   73105 LAPORTE   115        70256 LAPORTPS  115  1              14.73      6.25   f
   73116 LONGPEAK  230        70410 ST.VRAIN  230  1              12.43    -63.70   t
   73138 MT.ELBRT  230        70274 MALTA     230  1             145.53    -10.52   t
   73165 RAWHIDE   230        70350 RAWHIDE    24  1            -228.20    -74.71   f
   73165 RAWHIDE   230        70351 RAWHIDEA   14  1             -44.68    -36.27   f
   73192 STORY     230        70311 PAWNEE    230  1             180.33     31.72   f
   73211 WELD  LM  115        70470 WELD  PS  115  1              27.57    -75.77   t
   73212 WELD  LM  230        70471 WELD  PS  230  1             321.11     18.75   t
   73296 FRASER    115        70287 MILL      115  1              36.57     -9.52   t
   73400 EMIL AND  115        70476 WOODLAND  115  1             -16.41     -0.27   t
   73412 MIDWAYBR  115        70193 FTN VALL  115  1               3.58     -0.41   f
   73412 MIDWAYBR  115        70285 MIDWAYPS  115  1              -6.73     22.50   t
   73413 MIDWAYBR  230        70286 MIDWAYPS  230  1            -120.90    -91.33   f
   73414 MONUMENT  115        70308 PALMER    115  1              32.94    -10.57   f
   73477 FULLER    230        70122 COMANCHE  230  1             -69.52    -30.74   f
   73477 FULLER    230        70139 DANIELPK  230  1              43.30     -8.01   f
   79014 CRAIG     345        79058 RIFLE CU  345  1             343.56      2.24   t
   79036 GRANDJCT  345        79058 RIFLE CU  345  1            -330.80      1.44   t
   79036 GRANDJCT  345        70205 GRANDJCT  230  1              45.10     23.40   t
   79037 GUNNISON  115        70327 PONCHA    115  1              19.11     -8.61   t
   79038 HAYDEN    138        70525 MTHARRIS  138  1               7.21      1.37   f
   79039 HAYDEN    230        79033 GOREPASS  230  1             224.64      7.86   f
   79039 HAYDEN    230        79091 WOLCOTTP  230  1             168.73     -1.75   t
   79046 MEEKER    138        79056 RIFLE CU  138  1              17.85      2.63   t
   79048 MONTROSE  115        79034 GRANDJCT  115  1             -23.46      6.01   f
   79054 PONCHABR  230        70375 SAN LUIS  230  1              82.02     -5.45   f
   79059 RIFLE WA  230        70358 RIFLE PS  230  1              67.50     -7.44   t
   79059 RIFLE WA  230        79057 RIFLE CU  230  1              11.81     22.59   f
   79174 MOLINA-L  115        79173 COLBRAN   115  1              -0.00      0.54   t
   79250 AMATLAS   230        70358 RIFLE PS  230  1              75.90      4.15   t
   73551 W CANON   230        70550 W CANON   115  1              27.07     20.96   f
from area  73 to area  70 PSCOLORADO                            1126.69   -322.95

   79061 SHIP PS   230        79063 SHIPROCK  230  1             102.18    -18.40   t
   79260 ELPASOTP  115        79105 GLADETAP  115  1               3.92    -10.83   t
from area  73 to area  19 WAPA L.C.                              106.10    -29.23

   73229 YELLOWBR  230        63001 CROS PHA  230  1            -140.26     23.12   f
from area  73 to area  63 WAPA U.M.                             -140.26     23.12

Total from area  73 WAPA R.M.                                   1611.77   -433.37

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   90250 MTSFTPK1  500        62057 COLSTRP   500  1             545.71   -230.26   f
   63002 CRSOVRUM  230        62051 HARDIN    230  1            -118.94     -0.03   f
   63002 CRSOVRUM  230        62056 HUNTLEY   230  1             153.09    -24.17   f
   63008 HAVRE     161        62023 GT FALLS  161  1               9.71      4.56   t
   63014 TIBERTAP  115        62027 SHELBY    115  1              10.17     -2.43   t
   63015 VERONA    161        62024 RAINBOW   161  1               7.59      4.33   t
from area  63 to area  62 MONTANA                                607.32   -248.01

   63001 CROS PHA  230        73229 YELLOWBR  230  1             140.26    -23.12   t
from area  63 to area  73 WAPA R.M.                              140.26    -23.12

Total from area  63 WAPA U.M.                                    747.58   -271.13
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MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Summation of selected system

	-----MW----	----MVAR---		
Generation	70610.422	8279.559	Generators	2563
Actual Load	60440.602	19741.215	Loads	6822
Net actual shunt	0.332	-2049.524	Shunts	1297
Net actual svd	0.000	-4901.262	Svd	588
Loss	3022.012	-4416.257	Buses	13195
			Lines	10963
			Transformers	5149
MVA-miles	6202739.0	962050.3	DC buses	6
Miles	46985.316		DC converters	10
			DC lines	3

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Area 54 [ALBERTA]

	-----MW----	----MVAR---		
Generation	7862.734	857.702	Generators	142
Actual Load	7899.199	2641.000	Loads	512
Net actual shunt	0.000	-22.486	Shunts	9
Net actual svd	0.000	-1851.886	Svd	76
Net Interchange	-399.526	-37.024	Buses	992
Sched Interchange	-400.000		Lines	781
Loss	363.059	128.101	Transformers	406
MVA-miles	1111663.3	226069.4	DC buses	0
Miles	18637.697		DC converters	0
			DC lines	0
Loss at 13.20 Kv	1.733	25.322		
Loss at 13.80 Kv	3.366	88.112		
Loss at 14.40 Kv	0.019	2.275		
Loss at 25.00 Kv	1.931	27.274		
Loss at 34.00 Kv	0.053	0.877		
Loss at 69.00 Kv	18.965	-3.361		
Loss at 138.00 Kv	151.592	-262.998		
Loss at 230.00 Kv	0.000	0.000		
Loss at 240.00 Kv	167.685	-572.740		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	17.714	823.340		
Largest mismatch MVA	0.0147	0.1373		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Area 50 [B.C.HYDRO]

	-----MW----	----MVAR---		
Generation	10250.908	926.754	Generators	112
Actual Load	6889.125	2565.790	Loads	395
Net actual shunt	0.000	2957.756	Shunts	104
Net actual svd	0.000	2143.539	Svd	125
Net Interchange	2849.753	-276.835	Buses	1054
Sched Interchange	2849.900		Lines	718
Loss	512.027	-6463.501	Transformers	645
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.307	7.922		
Loss at 13.80 Kv	10.057	491.725		
Loss at 34.00 Kv	0.000	0.002		
Loss at 46.00 Kv	0.302	0.084		
Loss at 132.00 Kv	36.981	105.860		
Loss at 138.00 Kv	15.080	-120.932		
Loss at 230.00 Kv	53.095	-614.576		
Loss at 500.00 Kv	338.977	-6998.770		
Loss at other Kv	57.228	665.185		
Largest mismatch MVA	0.0432	0.0361		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Area 60 [IDAHO]

	-----MW----	----MVAR---		
Generation	4110.874	453.788	Generators	62
Actual Load	2984.000	711.600	Loads	64
Net actual shunt	0.000	-595.392	Shunts	15
Net actual svd	0.000	0.000	Svd	0
Net Interchange	919.498	-323.091	Buses	156
Sched Interchange	920.000		Lines	120
Loss	207.376	660.672	Transformers	96
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.272	5.839		
Loss at 13.80 Kv	3.373	115.964		
Loss at 14.40 Kv	0.878	34.174		
Loss at 34.50 Kv	0.000	0.000		
Loss at 100.00 Kv	0.600	28.452		
Loss at 115.00 Kv	0.439	0.382		
Loss at 138.00 Kv	19.685	-4.629		
Loss at 161.00 Kv	1.811	2.766		
Loss at 230.00 Kv	69.973	-47.800		
Loss at 345.00 Kv	105.090	355.936		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	5.255	169.588		
Largest mismatch MVA	0.0035	0.0130		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Area 62 [MONTANA]

	-----MW----	----MVAR---		
Generation	2912.456	279.230	Generators	20
Actual Load	1422.895	610.184	Loads	200
Net actual shunt	0.332	-122.513	Shunts	56
Net actual svd	0.000	348.478	Svd	12
Net Interchange	1368.206	100.490	Buses	310
Sched Interchange	1368.000		Lines	315
Loss	121.022	-657.410	Transformers	87
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	-0.000	37.048		
Loss at 69.00 Kv	0.562	2.598		
Loss at 100.00 Kv	15.707	-45.606		
Loss at 115.00 Kv	2.067	-18.610		
Loss at 161.00 Kv	28.209	-22.723		
Loss at 230.00 Kv	21.309	-106.381		
Loss at 500.00 Kv	52.521	-678.633		
Loss at other Kv	0.647	174.897		
Largest mismatch MVA	0.0034	0.0143		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Area 40 [NORTHWEST]

	-----MW----	----MVAR---		
Generation	27317.637	3554.304	Generators	384
Actual Load	22671.295	6850.328	Loads	1652
Net actual shunt	0.000	-1863.076	Shunts	43
Net actual svd	0.000	-3989.292	Svd	159
Net Interchange	3514.465	971.266	Buses	2740
Sched Interchange	3514.000		Lines	2710
Loss	1131.887	1585.083	Transformers	654
MVA-miles	4523231.0	600065.6	DC buses	4
Miles	18469.418		DC converters	4
			DC lines	2
Loss at 11.00 Kv	0.000	0.606		
Loss at 13.20 Kv	0.000	4.946		
Loss at 13.80 Kv	4.804	207.555		
Loss at 14.40 Kv	0.286	13.135		
Loss at 25.00 Kv	3.186	166.979		
Loss at 34.50 Kv	0.349	6.296		
Loss at 69.00 Kv	14.886	42.681		
Loss at 100.00 Kv	0.120	-0.178		
Loss at 115.00 Kv	217.379	499.488		
Loss at 230.00 Kv	336.553	1614.819		

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Loss at 345.00 Kv          15.953     -177.106
Loss at 500.00 Kv         413.665    -2103.639
Loss at other Kv          124.707     1309.497

Largest mismatch MVA       0.0229       0.0631

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Area  65 [PACE                            ]

                       -----MW----  ----MVAR---
Generation              5585.375      700.388        Generators           52
Actual Load             6293.716     1960.150        Loads               274
Net actual shunt           0.000    -1761.285        Shunts               74
Net actual svd             0.000      523.008        Svd                   4
Net Interchange         -981.324     -394.939        Buses               565
Sched Interchange       -981.200                     Lines               409
Loss                     272.980      606.946        Transformers        338

MVA-miles                    5.0          1.6        DC buses              0
Miles                      1.900                     DC converters         0
                                                     DC lines              0
Loss at  13.80 Kv          0.867       27.893
Loss at  34.50 Kv          0.989        7.420
Loss at  46.00 Kv          6.340      137.473
Loss at  69.00 Kv          1.676       22.790
Loss at 100.00 Kv          0.056        1.037
Loss at 115.00 Kv          2.997       -9.345
Loss at 138.00 Kv         72.548      207.088
Loss at 161.00 Kv         14.279       -0.333
Loss at 230.00 Kv         78.116       42.830
Loss at 345.00 Kv         91.007       66.293
Loss at 500.00 Kv          0.032        5.178
Loss at other Kv           4.073       98.621

Largest mismatch MVA       0.0059       0.0351

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Area  70 [PSCOLORADO                      ]

                       -----MW----  ----MVAR---
Generation              4670.199     1272.507        Generators           66
Actual Load             6332.696     2372.604        Loads               362
Net actual shunt           0.000        0.000        Shunts               0
Net actual svd             0.000    -1675.924        Svd                 43
Net Interchange        -1832.092      528.742        Buses               501
Sched Interchange      -1832.800                     Lines               461
Loss                     169.589       47.036        Transformers        148

MVA-miles                25954.3       6299.8        DC buses              0
Miles                    564.500                     DC converters         0
                                                     DC lines              0
Loss at  13.80 Kv          3.447      107.873
Loss at  14.40 Kv          0.065        0.653
Loss at  25.00 Kv          0.013        0.165
Loss at  46.00 Kv          0.193        0.006
Loss at  69.00 Kv          6.947        0.058
Loss at 100.00 Kv          0.024       -0.377
Loss at 115.00 Kv         31.072      -50.361
Loss at 138.00 Kv          0.300       -5.390
Loss at 230.00 Kv        100.114      114.670
Loss at 345.00 Kv          0.000        0.012
Loss at 500.00 Kv         21.087     -313.172
Loss at other Kv           6.326      192.900

Largest mismatch MVA       0.0093       0.0214

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Area  64 [SIERRA                          ]

                       -----MW----  ----MVAR---
Generation              1375.324      124.404        Generators           22
Actual Load             1719.091      458.744        Loads               121
Net actual shunt           0.000     -188.183        Shunts               30
Net actual svd             0.000       69.375        Svd                   5
Net Interchange         -399.323       58.636        Buses               275
Sched Interchange       -399.000                     Lines               197
```

Loss	55.557	-274.150	Transformers	117
MVA-miles	66082.5	38341.6	DC buses	0
Miles	1042.600		DC converters	0
			DC lines	0
Loss at 13.80 Kv	2.541	51.421		
Loss at 69.00 Kv	0.000	0.000		
Loss at 115.00 Kv	0.479	-6.146		
Loss at 230.00 Kv	1.706	-101.401		
Loss at 345.00 Kv	9.057	-441.732		
Loss at other Kv	41.773	223.708		
Largest mismatch MVA	0.0079	0.0305		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Area 52 [W KOOTENAY]

	-----MW----	----MVAR---		
Generation	596.550	99.936	Generators	20
Actual Load	722.400	210.200	Loads	64
Net actual shunt	0.000	-77.818	Shunts	27
Net actual svd	0.000	-130.689	Svd	4
Net Interchange	-150.506	-8.264	Buses	260
Sched Interchange	-149.900		Lines	165
Loss	24.656	106.507	Transformers	117
MVA-miles	30831.5	4864.4	DC buses	0
Miles	986.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.000	8.258		
Loss at 13.80 Kv	0.000	0.000		
Loss at 14.40 Kv	-0.000	29.982		
Loss at 25.00 Kv	0.000	0.000		
Loss at 138.00 Kv	0.396	-0.489		
Loss at 161.00 Kv	9.043	11.279		
Loss at 230.00 Kv	1.524	-8.698		
Loss at other Kv	13.692	66.175		
Largest mismatch MVA	0.0015	0.0052		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

Area 73 [WAPA R.M.]

	-----MW----	----MVAR---		
Generation	5367.438	50.612	Generators	80
Actual Load	3608.290	1237.018	Loads	355
Net actual shunt	0.000	-297.575	Shunts	4
Net actual svd	0.000	-323.086	Svd	53
Net Interchange	1611.449	-425.449	Buses	620
Sched Interchange	1612.000		Lines	567
Loss	147.708	-140.286	Transformers	174
MVA-miles	444971.3	86407.9	DC buses	0
Miles	7283.200		DC converters	0
			DC lines	0
Loss at 13.80 Kv	6.190	91.172		
Loss at 34.50 Kv	0.312	4.057		
Loss at 69.00 Kv	5.207	-11.925		
Loss at 115.00 Kv	58.235	-144.329		
Loss at 138.00 Kv	4.909	-27.548		
Loss at 230.00 Kv	31.051	-322.326		
Loss at 345.00 Kv	34.624	-50.481		
Loss at other Kv	7.181	321.094		
Largest mismatch MVA	0.0233	0.0432		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO DENVER, LINE 2

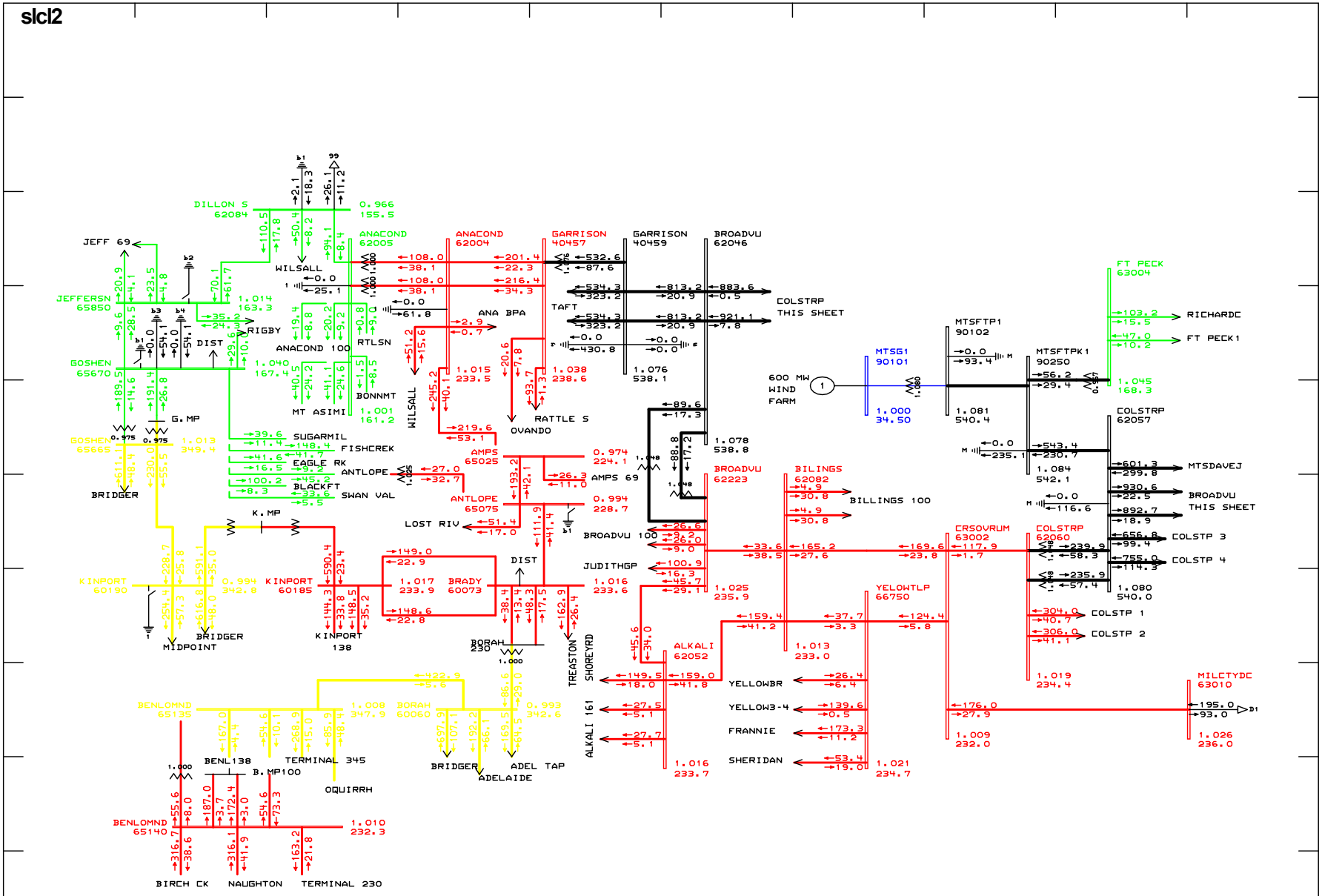
Area 63 [WAPA U.M.]

	-----MW----	----MVAR---		
Generation	560.918	-40.067	Generators	2
Actual Load	-102.100	123.600	Loads	17
Net actual shunt	0.000	-78.951	Shunts	1
Net actual svd	0.000	-14.786	Svd	4
Net Interchange	646.866	-288.153	Buses	24
Sched Interchange	647.000		Lines	14

Loss	16.152	-15.255	Transformers	5
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	0.282	7.880		
Loss at 115.00 Kv	0.353	-5.743		
Loss at 161.00 Kv	4.809	-14.392		
Loss at 230.00 Kv	8.988	44.331		
Loss at 500.00 Kv	1.107	-83.145		
Loss at other Kv	0.613	35.814		
Largest mismatch MVA	0.0001	0.0013		

B.7

slcl2



General Electric International, Inc. PSLF Program MW/MVAR Wed Jul 24 04:44:02 2002

PEAK POWER ENGINEERING, INC. 303-462-1100

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

600 MW WIND FARM AT FORT PECK
BASE CASE

mts\g4\g4slcl2.drw
c:\uwk\mts\g4\model\g4slc_l2.s
Rating = 1

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Percent Loading Summary -- using rating 1 - 100.0 percent of rating

----------from----------				---------- to ----------									rate	per cent	
--no.--	--name--	-kv-	-ar-	--no.--	--name--	-kv-	-ar-	ck	---mw---	-mvar-	-mva--	------		loading	
54611	RUTH LK8	69	54	54839	RUTH LK1	138	54	1	57.9	13.8	59.5	45.0M		132.3	T
64026	CARSON	120	64	64027	CARSON T	120	64	1	-56.2	-6.2	56.5	216.5A		131.9	F
55015	DOME EA9	14	54	55525	163ST2	240	54	T2	-57.3	-4.6	57.5	45.0M		128.6	T
64194	DAYTON	120	64	64254	DAYTON	25	64	1	16.6	6.5	17.8	14.0M		127.5	F
79026	FLAMGORG	138	73	79029	FLAMGORG	69	73	1	22.1	6.1	22.9	19.0M		120.5	F
64099	SPAN SPG	120	64	64114	TRACY	120	64	1	-127.8	-2.8	127.8	514.8A		118.4	F
65193	BONANZA	345	65	65995	MONA	345	65	1	748.6	77.5	752.6	1087.8A		116.9	F
64091	RENO	120	64	64263	RENO	25	64	1	50.3	20.5	54.3	46.7M		116.3	F
70249	LAJUNTAW	115	70	70250	LAJUNTAW	69	70	1	26.3	12.4	29.0	25.0M		116.1	F
64127	VAL ROAD	120	64	64274	VAL ROAD	25	64	1	50.2	20.3	54.2	46.7M		116.0	F
64091	RENO	120	64	64263	RENO	25	64	2	50.2	20.3	54.2	46.7M		116.0	F
64127	VAL ROAD	120	64	64274	VAL ROAD	25	64	2	47.8	19.3	51.6	46.7M		110.4	F
64202	HAN CRTP	120	64	64203	TWN CRTP	120	64	1	74.2	19.8	76.8	356.0A		109.1	F
64201	PINSN TP	120	64	64202	HAN CRTP	120	64	1	74.6	20.6	77.4	356.0A		109.1	F
64200	REDHOUSE	120	64	64201	PINSN TP	120	64	1	75.9	23.6	79.5	356.0A		109.0	T
64129	VALMY	120	64	64200	REDHOUSE	120	64	1	77.0	26.3	81.4	356.0A		108.7	T
54234	CASTLE R	138	54	55972	CASTLE-1	25	54	1	-50.0	21.0	54.2	50.0M		108.4	F
50459	KIT287	287	50	51075	KIT B5	13	50	5	80.3	24.1	83.8	79.0M		106.1	F
54232	PANCAN 9	138	54	55386	EMPRESS9	25	54	T1	15.7	1.0	15.7	15.0M		104.7	F
64114	TRACY	120	64	64118	TRACY G2	14	64	1	-82.5	-4.0	82.6	81.0M		104.0	T
43017	BEAVER	14	40	43021	BEAVER	230	40	1	356.8	43.9	359.5	348.0M		103.3	F
48319	PLEASANT	115	40	48355	RATHDRUM	115	40	1	-84.1	-16.1	85.6	430.8A		103.0	F
54052	BLUERIDG	138	54	55281	BLUERDGE	14	54	T1	20.8	15.2	25.7	25.0M		102.9	F
54154	E CALGAR	240	54	54189	ENMX2SD9	138	54	T1	234.1	-169.4	289.0	300.0M		102.8	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	34	155.0	-10.8	155.4	155.0M		101.9	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	BC	155.0	-10.8	155.4	155.0M		101.9	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	DE	155.0	-10.8	155.4	155.0M		101.9	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	56	155.0	-10.8	155.4	155.0M		101.9	T
40229	CHIEF JO	14	40	40231	CHIEF JO	230	40	12	155.0	-10.8	155.4	155.0M		101.9	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	9A	155.0	-10.8	155.4	155.0M		101.9	T
40221	CHIEF J2	14	40	40231	CHIEF JO	230	40	78	155.0	-10.8	155.4	155.0M		101.9	T
41304	COUGAR T	7	40	46211	COUGAR T	115	40	1	28.0	-8.6	29.3	30.0M		101.7	T
46733	LAGRND5	14	40	46735	LGBK5	115	40	1	40.0	6.7	40.6	40.0M		101.4	F
65560	FISHCREK	161	65	65670	GOSHEN	161	65	1	-144.1	39.8	149.5	531.1A		100.3	T
66050	NAUGHTON	230	65	66055	NAUGT G1	18	65	1	-186.1	-16.5	186.8	190.0M		100.2	T

```
Processing file c:\uwk\mts\g4\rvolths_lnbs.out
Processing file c:\uwk\mts\g4\rvoltslcl2.out

Compvolt found the following for comparisons:
     348 Voltage Violations read from c:\uwk\mts\g4\rvolths_lnbs.out
     349 Voltage Violations read from c:\uwk\mts\g4\rvoltslcl2.out


**** VOLTS:  NEW ****
Component                   w/o Prj         w/ Prj  Rating

**** VOLTS: WORSE ****
Component             w/o Prj  w/ Prj  Rating

**** VOLTS: BETTER ****
Component             w/o Prj  w/ Prj  Rating

**** VOLTS:  AWAY ****
Component             w/o Prj      w/ Prj          Rating
50343 KSH132-2  132   1.0501  0.95 <= pu <= 1.05   1.00 pu kV
50691 NIC230    230   1.0502  0.95 <= pu <= 1.05   1.00 pu kV
62033 ANA BPA   115   1.0505  0.95 <= pu <= 1.05   1.00 pu kV
66225 PINTO     345   1.0511  0.95 <= pu <= 1.05   1.00 pu kV
66235 PINTO PS  345   1.0501  0.95 <= pu <= 1.05   1.00 pu kV
48165 IRVIN     115   0.9489  0.95 <= pu <= 1.05   1.00 pu kV
48310 OPORTUNE  115   0.9494  0.95 <= pu <= 1.05   1.00 pu kV
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GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

overvoltage summary > 1.100000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
54090	BICKERD4	240	1.1047	54153	BRAZEAU4	240	1.1053	54329	KEEPHIL4	240	1.1116
54524	GENESEE4	240	1.1086	54681	NEVIS 7	138	1.1100	54802	STURGEO9	138	1.1003
55969	770S701T	138	1.1052	51017	KMS230	230	1.1080				

overvoltage summary > 1.050000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
90200	MTSDAVEJ	500	1.0606	90250	MTSFTPK1	500	1.0724	90251	MTSFTPK2	500	1.0800
90300	MTSDAN	500	1.0602	90400	MTSGFALL	500	1.0800	54012	FOX CREE	138	1.0510
54013	KAYBOB 9	138	1.0517	54014	GULF RO9	138	1.0592	54021	WESGEN 7	138	1.0507
54050	RBCUPIL7	138	1.0507	54054	LAMOURE4	240	1.0795	54073	IPPL ST9	138	1.0575
54077	BIGSTON4	240	1.0600	54078	CHEVRON7	138	1.0515	54081	METIS644	240	1.0853
54082	BICKERD7	138	1.0557	54090	BICKERD4	240	1.1047	54097	BIG HOR9	138	1.0817
54098	STRACHA9	138	1.0577	54103	DEERLAN4	240	1.0820	54121	ELLERSLI	240	1.0759
54125	SUNDANL9	138	1.0543	54126	WABAMUN4	240	1.0869	54128	SUNDANM9	240	1.0965
54129	E EDMON4	240	1.0709	54130	N CALDE4	240	1.0645	54131	N BARRH4	240	1.0836
54139	GAETZ 4	240	1.0597	54141	HIGHVAL9	138	1.0538	54142	WILLESD4	240	1.0961
54144	RED DEE4	240	1.0636	54147	BENALTO4	240	1.0767	54148	E CROSS4	240	1.0585
54150	LANGDON2	500	1.0533	54152	JANET 4	240	1.0533	54153	BRAZEAU4	240	1.1053
54157	PEIGAN 4	240	1.0747	54159	N LETHB4	240	1.0647	54184	SARCEE 7	138	1.0530
54195	RUNDLE S	138	1.0504	54223	WARE JCT	240	1.0511	54249	RP05103S	138	1.0669
54261	SPRAY S	138	1.0508	54269	COALSPU7	138	1.0609	54281	MILO 2	240	1.0605
54285	LEISMER9	240	1.0749	54287	GREGG R9	138	1.0701	54302	MARIONA9	138	1.0540
54325	CHEV KG9	138	1.0515	54326	COAL VA9	138	1.0582	54329	KEEPHIL4	240	1.1116
54335	W BROOK4	240	1.0550	54384	ENMX28S9	138	1.0523	54412	BENBOW 9	138	1.0517
54441	946/947X	240	1.0759	54444	SPRINGB9	138	1.0505	54505	JASPER 4	240	1.0658
54506	BELLAMY4	240	1.0757	54509	ARGYLL W	240	1.0758	54512	DOME T29	240	1.0764
54513	LAMBTON4	240	1.0705	54514	CLOVERB4	240	1.0694	54518	ARGYLL E	240	1.0760
54519	CASTLTX2	240	1.0705	54521	PETROLIA	240	1.0746	54524	GENESEE4	240	1.1086
54542	RBW LAK7	138	1.0505	54546	CHINCHA7	138	1.0575	54547	KEG RVR7	138	1.0561
54548	KEMP RV9	138	1.0578	54549	HOTCHKS7	138	1.0596	54552	CADOTTE9	138	1.0585
54553	NORCEN 9	138	1.0552	54554	LUBICON7	138	1.0582	54555	CRANBER9	138	1.0591
54558	WESLY C7	138	1.0791	54559	CARMON 9	138	1.0767	54560	PEACE/29	138	1.0753
54561	DIASHOW7	138	1.0736	54589	DOME CU7	138	1.0672	54593	DONNELL9	138	1.0669
54594	TAP7L487	138	1.0686	54595	TRIANGL7	138	1.0619	54596	VALLEYV9	138	1.0782
54600	L.SMOKY7	138	1.0848	54601	STURGEO7	138	1.0844	54606	SIMONET9	138	1.0846
54607	FOXCRK/2	138	1.0515	54608	GOOSE R9	138	1.0666	54612	RUTH LA7	138	1.0600
54613	RUTH LK7	138	1.0603	54618	PARS CR7	138	1.0508	54621	MITS E.4	240	1.0565
54622	MITS E.7	138	1.0892	54623	AEC MILL	138	1.0881	54624	OTAUWAU7	138	1.0890
54633	LOU CR.7	138	1.0570	54634	SARHLK/2	138	1.0511	54636	ESSO JU7	138	1.0519
54637	MORSE RV	138	1.0524	54639	VIRGINI9	138	1.0529	54643	WOLF LK9	138	1.0709
54646	MARG LK4	240	1.0740	54647	MARG LK7	138	1.0861	54648	LACOREY9	138	1.0683
54652	BONNY 9	138	1.0544	54654	BONN SVC	138	1.0544	54655	WHITFISH	240	1.0857
54675	PAINTRT7	240	1.0896	54680	NEVIS 4	240	1.0748	54681	NEVIS 7	138	1.1100
54685	3HILLS/3	138	1.0581	54691	MICH. C9	138	1.0735	54693	WINT HI9	138	1.0749
54694	BULLPON9	138	1.0750	54707	SHEER 14	240	1.0625	54709	ANDERSO4	240	1.0630
54710	ANDERSON	138	1.0850	54711	SHEER 24	240	1.0625	54715	BAT. RV7	138	1.0821
54721	BAT RV79	240	1.0926	54723	CORDEL 4	240	1.0926	54729	PRIM TAP	138	1.0652
54730	PRIMROSE	138	1.0712	54796	791S701T	138	1.0628	54802	STURGEO9	138	1.1003
54806	946/947N	240	1.0709	54809	732S901T	240	1.0667	54818	VERMILA9	138	1.0797

54822	766S901T	240	1.0628	54823	NEVIS 9	138	1.0878	54835	791S702T	138	1.0631
54836	MILNERB9	138	1.0779	54844	709S702T	138	1.0732	54847	BAT RV80	240	1.0926
54848	791S703T	138	1.0530	54962	KAYBOBTP	138	1.0517	54963	CANMORE9	138	1.0506
54978	EAST IN4	240	1.0705	54983	MARION T	138	1.0541	54984	HIGHVL T	138	1.0538
54988	CROSSF T	240	1.0585	54995	W.GRN TP	240	1.0961	55012	BASSET 7	138	1.0562
55013	HAIGRIVE	138	1.0572	55067	FTNELSON	138	1.0665	55072	SYNC_D04	240	1.0563
55073	AURORA 4	240	1.0619	55075	SEAL LK9	138	1.0643	55147	MILNERC9	138	1.0880
55226	WABASCA9	240	1.0532	55272	FIELDGA9	138	1.0513	55280	BRINTNEL	240	1.0504
55515	PRIMROSE	138	1.0565	55763	BC BORDE	138	1.0627	55891	904AL TP	240	1.0705
55894	SARCEE M	138	1.0512	55912	740L JNC	138	1.0609	55913	G.ROBB T	138	1.0600
55924	CH KGT T	138	1.0515	55943	MILO 1	240	1.0604	55969	770S701T	138	1.1052
50010	COM132	132	1.0724	50020	CMS230	230	1.0500	50036	RBW230	230	1.0549
50037	PEM230	230	1.0586	50038	RBW230-1	230	1.0534	50182	ARN132	132	1.0820
50185	ALZ230	230	1.0519	50186	ROS230	230	1.0619	50187	BRT230	230	1.0698
50188	BUT230	230	1.0500	50193	BRT360	360	1.0500	50313	VIT132	132	1.0518
50314	PVO133	132	1.0506	50315	PVO132	132	1.0512	50323	DMR132	132	1.0556
50330	LDR132	132	1.0504	50331	GLD132	132	1.0518	50334	KGH132	132	1.0528
50335	UTA132	132	1.0531	50342	SCA132	132	1.0500	50343	KSH132-2	132	1.0500
50346	SHA2	132	1.0504	50347	GOW132	132	1.0518	50348	GTP132	132	1.0552
50349	CLD132	132	1.0570	50350	SOO132	132	1.0577	50351	JOR132	132	1.0613
50352	PML132	132	1.0517	50353	WOS132	132	1.0535	50354	GLSTP17	132	1.0561
50355	GLSTP18	132	1.0548	50356	DND132	132	1.0521	50391	KSHTP14	132	1.0504
50394	SHATP14	132	1.0504	50395	SALTP17	132	1.0547	50396	SALTP18	132	1.0549
50447	TKW138	138	1.0534	50463	SKA500	500	1.0632	50464	TKW500	500	1.0688
50540	GMS230	230	1.0548	50541	KDS230	230	1.0544	50545	BLW230	230	1.0656
50546	SCK230	230	1.0597	50547	HMH230	230	1.0580	50548	BLM230	230	1.0587
50549	QNT230	230	1.0579	50550	QRP230	230	1.0652	50551	TLR230	230	1.0585
50553	BCR230	230	1.0585	50554	RBF230	230	1.0665	50556	LAP230	230	1.0569
50557	SNK230	230	1.0589	50558	GMS500	500	1.0500	50560	KDS500	500	1.0619
50561	WSN500	500	1.0502	50562	GLN500	500	1.0680	50653	NIC138	138	1.0528
50655	VVW138	138	1.0509	50656	SVA138	138	1.0520	50659	BDM138	138	1.0511
50660	WGS138	138	1.0609	50661	MON138	138	1.0582	50672	BKL138	138	1.0518
50679	BLU138	138	1.0537	50680	VLM138	138	1.0590	50686	SCO138	138	1.0677
50687	ABA138	138	1.0584	50691	NIC230	230	1.0500	50700	MCA500	500	1.0500
50701	REV500	500	1.0500	50729	PRI138TP	138	1.0677	50776	NTL138	138	1.0539
50783	SEL230	230	1.0589	50785	SEV230	230	1.0580	50792	SEL500	500	1.0500
50899	ABA138TP	138	1.0584	50902	BDM138TP	138	1.0511	50922	DNDTAP	132	1.0528
50923	HSY-PH	132	1.0555	50924	ESQ-PH	132	1.0521	50928	SCG IPP	132	1.0683
50934	JULTP130	132	1.0528	51017	KMS230	230	1.1080	51045	ALH230	230	1.0578
60085	BRIDGER	345	1.0500	60240	MIDPOINT	500	1.0681	62012	TOWN2	500	1.0996
62013	TOWN1	500	1.0996	62046	BROADVU	500	1.0783	62053	BROADV&2	500	1.0731
62054	BROADV&1	500	1.0738	62057	COLSTRP	500	1.0800	40045	ALLSTON	500	1.0728
40051	ALVEY	500	1.0805	40061	ASHE	500	1.0800	40111	BIG EDDY	500	1.0768
43049	BOARD F	500	1.0840	40139	BONNVILE	115	1.0500	47013	BRIDGPRT	115	1.0540
40155	BUCKLEY	500	1.0783	45029	BURNS	500	1.0556	45035	CAPTJACK	500	1.0779
46209	CARMEN	115	1.0619	41311	CELILO1	500	1.0767	41312	CELILO2	500	1.0767
40233	CHIEF JO	500	1.0800	40287	COULEE	500	1.0810	40302	COVINGT4	500	1.0755
40306	COVINGT5	500	1.0761	43115	COYO M1	500	1.0557	43123	COYOTE	500	1.0848
45095	DIXONVLE	500	1.0811	40369	DWORSHAK	500	1.0753	40381	ECHOLAKE	500	1.0787
40451	GAR1EAST	500	1.0897	40453	GAR2EAST	500	1.0897	40459	GARRISON	500	1.0758
40485	GREEN PT	115	1.0520	40489	GRIZZLY	500	1.0752	40499	HANFORD	500	1.0819
40521	HATWAI	500	1.0730	45137	HERMIST	230	1.0509	41212	HILLS CR	115	1.0500
40553	HOT SPR	500	1.0894	40585	JOHN DAY	500	1.0850	40601	KEELER	500	1.0826
45262	KFALLS	500	1.0805	40629	LANE	500	1.0744	40665	LIT GOOS	500	1.0800
40679	LOW GRAN	500	1.0800	40683	LOW MON	500	1.0800	40687	MALIN	500	1.0765

40693	MAPLE VL	500	1.0777	40699	MARION	500	1.0813	40711	MCLOUGLN	500	1.0702
40721	MCNARY	345	1.0510	40723	MCNARY	500	1.0800	45197	MERIDINP	500	1.0790
40749	MONROE	500	1.0797	40797	OLYMPIA	500	1.0792	40809	OSTRNDER	500	1.0726
40821	PAUL	500	1.0800	40827	PEARL	500	1.0792	40837	PONDROSA	500	1.0803
40869	RAVER	500	1.0799	43485	ROUND BU	500	1.0718	40913	SACJAWEA	500	1.0755
40917	SACJWA T	500	1.0768	40941	SANTIAM	500	1.0806	40949	SATSOP	500	1.0800
40957	SCHULTZ	500	1.0845	40973	SICKLER	500	1.0796	40989	SLATT	500	1.0813
41043	SUMMER L	500	1.0790	45289	SWIFT	230	1.0500	41051	TACOMA	500	1.0796
41057	TAFT	500	1.0860	41095	TROUTDAL	500	1.0648	41113	VANTAGE	500	1.0753
45337	WEED JPS	115	1.0512	47099	WELLS	115	1.0630	52226	PRI138	138	1.0677
52229	KER138	138	1.0713	52230	HED138	138	1.0703	52426	MAS138	138	1.0702
52815	PRI-T2	138	1.0685								

undervoltage summary < 0.900000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)

undervoltage summary < 0.950000

--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)	--no.--	--name--	-kv-	(v pu)
50781	NTL VR	138	0.9499	48069	CHESTER	115	0.9480	48306	OTIS	230	0.9416
70249	LAJUNTAW	115	0.9343	64072	MEYERS	120	0.9483	64092	RND HILL	120	0.9465
64102	STATELIN	120	0.9456	64203	TWN CRTP	120	0.9451				

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

	generation capacity	generation on-line	--- load categories ---- power	current	imped.	shunt	-- svd --	net inter	losses	slack bus
area name	ALBERTA									
mw	10743.6	7862.7	7899.2	0.0	0.0	0.0	0.0	-399.5	363.1	59.3
54 mvar	4916.5	857.7	2641.0	0.0	0.0	-22.5	-1851.9	-37.0	128.1	11.7
area name	B.C.HYDRO									
mw	14693.0	10251.4	6889.1	0.0	0.0	0.0	0.0	2849.7	512.5	197.8
50 mvar	6719.0	933.3	2565.8	0.0	0.0	2957.4	2143.2	-274.8	-6458.2	9.2
area name	IDAHO									
mw	4676.4	4119.8	2984.0	0.0	0.0	0.0	0.0	920.5	215.3	152.4
60 mvar	2192.5	572.7	711.6	0.0	0.0	-595.8	0.0	-260.8	717.6	0.7
area name	MONTANA									
mw	3502.2	2919.6	1422.9	0.0	0.0	0.3	0.0	1368.2	128.2	707.6
62 mvar	1309.0	280.5	610.2	0.0	0.0	-121.6	349.0	41.2	-598.3	82.9
area name	NORTHWEST									
mw	43502.3	27331.3	22671.3	0.0	0.0	0.0	0.0	3514.5	1145.5	569.2
40 mvar	15475.0	3590.0	6850.3	0.0	0.0	-1857.8	-4208.6	1059.2	1746.8	27.3
area name	PACE									
mw	6212.0	5115.7	6293.7	0.0	0.0	0.0	0.0	-1481.2	303.2	194.7
65 mvar	3201.9	890.1	1960.1	0.0	0.0	-1757.2	747.9	-535.1	819.3	43.3
area name	PSCOLORADO									
mw	5806.0	5162.0	6332.7	0.0	0.0	0.0	0.0	-1332.7	162.1	83.0
70 mvar	3667.3	1208.8	2372.6	0.0	0.0	0.0	-1686.3	568.3	-45.8	26.6
area name	SIERRA									
mw	1901.7	1376.7	1719.1	0.0	0.0	0.0	0.0	-398.1	55.6	110.7
64 mvar	925.4	127.0	458.7	0.0	0.0	-188.0	69.6	59.6	-273.0	24.3
area name	W KOOTENAY									
mw	763.5	596.5	722.4	0.0	0.0	0.0	0.0	-150.5	24.6	104.6
52 mvar	450.0	99.6	210.2	0.0	0.0	-77.8	-130.7	-8.5	106.5	25.2
area name	WAPA R.M.									
mw	6091.6	5380.9	3608.3	0.0	0.0	0.0	0.0	1612.9	159.6	498.5
73 mvar	2883.8	131.9	1237.0	0.0	0.0	-298.2	-320.4	-495.3	8.8	20.1

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

		generation capacity	generation on-line	--- load categories ---- power	current	imped.	shunt	-- svd	-- inter	net losses	slack bus
area name		WAPA U.M.									
	mw	561.8	560.7	-102.1	0.0	0.0	0.0	0.0	646.7	16.1	60.7
63	mvar	344.0	57.1	123.6	0.0	0.0	-79.0	-14.8	-299.3	-18.6	3.5
TOTL	mw	98454.1	70677.3	60440.6	0.0	0.0	0.3	0.0	7150.6	3085.8	
	mvar	42084.4	8748.7	19741.2	0.0	0.0	-2040.3	-4902.9	-182.5	-3866.8	

Area Interchange Summary

		mw	mvar
FROM AREA	54 ALBERTA		
TO AREA	50 B.C.HYDRO	-399.5	-37.0
TOTAL		-399.5	-37.0
FROM AREA	50 B.C.HYDRO		
TO AREA	54 ALBERTA	399.5	37.0
TO AREA	40 NORTHWEST	2299.7	-320.4
TO AREA	52 W KOOTENAY	150.5	8.5
TOTAL		2849.7	-274.8
FROM AREA	60 IDAHO		
TO AREA	40 NORTHWEST	-71.8	-290.3
TO AREA	65 PACE	858.6	82.1
TO AREA	64 SIERRA	133.6	-52.5
TOTAL		920.5	-260.8
FROM AREA	62 MONTANA		
TO AREA	40 NORTHWEST	1100.8	-392.7
TO AREA	65 PACE	794.3	149.8
TO AREA	63 WAPA U.M.	-526.9	284.1
TOTAL		1368.2	41.2
FROM AREA	40 NORTHWEST		
TO AREA	50 B.C.HYDRO	-2299.7	320.4
TO AREA	60 IDAHO	71.8	290.3
TO AREA	26 LADWP	2806.6	607.6
TO AREA	62 MONTANA	-1100.8	392.7
TO AREA	30 PG AND E	3848.7	-502.9
TO AREA	64 SIERRA	187.9	-48.9
TOTAL		3514.5	1059.2
FROM AREA	65 PACE		
TO AREA	14 ARIZONA	-122.3	93.3
TO AREA	60 IDAHO	-858.6	-82.1
TO AREA	26 LADWP	-30.1	-210.8
TO AREA	62 MONTANA	-794.3	-149.8
TO AREA	18 NEVADA	250.6	-58.8
TO AREA	70 PSCOLORADO	661.6	-277.1
TO AREA	64 SIERRA	29.3	13.5
TO AREA	19 WAPA L.C.	10.7	37.6
TO AREA	73 WAPA R.M.	-628.0	99.1
TOTAL		-1481.2	-535.1
FROM AREA	70 PSCOLORADO		
TO AREA	65 PACE	-661.6	277.1
TO AREA	73 WAPA R.M.	-671.2	291.2
TOTAL		-1332.7	568.3
FROM AREA	64 SIERRA		
TO AREA	60 IDAHO	-133.6	52.5
TO AREA	26 LADWP	-48.9	2.3
TO AREA	40 NORTHWEST	-187.9	48.9
TO AREA	65 PACE	-29.3	-13.5

TO AREA	30 PG AND E	-10.7	-28.3
TO AREA	24 SOCALIF	12.3	-2.4
TOTAL		-398.1	59.6
FROM AREA	52 W KOOTENAY	mw	mvar
TO AREA	50 B.C.HYDRO	-150.5	-8.5
TOTAL		-150.5	-8.5
FROM AREA	73 WAPA R.M.	mw	mvar
TO AREA	10 NEW MEXICO	285.7	-67.7
TO AREA	65 PACE	628.0	-99.1
TO AREA	70 PSCOLORADO	671.2	-291.2
TO AREA	19 WAPA L.C.	147.8	-52.5
TO AREA	63 WAPA U.M.	-119.8	15.2
TOTAL		1612.9	-495.3
FROM AREA	63 WAPA U.M.	mw	mvar
TO AREA	62 MONTANA	526.9	-284.1
TO AREA	73 WAPA R.M.	119.8	-15.2
TOTAL		646.7	-299.3

AREA TIE LINE SUMMARY

GENERAL ELECTRIC INTERNATIONAL, INC. - PSLF - V11.1
MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

---------from--------			--------- to --------						
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck	---mw----	---mvar--	meter
54150	LANGDON2	500	50791	CBK500	500	1	-359.39	-36.31	f
54205	COLEMAN7	138	50776	NTL138	138	1	-14.19	-8.92	t
54273	POCATER7	138	50830	FRO T274	138	1	-25.95	8.19	t
from area 54 to area 50 B.C.HYDRO							-399.53	-37.04	
Total from area 54 ALBERTA							-399.53	-37.04	

---------from--------			--------- to --------						
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck	---mw----	---mvar--	meter
62004	ANACOND	230	40457	GARRISON	230	1	-198.60	-13.83	f
62004	ANACOND	230	40457	GARRISON	230	2	-214.26	-24.43	f
62009	RATTLE S	161	40867	RATTLE S	230	1	-121.96	-35.00	t
62012	TOWN2	500	40453	GAR2EAST	500	2	800.61	-151.93	t
62013	TOWN1	500	40451	GAR1EAST	500	1	800.61	-151.93	t
62066	KERR	115	40391	ELMO	115	1	1.33	-12.84	f
62072	OVANDO	230	40457	GARRISON	230	1	-20.59	-7.84	t
62072	OVANDO	230	40551	HOT SPR	230	1	36.90	-0.53	t
62085	CROWCR B	115	48055	BURKAVAB	115	1	26.49	-11.68	t
62086	THOMSON	115	48053	BURKAVAA	115	1	32.57	-12.87	t
from area 62 to area 40 NORTHWEST							1143.11	-422.87	
62030	PTRSNFLT	230	65025	AMPS	230	1	219.55	-53.06	t
62045	BLGS PHA	230	66750	YELOWTLP	230	1	-37.74	3.32	t
62057	COLSTRP	500	90200	MTSDAVEJ	500	1	591.69	177.65	t
62061	RMRK PHA	161	66755	YELOWTLP	161	1	-21.04	-3.22	f
62084	DILLON S	161	65155	BIGGRASS	161	1	97.77	-43.92	t
from area 62 to area 65 PACE							850.24	80.77	
62023	GT FALLS	161	63008	HAVRE	161	1	-10.58	-4.00	f
62024	RAINBOW	161	63015	VERONA	161	1	-8.33	-3.80	f
62027	SHELBY	115	63014	TIBERTAP	115	1	-10.49	2.78	f
62051	HARDIN	230	63002	CRSOVRUM	230	1	117.90	-1.70	t
62056	HUNTLEY	230	63002	CRSOVRUM	230	1	-169.56	23.78	t
62057	COLSTRP	500	90250	MTSFTPK1	500	1	-543.44	230.67	t
from area 62 to area 63 WAPA U.M.							-624.50	247.73	
Total from area 62 MONTANA							1368.85	-94.37	

---------from--------			--------- to --------						
--no.--	--name--	-kv-	--no.--	--name--	-kv-	ck	---mw----	---mvar--	meter
40145	BOUNDARY	230	50822	NLYPHS	230	1	-293.79	-2.81	f
40323	CUSTER W	500	50194	ING500	500	1	-1011.45	161.97	t
40323	CUSTER W	500	50194	ING500	500	2	-994.68	160.35	t
from area 40 to area 50 B.C.HYDRO							-2299.92	319.52	
45029	BURNS	500	60240	MIDPOINT	500	1	-204.85	368.22	t
45103	ENTERPRS	230	60150	HELLSCYN	230	1	29.20	-37.15	f
40507	HARNEY	115	61826	HINES	115	1	-13.23	15.52	f
40621	LAGRANDE	230	60192	LADD	230	1	70.87	-29.33	f
48197	LOLO	230	60278	IMNAHA	230	1	219.47	-31.61	t
from area 40 to area 60 IDAHO							101.45	285.66	
41311	CELILO1	500	26097	SYLMAR1	230	1	529.54	58.92	f
41313	CELILO3	230	26098	SYLMAR3	230	1	873.78	244.62	f
41312	CELILO2	500	26099	SYLMAR2	230	1	529.54	58.85	f
41314	CELILO4	230	26100	SYLMAR4	230	1	873.78	245.07	f
from area 40 to area 26 LADWP							2806.64	607.46	
48053	BURKAVAA	115	62086	THOMSON	115	1	-32.57	12.87	f
48055	BURKAVAB	115	62085	CROWCR B	115	1	-26.49	11.68	f
40391	ELMO	115	62066	KERR	115	1	-1.33	12.84	t
40451	GAR1EAST	500	62013	TOWN1	500	1	-800.61	151.93	f
40453	GAR2EAST	500	62012	TOWN2	500	2	-800.61	151.93	f
40457	GARRISON	230	62072	OVANDO	230	1	20.59	7.84	f
40457	GARRISON	230	62004	ANACOND	230	1	198.60	13.83	t
40457	GARRISON	230	62004	ANACOND	230	2	214.26	24.43	t
40551	HOT SPR	230	62072	OVANDO	230	1	-36.90	0.53	f
40867	RATTLE S	230	62009	RATTLE S	161	1	121.96	35.00	f
from area 40 to area 62 MONTANA							-1143.11	422.87	
45035	CAPTJACK	500	30020	OLINDA	500	1	1365.30	-225.24	f

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   45087 DELTA     115        31468 CASCADE   115  1             71.44    -15.36   f
   40687 MALIN     500        30005 ROUND MT  500  1           1206.93   -123.01   f
   40687 MALIN     500        30005 ROUND MT  500  2           1217.61   -140.93   f
from area  40 to area  30 PG AND E                             3861.28   -504.54

   40537 HIL TOP   230        64058 HIL TOP   345  1            188.29    -49.05   f
from area  40 to area  64 SIERRA                                188.29    -49.05

Total from area  40 NORTHWEST                                  3514.64   1081.91

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   66235 PINTO PS  345        14101 FOURCORN  345  1           -141.26     91.98   t
from area  65 to area  14 ARIZONA                              -141.26     91.98

   65075 ANTLOPE   230        60073 BRADY     230  1            111.85    -41.35   f
   65135 BENLOMND  345        60060 BORAH     345  1           -422.86      5.56   t
   65220 BRIDGER   230        60085 BRIDGER   345  1            -20.26    -25.84   t
   65220 BRIDGER   230        60085 BRIDGER   345  2            -20.61    -26.26   t
   65220 BRIDGER   230        60085 BRIDGER   345  3            -20.26    -25.84   t
   65665 GOSHEN    345        60085 BRIDGER   345  1           -611.13    -48.37   f
   65665 GOSHEN    345        60190 KINPORT   345  1            228.71     25.75   t
   65670 GOSHEN    161        60030 BLACKFT   161  1            102.02     11.21   f
   65920 MALAD     138        60020 AMFLS     138  1            -75.27      2.87   t
   66565 TREASTON  230        60073 BRADY     230  1           -162.86     26.42   t
from area  65 to area  60 IDAHO                                -890.68    -95.84

   65995 MONA      345        26043 INTERMT   345  1            -14.21   -110.07   f
   65995 MONA      345        26043 INTERMT   345  2            -14.21   -110.07   f
from area  65 to area  26 LADWP                                 -28.41   -220.14

   90200 MTSDAVEJ  500        62057 COLSTRP   500  1           -591.69   -177.65   f
   65025 AMPS      230        62030 PTRSNFLT  230  1           -219.55     53.06   f
   65155 BIGGRASS  161        62084 DILLON S  161  1            -97.77     43.92   f
   66750 YELOWTLP  230        62045 BLGS PHA  230  1             37.74     -3.32   f
   66755 YELOWTLP  161        62061 RMRK PHA  161  1             21.04      3.22   t
from area  65 to area  62 MONTANA                              -850.24    -80.77

   66280 REDBUTTE  345        18002 HA PS     345  1            257.52    -59.61   f
from area  65 to area  18 NEVADA                                257.52    -59.61

   90200 MTSDAVEJ  500        90300 MTSDAN    500  1            687.20   -257.17   f
from area  65 to area  70 PSCOLORADO                            687.20   -257.17

   66210 PAVANT    230        64124 UTAH-NEV  230  1             30.39     13.08   t
from area  65 to area  64 SIERRA                                 30.39     13.08

   66355 SIGURDPS  230        79031 GLENCANY  230  1              3.21     38.23   t
from area  65 to area  19 WAPA L.C.                               3.21     38.23

   65060 ANT MINE  230        73276 TEKLA     230  1             22.97     23.91   f
   65085 ASHLEY    138        79067 VERNAL    138  1            -94.51      5.83   t
   65192 BONANZA   138        79067 VERNAL    138  1             49.80     13.43   t
   65193 BONANZA   345        79005 BEARS     345  1           -566.73     24.72   f
   65305 CASPERPP  115        73167 REFNRYTP  115  1            -39.03     -3.19   f
   65305 CASPERPP  115        73042 CASPERLM  115  1            -19.93     -4.09   t
   65420 DAVEJOHN  230        73107 LAR.RIVR  230  1            -21.51     -7.67   f
   65420 DAVEJOHN  230        73190 STEGALL   230  1             42.50    -16.60   f
   65425 DAVEJOHN  115        73070 GLENRCKN  115  1             63.15      1.56   f
   65425 DAVEJOHN  115        73071 GLENRCKS  115  1             75.85      5.23   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  1            -54.47      3.34   f
   65565 FLAMGORG  230        79026 FLAMGORG  138  2            -54.47      3.34   f
   66278 RANGELY   138        79001 ARTESIA   138  1             -5.76     -4.19   f
   66278 RANGELY   138        79046 MEEKER    138  1            -42.45      9.88   f
   66305 RIVERTON  230        73170 RIVERTON  115  1              3.12      8.91   f
   66535 THERMOPL  230        73197 THERMOPL  115  1             -2.05      4.46   t
   66540 THERPACE  115        73197 THERMOPL  115  1              8.83     10.08   t
   66720 WORLAND   115        73222 WORLANTP  115  1            -12.59      3.90   t
   66725 WYODAK    230        73148 OSAGE     230  1            103.34    -16.56   t
   66725 WYODAK    230        73168 RENO      230  1             98.25      1.74   f
   66725 WYODAK    230        73294 HUGHES    230  1            104.16     -3.99   f
   66725 WYODAK    230        73282 WYODAK     69  1            -11.18     15.18   f
   66725 WYODAK    230        73282 WYODAK     69  2             -7.56     10.26   f
   66725 WYODAK    230        74016 WYGEN      14  1              0.00      0.00   f
   66750 YELOWTLP  230        73229 YELLOWBR  230  1           -289.10     11.85   t
from area  65 to area  73 WAPA R.M.                            -649.39    101.34

Total from area  65 PACE                                      -1581.67   -468.91

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter
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   90300 MTSDAN    500        90200 MTSDAVEJ  500  1            -687.20    257.17   t
from area  70 to area  65 PACE                                 -687.20    257.17

   70005 BRUSHCPP  115        73013 B.CK PS   115  1             118.11     22.43   f
   70005 BRUSHCPP  115        73013 B.CK PS   115  2             124.63     29.38   f
   70116 COBBLAKE  115        73044 COBBLKTP  115  1             -15.33     -1.45   f
   70122 COMANCHE  230        73477 FULLER    230  1              86.59     25.56   t
   70139 DANIELPK  230        73477 FULLER    230  1             -65.23     19.73   t
   70193 FTN VALL  115        73412 MIDWAYBR  115  1               1.05     -1.20   t
   70205 GRANDJCT  230        79036 GRANDJCT  345  1             -32.14    -20.98   f
   70256 LAPORTPS  115        73105 LAPORTE   115  1             -14.73     -6.27   t
   70274 MALTA     230        73138 MT.ELBRT  230  1            -145.53     18.71   f
   70285 MIDWAYPS  115        73412 MIDWAYBR  115  1              13.12    -24.51   f
   70286 MIDWAYPS  230        73413 MIDWAYBR  230  1             177.12     89.28   t
   70287 MILL      115        73296 FRASER    115  1             -28.08      7.40   f
   70308 PALMER    115        73414 MONUMENT  115  1             -35.26     13.27   t
   70311 PAWNEE    230        73192 STORY     230  1            -128.62    -40.85   t
   70327 PONCHA    115        79037 GUNNISON  115  1              -6.60      4.18   f
   70350 RAWHIDE    24        73165 RAWHIDE   230  1             261.75     66.23   t
   70358 RIFLE PS  230        79059 RIFLE WA  230  1             -19.25      9.98   f
   70358 RIFLE PS  230        79250 AMATLAS   230  1             -75.89     -7.25   f
   70375 SAN LUIS  230        79054 PONCHABR  230  1             -79.68      6.93   t
   70410 ST.VRAIN  230        73116 LONGPEAK  230  1              12.80     58.11   f
   70470 WELD  PS  115        73211 WELD  LM  115  1             -22.15     75.28   f
   70471 WELD  PS  230        73212 WELD  LM  230  1            -264.11    -30.20   f
   70474 WINDSOR   230        73011 AULT      230  1            -213.33     -6.28   t
   70476 WOODLAND  115        73400 EMIL AND  115  1               8.84      3.05   f
   70525 MTHARRIS  138        79038 HAYDEN    138  1              -7.21     -1.37   t
   79033 GOREPASS  230        79039 HAYDEN    230  1            -169.19      4.75   t
   79033 GOREPASS  230        73072 GOREPASS  138  1               4.67      4.22   f
   79034 GRANDJCT  115        79048 MONTROSE  115  1              27.72     -5.89   t
   79056 RIFLE CU  138        79046 MEEKER    138  1              -3.49     -5.49   f
   79057 RIFLE CU  230        79059 RIFLE WA  230  1             -59.52    -27.82   t
   79058 RIFLE CU  345        79014 CRAIG     345  1            -348.64    -17.73   f
   79058 RIFLE CU  345        79036 GRANDJCT  345  1             371.75     20.51   f
   79091 WOLCOTTP  230        79039 HAYDEN    230  1            -147.93      4.96   f
   79173 COLBRAN   115        79174 MOLINA-L  115  1              -0.00     -0.53   f
   70351 RAWHIDEA   14        73165 RAWHIDE   230  1              50.75     33.79   t
   70550 W CANON   115        73551 W CANON   230  1             -22.35    -19.75   t
from area  70 to area  73 WAPA R.M.                            -645.37    300.19

Total from area  70 PSCOLORADO                                -1332.58    557.36

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   79060 SANJN PS  345        10292 SAN_JUAN  345  1             290.24    -74.31   t
from area  73 to area  10 NEW MEXICO                             290.24    -74.31

   73042 CASPERLM  115        65305 CASPERPP  115  1              19.93      4.09   f
   73070 GLENRCKN  115        65425 DAVEJOHN  115  1             -63.15     -1.56   t
   73071 GLENRCKS  115        65425 DAVEJOHN  115  1             -75.85     -5.23   t
   73107 LAR.RIVR  230        65420 DAVEJOHN  230  1              21.51      7.67   t
   73148 OSAGE     230        66725 WYODAK    230  1            -103.34     16.56   f
   73167 REFNRYTP  115        65305 CASPERPP  115  1              39.03      3.19   t
   73168 RENO      230        66725 WYODAK    230  1             -98.25     -1.74   t
   73170 RIVERTON  115        66305 RIVERTON  230  1              -3.12     -8.91   t
   73190 STEGALL   230        65420 DAVEJOHN  230  1             -42.50     16.60   t
   73197 THERMOPL  115        66540 THERPACE  115  1              -8.83    -10.08   f
   73197 THERMOPL  115        66535 THERMOPL  230  1               2.05     -4.46   f
   73222 WORLANTP  115        66720 WORLAND   115  1              12.59     -3.90   f
   73229 YELLOWBR  230        66750 YELOWTLP  230  1             289.10    -11.85   f
   73276 TEKLA     230        65060 ANT MINE  230  1             -22.97    -23.91   t
   73282 WYODAK     69        66725 WYODAK    230  1              11.18    -15.18   t
   73282 WYODAK     69        66725 WYODAK    230  2               7.56    -10.26   t
   73294 HUGHES    230        66725 WYODAK    230  1            -104.16      3.99   t
   79001 ARTESIA   138        66278 RANGELY   138  1               5.76      4.19   t
   79005 BEARS     345        65193 BONANZA   345  1             566.73    -24.72   t
   79026 FLAMGORG  138        65565 FLAMGORG  230  1              54.47     -3.34   t
   79026 FLAMGORG  138        65565 FLAMGORG  230  2              54.47     -3.34   t
   79046 MEEKER    138        66278 RANGELY   138  1              42.45     -9.88   t
   79067 VERNAL    138        65085 ASHLEY    138  1              94.51     -5.83   f
   79067 VERNAL    138        65192 BONANZA   138  1             -49.80    -13.43   f
   74016 WYGEN      14        66725 WYODAK    230  1               0.00      0.00   t
from area  73 to area  65 PACE                                   649.39   -101.34

   73011 AULT      230        70474 WINDSOR   230  1             213.33      6.28   f
   73013 B.CK PS   115        70005 BRUSHCPP  115  1            -118.11    -22.43   t
   73013 B.CK PS   115        70005 BRUSHCPP  115  2            -124.63    -29.38   t
   73044 COBBLKTP  115        70116 COBBLAKE  115  1              15.33      1.45   t
   73072 GOREPASS  138        79033 GOREPASS  230  1              -4.67     -4.22   t
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   73105 LAPORTE   115        70256 LAPORTPS  115  1             14.73      6.27   f
   73116 LONGPEAK  230        70410 ST.VRAIN  230  1            -12.80    -58.11   t
   73138 MT.ELBRT  230        70274 MALTA     230  1            145.53    -18.71   t
   73165 RAWHIDE   230        70350 RAWHIDE    24  1           -261.75    -66.23   f
   73165 RAWHIDE   230        70351 RAWHIDEA   14  1            -50.75    -33.79   f
   73192 STORY     230        70311 PAWNEE    230  1            128.62     40.85   f
   73211 WELD  LM  115        70470 WELD  PS  115  1             22.15    -75.28   t
   73212 WELD  LM  230        70471 WELD  PS  230  1            264.11     30.20   t
   73296 FRASER    115        70287 MILL      115  1             28.08     -7.40   t
   73400 EMIL AND  115        70476 WOODLAND  115  1             -8.84     -3.05   t
   73412 MIDWAYBR  115        70193 FTN VALL  115  1             -1.05      1.20   f
   73412 MIDWAYBR  115        70285 MIDWAYPS  115  1            -13.12     24.51   t
   73413 MIDWAYBR  230        70286 MIDWAYPS  230  1           -177.12    -89.28   f
   73414 MONUMENT  115        70308 PALMER    115  1             35.26    -13.27   f
   73477 FULLER    230        70122 COMANCHE  230  1            -86.59    -25.56   f
   73477 FULLER    230        70139 DANIELPK  230  1             65.23    -19.73   f
   79014 CRAIG     345        79058 RIFLE CU  345  1            348.64     17.73   t
   79036 GRANDJCT  345        79058 RIFLE CU  345  1           -371.75    -20.51   t
   79036 GRANDJCT  345        70205 GRANDJCT  230  1             32.14     20.98   t
   79037 GUNNISON  115        70327 PONCHA    115  1              6.60     -4.18   t
   79038 HAYDEN    138        70525 MTHARRIS  138  1              7.21      1.37   f
   79039 HAYDEN    230        79033 GOREPASS  230  1            169.19     -4.75   f
   79039 HAYDEN    230        79091 WOLCOTTP  230  1            147.93     -4.96   t
   79046 MEEKER    138        79056 RIFLE CU  138  1              3.49      5.49   t
   79048 MONTROSE  115        79034 GRANDJCT  115  1            -27.72      5.89   f
   79054 PONCHABR  230        70375 SAN LUIS  230  1             79.68     -6.93   f
   79059 RIFLE WA  230        70358 RIFLE PS  230  1             19.25     -9.98   t
   79059 RIFLE WA  230        79057 RIFLE CU  230  1             59.52     27.82   f
   79174 MOLINA-L  115        79173 COLBRAN   115  1              0.00      0.53   t
   79250 AMATLAS   230        70358 RIFLE PS  230  1             75.89      7.25   t
   73551 W CANON   230        70550 W CANON   115  1             22.35     19.75   f
from area  73 to area  70 PSCOLORADO                            645.37   -300.19

   79061 SHIP PS   230        79063 SHIPROCK  230  1            138.19    -39.53   t
   79260 ELPASOTP  115        79105 GLADETAP  115  1             11.78    -17.25   t
from area  73 to area  19 WAPA L.C.                             149.98    -56.78

   73229 YELLOWBR  230        63001 CROS PHA  230  1           -123.11     18.74   f
from area  73 to area  63 WAPA U.M.                            -123.11     18.74

Total from area  73 WAPA R.M.                                  1611.87   -513.88

 ---------from--------      --------- to --------
 --no.-- --name-- -kv-      --no.-- --name-- -kv- ck          ---mw---- ---mvar-- meter

   90250 MTSFTPK1  500        62057 COLSTRP   500  1            543.44   -230.67   f
   63002 CRSOVRUM  230        62051 HARDIN    230  1           -117.90      1.70   f
   63002 CRSOVRUM  230        62056 HUNTLEY   230  1            169.56    -23.78   f
   63008 HAVRE     161        62023 GT FALLS  161  1             10.58      4.00   t
   63014 TIBERTAP  115        62027 SHELBY    115  1             10.49     -2.78   t
   63015 VERONA    161        62024 RAINBOW   161  1              8.33      3.80   t
from area  63 to area  62 MONTANA                               624.50   -247.73

   63001 CROS PHA  230        73229 YELLOWBR  230  1            123.11    -18.74   t
from area  63 to area  73 WAPA R.M.                             123.11    -18.74

Total from area  63 WAPA U.M.                                   747.61   -266.47
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MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Summation of selected system

	-----MW----	----MVAR---		
Generation	70677.305	8748.680	Generators	2563
Actual Load	60440.602	19741.215	Loads	6822
Net actual shunt	0.320	-2040.292	Shunts	1297
Net actual svd	0.000	-4902.945	Svd	588
Loss	3085.803	-3866.836	Buses	13195
			Lines	10963
			Transformers	5149
MVA-miles	6241689.0	982102.1	DC buses	6
Miles	46985.316		DC converters	10
			DC lines	3

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Area 54 [ALBERTA]

	-----MW----	----MVAR---		
Generation	7862.734	857.688	Generators	142
Actual Load	7899.199	2641.000	Loads	512
Net actual shunt	0.000	-22.486	Shunts	9
Net actual svd	0.000	-1851.886	Svd	76
Net Interchange	-399.526	-37.037	Buses	992
Sched Interchange	-400.000		Lines	781
Loss	363.059	128.100	Transformers	406
MVA-miles	1111663.0	226069.4	DC buses	0
Miles	18637.697		DC converters	0
			DC lines	0
Loss at 13.20 Kv	1.733	25.322		
Loss at 13.80 Kv	3.366	88.112		
Loss at 14.40 Kv	0.019	2.275		
Loss at 25.00 Kv	1.931	27.274		
Loss at 34.00 Kv	0.053	0.877		
Loss at 69.00 Kv	18.965	-3.361		
Loss at 138.00 Kv	151.592	-262.997		
Loss at 230.00 Kv	0.000	0.000		
Loss at 240.00 Kv	167.685	-572.742		
Loss at 500.00 Kv	0.000	0.000		
Loss at other Kv	17.714	823.340		
Largest mismatch MVA	0.0190	0.0816		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Area 50 [B.C.HYDRO]

	-----MW----	----MVAR---		
Generation	10251.395	933.300	Generators	112
Actual Load	6889.125	2565.790	Loads	395
Net actual shunt	0.000	2957.414	Shunts	104
Net actual svd	0.000	2143.163	Svd	125
Net Interchange	2849.744	-274.831	Buses	1054
Sched Interchange	2849.900		Lines	718
Loss	512.524	-6458.238	Transformers	645
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.307	7.920		
Loss at 13.80 Kv	10.055	491.667		
Loss at 34.00 Kv	0.000	0.002		
Loss at 46.00 Kv	0.302	0.084		
Loss at 132.00 Kv	36.983	105.886		
Loss at 138.00 Kv	15.089	-120.878		
Loss at 230.00 Kv	53.052	-615.175		
Loss at 500.00 Kv	339.502	-6993.089		
Loss at other Kv	57.234	665.348		
Largest mismatch MVA	0.0239	0.0251		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Area 60 [IDAHO]

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                      -----MW----  ----MVAR---
Generation               4119.765      572.708        Generators           62
Actual Load              2984.000      711.600        Loads                64
Net actual shunt            0.000     -595.761        Shunts               15
Net actual svd              0.000        0.000        Svd                   0
Net Interchange           920.463     -260.756        Buses               156
Sched Interchange         920.000                     Lines               120
Loss                      215.302      717.624        Transformers         96

MVA-miles                     0.0          0.0        DC buses              0
Miles                       0.000                     DC converters         0
                                                      DC lines              0
Loss at  13.20 Kv           0.272        5.839
Loss at  13.80 Kv           3.394      117.117
Loss at  14.40 Kv           0.878       34.182
Loss at  34.50 Kv           0.000        0.000
Loss at 100.00 Kv           0.590       27.488
Loss at 115.00 Kv           0.438        0.379
Loss at 138.00 Kv          19.772       -4.264
Loss at 161.00 Kv           1.846        2.875
Loss at 230.00 Kv          73.594      -27.121
Loss at 345.00 Kv         109.242      390.818
Loss at 500.00 Kv           0.000        0.000
Loss at other Kv            5.277      170.311

Largest mismatch MVA       0.0032       0.0171

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Area  62 [MONTANA                        ]

                      -----MW----  ----MVAR---
Generation               2919.610      280.467        Generators           20
Actual Load              1422.895      610.184        Loads               200
Net actual shunt            0.320     -121.580        Shunts               56
Net actual svd              0.000      348.989        Svd                  12
Net Interchange          1368.194       41.211        Buses               310
Sched Interchange        1368.000                     Lines               315
Loss                      128.201     -598.337        Transformers         87

MVA-miles                     0.0          0.0        DC buses              0
Miles                       0.000                     DC converters         0
                                                      DC lines              0
Loss at  13.80 Kv           0.000       37.120
Loss at  69.00 Kv           0.564        2.607
Loss at 100.00 Kv          16.413      -43.950
Loss at 115.00 Kv           2.103      -18.492
Loss at 161.00 Kv          30.863      -12.312
Loss at 230.00 Kv          23.561      -83.906
Loss at 500.00 Kv          54.049     -655.365
Loss at other Kv            0.648      175.960

Largest mismatch MVA       0.0057       0.0244

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Area  40 [NORTHWEST                      ]

                      -----MW----  ----MVAR---
Generation              27331.256     3590.015        Generators          384
Actual Load             22671.295     6850.328        Loads              1652
Net actual shunt            0.000    -1857.760        Shunts               43
Net actual svd              0.000    -4208.586        Svd                 159
Net Interchange          3514.506     1059.232        Buses              2740
Sched Interchange        3514.000                     Lines              2710
Loss                     1145.459     1746.805        Transformers        654

MVA-miles               4582980.5     615825.0        DC buses              4
Miles                  18469.418                      DC converters         4
                                                      DC lines              2
Loss at  11.00 Kv           0.000        0.606
Loss at  13.20 Kv           0.000        4.932
Loss at  13.80 Kv           4.805      207.296
Loss at  14.40 Kv           0.286       13.135
Loss at  25.00 Kv           3.174      166.173
Loss at  34.50 Kv           0.348        6.259
Loss at  69.00 Kv          14.973       42.798
Loss at 100.00 Kv           0.121       -0.190
Loss at 115.00 Kv         217.955      500.669
Loss at 230.00 Kv         339.722     1639.019
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Loss at 345.00 Kv	16.012	-176.152
Loss at 500.00 Kv	423.228	-1968.151
Loss at other Kv	124.835	1310.410
Largest mismatch MVA	0.0242	0.0718

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Area 65 [PACE]

	-----MW----	----MVAR---		
Generation	5115.729	890.077	Generators	52
Actual Load	6293.716	1960.150	Loads	274
Net actual shunt	0.000	-1757.216	Shunts	74
Net actual svd	0.000	747.906	Svd	4
Net Interchange	-1481.175	-535.052	Buses	565
Sched Interchange	-1481.200		Lines	409
Loss	303.193	819.321	Transformers	338
MVA-miles	5.0	1.6	DC buses	0
Miles	1.900		DC converters	0
			DC lines	0
Loss at 13.80 Kv	0.885	32.497		
Loss at 34.50 Kv	1.013	7.621		
Loss at 46.00 Kv	6.348	137.664		
Loss at 69.00 Kv	1.664	22.696		
Loss at 100.00 Kv	0.056	1.042		
Loss at 115.00 Kv	3.103	-8.834		
Loss at 138.00 Kv	81.152	228.603		
Loss at 161.00 Kv	16.599	8.123		
Loss at 230.00 Kv	96.256	219.702		
Loss at 345.00 Kv	91.993	66.324		
Loss at 500.00 Kv	0.029	4.986		
Loss at other Kv	4.097	98.897		
Largest mismatch MVA	0.0047	0.0316		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Area 70 [PSCOLORADO]

	-----MW----	----MVAR---		
Generation	5162.019	1208.810	Generators	66
Actual Load	6332.696	2372.604	Loads	362
Net actual shunt	0.000	0.000	Shunts	0
Net actual svd	0.000	-1686.273	Svd	43
Net Interchange	-1332.746	568.291	Buses	501
Sched Interchange	-1332.800		Lines	461
Loss	162.075	-45.778	Transformers	148
MVA-miles	22350.6	6446.0	DC buses	0
Miles	564.500		DC converters	0
			DC lines	0
Loss at 13.80 Kv	3.855	127.451		
Loss at 14.40 Kv	0.080	0.801		
Loss at 25.00 Kv	0.012	0.161		
Loss at 46.00 Kv	0.193	0.005		
Loss at 69.00 Kv	7.113	1.841		
Loss at 100.00 Kv	0.031	-0.485		
Loss at 115.00 Kv	31.639	-48.349		
Loss at 138.00 Kv	0.304	-5.360		
Loss at 230.00 Kv	96.097	74.539		
Loss at 345.00 Kv	0.001	0.055		
Loss at 500.00 Kv	15.557	-427.805		
Loss at other Kv	7.193	231.368		
Largest mismatch MVA	0.0079	0.0258		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Area 64 [SIERRA]

	-----MW----	----MVAR---		
Generation	1376.663	126.984	Generators	22
Actual Load	1719.091	458.744	Loads	121
Net actual shunt	0.000	-187.970	Shunts	30
Net actual svd	0.000	69.612	Svd	5
Net Interchange	-398.056	59.582	Buses	275
Sched Interchange	-399.000		Lines	197

Loss	55.627	-273.005	Transformers	117
MVA-miles	64178.1	38338.4	DC buses	0
Miles	1042.600		DC converters	0
			DC lines	0
Loss at 13.80 Kv	2.551	51.613		
Loss at 69.00 Kv	0.000	0.000		
Loss at 115.00 Kv	0.479	-6.145		
Loss at 230.00 Kv	1.492	-103.086		
Loss at 345.00 Kv	9.267	-439.273		
Loss at other Kv	41.839	223.885		
Largest mismatch MVA	0.0129	0.0220		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Area 52 [W KOOTENAY]

	-----MW----	----MVAR---		
Generation	596.550	99.612	Generators	20
Actual Load	722.400	210.200	Loads	64
Net actual shunt	0.000	-77.812	Shunts	27
Net actual svd	0.000	-130.687	Svd	4
Net Interchange	-150.499	-8.549	Buses	260
Sched Interchange	-149.900		Lines	165
Loss	24.648	106.459	Transformers	117
MVA-miles	30823.9	4866.1	DC buses	0
Miles	986.000		DC converters	0
			DC lines	0
Loss at 13.20 Kv	0.000	8.258		
Loss at 13.80 Kv	0.000	0.000		
Loss at 14.40 Kv	-0.000	29.974		
Loss at 25.00 Kv	0.000	0.000		
Loss at 138.00 Kv	0.397	-0.486		
Loss at 161.00 Kv	9.043	11.279		
Loss at 230.00 Kv	1.523	-8.718		
Loss at other Kv	13.685	66.152		
Largest mismatch MVA	0.0016	0.0067		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Area 73 [WAPA R.M.]

	-----MW----	----MVAR---		
Generation	5380.875	131.918	Generators	80
Actual Load	3608.290	1237.018	Loads	355
Net actual shunt	0.000	-298.170	Shunts	4
Net actual svd	0.000	-320.426	Svd	53
Net Interchange	1612.927	-495.298	Buses	620
Sched Interchange	1612.000		Lines	567
Loss	159.648	8.782	Transformers	174
MVA-miles	429687.8	90555.6	DC buses	0
Miles	7283.200		DC converters	0
			DC lines	0
Loss at 13.80 Kv	6.187	91.180		
Loss at 34.50 Kv	0.312	4.058		
Loss at 69.00 Kv	5.168	-11.946		
Loss at 115.00 Kv	60.022	-135.592		
Loss at 138.00 Kv	7.885	-13.765		
Loss at 230.00 Kv	31.485	-307.210		
Loss at 345.00 Kv	41.361	58.486		
Loss at other Kv	7.228	323.571		
Largest mismatch MVA	0.0146	0.0619		

MONTANA TRANSMISSION STUDY, WAPA UGP, JUNE 2002
G4 SCHEDULED TO SALT LAKE CITY, LINE 2

Area 63 [WAPA U.M.]

	-----MW----	----MVAR---		
Generation	560.715	57.100	Generators	2
Actual Load	-102.100	123.600	Loads	17
Net actual shunt	0.000	-78.951	Shunts	1
Net actual svd	0.000	-14.758	Svd	4
Net Interchange	646.747	-299.251	Buses	24
Sched Interchange	647.000		Lines	14

Loss	16.067	-18.567	Transformers	5
MVA-miles	0.0	0.0	DC buses	0
Miles	0.000		DC converters	0
			DC lines	0
Loss at 13.80 Kv	0.278	7.777		
Loss at 115.00 Kv	0.371	-5.648		
Loss at 161.00 Kv	5.052	-12.030		
Loss at 230.00 Kv	8.639	38.343		
Loss at 500.00 Kv	1.127	-82.039		
Loss at other Kv	0.600	35.030		
Largest mismatch MVA	0.0003	0.0010		

C. CATEGORY B (CONTINGENCY) DATA

Contingency Analysis Summaries for Viable Projects

Continuous Rating (Rate 1) Reports

Emergency Rating (Rate 2) Reports

Light Summer and Heavy Summer Contingency Lists

Contingency Analysis Summary - Project 4 Line 1 Scheduled to Spokane

Component	Rate 1			Rate 2			Contingency		Recommendation
Area, Bus Name, kV	Without Project [pu]	With Project [pu]	Continuous Rating	Without Project [pu]	With Project [pu]	Emergency Rating	#	Description	
New or Worse by 5%									
40 BEACON N 230 to 40 BELL SO 230 CKT 5	<0.95	1.04	366.50	<0.95	1.04	366.50	122	LINE 40 BELL MI 230.0 to 40 BELL SO 230.0 CKT 1	Extend Project Line
40 BELL MI 230 to 40 BELL BPA 115 CKT 1	<0.95	1.04	249.00				126	LINE 40 BELL NO 230.0 to 41 WESTBPA1 230.0 CKT 1	Extend Project Line
40 POSTSTRT 115 to 40 THIRHACH 115 CKT 1	<0.95	0.99	110.90	<0.95	0.99	110.90	126	LINE 40 BELL NO 230.0 to 41 WESTBPA1 230.0 CKT 1	Extend Project Line
40 BEACON S 115 to 40 BELL BPA 115 CKT 1	<0.95	0.96	85.80	<0.95	0.96	85.80	122	LINE 40 BELL MI 230.0 to 40 BELL SO 230.0 CKT 1	Extend Project Line
40 BURKE 115 to 40 BURKAVAB 115 CKT 1	1.20	1.27	73.90	1.20	1.27	73.90	1124	LINE 62 THOMSON 115.0 to 48 BURKAVAA 115.0 CKT 1	Reconductor
40 BEACON N 115 to 40 ROSSPARK 115 CKT 1	1.18	1.33	138.20	1.18	1.33	138.20	126	LINE 40 BELL NO 230.0 to 41 WESTBPA1 230.0 CKT 1	Extend Project Line
40 BEACON N 230 to 40 BEACON N 115 CKT 1	0.97	1.17	287.00	0.97	1.17	287.00	122	LINE 40 BELL MI 230.0 to 40 BELL SO 230.0 CKT 1	Extend Project Line
40 BEACON S 230 to 40 BEACON S 115 CKT 1	0.97	1.17	287.00	0.97	1.17	287.00	122	LINE 40 BELL MI 230.0 to 40 BELL SO 230.0 CKT 1	Extend Project Line

Contingency Analysis Summary - Project 4 Line 2 Scheduled to Denver

Component	Rate 1			Rate 2			Contingency		Recommendation
Area, Bus Name, kV	Without Project [pu]	With Project [pu]	Continuous Rating	Without Project [pu]	With Project [pu]	Emergency Rating	#	Description	
New or Worse by 5%									
70 DANIELPK 230 to 70 PRAIRIE 230 CKT 1	<0.95	1.01	494.80	<0.95	1.01	494.80	523	LINE 70 DANIELPK 230.0 to 70 GREENWD 230.0 CKT 1	Review Rating
70 DANIELPK 230 to 70 GREENWD 230 CKT 1	<0.95	0.99	494.80	<0.95	0.99	494.80	527	LINE 70 DANIELPK 230.0 to 70 PRAIRIE 230.0 CKT 1	None
73 HOTCHKIS 115 to 73 GARNETAP 115 CKT 1	<0.95	0.99	85.00				1039	LINE 79 GRANDJCT 345.0 to 79 MONTROSE 345.0 CKT 1	None
40 NEWPORTB 115 to 40 PINE ST 115 CKT 1	<0.95	0.96	120.10	<0.95	0.96	120.10	125	LINE 40 BELL NO 230.0 to 40 SACHEEN 230.0 CKT 1	None
40 BEACON S 115 to 40 NINTHCNT 115 CKT 1	<0.95	0.96	91.00	<0.95	0.96	91.00	126	LINE 40 BELL NO 230.0 to 41 WESTBPA1 230.0 CKT 1	None
73 ARTESIA 138 to 73 HAYDEN 138 CKT 1	<0.95	0.96	90.00				1015	LINE 79 BEARS 345.0 to 79 CRAIG 345.0 CKT 1	None
70 RIDGE 115 to 70 RIDGE 230 CKT 2	<0.95	0.96	100.00	<0.95	0.96	100.00	1305	TRANSFORMER 70 LEETSDAL 115.0 to 70 LEETSDAL 230.0 CKT 1	None
73 STEGALL 230 to 73 STEGALL 115 CKT 1	<0.95	0.96	100.00				1332	TRANSFORMER 73 SIDNEY 115.0 to 73 SIDNEY 230.0 CKT 1	None
73 LOSTCANY 230 to 73 LOSTCANY 115 CKT 1	<0.95	0.96	112.00				1367	TRANSFORMER 65 BRIDGER 230.0 to 60 BRIDGER 345.0 CKT 2	None
70 SMOKYHIL 115 to 70 SMOKYHIL 230 CKT 1	1.04	1.14	150.00	1.04	1.14	150.00	1308	TRANSFORMER 70 RIDGE 115.0 to 70 RIDGE 230.0 CKT 1	Upgrade
70 WATERTON 115 to 70 WATERTON 230 CKT 2	1.00	1.16	100.00	1.00	1.16	100.00	1310	TRANSFORMER 70 SMOKYHIL 115.0 to 70 SMOKYHIL 230.0 CKT 1	Upgrade
70 WATERTON 115 to 70 WATERTON 230 CKT 1	0.99	1.15	100.00	0.99	1.15	100.00	1311	TRANSFORMER 70 SMOKYHIL 115.0 to 70 SMOKYHIL 230.0 CKT 2	Upgrade
Better by 5% or Corrected									
70 BRUSHCPP 115 to 73 B.CK PS 115 CKT 1	1.48	1.31	162.00	1.48	1.31	162.00	1165	LINE 73 AULT 230.0 to 70 WINDSOR 230.0 CKT 1	None
73 EFMORGTP 115 to 73 FMWEST 115 CKT 1	1.29	1.20	80.00				710	LINE 73 AULT 345.0 to 73 LAR.RIVR 345.0 CKT 1	None
70 BRUSHCPP 115 to 73 B.CK PS 115 CKT 2	1.28	1.14	187.00	1.28	1.14	187.00	1164	LINE 70 WOODLAND 115.0 to 73 EMIL AND 115.0 CKT 1	None
65 BONANZA 138 to 65 RANGELY 138 CKT 1	1.19	1.13	115.00				1248	TRANSFORMER 65 BENLOMND 230.0 to 65 BENLOMND 138.0 CKT 1	None
73 GOREPASS 138 to 73 HAYDEN 138 CKT 1	1.18	1.02	96.00				1178	LINE 70 MTHARRIS 138.0 to 79 HAYDEN 138.0 CKT 1	None
70 LOOKOUT 115 to 70 LOOKOUT 230 CKT 1	1.17	1.11	150.00	1.17	1.11	150.00	1304	TRANSFORMER 70 FTLUPTON 115.0 to 70 FTLUPTON 230.0 CKT 1	None
70 LOOKOUT 115 to 70 LOOKOUT 230 CKT 2	1.15	1.09	150.00	1.15	1.09	150.00	1303	TRANSFORMER 70 DENVTM 115.0 to 70 DENVTM 230.0 CKT 1	None
73 MIDWAYBR 230 to 73 MIDWAYBR 115 CKT 1	1.11	1.01	100.00				1001	LINE 73 MIDWAYBR 230.0 to 73 RD NIXON 230.0 CKT 1	None
70 CHEROKEN 115 to 70 DERBY 2 115 CKT 1	1.10	0.97	135.00	1.10	0.97	135.00	506	LINE 70 CHEROKEN 115.0 to 70 DERBY 1 115.0 CKT 1	None
73 BEAVERCK 115 to 73 BRUSHTAP 115 CKT 1	1.06	1.00	122.10				710	LINE 73 AULT 345.0 to 73 LAR.RIVR 345.0 CKT 1	None
70 CABINCRK 115 to 70 CABINCRK 230 CKT 2	1.10	<= 0.95	50.00	1.10	<= 0.95	50.00	531	LINE 70 DILLON 230.0 to 70 CABINCRK 230.0 CKT 1	None
70 CABINCRK 115 to 70 CABINCRK 230 CKT 1	1.08	<= 0.95	50.00	1.08	<= 0.95	50.00	531	LINE 70 DILLON 230.0 to 70 CABINCRK 230.0 CKT 1	None
70 CHEROKEN 115 to 70 DERBY 1 115 CKT 1	1.06	<= 0.95	135.00	1.06	<= 0.95	135.00	507	LINE 70 CHEROKEN 115.0 to 70 DERBY 2 115.0 CKT 1	None
70 WELD PS 230 to 73 WELD LM 230 CKT 1	1.06	<= 0.95	500.00	1.06	<= 0.95	500.00	1165	LINE 73 AULT 230.0 to 70 WINDSOR 230.0 CKT 1	None
73 B.CK PS 115 to 73 B.CK PS 230 CKT 1	1.06	<= 0.95	224.00				712	LINE 73 B.CK PS 115.0 to 73 BEAVERCK 115.0 CKT 1	None
70 HOPKINS 115 to 70 BASALT 115 CKT 1	1.02	<= 0.95	66.90	1.02	<= 0.95	66.90	1182	LINE 79 HAYDEN 230.0 to 79 WOLCOTTP 230.0 CKT 1	None
40 BELL BPA 115 to 40 WAIKIKIT 115 CKT 1	0.99	<= 0.95	111.90	0.99	<= 0.95	111.90	112	LINE 48 BEACON S 115.0 to 40 BELL BPA 115.0 CKT 1	None
73 BIJOUTAP 115 to 73 FMWEST 115 CKT 1	0.99	<= 0.95	80.00				710	LINE 73 AULT 345.0 to 73 LAR.RIVR 345.0 CKT 1	None
73 BRUSHTAP 115 to 73 EFMORGTP 115 CKT 1	0.98	<= 0.95	121.70				710	LINE 73 AULT 345.0 to 73 LAR.RIVR 345.0 CKT 1	None
70 FTLUPTON 230 to 70 PAWNEE 230 CKT 1	0.97	<= 0.95	413.50	0.97	<= 0.95	413.50	610	LINE 70 PAWNEE 230.0 to 70 QUINCY 230.0 CKT 1	None
70 LOOKOUT 115 to 70 HOGBACK 115 CKT 1	0.96	<= 0.95	192.00	0.96	<= 0.95	192.00	578	LINE 70 KENDRICK 115.0 to 70 BANCROFT 115.0 CKT 1	None
62 BROADV&1 500 to 62 BROADVU 500 CKT 1	0.95	<= 0.95	1732.00				32	LINE 62 COLSTRP 500.0 to 62 BROADV&2 500.0 CKT 2	None
65 FISHCREK 161 to 65 GRACE 161 CKT 1				0.96	<= 0.95	176.00	1154	LINE 66 TREASTON 230.0 to 60 BRADY 230.0 CKT 1	None

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Compost found the following for comparisons:
     47 lines of MVA Rating Violations read from c:\uwk\mts\a\lsbs\pLSBS-1.out
     97 lines of kV Voltage Violations read from c:\uwk\mts\a\lsbs\pLSBS-1.out
     51 lines of MVA Rating Violations read from c:\uwk\mts\a\spl1\pSPl1-1.out
     110 lines of kV Voltage Violations read from c:\uwk\mts\a\spl1\pSPl1-1.out


**** RATES:  NEW ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
40 BEACON N 230 to 40 BELL SO  230 CKT 5    <0.95     1.04   366.50   122
40 BELL MI  230 to 40 BELL BPA 115 CKT 1    <0.95     1.04   249.00   126
40 POSTSTRT 115 to 40 THIRHACH 115 CKT 1    <0.95     0.99   110.90   126
40 BEACON S 115 to 40 BELL BPA 115 CKT 1    <0.95     0.96   85.80   122

**** RATES: WORSE ****
Component                                  w/o Prj  w/ Prj Rating   Cont#
40 BURKE    115 to 40 BURKAVAB 115 CKT 1    1.20   1.27   73.90   1124
40 BEACON N 115 to 40 ROSSPARK 115 CKT 1    1.18   1.33   138.20   126
40 BEACON N 230 to 40 BEACON N 115 CKT 1    0.97   1.17   287.00   122
40 BEACON S 230 to 40 BEACON S 115 CKT 1    0.97   1.17   287.00   122

Area Count, Rates new and worse:
Area 40: 8

**** VOLTS:  NEW ****
Component          w/o Prj  w/ Prj  Rating     Cont#
73 GRANDJCT 345.0  >0.95    0.949  1.00 pu kV  243
73 BULLOCK  115.0  >0.95    0.948  1.00 pu kV  1039
73 HAPPYCAN 115.0  >0.95    0.949  1.00 pu kV  1039
73 SPRCKTAP 115.0  >0.95    0.949  1.00 pu kV  1039
40 AIRWAYTP 115.0  >0.95    0.946  1.00 pu kV  1236
40 CHENEY   115.0  >0.95    0.940  1.00 pu kV  1236
40 CHESTER  115.0  >0.95    0.948  1.00 pu kV  1236
40 FOURLBPA 115.0  >0.95    0.946  1.00 pu kV  1236
40 FOURLKS  115.0  >0.95    0.942  1.00 pu kV  1236
40 HAL&WHIT 115.0  >0.95    0.946  1.00 pu kV  1236
40 HAYFORD  115.0  >0.95    0.949  1.00 pu kV  1236
40 OTIS     230.0  >0.95    0.947  1.00 pu kV  1236
40 SILVRLAK 115.0  >0.95    0.942  1.00 pu kV  1236
63 TIBERTAP 115.0  >0.95    0.970  1.00 pu kV  1358

**** VOLTS: WORSE ****
Component          w/o Prj w/ Prj  Rating     Cont#

Area Count, Volts new and worse:
Area 40: 9
Area 63: 1
Area 73: 4

**** RATES: BETTER ****
Component                                  w/o Prj  w/ Prj Rating  Cont#

**** RATES:  AWAY ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#

Area Count, Rates better and away:

**** VOLTS: BETTER ****
Component          w/o Prj w/ Prj  Rating     Cont#

**** VOLTS:  AWAY ****
Component         w/o Prj     w/ Prj          Rating  Cont#
62 CONRAD   115.0 0.954  0.95 <= pu <= 1.05   1.00 pu kV  64

Area Count, Volts better and away:
Area 62: 1
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Compost found the following for comparisons:
     20 lines of MVA Rating Violations read from c:\uwk\mts\a\lsbs\pLSBS-2.out
     97 lines of kV Voltage Violations read from c:\uwk\mts\a\lsbs\pLSBS-2.out
     23 lines of MVA Rating Violations read from c:\uwk\mts\a\spl1\pSPl1-2.out
     110 lines of kV Voltage Violations read from c:\uwk\mts\a\spl1\pSPl1-2.out


**** RATES:  NEW ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
40 BEACON N 230 to 40 BELL SO  230 CKT 5    <0.95     1.04   366.50   122
40 POSTSTRT 115 to 40 THIRHACH 115 CKT 1    <0.95     0.99   110.90   126
40 BEACON S 115 to 40 BELL BPA 115 CKT 1    <0.95     0.96   85.80   122

**** RATES: WORSE ****
Component                                  w/o Prj  w/ Prj Rating   Cont#
40 BURKE    115 to 40 BURKAVAB 115 CKT 1    1.20   1.27   73.90   1124
40 BEACON N 115 to 40 ROSSPARK 115 CKT 1    1.18   1.33   138.20   126
40 BEACON N 230 to 40 BEACON N 115 CKT 1    0.97   1.17   287.00   122
40 BEACON S 230 to 40 BEACON S 115 CKT 1    0.97   1.17   287.00   122

Area Count, Rates new and worse:
Area 40: 7

**** VOLTS:  NEW ****
Component          w/o Prj  w/ Prj  Rating     Cont#
73 GRANDJCT 345.0  >0.95    0.949  1.00 pu kV  243
73 BULLOCK  115.0  >0.95    0.948  1.00 pu kV  1039
73 HAPPYCAN 115.0  >0.95    0.949  1.00 pu kV  1039
73 SPRCKTAP 115.0  >0.95    0.949  1.00 pu kV  1039
40 AIRWAYTP 115.0  >0.95    0.946  1.00 pu kV  1236
40 CHENEY   115.0  >0.95    0.940  1.00 pu kV  1236
40 CHESTER  115.0  >0.95    0.948  1.00 pu kV  1236
40 FOURLBPA 115.0  >0.95    0.946  1.00 pu kV  1236
40 FOURLKS  115.0  >0.95    0.942  1.00 pu kV  1236
40 HAL&WHIT 115.0  >0.95    0.946  1.00 pu kV  1236
40 HAYFORD  115.0  >0.95    0.949  1.00 pu kV  1236
40 OTIS     230.0  >0.95    0.947  1.00 pu kV  1236
40 SILVRLAK 115.0  >0.95    0.942  1.00 pu kV  1236
63 TIBERTAP 115.0  >0.95    0.970  1.00 pu kV  1358

**** VOLTS: WORSE ****
Component          w/o Prj w/ Prj  Rating     Cont#

Area Count, Volts new and worse:
Area 40: 9
Area 63: 1
Area 73: 4

**** RATES: BETTER ****
Component                                  w/o Prj  w/ Prj Rating  Cont#

**** RATES:  AWAY ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#

Area Count, Rates better and away:

**** VOLTS: BETTER ****
Component          w/o Prj w/ Prj  Rating     Cont#

**** VOLTS:  AWAY ****
Component         w/o Prj     w/ Prj          Rating  Cont#
62 CONRAD   115.0 0.954  0.95 <= pu <= 1.05   1.00 pu kV  64

Area Count, Volts better and away:
Area 62: 1
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Compost found the following for comparisons:
     103 lines of MVA Rating Violations read from c:\uwk\mts\a\hsbs\pHSBS-1.out
     246 lines of kV Voltage Violations read from c:\uwk\mts\a\hsbs\pHSBS-1.out
     118 lines of MVA Rating Violations read from c:\uwk\mts\a\slcl1\pSLCl1-1.out
     310 lines of kV Voltage Violations read from c:\uwk\mts\a\slcl1\pSLCl1-1.out


**** RATES:  NEW ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
73 ARTESIA  138 to 73 HAYDEN   138 CKT 1    <0.95     1.10   90.00   1015
65 MONUMENT 230 to 65 NAUGHTON 230 CKT 1    <0.95     1.07   423.90   243
73 CARTERMT 115 to 73 THERMOPL 115 CKT 1    <0.95     1.07   40.00   1141
65 FIREHOLE 230 to 65 ROCKSPGS 230 CKT 1    <0.95     1.05   423.90   430
73 BASIN    115 to 73 GREYBULL 115 CKT 1    <0.95     1.04   109.00   1141
62 ANACOND  230 to 40 GARRISON 230 CKT 1    <0.95     1.03   358.50   1115
40 BEACON S 115 to 40 NINTHCNT 115 CKT 1    <0.95     1.02   91.00   126
62 ANACOND  161 to 62 DILLON S 161 CKT 1    <0.95     1.00   165.00   40
62 DILLON S 161 to 65 BIGGRASS 161 CKT 1    <0.95     1.00   164.50   1119
73 ARCHER   230 to 73 STEGALL  230 CKT 1    <0.95     0.99   400.00   710
65 RAVEN    230 to 65 WESTVACO 230 CKT 1    <0.95     0.98   461.00   247
73 LOVELL   115 to 73 YELLOWBR 115 CKT 1    <0.95     0.97   109.00   1141
73 MEEKER   138 to 65 RANGELY  138 CKT 1    <0.95     0.97   115.00   1015
65 BIGGRASS 161 to 65 JFRSNPHA 161 CKT 1    <0.95     0.97   148.10   1119
65 BLACKSFK 230 to 65 WESTVACO 230 CKT 1    <0.95     0.96   461.00   247
73 HOYT     115 to 73 ADENA    115 CKT 1    <0.95     0.96   109.00   722
65 MALAD    138 to 60 AMFLS    138 CKT 1    <0.95     0.96   129.10   1151
65 CLINTON  138 to 65 SYRACUSE 138 CKT 1    <0.95     0.95   208.00   228
73 KIOWA CK 115 to 73 WIGGINS  115 CKT 1    <0.95     0.95   59.60   722

**** RATES: WORSE ****
Component                                  w/o Prj  w/ Prj Rating   Cont#
65 EMMAPARK 138 to 65 UPALCO   138 CKT 1    1.43   1.51   136.00   243
65 EMMAPARK 138 to 65 PANTHER  138 CKT 1    1.42   1.50   136.00   243
65 CARBON   138 to 65 PANTHER  138 CKT 1    1.38   1.46   136.00   243
65 TREASTON 230 to 65 TREASTON 138 CKT 1    1.29   1.41   200.00   1292
40 BEACON N 115 to 40 ROSSPARK 115 CKT 1    1.27   1.39   138.20   126
65 FISHCREK 161 to 65 GOSHEN   161 CKT 1    1.17   1.40   148.10   1151
65 FISHCREK 161 to 65 GRACE    161 CKT 1    1.14   1.38   148.00   1151
65 JFRSNPHA 161 to 65 JEFFERSN 161 CKT 1    1.11   1.42   100.00   1119
65 PALISADE 230 to 65 ROCKSPGS 230 CKT 1    1.11   1.21   423.90   247
73 GREYBULL 115 to 73 LOVELL   115 CKT 1    1.07   1.22   109.00   1141
65 BRDGR PP 230 to 65 FIREHOLE 230 CKT 1    1.03   1.11   424.00   430
65 PALISADE 230 to 65 RAVEN    230 CKT 1    1.02   1.11   461.00   247
65 GRACE    161 to 65 GRACE    138 CKT 1    1.02   1.22   168.00   1154
40 BELL MI  230 to 40 BELL BPA 115 CKT 1    1.00   1.08   249.00   126
65 BRIDGER  230 to 65 ROCKSPGS 230 CKT 1    0.99   1.14   423.90   1151
65 BLUE RIM 230 to 65 BRDGR PP 230 CKT 1    0.99   1.08   423.90   430
65 BLUE RIM 230 to 65 S. TRONA 230 CKT 1    0.99   1.07   423.90   430
65 ASHLEY   138 to 73 VERNAL   138 CKT 1    0.97   1.03   136.00   241

Area Count, Rates new and worse:
Area 40: 3
Area 62: 3
Area 65: 22
Area 73: 9

**** VOLTS:  NEW ****
Component          w/o Prj  w/ Prj  Rating     Cont#
63 MTSFTPCK 500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP2  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP3  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP4  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP5  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP6  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP1  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSHARLM 500.0  >0.95    0.987  1.00 pu kV  2
63 MTSHAVRE 500.0  >0.95    0.979  1.00 pu kV  2
63 MTSMALTA 500.0  >0.95    1.002  1.00 pu kV  2
63 MTSRICHC 500.0  >0.95    1.015  1.00 pu kV  2
62 MTSGFALL 500.0  >0.95    0.954  1.00 pu kV  2
62 ANACOND  161.0  >0.95    0.948  1.00 pu kV  2
62 BUTTEMHD 161.0  >0.95    0.925  1.00 pu kV  2
62 MT ASIMI 161.0  >0.95    0.930  1.00 pu kV  2
62 GT FALLS 161.0  >0.95    0.936  1.00 pu kV  2
62 RAINBOW  161.0  >0.95    0.935  1.00 pu kV  2
62 SHELBY   230.0  >0.95    0.943  1.00 pu kV  2
62 SHELBY   115.0  >0.95    0.923  1.00 pu kV  2
62 CNRDWAPA 230.0  >0.95    0.936  1.00 pu kV  2
62 CNRDWAPA 115.0  >0.95    0.932  1.00 pu kV  2
62 GT FALLS 115.0  >0.95    0.981  1.00 pu kV  2
62 GT FALLS 230.0  >0.95    0.926  1.00 pu kV  2
62 OVANDO   230.0  >0.95    0.988  1.00 pu kV  2
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62 BUTTE MT 161.0  >0.95    0.923  1.00 pu kV  2
62 LANDRSFK 230.0  >0.95    0.968  1.00 pu kV  2
62 GLDNSNLT 161.0  >0.95    0.925  1.00 pu kV  2
62 DUTTON   115.0  >0.95    0.961  1.00 pu kV  2
62 CNRD-SRA 115.0  >0.95    0.932  1.00 pu kV  2
40 IRVIN    115.0  >0.95    0.915  1.00 pu kV  1236
40 OPORTUNE 115.0  >0.95    0.916  1.00 pu kV  1236
63 HAVRE    115.0  >0.95    0.894  1.00 pu kV  1358
63 HAVRE    161.0  >0.95    0.952  1.00 pu kV  2
63 RUDYARD  115.0  >0.95    0.924  1.00 pu kV  2
63 TIBERTAP 115.0  >0.95    0.920  1.00 pu kV  2
63 VERONA   161.0  >0.95    0.948  1.00 pu kV  2
65 ANTLOPE  230.0  >0.95    0.933  1.00 pu kV  205
65 LOST RIV 230.0  >0.95    0.924  1.00 pu kV  205
65 ANGEL NT 138.0  >0.95    0.945  1.00 pu kV  228
65 ANGEL ST 138.0  >0.95    0.941  1.00 pu kV  228
65 SYRACUSE 138.0  >0.95    0.945  1.00 pu kV  228
65 COLUMBIA 138.0  >0.95    0.959  1.00 pu kV  243
65 SUNNYSID 138.0  >0.95    0.962  1.00 pu kV  243
73 HDOME    115.0  >0.95    0.946  1.00 pu kV  338
73 PROSPEC  115.0  >0.95    0.949  1.00 pu kV  722
73 LYMAN    115.0  >0.95    0.948  1.00 pu kV  926
73 LYMANTP  115.0  >0.95    0.948  1.00 pu kV  926
65 LAMPO    138.0  >0.95    0.946  1.00 pu kV  1151
40 AIRWAYTP 115.0  >0.95    0.939  1.00 pu kV  1236
40 APPLETAP 115.0  >0.95    0.945  1.00 pu kV  1236
40 APPLEWAY 115.0  >0.95    0.945  1.00 pu kV  1236
40 BLUECRK  115.0  >0.95    0.942  1.00 pu kV  1236
40 CDA      115.0  >0.95    0.942  1.00 pu kV  1236
40 COLLWALN 115.0  >0.95    0.947  1.00 pu kV  1236
40 DALTON A 115.0  >0.95    0.947  1.00 pu kV  1236
40 DALTONT  115.0  >0.95    0.947  1.00 pu kV  1236
40 DELIGHT  115.0  >0.95    0.945  1.00 pu kV  1236
40 FOURLBPA 115.0  >0.95    0.940  1.00 pu kV  1236
40 FOURLKS  115.0  >0.95    0.939  1.00 pu kV  1236
40 GLENROSE 115.0  >0.95    0.948  1.00 pu kV  1236
40 GLENTAP  115.0  >0.95    0.949  1.00 pu kV  1236
40 HAL&WHIT 115.0  >0.95    0.939  1.00 pu kV  1236
40 HAYFORD  115.0  >0.95    0.942  1.00 pu kV  1236
40 HERN     115.0  >0.95    0.948  1.00 pu kV  1236
40 HUETTER  115.0  >0.95    0.949  1.00 pu kV  1236
40 METRO    115.0  >0.95    0.947  1.00 pu kV  1236
40 POSTSTRT 115.0  >0.95    0.947  1.00 pu kV  1236
40 RAMSEY   115.0  >0.95    0.944  1.00 pu kV  1236
40 SOUTHEAS 115.0  >0.95    0.947  1.00 pu kV  1236
40 SPKINDPK 115.0  >0.95    0.945  1.00 pu kV  1236
40 SUNSET   115.0  >0.95    0.949  1.00 pu kV  1236
40 THIRHACH 115.0  >0.95    0.948  1.00 pu kV  1236
62 RESERVST 161.0  >0.95    0.946  1.00 pu kV  1359
62 MILLERCK 161.0  >0.95    0.945  1.00 pu kV  1359
62 MISSLA 7 161.0  >0.95    0.946  1.00 pu kV  1359

**** VOLTS: WORSE ****
Component          w/o Prj w/ Prj  Rating     Cont#

Area Count, Volts new and worse:
Area 40: 26
Area 62: 21
Area 63: 16
Area 65: 8
Area 73: 4

**** RATES: BETTER ****
Component                                  w/o Prj  w/ Prj Rating  Cont#
73 GOREPASS 138 to 73 HAYDEN   138 CKT 1    1.18   1.11   96.00   1180
65 FLAMGORG 230 to 73 FLAMGORG 138 CKT 1    1.16   1.05   100.00   243
65 FLAMGORG 230 to 73 FLAMGORG 138 CKT 2    1.16   1.05   100.00   243
70 CABINCRK 115 to 70 CABINCRK 230 CKT 2    1.10   1.04   50.00   531
65 BENLOMND 230 to 65 BENLOMND 138 CKT 1    1.06   1.00   267.00   1249
40 DIAM LAK 115 to 40 SACHEEN  115 CKT 1    1.05   0.98   131.50   125
73 CRAIG    230 to 73 RIFLE WA 230 CKT 1    1.03   0.97   324.00   1185

**** RATES:  AWAY ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
65 BONANZA  138 to 65 RANGELY  138 CKT 1    1.19    <= 0.95  115.00   1251
73 VERNAL   138 to 65 BONANZA  138 CKT 1    0.96    <= 0.95  192.00   243
62 BROADV&1 500 to 62 BROADVU  500 CKT 1    0.95    <= 0.95  1732.00   32
73 ARCHER   230 to 73 ARCHER   115 CKT 1    0.95    <= 0.95  167.00   857

Area Count, Rates better and away:
Area 40: 1
Area 62: 1
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Area 65: 4
Area 70: 1
Area 73: 4

**** VOLTS: BETTER ****
Component          w/o Prj w/ Prj  Rating     Cont#

**** VOLTS:  AWAY ****
Component         w/o Prj     w/ Prj          Rating  Cont#
65 BIGGRASS 161.0 0.921  0.95 <= pu <= 1.05   1.00 pu kV  1150
62 DILLON S 161.0 0.940  0.95 <= pu <= 1.05   1.00 pu kV  1150
73 CORLETT  115.0 0.778  0.95 <= pu <= 1.05   1.00 pu kV  1316
62 PTRSNFLT 230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  1150
73 COYOTE G 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  1356

Area Count, Volts better and away:
Area 62: 2
Area 65: 1
Area 73: 2
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Compost found the following for comparisons:
     52 lines of MVA Rating Violations read from c:\uwk\mts\a\hsbs\pHSBS-2.out
     246 lines of kV Voltage Violations read from c:\uwk\mts\a\hsbs\pHSBS-2.out
     53 lines of MVA Rating Violations read from c:\uwk\mts\a\slcl1\pSLCl1-2.out
     310 lines of kV Voltage Violations read from c:\uwk\mts\a\slcl1\pSLCl1-2.out


**** RATES:  NEW ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
40 BEACON S 115 to 40 NINTHCNT 115 CKT 1    <0.95     1.02   91.00   126

**** RATES: WORSE ****
Component                                  w/o Prj  w/ Prj Rating   Cont#
65 TREASTON 230 to 65 TREASTON 138 CKT 1    1.29   1.41   200.00   1292
40 BEACON N 115 to 40 ROSSPARK 115 CKT 1    1.27   1.39   138.20   126
65 EMMAPARK 138 to 65 UPALCO   138 CKT 1    1.20   1.26   163.00   243
65 EMMAPARK 138 to 65 PANTHER  138 CKT 1    1.19   1.25   163.00   243
65 CARBON   138 to 65 PANTHER  138 CKT 1    1.15   1.22   163.00   243
65 JFRSNPHA 161 to 65 JEFFERSN 161 CKT 1    1.11   1.42   100.00   1119
65 GRACE    161 to 65 GRACE    138 CKT 1    1.02   1.22   168.00   1154
65 FISHCREK 161 to 65 GOSHEN   161 CKT 1    0.98   1.18   176.00   1151
65 FISHCREK 161 to 65 GRACE    161 CKT 1    0.96   1.16   176.00   1151

Area Count, Rates new and worse:
Area 40: 2
Area 65: 8

**** VOLTS:  NEW ****
Component          w/o Prj  w/ Prj  Rating     Cont#
63 MTSFTPCK 500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP2  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP3  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP4  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP5  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP6  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSFTP1  500.0  >0.95    1.019  1.00 pu kV  2
63 MTSHARLM 500.0  >0.95    0.987  1.00 pu kV  2
63 MTSHAVRE 500.0  >0.95    0.979  1.00 pu kV  2
63 MTSMALTA 500.0  >0.95    1.002  1.00 pu kV  2
63 MTSRICHC 500.0  >0.95    1.015  1.00 pu kV  2
62 MTSGFALL 500.0  >0.95    0.954  1.00 pu kV  2
62 ANACOND  161.0  >0.95    0.948  1.00 pu kV  2
62 BUTTEMHD 161.0  >0.95    0.925  1.00 pu kV  2
62 MT ASIMI 161.0  >0.95    0.930  1.00 pu kV  2
62 GT FALLS 161.0  >0.95    0.936  1.00 pu kV  2
62 RAINBOW  161.0  >0.95    0.935  1.00 pu kV  2
62 SHELBY   230.0  >0.95    0.943  1.00 pu kV  2
62 SHELBY   115.0  >0.95    0.923  1.00 pu kV  2
62 CNRDWAPA 230.0  >0.95    0.936  1.00 pu kV  2
62 CNRDWAPA 115.0  >0.95    0.932  1.00 pu kV  2
62 GT FALLS 115.0  >0.95    0.981  1.00 pu kV  2
62 GT FALLS 230.0  >0.95    0.926  1.00 pu kV  2
62 OVANDO   230.0  >0.95    0.988  1.00 pu kV  2
62 BUTTE MT 161.0  >0.95    0.923  1.00 pu kV  2
62 LANDRSFK 230.0  >0.95    0.968  1.00 pu kV  2
62 GLDNSNLT 161.0  >0.95    0.925  1.00 pu kV  2
62 DUTTON   115.0  >0.95    0.961  1.00 pu kV  2
62 CNRD-SRA 115.0  >0.95    0.932  1.00 pu kV  2
40 IRVIN    115.0  >0.95    0.915  1.00 pu kV  1236
40 OPORTUNE 115.0  >0.95    0.916  1.00 pu kV  1236
63 HAVRE    115.0  >0.95    0.894  1.00 pu kV  1358
63 HAVRE    161.0  >0.95    0.952  1.00 pu kV  2
63 RUDYARD  115.0  >0.95    0.924  1.00 pu kV  2
63 TIBERTAP 115.0  >0.95    0.920  1.00 pu kV  2
63 VERONA   161.0  >0.95    0.948  1.00 pu kV  2
65 ANTLOPE  230.0  >0.95    0.933  1.00 pu kV  205
65 LOST RIV 230.0  >0.95    0.924  1.00 pu kV  205
65 ANGEL NT 138.0  >0.95    0.945  1.00 pu kV  228
65 ANGEL ST 138.0  >0.95    0.941  1.00 pu kV  228
65 SYRACUSE 138.0  >0.95    0.945  1.00 pu kV  228
65 COLUMBIA 138.0  >0.95    0.959  1.00 pu kV  243
65 SUNNYSID 138.0  >0.95    0.962  1.00 pu kV  243
73 HDOME    115.0  >0.95    0.946  1.00 pu kV  338
73 PROSPEC  115.0  >0.95    0.949  1.00 pu kV  722
73 LYMAN    115.0  >0.95    0.948  1.00 pu kV  926
73 LYMANTP  115.0  >0.95    0.948  1.00 pu kV  926
65 LAMPO    138.0  >0.95    0.946  1.00 pu kV  1151
40 AIRWAYTP 115.0  >0.95    0.939  1.00 pu kV  1236
40 APPLETAP 115.0  >0.95    0.945  1.00 pu kV  1236
40 APPLEWAY 115.0  >0.95    0.945  1.00 pu kV  1236
40 BLUECRK  115.0  >0.95    0.942  1.00 pu kV  1236
40 CDA      115.0  >0.95    0.942  1.00 pu kV  1236
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40 COLLWALN 115.0  >0.95    0.947  1.00 pu kV  1236
40 DALTON A 115.0  >0.95    0.947  1.00 pu kV  1236
40 DALTONT  115.0  >0.95    0.947  1.00 pu kV  1236
40 DELIGHT  115.0  >0.95    0.945  1.00 pu kV  1236
40 FOURLBPA 115.0  >0.95    0.940  1.00 pu kV  1236
40 FOURLKS  115.0  >0.95    0.939  1.00 pu kV  1236
40 GLENROSE 115.0  >0.95    0.948  1.00 pu kV  1236
40 GLENTAP  115.0  >0.95    0.949  1.00 pu kV  1236
40 HAL&WHIT 115.0  >0.95    0.939  1.00 pu kV  1236
40 HAYFORD  115.0  >0.95    0.942  1.00 pu kV  1236
40 HERN     115.0  >0.95    0.948  1.00 pu kV  1236
40 HUETTER  115.0  >0.95    0.949  1.00 pu kV  1236
40 METRO    115.0  >0.95    0.947  1.00 pu kV  1236
40 POSTSTRT 115.0  >0.95    0.947  1.00 pu kV  1236
40 RAMSEY   115.0  >0.95    0.944  1.00 pu kV  1236
40 SOUTHEAS 115.0  >0.95    0.947  1.00 pu kV  1236
40 SPKINDPK 115.0  >0.95    0.945  1.00 pu kV  1236
40 SUNSET   115.0  >0.95    0.949  1.00 pu kV  1236
40 THIRHACH 115.0  >0.95    0.948  1.00 pu kV  1236
62 RESERVST 161.0  >0.95    0.946  1.00 pu kV  1359
62 MILLERCK 161.0  >0.95    0.945  1.00 pu kV  1359
62 MISSLA 7 161.0  >0.95    0.946  1.00 pu kV  1359

**** VOLTS: WORSE ****
Component          w/o Prj w/ Prj  Rating     Cont#

Area Count, Volts new and worse:
Area 40: 26
Area 62: 21
Area 63: 16
Area 65: 8
Area 73: 4

**** RATES: BETTER ****
Component                                  w/o Prj  w/ Prj Rating  Cont#
70 CABINCRK 115 to 70 CABINCRK 230 CKT 2    1.10   1.04   50.00   531
65 BENLOMND 230 to 65 BENLOMND 138 CKT 1    1.06   1.00   267.00   1249
40 DIAM LAK 115 to 40 SACHEEN  115 CKT 1    1.05   0.98   131.50   125

**** RATES:  AWAY ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#

Area Count, Rates better and away:
Area 40: 1
Area 65: 1
Area 70: 1

**** VOLTS: BETTER ****
Component          w/o Prj w/ Prj  Rating     Cont#

**** VOLTS:  AWAY ****
Component         w/o Prj     w/ Prj          Rating  Cont#
65 BIGGRASS 161.0 0.921  0.95 <= pu <= 1.05   1.00 pu kV  1150
62 DILLON S 161.0 0.940  0.95 <= pu <= 1.05   1.00 pu kV  1150
73 CORLETT  115.0 0.778  0.95 <= pu <= 1.05   1.00 pu kV  1316
62 PTRSNFLT 230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  1150
73 COYOTE G 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  1356

Area Count, Volts better and away:
Area 62: 2
Area 65: 1
Area 73: 2
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Compost found the following for comparisons:
     47 lines of MVA Rating Violations read from c:\uwk\mts\a\lsbs\pLSBS-1.out
     97 lines of kV Voltage Violations read from c:\uwk\mts\a\lsbs\pLSBS-1.out
     49 lines of MVA Rating Violations read from c:\uwk\mts\a\letl1\pLETl1-1.out
     108 lines of kV Voltage Violations read from c:\uwk\mts\a\letl1\pLETl1-1.out


**** RATES:  NEW ****
Component                                   w/o Prj  w/ Prj  Rating   Cont#
40 BEACON N 230 to 40 BELL SO  230 CKT 5    <0.95     1.03   366.50   122
40 BEACON S 115 to 40 BELL BPA 115 CKT 1    <0.95     1.02   85.80   122
40 BELL MI  230 to 40 BELL BPA 115 CKT 1    <0.95     1.01   249.00   121

**** RATES: WORSE ****
Component                                 w/o Prj  w/ Prj Rating   Cont#
40 BEACON N 115 to 40 ROSSPARK 115 CKT 1    1.18   1.28   138.20   126
40 BEACON N 230 to 40 BEACON N 115 CKT 1    0.97   1.18   287.00   122
40 BEACON S 230 to 40 BEACON S 115 CKT 1    0.97   1.19   287.00   122

Area Count, Rates new and worse:
Area 40: 6

**** VOLTS:  NEW ****
Component          w/o Prj  w/ Prj  Rating     Cont#
40 CHENEY   115.0  >0.95    0.940  1.00 pu kV  1236
73 GRANDJCT 345.0  >0.95    0.949  1.00 pu kV  243
73 BULLOCK  115.0  >0.95    0.949  1.00 pu kV  1039
73 SPRCKTAP 115.0  >0.95    0.949  1.00 pu kV  1039
40 AIRWAYTP 115.0  >0.95    0.945  1.00 pu kV  1236
40 CHESTER  115.0  >0.95    0.948  1.00 pu kV  1236
40 FOURLBPA 115.0  >0.95    0.946  1.00 pu kV  1236
40 FOURLKS  115.0  >0.95    0.942  1.00 pu kV  1236
40 HAL&WHIT 115.0  >0.95    0.945  1.00 pu kV  1236
40 HAYFORD  115.0  >0.95    0.949  1.00 pu kV  1236
40 OPPORTUN 115.0  >0.95    0.949  1.00 pu kV  1236
40 OTIS     230.0  >0.95    0.946  1.00 pu kV  1236
40 SILVRLAK 115.0  >0.95    0.942  1.00 pu kV  1236
63 TIBERTAP 115.0  >0.95    0.970  1.00 pu kV  1358

**** VOLTS: WORSE ****
Component          w/o Prj w/ Prj  Rating     Cont#

Area Count, Volts new and worse:
Area 40: 10
Area 63: 1
Area 73: 3

**** RATES: BETTER ****
Component                                 w/o Prj  w/ Prj Rating  Cont#
54 ARGYLL E 240 to 54 BELLAMY4 240 CKT 04   1.34   1.21   100.00   1
54 SARCEE 4 240 to 54 E CALGAR 240 CKT 16   1.11   0.96   333.00   1105

**** RATES:  AWAY ****
Component                                   w/o Prj  w/ Prj  Rating   Cont#
54 N HOLDE9 138 to 54 BARDO  7 138 CKT 74   1.12    <= 0.95  85.00   1

Area Count, Rates better and away:
Area 54: 3

**** VOLTS: BETTER ****
Component          w/o Prj w/ Prj  Rating     Cont#

**** VOLTS:  AWAY ****
Component         w/o Prj     w/ Prj          Rating  Cont#
62 CONRAD   115.0 0.954  0.95 <= pu <= 1.05   1.00 pu kV  64
40 GAR2EAST 500.0 1.039  0.95 <= pu <= 1.05   1.00 pu kV  1116
40 GAR1EAST 500.0 1.039  0.95 <= pu <= 1.05   1.00 pu kV  1117

Area Count, Volts better and away:
Area 40: 2
Area 62: 1
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Compost found the following for comparisons:
     20 lines of MVA Rating Violations read from c:\uwk\mts\a\lsbs\pLSBS-2.out
     97 lines of kV Voltage Violations read from c:\uwk\mts\a\lsbs\pLSBS-2.out
     21 lines of MVA Rating Violations read from c:\uwk\mts\a\letl1\pLETl1-2.out
     108 lines of kV Voltage Violations read from c:\uwk\mts\a\letl1\pLETl1-2.out


**** RATES:  NEW ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
40 BEACON N 230 to 40 BELL SO  230 CKT 5    <0.95     1.03   366.50   122
40 BEACON S 115 to 40 BELL BPA 115 CKT 1    <0.95     1.02   85.80   122

**** RATES: WORSE ****
Component                                  w/o Prj  w/ Prj Rating   Cont#
40 BEACON N 115 to 40 ROSSPARK 115 CKT 1    1.18   1.28   138.20   126
40 BEACON N 230 to 40 BEACON N 115 CKT 1    0.97   1.18   287.00   122
40 BEACON S 230 to 40 BEACON S 115 CKT 1    0.97   1.19   287.00   122

Area Count, Rates new and worse:
Area 40: 5

**** VOLTS:  NEW ****
Component          w/o Prj  w/ Prj  Rating     Cont#
40 CHENEY   115.0  >0.95    0.940  1.00 pu kV  1236
73 GRANDJCT 345.0  >0.95    0.949  1.00 pu kV  243
73 BULLOCK  115.0  >0.95    0.949  1.00 pu kV  1039
73 SPRCKTAP 115.0  >0.95    0.949  1.00 pu kV  1039
40 AIRWAYTP 115.0  >0.95    0.945  1.00 pu kV  1236
40 CHESTER  115.0  >0.95    0.948  1.00 pu kV  1236
40 FOURLBPA 115.0  >0.95    0.946  1.00 pu kV  1236
40 FOURLKS  115.0  >0.95    0.942  1.00 pu kV  1236
40 HAL&WHIT 115.0  >0.95    0.945  1.00 pu kV  1236
40 HAYFORD  115.0  >0.95    0.949  1.00 pu kV  1236
40 OPPORTUN 115.0  >0.95    0.949  1.00 pu kV  1236
40 OTIS     230.0  >0.95    0.946  1.00 pu kV  1236
40 SILVRLAK 115.0  >0.95    0.942  1.00 pu kV  1236
63 TIBERTAP 115.0  >0.95    0.970  1.00 pu kV  1358

**** VOLTS: WORSE ****
Component          w/o Prj w/ Prj  Rating     Cont#

Area Count, Volts new and worse:
Area 40: 10
Area 63: 1
Area 73: 3

**** RATES: BETTER ****
Component                                  w/o Prj  w/ Prj Rating  Cont#
54 ARGYLL E 240 to 54 BELLAMY4 240 CKT 04   1.34   1.21   100.00   1
54 SARCEE 4 240 to 54 E CALGAR 240 CKT 16   1.11   0.96   333.00   1105

**** RATES:  AWAY ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
54 N HOLDE9 138 to 54 BARDO  7 138 CKT 74   1.06    <= 0.95  90.00   1

Area Count, Rates better and away:
Area 54: 3

**** VOLTS: BETTER ****
Component          w/o Prj w/ Prj  Rating     Cont#

**** VOLTS:  AWAY ****
Component         w/o Prj     w/ Prj          Rating  Cont#
62 CONRAD   115.0 0.954  0.95 <= pu <= 1.05   1.00 pu kV  64
40 GAR2EAST 500.0 1.039  0.95 <= pu <= 1.05   1.00 pu kV  1116
40 GAR1EAST 500.0 1.039  0.95 <= pu <= 1.05   1.00 pu kV  1117

Area Count, Volts better and away:
Area 40: 2
Area 62: 1
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Compost found the following for comparisons:
     103 lines of MVA Rating Violations read from c:\uwk\mts\a\hsbs\pHSBS-1.out
     246 lines of kV Voltage Violations read from c:\uwk\mts\a\hsbs\pHSBS-1.out
     101 lines of MVA Rating Violations read from c:\uwk\mts\a\denl2\pDENl2-1.out
     209 lines of kV Voltage Violations read from c:\uwk\mts\a\denl2\pDENl2-1.out


**** RATES:  NEW ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
70 DANIELPK 230 to 70 PRAIRIE  230 CKT 1    <0.95     1.01   494.80   523
70 DANIELPK 230 to 70 GREENWD  230 CKT 1    <0.95     0.99   494.80   527
73 HOTCHKIS 115 to 73 GARNETAP 115 CKT 1    <0.95     0.99   85.00   1039
40 NEWPORTB 115 to 40 PINE ST  115 CKT 1    <0.95     0.96   120.10   125
40 BEACON S 115 to 40 NINTHCNT 115 CKT 1    <0.95     0.96   91.00   126
73 ARTESIA  138 to 73 HAYDEN   138 CKT 1    <0.95     0.96   90.00   1015
70 RIDGE    115 to 70 RIDGE    230 CKT 2    <0.95     0.96   100.00   1305
73 STEGALL  230 to 73 STEGALL  115 CKT 1    <0.95     0.96   100.00   1332
73 LOSTCANY 230 to 73 LOSTCANY 115 CKT 1    <0.95     0.96   112.00   1367

**** RATES: WORSE ****
Component                                  w/o Prj  w/ Prj Rating   Cont#
70 SMOKYHIL 115 to 70 SMOKYHIL 230 CKT 1    1.04   1.14   150.00   1308
70 WATERTON 115 to 70 WATERTON 230 CKT 2    1.00   1.16   100.00   1310
70 WATERTON 115 to 70 WATERTON 230 CKT 1    0.99   1.15   100.00   1311

Area Count, Rates new and worse:
Area 40: 2
Area 70: 6
Area 73: 4

**** VOLTS:  NEW ****
Component          w/o Prj  w/ Prj  Rating     Cont#
40 OPORTUNE 115.0  >0.95    0.926  1.00 pu kV  120
62 SHELBY   230.0  >0.95    0.937  1.00 pu kV  45
62 SHELBY   115.0  >0.95    0.929  1.00 pu kV  45
62 CNRDWAPA 230.0  >0.95    0.939  1.00 pu kV  45
62 CNRDWAPA 115.0  >0.95    0.939  1.00 pu kV  45
62 CNRD-SRA 115.0  >0.95    0.939  1.00 pu kV  45
63 TIBERTAP 115.0  >0.95    0.941  1.00 pu kV  45
40 AIRWAYTP 115.0  >0.95    0.947  1.00 pu kV  120
40 DELIGHT  115.0  >0.95    0.948  1.00 pu kV  120
40 FOURLBPA 115.0  >0.95    0.948  1.00 pu kV  120
40 FOURLKS  115.0  >0.95    0.948  1.00 pu kV  120
40 HAL&WHIT 115.0  >0.95    0.947  1.00 pu kV  120
65 COLUMBIA 138.0  >0.95    0.976  1.00 pu kV  243
65 SUNNYSID 138.0  >0.95    0.979  1.00 pu kV  243

**** VOLTS: WORSE ****
Component          w/o Prj w/ Prj  Rating     Cont#

Area Count, Volts new and worse:
Area 40: 6
Area 62: 5
Area 63: 1
Area 65: 2

**** RATES: BETTER ****
Component                                  w/o Prj  w/ Prj Rating  Cont#
70 BRUSHCPP 115 to 73 B.CK PS  115 CKT 1    1.48   1.31   162.00   1165
73 EFMORGTP 115 to 73 FMWEST   115 CKT 1    1.29   1.20   80.00   710
70 BRUSHCPP 115 to 73 B.CK PS  115 CKT 2    1.28   1.14   187.00   1164
65 BONANZA  138 to 65 RANGELY  138 CKT 1    1.19   1.13   115.00   1248
73 GOREPASS 138 to 73 HAYDEN   138 CKT 1    1.18   1.02   96.00   1178
70 LOOKOUT  115 to 70 LOOKOUT  230 CKT 1    1.17   1.11   150.00   1304
70 LOOKOUT  115 to 70 LOOKOUT  230 CKT 2    1.15   1.09   150.00   1303
73 MIDWAYBR 230 to 73 MIDWAYBR 115 CKT 1    1.11   1.01   100.00   1001
70 CHEROKEN 115 to 70 DERBY 2  115 CKT 1    1.10   0.97   135.00   506
73 BEAVERCK 115 to 73 BRUSHTAP 115 CKT 1    1.06   1.00   122.10   710

**** RATES:  AWAY ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
70 CABINCRK 115 to 70 CABINCRK 230 CKT 2    1.10    <= 0.95  50.00   531
70 CABINCRK 115 to 70 CABINCRK 230 CKT 1    1.08    <= 0.95  50.00   531
70 CHEROKEN 115 to 70 DERBY 1  115 CKT 1    1.06    <= 0.95  135.00   507
70 WELD  PS 230 to 73 WELD  LM 230 CKT 1    1.06    <= 0.95  500.00   1165
73 B.CK PS  115 to 73 B.CK PS  230 CKT 1    1.06    <= 0.95  224.00   712
70 HOPKINS  115 to 70 BASALT   115 CKT 1    1.02    <= 0.95  66.90   1182
40 BELL BPA 115 to 40 WAIKIKIT 115 CKT 1    0.99    <= 0.95  111.90   112
73 BIJOUTAP 115 to 73 FMWEST   115 CKT 1    0.99    <= 0.95  80.00   710
73 BRUSHTAP 115 to 73 EFMORGTP 115 CKT 1    0.98    <= 0.95  121.70   710
70 FTLUPTON 230 to 70 PAWNEE   230 CKT 1    0.97    <= 0.95  413.50   610
70 LOOKOUT  115 to 70 HOGBACK  115 CKT 1    0.96    <= 0.95  192.00   578
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62 BROADV&1 500 to 62 BROADVU  500 CKT 1    0.95    <= 0.95  1732.00   32

Area Count, Rates better and away:
Area 40: 1
Area 62: 1
Area 65: 1
Area 70: 12
Area 73: 7

**** VOLTS: BETTER ****
Component          w/o Prj w/ Prj  Rating     Cont#

**** VOLTS:  AWAY ****
Component         w/o Prj     w/ Prj          Rating  Cont#
70 JEWELL2  230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
70 TOLGATE  230.0 0.941  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BARRLAKE 230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  483
70 SKYRANCH 230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  484
70 TOWER    230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  484
70 DERBY 2  115.0 0.958  0.95 <= pu <= 1.05   1.00 pu kV  507
70 MARCY    230.0 0.935  0.95 <= pu <= 1.05   1.00 pu kV  524
70 WATERTON 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  524
70 SURREYRG 230.0 0.940  0.95 <= pu <= 1.05   1.00 pu kV  525
70 MURPHY   230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  525
70 LEETSDAL 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BUCKLEY2 230.0 0.944  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BUCKLEY1 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  609
70 ELATI1   230.0 0.938  0.95 <= pu <= 1.05   1.00 pu kV  534
70 ELATI2   230.0 0.938  0.95 <= pu <= 1.05   1.00 pu kV  534
70 MONACO   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  534
70 MEADOWHL 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 MONROEPS 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
70 SULLIVN  230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  570
70 TECH CTR 230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  570
70 JEWELL1  230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  570
70 RIVERDAL 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  553
70 CHEROKEE 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 DENVTM   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 GLENN PS 230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  554
70 LACOMBE  230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 WASHINGT 230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  554
70 CLARK    230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  568
70 JORDAN   230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  568
70 CHATFLD  230.0 0.944  0.95 <= pu <= 1.05   1.00 pu kV  593
70 RIDGE    230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  596
70 WESTPS   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  597
70 QUINCY   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  609
70 SMOKYHIL 230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  609
70 GREENWD  230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  610
70 GUNBARRE 230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  650
70 LEGGETT  230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  650
70 NIWOT    230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  650
73 LOST CK  115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  722
73 LOSTCKTP 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  722
73 BETHELLM 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  945
65 WORLAND  115.0 0.958  0.95 <= pu <= 1.05   1.00 pu kV  1141
62 PTRSNFLT 230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  1150
73 MCGREW   115.0 0.946  0.95 <= pu <= 1.05   1.00 pu kV  1332
70 PALMER   115.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  1341
70 WOODLAND 115.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  1341
73 MANCOSTP 115.0 0.951  0.95 <= pu <= 1.05   1.00 pu kV  1356
73 COYOTE G 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  1356
73 AMES     115.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  1356
73 SUNSH SM 115.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  1356

Area Count, Volts better and away:
Area 62: 1
Area 65: 1
Area 70: 40
Area 73: 8
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Compost found the following for comparisons:
     52 lines of MVA Rating Violations read from c:\uwk\mts\a\hsbs\pHSBS-2.out
     246 lines of kV Voltage Violations read from c:\uwk\mts\a\hsbs\pHSBS-2.out
     49 lines of MVA Rating Violations read from c:\uwk\mts\a\denl2\pDENl2-2.out
     209 lines of kV Voltage Violations read from c:\uwk\mts\a\denl2\pDENl2-2.out


**** RATES:  NEW ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
70 DANIELPK 230 to 70 PRAIRIE  230 CKT 1    <0.95     1.01   494.80   523
70 DANIELPK 230 to 70 GREENWD  230 CKT 1    <0.95     0.99   494.80   527
40 NEWPORTB 115 to 40 PINE ST  115 CKT 1    <0.95     0.96   120.10   125
40 BEACON S 115 to 40 NINTHCNT 115 CKT 1    <0.95     0.96   91.00   126
70 RIDGE    115 to 70 RIDGE    230 CKT 2    <0.95     0.96   100.00   1305

**** RATES: WORSE ****
Component                                  w/o Prj  w/ Prj Rating   Cont#
70 SMOKYHIL 115 to 70 SMOKYHIL 230 CKT 1    1.04   1.14   150.00   1308
70 WATERTON 115 to 70 WATERTON 230 CKT 2    1.00   1.16   100.00   1310
70 WATERTON 115 to 70 WATERTON 230 CKT 1    0.99   1.15   100.00   1311

Area Count, Rates new and worse:
Area 40: 2
Area 70: 6

**** VOLTS:  NEW ****
Component          w/o Prj  w/ Prj  Rating     Cont#
40 OPORTUNE 115.0  >0.95    0.926  1.00 pu kV  120
62 SHELBY   230.0  >0.95    0.937  1.00 pu kV  45
62 SHELBY   115.0  >0.95    0.929  1.00 pu kV  45
62 CNRDWAPA 230.0  >0.95    0.939  1.00 pu kV  45
62 CNRDWAPA 115.0  >0.95    0.939  1.00 pu kV  45
62 CNRD-SRA 115.0  >0.95    0.939  1.00 pu kV  45
63 TIBERTAP 115.0  >0.95    0.941  1.00 pu kV  45
40 AIRWAYTP 115.0  >0.95    0.947  1.00 pu kV  120
40 DELIGHT  115.0  >0.95    0.948  1.00 pu kV  120
40 FOURLBPA 115.0  >0.95    0.948  1.00 pu kV  120
40 FOURLKS  115.0  >0.95    0.948  1.00 pu kV  120
40 HAL&WHIT 115.0  >0.95    0.947  1.00 pu kV  120
65 COLUMBIA 138.0  >0.95    0.976  1.00 pu kV  243
65 SUNNYSID 138.0  >0.95    0.979  1.00 pu kV  243

**** VOLTS: WORSE ****
Component          w/o Prj w/ Prj  Rating     Cont#

Area Count, Volts new and worse:
Area 40: 6
Area 62: 5
Area 63: 1
Area 65: 2

**** RATES: BETTER ****
Component                                  w/o Prj  w/ Prj Rating  Cont#
70 BRUSHCPP 115 to 73 B.CK PS  115 CKT 1    1.48   1.31   162.00   1165
70 BRUSHCPP 115 to 73 B.CK PS  115 CKT 2    1.28   1.14   187.00   1164
70 LOOKOUT  115 to 70 LOOKOUT  230 CKT 1    1.17   1.11   150.00   1304
70 LOOKOUT  115 to 70 LOOKOUT  230 CKT 2    1.15   1.09   150.00   1303
70 CHEROKEN 115 to 70 DERBY 2  115 CKT 1    1.10   0.97   135.00   506

**** RATES:  AWAY ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
70 CABINCRK 115 to 70 CABINCRK 230 CKT 2    1.10    <= 0.95  50.00   531
70 CABINCRK 115 to 70 CABINCRK 230 CKT 1    1.08    <= 0.95  50.00   531
70 CHEROKEN 115 to 70 DERBY 1  115 CKT 1    1.06    <= 0.95  135.00   507
70 WELD  PS 230 to 73 WELD  LM 230 CKT 1    1.06    <= 0.95  500.00   1165
70 HOPKINS  115 to 70 BASALT   115 CKT 1    1.02    <= 0.95  66.90   1182
40 BELL BPA 115 to 40 WAIKIKIT 115 CKT 1    0.99    <= 0.95  111.90   112
70 FTLUPTON 230 to 70 PAWNEE   230 CKT 1    0.97    <= 0.95  413.50   610
70 LOOKOUT  115 to 70 HOGBACK  115 CKT 1    0.96    <= 0.95  192.00   578
65 FISHCREK 161 to 65 GRACE    161 CKT 1    0.96    <= 0.95  176.00   1154

Area Count, Rates better and away:
Area 40: 1
Area 65: 1
Area 70: 12

**** VOLTS: BETTER ****
Component          w/o Prj w/ Prj  Rating     Cont#

**** VOLTS:  AWAY ****
Component         w/o Prj     w/ Prj          Rating  Cont#
70 JEWELL2  230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
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70 TOLGATE  230.0 0.941  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BARRLAKE 230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  483
70 SKYRANCH 230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  484
70 TOWER    230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  484
70 DERBY 2  115.0 0.958  0.95 <= pu <= 1.05   1.00 pu kV  507
70 MARCY    230.0 0.935  0.95 <= pu <= 1.05   1.00 pu kV  524
70 WATERTON 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  524
70 SURREYRG 230.0 0.940  0.95 <= pu <= 1.05   1.00 pu kV  525
70 MURPHY   230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  525
70 LEETSDAL 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BUCKLEY2 230.0 0.944  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BUCKLEY1 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  609
70 ELATI1   230.0 0.938  0.95 <= pu <= 1.05   1.00 pu kV  534
70 ELATI2   230.0 0.938  0.95 <= pu <= 1.05   1.00 pu kV  534
70 MONACO   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  534
70 MEADOWHL 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 MONROEPS 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
70 SULLIVN  230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  570
70 TECH CTR 230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  570
70 JEWELL1  230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  570
70 RIVERDAL 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  553
70 CHEROKEE 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 DENVTM   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 GLENN PS 230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  554
70 LACOMBE  230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 WASHINGT 230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  554
70 CLARK    230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  568
70 JORDAN   230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  568
70 CHATFLD  230.0 0.944  0.95 <= pu <= 1.05   1.00 pu kV  593
70 RIDGE    230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  596
70 WESTPS   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  597
70 QUINCY   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  609
70 SMOKYHIL 230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  609
70 GREENWD  230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  610
70 GUNBARRE 230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  650
70 LEGGETT  230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  650
70 NIWOT    230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  650
73 LOST CK  115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  722
73 LOSTCKTP 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  722
73 BETHELLM 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  945
65 WORLAND  115.0 0.958  0.95 <= pu <= 1.05   1.00 pu kV  1141
62 PTRSNFLT 230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  1150
73 MCGREW   115.0 0.946  0.95 <= pu <= 1.05   1.00 pu kV  1332
70 PALMER   115.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  1341
70 WOODLAND 115.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  1341
73 MANCOSTP 115.0 0.951  0.95 <= pu <= 1.05   1.00 pu kV  1356
73 COYOTE G 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  1356
73 AMES     115.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  1356
73 SUNSH SM 115.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  1356

Area Count, Volts better and away:
Area 62: 1
Area 65: 1
Area 70: 40
Area 73: 8
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Compost found the following for comparisons:
     103 lines of MVA Rating Violations read from c:\uwk\mts\a\hsbs\pHSBS-1.out
     246 lines of kV Voltage Violations read from c:\uwk\mts\a\hsbs\pHSBS-1.out
     119 lines of MVA Rating Violations read from c:\uwk\mts\a\slcl2\pSLCl2-1.out
     266 lines of kV Voltage Violations read from c:\uwk\mts\a\slcl2\pSLCl2-1.out


**** RATES:  NEW ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
73 ARTESIA  138 to 73 HAYDEN   138 CKT 1    <0.95     1.53   90.00   1143
73 MEEKER   138 to 65 RANGELY  138 CKT 1    <0.95     1.36   115.00   1143
73 HOTCHKIS 115 to 73 GARNETAP 115 CKT 1    <0.95     1.23   85.00   1039
73 DURANGO  115 to 73 COYOTE G 115 CKT 1    <0.95     1.18   85.00   1362
65 MONUMENT 230 to 65 NAUGHTON 230 CKT 1    <0.95     1.17   423.90   243
73 LOSTCANY 230 to 73 LOSTCANY 115 CKT 1    <0.95     1.16   112.00   1367
73 BEARS    345 to 65 BONANZA  345 CKT 1    <0.95     1.08   650.00   1248
73 ARTESIA  138 to 73 VERNAL   138 CKT 1    <0.95     1.07   96.00   1143
73 CURECANT 115 to 73 SOCANAL  115 CKT 1    <0.95     1.02   120.00   1039
65 RAVEN    230 to 65 WESTVACO 230 CKT 1    <0.95     1.01   461.00   247
73 COYOTE G 115 to 73 ELPASOTP 115 CKT 1    <0.95     1.01   85.00   1362
73 MONTROSE 115 to 73 SOCANAL  115 CKT 1    <0.95     1.00   120.00   1039
70 GRANDJCT 115 to 73 MONTROSE 115 CKT 1    <0.95     1.00   76.50   1039
19 GLADETAP 115 to 73 ELPASOTP 115 CKT 1    <0.95     1.00   85.00   1057
73 STEGALL  230 to 73 STEGALL  115 CKT 1    <0.95     1.00   100.00   1332
65 BLACKSFK 230 to 65 WESTVACO 230 CKT 1    <0.95     0.99   461.00   247
65 MONUMENT 230 to 65 S. TRONA 230 CKT 1    <0.95     0.99   423.90   430
70 MIDWAYPS 115 to 70 MIDWAYPS 230 CKT 1    <0.95     0.99   100.00   1171
40 BEACON S 115 to 40 NINTHCNT 115 CKT 1    <0.95     0.97   91.00   126
65 BONANZA  138 to 65 DG UPLCO 138 CKT 1    <0.95     0.97   192.00   243
65 FIREHOLE 230 to 65 ROCKSPGS 230 CKT 1    <0.95     0.97   423.90   430
70 COMANCHE 115 to 70 READER   115 CKT 1    <0.95     0.97   216.90   1171
40 NEWPORTB 115 to 40 PINE ST  115 CKT 1    <0.95     0.96   120.10   125
73 KIOWA CK 115 to 73 WIGGINS  115 CKT 1    <0.95     0.96   59.60   722
73 CURECANT 230 to 73 CURECANT 115 CKT 1    <0.95     0.96   75.00   1027
73 NORTHMSA 115 to 73 GARNETAP 115 CKT 1    <0.95     0.96   85.00   1039
70 DANIELPK 230 to 70 PRAIRIE  230 CKT 1    <0.95     0.95   494.80   523

**** RATES: WORSE ****
Component                                  w/o Prj  w/ Prj Rating   Cont#
65 CARBON   138 to 65 SPAN F&1 138 CKT 1    1.55   1.75   75.10   272
65 SPAN F&1 138 to 65 SPAN FRK 138 CKT 1    1.55   1.75   75.00   272
65 EMMAPARK 138 to 65 UPALCO   138 CKT 1    1.43   1.71   136.00   243
65 EMMAPARK 138 to 65 PANTHER  138 CKT 1    1.42   1.70   136.00   243
65 CARBON   138 to 65 PANTHER  138 CKT 1    1.38   1.66   136.00   243
65 TREASTON 230 to 65 TREASTON 138 CKT 1    1.29   1.36   200.00   1289
65 BONANZA  138 to 65 RANGELY  138 CKT 1    1.19   1.30   115.00   1143
65 FISHCREK 161 to 65 GOSHEN   161 CKT 1    1.17   1.30   148.10   1149
65 FLAMGORG 230 to 73 FLAMGORG 138 CKT 1    1.16   1.36   100.00   243
65 FLAMGORG 230 to 73 FLAMGORG 138 CKT 2    1.16   1.36   100.00   243
65 FISHCREK 161 to 65 GRACE    161 CKT 1    1.14   1.27   148.00   1149
65 PALISADE 230 to 65 ROCKSPGS 230 CKT 1    1.11   1.25   423.90   247
65 BONANZA  345 to 65 MONA     345 CKT 1    1.07   1.36   650.00   1052
70 SMOKYHIL 115 to 70 SMOKYHIL 230 CKT 1    1.04   1.12   150.00   1308
65 BRDGR PP 230 to 65 FIREHOLE 230 CKT 1    1.03   1.16   424.00   430
65 PALISADE 230 to 65 RAVEN    230 CKT 1    1.02   1.15   461.00   247
65 CARBON   138 to 65 SPAN FRK 138 CKT 2    1.02   1.16   208.00   243
65 GRACE    161 to 65 GRACE    138 CKT 1    1.02   1.13   168.00   1149
70 WATERTON 115 to 70 WATERTON 230 CKT 2    1.00   1.11   100.00   1310
65 BLUE RIM 230 to 65 BRDGR PP 230 CKT 1    0.99   1.12   423.90   430
65 BLUE RIM 230 to 65 S. TRONA 230 CKT 1    0.99   1.12   423.90   430
70 WATERTON 115 to 70 WATERTON 230 CKT 1    0.99   1.11   100.00   1311
65 ASHLEY   138 to 73 VERNAL   138 CKT 1    0.97   1.15   136.00   241
73 VERNAL   138 to 65 BONANZA  138 CKT 1    0.96   1.11   192.00   243

Area Count, Rates new and worse:
Area 19: 1
Area 40: 2
Area 65: 26
Area 70: 7
Area 73: 15

**** VOLTS:  NEW ****
Component          w/o Prj  w/ Prj  Rating     Cont#
40 OPPORTUN 115.0  >0.95    0.923  1.00 pu kV  120
62 SHELBY   230.0  >0.95    0.936  1.00 pu kV  45
62 SHELBY   115.0  >0.95    0.929  1.00 pu kV  45
62 CNRDWAPA 230.0  >0.95    0.938  1.00 pu kV  45
62 CNRDWAPA 115.0  >0.95    0.939  1.00 pu kV  45
62 CNRD-SRA 115.0  >0.95    0.938  1.00 pu kV  45
63 TIBERTAP 115.0  >0.95    0.940  1.00 pu kV  45
40 IRVIN    115.0  >0.95    0.926  1.00 pu kV  120
63 RUDYARD  115.0  >0.95    0.949  1.00 pu kV  45
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40 OPORTUNE 115.0  >0.95    0.926  1.00 pu kV  120
40 AIRWAYTP 115.0  >0.95    0.947  1.00 pu kV  120
40 BELL BPA 500.0  >0.95    0.999  1.00 pu kV  120
40 DELIGHT  115.0  >0.95    0.948  1.00 pu kV  120
40 FOURLBPA 115.0  >0.95    0.948  1.00 pu kV  120
40 FOURLKS  115.0  >0.95    0.948  1.00 pu kV  120
40 HAL&WHIT 115.0  >0.95    0.947  1.00 pu kV  120
65 AMPS     230.0  >0.95    0.945  1.00 pu kV  205
65 ANGEL NT 138.0  >0.95    0.948  1.00 pu kV  228
65 ANGEL ST 138.0  >0.95    0.944  1.00 pu kV  228
65 SYRACUSE 138.0  >0.95    0.948  1.00 pu kV  228
65 ASHLEY   138.0  >0.95    0.937  1.00 pu kV  243
65 BLUE RIM 230.0  >0.95    0.948  1.00 pu kV  243
65 BRDGR PP 230.0  >0.95    0.946  1.00 pu kV  243
65 COLUMBIA 138.0  >0.95    0.901  1.00 pu kV  243
65 FIREHOLE 230.0  >0.95    0.946  1.00 pu kV  243
65 FLAMGORG 230.0  >0.95    0.943  1.00 pu kV  243
65 JERUSALM 138.0  >0.95    0.943  1.00 pu kV  243
65 LITTLEMT 230.0  >0.95    0.941  1.00 pu kV  243
65 MART MAR 138.0  >0.95    0.942  1.00 pu kV  243
65 PALISADE 230.0  >0.95    0.946  1.00 pu kV  243
65 RAVEN    230.0  >0.95    0.948  1.00 pu kV  243
65 S. TRONA 230.0  >0.95    0.949  1.00 pu kV  243
65 SUNNYSID 138.0  >0.95    0.904  1.00 pu kV  243
65 WESTVACO 230.0  >0.95    0.948  1.00 pu kV  243
65 WOLD     230.0  >0.95    0.949  1.00 pu kV  243
70 CAMEO    230.0  >0.95    0.943  1.00 pu kV  243
73 CAHONE   115.0  >0.95    0.934  1.00 pu kV  1052
73 CORTEZ   115.0  >0.95    0.944  1.00 pu kV  243
73 FLAMGORG 138.0  >0.95    0.947  1.00 pu kV  243
73 GRANDJCT 345.0  >0.95    0.938  1.00 pu kV  243
73 LOSTCANY 115.0  >0.95    0.949  1.00 pu kV  243
73 LOSTCANY 230.0  >0.95    0.945  1.00 pu kV  1052
73 MONTROSE 115.0  >0.95    0.941  1.00 pu kV  243
73 MONTROSE 345.0  >0.95    0.928  1.00 pu kV  243
73 BLUEDOOR 115.0  >0.95    0.944  1.00 pu kV  243
73 E.CORTEZ 115.0  >0.95    0.946  1.00 pu kV  243
73 EMPIRETS 115.0  >0.95    0.944  1.00 pu kV  1052
73 BULLOCK  115.0  >0.95    0.937  1.00 pu kV  243
73 HAPPYCAN 115.0  >0.95    0.938  1.00 pu kV  243
73 JUANITA  115.0  >0.95    0.947  1.00 pu kV  243
73 NORTHMSA 115.0  >0.95    0.938  1.00 pu kV  243
73 GARNET M 115.0  >0.95    0.934  1.00 pu kV  243
73 GARNETAP 115.0  >0.95    0.939  1.00 pu kV  243
73 HOVEN NO 115.0  >0.95    0.934  1.00 pu kV  1052
73 HOVENWEP 115.0  >0.95    0.928  1.00 pu kV  1052
73 MAIN  CO 115.0  >0.95    0.935  1.00 pu kV  1052
73 SPRCKTAP 115.0  >0.95    0.939  1.00 pu kV  243
73 Y.JACK 2 115.0  >0.95    0.933  1.00 pu kV  1052
73 Y.JACK W 115.0  >0.95    0.933  1.00 pu kV  1052
73 MOQUI C  115.0  >0.95    0.934  1.00 pu kV  1052
73 SANDCANY 115.0  >0.95    0.932  1.00 pu kV  1052
73 TOWAOC   115.0  >0.95    0.944  1.00 pu kV  243
73 GRT CUT  115.0  >0.95    0.944  1.00 pu kV  1052
73 GRCUT TP 115.0  >0.95    0.944  1.00 pu kV  1052
73 CEMNT CK 115.0  >0.95    0.936  1.00 pu kV  1052
65 ATLANTIC 230.0  >0.95    0.948  1.00 pu kV  250
65 GRASS CK 230.0  >0.95    0.952  1.00 pu kV  338
65 ABAJO    138.0  >0.95    0.949  1.00 pu kV  379
65 BONANZA  345.0  >0.95    0.943  1.00 pu kV  1248
65 RANGELY  138.0  >0.95    0.935  1.00 pu kV  1143
73 ARTESIA  138.0  >0.95    0.941  1.00 pu kV  1143
73 AXIAL    138.0  >0.95    0.955  1.00 pu kV  1143
73 MEEKER   138.0  >0.95    0.939  1.00 pu kV  1143

**** VOLTS: WORSE ****
Component          w/o Prj w/ Prj  Rating     Cont#
65 CARBON   138.0  0.944   0.863  1.00 pu kV  243
65 DG UPLCO 138.0  0.940   0.883  1.00 pu kV  243
65 EMMAPARK 138.0  0.931   0.846  1.00 pu kV  243
65 HELPER   138.0  0.942   0.861  1.00 pu kV  243
65 HELPER T 138.0  0.946   0.865  1.00 pu kV  243
65 MOUND SW 138.0  0.974   0.893  1.00 pu kV  243
65 PANTHER  138.0  0.942   0.860  1.00 pu kV  243
65 SPAN F&1 138.0  0.857   0.814  1.00 pu kV  243
65 SPHINX T 138.0  0.976   0.894  1.00 pu kV  243
65 UPALCO   138.0  0.940   0.883  1.00 pu kV  243
65 WILLOW C 138.0  0.942   0.860  1.00 pu kV  243

Area Count, Volts new and worse:
Area 40: 9
Area 62: 5
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Area 63: 2
Area 65: 35
Area 70: 1
Area 73: 32

**** RATES: BETTER ****
Component                                   w/o Prj  w/ Prj Rating  Cont#
73 CARTERLK 115 to 73 FLATIRON 115 CKT 1    1.37   1.23   80.00   819
70 LOOKOUT  115 to 70 LOOKOUT  230 CKT 1    1.17   1.06   150.00   1304
70 LOOKOUT  115 to 70 LOOKOUT  230 CKT 2    1.15   1.05   150.00   1303
73 MIDWAYBR 230 to 73 MIDWAYBR 115 CKT 1    1.11   0.99   100.00   1001
70 CHEROKEN 115 to 70 DERBY 2  115 CKT 1    1.10   0.99   135.00   506
73 GREYBULL 115 to 73 LOVELL   115 CKT 1    1.07   1.01   109.00   1139
70 CHEROKEN 115 to 70 DERBY 1  115 CKT 1    1.06   0.95   135.00   507

**** RATES:  AWAY ****
Component                                     w/o Prj  w/ Prj  Rating   Cont#
73 GOREPASS 138 to 73 HAYDEN   138 CKT 1    1.18    <= 0.95  96.00   1180
70 CABINCRK 115 to 70 CABINCRK 230 CKT 2    1.10    <= 0.95  50.00   531
70 CABINCRK 115 to 70 CABINCRK 230 CKT 1    1.08    <= 0.95  50.00   531
70 WELD  PS 230 to 73 WELD  LM 230 CKT 1    1.06    <= 0.95  500.00   1165
73 WELD  LM 115 to 73 WELD  LM 230 CKT 1    1.04    <= 0.95  150.00   1163
70 HOPKINS  115 to 70 BASALT   115 CKT 1    1.02    <= 0.95  66.90   1182
73 SIDNEY   115 to 73 SIDNEY   230 CKT 1    1.00    <= 0.95  167.00   888
40 BELL BPA 115 to 40 WAIKIKIT 115 CKT 1    0.99    <= 0.95  111.90   112
73 BRUSHTAP 115 to 73 EFMORGTP 115 CKT 1    0.98    <= 0.95  121.70   710
70 FTLUPTON 230 to 70 PAWNEE   230 CKT 1    0.97    <= 0.95  413.50   610
70 LOOKOUT  115 to 70 HOGBACK  115 CKT 1    0.96    <= 0.95  192.00   578
62 BROADV&1 500 to 62 BROADVU  500 CKT 1    0.95    <= 0.95  1732.00   32

Area Count, Rates better and away:
Area 40: 1
Area 62: 1
Area 70: 10
Area 73: 7

**** VOLTS: BETTER ****
Component          w/o Prj w/ Prj  Rating     Cont#

**** VOLTS:  AWAY ****
Component         w/o Prj     w/ Prj          Rating  Cont#
70 JEWELL2  230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
70 TOLGATE  230.0 0.941  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BARRLAKE 230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  483
70 SKYRANCH 230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  484
70 TOWER    230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  484
70 DERBY 2  115.0 0.958  0.95 <= pu <= 1.05   1.00 pu kV  507
70 MARCY    230.0 0.935  0.95 <= pu <= 1.05   1.00 pu kV  524
70 WATERTON 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  524
70 SURREYRG 230.0 0.940  0.95 <= pu <= 1.05   1.00 pu kV  525
70 MURPHY   230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  525
70 LEETSDAL 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BUCKLEY2 230.0 0.944  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BUCKLEY1 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  609
70 ELATI1   230.0 0.938  0.95 <= pu <= 1.05   1.00 pu kV  534
70 ELATI2   230.0 0.938  0.95 <= pu <= 1.05   1.00 pu kV  534
70 MONACO   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  534
70 MEADOWHL 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 MONROEPS 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
70 SULLIVN  230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  570
70 TECH CTR 230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  570
70 JEWELL1  230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  570
70 RIVERDAL 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  553
70 CHEROKEE 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 DENVTM   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 GLENN PS 230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  554
70 LACOMBE  230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 WASHINGT 230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  554
70 CLARK    230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  568
70 JORDAN   230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  568
70 CHATFLD  230.0 0.944  0.95 <= pu <= 1.05   1.00 pu kV  593
70 RIDGE    230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  596
70 WESTPS   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  597
70 QUINCY   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  609
70 SMOKYHIL 230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  609
70 GREENWD  230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  610
70 CASTLRCK 115.0 0.946  0.95 <= pu <= 1.05   1.00 pu kV  637
70 GUNBARRE 230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  650
70 LEGGETT  230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  650
70 NIWOT    230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  650
73 LOST CK  115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  722
73 LOSTCKTP 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  722
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73 WINDRIVR 115.0 0.958  0.95 <= pu <= 1.05   1.00 pu kV  912
73 WINDRIVT 115.0 0.958  0.95 <= pu <= 1.05   1.00 pu kV  912
73 TORRNGTN 115.0 0.944  0.95 <= pu <= 1.05   1.00 pu kV  926
73 BETHELLM 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  945
73 MCGREW   115.0 0.946  0.95 <= pu <= 1.05   1.00 pu kV  1332
70 PALMER   115.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  1341
70 WOODLAND 115.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  1341
73 COYOTE G 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  1356
73 RIVERTON 115.0 0.960  0.95 <= pu <= 1.05   1.00 pu kV  1362

Area Count, Volts better and away:
Area 70: 41
Area 73: 9
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Compost found the following for comparisons:
     52 lines of MVA Rating Violations read from c:\uwk\mts\a\hsbs\pHSBS-2.out
     246 lines of kV Voltage Violations read from c:\uwk\mts\a\hsbs\pHSBS-2.out
     56 lines of MVA Rating Violations read from c:\uwk\mts\a\slcl2\pSLCl2-2.out
     266 lines of kV Voltage Violations read from c:\uwk\mts\a\slcl2\pSLCl2-2.out


**** RATES:  NEW ****
Component                                    w/o Prj  w/ Prj  Rating   Cont#
73 COYOTE G 115 to 73 ELPASOTP 115 CKT 1    <0.95     1.01   85.00   1362
19 GLADETAP 115 to 73 ELPASOTP 115 CKT 1    <0.95     1.00   85.00   1057
70 MIDWAYPS 115 to 70 MIDWAYPS 230 CKT 1    <0.95     0.99   100.00   1171
73 MEEKER   138 to 65 RANGELY  138 CKT 1    <0.95     0.98   160.00   1143
40 BEACON S 115 to 40 NINTHCNT 115 CKT 1    <0.95     0.97   91.00   126
65 BONANZA  138 to 65 DG UPLCO 138 CKT 1    <0.95     0.97   192.00   243
70 COMANCHE 115 to 70 READER   115 CKT 1    <0.95     0.97   216.90   1171
40 NEWPORTB 115 to 40 PINE ST  115 CKT 1    <0.95     0.96   120.10   125
65 CARBON   138 to 65 SPAN FRK 138 CKT 2    <0.95     0.95   254.00   243
70 DANIELPK 230 to 70 PRAIRIE  230 CKT 1    <0.95     0.95   494.80   523

**** RATES: WORSE ****
Component                                   w/o Prj  w/ Prj Rating   Cont#
65 TREASTON 230 to 65 TREASTON 138 CKT 1    1.29   1.36   200.00   1289
65 EMMAPARK 138 to 65 UPALCO   138 CKT 1    1.20   1.43   163.00   243
65 EMMAPARK 138 to 65 PANTHER  138 CKT 1    1.19   1.42   163.00   243
65 CARBON   138 to 65 PANTHER  138 CKT 1    1.15   1.38   163.00   243
70 SMOKYHIL 115 to 70 SMOKYHIL 230 CKT 1    1.04   1.12   150.00   1308
65 CARBON   138 to 65 SPAN F&1 138 CKT 1    1.03   1.16   113.00   272
65 SPAN F&1 138 to 65 SPAN FRK 138 CKT 1    1.03   1.16   113.00   272
65 GRACE    161 to 65 GRACE    138 CKT 1    1.02   1.13   168.00   1149
70 WATERTON 115 to 70 WATERTON 230 CKT 2    1.00   1.11   100.00   1310
70 WATERTON 115 to 70 WATERTON 230 CKT 1    0.99   1.11   100.00   1311
65 FISHCREK 161 to 65 GOSHEN   161 CKT 1    0.98   1.09   176.00   1149
65 FISHCREK 161 to 65 GRACE    161 CKT 1    0.96   1.07   176.00   1149

Area Count, Rates new and worse:
Area 19: 1
Area 40: 2
Area 65: 11
Area 70: 6
Area 73: 2

**** VOLTS:  NEW ****
Component          w/o Prj  w/ Prj  Rating     Cont#
40 OPPORTUN 115.0  >0.95    0.923  1.00 pu kV  120
62 SHELBY   230.0  >0.95    0.936  1.00 pu kV  45
62 SHELBY   115.0  >0.95    0.929  1.00 pu kV  45
62 CNRDWAPA 230.0  >0.95    0.938  1.00 pu kV  45
62 CNRDWAPA 115.0  >0.95    0.939  1.00 pu kV  45
62 CNRD-SRA 115.0  >0.95    0.938  1.00 pu kV  45
63 TIBERTAP 115.0  >0.95    0.940  1.00 pu kV  45
40 IRVIN    115.0  >0.95    0.926  1.00 pu kV  120
63 RUDYARD  115.0  >0.95    0.949  1.00 pu kV  45
40 OPORTUNE 115.0  >0.95    0.926  1.00 pu kV  120
40 AIRWAYTP 115.0  >0.95    0.947  1.00 pu kV  120
40 BELL BPA 500.0  >0.95    0.999  1.00 pu kV  120
40 DELIGHT  115.0  >0.95    0.948  1.00 pu kV  120
40 FOURLBPA 115.0  >0.95    0.948  1.00 pu kV  120
40 FOURLKS  115.0  >0.95    0.948  1.00 pu kV  120
40 HAL&WHIT 115.0  >0.95    0.947  1.00 pu kV  120
65 AMPS     230.0  >0.95    0.945  1.00 pu kV  205
65 ANGEL NT 138.0  >0.95    0.948  1.00 pu kV  228
65 ANGEL ST 138.0  >0.95    0.944  1.00 pu kV  228
65 SYRACUSE 138.0  >0.95    0.948  1.00 pu kV  228
65 ASHLEY   138.0  >0.95    0.937  1.00 pu kV  243
65 BLUE RIM 230.0  >0.95    0.948  1.00 pu kV  243
65 BRDGR PP 230.0  >0.95    0.946  1.00 pu kV  243
65 COLUMBIA 138.0  >0.95    0.901  1.00 pu kV  243
65 FIREHOLE 230.0  >0.95    0.946  1.00 pu kV  243
65 FLAMGORG 230.0  >0.95    0.943  1.00 pu kV  243
65 JERUSALM 138.0  >0.95    0.943  1.00 pu kV  243
65 LITTLEMT 230.0  >0.95    0.941  1.00 pu kV  243
65 MART MAR 138.0  >0.95    0.942  1.00 pu kV  243
65 PALISADE 230.0  >0.95    0.946  1.00 pu kV  243
65 RAVEN    230.0  >0.95    0.948  1.00 pu kV  243
65 S. TRONA 230.0  >0.95    0.949  1.00 pu kV  243
65 SUNNYSID 138.0  >0.95    0.904  1.00 pu kV  243
65 WESTVACO 230.0  >0.95    0.948  1.00 pu kV  243
65 WOLD     230.0  >0.95    0.949  1.00 pu kV  243
70 CAMEO    230.0  >0.95    0.943  1.00 pu kV  243
73 CAHONE   115.0  >0.95    0.934  1.00 pu kV  1052
73 CORTEZ   115.0  >0.95    0.944  1.00 pu kV  243
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73 FLAMGORG 138.0  >0.95    0.947  1.00 pu kV  243
73 GRANDJCT 345.0  >0.95    0.938  1.00 pu kV  243
73 LOSTCANY 115.0  >0.95    0.949  1.00 pu kV  243
73 LOSTCANY 230.0  >0.95    0.945  1.00 pu kV  1052
73 MONTROSE 115.0  >0.95    0.941  1.00 pu kV  243
73 MONTROSE 345.0  >0.95    0.928  1.00 pu kV  243
73 BLUEDOOR 115.0  >0.95    0.944  1.00 pu kV  243
73 E.CORTEZ 115.0  >0.95    0.946  1.00 pu kV  243
73 EMPIRETS 115.0  >0.95    0.944  1.00 pu kV  1052
73 BULLOCK  115.0  >0.95    0.937  1.00 pu kV  243
73 HAPPYCAN 115.0  >0.95    0.938  1.00 pu kV  243
73 JUANITA  115.0  >0.95    0.947  1.00 pu kV  243
73 NORTHMSA 115.0  >0.95    0.938  1.00 pu kV  243
73 GARNET M 115.0  >0.95    0.934  1.00 pu kV  243
73 GARNETAP 115.0  >0.95    0.939  1.00 pu kV  243
73 HOVEN NO 115.0  >0.95    0.934  1.00 pu kV  1052
73 HOVENWEP 115.0  >0.95    0.928  1.00 pu kV  1052
73 MAIN  CO 115.0  >0.95    0.935  1.00 pu kV  1052
73 SPRCKTAP 115.0  >0.95    0.939  1.00 pu kV  243
73 Y.JACK 2 115.0  >0.95    0.933  1.00 pu kV  1052
73 Y.JACK W 115.0  >0.95    0.933  1.00 pu kV  1052
73 MOQUI C  115.0  >0.95    0.934  1.00 pu kV  1052
73 SANDCANY 115.0  >0.95    0.932  1.00 pu kV  1052
73 TOWAOC   115.0  >0.95    0.944  1.00 pu kV  243
73 GRT CUT  115.0  >0.95    0.944  1.00 pu kV  1052
73 GRCUT TP 115.0  >0.95    0.944  1.00 pu kV  1052
73 CEMNT CK 115.0  >0.95    0.936  1.00 pu kV  1052
65 ATLANTIC 230.0  >0.95    0.948  1.00 pu kV  250
65 GRASS CK 230.0  >0.95    0.952  1.00 pu kV  338
65 ABAJO    138.0  >0.95    0.949  1.00 pu kV  379
65 BONANZA  345.0  >0.95    0.943  1.00 pu kV  1248
65 RANGELY  138.0  >0.95    0.935  1.00 pu kV  1143
73 ARTESIA  138.0  >0.95    0.941  1.00 pu kV  1143
73 AXIAL    138.0  >0.95    0.955  1.00 pu kV  1143
73 MEEKER   138.0  >0.95    0.939  1.00 pu kV  1143

**** VOLTS: WORSE ****
Component          w/o Prj w/ Prj  Rating     Cont#
65 CARBON   138.0  0.944   0.863  1.00 pu kV  243
65 DG UPLCO 138.0  0.940   0.883  1.00 pu kV  243
65 EMMAPARK 138.0  0.931   0.846  1.00 pu kV  243
65 HELPER   138.0  0.942   0.861  1.00 pu kV  243
65 HELPER T 138.0  0.946   0.865  1.00 pu kV  243
65 MOUND SW 138.0  0.974   0.893  1.00 pu kV  243
65 PANTHER  138.0  0.942   0.860  1.00 pu kV  243
65 SPAN F&1 138.0  0.857   0.814  1.00 pu kV  243
65 SPHINX T 138.0  0.976   0.894  1.00 pu kV  243
65 UPALCO   138.0  0.940   0.883  1.00 pu kV  243
65 WILLOW C 138.0  0.942   0.860  1.00 pu kV  243

Area Count, Volts new and worse:
Area 40: 9
Area 62: 5
Area 63: 2
Area 65: 35
Area 70: 1
Area 73: 32

**** RATES: BETTER ****
Component                                  w/o Prj  w/ Prj Rating  Cont#
70 LOOKOUT  115 to 70 LOOKOUT  230 CKT 1    1.17   1.06   150.00   1304
70 LOOKOUT  115 to 70 LOOKOUT  230 CKT 2    1.15   1.05   150.00   1303
70 CHEROKEN 115 to 70 DERBY 2  115 CKT 1    1.10   0.99   135.00   506
70 CHEROKEN 115 to 70 DERBY 1  115 CKT 1    1.06   0.95   135.00   507

**** RATES:  AWAY ****
Component                                     w/o Prj  w/ Prj  Rating   Cont#
70 CABINCRK 115 to 70 CABINCRK 230 CKT 2    1.10    <= 0.95  50.00   531
70 CABINCRK 115 to 70 CABINCRK 230 CKT 1    1.08    <= 0.95  50.00   531
70 WELD  PS 230 to 73 WELD  LM 230 CKT 1    1.06    <= 0.95  500.00   1165
70 HOPKINS  115 to 70 BASALT   115 CKT 1    1.02    <= 0.95  66.90   1182
40 BELL BPA 115 to 40 WAIKIKIT 115 CKT 1    0.99    <= 0.95  111.90   112
70 FTLUPTON 230 to 70 PAWNEE   230 CKT 1    0.97    <= 0.95  413.50   610
70 LOOKOUT  115 to 70 HOGBACK  115 CKT 1    0.96    <= 0.95  192.00   578

Area Count, Rates better and away:
Area 40: 1
Area 70: 10

**** VOLTS: BETTER ****
Component          w/o Prj w/ Prj  Rating     Cont#
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**** VOLTS:  AWAY ****
Component          w/o Prj     w/ Prj           Rating  Cont#
70 JEWELL2  230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
70 TOLGATE  230.0 0.941  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BARRLAKE 230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  483
70 SKYRANCH 230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  484
70 TOWER    230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  484
70 DERBY 2  115.0 0.958  0.95 <= pu <= 1.05   1.00 pu kV  507
70 MARCY    230.0 0.935  0.95 <= pu <= 1.05   1.00 pu kV  524
70 WATERTON 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  524
70 SURREYRG 230.0 0.940  0.95 <= pu <= 1.05   1.00 pu kV  525
70 MURPHY   230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  525
70 LEETSDAL 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BUCKLEY2 230.0 0.944  0.95 <= pu <= 1.05   1.00 pu kV  534
70 BUCKLEY1 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  609
70 ELATI1   230.0 0.938  0.95 <= pu <= 1.05   1.00 pu kV  534
70 ELATI2   230.0 0.938  0.95 <= pu <= 1.05   1.00 pu kV  534
70 MONACO   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  534
70 MEADOWHL 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 MONROEPS 230.0 0.939  0.95 <= pu <= 1.05   1.00 pu kV  534
70 SULLIVN  230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  570
70 TECH CTR 230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  570
70 JEWELL1  230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  570
70 RIVERDAL 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  553
70 CHEROKEE 230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 DENVTM   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 GLENN PS 230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  554
70 LACOMBE  230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  610
70 WASHINGT 230.0 0.942  0.95 <= pu <= 1.05   1.00 pu kV  554
70 CLARK    230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  568
70 JORDAN   230.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  568
70 CHATFLD  230.0 0.944  0.95 <= pu <= 1.05   1.00 pu kV  593
70 RIDGE    230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  596
70 WESTPS   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  597
70 QUINCY   230.0 0.947  0.95 <= pu <= 1.05   1.00 pu kV  609
70 SMOKYHIL 230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  609
70 GREENWD  230.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  610
70 CASTLRCK 115.0 0.946  0.95 <= pu <= 1.05   1.00 pu kV  637
70 GUNBARRE 230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  650
70 LEGGETT  230.0 0.945  0.95 <= pu <= 1.05   1.00 pu kV  650
70 NIWOT    230.0 0.943  0.95 <= pu <= 1.05   1.00 pu kV  650
73 LOST CK  115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  722
73 LOSTCKTP 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  722
73 WINDRIVR 115.0 0.958  0.95 <= pu <= 1.05   1.00 pu kV  912
73 WINDRIVT 115.0 0.958  0.95 <= pu <= 1.05   1.00 pu kV  912
73 TORRNGTN 115.0 0.944  0.95 <= pu <= 1.05   1.00 pu kV  926
73 BETHELLM 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  945
73 MCGREW   115.0 0.946  0.95 <= pu <= 1.05   1.00 pu kV  1332
70 PALMER   115.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  1341
70 WOODLAND 115.0 0.948  0.95 <= pu <= 1.05   1.00 pu kV  1341
73 COYOTE G 115.0 0.949  0.95 <= pu <= 1.05   1.00 pu kV  1356
73 RIVERTON 115.0 0.960  0.95 <= pu <= 1.05   1.00 pu kV  1362

Area Count, Volts better and away:
Area 70: 41
Area 73: 9
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MONTANA TRANSMISSION STUDY WAPA UGP JUNE 2002
G4 LS BASE CASE

FILE made from cont. file : [C:\uwk\mts\a\lsbs\cLSBS-1.out]
DATE REPORT MADE - Tue May 07 16:06:37 2002

Outage 26 failed to converge
Outage 27 failed to converge
Outage 32 failed to converge
Outage 33 failed to converge
Outage 1174 failed to converge

--------FROM bus--------					---------TO bus---------									base	pu	rating		
#	---name---	-kv-	ar	#	---name---	-kv-	ar	ID	--mw-	-mvar	amps	load	load	[MVA]	Cnt	# freq.
73187	"SPRINGCK"	115	73	73367	"FTSANDER"	115	73	"1 "	0	13333	66939	0.00	166.67	80.00	799	1
48125	"FOURLBPA"	115	40	48132	"HAL&WHIT"	115	40	"1 "	108	132	857	0.49	2.97	57.40	156	2
54083	"E EDMON9"	138	54	55938	"STEL TAP"	138	54	"22"	198	1	796	1.70	1.70	112.00	1	1366
54503	"STELCOA9"	138	54	55938	"STEL TAP"	138	54	"22"	-197	0	795	1.60	1.60	119.00	1	1366
79023	"DURANGO "	115	73	79191	"COYOTE G"	115	73	"1 "	119	-18	621	0.50	1.46	85.00	1365	2
65280	"CARBON "	138	65	66395	"SPAN F&1"	138	65	"1 "	109	-1	449	0.65	1.43	75.10	272	1
66395	"SPAN F&1"	138	65	66405	"SPAN FRK"	138	65	"1 "	90	-23	446	0.63	1.42	75.00	272	1
65192	"BONANZA "	138	65	66278	"RANGELY "	138	65	"1 "	161	10	660	0.40	1.37	115.00	1251	1
54518	"ARGYLL E"	240	54	54506	"BELLAMY4"	240	54	"04"	-81	-126	322	1.34	1.34	100.00	1	1366
79191	"COYOTE G"	115	73	79260	"ELPASOTP"	115	73	"1 "	97	-43	562	0.39	1.32	85.00	1057	2
79105	"GLADETAP"	115	19	79260	"ELPASOTP"	115	73	"1 "	-94	49	561	0.39	1.32	85.00	1057	2
48051	"BURKE "	115	40	48053	"BURKAVAA"	115	40	"1 "	-85	34	463	0.70	1.25	73.90	61	2
79042	"HOTCHKIS"	115	73	79104	"GARNETAP"	115	73	"1 "	102	-9	530	0.47	1.24	85.00	1039	2
48051	"BURKE "	115	40	48055	"BURKAVAB"	115	40	"1 "	-81	34	445	0.67	1.20	73.90	1124	1
48023	"BEACON N"	115	40	48371	"ROSSPARK"	115	40	"1 "	158	40	820	0.80	1.18	138.20	126	3
79013	"CRAIG "	230	73	79059	"RIFLE WA"	230	73	"1 "	379	73	950	0.64	1.17	324.00	1185	1
54065	"N HOLDE9"	138	54	54062	"BARDO 7"	138	54	"74"	-78	58	392	1.12	1.12	85.00	1	1367
54161	"SARCEE 4"	240	54	54154	"E CALGAR"	240	54	"16"	93	-354	888	1.11	1.11	333.00	1	1366
54681	"NEVIS 7"	138	54	54823	"NEVIS 9"	138	54	"1 "	33	16	37	1.10	1.10	33.30	1	1366
73088	"HOYT "	115	73	73103	"L.MEADOW"	115	73	"1 "	43	3	220	0.14	1.10	40.00	722	2
79059	"RIFLE WA"	230	73	79070	"NORTHFRK"	230	73	"1 "	262	18	663	0.59	1.10	239.00	1039	1
79034	"GRANDJCT"	115	70	79048	"MONTROSE"	115	73	"1 "	80	-9	419	0.41	1.09	76.50	1039	1
65193	"BONANZA "	345	65	65192	"BONANZA "	138	65	"1 "	-401	135	423	0.78	1.08	392.00	1015	2
60085	"BRIDGER "	345	60	60060	"BORAH "	345	60	"1 "	971	270	1606	0.84	1.08	892.20	1150	1
65565	"FLAMGORG"	230	65	79026	"FLAMGORG"	138	73	"1 "	-107	11	107	0.53	1.07	100.00	243	3
65565	"FLAMGORG"	230	65	79026	"FLAMGORG"	138	73	"2 "	-107	11	107	0.53	1.07	100.00	243	3
46805	"CHELAN "	115	40	48149	"HEADWORK"	115	40	"1 "	-92	33	482	0.99	1.06	91.00	188	1366
65520	"EMMAPARK"	138	65	66590	"UPALCO "	138	65	"1 "	-126	67	595	0.45	1.06	136.00	243	1
79045	"LOSTCANY"	230	73	79044	"LOSTCANY"	115	73	"1 "	117	9	118	0.38	1.05	112.00	1370	2
60085	"BRIDGER "	345	60	60190	"KINPORT "	345	60	"1 "	945	266	1565	0.73	1.05	892.20	1150	1
65520	"EMMAPARK"	138	65	66183	"PANTHER "	138	65	"1 "	126	-67	594	0.44	1.04	136.00	243	1
79085	"NORTHMSA"	115	73	79104	"GARNETAP"	115	73	"1 "	-79	27	443	0.28	1.04	85.00	1039	1
62054	"BROADV&1"	500	62	62046	"BROADVU "	500	62	"1 "	1846	-234	2026	0.54	1.01	1732.00	28	1
62053	"BROADV&2"	500	62	62046	"BROADVU "	500	62	"2 "	1838	-237	2019	0.52	1.01	1732.00	30	1
65280	"CARBON "	138	65	66183	"PANTHER "	138	65	"1 "	-117	74	572	0.40	1.01	136.00	243	1
62057	"COLSTRP "	500	62	62060	"COLSTRP "	230	62	"2 "	-499	64	503	0.53	1.01	500.00	1214	1
62057	"COLSTRP "	500	62	62060	"COLSTRP "	230	62	"1 "	-500	63	504	0.54	1.01	500.00	1215	1
73039	"CARTERLK"	115	73	73058	"FLATIRON"	115	73	"1 "	-80	-14	402	0.64	1.00	80.00	819	1
79085	"NORTHMSA"	115	73	79115	"SPRCKTAP"	115	73	"1 "	75	-28	426	0.24	1.00	85.00	1039	1
65145	"BENLOMND"	138	65	66650	"WARREN "	138	65	"1 "	124	24	515	0.56	0.98	126.00	228	1
70265	"LOOKOUT "	115	70	70266	"LOOKOUT "	230	70	"1 "	-108	99	147	0.65	0.98	150.00	1307	1
54156	"SAGITAW7"	138	54	54079	"MILLAR 7"	138	54	"25"	106	58	492	0.97	0.97	121.00	1	1366
48025	"BEACON N"	230	40	48023	"BEACON N"	115	40	"1 "	272	59	278	0.60	0.97	287.00	122	1
48031	"BEACON S"	230	40	48029	"BEACON S"	115	40	"1 "	272	59	278	0.60	0.97	287.00	122	1
70265	"LOOKOUT "	115	70	70266	"LOOKOUT "	230	70	"2 "	-107	98	145	0.63	0.97	150.00	1306	1
54542	"RBW LAK7"	138	54	54835	"791S702T"	138	54	"1 "	20	-9	22	0.96	0.96	24.00	1	1366
73211	"WELD LM"	115	73	73212	"WELD LM"	230	73	"1 "	-118	83	144	0.76	0.96	150.00	1163	1

low voltage violations							delta voltage violations							high voltage violations						
CNT	freq	---name---	-kv-	ar	-base- -case- pu	-cont- -case- pu	---name---	-kv-	ar	freq	delta V	freq	---name---	-kv-	ar	-base- -case- pu	-cont- -case- pu	vt	vt
64	0		0	0	99.000	99.000	CONRAD	115	62	2	0.058	0		0	0	99.000	0.000		
243	11	CLIFTON	230	70	0.958	0.924		0	0	0	0.000	0		0	0	99.000	0.000		
272	1	SPAN F&1	138	65	0.968	0.872	SPAN F&1	138	65	1	0.096	0		0	0	99.000	0.000		
379	5	CLIFTON	230	70	0.958	0.945		0	0	0	0.000	0		0	0	99.000	0.000		
637	5	PEAKVIEW	115	70	1.006	0.919	PEAKVIEW	115	70	5	0.087	0		0	0	99.000	0.000		
722	8	BRUSHTAP	115	73	1.011	0.929	BRUSHTAP	115	73	8	0.082	0		0	0	99.000	0.000		
746	6	FME	115	73	1.001	0.945	FME	115	73	6	0.056	0		0	0	99.000	0.000		
799	0		0	0	99.000	99.000	FTSANDER	115	73	1	0.060	0		0	0	99.000	0.000		
887	0		0	0	99.000	99.000	REDWILLW	115	73	1	0.054	0		0	0	99.000	0.000		
915	4	SANDHILL	115	73	1.012	0.936	SANDHILL	115	73	3	0.076	0		0	0	99.000	0.000		
924	0		0	0	99.000	99.000	FTSANDER	115	73	1	0.060	0		0	0	99.000	0.000		
929	3	GALIEN	115	73	0.987	0.933	GALIEN	115	73	1	0.054	0		0	0	99.000	0.000		
1015	4	CLIFTON	230	70	0.958	0.946		0	0	0	0.000	0		0	0	99.000	0.000		
1029	4	CLIFTON	230	70	0.958	0.946		0	0	0	0.000	0		0	0	99.000	0.000		
1033	1	PAGOSA	115	73	0.962	0.941		0	0	0	0.000	0		0	0	99.000	0.000		
1039	2	GARNET M	115	73	0.980	0.947		0	0	0	0.000	0		0	0	99.000	0.000		
1047	1	PAGOSA	115	73	0.962	0.945		0	0	0	0.000	0		0	0	99.000	0.000		
1052	27	HOVENWEP	115	73	0.979	0.923	LOSTCANY	230	73	22	0.057	0		0	0	99.000	0.000		
1057	20	PAGOSA	115	73	0.962	0.931		0	0	0	0.000	0		0	0	99.000	0.000		
1060	1	PAGOSA	115	73	0.962	0.940		0	0	0	0.000	0		0	0	99.000	0.000		
1064	1	PAGOSA	115	73	0.962	0.943		0	0	0	0.000	0		0	0	99.000	0.000		
1089	1	PAGOSA	115	73	0.962	0.949		0	0	0	0.000	0		0	0	99.000	0.000		
1100	0		0	0	99.000	99.000	HARLEM	161	63	1	0.053	0		0	0	99.000	0.000		
1116	0		0	0	99.000	99.000	GAR2EAST	500	40	1	0.057	0		0	0	99.000	0.000		
1117	0		0	0	99.000	99.000	GAR1EAST	500	40	1	0.057	0		0	0	99.000	0.000		
1133	4	GRANDJPS	230	70	0.957	0.946		0	0	0	0.000	0		0	0	99.000	0.000		
1145	4	CLIFTON	230	70	0.958	0.946		0	0	0	0.000	0		0	0	99.000	0.000		
1175	1	PAGOSA	115	73	0.962	0.949		0	0	0	0.000	0		0	0	99.000	0.000		
1185	4	GRANDJPS	230	70	0.957	0.946		0	0	0	0.000	0		0	0	99.000	0.000		
1186	6	GRANDJPS	230	70	0.957	0.925		0	0	0	0.000	0		0	0	99.000	0.000		
1251	1	SPAN F&1	138	65	0.968	0.948		0	0	0	0.000	0		0	0	99.000	0.000		
1281	4	GRANDJPS	230	70	0.957	0.946		0	0	0	0.000	0		0	0	99.000	0.000		
1316	22	WARRENLM	115	73	0.996	0.902	ARCHER	115	73	24	0.098	0		0	0	99.000	0.000		
1332	4	SIDNEY	115	73	1.014	0.941	SIDNEY	115	73	5	0.073	0		0	0	99.000	0.000		
1341	0		0	0	99.000	99.000	CTTNWD N	115	73	3	0.055	0		0	0	99.000	0.000		
1356	10	PAGOSA	115	73	0.962	0.912	HESPERUS	115	73	4	0.054	0		0	0	99.000	0.000		

1358	2	HAVRE	115	63	0.989	0.913	HAVRE	115	63	2	0.076	0	0	0	99.000	0.000
1365	1	HOVENWEP	115	73	0.979	0.948		0	0	0	0.000	0	0	0	99.000	0.000
1369	5	CLIFTON	230	70	0.958	0.929		0	0	0	0.000	0	0	0	99.000	0.000

BUSES with voltage violations

bus no	---name---	--kv-	area	-base- -case- pu vt	BASE CASE VOLT VIOLATION	lowest -cont- -case- pu vt	cont with lowest pu vt	contingencies with voltage violations
54551	RING CK7	138.0	54	0.948	***	0.948	1:	all
54796	791S701T	138.0	54	0.920	***	0.920	1:	all
54835	791S702T	138.0	54	0.926	***	0.926	1:	all
62087	CONRAD	115.0	62	1.012		0.954	64:	64
66395	SPAN F&1	138.0	65	0.968		0.872	272:243	272 1251
70113	CLIFTON	230.0	70	0.958		0.924	243:243	379 1015 1029 1133 1145 1185 1186 1281 1369
70205	GRANDJCT	230.0	70	0.959		0.925	243:243	379 1015 1029 1133 1145 1185 1186 1281 1369
70206	GRANDJPS	230.0	70	0.957		0.924	243:243	379 1015 1029 1133 1145 1185 1186 1281 1369
70233	HORIZON	230.0	70	0.958		0.925	243:243	379 1015 1029 1133 1145 1185 1186 1281 1369
70438	UINTAH	230.0	70	0.963		0.927	1186:243	1186 1369
79049	MONTROSE	345.0	73	0.985		0.942	243:243	
79077	BAYFIELD	115.0	73	0.979		0.930	1356:243	1057 1356
79086	PAGOSA	115.0	73	0.962		0.912	1356:243	379 1033 1047 1052 1057 1060 1064 1089 1175 1356
79108	HOVENWEP	115.0	73	0.979		0.923	1052:243	1052 1057 1365
79121	SANDCANY	115.0	73	0.982		0.926	1052:243	1052 1057
70515	DAVIDSON	115.0	70	1.002		0.920	637:637	
70516	PONDERSA	115.0	70	0.998		0.923	637:637	
70517	PARKERPS	115.0	70	0.996		0.929	637:637	
70518	BAYOU	115.0	70	0.996		0.942	637:637	
70521	PEAKVIEW	115.0	70	1.006		0.919	637:637	
73023	BIJOUTAP	115.0	73	1.000		0.943	722:722	
73031	BRUSHTAP	115.0	73	1.011		0.929	722:722	
73305	EFMORGTP	115.0	73	1.001		0.932	722:722	746
73310	FME	115.0	73	1.001		0.931	722:722	746
73311	FMS	115.0	73	1.000		0.933	722:722	746
73377	EXCEL	115.0	73	1.000		0.933	722:722	746
73378	FMN	115.0	73	1.001		0.932	722:722	746
73379	FMWEST	115.0	73	1.000		0.933	722:722	746
73367	FTSANDER	115.0	73	1.020		0.941	1316:799	924 1316
73005	ALVIN	115.0	73	0.999		0.941	915:915	
73175	SANDHILL	115.0	73	1.012		0.936	915:915	
73210	WAUNETA	115.0	73	0.992		0.949	915:915	
73304	CRETESWT	115.0	73	0.999		0.941	915:915	
73059	FLEMING	115.0	73	0.986		0.938	929:929	
73080	HAXTUN	115.0	73	0.985		0.943	929:929	
73478	GALIEN	115.0	73	0.987		0.933	929:929	
79085	NORTHMSA	115.0	73	0.985		0.949	1039:1039	
79103	GARNET M	115.0	73	0.980		0.947	1039:1039	
79011	CAHONE	115.0	73	0.985		0.929	1052:1052	1057
79012	CORTEZ	115.0	73	0.990		0.935	1052:1052	1057
79044	LOSTCANY	115.0	73	0.993		0.939	1052:1052	
79045	LOSTCANY	230.0	73	0.993		0.936	1052:1052	
79073	BLUEDOOR	115.0	73	0.990		0.935	1052:1052	1057
79074	E.CORTEZ	115.0	73	0.991		0.937	1052:1052	1057
79075	EMPIRETS	115.0	73	0.990		0.935	1052:1052	1057
79080	CASCADEL	115.0	73	0.988		0.940	1052:1052	1356
79088	ROCKWOOD	115.0	73	0.988		0.939	1356:1052	1356
79107	HOVEN NO	115.0	73	0.984		0.928	1052:1052	1057
79110	MAIN CO	115.0	73	0.984		0.928	1052:1052	1057
79111	MANCOSTP	115.0	73	0.990		0.941	1052:1052	
79117	Y.JACK 2	115.0	73	0.984		0.928	1052:1052	1057
79118	Y.JACK W	115.0	73	0.983		0.927	1052:1052	1057
79120	MOQUI C	115.0	73	0.984		0.928	1052:1052	1057
79122	TOWAOC	115.0	73	0.990		0.935	1052:1052	1057
79179	GRT CUT	115.0	73	0.990		0.935	1052:1052	1057
79180	GRCUT TP	115.0	73	0.990		0.935	1052:1052	1057
79257	AMES	115.0	73	0.992		0.942	1052:1052	
79194	BURROBDG	115.0	73	0.990		0.940	1052:1052	
79262	CEMNT CK	115.0	73	0.985		0.929	1052:1052	1057
79256	SILVERTN	115.0	73	0.990		0.939	1052:1052	
79189	SUNSH SM	115.0	73	0.992		0.943	1052:1052	
79188	TELLURID	115.0	73	0.986		0.936	1052:1052	
79191	COYOTE G	115.0	73	0.991		0.946	1057:1057	
79260	ELPASOTP	115.0	73	0.992		0.947	1057:1057	
40453	GAR2EAST	500.0	40	1.096		1.039	1116:1116	
40451	GAR1EAST	500.0	40	1.096		1.039	1117:1117	
70078	CAMEO	230.0	70	0.976		0.942	1186:1186	
73008	ARCHER	115.0	73	1.009		0.911	1316:1316	
73043	CHEYENNE	115.0	73	0.999		0.908	1316:1316	
73066	GEMCTYTP	115.0	73	1.019		0.941	1316:1316	
73077	HAPPYJCK	115.0	73	0.998		0.906	1316:1316	
73109	LARAMIE	115.0	73	1.012		0.937	1316:1316	
73128	MAY	115.0	73	1.019		0.949	1316:1316	
73139	MYERS	115.0	73	1.008		0.914	1316:1316	
73140	MYERS TP	115.0	73	1.008		0.915	1316:1316	
73146	OASISTAP	115.0	73	1.020		0.949	1316:1316	
73152	PINEBLUF	115.0	73	1.004		0.935	1316:1316	
73154	POLE CK	115.0	73	1.007		0.925	1316:1316	
73161	QUALLS	115.0	73	1.006		0.924	1316:1316	
73172	ROCKPRTP	115.0	73	1.006		0.937	1316:1316	
73173	ROUNDTOP	115.0	73	1.005		0.947	1316:1316	
73178	SENTINEL	115.0	73	1.003		0.945	1316:1316	
73183	SKYLINE	115.0	73	0.998		0.903	1316:1316	
73187	SPRINGCK	115.0	73	1.020		0.941	1316:1316	
73348	CORLETT	115.0	73	0.996		0.903	1316:1316	
73375	WARRENLM	115.0	73	0.996		0.902	1316:1316	
73480	CROWCRK	115.0	73	1.000		0.907	1316:1316	
73504	PONNEQUI	115.0	73	1.003		0.925	1316:1316	
73046	DALTON	115.0	73	1.006		0.943	1332:1332	
73092	JACINTO	115.0	73	1.006		0.947	1332:1332	
73179	SIDNEY	115.0	73	1.014		0.941	1332:1332	
73236	GREENWOD	115.0	73	1.003		0.949	1332:1332	
79023	DURANGO	115.0	73	0.987		0.944	1356:1356	
79071	HESPERUS	115.0	73	0.991		0.937	1356:1356	
79076	AM EAST	115.0	73	0.983		0.932	1356:1356	
79078	BODO	115.0	73	0.986		0.941	1356:1356	
79089	SHENDOAH	115.0	73	0.987		0.947	1356:1356	
79099	FLOR.RIV	115.0	73	0.985		0.933	1356:1356	
63007	HAVRE	115.0	63	0.989		0.913	1358:1358	

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63013   RUDYARD   115.0   63  0.997          0.940  1358:1358
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MONTANA TRANSMISSION STUDY WAPA UGP JUNE 2002
G4 LS BASE CASE

FILE made from cont. file : [C:\uwk\mts\a\lsbs\cLSBS-2.out]
DATE REPORT MADE - Tue May 07 16:06:53 2002

Outage 26 failed to converge
Outage 27 failed to converge
Outage 32 failed to converge
Outage 33 failed to converge
Outage 1174 failed to converge

--------FROM bus--------					---------TO bus---------								base	pu	rating		
#	---name---	-kv-	ar	#	---name---	-kv-	ar	ID	--mw-	-mvar	amps	load	load	[MVA]	Cnt	# freq.
48125	"FOURLBPA"	115	40	48132	"HAL&WHIT"	115	40	"1 "	108	132	857	0.49	2.97	57.40	156	2
54083	"E EDMON9"	138	54	55938	"STEL TAP"	138	54	"22"	198	1	796	1.41	1.41	135.00	1	1366
54518	"ARGYLL E"	240	54	54506	"BELLAMY4"	240	54	"04"	-81	-126	322	1.34	1.34	100.00	1	1366
79191	"COYOTE G"	115	73	79260	"ELPASOTP"	115	73	"1 "	97	-43	562	0.39	1.32	85.00	1057	2
79105	"GLADETAP"	115	19	79260	"ELPASOTP"	115	73	"1 "	-94	49	561	0.39	1.32	85.00	1057	2
54503	"STELCOA9"	138	54	55938	"STEL TAP"	138	54	"22"	-197	0	795	1.30	1.30	146.00	1	1366
48051	"BURKE "	115	40	48053	"BURKAVAA"	115	40	"1 "	-85	34	463	0.70	1.25	73.90	61	2
48051	"BURKE "	115	40	48055	"BURKAVAB"	115	40	"1 "	-81	34	445	0.67	1.20	73.90	1124	1
48023	"BEACON N"	115	40	48371	"ROSSPARK"	115	40	"1 "	158	40	820	0.80	1.18	138.20	126	3
54161	"SARCEE 4"	240	54	54154	"E CALGAR"	240	54	"16"	93	-354	888	1.11	1.11	333.00	1	1366
54681	"NEVIS 7"	138	54	54823	"NEVIS 9"	138	54	"1 "	33	16	37	1.10	1.10	33.30	1	1366
65193	"BONANZA "	345	65	65192	"BONANZA "	138	65	"1 "	-401	135	423	0.78	1.08	392.00	1015	2
54065	"N HOLDE9"	138	54	54062	"BARDO 7"	138	54	"74"	-78	58	392	1.06	1.06	90.00	1	1367
46805	"CHELAN "	115	40	48149	"HEADWORK"	115	40	"1 "	-92	33	482	0.99	1.06	91.00	188	1366
65192	"BONANZA "	138	65	66278	"RANGELY "	138	65	"1 "	161	10	660	0.29	0.99	160.00	1251	1
70265	"LOOKOUT "	115	70	70266	"LOOKOUT "	230	70	"1 "	-108	99	147	0.65	0.98	150.00	1307	1
48025	"BEACON N"	230	40	48023	"BEACON N"	115	40	"1 "	272	59	278	0.60	0.97	287.00	122	1
48031	"BEACON S"	230	40	48029	"BEACON S"	115	40	"1 "	272	59	278	0.60	0.97	287.00	122	1
70265	"LOOKOUT "	115	70	70266	"LOOKOUT "	230	70	"2 "	-107	98	145	0.63	0.97	150.00	1306	1
54542	"RBW LAK7"	138	54	54835	"791S702T"	138	54	"1 "	20	-9	22	0.96	0.96	24.00	1	1366

low voltage violations							delta voltage violations							high voltage violations					
CNT	freq	---name---	-kv-	ar	-base- -case- pu vt	-cont- -case- pu vt	---name---	-kv-	ar	freq	delta V	freq	---name---	-kv-	ar	-base- -case- pu vt	-cont- -case- pu vt
64	0		0	0	99.000	99.000	CONRAD	115	62	2	0.058	0		0	0	99.000	0.000
243	11	CLIFTON	230	70	0.958	0.924		0	0	0	0.000	0		0	0	99.000	0.000
272	1	SPAN F&1	138	65	0.968	0.872	SPAN F&1	138	65	1	0.096	0		0	0	99.000	0.000
379	5	CLIFTON	230	70	0.958	0.945		0	0	0	0.000	0		0	0	99.000	0.000
637	5	PEAKVIEW	115	70	1.006	0.919	PEAKVIEW	115	70	5	0.087	0		0	0	99.000	0.000
722	8	BRUSHTAP	115	73	1.011	0.929	BRUSHTAP	115	73	8	0.082	0		0	0	99.000	0.000
746	6	FME	115	73	1.001	0.945	FME	115	73	6	0.056	0		0	0	99.000	0.000
799	0		0	0	99.000	99.000	FTSANDER	115	73	1	0.060	0		0	0	99.000	0.000
887	0		0	0	99.000	99.000	REDWILLW	115	73	1	0.054	0		0	0	99.000	0.000
915	4	SANDHILL	115	73	1.012	0.936	SANDHILL	115	73	3	0.076	0		0	0	99.000	0.000
924	0		0	0	99.000	99.000	FTSANDER	115	73	1	0.060	0		0	0	99.000	0.000
929	3	GALIEN	115	73	0.987	0.933	GALIEN	115	73	1	0.054	0		0	0	99.000	0.000
1015	4	CLIFTON	230	70	0.958	0.946		0	0	0	0.000	0		0	0	99.000	0.000
1029	4	CLIFTON	230	70	0.958	0.946		0	0	0	0.000	0		0	0	99.000	0.000
1033	1	PAGOSA	115	73	0.962	0.941		0	0	0	0.000	0		0	0	99.000	0.000
1039	2	GARNET M	115	73	0.980	0.947		0	0	0	0.000	0		0	0	99.000	0.000
1047	1	PAGOSA	115	73	0.962	0.945		0	0	0	0.000	0		0	0	99.000	0.000
1052	27	HOVENWEP	115	73	0.979	0.923	LOSTCANY	230	73	22	0.057	0		0	0	99.000	0.000
1057	20	PAGOSA	115	73	0.962	0.931		0	0	0	0.000	0		0	0	99.000	0.000
1060	1	PAGOSA	115	73	0.962	0.940		0	0	0	0.000	0		0	0	99.000	0.000
1064	1	PAGOSA	115	73	0.962	0.943		0	0	0	0.000	0		0	0	99.000	0.000
1089	1	PAGOSA	115	73	0.962	0.949		0	0	0	0.000	0		0	0	99.000	0.000
1100	0		0	0	99.000	99.000	HARLEM	161	63	1	0.053	0		0	0	99.000	0.000
1116	0		0	0	99.000	99.000	GAR2EAST	500	40	1	0.057	0		0	0	99.000	0.000
1117	0		0	0	99.000	99.000	GAR1EAST	500	40	1	0.057	0		0	0	99.000	0.000
1133	4	GRANDJPS	230	70	0.957	0.946		0	0	0	0.000	0		0	0	99.000	0.000
1145	4	CLIFTON	230	70	0.958	0.946		0	0	0	0.000	0		0	0	99.000	0.000
1175	1	PAGOSA	115	73	0.962	0.949		0	0	0	0.000	0		0	0	99.000	0.000
1185	4	GRANDJPS	230	70	0.957	0.946		0	0	0	0.000	0		0	0	99.000	0.000
1186	6	GRANDJPS	230	70	0.957	0.925		0	0	0	0.000	0		0	0	99.000	0.000
1251	1	SPAN F&1	138	65	0.968	0.948		0	0	0	0.000	0		0	0	99.000	0.000
1281	4	GRANDJPS	230	70	0.957	0.946		0	0	0	0.000	0		0	0	99.000	0.000
1316	22	WARRENLM	115	73	0.996	0.902	ARCHER	115	73	24	0.098	0		0	0	99.000	0.000
1332	4	SIDNEY	115	73	1.014	0.941	SIDNEY	115	73	5	0.073	0		0	0	99.000	0.000
1341	0		0	0	99.000	99.000	CTTNWD N	115	73	3	0.055	0		0	0	99.000	0.000
1356	10	PAGOSA	115	73	0.962	0.912	HESPERUS	115	73	4	0.054	0		0	0	99.000	0.000
1358	2	HAVRE	115	63	0.989	0.913	HAVRE	115	63	2	0.076	0		0	0	99.000	0.000
1365	1	HOVENWEP	115	73	0.979	0.948		0	0	0	0.000	0		0	0	99.000	0.000
1369	5	CLIFTON	230	70	0.958	0.929		0	0	0	0.000	0		0	0	99.000	0.000

BUSES with voltage violations

bus no	---name---	--kv-	area	-base- -case- pu vt	BASE CASE VOLT VIOLATION	lowest -cont- -case- pu vt	cont with lowest pu vt	contingencies with voltage violations
54551	RING CK7	138.0	54	0.948	***	0.948	1:	all
54796	791S701T	138.0	54	0.920	***	0.920	1:	all
54835	791S702T	138.0	54	0.926	***	0.926	1:	all
62087	CONRAD	115.0	62	1.012		0.954	64:	64
66395	SPAN F&1	138.0	65	0.968		0.872	272:243	272 1251
70113	CLIFTON	230.0	70	0.958		0.924	243:243	379 1015 1029 1133 1145 1185 1186 1281 1369
70205	GRANDJCT	230.0	70	0.959		0.925	243:243	379 1015 1029 1133 1145 1185 1186 1281 1369
70206	GRANDJPS	230.0	70	0.957		0.924	243:243	379 1015 1029 1133 1145 1185 1186 1281 1369
70233	HORIZON	230.0	70	0.958		0.925	243:243	379 1015 1029 1133 1145 1185 1186 1281 1369
70438	UINTAH	230.0	70	0.963		0.927	1186:243	1186 1369
79049	MONTROSE	345.0	73	0.985		0.942	243:243	
79077	BAYFIELD	115.0	73	0.979		0.930	1356:243	1057 1356
79086	PAGOSA	115.0	73	0.962		0.912	1356:243	379 1033 1047 1052 1057 1060 1064 1089 1175 1356
79108	HOVENWEP	115.0	73	0.979		0.923	1052:243	1052 1057 1365
79121	SANDCANY	115.0	73	0.982		0.926	1052:243	1052 1057
70515	DAVIDSON	115.0	70	1.002		0.920	637:637	

70516	PONDERSA	115.0	70	0.998	0.923	637:637
70517	PARKERPS	115.0	70	0.996	0.929	637:637
70518	BAYOU	115.0	70	0.996	0.942	637:637
70521	PEAKVIEW	115.0	70	1.006	0.919	637:637
73023	BIJOUTAP	115.0	73	1.000	0.943	722:722
73031	BRUSHTAP	115.0	73	1.011	0.929	722:722
73305	EFMORGTP	115.0	73	1.001	0.932	722:722 746
73310	FME	115.0	73	1.001	0.931	722:722 746
73311	FMS	115.0	73	1.000	0.933	722:722 746
73377	EXCEL	115.0	73	1.000	0.933	722:722 746
73378	FMN	115.0	73	1.001	0.932	722:722 746
73379	FMWEST	115.0	73	1.000	0.933	722:722 746
73367	FTSANDER	115.0	73	1.020	0.941	1316:799 924 1316
73005	ALVIN	115.0	73	0.999	0.941	915:915
73175	SANDHILL	115.0	73	1.012	0.936	915:915
73210	WAUNETA	115.0	73	0.992	0.949	915:915
73304	CRETESWT	115.0	73	0.999	0.941	915:915
73059	FLEMING	115.0	73	0.986	0.938	929:929
73080	HAXTUN	115.0	73	0.985	0.943	929:929
73478	GALIEN	115.0	73	0.987	0.933	929:929
79085	NORTHMSA	115.0	73	0.985	0.949	1039:1039
79103	GARNET M	115.0	73	0.980	0.947	1039:1039
79011	CAHONE	115.0	73	0.985	0.929	1052:1052 1057
79012	CORTEZ	115.0	73	0.990	0.935	1052:1052 1057
79044	LOSTCANY	115.0	73	0.993	0.939	1052:1052
79045	LOSTCANY	230.0	73	0.993	0.936	1052:1052
79073	BLUEDOOR	115.0	73	0.990	0.935	1052:1052 1057
79074	E.CORTEZ	115.0	73	0.991	0.937	1052:1052 1057
79075	EMPIRETS	115.0	73	0.990	0.935	1052:1052 1057
79080	CASCADEL	115.0	73	0.988	0.940	1052:1052 1356
79088	ROCKWOOD	115.0	73	0.988	0.939	1356:1052 1356
79107	HOVEN NO	115.0	73	0.984	0.928	1052:1052 1057
79110	MAIN CO	115.0	73	0.984	0.928	1052:1052 1057
79111	MANCOSTP	115.0	73	0.990	0.941	1052:1052
79117	Y.JACK 2	115.0	73	0.984	0.928	1052:1052 1057
79118	Y.JACK W	115.0	73	0.983	0.927	1052:1052 1057
79120	MOQUI C	115.0	73	0.984	0.928	1052:1052 1057
79122	TOWAOC	115.0	73	0.990	0.935	1052:1052 1057
79179	GRT CUT	115.0	73	0.990	0.935	1052:1052 1057
79180	GRCUT TP	115.0	73	0.990	0.935	1052:1052 1057
79257	AMES	115.0	73	0.992	0.942	1052:1052
79194	BURROBDG	115.0	73	0.990	0.940	1052:1052
79262	CEMNT CK	115.0	73	0.985	0.929	1052:1052 1057
79256	SILVERTN	115.0	73	0.990	0.939	1052:1052
79189	SUNSH SM	115.0	73	0.992	0.943	1052:1052
79188	TELLURID	115.0	73	0.986	0.936	1052:1052
79191	COYOTE G	115.0	73	0.991	0.946	1057:1057
79260	ELPASOTP	115.0	73	0.992	0.947	1057:1057
40453	GAR2EAST	500.0	40	1.096	1.039	1116:1116
40451	GAR1EAST	500.0	40	1.096	1.039	1117:1117
70078	CAMEO	230.0	70	0.976	0.942	1186:1186
73008	ARCHER	115.0	73	1.009	0.911	1316:1316
73043	CHEYENNE	115.0	73	0.999	0.908	1316:1316
73066	GEMCTYTP	115.0	73	1.019	0.941	1316:1316
73077	HAPPYJCK	115.0	73	0.998	0.906	1316:1316
73109	LARAMIE	115.0	73	1.012	0.937	1316:1316
73128	MAY	115.0	73	1.019	0.949	1316:1316
73139	MYERS	115.0	73	1.008	0.914	1316:1316
73140	MYERS TP	115.0	73	1.008	0.915	1316:1316
73146	OASISTAP	115.0	73	1.020	0.949	1316:1316
73152	PINEBLUF	115.0	73	1.004	0.935	1316:1316
73154	POLE CK	115.0	73	1.007	0.925	1316:1316
73161	QUALLS	115.0	73	1.006	0.924	1316:1316
73172	ROCKPRTP	115.0	73	1.006	0.937	1316:1316
73173	ROUNDTOP	115.0	73	1.005	0.947	1316:1316
73178	SENTINEL	115.0	73	1.003	0.945	1316:1316
73183	SKYLINE	115.0	73	0.998	0.903	1316:1316
73187	SPRINGCK	115.0	73	1.020	0.941	1316:1316
73348	CORLETT	115.0	73	0.996	0.903	1316:1316
73375	WARRENLM	115.0	73	0.996	0.902	1316:1316
73480	CROWCRK	115.0	73	1.000	0.907	1316:1316
73504	PONNEQUI	115.0	73	1.003	0.925	1316:1316
73046	DALTON	115.0	73	1.006	0.943	1332:1332
73092	JACINTO	115.0	73	1.006	0.947	1332:1332
73179	SIDNEY	115.0	73	1.014	0.941	1332:1332
73236	GREENWOD	115.0	73	1.003	0.949	1332:1332
79023	DURANGO	115.0	73	0.987	0.944	1356:1356
79071	HESPERUS	115.0	73	0.991	0.937	1356:1356
79076	AM EAST	115.0	73	0.983	0.932	1356:1356
79078	BODO	115.0	73	0.986	0.941	1356:1356
79089	SHENDOAH	115.0	73	0.987	0.947	1356:1356
79099	FLOR.RIV	115.0	73	0.985	0.933	1356:1356
63007	HAVRE	115.0	63	0.989	0.913	1358:1358
63013	RUDYARD	115.0	63	0.997	0.940	1358:1358

MONTANA TRANSMISSION STUDY WAPA UGP JUNE 2002
G4 HS BASE CASE

FILE made from cont. file : [C:\uwk\mts\a\hsbs\cHSBS-1.out]
DATE REPORT MADE - Tue May 07 16:06:01 2002

Outage 1174 failed to converge

--------FROM bus--------					---------TO bus---------								base	pu	rating		
#	---name---	-kv-	ar	#	---name---	-kv-	ar	ID	--mw-	-mvar	amps	load	load	[MVA]	Cnt	# freq.	
73187	"SPRINGCK"	115	73	73367	"FTSANDER"	115	73	"1 "	0	13333	66939	0.00	166.67	80.00	799	1	
48125	"FOURLBPA"	115	40	48132	"HAL&WHIT"	115	40	"1 "	107	133	856	0.45	2.97	57.40	156	2	
73088	"HOYT "	115	73	73103	"L.MEADOW"	115	73	"1 "	61	3	320	0.17	1.59	40.00	722	3	
65280	"CARBON "	138	65	66395	"SPAN F&1"	138	65	"1 "	120	6	487	0.68	1.55	75.10	272	2	
66395	"SPAN F&1"	138	65	66405	"SPAN FRK"	138	65	"1 "	97	-22	486	0.67	1.55	75.00	272	2	
70005	"BRUSHCPP"	115	70	73013	"B.CK PS "	115	73	"1 "	243	42	1201	0.72	1.48	162.00	1167	1	
65145	"BENLOMND"	138	65	66650	"WARREN "	138	65	"1 "	182	30	765	0.79	1.45	126.00	228	3	
65520	"EMMAPARK"	138	65	66590	"UPALCO "	138	65	"1 "	-158	87	810	0.74	1.43	136.00	243	2	
65520	"EMMAPARK"	138	65	66183	"PANTHER "	138	65	"1 "	157	-88	808	0.72	1.42	136.00	243	2	
48025	"BEACON N"	230	40	40090	"BELL SO "	230	40	"5 "	-492	-140	1268	0.79	1.38	366.50	113	2	
65280	"CARBON "	138	65	66183	"PANTHER "	138	65	"1 "	-146	100	786	0.68	1.38	136.00	243	2	
73039	"CARTERLK"	115	73	73058	"FLATIRON"	115	73	"1 "	-108	-18	551	0.89	1.37	80.00	819	16	
73008	"ARCHER "	115	73	73043	"CHEYENNE"	115	73	"1 "	99	27	526	0.72	1.31	80.00	701	3	
66085	"NINETY S"	138	65	66660	"WEST JOR"	138	65	"1 "	200	47	848	0.48	1.30	156.10	402	2	
73305	"EFMORGTP"	115	73	73379	"FMWEST "	115	73	"1 "	101	-2	520	0.91	1.29	80.00	710	11	
66565	"TREASTON"	230	65	66570	"TREASTON"	138	65	"1 "	255	-20	256	0.52	1.29	200.00	1292	2	
70005	"BRUSHCPP"	115	70	73013	"B.CK PS "	115	73	"2 "	243	45	1205	0.67	1.28	187.00	1166	1	
48023	"BEACON N"	115	40	48371	"ROSSPARK"	115	40	"1 "	169	46	883	0.94	1.27	138.20	126	11	
66480	"SYRACUSE"	138	65	66650	"WARREN "	138	65	"1 "	-151	-1	663	0.61	1.26	126.00	228	3	
66370	"SMFLD TP"	138	65	66680	"WHEELON "	138	65	"1 "	-142	-5	627	0.41	1.24	120.90	336	3	
73020	"BEAVERCK"	115	73	73464	"ADENA "	115	73	"1 "	108	9	531	0.75	1.24	85.10	722	6	
70091	"CASTLRCK"	115	70	70518	"BAYOU "	115	70	"1 "	142	62	820	0.31	1.21	134.80	637	1	
65193	"BONANZA "	345	65	65192	"BONANZA "	138	65	"1 "	-455	120	470	0.72	1.20	392.00	1015	2	
65192	"BONANZA "	138	65	66278	"RANGELY "	138	65	"1 "	140	11	574	0.32	1.19	115.00	1251	1	
73072	"GOREPASS"	138	73	79038	"HAYDEN "	138	73	"1 "	-105	31	469	0.50	1.18	96.00	1180	1	
65560	"FISHCREK"	161	65	65670	"GOSHEN "	161	65	"1 "	-167	47	617	0.95	1.17	148.10	1154	84	
70265	"LOOKOUT "	115	70	70266	"LOOKOUT "	230	70	"1 "	-152	86	175	0.78	1.17	150.00	1307	1	
65565	"FLAMGORG"	230	65	79026	"FLAMGORG"	138	73	"1 "	-116	9	116	0.46	1.16	100.00	243	1	
65565	"FLAMGORG"	230	65	79026	"FLAMGORG"	138	73	"2 "	-116	9	116	0.46	1.16	100.00	243	1	
70265	"LOOKOUT "	115	70	70266	"LOOKOUT "	230	70	"2 "	-150	85	172	0.76	1.15	150.00	1306	1	
65560	"FISHCREK"	161	65	65690	"GRACE "	161	65	"1 "	163	-49	606	0.92	1.14	148.00	1154	24	
66500	"TAYLORSV"	138	65	66660	"WEST JOR"	138	65	"1 "	-174	-29	744	0.33	1.14	156.10	402	2	
48279	"NORTHWES"	115	40	48461	"WEST "	115	40	"1 "	-99	-27	520	0.92	1.12	92.80	1237	15	
65860	"JFRSNPHA"	161	65	65850	"JEFFERSN"	161	65	"1 "	82	-67	106	0.87	1.11	100.00	11	4	
40021	"ADDY 2 "	230	40	40017	"ADDY "	115	40	"1 "	178	34	181	0.56	1.11	163.00	106	1	
66180	"PALISADE"	230	65	66315	"ROCKSPGS"	230	65	"1 "	-468	44	1184	0.71	1.11	423.90	247	5	
73413	"MIDWAYBR"	230	73	73412	"MIDWAYBR"	115	73	"1 "	105	35	111	0.49	1.11	100.00	1001	1	
70108	"CHEROKEN"	115	70	70154	"DERBY 2 "	115	70	"1 "	149	30	744	0.76	1.10	135.00	506	3	
70071	"CABINCRK"	115	70	70072	"CABINCRK"	230	70	"2 "	53	-12	54	0.41	1.10	50.00	531	1	
40145	"BOUNDARY"	230	40	40143	"BOUNDARY"	115	40	"1 "	135	17	136	0.66	1.09	125.00	107	3	
48258	"NEWPORTT"	115	40	48043	"BLANCHRD"	115	40	"1 "	124	-4	616	0.73	1.08	113.70	125	1	
70071	"CABINCRK"	115	70	70072	"CABINCRK"	230	70	"1 "	52	-12	53	0.40	1.08	50.00	531	1	
65193	"BONANZA "	345	65	65995	"MONA "	345	65	"1 "	698	53	1168	0.95	1.07	650.00	1052	1286	
48043	"BLANCHRD"	115	40	47505	"HOODOO "	115	40	"1 "	121	-9	611	0.72	1.07	113.70	125	1	
47505	"HOODOO "	115	40	48403	"SPIRITLT"	115	40	"1 "	118	-15	603	0.71	1.07	111.90	125	1	
73075	"GREYBULL"	115	73	73123	"LOVELL "	115	73	"1 "	-101	35	583	0.55	1.07	109.00	1141	1	
48319	"PLEASANT"	115	40	48355	"RATHDRUM"	115	40	"1 "	-84	-17	456	1.03	1.06	85.80	120	1370	
65145	"BENLOMND"	138	65	66640	"W OGDEN "	138	65	"1 "	215	43	908	0.79	1.06	205.10	227	3	
70108	"CHEROKEN"	115	70	70153	"DERBY 1 "	115	70	"1 "	143	30	718	0.70	1.06	135.00	507	2	
70471	"WELD PS"	230	70	73212	"WELD LM"	230	73	"1 "	-531	7	1328	0.73	1.06	500.00	1165	3	
73020	"BEAVERCK"	115	73	73031	"BRUSHTAP"	115	73	"1 "	129	17	650	0.80	1.06	122.10	710	4	
73013	"B.CK PS "	115	73	73014	"B.CK PS "	230	73	"1 "	232	51	237	0.25	1.06	224.00	712	1	
65140	"BENLOMND"	230	65	65145	"BENLOMND"	138	65	"1 "	282	6	282	0.72	1.06	267.00	1246	2	
47027	"DIAM LAK"	115	40	40907	"SACHEEN "	115	40	"1 "	-140	15	694	0.33	1.05	131.50	125	1	
48403	"SPIRITLT"	115	40	48017	"ATHOLTAP"	115	40	"1 "	115	-20	592	0.68	1.04	113.70	125	1	
73211	"WELD LM"	115	73	73212	"WELD LM"	230	73	"1 "	-155	23	157	0.39	1.04	150.00	1163	1	
70395	"SMOKYHIL"	115	70	70396	"SMOKYHIL"	230	70	"1 "	-156	11	157	0.67	1.04	150.00	1311	1	
54189	"ENMX2SD9"	138	54	54154	"E CALGAR"	240	54	"T1"	-233	201	308	1.03	1.03	300.00	1	1370	
48258	"NEWPORTT"	115	40	47086	"PINE ST "	115	40	"1 "	-125	3	624	0.70	1.03	120.10	125	1	
65215	"BRDGR PP"	230	65	65555	"FIREHOLE"	230	65	"1 "	-432	35	1094	0.56	1.03	424.00	430	2	
73103	"L.MEADOW"	115	73	73213	"WIGGINS "	115	73	"1 "	58	1	307	0.07	1.03	59.60	722	1	
73166	"REDWILLW"	115	73	73208	"WAGES "	115	73	"1 "	52	17	282	0.50	1.03	55.00	915	1	
79013	"CRAIG "	230	73	79059	"RIFLE WA"	230	73	"1 "	337	40	836	0.58	1.03	324.00	1185	1	
46805	"CHELAN "	115	40	48149	"HEADWORK"	115	40	"1 "	-88	32	462	0.91	1.02	91.00	188	1	
66180	"PALISADE"	230	65	66266	"RAVEN "	230	65	"1 "	468	-44	1184	0.66	1.02	461.00	247	3	
65280	"CARBON "	138	65	66405	"SPAN FRK"	138	65	"2 "	199	-16	884	0.70	1.02	208.00	243	1	
65690	"GRACE "	161	65	65695	"GRACE "	138	65	"1 "	159	-58	170	0.82	1.02	168.00	1154	6	
70231	"HOPKINS "	115	70	79003	"BASALT "	115	70	"1 "	68	-12	341	0.37	1.02	66.90	1182	1	
73008	"ARCHER "	115	73	73183	"SKYLINE "	115	73	"1 "	73	28	405	0.57	1.01	80.00	818	1	
60085	"BRIDGER "	345	60	60060	"BORAH "	345	60	"1 "	915	242	1509	0.78	1.01	892.20	1150	1	
62004	"ANACOND "	230	62	62005	"ANACOND "	161	62	"2 "	190	69	202	0.58	1.01	200.00	1189	1	
62004	"ANACOND "	230	62	62005	"ANACOND "	161	62	"1 "	190	69	202	0.58	1.01	200.00	1190	1	
48131	"GARDENSP"	115	40	40525	"HAYFORD "	115	40	"1 "	55	-1	288	0.97	1.00	57.40	120	1368	
54542	"RBW LAK7"	138	54	54796	"791S701T"	138	54	"1 "	17	17	24	1.00	1.00	24.00	1	1370	
54542	"RBW LAK7"	138	54	54835	"791S702T"	138	54	"1 "	18	16	24	1.00	1.00	24.00	1	1370	
40088	"BELL MI "	230	40	40087	"BELL BPA"	115	40	"1 "	249	22	250	0.87	1.00	249.00	102	8	
73179	"SIDNEY "	115	73	73180	"SIDNEY "	230	73	"1 "	-164	-17	165	0.74	1.00	167.00	888	1	
70463	"WATERTON"	115	70	70464	"WATERTON"	230	70	"2 "	-96	-18	98	0.69	1.00	100.00	1313	1	
40087	"BELL BPA"	115	40	48449	"WAIKIKIT"	115	40	"1 "	108	29	557	0.84	0.99	111.90	112	4	
65220	"BRIDGER "	230	65	66315	"ROCKSPGS"	230	65	"1 "	428	37	1057	0.75	0.99	423.90	1150	4	
65175	"BLUE RIM"	230	65	65215	"BRDGR PP"	230	65	"1 "	-416	50	1057	0.52	0.99	423.90	430	2	
65175	"BLUE RIM"	230	65	66325	"S. TRONA"	230	65	"1 "	416	-22	1051	0.51	0.99	423.90	430	2	
73023	"BIJOUTAP"	115	73	73379	"FMWEST "	115	73	"1 "	-75	14	397	0.61	0.99	80.00	710	2	
60085	"BRIDGER "	345	60	60190	"KINPORT "	345	60	"1 "	901	238	1485	0.68	0.99	892.20	1150	1	
70463	"WATERTON"	115	70	70464	"WATERTON"	230	70	"1 "	-95	-18	97	0.68	0.99	100.00	1314	1	
54110	"RED DEE9"	138	54	54144	"RED DEE4"	240	54	"T1"	-40	-171	175	0.98	0.98	200.00	1	1370	
48017	"ATHOLTAP"	115	40	40953	"SCARCELO"	115	40	"1 "	107	-23	557	0.62	0.98	113.70	125	1	
65930	"MCCELAND"	138	65	66550	"THIRTY S"	138	65	"1 "	-207	10	854	0.59	0.98	208.00	294	1	
73031	"BRUSHTAP"	115	73	73305	"EFMORGTP"	115	73	"1 "	118	9	598	0.72	0.98	121.70	710	1	
79007	"BLUEMESA"	115	73	79020	"CURECANT"	115	73	"1 "	77	-14	392	0.51	0.98	80.00	1018	1	
65085	"ASHLEY "	138	65	79067	"VERNAL "	138	73	"1 "	-130	7	553	0.59	0.97	136.00	241	1	
66035	"NAT SM T"	138	65	66085	"NINETY S"	138	65	"1 "	-204	-16	845	0.50	0.97	208.00	375	1	
65570	"FRANKLIN"	138	65	65725	"GRCYN TP"	138	65	"1 "	133	8	550	0.58	0.97	136.00	456	1	
65725	"GRCYN TP"	138	65	65735	"GREENCYN"	138	65	"1 "	129	-2	551	0.58	0.97	136.00	456	1	

70192	"FTLUPTON"	230	70	70311	"PAWNEE "	230	70	"1 "	-384	73	1004	0.66	0.97	413.50	610	2
79007	"BLUEMESA"	115	73	79090	"SKITO "	115	73	"1 "	77	-9	389	0.49	0.97	80.00	1016	1
79067	"VERNAL "	138	73	65192	"BONANZA "	138	65	"1 "	-182	-4	770	0.26	0.96	192.00	243	1
70265	"LOOKOUT "	115	70	70224	"HOGBACK "	115	70	"1 "	185	12	930	0.65	0.96	192.00	578	1
60291	"PINGREE "	138	60	60125	"DON "	138	60	"1 "	-130	-32	567	0.26	0.96	141.00	1148	1
62054	"BROADV&1"	500	62	62046	"BROADVU "	500	62	"1 "	1732	-172	1901	0.50	0.95	1732.00	32	1
65145	"BENLOMND"	138	65	65505	"EL MONTE"	138	65	"2 "	189	55	815	0.46	0.95	205.10	224	1
65145	"BENLOMND"	138	65	65505	"EL MONTE"	138	65	"1 "	189	55	815	0.46	0.95	205.10	225	1
73009	"ARCHER "	230	73	73008	"ARCHER "	115	73	"1 "	149	37	154	0.74	0.95	167.00	857	1

	low voltage violations						delta voltage violations						high voltage violations					
CNT	freq	---name---	-kv-	ar	-base- -case- pu vt	-cont- -case- pu vt	---name---	-kv-	ar	freq	delta V	freq	---name---	-kv-	ar	-base- -case- pu vt	-cont- -case- pu vt
11	1	BIGGRASS	161	65	0.961	0.937		0	0	0	0.000	0		0	0	99.000	0.000
16	2	ENNIS MT	161	62	0.975	0.946		0	0	0	0.000	0		0	0	99.000	0.000
17	1	TAFTAUTO	115	62	0.980	0.933		0	0	0	0.000	0		0	0	99.000	0.000
25	0		0	0	99.000	99.000	SHELBY	230	62	1	0.051	0		0	0	99.000	0.000
26	5	ENNIS MT	161	62	0.975	0.945		0	0	0	0.000	0		0	0	99.000	0.000
27	5	ENNIS MT	161	62	0.975	0.945		0	0	0	0.000	0		0	0	99.000	0.000
45	2	CUTBANK	115	62	0.999	0.945	BOLE	230	62	10	0.056	0		0	0	99.000	0.000
64	2	CONRAD	115	62	1.015	0.937	CONRAD	115	62	2	0.078	0		0	0	99.000	0.000
67	11	EGALTN A	161	62	0.988	0.921	EMIGT AT	161	62	6	0.074	0		0	0	99.000	0.000
107	1	LIBTYLK	115	40	0.954	0.949		0	0	0	0.000	0		0	0	99.000	0.000
109	3	BARKER	115	40	0.954	0.947		0	0	0	0.000	0		0	0	99.000	0.000
111	1	LIBTYLK	115	40	0.954	0.949		0	0	0	0.000	0		0	0	99.000	0.000
113	2	BARKER	115	40	0.954	0.949		0	0	0	0.000	0		0	0	99.000	0.000
120	12	LIBTYLK	115	40	0.954	0.932		0	0	0	0.000	0		0	0	99.000	0.000
125	3	BARKER	115	40	0.954	0.948		0	0	0	0.000	0		0	0	99.000	0.000
136	3	LIBTYLK	115	40	0.954	0.947		0	0	0	0.000	0		0	0	99.000	0.000
172	3	BARKER	115	40	0.954	0.947		0	0	0	0.000	0		0	0	99.000	0.000
195	1	BIGGRASS	161	65	0.961	0.946		0	0	0	0.000	0		0	0	99.000	0.000
205	5	AEC IPC	138	65	0.979	0.936		0	0	0	0.000	0		0	0	99.000	0.000
228	4	W OGDEN	138	65	0.995	0.931	W OGDEN	138	65	2	0.064	0		0	0	99.000	0.000
243	15	SPAN F&1	138	65	0.968	0.880	EMMAPARK	138	65	12	0.094	0		0	0	99.000	0.000
272	1	SPAN F&1	138	65	0.968	0.857	SPAN F&1	138	65	1	0.111	0		0	0	99.000	0.000
315	3	DIMP DEL	138	65	1.011	0.940	DIMP DEL	138	65	3	0.071	0		0	0	99.000	0.000
336	6	FRANKLIN	138	65	1.016	0.928	FRANKLIN	138	65	4	0.088	0		0	0	99.000	0.000
337	2	BGEORGE	115	73	0.982	0.946		0	0	0	0.000	0		0	0	99.000	0.000
338	8	BGEORGE	115	73	0.982	0.933	FRANNIE	230	65	8	0.061	0		0	0	99.000	0.000
343	1	BGEORGE	115	73	0.982	0.949		0	0	0	0.000	0		0	0	99.000	0.000
352	1	BIGGRASS	161	65	0.961	0.940		0	0	0	0.000	0		0	0	99.000	0.000
363	1	LOGAN	138	65	0.992	0.949		0	0	0	0.000	0		0	0	99.000	0.000
433	0		0	0	99.000	99.000	ETNA	115	65	2	0.052	0		0	0	99.000	0.000
451	1	RIVRDALE	138	65	0.988	0.948		0	0	0	0.000	0		0	0	99.000	0.000
479	2	ENGLE3TP	115	70	1.002	0.941	ENGLE3TP	115	70	2	0.061	0		0	0	99.000	0.000
482	2	TOLGATE	230	70	0.953	0.948		0	0	0	0.000	0		0	0	99.000	0.000
483	1	BARRLAKE	230	70	0.966	0.948		0	0	0	0.000	0		0	0	99.000	0.000
484	2	SKYRANCH	230	70	0.963	0.948		0	0	0	0.000	0		0	0	99.000	0.000
506	0		0	0	99.000	99.000	DERBY 1	115	70	1	0.054	0		0	0	99.000	0.000
507	0		0	0	99.000	99.000	DERBY 2	115	70	1	0.057	0		0	0	99.000	0.000
524	2	MARCY	230	70	0.961	0.935		0	0	0	0.000	0		0	0	99.000	0.000
525	2	SURREYRG	230	70	0.966	0.940		0	0	0	0.000	0		0	0	99.000	0.000
526	3	JEWELL2	230	70	0.953	0.948		0	0	0	0.000	0		0	0	99.000	0.000
534	13	ELATI1	230	70	0.956	0.938		0	0	0	0.000	0		0	0	99.000	0.000
535	6	ELATI2	230	70	0.956	0.944		0	0	0	0.000	0		0	0	99.000	0.000
551	2	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0		0	0	99.000	0.000
552	3	JEWELL2	230	70	0.953	0.948		0	0	0	0.000	0		0	0	99.000	0.000
553	5	RIVERDAL	230	70	0.958	0.947		0	0	0	0.000	0		0	0	99.000	0.000
554	12	WASHINGT	230	70	0.960	0.942		0	0	0	0.000	0		0	0	99.000	0.000
559	5	GLENN PS	230	70	0.958	0.947		0	0	0	0.000	0		0	0	99.000	0.000
568	2	CLARK	230	70	0.960	0.948		0	0	0	0.000	0		0	0	99.000	0.000
570	3	SULLIVN	230	70	0.956	0.942		0	0	0	0.000	0		0	0	99.000	0.000
575	2	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0		0	0	99.000	0.000
576	2	JEWELL2	230	70	0.953	0.947		0	0	0	0.000	0		0	0	99.000	0.000
585	1	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0		0	0	99.000	0.000
592	2	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0		0	0	99.000	0.000
593	2	CHATFLD	230	70	0.963	0.944		0	0	0	0.000	0		0	0	99.000	0.000
594	1	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0		0	0	99.000	0.000
596	1	RIDGE	230	70	0.957	0.945		0	0	0	0.000	0		0	0	99.000	0.000
597	9	JEWELL2	230	70	0.953	0.947		0	0	0	0.000	0		0	0	99.000	0.000
604	8	MONROEPS	230	70	0.954	0.942		0	0	0	0.000	0		0	0	99.000	0.000
605	4	JEWELL2	230	70	0.953	0.945		0	0	0	0.000	0		0	0	99.000	0.000
609	20	JEWELL2	230	70	0.953	0.944		0	0	0	0.000	0		0	0	99.000	0.000
610	29	JEWELL2	230	70	0.953	0.943		0	0	0	0.000	0		0	0	99.000	0.000
618	25	JEWELL2	230	70	0.953	0.943		0	0	0	0.000	0		0	0	99.000	0.000
637	6	PEAKVIEW	115	70	1.003	0.877	PEAKVIEW	115	70	5	0.126	0		0	0	99.000	0.000
638	3	BUCKLEY2	230	70	0.956	0.946		0	0	0	0.000	0		0	0	99.000	0.000
647	6	JEWELL2	230	70	0.953	0.947		0	0	0	0.000	0		0	0	99.000	0.000
650	12	GUNBARRE	230	70	0.972	0.943		0	0	0	0.000	0		0	0	99.000	0.000
654	1	SULLIVN	230	70	0.956	0.949		0	0	0	0.000	0		0	0	99.000	0.000
665	3	JEWELL2	230	70	0.953	0.948		0	0	0	0.000	0		0	0	99.000	0.000
672	6	JEWELL2	230	70	0.953	0.948		0	0	0	0.000	0		0	0	99.000	0.000
676	1	MONACO	230	70	0.959	0.949		0	0	0	0.000	0		0	0	99.000	0.000
691	7	ALVIN	115	73	0.976	0.920	ALVIN	115	73	2	0.056	0		0	0	99.000	0.000
692	3	FRENCHCK	115	73	0.960	0.940		0	0	0	0.000	0		0	0	99.000	0.000
697	4	CORLETT	115	73	0.954	0.946		0	0	0	0.000	0		0	0	99.000	0.000
700	4	SKYLINE	115	73	0.959	0.925		0	0	0	0.000	0		0	0	99.000	0.000
701	5	CORLETT	115	73	0.954	0.943		0	0	0	0.000	0		0	0	99.000	0.000
703	7	CORLETT	115	73	0.954	0.936		0	0	0	0.000	0		0	0	99.000	0.000
704	4	CORLETT	115	73	0.954	0.945		0	0	0	0.000	0		0	0	99.000	0.000
710	33	CORLETT	115	73	0.954	0.914		0	0	0	0.000	0		0	0	99.000	0.000
711	2	CORLETT	115	73	0.954	0.948		0	0	0	0.000	0		0	0	99.000	0.000
722	14	BRUSHTAP	115	73	1.010	0.878	BRUSHTAP	115	73	13	0.132	0		0	0	99.000	0.000
724	7	GALIEN	115	73	0.967	0.919	MESSEX	115	73	2	0.080	0		0	0	99.000	0.000
730	9	CORLETT	115	73	0.954	0.943		0	0	0	0.000	0		0	0	99.000	0.000
731	3	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0		0	0	99.000	0.000
732	9	LIBERTY	115	73	0.983	0.908	BONNY CK	115	73	7	0.079	0		0	0	99.000	0.000
733	7	LIBERTY	115	73	0.983	0.918	HELL CK	115	73	6	0.065	0		0	0	99.000	0.000
746	10	FME	115	73	0.993	0.904	EFMORGTP	115	73	9	0.089	0		0	0	99.000	0.000
755	2	CARTERMT	115	73	0.993	0.929	CARTERMT	115	73	2	0.064	0		0	0	99.000	0.000
758	3	CORLETT	115	73	0.954	0.936		0	0	0	0.000	0		0	0	99.000	0.000
761	4	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0		0	0	99.000	0.000
762	12	COBBLAKE	115	70	0.995	0.919	COBBLAKE	115	70	4	0.076	0		0	0	99.000	0.000
764	3	DALTON	115	73	0.999	0.937	DALTON	115	73	2	0.062	0		0	0	99.000	0.000
788	2	HAXTUN	115	73	0.961	0.938		0	0	0	0.000	0		0	0	99.000	0.000
789	3	FLEMING	115	73	0.964	0.936		0	0	0	0.000	0		0	0	99.000	0.000
795	3	FRENCHCK	115	73	0.960	0.923		0	0	0	0.000	0		0	0	99.000	0.000

797	3	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0		0	0	99.000	0.000
798	3	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0		0	0	99.000	0.000
818	3	CORLETT	115	73	0.954	0.924		0	0	0	0.000	0		0	0	99.000	0.000
839	7	KIMBALL	115	73	0.983	0.939		0	0	0	0.000	0		0	0	99.000	0.000
840	11	JACINTO	115	73	0.992	0.908	JACINTO	115	73	5	0.084	0		0	0	99.000	0.000
856	1	CORLETT	115	73	0.954	0.949		0	0	0	0.000	0		0	0	99.000	0.000
857	2	CORLETT	115	73	0.954	0.948		0	0	0	0.000	0		0	0	99.000	0.000
859	2	CORLETT	115	73	0.954	0.948		0	0	0	0.000	0		0	0	99.000	0.000
860	4	LAPORTE	230	73	1.009	0.943	LAPORTE	230	73	1	0.066	0		0	0	99.000	0.000
862	3	CORLETT	115	73	0.954	0.946		0	0	0	0.000	0		0	0	99.000	0.000
863	4	LARAMIE	115	73	0.967	0.943		0	0	0	0.000	0		0	0	99.000	0.000
881	6	GALIEN	115	73	0.967	0.919	STERLING	115	73	1	0.052	0		0	0	99.000	0.000
882	4	CORLETT	115	73	0.954	0.943		0	0	0	0.000	0		0	0	99.000	0.000
884	1	CORLETT	115	73	0.954	0.948		0	0	0	0.000	0		0	0	99.000	0.000
887	6	REDWILLW	115	73	0.995	0.916	REDWILLW	115	73	1	0.079	0		0	0	99.000	0.000
889	4	FRENCHCK	115	73	0.960	0.942		0	0	0	0.000	0		0	0	99.000	0.000
890	3	FRENCHCK	115	73	0.960	0.942		0	0	0	0.000	0		0	0	99.000	0.000
892	4	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0		0	0	99.000	0.000
895	4	HAXTUN	115	73	0.961	0.943		0	0	0	0.000	0		0	0	99.000	0.000
896	5	FLEMING	115	73	0.964	0.942		0	0	0	0.000	0		0	0	99.000	0.000
901	16	RICHARDS	115	73	0.997	0.911	RICHARDS	115	73	7	0.086	0		0	0	99.000	0.000
909	4	WAGES	115	73	0.971	0.933		0	0	0	0.000	0		0	0	99.000	0.000
911	3	CORLETT	115	73	0.954	0.946		0	0	0	0.000	0		0	0	99.000	0.000
912	0		0	0	99.000	99.000	WINDRIVR	115	73	2	0.061	0		0	0	99.000	0.000
913	4	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0		0	0	99.000	0.000
915	9	SANDHILL	115	73	0.993	0.885	SANDHILL	115	73	5	0.108	0		0	0	99.000	0.000
920	2	WARRENLM	115	73	0.955	0.946		0	0	0	0.000	0		0	0	99.000	0.000
926	1	TORRNGTN	115	73	0.989	0.944		0	0	0	0.000	0		0	0	99.000	0.000
929	8	GALIEN	115	73	0.967	0.871	GALIEN	115	73	4	0.096	0		0	0	99.000	0.000
945	4	VERNONLM	115	73	0.979	0.944	WRAY TAP	115	73	2	0.057	0		0	0	99.000	0.000
954	4	FMS	115	73	0.992	0.937	FMS	115	73	3	0.055	0		0	0	99.000	0.000
1015	1	PAGOSA	115	73	0.964	0.947		0	0	0	0.000	0		0	0	99.000	0.000
1033	1	PAGOSA	115	73	0.964	0.939		0	0	0	0.000	0		0	0	99.000	0.000
1046	0		0	0	99.000	99.000	TOWAOC	115	73	1	0.051	0		0	0	99.000	0.000
1052	1	PAGOSA	115	73	0.964	0.944		0	0	0	0.000	0		0	0	99.000	0.000
1057	1	PAGOSA	115	73	0.964	0.947		0	0	0	0.000	0		0	0	99.000	0.000
1058	1	PAGOSA	115	73	0.964	0.946		0	0	0	0.000	0		0	0	99.000	0.000
1060	4	PAGOSA	115	73	0.964	0.923	FLOR.RIV	115	73	2	0.060	0		0	0	99.000	0.000
1064	1	PAGOSA	115	73	0.964	0.943		0	0	0	0.000	0		0	0	99.000	0.000
1116	2	ENNIS MT	161	62	0.975	0.948		0	0	0	0.000	0		0	0	99.000	0.000
1117	2	ENNIS MT	161	62	0.975	0.948		0	0	0	0.000	0		0	0	99.000	0.000
1119	1	BIGGRASS	161	65	0.961	0.940		0	0	0	0.000	0		0	0	99.000	0.000
1141	7	BGEORGE	115	73	0.982	0.903	GREYBULL	115	73	9	0.080	0		0	0	99.000	0.000
1145	1	PAGOSA	115	73	0.964	0.947		0	0	0	0.000	0		0	0	99.000	0.000
1148	0		0	0	99.000	99.000	BLACKFT	161	60	1	0.053	0		0	0	99.000	0.000
1150	5	BIGGRASS	161	65	0.961	0.921		0	0	0	0.000	0		0	0	99.000	0.000
1170	3	CORLETT	115	73	0.954	0.946		0	0	0	0.000	0		0	0	99.000	0.000
1172	2	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0		0	0	99.000	0.000
1236	12	BARKER	115	40	0.954	0.933		0	0	0	0.000	0		0	0	99.000	0.000
1251	1	SPAN F&1	138	65	0.968	0.931		0	0	0	0.000	0		0	0	99.000	0.000
1282	1	PLATTE	115	65	1.010	0.932	PLATTE	115	65	1	0.078	0		0	0	99.000	0.000
1316	33	CORLETT	115	73	0.954	0.778	ARCHER	115	73	33	0.182	0		0	0	99.000	0.000
1327	3	CORLETT	115	73	0.954	0.946		0	0	0	0.000	0		0	0	99.000	0.000
1331	9	WAGES	115	73	0.971	0.936	N.YUMA	115	73	2	0.057	0		0	0	99.000	0.000
1332	24	DALTON	115	73	0.999	0.911	SIDNEY	115	73	10	0.099	0		0	0	99.000	0.000
1338	2	CORLETT	115	73	0.954	0.948		0	0	0	0.000	0		0	0	99.000	0.000
1341	8	BRIARGAT	115	73	0.990	0.911	CTTNWD N	115	73	5	0.080	0		0	0	99.000	0.000
1356	16	PAGOSA	115	73	0.964	0.870	HESPERUS	115	73	18	0.096	0		0	0	99.000	0.000
1359	2	HAMLTNMA	161	62	0.989	0.943		0	0	0	0.000	0		0	0	99.000	0.000
1362	0		0	0	99.000	99.000	RIVERTON	115	73	3	0.062	0		0	0	99.000	0.000
1369	5	CLIFTON	230	70	0.972	0.920	GRANDJCT	230	70	3	0.055	0		0	0	99.000	0.000

BUSES with voltage violations

bus no	---name---	--kv-	area	-base- -case- pu vt	BASE CASE VOLT VIOLATION	lowest -cont- -case- pu vt	cont with lowest pu vt	contingencies with voltage violations
48069	CHESTER	115.0	40	0.945	***	0.923	120:	all
48165	IRVIN	115.0	40	0.949	***	0.927	120:	all
48310	OPORTUNE	115.0	40	0.949	***	0.928	120:	all
48299	OPPORTUN	115.0	40	0.947	***	0.925	120:	all
48306	OTIS	230.0	40	0.938	***	0.917	120:	all
70249	LAJUNTAW	115.0	70	0.929	***	0.926	609:	all
65155	BIGGRASS	161.0	65	0.961		0.921	1150:	11 195 352 1119 1150
62065	ENNIS MT	161.0	62	0.975		0.934	67:	16 26 27 67 1116 1117
62158	SHERDNMT	161.0	62	0.973		0.940	67:	16 26 27 67 1116 1117 1150
62006	TAFTAUTO	115.0	62	0.980		0.933	17:	17
62064	BRADLEYC	161.0	62	0.978		0.932	67:	26 27 67
62084	DILLON S	161.0	62	0.970		0.940	1150:	26 27 67 1150
62256	JACKRABT	161.0	62	0.982		0.921	67:	26 27 67
62031	CUTBANK	115.0	62	0.999		0.945	45:	45
62034	BOLE	230.0	62	1.019		0.963	45:	45
62088	CTBPUMP	115.0	62	0.999		0.945	45:	45
62087	CONRAD	115.0	62	1.015		0.937	64:	64
62178	VAL-WILL	115.0	62	1.010		0.941	64:	64
62076	TRIDENT	161.0	62	0.985		0.945	67:	67
62108	CLYDE P	161.0	62	1.000		0.927	67:	67
62249	EGALTN A	161.0	62	0.988		0.921	67:	67
62250	BGTMBERA	161.0	62	0.995		0.937	67:	67
62257	EMIGT AT	161.0	62	1.004		0.930	67:	67
62258	EGALTN B	161.0	62	0.988		0.921	67:	67
48185	LIBTYLK	115.0	40	0.954		0.932	120:	107 109 111 113 120 125 136 172 1236
48021	BARKER	115.0	40	0.954		0.933	120:	109 113 120 125 136 172 1236
48311	OTIS	115.0	40	0.955		0.934	120:	109 120 125 136 172 1236
40215	CHENEY	115.0	40	0.973		0.948	120:	120 1236
47033	DOWER RD	115.0	40	0.959		0.938	120:	120 1236
48111	DOWERRDT	115.0	40	0.959		0.938	120:	120 1236
48117	EASTFARM	115.0	40	0.956		0.935	120:	120 1236
47511	MOAB	115.0	40	0.958		0.937	120:	120 1236
48319	PLEASANT	115.0	40	0.966		0.945	120:	120 1236
48329	POST FLS	115.0	40	0.959		0.938	120:	120 1236
40855	PRAIRIEB	115.0	40	0.966		0.945	120:	120 1236
48387	SILVRLAK	115.0	40	0.973		0.948	120:	120 1236
65010	AEC IPC	138.0	65	0.979		0.936	205:	205
65015	AEC SCOV	138.0	65	0.979		0.937	205:	205
65065	ANTLOP 1	138.0	65	0.979		0.937	205:	205
65070	ANTLOP 2	138.0	65	0.979		0.937	205:	205
65080	ANTLOPE	161.0	65	0.981		0.939	205:	205

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65040   ANGEL     138.0   65  0.986          0.947   228:228
65340   CLINTON   138.0   65  0.990          0.943   228:228
66310   RIVRDALE  138.0   65  0.988          0.933   228:228 451
66640   W OGDEN   138.0   65  0.995          0.931   228:228
65280   CARBON    138.0   65  1.030          0.944   243:243
65457   DG UPLCO  138.0   65  1.007          0.940   243:243
65520   EMMAPARK  138.0   65  1.025          0.931   243:243
65755   HELPER    138.0   65  1.028          0.942   243:243
65760   HELPER T  138.0   65  1.030          0.946   243:243
66015   MOUND SW  138.0   65  1.033          0.974   243:243
66183   PANTHER   138.0   65  1.029          0.942   243:243
66395   SPAN F&1  138.0   65  0.968          0.857   272:243 272 1251
66415   SPHINX T  138.0   65  1.035          0.976   243:243
66590   UPALCO    138.0   65  1.007          0.940   243:243
66707   WILLOW C  138.0   65  1.029          0.942   243:243
70113   CLIFTON   230.0   70  0.972          0.920  1369:243 1369
70205   GRANDJCT  230.0   70  0.975          0.920  1369:243 1369
70206   GRANDJPS  230.0   70  0.971          0.920  1369:243 1369
70233   HORIZON   230.0   70  0.971          0.923  1369:243 1369
70438   UINTAH    230.0   70  0.976          0.933  1369:243 1369
79086   PAGOSA    115.0   73  0.964          0.870  1356:243 1015 1033 1052 1057 1058 1060 1064 1145 1356
65454   DIMP DEL  138.0   65  1.011          0.940   315:315
65475   DUMAS     138.0   65  1.012          0.941   315:315
66391   SOUTH MT  138.0   65  1.009          0.946   315:315
65570   FRANKLIN  138.0   65  1.016          0.928   336:336
65725   GRCYN TP  138.0   65  0.999          0.934   336:336
65735   GREENCYN  138.0   65  0.992          0.936   336:336
65900   LOGAN     138.0   65  0.992          0.935   336:336 363
66370   SMFLD TP  138.0   65  0.991          0.947   336:336
66375   SMITHFLD  138.0   65  0.991          0.947   336:336
73022   BGEORGE   115.0   73  0.982          0.903  1141:337 338 343 1141
73534   MEETSETP  115.0   73  0.988          0.912  1141:337 338 755 1141
65575   FRANNIE   230.0   65  1.001          0.940   338:338
65620   GARLAND   230.0   65  0.999          0.941   338:338
66145   OREBASIN  230.0   65  0.996          0.946   338:338
73041   CARTERMT  115.0   73  0.993          0.925  1141:338 755 1141
73075   GREYBULL  115.0   73  0.999          0.919  1141:338 1141
73340   NAHNEJEN  115.0   73  0.997          0.917  1141:338 1141
70165   ENGLE3TP  115.0   70  1.002          0.941   479:479
70168   ENGLEWD3  115.0   70  1.002          0.941   479:479
70239   JEWELL2   230.0   70  0.953          0.939   534:482 526 534 535 551 552 553 554 559 575 576 585 592 594 597
                                                          604 605 609 610 618 638 647 650 665 672 710 1172 1341
70491   TOLGATE   230.0   70  0.953          0.941   534:482 526 534 535 551 552 553 554 559 575 576 592 597 604 605
                                                          609 610 618 638 647 650 665 672 710 1172
70047   BARRLAKE  230.0   70  0.966          0.948   483:483
70392   SKYRANCH  230.0   70  0.963          0.948   484:484
70432   TOWER     230.0   70  0.960          0.949   484:484 609 610 618
70154   DERBY 2   115.0   70  1.015          0.958   507:507
70278   MARCY     230.0   70  0.961          0.935   524:524 610
70464   WATERTON  230.0   70  0.959          0.939   524:524 593 610 618
70284   SURREYRG  230.0   70  0.966          0.940   525:525
70551   MURPHY    230.0   70  0.963          0.948   525:525
70260   LEETSDAL  230.0   70  0.954          0.939   534:526 534 535 553 554 559 597 604 605 609 610 618 647 650 665
                                                          672 710
70046   BUCKLEY2  230.0   70  0.956          0.944   534:534 535 554 604 605 609 610 618 638 647 650 710
70067   BUCKLEY1  230.0   70  0.958          0.947   609:534 609 610 618 710
70163   ELATI1    230.0   70  0.956          0.938   534:534 554 597 609 610 618 650 672
70170   ELATI2    230.0   70  0.956          0.938   534:534 535 554 597 609 610 618 650 672
70530   MONACO    230.0   70  0.959          0.947   534:534 609 610 618 676
70283   MEADOWHL  230.0   70  0.959          0.947   610:534 609 610 618
70291   MONROEPS  230.0   70  0.954          0.939   534:534 535 553 554 559 597 604 609 610 618 647 650 672 710
70417   SULLIVN   230.0   70  0.956          0.942   570:534 570 604 609 610 618 647 654 710
70428   TECH CTR  230.0   70  0.957          0.942   570:534 570 604 609 610 618 710
70512   JEWELL1   230.0   70  0.957          0.945   570:534 570 604 609 610 618 710
73348   CORLETT   115.0   73  0.954          0.778  1316:552 609 610 618 697 700 701 703 704 710 711 730 731 758 761
                                                          762 797 798 818 839 840 856 857 859 860 862 863 882 884 892
                                                          901 911 913 920 1170 1316 1327 1332 1338
70362   RIVERDAL  230.0   70  0.958          0.947   553:553 610 618
70107   CHEROKEE  230.0   70  0.956          0.947   610:554 609 610 618 650
70149   DENVTM    230.0   70  0.957          0.947   610:554 597 609 610 618
70200   GLENN PS  230.0   70  0.958          0.943   554:554 559 610 618
70324   LACOMBE   230.0   70  0.956          0.947   610:554 597 609 610 618 650
70461   WASHINGT  230.0   70  0.960          0.942   554:554
70112   CLARK     230.0   70  0.960          0.948   568:568 610 618
70241   JORDAN    230.0   70  0.960          0.948   568:568 610 618
70100   CHATFLD   230.0   70  0.963          0.944   593:593
70355   RIDGE     230.0   70  0.957          0.945   596:596 610 618
70480   WESTPS    230.0   70  0.967          0.947   597:597
70343   QUINCY    230.0   70  0.961          0.947   609:609 610
70396   SMOKYHIL  230.0   70  0.960          0.949   609:609 610
70212   GREENWD   230.0   70  0.961          0.949   610:610
73375   WARRENLM  115.0   73  0.955          0.778  1316:610 618 697 700 701 703 704 710 711 730 731 758 761 762 797
                                                          798 818 839 840 857 859 860 862 863 882 892 901 911 913 920
                                                          1170 1316 1327 1332 1338
70091   CASTLRCK  115.0   70  0.993          0.946   637:637
70515   DAVIDSON  115.0   70  0.997          0.878   637:637
70516   PONDERSA  115.0   70  0.992          0.882   637:637
70517   PARKERPS  115.0   70  0.989          0.890   637:637
70518   BAYOU     115.0   70  0.988          0.909   637:637
70521   PEAKVIEW  115.0   70  1.003          0.877   637:637
70213   GUNBARRE  230.0   70  0.972          0.943   650:650
70261   LEGGETT   230.0   70  0.970          0.945   650:650
70297   NIWOT     230.0   70  0.972          0.943   650:650
73005   ALVIN     115.0   73  0.976          0.893   915:691 915 929
73059   FLEMING   115.0   73  0.964          0.878   929:691 724 789 795 881 887 895 896 915 929 1332
73063   FRENCHCK  115.0   73  0.960          0.900   929:691 692 710 724 732 733 788 789 795 881 887 889 890 895 896
                                                          909 915 929 1331 1332
73080   HAXTUN    115.0   73  0.961          0.885   929:691 692 710 724 732 788 789 795 881 887 889 890 895 896 909
                                                          915 929 1331 1332
73208   WAGES     115.0   73  0.971          0.923   887:691 887 889 909 915 929 1331
73210   WAUNETA   115.0   73  0.968          0.905   915:691 692 724 881 887 889 890 909 915 929 1331 1332
73304   CRETESWT  115.0   73  0.976          0.893   915:691 915 929
73043   CHEYENNE  115.0   73  0.960          0.788  1316:697 701 703 710 730 761 762 840 892 901 913 1316 1332
73077   HAPPYJCK  115.0   73  0.957          0.783  1316:697 700 701 703 704 710 730 731 758 761 762 797 798 840 860
                                                          862 863 882 892 901 911 913 1170 1316 1327 1332
73183   SKYLINE   115.0   73  0.959          0.780  1316:700 703 704 710 730 762 818 840 882 901 1316 1332
73480   CROWCRK   115.0   73  0.962          0.787  1316:701 703 710 762 901 1316 1332
73109   LARAMIE   115.0   73  0.967          0.819  1316:703 710 863 901 1316
73008   ARCHER    115.0   73  0.976          0.794  1316:710 1316
73066   GEMCTYTP  115.0   73  0.973          0.817  1316:710 1316
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73128	MAY	115.0	73	0.975	0.835	1316:710 1316
73139	MYERS	115.0	73	0.976	0.802	1316:710 1316
73140	MYERS TP	115.0	73	0.976	0.802	1316:710 1316
73146	OASISTAP	115.0	73	0.976	0.836	1316:710 1316
73152	PINEBLUF	115.0	73	0.977	0.846	1316:710 839 840 1316 1332
73154	POLE CK	115.0	73	0.977	0.823	1316:710 1316
73161	QUALLS	115.0	73	0.976	0.821	1316:710 1316
73172	ROCKPRTP	115.0	73	0.971	0.840	1316:710 730 762 901 1316
73173	ROUNDTOP	115.0	73	0.981	0.871	1316:710 1316
73178	SENTINEL	115.0	73	0.979	0.868	1316:710 1316
73187	SPRINGCK	115.0	73	0.973	0.817	1316:710 1316
73367	FTSANDER	115.0	73	0.973	0.817	1316:710 1316
73504	PONNEQUI	115.0	73	0.966	0.819	1316:710 730 762 901 1316
73023	BIJOUTAP	115.0	73	0.991	0.898	722:722 746 954
73031	BRUSHTAP	115.0	73	1.010	0.878	722:722
73097	KIOWA CK	115.0	73	0.991	0.920	722:722 746
73103	L.MEADOW	115.0	73	0.992	0.943	722:722
73117	LOST CK	115.0	73	0.999	0.949	722:722
73147	ORCHARD	115.0	73	0.991	0.920	722:722 746
73213	WIGGINS	115.0	73	0.991	0.930	722:722 746
73305	EFMORGTP	115.0	73	0.994	0.882	722:722 746
73310	FME	115.0	73	0.993	0.881	722:722 746
73311	FMS	115.0	73	0.992	0.883	722:722 746 954
73370	LOSTCKTP	115.0	73	0.999	0.949	722:722
73377	EXCEL	115.0	73	0.992	0.883	722:722 746 954
73378	FMN	115.0	73	0.994	0.882	722:722 746
73379	FMWEST	115.0	73	0.992	0.883	722:722 746 954
73136	MESSEX	115.0	73	1.001	0.921	724:724
73191	STERLING	115.0	73	0.974	0.921	724:724 881 896 1332
73478	GALIEN	115.0	73	0.967	0.871	929:724 881 895 896 915 929 1332
73024	BLKHLWTP	115.0	73	0.992	0.914	901:730 762 901 1316
73145	NUNN	115.0	73	0.981	0.889	1316:730 762 901 1316
73025	BONNY CK	115.0	73	1.005	0.926	732:732
73083	HELL CK	115.0	73	0.986	0.911	732:732 733
73084	HELL TAP	115.0	73	0.986	0.911	732:732 733
73091	IDALIA	115.0	73	0.998	0.939	732:732 733
73110	LIBERTY	115.0	73	0.983	0.908	732:732 733
73174	SAGEBRSH	115.0	73	0.984	0.909	732:732 733
73185	SO. FORK	115.0	73	1.000	0.927	732:732 733
70116	COBBLAKE	115.0	70	0.995	0.912	901:762 901
73044	COBBLKTP	115.0	73	0.995	0.912	901:762 901
73029	BRIDGEPT	115.0	73	0.992	0.926	1332:764 1332
73046	DALTON	115.0	73	0.999	0.911	1332:764 1332
73236	GREENWOD	115.0	73	0.994	0.918	1332:764 1332
73037	BUSHNELL	115.0	73	0.981	0.878	1316:839 840 1316 1332
73038	BUSHNLTP	115.0	73	0.981	0.878	1316:839 840 1316 1332
73096	KIMBALL	115.0	73	0.983	0.895	1316:839 840 1316 1332
73355	KIMBALLC	115.0	73	0.983	0.895	1316:839 840 1316 1332
73092	JACINTO	115.0	73	0.992	0.908	840:840 1316 1332
73106	LAPORTE	230.0	73	1.009	0.943	860:860
73166	REDWILLW	115.0	73	0.995	0.916	887:887 1331
73169	RICHARDS	115.0	73	0.997	0.911	901:901
73200	TIMNATH	115.0	73	0.996	0.913	901:901
73201	TIMNTHTP	115.0	73	0.996	0.912	901:901
73216	WINDRIVR	115.0	73	1.019	0.958	912:912 1362
73217	WINDRIVT	115.0	73	1.019	0.958	912:912 1362
73175	SANDHILL	115.0	73	0.993	0.885	915:915
73202	TORRNGTN	115.0	73	0.989	0.944	926:926
73225	WRAY TAP	115.0	73	1.003	0.946	945:945
73331	WRAYWAPA	115.0	73	1.003	0.946	945:945
73371	BETHELLM	115.0	73	0.984	0.949	945:945
73374	VERNONLM	115.0	73	0.979	0.944	945:945 1331
79076	AM EAST	115.0	73	0.988	0.894	1356:1060 1356
79077	BAYFIELD	115.0	73	0.987	0.897	1356:1060 1356
79099	FLOR.RIV	115.0	73	0.990	0.895	1356:1060 1356
66720	WORLAND	115.0	65	1.017	0.958	1141:1141
73019	BASIN	115.0	73	1.010	0.935	1141:1141
73123	LOVELL	115.0	73	0.999	0.929	1141:1141
73222	WORLANTP	115.0	73	1.015	0.953	1141:1141
62030	PTRSNFLT	230.0	62	0.970	0.949	1150:1150
65860	JFRSNPHA	161.0	65	0.979	0.944	1150:1150
66245	PLATTE	115.0	65	1.010	0.932	1282:1282
73104	LAGRANGE	115.0	73	0.991	0.925	1316:1316
73134	MED BOW	115.0	73	0.988	0.893	1316:1316
73361	MEDBOWHS	115.0	73	0.988	0.893	1316:1316
73362	MEDBOWTP	115.0	73	0.988	0.893	1316:1316
73047	DEERINGL	115.0	73	0.991	0.946	1331:1331
73142	N.YUMA	115.0	73	1.000	0.943	1331:1331
73230	YUMA	115.0	73	0.989	0.944	1331:1331
73131	MCGREW	115.0	73	0.992	0.946	1332:1332
73150	PEETZ	115.0	73	0.994	0.920	1332:1332
73179	SIDNEY	115.0	73	1.010	0.911	1332:1332
70308	PALMER	115.0	70	0.989	0.948	1341:1341
70476	WOODLAND	115.0	70	0.991	0.948	1341:1341
73389	BRIARGAT	115.0	73	0.990	0.911	1341:1341
73391	CTTNWD N	115.0	73	0.991	0.911	1341:1341
73400	EMIL AND	115.0	73	0.987	0.937	1341:1341
73410	KETTLECK	115.0	73	0.989	0.912	1341:1341
73414	MONUMENT	115.0	73	0.987	0.935	1341:1341
79023	DURANGO	115.0	73	0.997	0.916	1356:1356
79071	HESPERUS	115.0	73	1.003	0.907	1356:1356
79078	BODO	115.0	73	0.996	0.913	1356:1356
79080	CASCADEL	115.0	73	0.997	0.920	1356:1356
79088	ROCKWOOD	115.0	73	0.998	0.914	1356:1356
79089	SHENDOAH	115.0	73	0.999	0.925	1356:1356
79111	MANCOSTP	115.0	73	1.007	0.951	1356:1356
79191	COYOTE G	115.0	73	1.001	0.949	1356:1356
79257	AMES	115.0	73	0.999	0.943	1356:1356
79194	BURROBDG	115.0	73	0.999	0.936	1356:1356
79256	SILVERTN	115.0	73	0.998	0.932	1356:1356
79189	SUNSH SM	115.0	73	0.999	0.945	1356:1356
79188	TELLURID	115.0	73	0.990	0.935	1356:1356
62311	HAMLTNMA	161.0	62	0.989	0.943	1359:1359
62312	HAMLTNMB	161.0	62	0.989	0.943	1359:1359
73170	RIVERTON	115.0	73	1.022	0.960	1362:1362

MONTANA TRANSMISSION STUDY WAPA UGP JUNE 2002
G4 HS BASE CASE

FILE made from cont. file : [C:\uwk\mts\a\hsbs\cHSBS-2.out]
DATE REPORT MADE - Tue May 07 16:06:20 2002

Outage 1174 failed to converge

--------FROM bus--------				--------TO bus--------								base	pu	rating	
#	---name---	-kv-	ar	#	---name---	-kv-	ar	ID	--mw-	-mvar	amps	load	load	[MVA]	Cnt # freq.
48125	"FOURLBPA"	115	40	48132	"HAL&WHIT"	115	40	"1 "	107	133	856	0.45	2.97	57.40	156 2
70005	"BRUSHCPP"	115	70	73013	"B.CK PS "	115	73	"1 "	243	42	1201	0.72	1.48	162.00	1167 1
48025	"BEACON N"	230	40	40090	"BELL SO "	230	40	"5 "	-492	-140	1268	0.79	1.38	366.50	113 2
66565	"TREASTON"	230	65	66570	"TREASTON"	138	65	"1 "	255	-20	256	0.52	1.29	200.00	1292 2
70005	"BRUSHCPP"	115	70	73013	"B.CK PS "	115	73	"2 "	243	45	1205	0.67	1.28	187.00	1166 1
48023	"BEACON N"	115	40	48371	"ROSSPARK"	115	40	"1 "	169	46	883	0.94	1.27	138.20	126 11
65145	"BENLOMND"	138	65	66650	"WARREN "	138	65	"1 "	182	30	765	0.66	1.21	151.00	228 3
70091	"CASTLRCK"	115	70	70518	"BAYOU "	115	70	"1 "	142	62	820	0.31	1.21	134.80	637 1
65520	"EMMAPARK"	138	65	66590	"UPALCO "	138	65	"1 "	-158	87	810	0.61	1.20	163.00	243 2
65193	"BONANZA "	345	65	65192	"BONANZA "	138	65	"1 "	-455	120	470	0.72	1.20	392.00	1015 2
65520	"EMMAPARK"	138	65	66183	"PANTHER "	138	65	"1 "	157	-88	808	0.60	1.19	163.00	243 1
70265	"LOOKOUT "	115	70	70266	"LOOKOUT "	230	70	"1 "	-152	86	175	0.78	1.17	150.00	1307 1
65280	"CARBON "	138	65	66183	"PANTHER "	138	65	"1 "	-146	100	786	0.57	1.15	163.00	243 1
70265	"LOOKOUT "	115	70	70266	"LOOKOUT "	230	70	"2 "	-150	85	172	0.76	1.15	150.00	1306 1
48279	"NORTHWES"	115	40	48461	"WEST "	115	40	"1 "	-99	-27	520	0.92	1.12	92.80	1237 15
65860	"JFRSNPHA"	161	65	65850	"JEFFERSN"	161	65	"1 "	82	-67	106	0.87	1.11	100.00	11 4
70108	"CHEROKEN"	115	70	70154	"DERBY 2 "	115	70	"1 "	149	30	744	0.76	1.10	135.00	506 3
70071	"CABINCRK"	115	70	70072	"CABINCRK"	230	70	"2 "	53	-12	54	0.41	1.10	50.00	531 1
40145	"BOUNDARY"	230	40	40143	"BOUNDARY"	115	40	"1 "	135	17	136	0.66	1.09	125.00	107 3
48258	"NEWPORTT"	115	40	48043	"BLANCHRD"	115	40	"1 "	124	-4	616	0.73	1.08	113.70	125 1
66085	"NINETY S"	138	65	66660	"WEST JOR"	138	65	"1 "	200	47	848	0.40	1.08	188.00	402 2
70071	"CABINCRK"	115	70	70072	"CABINCRK"	230	70	"1 "	52	-12	53	0.40	1.08	50.00	531 1
48043	"BLANCHRD"	115	40	47505	"HOODOO "	115	40	"1 "	121	-9	611	0.72	1.07	113.70	125 1
47505	"HOODOO "	115	40	48403	"SPIRITLT"	115	40	"1 "	118	-15	603	0.71	1.07	111.90	125 1
48319	"PLEASANT"	115	40	48355	"RATHDRUM"	115	40	"1 "	-84	-17	456	1.03	1.06	85.80	120 1370
70108	"CHEROKEN"	115	70	70153	"DERBY 1 "	115	70	"1 "	143	30	718	0.70	1.06	135.00	507 2
70471	"WELD PS"	230	70	73212	"WELD LM"	230	73	"1 "	-531	7	1328	0.73	1.06	500.00	1165 3
65140	"BENLOMND"	230	65	65145	"BENLOMND"	138	65	"1 "	282	6	282	0.72	1.06	267.00	1246 2
47027	"DIAM LAK"	115	40	40907	"SACHEEN "	115	40	"1 "	-140	15	694	0.33	1.05	131.50	125 1
66480	"SYRACUSE"	138	65	66650	"WARREN "	138	65	"1 "	-151	-1	663	0.51	1.05	151.00	228 2
48403	"SPIRITLT"	115	40	48017	"ATHOLTAP"	115	40	"1 "	115	-20	592	0.68	1.04	113.70	125 1
70395	"SMOKYHIL"	115	70	70396	"SMOKYHIL"	230	70	"1 "	-156	11	157	0.67	1.04	150.00	1311 1
54189	"ENMX2SD9"	138	54	54154	"E CALGAR"	240	54	"T1"	-233	201	308	1.03	1.03	300.00	1 1370
48258	"NEWPORTT"	115	40	47086	"PINE ST "	115	40	"1 "	-125	3	624	0.70	1.03	120.10	125 1
65280	"CARBON "	138	65	66395	"SPAN F&1"	138	65	"1 "	120	6	487	0.45	1.03	113.00	272 1
66395	"SPAN F&1"	138	65	66405	"SPAN FRK"	138	65	"1 "	97	-22	486	0.45	1.03	113.00	272 1
66370	"SMFLD TP"	138	65	66680	"WHEELON "	138	65	"1 "	-142	-5	627	0.34	1.03	146.00	336 1
46805	"CHELAN "	115	40	48149	"HEADWORK"	115	40	"1 "	-88	32	462	0.91	1.02	91.00	188 1
65690	"GRACE "	161	65	65695	"GRACE "	138	65	"1 "	159	-58	170	0.82	1.02	168.00	1154 6
70231	"HOPKINS "	115	70	79003	"BASALT "	115	70	"1 "	68	-12	341	0.37	1.02	66.90	1182 1
48131	"GARDENSP"	115	40	40525	"HAYFORD "	115	40	"1 "	55	-1	288	0.97	1.00	57.40	120 1368
54542	"RBW LAK7"	138	54	54796	"791S701T"	138	54	"1 "	17	17	24	1.00	1.00	24.00	1 1370
54542	"RBW LAK7"	138	54	54835	"791S702T"	138	54	"1 "	18	16	24	1.00	1.00	24.00	1 1370
70463	"WATERTON"	115	70	70464	"WATERTON"	230	70	"2 "	-96	-18	98	0.69	1.00	100.00	1313 1
40087	"BELL BPA"	115	40	48449	"WAIKIKIT"	115	40	"1 "	108	29	557	0.84	0.99	111.90	112 4
70463	"WATERTON"	115	70	70464	"WATERTON"	230	70	"1 "	-95	-18	97	0.68	0.99	100.00	1314 1
54110	"RED DEE9"	138	54	54144	"RED DEE4"	240	54	"T1"	-40	-171	175	0.98	0.98	200.00	1 1370
48017	"ATHOLTAP"	115	40	40953	"SCARCELO"	115	40	"1 "	107	-23	557	0.62	0.98	113.70	125 1
65560	"FISHCREK"	161	65	65670	"GOSHEN "	161	65	"1 "	-167	47	617	0.80	0.98	176.00	1154 3
70192	"FTLUPTON"	230	70	70311	"PAWNEE "	230	70	"1 "	-384	73	1004	0.66	0.97	413.50	610 2
70265	"LOOKOUT "	115	70	70224	"HOGBACK "	115	70	"1 "	185	12	930	0.65	0.96	192.00	578 1
65560	"FISHCREK"	161	65	65690	"GRACE "	161	65	"1 "	163	-49	606	0.77	0.96	176.00	1154 1

low voltage violations								delta voltage violations						high voltage violations					
					-base-	-cont-											-base-	-cont-	
					-case-	-case-						delta					-case-	-case-	
CNT	freq	---name---	-kv-	ar	pu vt	pu vt	---name---	-kv-	ar	freq	V	freq	---name---	-kv-	ar	pu vt	pu vt
11	1	BIGGRASS	161	65	0.961	0.937		0	0	0	0.000	0		0	0	99.000	0.000
16	2	ENNIS MT	161	62	0.975	0.946		0	0	0	0.000	0		0	0	99.000	0.000
17	1	TAFTAUTO	115	62	0.980	0.933		0	0	0	0.000	0		0	0	99.000	0.000
25	0		0	0	99.000	99.000	SHELBY	230	62	1	0.051	0		0	0	99.000	0.000
26	5	ENNIS MT	161	62	0.975	0.945		0	0	0	0.000	0		0	0	99.000	0.000
27	5	ENNIS MT	161	62	0.975	0.945		0	0	0	0.000	0		0	0	99.000	0.000
45	2	CUTBANK	115	62	0.999	0.945	BOLE	230	62	10	0.056	0		0	0	99.000	0.000
64	2	CONRAD	115	62	1.015	0.937	CONRAD	115	62	2	0.078	0		0	0	99.000	0.000
67	11	EGALTN A	161	62	0.988	0.921	EMIGT AT	161	62	6	0.074	0		0	0	99.000	0.000
107	1	LIBTYLK	115	40	0.954	0.949		0	0	0	0.000	0		0	0	99.000	0.000
109	3	BARKER	115	40	0.954	0.947		0	0	0	0.000	0		0	0	99.000	0.000
111	1	LIBTYLK	115	40	0.954	0.949		0	0	0	0.000	0		0	0	99.000	0.000
113	2	BARKER	115	40	0.954	0.949		0	0	0	0.000	0		0	0	99.000	0.000
120	12	LIBTYLK	115	40	0.954	0.932		0	0	0	0.000	0		0	0	99.000	0.000
125	3	BARKER	115	40	0.954	0.948		0	0	0	0.000	0		0	0	99.000	0.000
136	3	LIBTYLK	115	40	0.954	0.947		0	0	0	0.000	0		0	0	99.000	0.000
172	3	BARKER	115	40	0.954	0.947		0	0	0	0.000	0		0	0	99.000	0.000
195	1	BIGGRASS	161	65	0.961	0.946		0	0	0	0.000	0		0	0	99.000	0.000
205	5	AEC IPC	138	65	0.979	0.936		0	0	0	0.000	0		0	0	99.000	0.000
228	4	W OGDEN	138	65	0.995	0.931	W OGDEN	138	65	2	0.064	0		0	0	99.000	0.000
243	15	SPAN F&1	138	65	0.968	0.880	EMMAPARK	138	65	12	0.094	0		0	0	99.000	0.000
272	1	SPAN F&1	138	65	0.968	0.857	SPAN F&1	138	65	1	0.111	0		0	0	99.000	0.000
315	3	DIMP DEL	138	65	1.011	0.940	DIMP DEL	138	65	3	0.071	0		0	0	99.000	0.000
336	6	FRANKLIN	138	65	1.016	0.928	FRANKLIN	138	65	4	0.088	0		0	0	99.000	0.000
337	2	BGEORGE	115	73	0.982	0.946		0	0	0	0.000	0		0	0	99.000	0.000
338	8	BGEORGE	115	73	0.982	0.933	FRANNIE	230	65	8	0.061	0		0	0	99.000	0.000
343	1	BGEORGE	115	73	0.982	0.949		0	0	0	0.000	0		0	0	99.000	0.000
352	1	BIGGRASS	161	65	0.961	0.940		0	0	0	0.000	0		0	0	99.000	0.000
363	1	LOGAN	138	65	0.992	0.949		0	0	0	0.000	0		0	0	99.000	0.000
433	0		0	0	99.000	99.000	ETNA	115	65	2	0.052	0		0	0	99.000	0.000
451	1	RIVRDALE	138	65	0.988	0.948		0	0	0	0.000	0		0	0	99.000	0.000
479	2	ENGLE3TP	115	70	1.002	0.941	ENGLE3TP	115	70	2	0.061	0		0	0	99.000	0.000
482	2	TOLGATE	230	70	0.953	0.948		0	0	0	0.000	0		0	0	99.000	0.000
483	1	BARRLAKE	230	70	0.966	0.948		0	0	0	0.000	0		0	0	99.000	0.000
484	2	SKYRANCH	230	70	0.963	0.948		0	0	0	0.000	0		0	0	99.000	0.000

506	0		0	0	99.000	99.000	DERBY 1	115	70	1	0.054	0	0	0	99.000	0.000
507	0		0	0	99.000	99.000	DERBY 2	115	70	1	0.057	0	0	0	99.000	0.000
524	2	MARCY	230	70	0.961	0.935		0	0	0	0.000	0	0	0	99.000	0.000
525	2	SURREYRG	230	70	0.966	0.940		0	0	0	0.000	0	0	0	99.000	0.000
526	3	JEWELL2	230	70	0.953	0.948		0	0	0	0.000	0	0	0	99.000	0.000
534	13	ELATI1	230	70	0.956	0.938		0	0	0	0.000	0	0	0	99.000	0.000
535	6	ELATI2	230	70	0.956	0.944		0	0	0	0.000	0	0	0	99.000	0.000
551	2	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0	0	0	99.000	0.000
552	3	JEWELL2	230	70	0.953	0.948		0	0	0	0.000	0	0	0	99.000	0.000
553	5	RIVERDAL	230	70	0.958	0.947		0	0	0	0.000	0	0	0	99.000	0.000
554	12	WASHINGT	230	70	0.960	0.942		0	0	0	0.000	0	0	0	99.000	0.000
559	5	GLENN PS	230	70	0.958	0.947		0	0	0	0.000	0	0	0	99.000	0.000
568	2	CLARK	230	70	0.960	0.948		0	0	0	0.000	0	0	0	99.000	0.000
570	3	SULLIVN	230	70	0.956	0.942		0	0	0	0.000	0	0	0	99.000	0.000
575	2	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0	0	0	99.000	0.000
576	2	JEWELL2	230	70	0.953	0.947		0	0	0	0.000	0	0	0	99.000	0.000
585	1	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0	0	0	99.000	0.000
592	2	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0	0	0	99.000	0.000
593	2	CHATFLD	230	70	0.963	0.944		0	0	0	0.000	0	0	0	99.000	0.000
594	1	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0	0	0	99.000	0.000
596	1	RIDGE	230	70	0.957	0.945		0	0	0	0.000	0	0	0	99.000	0.000
597	9	JEWELL2	230	70	0.953	0.947		0	0	0	0.000	0	0	0	99.000	0.000
604	8	MONROEPS	230	70	0.954	0.942		0	0	0	0.000	0	0	0	99.000	0.000
605	4	JEWELL2	230	70	0.953	0.945		0	0	0	0.000	0	0	0	99.000	0.000
609	20	JEWELL2	230	70	0.953	0.944		0	0	0	0.000	0	0	0	99.000	0.000
610	29	JEWELL2	230	70	0.953	0.943		0	0	0	0.000	0	0	0	99.000	0.000
618	25	JEWELL2	230	70	0.953	0.943		0	0	0	0.000	0	0	0	99.000	0.000
637	6	PEAKVIEW	115	70	1.003	0.877	PEAKVIEW	115	70	5	0.126	0	0	0	99.000	0.000
638	3	BUCKLEY2	230	70	0.956	0.946		0	0	0	0.000	0	0	0	99.000	0.000
647	6	JEWELL2	230	70	0.953	0.947		0	0	0	0.000	0	0	0	99.000	0.000
650	12	GUNBARRE	230	70	0.972	0.943		0	0	0	0.000	0	0	0	99.000	0.000
654	1	SULLIVN	230	70	0.956	0.949		0	0	0	0.000	0	0	0	99.000	0.000
665	3	JEWELL2	230	70	0.953	0.948		0	0	0	0.000	0	0	0	99.000	0.000
672	6	JEWELL2	230	70	0.953	0.948		0	0	0	0.000	0	0	0	99.000	0.000
676	1	MONACO	230	70	0.959	0.949		0	0	0	0.000	0	0	0	99.000	0.000
691	7	ALVIN	115	73	0.976	0.920	ALVIN	115	73	2	0.056	0	0	0	99.000	0.000
692	3	FRENCHCK	115	73	0.960	0.940		0	0	0	0.000	0	0	0	99.000	0.000
697	4	CORLETT	115	73	0.954	0.946		0	0	0	0.000	0	0	0	99.000	0.000
700	4	SKYLINE	115	73	0.959	0.925		0	0	0	0.000	0	0	0	99.000	0.000
701	5	CORLETT	115	73	0.954	0.943		0	0	0	0.000	0	0	0	99.000	0.000
703	7	CORLETT	115	73	0.954	0.936		0	0	0	0.000	0	0	0	99.000	0.000
704	4	CORLETT	115	73	0.954	0.945		0	0	0	0.000	0	0	0	99.000	0.000
710	33	CORLETT	115	73	0.954	0.914		0	0	0	0.000	0	0	0	99.000	0.000
711	2	CORLETT	115	73	0.954	0.948		0	0	0	0.000	0	0	0	99.000	0.000
722	14	BRUSHTAP	115	73	1.010	0.878	BRUSHTAP	115	73	13	0.132	0	0	0	99.000	0.000
724	7	GALIEN	115	73	0.967	0.919	MESSEX	115	73	2	0.080	0	0	0	99.000	0.000
730	9	CORLETT	115	73	0.954	0.943		0	0	0	0.000	0	0	0	99.000	0.000
731	3	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0	0	0	99.000	0.000
732	9	LIBERTY	115	73	0.983	0.908	BONNY CK	115	73	7	0.079	0	0	0	99.000	0.000
733	7	LIBERTY	115	73	0.983	0.918	HELL CK	115	73	6	0.065	0	0	0	99.000	0.000
746	10	FME	115	73	0.993	0.904	EFMORGTP	115	73	9	0.089	0	0	0	99.000	0.000
755	2	CARTERMT	115	73	0.993	0.929	CARTERMT	115	73	2	0.064	0	0	0	99.000	0.000
758	3	CORLETT	115	73	0.954	0.936		0	0	0	0.000	0	0	0	99.000	0.000
761	4	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0	0	0	99.000	0.000
762	12	COBBLAKE	115	70	0.995	0.919	COBBLAKE	115	70	4	0.076	0	0	0	99.000	0.000
764	3	DALTON	115	73	0.999	0.937	DALTON	115	73	2	0.062	0	0	0	99.000	0.000
788	2	HAXTUN	115	73	0.961	0.938		0	0	0	0.000	0	0	0	99.000	0.000
789	3	FLEMING	115	73	0.964	0.936		0	0	0	0.000	0	0	0	99.000	0.000
795	3	FRENCHCK	115	73	0.960	0.923		0	0	0	0.000	0	0	0	99.000	0.000
797	3	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0	0	0	99.000	0.000
798	3	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0	0	0	99.000	0.000
818	3	CORLETT	115	73	0.954	0.924		0	0	0	0.000	0	0	0	99.000	0.000
839	7	KIMBALL	115	73	0.983	0.939		0	0	0	0.000	0	0	0	99.000	0.000
840	11	JACINTO	115	73	0.992	0.908	JACINTO	115	73	5	0.084	0	0	0	99.000	0.000
856	1	CORLETT	115	73	0.954	0.949		0	0	0	0.000	0	0	0	99.000	0.000
857	2	CORLETT	115	73	0.954	0.948		0	0	0	0.000	0	0	0	99.000	0.000
859	2	CORLETT	115	73	0.954	0.948		0	0	0	0.000	0	0	0	99.000	0.000
860	4	LAPORTE	230	73	1.009	0.943	LAPORTE	230	73	1	0.066	0	0	0	99.000	0.000
862	3	CORLETT	115	73	0.954	0.946		0	0	0	0.000	0	0	0	99.000	0.000
863	4	LARAMIE	115	73	0.967	0.943		0	0	0	0.000	0	0	0	99.000	0.000
881	6	GALIEN	115	73	0.967	0.919	STERLING	115	73	1	0.052	0	0	0	99.000	0.000
882	4	CORLETT	115	73	0.954	0.943		0	0	0	0.000	0	0	0	99.000	0.000
884	1	CORLETT	115	73	0.954	0.948		0	0	0	0.000	0	0	0	99.000	0.000
887	6	REDWILLW	115	73	0.995	0.916	REDWILLW	115	73	1	0.079	0	0	0	99.000	0.000
889	4	FRENCHCK	115	73	0.960	0.942		0	0	0	0.000	0	0	0	99.000	0.000
890	3	FRENCHCK	115	73	0.960	0.942		0	0	0	0.000	0	0	0	99.000	0.000
892	4	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0	0	0	99.000	0.000
895	4	HAXTUN	115	73	0.961	0.943		0	0	0	0.000	0	0	0	99.000	0.000
896	5	FLEMING	115	73	0.964	0.942		0	0	0	0.000	0	0	0	99.000	0.000
901	16	RICHARDS	115	73	0.997	0.911	RICHARDS	115	73	7	0.086	0	0	0	99.000	0.000
909	4	WAGES	115	73	0.971	0.933		0	0	0	0.000	0	0	0	99.000	0.000
911	3	CORLETT	115	73	0.954	0.946		0	0	0	0.000	0	0	0	99.000	0.000
912	0		0	0	99.000	99.000	WINDRIVR	115	73	2	0.061	0	0	0	99.000	0.000
913	4	CORLETT	115	73	0.954	0.944		0	0	0	0.000	0	0	0	99.000	0.000
915	9	SANDHILL	115	73	0.993	0.885	SANDHILL	115	73	5	0.108	0	0	0	99.000	0.000
920	2	WARRENLM	115	73	0.955	0.946		0	0	0	0.000	0	0	0	99.000	0.000
926	1	TORRNGTN	115	73	0.989	0.944		0	0	0	0.000	0	0	0	99.000	0.000
929	8	GALIEN	115	73	0.967	0.871	GALIEN	115	73	4	0.096	0	0	0	99.000	0.000
945	4	VERNONLM	115	73	0.979	0.944	WRAY TAP	115	73	2	0.057	0	0	0	99.000	0.000
954	4	FMS	115	73	0.992	0.937	FMS	115	73	3	0.055	0	0	0	99.000	0.000
1015	1	PAGOSA	115	73	0.964	0.947		0	0	0	0.000	0	0	0	99.000	0.000
1033	1	PAGOSA	115	73	0.964	0.939		0	0	0	0.000	0	0	0	99.000	0.000
1046	0		0	0	99.000	99.000	TOWAOC	115	73	1	0.051	0	0	0	99.000	0.000
1052	1	PAGOSA	115	73	0.964	0.944		0	0	0	0.000	0	0	0	99.000	0.000
1057	1	PAGOSA	115	73	0.964	0.947		0	0	0	0.000	0	0	0	99.000	0.000
1058	1	PAGOSA	115	73	0.964	0.946		0	0	0	0.000	0	0	0	99.000	0.000
1060	4	PAGOSA	115	73	0.964	0.923	FLOR.RIV	115	73	2	0.060	0	0	0	99.000	0.000
1064	1	PAGOSA	115	73	0.964	0.943		0	0	0	0.000	0	0	0	99.000	0.000
1116	2	ENNIS MT	161	62	0.975	0.948		0	0	0	0.000	0	0	0	99.000	0.000
1117	2	ENNIS MT	161	62	0.975	0.948		0	0	0	0.000	0	0	0	99.000	0.000
1119	1	BIGGRASS	161	65	0.961	0.940		0	0	0	0.000	0	0	0	99.000	0.000
1141	7	BGEORGE	115	73	0.982	0.903	GREYBULL	115	73	9	0.080	0	0	0	99.000	0.000
1145	1	PAGOSA	115	73	0.964	0.947		0	0	0	0.000	0	0	0	99.000	0.000
1148	0		0	0	99.000	99.000	BLACKFT	161	60	1	0.053	0	0	0	99.000	0.000
1150	5	BIGGRASS	161	65	0.961	0.921		0	0	0	0.000	0	0	0	99.000	0.000
1170	3	CORLETT	115	73	0.954	0.946		0	0	0	0.000	0	0	0	99.000	0.000
1172	2	JEWELL2	230	70	0.953	0.949		0	0	0	0.000	0	0	0	99.000	0.000
1236	12	BARKER	115	40	0.954	0.933		0	0	0	0.000	0	0	0	99.000	0.000
1251	1	SPAN F&1	138	65	0.968	0.931		0	0	0	0.000	0	0	0	99.000	0.000
1282	1	PLATTE	115	65	1.010	0.932	PLATTE	115	65	1	0.078	0	0	0	99.000	0.000

1316	33	CORLETT	115	73	0.954	0.778	ARCHER	115	73	33	0.182	0	0	0	99.000	0.000
1327	3	CORLETT	115	73	0.954	0.946		0	0	0	0.000	0	0	0	99.000	0.000
1331	9	WAGES	115	73	0.971	0.936	N.YUMA	115	73	2	0.057	0	0	0	99.000	0.000
1332	24	DALTON	115	73	0.999	0.911	SIDNEY	115	73	10	0.099	0	0	0	99.000	0.000
1338	2	CORLETT	115	73	0.954	0.948		0	0	0	0.000	0	0	0	99.000	0.000
1341	8	BRIARGAT	115	73	0.990	0.911	CTTNWD N	115	73	5	0.080	0	0	0	99.000	0.000
1356	16	PAGOSA	115	73	0.964	0.870	HESPERUS	115	73	18	0.096	0	0	0	99.000	0.000
1359	2	HAMLTNMA	161	62	0.989	0.943		0	0	0	0.000	0	0	0	99.000	0.000
1362	0		0	0	99.000	99.000	RIVERTON	115	73	3	0.062	0	0	0	99.000	0.000
1369	5	CLIFTON	230	70	0.972	0.920	GRANDJCT	230	70	3	0.055	0	0	0	99.000	0.000

BUSES with voltage violations

bus no	---name---	--kv-	area	-base- -case- pu vt	BASE CASE VOLT VIOLATION	lowest -cont- -case- pu vt	cont with lowest pu vt	contingencies with voltage violations
48069	CHESTER	115.0	40	0.945	***	0.923	120:	all
48165	IRVIN	115.0	40	0.949	***	0.927	120:	all
48310	OPORTUNE	115.0	40	0.949	***	0.928	120:	all
48299	OPPORTUN	115.0	40	0.947	***	0.925	120:	all
48306	OTIS	230.0	40	0.938	***	0.917	120:	all
70249	LAJUNTAW	115.0	70	0.929	***	0.926	609:	all
65155	BIGGRASS	161.0	65	0.961		0.921	1150:	11 195 352 1119 1150
62065	ENNIS MT	161.0	62	0.975		0.934	67:	16 26 27 67 1116 1117
62158	SHERDNMT	161.0	62	0.973		0.940	67:	16 26 27 67 1116 1117 1150
62006	TAFTAUTO	115.0	62	0.980		0.933	17:	17
62064	BRADLEYC	161.0	62	0.978		0.932	67:	26 27 67
62084	DILLON S	161.0	62	0.970		0.940	1150:	26 27 67 1150
62256	JACKRABT	161.0	62	0.982		0.921	67:	26 27 67
62031	CUTBANK	115.0	62	0.999		0.945	45:	45
62034	BOLE	230.0	62	1.019		0.963	45:	45
62088	CTBPUMP	115.0	62	0.999		0.945	45:	45
62087	CONRAD	115.0	62	1.015		0.937	64:	64
62178	VAL-WILL	115.0	62	1.010		0.941	64:	64
62076	TRIDENT	161.0	62	0.985		0.945	67:	67
62108	CLYDE P	161.0	62	1.000		0.927	67:	67
62249	EGALTN A	161.0	62	0.988		0.921	67:	67
62250	BGTMBERA	161.0	62	0.995		0.937	67:	67
62257	EMIGT AT	161.0	62	1.004		0.930	67:	67
62258	EGALTN B	161.0	62	0.988		0.921	67:	67
48185	LIBTYLK	115.0	40	0.954		0.932	120:	107 109 111 113 120 125 136 172 1236
48021	BARKER	115.0	40	0.954		0.933	120:	109 113 120 125 136 172 1236
48311	OTIS	115.0	40	0.955		0.934	120:	109 120 125 136 172 1236
40215	CHENEY	115.0	40	0.973		0.948	120:	120 1236
47033	DOWER RD	115.0	40	0.959		0.938	120:	120 1236
48111	DOWERRDT	115.0	40	0.959		0.938	120:	120 1236
48117	EASTFARM	115.0	40	0.956		0.935	120:	120 1236
47511	MOAB	115.0	40	0.958		0.937	120:	120 1236
48319	PLEASANT	115.0	40	0.966		0.945	120:	120 1236
48329	POST FLS	115.0	40	0.959		0.938	120:	120 1236
40855	PRAIRIEB	115.0	40	0.966		0.945	120:	120 1236
48387	SILVRLAK	115.0	40	0.973		0.948	120:	120 1236
65010	AEC IPC	138.0	65	0.979		0.936	205:	205
65015	AEC SCOV	138.0	65	0.979		0.937	205:	205
65065	ANTLOP 1	138.0	65	0.979		0.937	205:	205
65070	ANTLOP 2	138.0	65	0.979		0.937	205:	205
65080	ANTLOPE	161.0	65	0.981		0.939	205:	205
65040	ANGEL	138.0	65	0.986		0.947	228:	228
65340	CLINTON	138.0	65	0.990		0.943	228:	228
66310	RIVRDALE	138.0	65	0.988		0.933	228:	228 451
66640	W OGDEN	138.0	65	0.995		0.931	228:	228
65280	CARBON	138.0	65	1.030		0.944	243:	243
65457	DG UPLCO	138.0	65	1.007		0.940	243:	243
65520	EMMAPARK	138.0	65	1.025		0.931	243:	243
65755	HELPER	138.0	65	1.028		0.942	243:	243
65760	HELPER T	138.0	65	1.030		0.946	243:	243
66015	MOUND SW	138.0	65	1.033		0.974	243:	243
66183	PANTHER	138.0	65	1.029		0.942	243:	243
66395	SPAN F&1	138.0	65	0.968		0.857	272:	243 272 1251
66415	SPHINX T	138.0	65	1.035		0.976	243:	243
66590	UPALCO	138.0	65	1.007		0.940	243:	243
66707	WILLOW C	138.0	65	1.029		0.942	243:	243
70113	CLIFTON	230.0	70	0.972		0.920	1369:	243 1369
70205	GRANDJCT	230.0	70	0.975		0.920	1369:	243 1369
70206	GRANDJPS	230.0	70	0.971		0.920	1369:	243 1369
70233	HORIZON	230.0	70	0.971		0.923	1369:	243 1369
70438	UINTAH	230.0	70	0.976		0.933	1369:	243 1369
79086	PAGOSA	115.0	73	0.964		0.870	1356:	243 1015 1033 1052 1057 1058 1060 1064 1145 1356
65454	DIMP DEL	138.0	65	1.011		0.940	315:	315
65475	DUMAS	138.0	65	1.012		0.941	315:	315
66391	SOUTH MT	138.0	65	1.009		0.946	315:	315
65570	FRANKLIN	138.0	65	1.016		0.928	336:	336
65725	GRCYN TP	138.0	65	0.999		0.934	336:	336
65735	GREENCYN	138.0	65	0.992		0.936	336:	336
65900	LOGAN	138.0	65	0.992		0.935	336:	336 363
66370	SMFLD TP	138.0	65	0.991		0.947	336:	336
66375	SMITHFLD	138.0	65	0.991		0.947	336:	336
73022	BGEORGE	115.0	73	0.982		0.903	1141:	337 338 343 1141
73534	MEETSETP	115.0	73	0.988		0.912	1141:	337 338 755 1141
65575	FRANNIE	230.0	65	1.001		0.940	338:	338
65620	GARLAND	230.0	65	0.999		0.941	338:	338
66145	OREBASIN	230.0	65	0.996		0.946	338:	338
73041	CARTERMT	115.0	73	0.993		0.925	1141:	338 755 1141
73075	GREYBULL	115.0	73	0.999		0.919	1141:	338 1141
73340	NAHNEJEN	115.0	73	0.997		0.917	1141:	338 1141
70165	ENGLE3TP	115.0	70	1.002		0.941	479:	479
70168	ENGLEWD3	115.0	70	1.002		0.941	479:	479
70239	JEWELL2	230.0	70	0.953		0.939	534:	482 526 534 535 551 552 553 554 559 575 576 585 592 594 597 604 605 609 610 618 638 647 650 665 672 710 1172 1341
70491	TOLGATE	230.0	70	0.953		0.941	534:	482 526 534 535 551 552 553 554 559 575 576 592 597 604 605 609 610 618 638 647 650 665 672 710 1172
70047	BARRLAKE	230.0	70	0.966		0.948	483:	483
70392	SKYRANCH	230.0	70	0.963		0.948	484:	484
70432	TOWER	230.0	70	0.960		0.949	484:	484 609 610 618
70154	DERBY 2	115.0	70	1.015		0.958	507:	507
70278	MARCY	230.0	70	0.961		0.935	524:	524 610
70464	WATERTON	230.0	70	0.959		0.939	524:	524 593 610 618
70284	SURREYRG	230.0	70	0.966		0.940	525:	525

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70551   MURPHY    230.0   70  0.963          0.948   525:525
70260   LEETSDAL  230.0   70  0.954          0.939   534:526 534 535 553 554 559 597 604 605 609 610 618 647 650 665
                                                          672 710
70046   BUCKLEY2  230.0   70  0.956          0.944   534:534 535 554 604 605 609 610 618 638 647 650 710
70067   BUCKLEY1  230.0   70  0.958          0.947   609:534 609 610 618 710
70163   ELATI1    230.0   70  0.956          0.938   534:534 554 597 609 610 618 650 672
70170   ELATI2    230.0   70  0.956          0.938   534:534 535 554 597 609 610 618 650 672
70530   MONACO    230.0   70  0.959          0.947   534:534 609 610 618 676
70283   MEADOWHL  230.0   70  0.959          0.947   610:534 609 610 618
70291   MONROEPS  230.0   70  0.954          0.939   534:534 535 553 554 559 597 604 609 610 618 647 650 672 710
70417   SULLIVN   230.0   70  0.956          0.942   570:534 570 604 609 610 618 647 654 710
70428   TECH CTR  230.0   70  0.957          0.942   570:534 570 604 609 610 618 710
70512   JEWELL1   230.0   70  0.957          0.945   570:534 570 604 609 610 618 710
73348   CORLETT   115.0   73  0.954          0.778  1316:552 609 610 618 697 700 701 703 704 710 711 730 731 758 761
                                                          762 797 798 818 839 840 856 857 859 860 862 863 882 884 892
                                                          901 911 913 920 1170 1316 1327 1332 1338
70362   RIVERDAL  230.0   70  0.958          0.947   553:553 610 618
70107   CHEROKEE  230.0   70  0.956          0.947   610:554 609 610 618 650
70149   DENVTM    230.0   70  0.957          0.947   610:554 597 609 610 618
70200   GLENN PS  230.0   70  0.958          0.943   554:554 559 610 618
70324   LACOMBE   230.0   70  0.956          0.947   610:554 597 609 610 618 650
70461   WASHINGT  230.0   70  0.960          0.942   554:554
70112   CLARK     230.0   70  0.960          0.948   568:568 610 618
70241   JORDAN    230.0   70  0.960          0.948   568:568 610 618
70100   CHATFLD   230.0   70  0.963          0.944   593:593
70355   RIDGE     230.0   70  0.957          0.945   596:596 610 618
70480   WESTPS    230.0   70  0.967          0.947   597:597
70343   QUINCY    230.0   70  0.961          0.947   609:609 610
70396   SMOKYHIL  230.0   70  0.960          0.949   609:609 610
70212   GREENWD   230.0   70  0.961          0.949   610:610
73375   WARRENLM  115.0   73  0.955          0.778  1316:610 618 697 700 701 703 704 710 711 730 731 758 761 762 797
                                                          798 818 839 840 857 859 860 862 863 882 892 901 911 913 920
                                                          1170 1316 1327 1332 1338
70091   CASTLRCK  115.0   70  0.993          0.946   637:637
70515   DAVIDSON  115.0   70  0.997          0.878   637:637
70516   PONDERSA  115.0   70  0.992          0.882   637:637
70517   PARKERPS  115.0   70  0.989          0.890   637:637
70518   BAYOU     115.0   70  0.988          0.909   637:637
70521   PEAKVIEW  115.0   70  1.003          0.877   637:637
70213   GUNBARRE  230.0   70  0.972          0.943   650:650
70261   LEGGETT   230.0   70  0.970          0.945   650:650
70297   NIWOT     230.0   70  0.972          0.943   650:650
73005   ALVIN     115.0   73  0.976          0.893   915:691 915 929
73059   FLEMING   115.0   73  0.964          0.878   929:691 724 789 795 881 887 895 896 915 929 1332
73063   FRENCHCK  115.0   73  0.960          0.900   929:691 692 710 724 732 733 788 789 795 881 887 889 890 895 896
                                                          909 915 929 1331 1332
73080   HAXTUN    115.0   73  0.961          0.885   929:691 692 710 724 732 788 789 795 881 887 889 890 895 896 909
                                                          915 929 1331 1332
73208   WAGES     115.0   73  0.971          0.923   887:691 887 889 909 915 929 1331
73210   WAUNETA   115.0   73  0.968          0.905   915:691 692 724 881 887 889 890 909 915 929 1331 1332
73304   CRETESWT  115.0   73  0.976          0.893   915:691 915 929
73043   CHEYENNE  115.0   73  0.960          0.788  1316:697 701 703 710 730 761 762 840 892 901 913 1316 1332
73077   HAPPYJCK  115.0   73  0.957          0.783  1316:697 700 701 703 704 710 730 731 758 761 762 797 798 840 860
                                                          862 863 882 892 901 911 913 1170 1316 1327 1332
73183   SKYLINE   115.0   73  0.959          0.780  1316:700 703 704 710 730 762 818 840 882 901 1316 1332
73480   CROWCRK   115.0   73  0.962          0.787  1316:701 703 710 762 901 1316 1332
73109   LARAMIE   115.0   73  0.967          0.819  1316:703 710 863 901 1316
73008   ARCHER    115.0   73  0.976          0.794  1316:710 1316
73066   GEMCTYTP  115.0   73  0.973          0.817  1316:710 1316
73128   MAY       115.0   73  0.975          0.835  1316:710 1316
73139   MYERS     115.0   73  0.976          0.802  1316:710 1316
73140   MYERS TP  115.0   73  0.976          0.802  1316:710 1316
73146   OASISTAP  115.0   73  0.976          0.836  1316:710 1316
73152   PINEBLUF  115.0   73  0.977          0.846  1316:710 839 840 1316 1332
73154   POLE CK   115.0   73  0.977          0.823  1316:710 1316
73161   QUALLS    115.0   73  0.976          0.821  1316:710 1316
73172   ROCKPRTP  115.0   73  0.971          0.840  1316:710 730 762 901 1316
73173   ROUNDTOP  115.0   73  0.981          0.871  1316:710 1316
73178   SENTINEL  115.0   73  0.979          0.868  1316:710 1316
73187   SPRINGCK  115.0   73  0.973          0.817  1316:710 1316
73367   FTSANDER  115.0   73  0.973          0.817  1316:710 1316
73504   PONNEQUI  115.0   73  0.966          0.819  1316:710 730 762 901 1316
73023   BIJOUTAP  115.0   73  0.991          0.898   722:722 746 954
73031   BRUSHTAP  115.0   73  1.010          0.878   722:722
73097   KIOWA CK  115.0   73  0.991          0.920   722:722 746
73103   L.MEADOW  115.0   73  0.992          0.943   722:722
73117   LOST CK   115.0   73  0.999          0.949   722:722
73147   ORCHARD   115.0   73  0.991          0.920   722:722 746
73213   WIGGINS   115.0   73  0.991          0.930   722:722 746
73305   EFMORGTP  115.0   73  0.994          0.882   722:722 746
73310   FME       115.0   73  0.993          0.881   722:722 746
73311   FMS       115.0   73  0.992          0.883   722:722 746 954
73370   LOSTCKTP  115.0   73  0.999          0.949   722:722
73377   EXCEL     115.0   73  0.992          0.883   722:722 746 954
73378   FMN       115.0   73  0.994          0.882   722:722 746
73379   FMWEST    115.0   73  0.992          0.883   722:722 746 954
73136   MESSEX    115.0   73  1.001          0.921   724:724
73191   STERLING  115.0   73  0.974          0.921   724:724 881 896 1332
73478   GALIEN    115.0   73  0.967          0.871   929:724 881 895 896 915 929 1332
73024   BLKHLWTP  115.0   73  0.992          0.914   901:730 762 901 1316
73145   NUNN      115.0   73  0.981          0.889  1316:730 762 901 1316
73025   BONNY CK  115.0   73  1.005          0.926   732:732
73083   HELL CK   115.0   73  0.986          0.911   732:732 733
73084   HELL TAP  115.0   73  0.986          0.911   732:732 733
73091   IDALIA    115.0   73  0.998          0.939   732:732 733
73110   LIBERTY   115.0   73  0.983          0.908   732:732 733
73174   SAGEBRSH  115.0   73  0.984          0.909   732:732 733
73185   SO. FORK  115.0   73  1.000          0.927   732:732 733
70116   COBBLAKE  115.0   70  0.995          0.912   901:762 901
73044   COBBLKTP  115.0   73  0.995          0.912   901:762 901
73029   BRIDGEPT  115.0   73  0.992          0.926  1332:764 1332
73046   DALTON    115.0   73  0.999          0.911  1332:764 1332
73236   GREENWOD  115.0   73  0.994          0.918  1332:764 1332
73037   BUSHNELL  115.0   73  0.981          0.878  1316:839 840 1316 1332
73038   BUSHNLTP  115.0   73  0.981          0.878  1316:839 840 1316 1332
73096   KIMBALL   115.0   73  0.983          0.895  1316:839 840 1316 1332
73355   KIMBALLC  115.0   73  0.983          0.895  1316:839 840 1316 1332
73092   JACINTO   115.0   73  0.992          0.908   840:840 1316 1332
73106   LAPORTE   230.0   73  1.009          0.943   860:860
73166   REDWILLW  115.0   73  0.995          0.916   887:887 1331
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73169	RICHARDS	115.0	73	0.997	0.911	901:901
73200	TIMNATH	115.0	73	0.996	0.913	901:901
73201	TIMNTHTP	115.0	73	0.996	0.912	901:901
73216	WINDRIVR	115.0	73	1.019	0.958	912:912 1362
73217	WINDRIVT	115.0	73	1.019	0.958	912:912 1362
73175	SANDHILL	115.0	73	0.993	0.885	915:915
73202	TORRNGTN	115.0	73	0.989	0.944	926:926
73225	WRAY TAP	115.0	73	1.003	0.946	945:945
73331	WRAYWAPA	115.0	73	1.003	0.946	945:945
73371	BETHELLM	115.0	73	0.984	0.949	945:945
73374	VERNONLM	115.0	73	0.979	0.944	945:945 1331
79076	AM EAST	115.0	73	0.988	0.894	1356:1060 1356
79077	BAYFIELD	115.0	73	0.987	0.897	1356:1060 1356
79099	FLOR.RIV	115.0	73	0.990	0.895	1356:1060 1356
66720	WORLAND	115.0	65	1.017	0.958	1141:1141
73019	BASIN	115.0	73	1.010	0.935	1141:1141
73123	LOVELL	115.0	73	0.999	0.929	1141:1141
73222	WORLANTP	115.0	73	1.015	0.953	1141:1141
62030	PTRSNFLT	230.0	62	0.970	0.949	1150:1150
65860	JFRSNPHA	161.0	65	0.979	0.944	1150:1150
66245	PLATTE	115.0	65	1.010	0.932	1282:1282
73104	LAGRANGE	115.0	73	0.991	0.925	1316:1316
73134	MED BOW	115.0	73	0.988	0.893	1316:1316
73361	MEDBOWHS	115.0	73	0.988	0.893	1316:1316
73362	MEDBOWTP	115.0	73	0.988	0.893	1316:1316
73047	DEERINGL	115.0	73	0.991	0.946	1331:1331
73142	N.YUMA	115.0	73	1.000	0.943	1331:1331
73230	YUMA	115.0	73	0.989	0.944	1331:1331
73131	MCGREW	115.0	73	0.992	0.946	1332:1332
73150	PEETZ	115.0	73	0.994	0.920	1332:1332
73179	SIDNEY	115.0	73	1.010	0.911	1332:1332
70308	PALMER	115.0	70	0.989	0.948	1341:1341
70476	WOODLAND	115.0	70	0.991	0.948	1341:1341
73389	BRIARGAT	115.0	73	0.990	0.911	1341:1341
73391	CTTNWD N	115.0	73	0.991	0.911	1341:1341
73400	EMIL AND	115.0	73	0.987	0.937	1341:1341
73410	KETTLECK	115.0	73	0.989	0.912	1341:1341
73414	MONUMENT	115.0	73	0.987	0.935	1341:1341
79023	DURANGO	115.0	73	0.997	0.916	1356:1356
79071	HESPERUS	115.0	73	1.003	0.907	1356:1356
79078	BODO	115.0	73	0.996	0.913	1356:1356
79080	CASCADEL	115.0	73	0.997	0.920	1356:1356
79088	ROCKWOOD	115.0	73	0.998	0.914	1356:1356
79089	SHENDOAH	115.0	73	0.999	0.925	1356:1356
79111	MANCOSTP	115.0	73	1.007	0.951	1356:1356
79191	COYOTE G	115.0	73	1.001	0.949	1356:1356
79257	AMES	115.0	73	0.999	0.943	1356:1356
79194	BURROBDG	115.0	73	0.999	0.936	1356:1356
79256	SILVERTN	115.0	73	0.998	0.932	1356:1356
79189	SUNSH SM	115.0	73	0.999	0.945	1356:1356
79188	TELLURID	115.0	73	0.990	0.935	1356:1356
62311	HAMLTNMA	161.0	62	0.989	0.943	1359:1359
62312	HAMLTNMB	161.0	62	0.989	0.943	1359:1359
73170	RIVERTON	115.0	73	1.022	0.960	1362:1362

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                          SUMMARY OF CONTINGENCY (CNT) NUMBERS
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Outage case   1                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62026 SHELBY   230.0 to   90500 MTSLETHB 230.0   circuit 1

Outage case   2                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90400 MTSGFALL 500.0 to   40553 HOT SPR  500.0   circuit 1

Outage case   3                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90250 MTSFTPCK 500.0 to   90102 MTSFTP1  500.0   circuit 1

Outage case   4                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90250 MTSFTPCK 500.0 to   90202 MTSFTP2  500.0   circuit 1

Outage case   5                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90250 MTSFTPCK 500.0 to   90302 MTSFTP3  500.0   circuit 1

Outage case   6                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90250 MTSFTPCK 500.0 to   90402 MTSFTP4  500.0   circuit 1

Outage case   7                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90250 MTSFTPCK 500.0 to   90502 MTSFTP5  500.0   circuit 1

Outage case   8                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90250 MTSFTPCK 500.0 to   90602 MTSFTP6  500.0   circuit 1

Outage case   9                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40091 BELL BPA 500.0 to   40553 HOT SPR  500.0   circuit 1

Outage case  10                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62004 ANACOND  230.0 to   62019 WILSALL  230.0   circuit 1

Outage case  11                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62004 ANACOND  230.0 to   62030 PTRSNFLT 230.0   circuit 1

Outage case  12                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62005 ANACOND  161.0 to   62003 BONNERMT 161.0   circuit 1

Outage case  13                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62005 ANACOND  161.0 to   62009 RATTLE S 161.0   circuit 1

Outage case  14                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62005 ANACOND  161.0 to   62017 MT ASIMI 161.0   circuit 1

Outage case  15                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62005 ANACOND  161.0 to   62017 MT ASIMI 161.0   circuit 2

Outage case  16                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62005 ANACOND  161.0 to   62084 DILLON S 161.0   circuit 1

Outage case  17                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62006 TAFTAUTO 115.0 to   62085 CROWCR B 115.0   circuit 1

Outage case  18                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62009 RATTLE S 161.0 to   62003 BONNERMT 161.0   circuit 1

Outage case  19                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62009 RATTLE S 161.0 to   62007 KERR B   161.0   circuit 1

Outage case  20                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62009 RATTLE S 161.0 to   62008 KERR A   161.0   circuit 1

Outage case  21                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62009 RATTLE S 161.0 to   62078 RESERVST 161.0   circuit 1

Outage case  22                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62014 BUTTEMHD 161.0 to   62017 MT ASIMI 161.0   circuit 1

Outage case  23                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62031 CUTBANK  115.0 to   62027 SHELBY   115.0   circuit 1

Outage case  24                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62034 BOLE     230.0 to   62035 CNRDWAPA 230.0   circuit 1

Outage case  25                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62035 CNRDWAPA 230.0 to   62026 SHELBY   230.0   circuit 1

Outage case  26                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62046 BROADVU  500.0 to   62012 TOWN2    500.0   circuit 2

Outage case  27                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62046 BROADVU  500.0 to   62013 TOWN1    500.0   circuit 1

Outage case  28                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62053 BROADV&2 500.0 to   62046 BROADVU  500.0   circuit 2

Outage case  29                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62053 BROADV&2 500.0 to   62046 BROADVU  500.0   circuit 4

Outage case  30                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62054 BROADV&1 500.0 to   62046 BROADVU  500.0   circuit 1

Outage case  31                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62054 BROADV&1 500.0 to   62046 BROADVU  500.0   circuit 3

Outage case  32                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62057 COLSTRP  500.0 to   62053 BROADV&2 500.0   circuit 2

Outage case  33                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62057 COLSTRP  500.0 to   62054 BROADV&1 500.0   circuit 1

Outage case  34                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62058 SHOREYRD 230.0 to   62019 WILSALL  230.0   circuit 1

Outage case  35                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62058 SHOREYRD 230.0 to   62052 ALKALI   230.0   circuit 1

Outage case  36                Y, WAPA UGP, JUNE 2002
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    switched OUT LINE        62058 SHOREYRD 230.0 to   62055 BASELINE 230.0   circuit 1
Outage case  37               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62059 MONTANA1 115.0 to   62221 NICHOL-R 115.0   circuit 1
Outage case  38               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62060 COLSTRP  230.0 to   62051 HARDIN   230.0   circuit 1
Outage case  39               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62062 RIMROCK  161.0 to   62109 ALKALI   161.0   circuit 1
Outage case  40               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62065 ENNIS MT 161.0 to   62064 BRADLEYC 161.0   circuit 1
Outage case  41               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62066 KERR     115.0 to   62303 PLAINS   115.0   circuit 1
Outage case  42               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62066 KERR     115.0 to   62304 THFLPM T 115.0   circuit 1
Outage case  43               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62069 CNRDWAPA 115.0 to   62188 CNRD-SRA 115.0   circuit 1
Outage case  44               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62070 GT FALLS 115.0 to   62180 DUTTON   115.0   circuit 1
Outage case  45               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62071 GT FALLS 230.0 to   62034 BOLE     230.0   circuit 1
Outage case  46               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62071 GT FALLS 230.0 to   62036 JUDITHGP 230.0   circuit 1
Outage case  47               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62071 GT FALLS 230.0 to   62126 LANDRSFK 230.0   circuit 1
Outage case  48               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62076 TRIDENT  161.0 to   62108 CLYDE P  161.0   circuit 1
Outage case  49               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62077 BUTTE MT 161.0 to   62014 BUTTEMHD 161.0   circuit 1
Outage case  50               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62077 BUTTE MT 161.0 to   62017 MT ASIMI 161.0   circuit 1
Outage case  51               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62077 BUTTE MT 161.0 to   62159 GLDNSNLT 161.0   circuit 1
Outage case  52               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62079 MILLERCK 161.0 to   62003 BONNERMT 161.0   circuit 1
Outage case  53               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62079 MILLERCK 161.0 to   62311 HAMLTNMA 161.0   circuit 1
Outage case  54               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62079 MILLERCK 161.0 to   62312 HAMLTNMB 161.0   circuit 1
Outage case  55               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62081 COLSTRP  115.0 to   62059 MONTANA1 115.0   circuit 1
Outage case  56               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62081 COLSTRP  115.0 to   62210 ARMELLCR 115.0   circuit 1
Outage case  57               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62082 BILINGS  230.0 to   62052 ALKALI   230.0   circuit 1
Outage case  58               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62082 BILINGS  230.0 to   62056 HUNTLEY  230.0   circuit 1
Outage case  59               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62082 BILINGS  230.0 to   62125 BILINGSW 230.0   circuit 1
Outage case  60               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62084 DILLON S 161.0 to   62158 SHERDNMT 161.0   circuit 1
Outage case  61               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62086 THOMSON  115.0 to   62085 CROWCR B 115.0   circuit 1
Outage case  62               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62086 THOMSON  115.0 to   62305 TFALLCIT 115.0   circuit 1
Outage case  63               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62086 THOMSON  115.0 to   62306 TFALCITA 115.0   circuit 1
Outage case  64               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62087 CONRAD   115.0 to   62069 CNRDWAPA 115.0   circuit 1
Outage case  65               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62087 CONRAD   115.0 to   62178 VAL-WILL 115.0   circuit 1
Outage case  66               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62088 CTBPUMP  115.0 to   62031 CUTBANK  115.0   circuit 1
Outage case  67               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62108 CLYDE P  161.0 to   62016 WILSALL  161.0   circuit 1
Outage case  68               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62108 CLYDE P  161.0 to   62249 EGALTN A 161.0   circuit 1
Outage case  69               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62108 CLYDE P  161.0 to   62250 BGTMBERA 161.0   circuit 99
Outage case  70               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62108 CLYDE P  161.0 to   62257 EMIGT AT 161.0   circuit 1
Outage case  71               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62108 CLYDE P  161.0 to   62258 EGALTN B 161.0   circuit 1
Outage case  72               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62125 BILINGSW 230.0 to   62223 BROADVU  230.0   circuit 1
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Outage case  73                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62126 LANDRSFK 230.0 to   62072 OVANDO   230.0   circuit 1

Outage case  74                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62158 SHERDNMT 161.0 to   62065 ENNIS MT 161.0   circuit 1

Outage case  75                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62159 GLDNSNLT 161.0 to   62076 TRIDENT  161.0   circuit 1

Outage case  76                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62178 VAL-WILL 115.0 to   62088 CTBPUMP  115.0   circuit 1

Outage case  77                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62180 DUTTON   115.0 to   62069 CNRDWAPA 115.0   circuit 1

Outage case  78                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62205 COLRPLJE 161.0 to   62109 ALKALI   161.0   circuit 1

Outage case  79                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62205 COLRPLJE 161.0 to   62214 CLMBUSPM 161.0   circuit 1

Outage case  80                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62205 COLRPLJE 161.0 to   62250 BGTMBERA 161.0   circuit 1

Outage case  81                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62206 NICHOLPM 115.0 to   62221 NICHOL-R 115.0   circuit 1

Outage case  82                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62210 ARMELLCR 115.0 to   62211 CASTLERT 115.0   circuit 1

Outage case  83                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62211 CASTLERT 115.0 to   62212 CASTLERK 115.0   circuit 1

Outage case  84                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62211 CASTLERT 115.0 to   62219 SARPY AT 115.0   circuit 1

Outage case  85                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62219 SARPY AT 115.0 to   62080 HARDIN   115.0   circuit 1

Outage case  86                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62223 BROADVU  230.0 to   62036 JUDITHGP 230.0   circuit 1

Outage case  87                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62223 BROADVU  230.0 to   62052 ALKALI   230.0   circuit 1

Outage case  88                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62249 EGALTN A 161.0 to   62256 JACKRABT 161.0   circuit 1

Outage case  89                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62249 EGALTN A 161.0 to   62256 JACKRABT 161.0   circuit 99

Outage case  90                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62249 EGALTN A 161.0 to   62258 EGALTN B 161.0   circuit 1

Outage case  91                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62256 JACKRABT 161.0 to   62064 BRADLEYC 161.0   circuit 1

Outage case  92                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62256 JACKRABT 161.0 to   62258 EGALTN B 161.0   circuit 99

Outage case  93                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62303 PLAINS   115.0 to   62306 TFALCITA 115.0   circuit 1

Outage case  94                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62304 THFLPM T 115.0 to   62305 TFALLCIT 115.0   circuit 1

Outage case  95                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62304 THFLPM T 115.0 to   62310 THFALLPM 115.0   circuit 1

Outage case  96                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62305 TFALLCIT 115.0 to   62309 THFALL-R 115.0   circuit 1

Outage case  97                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62308 MISSLA 7 161.0 to   62078 RESERVST 161.0   circuit 1

Outage case  98                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62308 MISSLA 7 161.0 to   62079 MILLERCK 161.0   circuit 1

Outage case  99                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40017 ADDY     115.0 to   48071 CHEWELAH 115.0   circuit 1

Outage case 100                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40017 ADDY     115.0 to   40263 COLV BPA 115.0   circuit 1

Outage case 101                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40017 ADDY     115.0 to   48135 GIFFORD  115.0   circuit 1

Outage case 102                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40017 ADDY     115.0 to   48213 LOON LK  115.0   circuit 1

Outage case 103                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40017 ADDY     115.0 to   48223 METCHIP  115.0   circuit 1

Outage case 104                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40019 ADDY     230.0 to   40021 ADDY 2   230.0   circuit 1

Outage case 105                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40019 ADDY     230.0 to   40319 CUSICK   230.0   circuit 1

Outage case 106                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40021 ADDY 2   230.0 to   40090 BELL SO  230.0   circuit 1

Outage case 107                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40021 ADDY 2   230.0 to   40145 BOUNDARY 230.0   circuit 1

Outage case 108                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40029 ALBENI F 115.0 to   47027 DIAM LAK 115.0   circuit 1

Outage case 109                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40029 ALBENI F 115.0 to   40779 NEWPORTB 115.0   circuit 1
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Outage case 110                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40029 ALBENI F 115.0 to   48347 PRIEST A 115.0   circuit 1

Outage case 111                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        48025 BEACON N 230.0 to   40090 BELL SO  230.0   circuit 5

Outage case 112                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        48029 BEACON S 115.0 to   40087 BELL BPA 115.0   circuit 1

Outage case 113                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        48031 BEACON S 230.0 to   40090 BELL SO  230.0   circuit 4

Outage case 114                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40087 BELL BPA 115.0 to   40113 BIGELOW  115.0   circuit 1

Outage case 115                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40087 BELL BPA 115.0 to   40255 COLBERTT 115.0   circuit 1

Outage case 116                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40087 BELL BPA 115.0 to   40281 COULEE   115.0   circuit 1

Outage case 117                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40087 BELL BPA 115.0 to   47285 INLD EMP 115.0   circuit 1

Outage case 118                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40087 BELL BPA 115.0 to   41015 SPRNGHIL 115.0   circuit 1

Outage case 119                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40087 BELL BPA 115.0 to   48449 WAIKIKIT 115.0   circuit 1

Outage case 120                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40091 BELL BPA 500.0 to   41057 TAFT     500.0   circuit 1

Outage case 121                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40088 BELL MI  230.0 to   40086 BELL NO  230.0   circuit 1

Outage case 122                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40088 BELL MI  230.0 to   40090 BELL SO  230.0   circuit 1

Outage case 123                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40088 BELL MI  230.0 to   41358 COULEES3 230.0   circuit 5

Outage case 124                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40088 BELL MI  230.0 to   47091 USK      230.0   circuit 1

Outage case 125                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40086 BELL NO  230.0 to   40909 SACHEEN  230.0   circuit 1

Outage case 126                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40086 BELL NO  230.0 to   41275 WESTBPA1 230.0   circuit 1

Outage case 127                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40090 BELL SO  230.0 to   41356 COULEES1 230.0   circuit 3

Outage case 128                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40090 BELL SO  230.0 to   40624 LANCASTR 230.0   circuit 1

Outage case 129                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        48033 BELL TAP 115.0 to   40087 BELL BPA 115.0   circuit 1

Outage case 130                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40113 BIGELOW  115.0 to   40483 GREEN BL 115.0   circuit 1

Outage case 131                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40113 BIGELOW  115.0 to   41089 TRENTWOD 115.0   circuit 1

Outage case 132                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40133 BONNERS  115.0 to   41239 MOYIE T  115.0   circuit 1

Outage case 133                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40133 BONNERS  115.0 to   47194 MT HALL  115.0   circuit 1

Outage case 134                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40133 BONNERS  115.0 to   40927 SAMUELS  115.0   circuit 1

Outage case 135                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40143 BOUNDARY 115.0 to   40731 METALINE 115.0   circuit 1

Outage case 136                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40145 BOUNDARY 230.0 to   40319 CUSICK   230.0   circuit 1

Outage case 137                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40145 BOUNDARY 230.0 to   40909 SACHEEN  230.0   circuit 1

Outage case 138                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        47009 BOX CANY 115.0 to   40317 CUSICK   115.0   circuit 1

Outage case 139                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        47126 BOX PS   115.0 to   41190 BOX TAP  115.0   circuit 1

Outage case 140                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        41190 BOX TAP  115.0 to   40731 METALINE 115.0   circuit 1

Outage case 141                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        41190 BOX TAP  115.0 to   48399 SPIRIT   115.0   circuit 1

Outage case 142                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40215 CHENEY   115.0 to   40439 FOURLKS  115.0   circuit 1

Outage case 143                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40245 CLAYTON  115.0 to   40337 DEER PRK 115.0   circuit 1

Outage case 144                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40245 CLAYTON  115.0 to   48213 LOON LK  115.0   circuit 1

Outage case 145                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40255 COLBERTT 115.0 to   40495 HALFMOON 115.0   circuit 1

Outage case 146                Y, WAPA UGP, JUNE 2002
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    switched OUT LINE        40263 COLV BPA 115.0 to   40607 KETTLE T 115.0   circuit 1
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Outage case 147               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40263 COLV BPA 115.0 to   48399 SPIRIT   115.0   circuit 1
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Outage case 148               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40275 COOK M T 115.0 to   40607 KETTLE T 115.0   circuit 1
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Outage case 149               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40275 COOK M T 115.0 to   40879 REPUBLIC 115.0   circuit 1
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Outage case 150               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40311 CRESTN   115.0 to   40637 LARENE   115.0   circuit 1
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Outage case 151               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40311 CRESTN   115.0 to   41127 WAGNERLT 115.0   circuit 1
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Outage case 152               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40317 CUSICK   115.0 to   47254 USK      115.0   circuit 1
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Outage case 153               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40319 CUSICK   230.0 to   47091 USK      230.0   circuit 1
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Outage case 154               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40337 DEER PRK 115.0 to   48235 MILAN TP 115.0   circuit 1
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Outage case 155               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        47027 DIAM LAK 115.0 to   40907 SACHEEN  115.0   circuit 1
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Outage case 156               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        48125 FOURLBPA 115.0 to   40525 HAYFORD  115.0   circuit 1
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Outage case 157               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        48131 GARDENSP 115.0 to   40525 HAYFORD  115.0   circuit 1
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Outage case 158               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40495 HALFMOON 115.0 to   41099 TUM TUM  115.0   circuit 1
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Outage case 159               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40551 HOT SPR  230.0 to   41091 TROUT CR 230.0   circuit 1
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Outage case 160               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        47285 INLD EMP 115.0 to   41089 TRENTWOD 115.0   circuit 1
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Outage case 161               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40607 KETTLE T 115.0 to   48175 KETTLEAV 115.0   circuit 1
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Outage case 162               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40617 LACLEDE  115.0 to   40857 PRIEST   115.0   circuit 1
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Outage case 163               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40617 LACLEDE  115.0 to   40933 SANDPONT 115.0   circuit 1
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Outage case 164               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40624 LANCASTR 230.0 to   40787 NOXONBPA 230.0   circuit 1
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Outage case 165               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40637 LARENE   115.0 to   41015 SPRNGHIL 115.0   circuit 1
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Outage case 166               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        47278 LIBBYFEC 115.0 to   41097 TROY     115.0   circuit 1
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Outage case 167               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        48235 MILAN TP 115.0 to   41099 TUM TUM  115.0   circuit 1
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Outage case 168               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        41239 MOYIE T  115.0 to   41240 MOYIE TX 115.0   circuit 1
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Outage case 169               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        41239 MOYIE T  115.0 to   41169 YAAK     115.0   circuit 1
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Outage case 170               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        41240 MOYIE TX 115.0 to   41241 N BENCH  115.0   circuit 1
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Outage case 171               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        47194 MT HALL  115.0 to   41299 SMITHFLS 115.0   circuit 1
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Outage case 172               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40779 NEWPORTB 115.0 to   47086 PINE ST  115.0   circuit 1
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Outage case 173               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        48258 NEWPORTT 115.0 to   47086 PINE ST  115.0   circuit 1
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Outage case 174               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        48289 NOXONCON 230.0 to   41091 TROUT CR 230.0   circuit 1
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Outage case 175               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        48295 ODESSA   115.0 to   40577 IRBY     115.0   circuit 1
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Outage case 176               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        47086 PINE ST  115.0 to   47254 USK      115.0   circuit 1
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Outage case 177               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40857 PRIEST   115.0 to   48347 PRIEST A 115.0   circuit 1
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Outage case 178               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40927 SAMUELS  115.0 to   40965 SELLE    115.0   circuit 1
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Outage case 179               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40929 SAND CRK 115.0 to   40931 SAND TP  115.0   circuit 1
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Outage case 180               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40929 SAND CRK 115.0 to   48377 SANDPT A 115.0   circuit 1
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Outage case 181               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40929 SAND CRK 115.0 to   40965 SELLE    115.0   circuit 1
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Outage case 182               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40931 SAND TP  115.0 to   40933 SANDPONT 115.0   circuit 1
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Outage case 183                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        41260 SULLIVNB 115.0 to   41115 VERA     115.0   circuit 1
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Outage case 184                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        41260 SULLIVNB 115.0 to   41117 VERA TAP 115.0   circuit 1
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Outage case 185                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        41089 TRENTWOD 115.0 to   41117 VERA TAP 115.0   circuit 1
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Outage case 186                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        41097 TROY     115.0 to   41169 YAAK     115.0   circuit 1
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Outage case 187                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        41107 VALY WAY 115.0 to   41117 VERA TAP 115.0   circuit 1
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Outage case 188                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        48471 WILSNCKT 115.0 to   40577 IRBY     115.0   circuit 1
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Outage case 189                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65000 5TH WEST 138.0 to   65865 JORDAN   138.0   circuit 1
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Outage case 190                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65000 5TH WEST 138.0 to   66012 MORT CRT 138.0   circuit 1
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Outage case 191                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65010 AEC IPC  138.0 to   65015 AEC SCOV 138.0   circuit 1
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Outage case 192                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65015 AEC SCOV 138.0 to   65065 ANTLOP 1 138.0   circuit 1
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Outage case 193                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65015 AEC SCOV 138.0 to   65070 ANTLOP 2 138.0   circuit 1
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Outage case 194                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65020 AMAX     138.0 to   65790 HORSSHOE 138.0   circuit 1
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Outage case 195                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65025 AMPS     230.0 to   65075 ANTLOPE  230.0   circuit 1
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Outage case 196                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65030 ANACONDA 138.0 to   65345 CNTRATOR 138.0   circuit 1
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Outage case 197                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65030 ANACONDA 138.0 to   66560 TOOELE   138.0   circuit 1
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Outage case 198                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65040 ANGEL    138.0 to   65050 ANGEL ST 138.0   circuit 1
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Outage case 199                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65045 ANGEL NT 138.0 to   66480 SYRACUSE 138.0   circuit 1
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Outage case 200                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65050 ANGEL ST 138.0 to   65873 JCT STR  138.0   circuit 1
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Outage case 201                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65050 ANGEL ST 138.0 to   66480 SYRACUSE 138.0   circuit 1
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Outage case 202                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65055 ANSCHUTZ 138.0 to   66545 THIEF TP 138.0   circuit 1
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Outage case 203                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65060 ANT MINE 230.0 to   66745 YELLOWCK 230.0   circuit 1
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Outage case 204                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65075 ANTLOPE  230.0 to   65910 LOST RIV 230.0   circuit 1
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Outage case 205                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65080 ANTLOPE  161.0 to   65670 GOSHEN   161.0   circuit 1
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Outage case 206                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65085 ASHLEY   138.0 to   66590 UPALCO   138.0   circuit 1
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Outage case 207                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65090 ATLANTIC 230.0 to   66315 ROCKSPGS 230.0   circuit 1
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Outage case 208                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65090 ATLANTIC 230.0 to   66740 WYOPO    230.0   circuit 1
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Outage case 209                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65095 BADWATER 230.0 to   66410 SPENCE   230.0   circuit 1
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Outage case 210                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65095 BADWATER 230.0 to   66535 THERMOPL 230.0   circuit 1
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Outage case 211                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65100 BAIROIL  115.0 to   65730 GREATDIV 115.0   circuit 1
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Outage case 212                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65100 BAIROIL  115.0 to   66685 WHISKEYP 115.0   circuit 1
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Outage case 213                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65105 BAR-X    230.0 to   66240 PLATTE   230.0   circuit 1
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Outage case 214                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65105 BAR-X    230.0 to   66250 PT ROCKS 230.0   circuit 1
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Outage case 215                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65110 BARNEY   138.0 to   65345 CNTRATOR 138.0   circuit 1
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Outage case 216                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65110 BARNEY   138.0 to   66135 OQUIRRH  138.0   circuit 1
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Outage case 217                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65125 BEKER IN 138.0 to   65360 CONDATAP 138.0   circuit 1
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Outage case 218                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65135 BENLOMND 345.0 to   66134 OQUIRRH  345.0   circuit 1
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Outage case 219                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65135 BENLOMND 345.0 to   66510 TERMINAL 345.0   circuit 1
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Outage case 220                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65140 BENLOMND 230.0 to   65160 BIRCH CK 230.0   circuit 1

Outage case 221                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65140 BENLOMND 230.0 to   66050 NAUGHTON 230.0   circuit 1

Outage case 222                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65140 BENLOMND 230.0 to   66475 SYRACUSE 230.0   circuit 1

Outage case 223                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65145 BENLOMND 138.0 to   65225 BRIGHAM  138.0   circuit 1

Outage case 224                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65145 BENLOMND 138.0 to   65505 EL MONTE 138.0   circuit 1

Outage case 225                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65145 BENLOMND 138.0 to   65505 EL MONTE 138.0   circuit 2

Outage case 226                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65145 BENLOMND 138.0 to   65785 HONEYVIL 138.0   circuit 1

Outage case 227                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65145 BENLOMND 138.0 to   66480 SYRACUSE 138.0   circuit 1

Outage case 228                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65145 BENLOMND 138.0 to   66640 W OGDEN  138.0   circuit 1

Outage case 229                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65145 BENLOMND 138.0 to   66650 WARREN   138.0   circuit 1

Outage case 230                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65145 BENLOMND 138.0 to   66675 WESTZIRC 138.0   circuit 1

Outage case 231                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65145 BENLOMND 138.0 to   66680 WHEELON  138.0   circuit 1

Outage case 232                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65155 BIGGRASS 161.0 to   65860 JFRSNPHA 161.0   circuit 1

Outage case 233                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65160 BIRCH CK 230.0 to   66050 NAUGHTON 230.0   circuit 1

Outage case 234                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65160 BIRCH CK 230.0 to   66270 RAILROAD 230.0   circuit 1

Outage case 235                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65165 BLACKSFK 230.0 to   66010 MONUMENT 230.0   circuit 1

Outage case 236                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65165 BLACKSFK 230.0 to   66670 WESTVACO 230.0   circuit 1

Outage case 237                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65175 BLUE RIM 230.0 to   65215 BRDGR PP 230.0   circuit 1

Outage case 238                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65175 BLUE RIM 230.0 to   66325 S. TRONA 230.0   circuit 1

Outage case 239                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65180 BANGERTR 138.0 to   65255 CAMP TAP 138.0   circuit 1

Outage case 240                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65180 BANGERTR 138.0 to   66135 OQUIRRH  138.0   circuit 1

Outage case 241                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65192 BONANZA  138.0 to   65457 DG UPLCO 138.0   circuit 1

Outage case 242                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65192 BONANZA  138.0 to   66278 RANGELY  138.0   circuit 1

Outage case 243                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65193 BONANZA  345.0 to   65995 MONA     345.0   circuit 1

Outage case 244                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65195 BONNEVIL 161.0 to   65485 EAGLE RK 161.0   circuit 1

Outage case 245                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65205 BOUNTIFL 138.0 to   66205 PARRISH  138.0   circuit 1

Outage case 246                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65210 BPA RIGB 161.0 to   66295 RIGBY    161.0   circuit 1

Outage case 247                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65215 BRDGR PP 230.0 to   65555 FIREHOLE 230.0   circuit 1

Outage case 248                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65220 BRIDGER  230.0 to   66020 MUSTANG  230.0   circuit 1

Outage case 249                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65220 BRIDGER  230.0 to   66250 PT ROCKS 230.0   circuit 1

Outage case 250                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65220 BRIDGER  230.0 to   66315 ROCKSPGS 230.0   circuit 1

Outage case 251                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65225 BRIGHAM  138.0 to   66680 WHEELON  138.0   circuit 1

Outage case 252                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65235 BUFFALO  230.0 to   65293 CARR DRA 230.0   circuit 1

Outage case 253                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65235 BUFFALO  230.0 to   65875 KAYCEE   230.0   circuit 1

Outage case 254                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65235 BUFFALO  230.0 to   66335 SHERIDAN 230.0   circuit 1

Outage case 255                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65240 BUTVILLE 138.0 to   65750 HAMMER   138.0   circuit 1

Outage case 256                Y, WAPA UGP, JUNE 2002
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    switched OUT LINE        65240 BUTVILLE 138.0 to   66085 NINETY S 138.0   circuit 1
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Outage case 257               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65255 CAMP TAP 138.0 to   66577 TRI CITY 138.0   circuit 1
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Outage case 258               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65260 CAMP WIL 345.0 to   65805 HUNTNGTN 345.0   circuit 1
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Outage case 259               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65260 CAMP WIL 345.0 to   65945 MIDVALLY 345.0   circuit 1
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Outage case 260               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65260 CAMP WIL 345.0 to   65995 MONA     345.0   circuit 1
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Outage case 261               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65260 CAMP WIL 345.0 to   65995 MONA     345.0   circuit 2
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Outage case 262               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65260 CAMP WIL 345.0 to   66080 NINETY S 345.0   circuit 1
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Outage case 263               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65260 CAMP WIL 345.0 to   66134 OQUIRRH  345.0   circuit 1
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Outage case 264               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65260 CAMP WIL 345.0 to   66400 SPAN FRK 345.0   circuit 1
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Outage case 265               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65260 CAMP WIL 345.0 to   66510 TERMINAL 345.0   circuit 1
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Outage case 266               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65260 CAMP WIL 345.0 to   66578 TRI CITY 345.0   circuit 1
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Outage case 267               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65261 CAMP WIL 138.0 to   65906 LONEPEK2 138.0   circuit 1
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Outage case 268               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65280 CARBON   138.0 to   65755 HELPER   138.0   circuit 1
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Outage case 269               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65280 CARBON   138.0 to   65760 HELPER T 138.0   circuit 1
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Outage case 270               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65280 CARBON   138.0 to   66183 PANTHER  138.0   circuit 1
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Outage case 271               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65280 CARBON   138.0 to   66395 SPAN F&1 138.0   circuit 1
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Outage case 272               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65280 CARBON   138.0 to   66405 SPAN FRK 138.0   circuit 2
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Outage case 273               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65285 CARIBO 1 138.0 to   65360 CONDATAP 138.0   circuit 1
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Outage case 274               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65285 CARIBO 1 138.0 to   66000 MONSANT1 138.0   circuit 1
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Outage case 275               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65285 CARIBO 1 138.0 to   66385 SODA     138.0   circuit 1
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Outage case 276               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65290 CARIBO 2 138.0 to   65695 GRACE    138.0   circuit 1
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Outage case 277               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65290 CARIBO 2 138.0 to   66005 MONSANT2 138.0   circuit 2
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Outage case 278               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65293 CARR DRA 230.0 to   66725 WYODAK   230.0   circuit 1
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Outage case 279               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65295 CARTER   138.0 to   66365 SKULL TP 138.0   circuit 1
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Outage case 280               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65300 CASPERPP 230.0 to   65420 DAVEJOHN 230.0   circuit 1
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Outage case 281               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65300 CASPERPP 230.0 to   65955 MIDWEST  230.0   circuit 1
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Outage case 282               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65300 CASPERPP 230.0 to   66305 RIVERTON 230.0   circuit 1
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Outage case 283               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65310 CENTENAL 138.0 to   65455 DECKLAKE 138.0   circuit 1
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Outage case 284               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65310 CENTENAL 138.0 to   66520 TERMINAL 138.0   circuit 1
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Outage case 285               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65320 CHAPPELC 230.0 to   66132 OPAL TAP 230.0   circuit 1
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Outage case 286               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65340 CLINTON  138.0 to   66310 RIVRDALE 138.0   circuit 1
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Outage case 287               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65340 CLINTON  138.0 to   66480 SYRACUSE 138.0   circuit 1
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Outage case 288               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65345 CNTRATOR 138.0 to   66135 OQUIRRH  138.0   circuit 1
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Outage case 289               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65355 COLUMBIA 138.0 to   66015 MOUND SW 138.0   circuit 1
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Outage case 290               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65355 COLUMBIA 138.0 to   66450 SUNNYSID 138.0   circuit 1
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Outage case 291               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65365 COTTONWD 138.0 to   65750 HAMMER   138.0   circuit 1
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Outage case 292               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65365 COTTONWD 138.0 to   65930 MCCELAND 138.0   circuit 1
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Outage case 293              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65365 COTTONWD 138.0 to   66386 SNYDERTP 138.0   circuit 1
Outage case 294              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65365 COTTONWD 138.0 to   66550 THIRTY S 138.0   circuit 1
Outage case 295              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65380 CRYSTALX 115.0 to   65480 E JACKSN 115.0   circuit 1
Outage case 296              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65380 CRYSTALX 115.0 to   66530 TETON    115.0   circuit 1
Outage case 297              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65390 CUDAHY   138.0 to   65740 GROW     138.0   circuit 1
Outage case 298              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65390 CUDAHY   138.0 to   66205 PARRISH  138.0   circuit 1
Outage case 299              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65390 CUDAHY   138.0 to   66520 TERMINAL 138.0   circuit 1
Outage case 300              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65395 CUTLER   138.0 to   66680 WHEELON  138.0   circuit 1
Outage case 301              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65415 DAVEJO&1 230.0 to   65420 DAVEJOHN 230.0   circuit 1
Outage case 302              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65415 DAVEJO&1 230.0 to   66410 SPENCE   230.0   circuit 1
Outage case 303              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65420 DAVEJOHN 230.0 to   65460 DIFICULT 230.0   circuit 1
Outage case 304              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65420 DAVEJOHN 230.0 to   66745 YELLOWCK 230.0   circuit 1
Outage case 305              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65450 DECKER   230.0 to   65660 GOOSE CK 230.0   circuit 1
Outage case 306              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65450 DECKER   230.0 to   66735 WYOMONT  230.0   circuit 1
Outage case 307              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65454 DIMP DEL 138.0 to   65475 DUMAS    138.0   circuit 1
Outage case 308              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65454 DIMP DEL 138.0 to   66256 QUARRY   138.0   circuit 1
Outage case 309              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65455 DECKLAKE 138.0 to   66190 PARKWAY  138.0   circuit 1
Outage case 310              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65457 DG UPLCO 138.0 to   66590 UPALCO   138.0   circuit 1
Outage case 311              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65460 DIFICULT 230.0 to   65975 MINERS   230.0   circuit 1
Outage case 312              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65470 DRUMMOND 115.0 to   65675 GOSHEN   115.0   circuit 1
Outage case 313              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65470 DRUMMOND 115.0 to   65915 MACKS IN 115.0   circuit 1
Outage case 314              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65470 DRUMMOND 115.0 to   66495 TARGHEE  115.0   circuit 1
Outage case 315              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65475 DUMAS    138.0 to   66085 NINETY S 138.0   circuit 1
Outage case 316              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65475 DUMAS    138.0 to   66391 SOUTH MT 138.0   circuit 1
Outage case 317              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65480 E JACKSN 115.0 to   65845 JACKSONJ 115.0   circuit 1
Outage case 318              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65485 EAGLE RK 161.0 to   65670 GOSHEN   161.0   circuit 1
Outage case 319              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65485 EAGLE RK 161.0 to   66695 WIDFALLS 161.0   circuit 1
Outage case 320              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65510 EMERY    345.0 to   65805 HUNTNGTN 345.0   circuit 1
Outage case 321              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65510 EMERY    345.0 to   66340 SIGURD   345.0   circuit 1
Outage case 322              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65510 EMERY    345.0 to   66340 SIGURD   345.0   circuit 2
Outage case 323              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65510 EMERY    345.0 to   66401 SPAN TAP 345.0   circuit 1
Outage case 324              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65520 EMMAPARK 138.0 to   66183 PANTHER  138.0   circuit 1
Outage case 325              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65520 EMMAPARK 138.0 to   66590 UPALCO   138.0   circuit 1
Outage case 326              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65535 ETNA     115.0 to   66380 SNAKE RV 115.0   circuit 1
Outage case 327              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65540 EVANSTON 138.0 to   66275 RAILROAD 138.0   circuit 1
Outage case 328              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65540 EVANSTON 138.0 to   66545 THIEF TP 138.0   circuit 1
Outage case 329              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65545 EXXON WY 230.0 to   66010 MONUMENT 230.0   circuit 1
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Outage case 330                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65555 FIREHOLE 230.0 to   65895 LITTLEMT 230.0   circuit 1

Outage case 331                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65555 FIREHOLE 230.0 to   66315 ROCKSPGS 230.0   circuit 1

Outage case 332                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65560 FISHCREK 161.0 to   65670 GOSHEN   161.0   circuit 1

Outage case 333                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65560 FISHCREK 161.0 to   65690 GRACE    161.0   circuit 1

Outage case 334                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65565 FLAMGORG 230.0 to   65895 LITTLEMT 230.0   circuit 1

Outage case 335                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65570 FRANKLIN 138.0 to   65725 GRCYN TP 138.0   circuit 1

Outage case 336                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65570 FRANKLIN 138.0 to   66570 TREASTON 138.0   circuit 1

Outage case 337                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65575 FRANNIE  230.0 to   65620 GARLAND  230.0   circuit 1

Outage case 338                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65575 FRANNIE  230.0 to   66750 YELOWTLP 230.0   circuit 1

Outage case 339                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65580 FT CREEK 230.0 to   65975 MINERS   230.0   circuit 1

Outage case 340                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65590 GADSBY   138.0 to   65611 GAD GAST 138.0   circuit 1

Outage case 341                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65590 GADSBY   138.0 to   65865 JORDAN   138.0   circuit 1

Outage case 342                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65590 GADSBY   138.0 to   66520 TERMINAL 138.0   circuit 2

Outage case 343                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65620 GARLAND  230.0 to   66145 OREBASIN 230.0   circuit 1

Outage case 344                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65630 GEMST TP 161.0 to   65635 GEMSTATE 161.0   circuit 1

Outage case 345                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65630 GEMST TP 161.0 to   66392 SOUTEAST 161.0   circuit 1

Outage case 346                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65630 GEMST TP 161.0 to   66695 WIDFALLS 161.0   circuit 1

Outage case 347                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65655 GLENCO J 138.0 to   66045 NAUGHTN2 138.0   circuit 1

Outage case 348                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65655 GLENCO J 138.0 to   66425 STR 204  138.0   circuit 1

Outage case 349                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65660 GOOSE CK 230.0 to   66335 SHERIDAN 230.0   circuit 1

Outage case 350                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65660 GOOSE CK 230.0 to   66750 YELOWTLP 230.0   circuit 1

Outage case 351                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65670 GOSHEN   161.0 to   65840 IONA     161.0   circuit 1

Outage case 352                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65670 GOSHEN   161.0 to   65850 JEFFERSN 161.0   circuit 1

Outage case 353                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65670 GOSHEN   161.0 to   66295 RIGBY    161.0   circuit 1

Outage case 354                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65670 GOSHEN   161.0 to   66430 SUGARMIL 161.0   circuit 1

Outage case 355                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65670 GOSHEN   161.0 to   66465 SWAN VAL 161.0   circuit 1

Outage case 356                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65675 GOSHEN   115.0 to   66185 PALISADE 115.0   circuit 1

Outage case 357                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65695 GRACE    138.0 to   66130 ONEIDA   138.0   circuit 1

Outage case 358                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65695 GRACE    138.0 to   66385 SODA     138.0   circuit 1

Outage case 359                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65695 GRACE    138.0 to   66570 TREASTON 138.0   circuit 1

Outage case 360                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65695 GRACE    138.0 to   66570 TREASTON 138.0   circuit 2

Outage case 361                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65720 GRASS CK 230.0 to   66145 OREBASIN 230.0   circuit 1

Outage case 362                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65720 GRASS CK 230.0 to   66535 THERMOPL 230.0   circuit 1

Outage case 363                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65725 GRCYN TP 138.0 to   65735 GREENCYN 138.0   circuit 1

Outage case 364                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65725 GRCYN TP 138.0 to   66375 SMITHFLD 138.0   circuit 1

Outage case 365                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65730 GREATDIV 115.0 to   66025 MUSTANG  115.0   circuit 1

Outage case 366                Y, WAPA UGP, JUNE 2002
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    switched OUT LINE        65735 GREENCYN 138.0 to   65900 LOGAN    138.0   circuit 1
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Outage case 367               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65735 GREENCYN 138.0 to   66370 SMFLD TP 138.0   circuit 1
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Outage case 368               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65740 GROW     138.0 to   65873 JCT STR  138.0   circuit 1
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Outage case 369               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65740 GROW     138.0 to   66520 TERMINAL 138.0   circuit 1
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Outage case 370               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65760 HELPER T 138.0 to   66015 MOUND SW 138.0   circuit 1
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Outage case 371               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65770 HIGHLD T 138.0 to   65905 LONEPEK1 138.0   circuit 1
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Outage case 372               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65775 HOBACK   115.0 to   66265 RAFTER J 115.0   circuit 1
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Outage case 373               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65775 HOBACK   115.0 to   66380 SNAKE RV 115.0   circuit 1
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Outage case 374               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65780 HOGGARD  138.0 to   66135 OQUIRRH  138.0   circuit 1
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Outage case 375               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65780 HOGGARD  138.0 to   66642 W VAL    138.0   circuit 1
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Outage case 376               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65785 HONEYVIL 138.0 to   65890 LAMPO    138.0   circuit 1
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Outage case 377               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65785 HONEYVIL 138.0 to   66680 WHEELON  138.0   circuit 1
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Outage case 378               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65790 HORSSHOE 138.0 to   66520 TERMINAL 138.0   circuit 1
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Outage case 379               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65805 HUNTNGTN 345.0 to   66225 PINTO    345.0   circuit 1
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Outage case 380               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65805 HUNTNGTN 345.0 to   66400 SPAN FRK 345.0   circuit 1
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Outage case 381               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65810 HUNTNGTN 138.0 to   65935 MCFADDEN 138.0   circuit 1
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Outage case 382               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65840 IONA     161.0 to   66295 RIGBY    161.0   circuit 1
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Outage case 383               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65845 JACKSONJ 115.0 to   66265 RAFTER J 115.0   circuit 1
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Outage case 384               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65845 JACKSONJ 115.0 to   66710 WILSON   115.0   circuit 1
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Outage case 385               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65850 JEFFERSN 161.0 to   66295 RIGBY    161.0   circuit 1
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Outage case 386               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65865 JORDAN   138.0 to   66520 TERMINAL 138.0   circuit 1
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Outage case 387               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65870 JOSPH TP 138.0 to   66110 NUCORS F 138.0   circuit 1
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Outage case 388               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65870 JOSPH TP 138.0 to   66680 WHEELON  138.0   circuit 1
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Outage case 389               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65873 JCT STR  138.0 to   66205 PARRISH  138.0   circuit 1
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Outage case 390               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65875 KAYCEE   230.0 to   65955 MIDWEST  230.0   circuit 1
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Outage case 391               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65880 KIM CLRK 138.0 to   66650 WARREN   138.0   circuit 1
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Outage case 392               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65885 LAKEPARK 138.0 to   66520 TERMINAL 138.0   circuit 1
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Outage case 393               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65885 LAKEPARK 138.0 to   66642 W VAL    138.0   circuit 1
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Outage case 394               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65905 LONEPEK1 138.0 to   65906 LONEPEK2 138.0   circuit 1
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Outage case 395               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65905 LONEPEK1 138.0 to   66391 SOUTH MT 138.0   circuit 1
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Outage case 396               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65915 MACKS IN 115.0 to   66665 WEST YEL 115.0   circuit 1
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Outage case 397               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65920 MALAD    138.0 to   66105 NUCOR TP 138.0   circuit 1
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Outage case 398               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65925 MART MAR 138.0 to   66070 NEBO     138.0   circuit 1
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Outage case 399               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65930 MCCELAND 138.0 to   66012 MORT CRT 138.0   circuit 1
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Outage case 400               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65930 MCCELAND 138.0 to   66550 THIRTY S 138.0   circuit 1
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Outage case 401               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65937 MEADOWBR 138.0 to   66500 TAYLORSV 138.0   circuit 1
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Outage case 402               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65937 MEADOWBR 138.0 to   66550 THIRTY S 138.0   circuit 1
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Outage case 403                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65945 MIDVALLY 345.0 to   66510 TERMINAL 345.0   circuit 1

Outage case 404                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65950 MIDWAY   138.0 to   66360 SILVR CR 138.0   circuit 1

Outage case 405                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65975 MINERS   230.0 to   66240 PLATTE   230.0   circuit 1

Outage case 406                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65995 MONA     345.0 to   66340 SIGURD   345.0   circuit 1

Outage case 407                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65995 MONA     345.0 to   66340 SIGURD   345.0   circuit 2

Outage case 408                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66010 MONUMENT 230.0 to   66050 NAUGHTON 230.0   circuit 1

Outage case 409                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66010 MONUMENT 230.0 to   66325 S. TRONA 230.0   circuit 1

Outage case 410                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66015 MOUND SW 138.0 to   66415 SPHINX T 138.0   circuit 1

Outage case 411                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66020 MUSTANG  230.0 to   66410 SPENCE   230.0   circuit 1

Outage case 412                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66035 NAT SM T 138.0 to   66085 NINETY S 138.0   circuit 1

Outage case 413                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66035 NAT SM T 138.0 to   66135 OQUIRRH  138.0   circuit 1

Outage case 414                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66040 NAUGHTN1 138.0 to   66365 SKULL TP 138.0   circuit 1

Outage case 415                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66050 NAUGHTON 230.0 to   66132 OPAL TAP 230.0   circuit 1

Outage case 416                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66050 NAUGHTON 230.0 to   66565 TREASTON 230.0   circuit 1

Outage case 417                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66080 NINETY S 345.0 to   66510 TERMINAL 345.0   circuit 1

Outage case 418                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66085 NINETY S 138.0 to   66256 QUARRY   138.0   circuit 1

Outage case 419                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66085 NINETY S 138.0 to   66285 RIDING R 138.0   circuit 1

Outage case 420                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66085 NINETY S 138.0 to   66326 SANDYX   138.0   circuit 1

Outage case 421                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66085 NINETY S 138.0 to   66660 WEST JOR 138.0   circuit 1

Outage case 422                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66105 NUCOR TP 138.0 to   66115 NUCORS O 138.0   circuit 1

Outage case 423                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66105 NUCOR TP 138.0 to   66680 WHEELON  138.0   circuit 1

Outage case 424                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66110 NUCORS F 138.0 to   66115 NUCORS O 138.0   circuit 1

Outage case 425                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66130 ONEIDA   138.0 to   66150 OVID     138.0   circuit 1

Outage case 426                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66130 ONEIDA   138.0 to   66570 TREASTON 138.0   circuit 1

Outage case 427                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66135 OQUIRRH  138.0 to   66455 SW RK 2  138.0   circuit 1

Outage case 428                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66155 PAINTER  138.0 to   66275 RAILROAD 138.0   circuit 1

Outage case 429                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66155 PAINTER  138.0 to   66425 STR 204  138.0   circuit 1

Outage case 430                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66180 PALISADE 230.0 to   66266 RAVEN    230.0   circuit 1

Outage case 431                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66180 PALISADE 230.0 to   66315 ROCKSPGS 230.0   circuit 1

Outage case 432                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66183 PANTHER  138.0 to   66707 WILLOW C 138.0   circuit 1

Outage case 433                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66185 PALISADE 115.0 to   66380 SNAKE RV 115.0   circuit 1

Outage case 434                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66185 PALISADE 115.0 to   66470 SWAN VAL 115.0   circuit 1

Outage case 435                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66190 PARKWAY  138.0 to   66550 THIRTY S 138.0   circuit 1

Outage case 436                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66205 PARRISH  138.0 to   66520 TERMINAL 138.0   circuit 1

Outage case 437                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66205 PARRISH  138.0 to   66520 TERMINAL 138.0   circuit 2

Outage case 438                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66215 PEPCON   138.0 to   66220 PEPCON I 138.0   circuit 1

Outage case 439                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66215 PEPCON   138.0 to   66635 W CEDAR  138.0   circuit 1
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Outage case 440                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66222 PINE CYN 138.0 to   66560 TOOELE   138.0   circuit 1

Outage case 441                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66222 PINE CYN 138.0 to   66585 U CARB T 138.0   circuit 1

Outage case 442                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66245 PLATTE   115.0 to   66685 WHISKEYP 115.0   circuit 1

Outage case 443                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66266 RAVEN    230.0 to   66670 WESTVACO 230.0   circuit 1

Outage case 444                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66275 RAILROAD 138.0 to   66690 WHITNEY  138.0   circuit 1

Outage case 445                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66285 RIDING R 138.0 to   66550 THIRTY S 138.0   circuit 1

Outage case 446                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66290 RIDGLD T 138.0 to   66520 TERMINAL 138.0   circuit 1

Outage case 447                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66290 RIDGLD T 138.0 to   66550 THIRTY S 138.0   circuit 1

Outage case 448                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66295 RIGBY    161.0 to   66430 SUGARMIL 161.0   circuit 1

Outage case 449                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66305 RIVERTON 230.0 to   66535 THERMOPL 230.0   circuit 1

Outage case 450                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66305 RIVERTON 230.0 to   66740 WYOPO    230.0   circuit 1

Outage case 451                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66310 RIVRDALE 138.0 to   66640 W OGDEN  138.0   circuit 1

Outage case 452                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66320 RYCMN TP 138.0 to   66425 STR 204  138.0   circuit 1

Outage case 453                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66325 S. TRONA 230.0 to   66715 WOLD     230.0   circuit 1

Outage case 454                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66360 SILVR CR 138.0 to   66386 SNYDERTP 138.0   circuit 1

Outage case 455                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66370 SMFLD TP 138.0 to   66375 SMITHFLD 138.0   circuit 1

Outage case 456                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66370 SMFLD TP 138.0 to   66680 WHEELON  138.0   circuit 1

Outage case 457                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66386 SNYDERTP 138.0 to   66387 SNYDERVL 138.0   circuit 1

Outage case 458                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66392 SOUTEAST 161.0 to   66430 SUGARMIL 161.0   circuit 1

Outage case 459                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66395 SPAN F&1 138.0 to   66405 SPAN FRK 138.0   circuit 1

Outage case 460                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66401 SPAN TAP 345.0 to   66578 TRI CITY 345.0   circuit 1

Outage case 461                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66470 SWAN VAL 115.0 to   66490 TARGHE T 115.0   circuit 1

Outage case 462                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66475 SYRACUSE 230.0 to   66515 TERMINAL 230.0   circuit 1

Outage case 463                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66480 SYRACUSE 138.0 to   66650 WARREN   138.0   circuit 1

Outage case 464                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66490 TARGHE T 115.0 to   66495 TARGHEE  115.0   circuit 1

Outage case 465                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66490 TARGHE T 115.0 to   66530 TETON    115.0   circuit 1

Outage case 466                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66500 TAYLORSV 138.0 to   66660 WEST JOR 138.0   circuit 1

Outage case 467                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66520 TERMINAL 138.0 to   66585 U CARB T 138.0   circuit 1

Outage case 468                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66520 TERMINAL 138.0 to   66595 UPP      138.0   circuit 1

Outage case 469                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66530 TETON    115.0 to   66710 WILSON   115.0   circuit 1

Outage case 470                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66540 THERPACE 115.0 to   66720 WORLAND  115.0   circuit 1

Outage case 471                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66570 TREASTON 138.0 to   66680 WHEELON  138.0   circuit 1

Outage case 472                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66570 TREASTON 138.0 to   66680 WHEELON  138.0   circuit 2

Outage case 473                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66570 TREASTON 138.0 to   66680 WHEELON  138.0   circuit 3

Outage case 474                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70021 ROCKYTMP 115.0 to   70322 PLAINVW  115.0   circuit 1

Outage case 475                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70023 ALLISON  115.0 to   70242 KENDRICK 115.0   circuit 1

Outage case 476                Y, WAPA UGP, JUNE 2002
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    switched OUT LINE        70036 ARAPAHOA 115.0 to   70037 ARAPAHOB 115.0   circuit 1
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Outage case 477               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70036 ARAPAHOA 115.0 to   70384 SHERIDAN 115.0   circuit 1
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Outage case 478               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70036 ARAPAHOA 115.0 to   70531 AIR LIQ  115.0   circuit 1
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Outage case 479               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70037 ARAPAHOB 115.0 to   70165 ENGLE3TP 115.0   circuit 1
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Outage case 480               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70038 ARAPAHOE 230.0 to   70527 SANTEFE  230.0   circuit 1
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Outage case 481               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70040 ARSENAL  115.0 to   70217 HAVANA2  115.0   circuit 1
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Outage case 482               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70046 BUCKLEY2 230.0 to   70491 TOLGATE  230.0   circuit 1
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Outage case 483               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70048 GREENVAL 230.0 to   70047 BARRLAKE 230.0   circuit 1
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Outage case 484               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70048 GREENVAL 230.0 to   70392 SKYRANCH 230.0   circuit 1
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Outage case 485               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70048 GREENVAL 230.0 to   70393 SKYRANCT 230.0   circuit 1
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Outage case 486               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70058 BO HYDRO 115.0 to   70295 NCAR     115.0   circuit 1
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Outage case 487               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70058 BO HYDRO 115.0 to   70424 SUNSHTAP 115.0   circuit 1
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Outage case 488               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70059 BO TERM  115.0 to   70424 SUNSHTAP 115.0   circuit 1
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Outage case 489               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70059 BO TERM  115.0 to   70444 VALMONT  115.0   circuit 1
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Outage case 490               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70065 BROMFLD1 115.0 to   70066 BROMFLD2 115.0   circuit 1
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Outage case 491               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70067 BUCKLEY1 230.0 to   70512 JEWELL1  230.0   circuit 1
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Outage case 492               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70071 CABINCRK 115.0 to   70197 GEORGETN 115.0   circuit 1
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Outage case 493               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70073 CALIFOR1 115.0 to   70075 CALIFOR3 115.0   circuit 1
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Outage case 494               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70073 CALIFOR1 115.0 to   70299 NORTH542 115.0   circuit 1
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Outage case 495               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70074 CALIFOR2 115.0 to   70215 HARRISPS 115.0   circuit 1
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Outage case 496               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70075 CALIFOR3 115.0 to   70074 CALIFOR2 115.0   circuit 1
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Outage case 497               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70087 CAPHILL1 115.0 to   70088 CAPHILL2 115.0   circuit 1
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Outage case 498               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70087 CAPHILL1 115.0 to   70300 NORTH547 115.0   circuit 1
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Outage case 499               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70088 CAPHILL2 115.0 to   70148 DENVTM   115.0   circuit 1
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Outage case 500               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70088 CAPHILL2 115.0 to   70215 HARRISPS 115.0   circuit 1
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Outage case 501               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70091 CASTLRCK 115.0 to   70138 DANIELPK 115.0   circuit 1
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Outage case 502               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70107 CHEROKEE 230.0 to   70047 BARRLAKE 230.0   circuit 1
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Outage case 503               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70107 CHEROKEE 230.0 to   70324 LACOMBE  230.0   circuit 1
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Outage case 504               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70107 CHEROKEE 230.0 to   70355 RIDGE    230.0   circuit 1
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Outage case 505               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70107 CHEROKEE 230.0 to   70362 RIVERDAL 230.0   circuit 1
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Outage case 506               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70108 CHEROKEN 115.0 to   70153 DERBY 1  115.0   circuit 1
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Outage case 507               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70108 CHEROKEN 115.0 to   70154 DERBY 2  115.0   circuit 1
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Outage case 508               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70108 CHEROKEN 115.0 to   70175 FEDERHT2 115.0   circuit 2
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Outage case 509               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70108 CHEROKEN 115.0 to   70307 P.VALLEY 115.0   circuit 1
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Outage case 510               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70109 CHEROKES 115.0 to   70039 ARGO     115.0   circuit 1
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Outage case 511               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70109 CHEROKES 115.0 to   70041 ARVADA   115.0   circuit 1
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Outage case 512               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70109 CHEROKES 115.0 to   70108 CHEROKEN 115.0   circuit 1
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Outage case 513              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70109 CHEROKES 115.0 to   70126 CONOCO   115.0   circuit 1

Outage case 514              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70109 CHEROKES 115.0 to   70174 FEDERHT1 115.0   circuit 1

Outage case 515              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70109 CHEROKES 115.0 to   70276 MAPLETO1 115.0   circuit 1

Outage case 516              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70109 CHEROKES 115.0 to   70277 MAPLETO2 115.0   circuit 1

Outage case 517              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70109 CHEROKES 115.0 to   70298 NORTH PS 115.0   circuit 1

Outage case 518              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70109 CHEROKES 115.0 to   70299 NORTH542 115.0   circuit 2

Outage case 519              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70112 CLARK    230.0 to   70241 JORDAN   230.0   circuit 1

Outage case 520              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70124 CONIFER  115.0 to   70429 TINYTOWN 115.0   circuit 1

Outage case 521              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70127 COORSREC 115.0 to   70194 FULTONTS 115.0   circuit 1

Outage case 522              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70137 DAKOTA   115.0 to   70036 ARAPAHOA 115.0   circuit 1

Outage case 523              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70139 DANIELPK 230.0 to   70212 GREENWD  230.0   circuit 1

Outage case 524              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70139 DANIELPK 230.0 to   70278 MARCY    230.0   circuit 1

Outage case 525              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70139 DANIELPK 230.0 to   70284 SURREYRG 230.0   circuit 1

Outage case 526              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70139 DANIELPK 230.0 to   70286 MIDWAYPS 230.0   circuit 1

Outage case 527              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70139 DANIELPK 230.0 to   70331 PRAIRIE  230.0   circuit 1

Outage case 528              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70142 DEERCREK 115.0 to   70463 WATERTON 115.0   circuit 1

Outage case 529              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70153 DERBY 1  115.0 to   70040 ARSENAL  115.0   circuit 1

Outage case 530              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70154 DERBY 2  115.0 to   70216 HAVANA1  115.0   circuit 1

Outage case 531              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70156 DILLON   230.0 to   70072 CABINCRK 230.0   circuit 1

Outage case 532              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70162 EAST     115.0 to   70430 TOLGATE1 115.0   circuit 1

Outage case 533              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70162 EAST     115.0 to   70431 TOLGATE2 115.0   circuit 1

Outage case 534              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70163 ELATI1   230.0 to   70149 DENVTM   230.0   circuit 1

Outage case 535              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70163 ELATI1   230.0 to   70170 ELATI2   230.0   circuit 1

Outage case 536              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70164 ELDORADO 115.0 to   70295 NCAR     115.0   circuit 1

Outage case 537              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70164 ELDORADO 115.0 to   70322 PLAINVW  115.0   circuit 1

Outage case 538              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70164 ELDORADO 115.0 to   70365 ROCKYFLA 115.0   circuit 1

Outage case 539              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70164 ELDORADO 115.0 to   70444 VALMONT  115.0   circuit 1

Outage case 540              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70165 ENGLE3TP 115.0 to   70168 ENGLEWD3 115.0   circuit 1

Outage case 541              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70165 ENGLE3TP 115.0 to   70263 LITTLET1 115.0   circuit 1

Outage case 542              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70166 ENGLEWD1 115.0 to   70384 SHERIDAN 115.0   circuit 1

Outage case 543              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70167 ENGLEWD2 115.0 to   70037 ARAPAHOB 115.0   circuit 1

Outage case 544              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70169 ENNIS    115.0 to   70234 HUDSON   115.0   circuit 1

Outage case 545              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70172 FED CNTR 115.0 to   70173 FEDCTRTP 115.0   circuit 1

Outage case 546              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70173 FEDCTRTP 115.0 to   70148 DENVTM   115.0   circuit 1

Outage case 547              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70175 FEDERHT2 115.0 to   70066 BROMFLD2 115.0   circuit 1

Outage case 548              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70191 FTLUPTON 115.0 to   70127 COORSREC 115.0   circuit 1

Outage case 549              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70191 FTLUPTON 115.0 to   70234 HUDSON   115.0   circuit 1
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Outage case 550                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70191 FTLUPTON 115.0 to   70450 VASQUEZ  115.0   circuit 1

Outage case 551                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70192 FTLUPTON 230.0 to   70048 GREENVAL 230.0   circuit 1

Outage case 552                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70192 FTLUPTON 230.0 to   70311 PAWNEE   230.0   circuit 1

Outage case 553                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70192 FTLUPTON 230.0 to   70362 RIVERDAL 230.0   circuit 1

Outage case 554                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70192 FTLUPTON 230.0 to   70461 WASHINGT 230.0   circuit 1

Outage case 555                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70194 FULTONTS 115.0 to   70171 ERIETAP  115.0   circuit 1

Outage case 556                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70197 GEORGETN 115.0 to   70218 HENDERPS 115.0   circuit 1

Outage case 557                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70198 GILCREST 115.0 to   70450 VASQUEZ  115.0   circuit 1

Outage case 558                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70200 GLENN PS 230.0 to   70107 CHEROKEE 230.0   circuit 1

Outage case 559                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70200 GLENN PS 230.0 to   70461 WASHINGT 230.0   circuit 1

Outage case 560                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70202 GODFRETP 115.0 to   70198 GILCREST 115.0   circuit 1

Outage case 561                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70202 GODFRETP 115.0 to   70209 GREELEY  115.0   circuit 1

Outage case 562                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70202 GODFRETP 115.0 to   70240 JOHNSTN  115.0   circuit 1

Outage case 563                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70208 GRAY ST  115.0 to   70045 BANCROFT 115.0   circuit 1

Outage case 564                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70208 GRAY ST  115.0 to   70148 DENVTM   115.0   circuit 1

Outage case 565                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70208 GRAY ST  115.0 to   70402 SOUTH 2  115.0   circuit 1

Outage case 566                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70209 GREELEY  115.0 to   70290 MONFORT  115.0   circuit 1

Outage case 567                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70209 GREELEY  115.0 to   70470 WELD  PS 115.0   circuit 1

Outage case 568                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70212 GREENWD  230.0 to   70112 CLARK    230.0   circuit 1

Outage case 569                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70212 GREENWD  230.0 to   70331 PRAIRIE  230.0   circuit 1

Outage case 570                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70212 GREENWD  230.0 to   70428 TECH CTR 230.0   circuit 1

Outage case 571                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70216 HAVANA1  115.0 to   70537 FITZSMNS 115.0   circuit 1

Outage case 572                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70217 HAVANA2  115.0 to   70162 EAST     115.0   circuit 1

Outage case 573                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70224 HOGBACK  115.0 to   70050 BERGENPK 115.0   circuit 1

Outage case 574                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70224 HOGBACK  115.0 to   70400 SODALAKE 115.0   circuit 1

Outage case 575                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70237 IDAHOSPG 230.0 to   70072 CABINCRK 230.0   circuit 1

Outage case 576                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70239 JEWELL2  230.0 to   70260 LEETSDAL 230.0   circuit 1

Outage case 577                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70241 JORDAN   230.0 to   70283 MEADOWHL 230.0   circuit 1

Outage case 578                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70242 KENDRICK 115.0 to   70045 BANCROFT 115.0   circuit 1

Outage case 579                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70244 LAFAYETT 115.0 to   70171 ERIETAP  115.0   circuit 1

Outage case 580                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70251 LAKEWOD1 115.0 to   70208 GRAY ST  115.0   circuit 1

Outage case 581                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70252 LAKEWOD2 115.0 to   70208 GRAY ST  115.0   circuit 1

Outage case 582                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70259 LEETSDAL 115.0 to   70215 HARRISPS 115.0   circuit 1

Outage case 583                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70259 LEETSDAL 115.0 to   70443 UNIVRSTP 115.0   circuit 1

Outage case 584                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70260 LEETSDAL 230.0 to   70530 MONACO   230.0   circuit 1

Outage case 585                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70261 LEGGETT  230.0 to   70297 NIWOT    230.0   circuit 1

Outage case 586                Y, WAPA UGP, JUNE 2002
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    switched OUT LINE        70262 LEYDEN   115.0 to   70322 PLAINVW  115.0   circuit 1
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Outage case 587               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70262 LEYDEN   115.0 to   70340 QUAKER1  115.0   circuit 1
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Outage case 588               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70263 LITTLET1 115.0 to   70264 LITTLET2 115.0   circuit 1
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Outage case 589               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70264 LITTLET2 115.0 to   70463 WATERTON 115.0   circuit 1
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Outage case 590               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70265 LOOKOUT  115.0 to   70224 HOGBACK  115.0   circuit 1
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Outage case 591               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70265 LOOKOUT  115.0 to   70342 QUAKERTP 115.0   circuit 1
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Outage case 592               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70266 LOOKOUT  230.0 to   70072 CABINCRK 230.0   circuit 2
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Outage case 593               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70266 LOOKOUT  230.0 to   70100 CHATFLD  230.0   circuit 1
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Outage case 594               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70266 LOOKOUT  230.0 to   70237 IDAHOSPG 230.0   circuit 1
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Outage case 595               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70266 LOOKOUT  230.0 to   70261 LEGGETT  230.0   circuit 1
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Outage case 596               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70266 LOOKOUT  230.0 to   70355 RIDGE    230.0   circuit 1
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Outage case 597               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70266 LOOKOUT  230.0 to   70480 WESTPS   230.0   circuit 1
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Outage case 598               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70266 LOOKOUT  230.0 to   70570 INDIANA  230.0   circuit 1
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Outage case 599               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70269 LOUISVIL 115.0 to   70066 BROMFLD2 115.0   circuit 1
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Outage case 600               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70276 MAPLETO1 115.0 to   70300 NORTH547 115.0   circuit 1
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Outage case 601               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70279 MARTIN 1 115.0 to   70463 WATERTON 115.0   circuit 1
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Outage case 602               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70280 MARTIN 2 115.0 to   70463 WATERTON 115.0   circuit 1
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Outage case 603               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70284 SURREYRG 230.0 to   70551 MURPHY   230.0   circuit 1
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Outage case 604               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70291 MONROEPS 230.0 to   70170 ELATI2   230.0   circuit 1
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Outage case 605               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70291 MONROEPS 230.0 to   70260 LEETSDAL 230.0   circuit 1
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Outage case 606               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70297 NIWOT    230.0 to   70213 GUNBARRE 230.0   circuit 1
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Outage case 607               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70298 NORTH PS 115.0 to   70377 SANDOWN  115.0   circuit 1
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Outage case 608               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70307 P.VALLEY 115.0 to   70191 FTLUPTON 115.0   circuit 1
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Outage case 609               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70311 PAWNEE   230.0 to   70139 DANIELPK 230.0   circuit 1
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Outage case 610               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70311 PAWNEE   230.0 to   70343 QUINCY   230.0   circuit 1
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Outage case 611               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70323 PLATTEPS 115.0 to   70039 ARGO     115.0   circuit 1
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Outage case 612               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70323 PLATTEPS 115.0 to   70148 DENVTM   115.0   circuit 1
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Outage case 613               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70324 LACOMBE  230.0 to   70149 DENVTM   230.0   circuit 1
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Outage case 614               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70328 PORTAL   115.0 to   70218 HENDERPS 115.0   circuit 1
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Outage case 615               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70340 QUAKER1  115.0 to   70341 QUAKER2  115.0   circuit 1
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Outage case 616               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70342 QUAKERTP 115.0 to   70173 FEDCTRTP 115.0   circuit 1
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Outage case 617               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70342 QUAKERTP 115.0 to   70341 QUAKER2  115.0   circuit 1
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Outage case 618               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70343 QUINCY   230.0 to   70396 SMOKYHIL 230.0   circuit 1
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Outage case 619               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70345 RALSTON1 115.0 to   70354 RIDGE    115.0   circuit 1
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Outage case 620               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70346 RALSTON2 115.0 to   70365 ROCKYFLA 115.0   circuit 1
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Outage case 621               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70354 RIDGE    115.0 to   70251 LAKEWOD1 115.0   circuit 1
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Outage case 622               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70354 RIDGE    115.0 to   70252 LAKEWOD2 115.0   circuit 1
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Outage case 623              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70354 RIDGE    115.0 to   70262 LEYDEN   115.0   circuit 1
Outage case 624              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70354 RIDGE    115.0 to   70346 RALSTON2 115.0   circuit 1
Outage case 625              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70354 RIDGE    115.0 to   70369 RUSSELL  115.0   circuit 1
Outage case 626              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70368 ROSEDALE 115.0 to   70439 UNC      115.0   circuit 1
Outage case 627              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70368 ROSEDALE 115.0 to   70470 WELD  PS 115.0   circuit 1
Outage case 628              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70369 RUSSELL  115.0 to   70041 ARVADA   115.0   circuit 1
Outage case 629              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70377 SANDOWN  115.0 to   70277 MAPLETO2 115.0   circuit 1
Outage case 630              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70382 SEMPER   115.0 to   70065 BROMFLD1 115.0   circuit 1
Outage case 631              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70382 SEMPER   115.0 to   70174 FEDERHT1 115.0   circuit 1
Outage case 632              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70392 SKYRANCH 230.0 to   70432 TOWER    230.0   circuit 1
Outage case 633              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70393 SKYRANCT 230.0 to   70396 SMOKYHIL 230.0   circuit 1
Outage case 634              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70395 SMOKYHIL 115.0 to   70416 STRASBRG 115.0   circuit 1
Outage case 635              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70395 SMOKYHIL 115.0 to   70430 TOLGATE1 115.0   circuit 1
Outage case 636              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70395 SMOKYHIL 115.0 to   70431 TOLGATE2 115.0   circuit 1
Outage case 637              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70395 SMOKYHIL 115.0 to   70521 PEAKVIEW 115.0   circuit 1
Outage case 638              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70396 SMOKYHIL 230.0 to   70046 BUCKLEY2 230.0   circuit 1
Outage case 639              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70396 SMOKYHIL 230.0 to   70067 BUCKLEY1 230.0   circuit 1
Outage case 640              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70396 SMOKYHIL 230.0 to   70283 MEADOWHL 230.0   circuit 1
Outage case 641              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70398 SOUTH1TP 115.0 to   70037 ARAPAHOB 115.0   circuit 1
Outage case 642              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70398 SOUTH1TP 115.0 to   70045 BANCROFT 115.0   circuit 1
Outage case 643              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70400 SODALAKE 115.0 to   70023 ALLISON  115.0   circuit 1
Outage case 644              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70400 SODALAKE 115.0 to   70142 DEERCREK 115.0   circuit 1
Outage case 645              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70400 SODALAKE 115.0 to   70429 TINYTOWN 115.0   circuit 1
Outage case 646              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70401 SOUTH 1  115.0 to   70398 SOUTH1TP 115.0   circuit 1
Outage case 647              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70410 ST.VRAIN 230.0 to   70048 GREENVAL 230.0   circuit 1
Outage case 648              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70410 ST.VRAIN 230.0 to   70192 FTLUPTON 230.0   circuit 1
Outage case 649              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70410 ST.VRAIN 230.0 to   70192 FTLUPTON 230.0   circuit 2
Outage case 650              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70410 ST.VRAIN 230.0 to   70297 NIWOT    230.0   circuit 1
Outage case 651              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70410 ST.VRAIN 230.0 to   70474 WINDSOR  230.0   circuit 1
Outage case 652              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70424 SUNSHTAP 115.0 to   70423 SUNSHINE 115.0   circuit 1
Outage case 653              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70427 TARRYALL 230.0 to   70139 DANIELPK 230.0   circuit 1
Outage case 654              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70428 TECH CTR 230.0 to   70417 SULLIVN  230.0   circuit 1
Outage case 655              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70432 TOWER    230.0 to   70396 SMOKYHIL 230.0   circuit 1
Outage case 656              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70439 UNC      115.0 to   70290 MONFORT  115.0   circuit 1
Outage case 657              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70441 UNIVERS1 115.0 to   70442 UNIVERS2 115.0   circuit 1
Outage case 658              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70441 UNIVERS1 115.0 to   70443 UNIVRSTP 115.0   circuit 1
Outage case 659              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70442 UNIVERS2 115.0 to   70036 ARAPAHOA 115.0   circuit 1
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Outage case 660                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70444 VALMONT  115.0 to   70059 BO TERM  115.0   circuit 2

Outage case 661                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70444 VALMONT  115.0 to   70065 BROMFLD1 115.0   circuit 1

Outage case 662                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70444 VALMONT  115.0 to   70244 LAFAYETT 115.0   circuit 1

Outage case 663                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70444 VALMONT  115.0 to   70269 LOUISVIL 115.0   circuit 1

Outage case 664                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70444 VALMONT  115.0 to   70345 RALSTON1 115.0   circuit 1

Outage case 665                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70447 VALMONT  230.0 to   70410 ST.VRAIN 230.0   circuit 1

Outage case 666                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70447 VALMONT  230.0 to   70543 SIMMS    230.0   circuit 1

Outage case 667                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70463 WATERTON 115.0 to   70522 ROXBOROU 115.0   circuit 1

Outage case 668                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70464 WATERTON 230.0 to   70100 CHATFLD  230.0   circuit 1

Outage case 669                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70464 WATERTON 230.0 to   70278 MARCY    230.0   circuit 1

Outage case 670                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70470 WELD  PS 115.0 to   70240 JOHNSTN  115.0   circuit 1

Outage case 671                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70471 WELD  PS 230.0 to   70410 ST.VRAIN 230.0   circuit 1

Outage case 672                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70480 WESTPS   230.0 to   70149 DENVTM   230.0   circuit 1

Outage case 673                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70491 TOLGATE  230.0 to   70239 JEWELL2  230.0   circuit 1

Outage case 674                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70512 JEWELL1  230.0 to   70417 SULLIVN  230.0   circuit 1

Outage case 675                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70527 SANTEFE  230.0 to   70139 DANIELPK 230.0   circuit 1

Outage case 676                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70530 MONACO   230.0 to   70212 GREENWD  230.0   circuit 1

Outage case 677                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70531 AIR LIQ  115.0 to   70402 SOUTH 2  115.0   circuit 1

Outage case 678                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70537 FITZSMNS 115.0 to   70162 EAST     115.0   circuit 1

Outage case 679                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70543 SIMMS    230.0 to   70570 INDIANA  230.0   circuit 1

Outage case 680                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70551 MURPHY   230.0 to   70396 SMOKYHIL 230.0   circuit 1

Outage case 681                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73002 AIRPORT  115.0 to   73026 BOYD     115.0   circuit 1

Outage case 682                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73002 AIRPORT  115.0 to   73432 KODAKWTP 115.0   circuit 1

Outage case 683                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73003 AKRON    115.0 to   73020 BEAVERCK 115.0   circuit 1

Outage case 684                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73003 AKRON    115.0 to   73372 OTIS LM  115.0   circuit 1

Outage case 685                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73004 ALCOVA   115.0 to   73042 CASPERLM 115.0   circuit 1

Outage case 686                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73004 ALCOVA   115.0 to   73042 CASPERLM 115.0   circuit 2

Outage case 687                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73004 ALCOVA   115.0 to   73062 FREMONT  115.0   circuit 1

Outage case 688                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73004 ALCOVA   115.0 to   73137 MIRACLEM 115.0   circuit 1

Outage case 689                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73004 ALCOVA   115.0 to   73137 MIRACLEM 115.0   circuit 2

Outage case 690                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73004 ALCOVA   115.0 to   73162 RADERVIL 115.0   circuit 1

Outage case 691                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73005 ALVIN    115.0 to   73175 SANDHILL 115.0   circuit 1

Outage case 692                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73005 ALVIN    115.0 to   73210 WAUNETA  115.0   circuit 1

Outage case 693                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73005 ALVIN    115.0 to   73304 CRETESWT 115.0   circuit 1

Outage case 694                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73006 ANTON    115.0 to   73010 ARICKARE 115.0   circuit 1

Outage case 695                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73006 ANTON    115.0 to   73125 LSCHANCE 115.0   circuit 1

Outage case 696                Y, WAPA UGP, JUNE 2002
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    switched OUT LINE        73007 ARAPASUB 115.0 to   73207 WAANIBE  115.0   circuit 1
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Outage case 697               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73008 ARCHER   115.0 to   73043 CHEYENNE 115.0   circuit 1
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Outage case 698               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73008 ARCHER   115.0 to   73140 MYERS TP 115.0   circuit 1
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Outage case 699               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73008 ARCHER   115.0 to   73152 PINEBLUF 115.0   circuit 1
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Outage case 700               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73008 ARCHER   115.0 to   73183 SKYLINE  115.0   circuit 1
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Outage case 701               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73008 ARCHER   115.0 to   73480 CROWCRK  115.0   circuit 1
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Outage case 702               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73009 ARCHER   230.0 to   73011 AULT     230.0   circuit 1
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Outage case 703               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73009 ARCHER   230.0 to   73190 STEGALL  230.0   circuit 1
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Outage case 704               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73009 ARCHER   230.0 to   79039 HAYDEN   230.0   circuit 1
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Outage case 705               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73010 ARICKARE 115.0 to   73094 JOES     115.0   circuit 1
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Outage case 706               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73011 AULT     230.0 to   73165 RAWHIDE  230.0   circuit 1
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Outage case 707               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73011 AULT     230.0 to   73199 TIMBERLN 230.0   circuit 1
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Outage case 708               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73011 AULT     230.0 to   73212 WELD  LM 230.0   circuit 1
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Outage case 709               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73011 AULT     230.0 to   73212 WELD  LM 230.0   circuit 2
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Outage case 710               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73012 AULT     345.0 to   73108 LAR.RIVR 345.0   circuit 1
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Outage case 711               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73012 AULT     345.0 to   79014 CRAIG    345.0   circuit 1
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Outage case 712               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73013 B.CK PS  115.0 to   73020 BEAVERCK 115.0   circuit 1
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Outage case 713               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73014 B.CK PS  230.0 to   73192 STORY    230.0   circuit 1
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Outage case 714               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73015 B.CK TRI 115.0 to   73020 BEAVERCK 115.0   circuit 1
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Outage case 715               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73016 B.CK TRI 230.0 to   73192 STORY    230.0   circuit 1
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Outage case 716               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73017 B.SANDY  115.0 to   73125 LSCHANCE 115.0   circuit 1
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Outage case 717               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73017 B.SANDY  115.0 to   73318 LIMON    115.0   circuit 1
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Outage case 718               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73018 B.SANDY  230.0 to   73036 BURLNGTN 230.0   circuit 1
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Outage case 719               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73018 B.SANDY  230.0 to   73531 LINCOLNT 230.0   circuit 1
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Outage case 720               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73019 BASIN    115.0 to   73075 GREYBULL 115.0   circuit 1
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Outage case 721               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73019 BASIN    115.0 to   73222 WORLANTP 115.0   circuit 1
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Outage case 722               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73020 BEAVERCK 115.0 to   73031 BRUSHTAP 115.0   circuit 1
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Outage case 723               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73020 BEAVERCK 115.0 to   73065 GARY     115.0   circuit 1
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Outage case 724               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73020 BEAVERCK 115.0 to   73136 MESSEX   115.0   circuit 1
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Outage case 725               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73020 BEAVERCK 115.0 to   73464 ADENA    115.0   circuit 1
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Outage case 726               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73022 BGEORGE  115.0 to   73123 LOVELL   115.0   circuit 1
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Outage case 727               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73022 BGEORGE  115.0 to   73534 MEETSETP 115.0   circuit 1
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Outage case 728               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73023 BIJOUTAP 115.0 to   73097 KIOWA CK 115.0   circuit 1
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Outage case 729               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73023 BIJOUTAP 115.0 to   73379 FMWEST   115.0   circuit 1
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Outage case 730               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73024 BLKHLWTP 115.0 to   73044 COBBLKTP 115.0   circuit 1
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Outage case 731               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73024 BLKHLWTP 115.0 to   73145 NUNN     115.0   circuit 1
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Outage case 732               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73025 BONNY CK 115.0 to   73035 BURLNGTN 115.0   circuit 1
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Outage case 733              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73025 BONNY CK 115.0 to   73185 SO. FORK 115.0   circuit 1
Outage case 734              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73026 BOYD     115.0 to   73050 DERBYHIL 115.0   circuit 1
Outage case 735              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73026 BOYD     115.0 to   73114 LONETREE 115.0   circuit 1
Outage case 736              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73026 BOYD     115.0 to   73118 LOVE E   115.0   circuit 1
Outage case 737              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73027 BOYD     230.0 to   73078 HARMONY  230.0   circuit 1
Outage case 738              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73027 BOYD     230.0 to   73116 LONGPEAK 230.0   circuit 1
Outage case 739              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73028 BOYSEN   115.0 to   73045 COPPERMT 115.0   circuit 1
Outage case 740              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73028 BOYSEN   115.0 to   73197 THERMOPL 115.0   circuit 1
Outage case 741              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73028 BOYSEN   115.0 to   73479 HARRSBRG 115.0   circuit 1
Outage case 742              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73029 BRIDGEPT 115.0 to   73131 MCGREW   115.0   circuit 1
Outage case 743              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73029 BRIDGEPT 115.0 to   73236 GREENWOD 115.0   circuit 1
Outage case 744              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73030 BRIGHTNW 115.0 to   73493 SANDCRK  115.0   circuit 1
Outage case 745              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73030 BRIGHTNW 115.0 to   73503 ERIE TAP 115.0   circuit 1
Outage case 746              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73031 BRUSHTAP 115.0 to   73305 EFMORGTP 115.0   circuit 1
Outage case 747              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73034 BURL PSC 115.0 to   73209 WANIBETP 115.0   circuit 1
Outage case 748              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73034 BURL PSC 115.0 to   73485 BURL KC  115.0   circuit 1
Outage case 749              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73035 BURLNGTN 115.0 to   73485 BURL KC  115.0   circuit 1
Outage case 750              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73037 BUSHNELL 115.0 to   73038 BUSHNLTP 115.0   circuit 1
Outage case 751              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73038 BUSHNLTP 115.0 to   73096 KIMBALL  115.0   circuit 1
Outage case 752              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73038 BUSHNLTP 115.0 to   73152 PINEBLUF 115.0   circuit 1
Outage case 753              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73039 CARTERLK 115.0 to   73058 FLATIRON 115.0   circuit 1
Outage case 754              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73039 CARTERLK 115.0 to   73124 LOVEWTAP 115.0   circuit 1
Outage case 755              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73041 CARTERMT 115.0 to   73197 THERMOPL 115.0   circuit 1
Outage case 756              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73041 CARTERMT 115.0 to   73534 MEETSETP 115.0   circuit 1
Outage case 757              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73042 CASPERLM 115.0 to   73070 GLENRCKN 115.0   circuit 1
Outage case 758              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73043 CHEYENNE 115.0 to   73077 HAPPYJCK 115.0   circuit 1
Outage case 759              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73043 CHEYENNE 115.0 to   73109 LARAMIE  115.0   circuit 1
Outage case 760              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73043 CHEYENNE 115.0 to   73480 CROWCRK  115.0   circuit 1
Outage case 761              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73043 CHEYENNE 115.0 to   73504 PONNEQUI 115.0   circuit 1
Outage case 762              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73044 COBBLKTP 115.0 to   73201 TIMNTHTP 115.0   circuit 1
Outage case 763              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73045 COPPERMT 115.0 to   73162 RADERVIL 115.0   circuit 1
Outage case 764              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73046 DALTON   115.0 to   73179 SIDNEY   115.0   circuit 1
Outage case 765              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73046 DALTON   115.0 to   73236 GREENWOD 115.0   circuit 1
Outage case 766              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73047 DEERINGL 115.0 to   73053 ECKLEY   115.0   circuit 1
Outage case 767              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73047 DEERINGL 115.0 to   73142 N.YUMA   115.0   circuit 1
Outage case 768              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73047 DEERINGL 115.0 to   73230 YUMA     115.0   circuit 1
Outage case 769              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73047 DEERINGL 115.0 to   73372 OTIS LM  115.0   circuit 1
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Outage case 770                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73048 DEL CTAP 115.0 to   73049 DELCAMIN 115.0   circuit 1

Outage case 771                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73048 DEL CTAP 115.0 to   73115 LONGPEAK 115.0   circuit 1

Outage case 772                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73048 DEL CTAP 115.0 to   73133 MEADOW   115.0   circuit 1

Outage case 773                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73049 DELCAMIN 115.0 to   73501 RINNVALL 115.0   circuit 1

Outage case 774                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73050 DERBYHIL 115.0 to   73373 VALLEYLM 115.0   circuit 1

Outage case 775                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73051 DIXON CK 115.0 to   73052 DRAKE RD 115.0   circuit 1

Outage case 776                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73051 DIXON CK 115.0 to   73089 HRSTHTAP 115.0   circuit 1

Outage case 777                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73051 DIXON CK 115.0 to   73149 OVERLAND 115.0   circuit 1

Outage case 778                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73052 DRAKE RD 115.0 to   73198 TIMBERLN 115.0   circuit 1

Outage case 779                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73053 ECKLEY   115.0 to   73225 WRAY TAP 115.0   circuit 1

Outage case 780                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73053 ECKLEY   115.0 to   73326 ROBB     115.0   circuit 1

Outage case 781                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73053 ECKLEY   115.0 to   73371 BETHELLM 115.0   circuit 1

Outage case 782                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73056 ESTES    115.0 to   73127 LYONS    115.0   circuit 1

Outage case 783                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73056 ESTES    115.0 to   73155 POLEHILL 115.0   circuit 1

Outage case 784                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73056 ESTES    115.0 to   73232 MARYLKSB 115.0   circuit 1

Outage case 785                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73056 ESTES    115.0 to   73233 MARYLKTP 115.0   circuit 1

Outage case 786                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73058 FLATIRON 115.0 to   73089 HRSTHTAP 115.0   circuit 1

Outage case 787                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73058 FLATIRON 115.0 to   73155 POLEHILL 115.0   circuit 1

Outage case 788                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73059 FLEMING  115.0 to   73080 HAXTUN   115.0   circuit 1

Outage case 789                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73059 FLEMING  115.0 to   73478 GALIEN   115.0   circuit 1

Outage case 790                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73060 FORDHAM  115.0 to   73113 LNGMNTNW 115.0   circuit 1

Outage case 791                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73060 FORDHAM  115.0 to   73196 TERRY    115.0   circuit 1

Outage case 792                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73060 FORDHAM  115.0 to   73437 ROGERSRD 115.0   circuit 1

Outage case 793                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73061 FRASER   138.0 to   73220 WINDYGAP 138.0   circuit 1

Outage case 794                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73063 FRENCHCK 115.0 to   73080 HAXTUN   115.0   circuit 1

Outage case 795                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73063 FRENCHCK 115.0 to   73210 WAUNETA  115.0   circuit 1

Outage case 796                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73065 GARY     115.0 to   73221 WOODROW  115.0   circuit 1

Outage case 797                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73066 GEMCTYTP 115.0 to   73077 HAPPYJCK 115.0   circuit 1

Outage case 798                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73066 GEMCTYTP 115.0 to   73146 OASISTAP 115.0   circuit 1

Outage case 799                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73066 GEMCTYTP 115.0 to   73187 SPRINGCK 115.0   circuit 1

Outage case 800                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73067 GERING   115.0 to   73131 MCGREW   115.0   circuit 1

Outage case 801                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73067 GERING   115.0 to   73189 STEGALL  115.0   circuit 1

Outage case 802                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73067 GERING   115.0 to   73365 EMIGRANT 115.0   circuit 1

Outage case 803                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73069 GLENDO   115.0 to   73070 GLENRCKN 115.0   circuit 1

Outage case 804                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73069 GLENDO   115.0 to   73076 GUERNTAP 115.0   circuit 1

Outage case 805                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73069 GLENDO   115.0 to   73153 PODOLAK  115.0   circuit 1

Outage case 806                Y, WAPA UGP, JUNE 2002
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    switched OUT LINE        73069 GLENDO   115.0 to   73255 LINGLETP 115.0   circuit 1
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Outage case 807               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73069 GLENDO   115.0 to   73366 WAGNHNDS 115.0   circuit 1
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Outage case 808               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73071 GLENRCKS 115.0 to   73167 REFNRYTP 115.0   circuit 1
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Outage case 809               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73071 GLENRCKS 115.0 to   73366 WAGNHNDS 115.0   circuit 1
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Outage case 810               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73072 GOREPASS 138.0 to   73102 KREMLING 138.0   circuit 1
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Outage case 811               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73072 GOREPASS 138.0 to   73220 WINDYGAP 138.0   circuit 1
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Outage case 812               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73072 GOREPASS 138.0 to   79038 HAYDEN   138.0   circuit 1
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Outage case 813               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73075 GREYBULL 115.0 to   73123 LOVELL   115.0   circuit 1
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Outage case 814               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73075 GREYBULL 115.0 to   73340 NAHNEJEN 115.0   circuit 1
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Outage case 815               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73076 GUERNTAP 115.0 to   73189 STEGALL  115.0   circuit 1
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Outage case 816               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73076 GUERNTAP 115.0 to   73359 LIMESTON 115.0   circuit 1
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Outage case 817               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73076 GUERNTAP 115.0 to   73368 GUERNRRL 115.0   circuit 1
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Outage case 818               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73077 HAPPYJCK 115.0 to   73348 CORLETT  115.0   circuit 1
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Outage case 819               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73078 HARMONY  230.0 to   73199 TIMBERLN 230.0   circuit 1
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Outage case 820               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73079 HARVARD  115.0 to   73113 LNGMNTNW 115.0   circuit 1
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Outage case 821               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73081 HDOME    115.0 to   73234 JIMRDYTP 115.0   circuit 1
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Outage case 822               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73083 HELL CK  115.0 to   73084 HELL TAP 115.0   circuit 1
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Outage case 823               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73083 HELL CK  115.0 to   73174 SAGEBRSH 115.0   circuit 1
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Outage case 824               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73084 HELL TAP 115.0 to   73110 LIBERTY  115.0   circuit 1
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Outage case 825               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73084 HELL TAP 115.0 to   73185 SO. FORK 115.0   circuit 1
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Outage case 826               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73086 HORSESHO 115.0 to   73120 LOVE W   115.0   circuit 1
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Outage case 827               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73086 HORSESHO 115.0 to   73499 BOYDLAKE 115.0   circuit 1
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Outage case 828               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73087 WESTHILL 230.0 to   73148 OSAGE    230.0   circuit 1
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Outage case 829               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73087 WESTHILL 230.0 to   73164 LANGE    230.0   circuit 1
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Outage case 830               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73088 HOYT     115.0 to   73103 L.MEADOW 115.0   circuit 1
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Outage case 831               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73088 HOYT     115.0 to   73464 ADENA    115.0   circuit 1
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Outage case 832               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73088 HOYT     115.0 to   73493 SANDCRK  115.0   circuit 1
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Outage case 833               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73089 HRSTHTAP 115.0 to   73203 TRILBY   115.0   circuit 1
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Outage case 834               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73089 HRSTHTAP 115.0 to   73235 MASONVIL 115.0   circuit 1
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Outage case 835               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73090 HYGIENE  115.0 to   73113 LNGMNTNW 115.0   circuit 1
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Outage case 836               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73090 HYGIENE  115.0 to   73127 LYONS    115.0   circuit 1
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Outage case 837               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73091 IDALIA   115.0 to   73185 SO. FORK 115.0   circuit 1
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Outage case 838               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73091 IDALIA   115.0 to   73206 VERNONTP 115.0   circuit 1
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Outage case 839               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73092 JACINTO  115.0 to   73096 KIMBALL  115.0   circuit 1
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Outage case 840               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73092 JACINTO  115.0 to   73179 SIDNEY   115.0   circuit 1
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Outage case 841               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73093 JIMREADY 115.0 to   73234 JIMRDYTP 115.0   circuit 1
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Outage case 842               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73095 KERSEYTP 115.0 to   73158 PROSPEC  115.0   circuit 1
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Outage case 843              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73095 KERSEYTP 115.0 to   73211 WELD  LM 115.0   circuit 1
Outage case 844              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73096 KIMBALL  115.0 to   73355 KIMBALLC 115.0   circuit 1
Outage case 845              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73097 KIOWA CK 115.0 to   73147 ORCHARD  115.0   circuit 1
Outage case 846              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73097 KIOWA CK 115.0 to   73158 PROSPEC  115.0   circuit 1
Outage case 847              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73097 KIOWA CK 115.0 to   73213 WIGGINS  115.0   circuit 1
Outage case 848              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73098 KODAK    115.0 to   73369 KODAKETP 115.0   circuit 1
Outage case 849              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73098 KODAK    115.0 to   73432 KODAKWTP 115.0   circuit 1
Outage case 850              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73099 KORTES   115.0 to   73100 KORTESTP 115.0   circuit 1
Outage case 851              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73099 KORTES   115.0 to   73137 MIRACLEM 115.0   circuit 1
Outage case 852              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73100 KORTESTP 115.0 to   73137 MIRACLEM 115.0   circuit 1
Outage case 853              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73100 KORTESTP 115.0 to   73176 SEMINOE  115.0   circuit 1
Outage case 854              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73102 KREMLING 138.0 to   73204 TROUBLE  138.0   circuit 1
Outage case 855              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73103 L.MEADOW 115.0 to   73213 WIGGINS  115.0   circuit 1
Outage case 856              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73104 LAGRANGE 115.0 to   73173 ROUNDTOP 115.0   circuit 1
Outage case 857              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73104 LAGRANGE 115.0 to   73189 STEGALL  115.0   circuit 1
Outage case 858              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73105 LAPORTE  115.0 to   73298 BELLVUTP 115.0   circuit 1
Outage case 859              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73105 LAPORTE  115.0 to   73506 LAPORTAP 115.0   circuit 1
Outage case 860              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73106 LAPORTE  230.0 to   73165 RAWHIDE  230.0   circuit 1
Outage case 861              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73107 LAR.RIVR 230.0 to   73190 STEGALL  230.0   circuit 1
Outage case 862              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73108 LAR.RIVR 345.0 to   73193 STORY    345.0   circuit 1
Outage case 863              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73109 LARAMIE  115.0 to   73362 MEDBOWTP 115.0   circuit 1
Outage case 864              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73111 LINDEN   115.0 to   73156 POUDRE   115.0   circuit 1
Outage case 865              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73111 LINDEN   115.0 to   73198 TIMBERLN 115.0   circuit 1
Outage case 866              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73112 LINGLE   115.0 to   73255 LINGLETP 115.0   circuit 1
Outage case 867              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73113 LNGMNTNW 115.0 to   73133 MEADOW   115.0   circuit 1
Outage case 868              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73115 LONGPEAK 115.0 to   73196 TERRY    115.0   circuit 1
Outage case 869              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73117 LOST CK  115.0 to   73370 LOSTCKTP 115.0   circuit 1
Outage case 870              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73118 LOVE E   115.0 to   73499 BOYDLAKE 115.0   circuit 1
Outage case 871              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73120 LOVE W   115.0 to   73124 LOVEWTAP 115.0   circuit 1
Outage case 872              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73123 LOVELL   115.0 to   73228 YELLOWBR 115.0   circuit 1
Outage case 873              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73123 LOVELL   115.0 to   73228 YELLOWBR 115.0   circuit 2
Outage case 874              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73124 LOVEWTAP 115.0 to   73373 VALLEYLM 115.0   circuit 1
Outage case 875              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73125 LSCHANCE 115.0 to   73194 SWOODROW 115.0   circuit 1
Outage case 876              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73126 LYMAN    115.0 to   73202 TORRNGTN 115.0   circuit 1
Outage case 877              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73126 LYMAN    115.0 to   73256 LYMANTP  115.0   circuit 1
Outage case 878              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73127 LYONS    115.0 to   73171 ROCKMTCM 115.0   circuit 1
Outage case 879              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73128 MAY      115.0 to   73146 OASISTAP 115.0   circuit 1
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Outage case 880                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73134 MED BOW  115.0 to   73362 MEDBOWTP 115.0   circuit 1

Outage case 881                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73136 MESSEX   115.0 to   73191 STERLING 115.0   circuit 1

Outage case 882                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73137 MIRACLEM 115.0 to   73146 OASISTAP 115.0   circuit 1

Outage case 883                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73137 MIRACLEM 115.0 to   73177 SEMINOTP 115.0   circuit 1

Outage case 884                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73137 MIRACLEM 115.0 to   73362 MEDBOWTP 115.0   circuit 1

Outage case 885                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73139 MYERS    115.0 to   73140 MYERS TP 115.0   circuit 1

Outage case 886                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73140 MYERS TP 115.0 to   73154 POLE CK  115.0   circuit 1

Outage case 887                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73142 N.YUMA   115.0 to   73166 REDWILLW 115.0   circuit 1

Outage case 888                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73143 N.YUMA   230.0 to   73180 SIDNEY   230.0   circuit 1

Outage case 889                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73143 N.YUMA   230.0 to   73192 STORY    230.0   circuit 1

Outage case 890                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73143 N.YUMA   230.0 to   73224 WRAY     230.0   circuit 1

Outage case 891                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73144 NCWCD    138.0 to   73220 WINDYGAP 138.0   circuit 1

Outage case 892                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73145 NUNN     115.0 to   73172 ROCKPRTP 115.0   circuit 1

Outage case 893                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73148 OSAGE    230.0 to   73283 YELOWCRK 230.0   circuit 1

Outage case 894                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73149 OVERLAND 115.0 to   73506 LAPORTAP 115.0   circuit 1

Outage case 895                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73150 PEETZ    115.0 to   73179 SIDNEY   115.0   circuit 1

Outage case 896                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73150 PEETZ    115.0 to   73191 STERLING 115.0   circuit 1

Outage case 897                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73151 PILOT BU 115.0 to   73217 WINDRIVT 115.0   circuit 1

Outage case 898                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73151 PILOT BU 115.0 to   73479 HARRSBRG 115.0   circuit 1

Outage case 899                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73154 POLE CK  115.0 to   73161 QUALLS   115.0   circuit 1

Outage case 900                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73154 POLE CK  115.0 to   73173 ROUNDTOP 115.0   circuit 1

Outage case 901                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73156 POUDRE   115.0 to   73169 RICHARDS 115.0   circuit 1

Outage case 902                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73156 POUDRE   115.0 to   73506 LAPORTAP 115.0   circuit 1

Outage case 903                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73158 PROSPEC  115.0 to   73370 LOSTCKTP 115.0   circuit 1

Outage case 904                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73159 PROSPVAL 115.0 to   73493 SANDCRK  115.0   circuit 1

Outage case 905                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73162 RADERVIL 115.0 to   73336 ERVAYBAS 115.0   circuit 1

Outage case 906                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73164 LANGE    230.0 to   73186 LOOKOUT  230.0   circuit 1

Outage case 907                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73165 RAWHIDE  230.0 to   73199 TIMBERLN 230.0   circuit 1

Outage case 908                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73165 RAWHIDE  230.0 to   73199 TIMBERLN 230.0   circuit 2

Outage case 909                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73166 REDWILLW 115.0 to   73208 WAGES    115.0   circuit 1

Outage case 910                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73168 RENO     230.0 to   73276 TEKLA    230.0   circuit 1

Outage case 911                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73169 RICHARDS 115.0 to   73201 TIMNTHTP 115.0   circuit 1

Outage case 912                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73170 RIVERTON 115.0 to   73217 WINDRIVT 115.0   circuit 1

Outage case 913                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73172 ROCKPRTP 115.0 to   73504 PONNEQUI 115.0   circuit 1

Outage case 914                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73173 ROUNDTOP 115.0 to   73178 SENTINEL 115.0   circuit 1

Outage case 915                Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73175 SANDHILL 115.0 to   73223 WRAY     115.0   circuit 1

Outage case 916                Y, WAPA UGP, JUNE 2002
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    switched OUT LINE        73176 SEMINOE  115.0 to   73177 SEMINOTP 115.0   circuit 1
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Outage case 917               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73177 SEMINOTP 115.0 to   73182 SINCLAIR 115.0   circuit 1
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Outage case 918               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73180 SIDNEY   230.0 to   73190 STEGALL  230.0   circuit 1
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Outage case 919               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73182 SINCLAIR 115.0 to   73205 TROWBRDG 115.0   circuit 1
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Outage case 920               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73183 SKYLINE  115.0 to   73375 WARRENLM 115.0   circuit 1
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Outage case 921               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73184 SMOKYHLW 115.0 to   73209 WANIBETP 115.0   circuit 1
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Outage case 922               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73186 LOOKOUT  230.0 to   73283 YELOWCRK 230.0   circuit 1
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Outage case 923               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73186 LOOKOUT  230.0 to   73294 HUGHES   230.0   circuit 1
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Outage case 924               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73187 SPRINGCK 115.0 to   73367 FTSANDER 115.0   circuit 1
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Outage case 925               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73188 STEGALDC 230.0 to   73190 STEGALL  230.0   circuit 1
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Outage case 926               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73189 STEGALL  115.0 to   73256 LYMANTP  115.0   circuit 1
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Outage case 927               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73189 STEGALL  115.0 to   73365 EMIGRANT 115.0   circuit 1
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Outage case 928               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73190 STEGALL  230.0 to   73087 WESTHILL 230.0   circuit 1
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Outage case 929               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73191 STERLING 115.0 to   73478 GALIEN   115.0   circuit 1
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Outage case 930               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73194 SWOODROW 115.0 to   73221 WOODROW  115.0   circuit 1
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Outage case 931               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73195 TCAPS    115.0 to   73197 THERMOPL 115.0   circuit 1
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Outage case 932               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73195 TCAPS    115.0 to   73234 JIMRDYTP 115.0   circuit 1
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Outage case 933               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73196 TERRY    115.0 to   73437 ROGERSRD 115.0   circuit 1
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Outage case 934               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73196 TERRY    115.0 to   73503 ERIE TAP 115.0   circuit 1
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Outage case 935               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73197 THERMOPL 115.0 to   73222 WORLANTP 115.0   circuit 1
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Outage case 936               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73200 TIMNATH  115.0 to   73201 TIMNTHTP 115.0   circuit 1
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Outage case 937               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73204 TROUBLE  138.0 to   73220 WINDYGAP 138.0   circuit 1
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Outage case 938               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73206 VERNONTP 115.0 to   73223 WRAY     115.0   circuit 1
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Outage case 939               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73207 WAANIBE  115.0 to   73209 WANIBETP 115.0   circuit 1
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Outage case 940               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73208 WAGES    115.0 to   73210 WAUNETA  115.0   circuit 1
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Outage case 941               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73211 WELD  LM 115.0 to   73369 KODAKETP 115.0   circuit 1
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Outage case 942               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73214 WILDCAT  115.0 to   73365 EMIGRANT 115.0   circuit 1
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Outage case 943               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73216 WINDRIVR 115.0 to   73217 WINDRIVT 115.0   circuit 1
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Outage case 944               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73218 WINDSOR  115.0 to   73369 KODAKETP 115.0   circuit 1
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Outage case 945               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73223 WRAY     115.0 to   73225 WRAY TAP 115.0   circuit 1
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Outage case 946               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73225 WRAY TAP 115.0 to   73331 WRAYWAPA 115.0   circuit 1
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Outage case 947               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73231 MARYLKPP 115.0 to   73233 MARYLKTP 115.0   circuit 1
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Outage case 948               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73232 MARYLKSB 115.0 to   73233 MARYLKTP 115.0   circuit 1
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Outage case 949               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73255 LINGLETP 115.0 to   73256 LYMANTP  115.0   circuit 1
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Outage case 950               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73297 BELLEVUE 115.0 to   73298 BELLVUTP 115.0   circuit 1
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Outage case 951               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73298 BELLVUTP 115.0 to   73325 RIPPLE   115.0   circuit 1
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Outage case 952               Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73305 EFMORGTP 115.0 to   73310 FME      115.0   circuit 1
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Outage case 953              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73305 EFMORGTP 115.0 to   73378 FMN      115.0   circuit 1
Outage case 954              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73305 EFMORGTP 115.0 to   73379 FMWEST   115.0   circuit 1
Outage case 955              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73311 FMS      115.0 to   73377 EXCEL    115.0   circuit 1
Outage case 956              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73311 FMS      115.0 to   73379 FMWEST   115.0   circuit 1
Outage case 957              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73335 DUTONBAS 115.0 to   73336 ERVAYBAS 115.0   circuit 1
Outage case 958              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73348 CORLETT  115.0 to   73375 WARRENLM 115.0   circuit 1
Outage case 959              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73354 JACKLOPE 115.0 to   73364 WARMSPGS 115.0   circuit 1
Outage case 960              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73361 MEDBOWHS 115.0 to   73362 MEDBOWTP 115.0   circuit 1
Outage case 961              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73364 WARMSPGS 115.0 to   73366 WAGNHNDS 115.0   circuit 1
Outage case 962              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73371 BETHELLM 115.0 to   73374 VERNONLM 115.0   circuit 1
Outage case 963              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73380 ARIES    230.0 to   73419 RD NIXON 230.0   circuit 1
Outage case 964              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73380 ARIES    230.0 to   73421 STETSON  230.0   circuit 1
Outage case 965              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73384 BIRDSALE 115.0 to   73387 BIRDSALW 115.0   circuit 1
Outage case 966              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73384 BIRDSALE 115.0 to   73422 TEMPLTON 115.0   circuit 1
Outage case 967              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73387 BIRDSALW 115.0 to   73411 MESA12KV 115.0   circuit 1
Outage case 968              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73387 BIRDSALW 115.0 to   73425 WOODMEN  115.0   circuit 1
Outage case 969              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73388 BRADLEY  115.0 to   73404 FOUNTAIN 115.0   circuit 1
Outage case 970              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73388 BRADLEY  115.0 to   73409 KELKER W 115.0   circuit 1
Outage case 971              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73389 BRIARGAT 115.0 to   73391 CTTNWD N 115.0   circuit 1
Outage case 972              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73389 BRIARGAT 115.0 to   73410 KETTLECK 115.0   circuit 1
Outage case 973              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73390 CSOC     115.0 to   73405 GEESEN   115.0   circuit 1
Outage case 974              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73391 CTTNWD N 115.0 to   73410 KETTLECK 115.0   circuit 1
Outage case 975              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73392 CTTNWD N 230.0 to   73394 CTTNWD S 230.0   circuit 1
Outage case 976              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73392 CTTNWD N 230.0 to   73477 FULLER   230.0   circuit 1
Outage case 977              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73393 CTTNWD S 115.0 to   73406 IND PARK 115.0   circuit 1
Outage case 978              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73393 CTTNWD S 115.0 to   73422 TEMPLTON 115.0   circuit 1
Outage case 979              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73393 CTTNWD S 115.0 to   73425 WOODMEN  115.0   circuit 1
Outage case 980              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73393 CTTNWD S 115.0 to   73490 RAMPART  115.0   circuit 1
Outage case 981              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73394 CTTNWD S 230.0 to   73421 STETSON  230.0   circuit 1
Outage case 982              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73397 DRAKE N  115.0 to   73398 DRAKE S  115.0   circuit 1
Outage case 983              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73397 DRAKE N  115.0 to   73430 FAIRVWCS 115.0   circuit 1
Outage case 984              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73397 DRAKE N  115.0 to   73494 ATMELDTP 115.0   circuit 1
Outage case 985              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73398 DRAKE S  115.0 to   73409 KELKER W 115.0   circuit 1
Outage case 986              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73398 DRAKE S  115.0 to   73490 RAMPART  115.0   circuit 1
Outage case 987              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73400 EMIL AND 115.0 to   73414 MONUMENT 115.0   circuit 1
Outage case 988              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73402 FALCONMV 115.0 to   73405 GEESEN   115.0   circuit 1
Outage case 989              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73402 FALCONMV 115.0 to   73481 FULLER   115.0   circuit 1
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Outage case 990              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73404 FOUNTAIN 115.0 to   73417 RD NIXON 115.0   circuit 1

Outage case 991              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73405 GEESEN   115.0 to   73416 RANCHO   115.0   circuit 1

Outage case 992              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73407 KELKER   230.0 to   73419 RD NIXON 230.0   circuit 1

Outage case 993              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73408 KELKER E 115.0 to   73409 KELKER W 115.0   circuit 1

Outage case 994              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73408 KELKER E 115.0 to   73422 TEMPLTON 115.0   circuit 1

Outage case 995              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73408 KELKER E 115.0 to   73495 ATMELKTP 115.0   circuit 1

Outage case 996              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73409 KELKER W 115.0 to   73420 ROCKISLD 115.0   circuit 1

Outage case 997              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73410 KETTLECK 115.0 to   73414 MONUMENT 115.0   circuit 1

Outage case 998              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73411 MESA12KV 115.0 to   73430 FAIRVWCS 115.0   circuit 1

Outage case 999              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73412 MIDWAYBR 115.0 to   73416 RANCHO   115.0   circuit 1

Outage case 1000             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73412 MIDWAYBR 115.0 to   73417 RD NIXON 115.0   circuit 1

Outage case 1001             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73413 MIDWAYBR 230.0 to   73419 RD NIXON 230.0   circuit 1

Outage case 1002             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73419 RD NIXON 230.0 to   73477 FULLER   230.0   circuit 1

Outage case 1003             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73420 ROCKISLD 115.0 to   73422 TEMPLTON 115.0   circuit 1

Outage case 1004             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73432 KODAKWTP 115.0 to   73433 WINDSOR1 115.0   circuit 1

Outage case 1005             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73494 ATMELDTP 115.0 to   73496 ATMELSUB 115.0   circuit 1

Outage case 1006             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73495 ATMELKTP 115.0 to   73496 ATMELSUB 115.0   circuit 1

Outage case 1007             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73501 RINNVALL 115.0 to   73502 DACONO   115.0   circuit 1

Outage case 1008             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73502 DACONO   115.0 to   73503 ERIE TAP 115.0   circuit 1

Outage case 1009             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73531 LINCOLNT 230.0 to   73413 MIDWAYBR 230.0   circuit 1

Outage case 1010             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73551 W CANON  230.0 to   73413 MIDWAYBR 230.0   circuit 1

Outage case 1011             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79001 ARTESIA  138.0 to   79038 HAYDEN   138.0   circuit 1

Outage case 1012             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79001 ARTESIA  138.0 to   79067 VERNAL   138.0   circuit 1

Outage case 1013             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79002 AXIAL    138.0 to   79038 HAYDEN   138.0   circuit 1

Outage case 1014             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79002 AXIAL    138.0 to   79046 MEEKER   138.0   circuit 1

Outage case 1015             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79005 BEARS    345.0 to   79014 CRAIG    345.0   circuit 1

Outage case 1016             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79007 BLUEMESA 115.0 to   79020 CURECANT 115.0   circuit 1

Outage case 1017             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79007 BLUEMESA 115.0 to   79084 LAKECITY 115.0   circuit 1

Outage case 1018             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79007 BLUEMESA 115.0 to   79090 SKITO    115.0   circuit 1

Outage case 1019             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79011 CAHONE   115.0 to   79052 NUCLA    115.0   circuit 1

Outage case 1020             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79011 CAHONE   115.0 to   79117 Y.JACK 2 115.0   circuit 1

Outage case 1021             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79011 CAHONE   115.0 to   79180 GRCUT TP 115.0   circuit 1

Outage case 1022             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79012 CORTEZ   115.0 to   79073 BLUEDOOR 115.0   circuit 1

Outage case 1023             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79012 CORTEZ   115.0 to   79075 EMPIRETS 115.0   circuit 1

Outage case 1024             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79013 CRAIG    230.0 to   79039 HAYDEN   230.0   circuit 1

Outage case 1025             Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79013 CRAIG    230.0 to   79039 HAYDEN   230.0   circuit 2

Outage case 1026             Y, WAPA UGP, JUNE 2002
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    switched OUT LINE        79013 CRAIG    230.0 to   79059 RIFLE WA 230.0   circuit 1
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Outage case 1027              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79020 CURECANT 115.0 to   79192 SOCANAL  115.0   circuit 1
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Outage case 1028              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79020 CURECANT 115.0 to   79253 CRYSTAL  115.0   circuit 1
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Outage case 1029              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79021 CURECANT 230.0 to   79045 LOSTCANY 230.0   circuit 1
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Outage case 1030              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79021 CURECANT 230.0 to   79054 PONCHABR 230.0   circuit 1
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Outage case 1031              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79021 CURECANT 230.0 to   79070 NORTHFRK 230.0   circuit 1
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Outage case 1032              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79021 CURECANT 230.0 to   79163 MORROWPT 230.0   circuit 1
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Outage case 1033              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79023 DURANGO  115.0 to   79077 BAYFIELD 115.0   circuit 1
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Outage case 1034              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79023 DURANGO  115.0 to   79078 BODO     115.0   circuit 1
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Outage case 1035              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79023 DURANGO  115.0 to   79089 SHENDOAH 115.0   circuit 1
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Outage case 1036              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79023 DURANGO  115.0 to   79191 COYOTE G 115.0   circuit 1
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Outage case 1037              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79026 FLAMGORG 138.0 to   79067 VERNAL   138.0   circuit 1
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Outage case 1038              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79026 FLAMGORG 138.0 to   79067 VERNAL   138.0   circuit 2
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Outage case 1039              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79036 GRANDJCT 345.0 to   79049 MONTROSE 345.0   circuit 1
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Outage case 1040              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79037 GUNNISON 115.0 to   79090 SKITO    115.0   circuit 1
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Outage case 1041              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79042 HOTCHKIS 115.0 to   79050 NORTHFRK 115.0   circuit 1
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Outage case 1042              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79042 HOTCHKIS 115.0 to   79104 GARNETAP 115.0   circuit 1
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Outage case 1043              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79044 LOSTCANY 115.0 to   79074 E.CORTEZ 115.0   circuit 1
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Outage case 1044              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79044 LOSTCANY 115.0 to   79075 EMPIRETS 115.0   circuit 1
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Outage case 1045              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79044 LOSTCANY 115.0 to   79111 MANCOSTP 115.0   circuit 1
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Outage case 1046              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79044 LOSTCANY 115.0 to   79122 TOWAOC   115.0   circuit 1
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Outage case 1047              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79045 LOSTCANY 230.0 to   79061 SHIP PS  230.0   circuit 1
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Outage case 1048              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79048 MONTROSE 115.0 to   79052 NUCLA    115.0   circuit 1
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Outage case 1049              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79048 MONTROSE 115.0 to   79082 HAPPYCAN 115.0   circuit 1
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Outage case 1050              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79048 MONTROSE 115.0 to   79115 SPRCKTAP 115.0   circuit 1
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Outage case 1051              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79048 MONTROSE 115.0 to   79192 SOCANAL  115.0   circuit 1
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Outage case 1052              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79049 MONTROSE 345.0 to   79072 HESPERUS 345.0   circuit 1
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Outage case 1053              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79050 NORTHFRK 115.0 to   79083 JUANITA  115.0   circuit 1
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Outage case 1054              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79052 NUCLA    115.0 to   79187 NORWOOD  115.0   circuit 1
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Outage case 1055              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79054 PONCHABR 230.0 to   73551 W CANON  230.0   circuit 1
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Outage case 1056              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79059 RIFLE WA 230.0 to   79070 NORTHFRK 230.0   circuit 1
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Outage case 1057              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79060 SANJN PS 345.0 to   79072 HESPERUS 345.0   circuit 1
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Outage case 1058              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79071 HESPERUS 115.0 to   79078 BODO     115.0   circuit 1
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Outage case 1059              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79071 HESPERUS 115.0 to   79088 ROCKWOOD 115.0   circuit 1
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Outage case 1060              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79071 HESPERUS 115.0 to   79099 FLOR.RIV 115.0   circuit 1
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Outage case 1061              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79073 BLUEDOOR 115.0 to   79074 E.CORTEZ 115.0   circuit 1
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Outage case 1062              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79075 EMPIRETS 115.0 to   79180 GRCUT TP 115.0   circuit 1
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Outage case 1063              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79076 AM EAST  115.0 to   79077 BAYFIELD 115.0   circuit 1
Outage case 1064              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79076 AM EAST  115.0 to   79099 FLOR.RIV 115.0   circuit 1
Outage case 1065              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79077 BAYFIELD 115.0 to   79086 PAGOSA   115.0   circuit 1
Outage case 1066              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79079 BULLOCK  115.0 to   79082 HAPPYCAN 115.0   circuit 1
Outage case 1067              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79079 BULLOCK  115.0 to   79115 SPRCKTAP 115.0   circuit 1
Outage case 1068              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79080 CASCADEL 115.0 to   79088 ROCKWOOD 115.0   circuit 1
Outage case 1069              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79080 CASCADEL 115.0 to   79256 SILVERTN 115.0   circuit 1
Outage case 1070              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79081 CRSTBUTT 115.0 to   79090 SKITO    115.0   circuit 1
Outage case 1071              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79085 NORTHMSA 115.0 to   79104 GARNETAP 115.0   circuit 1
Outage case 1072              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79085 NORTHMSA 115.0 to   79115 SPRCKTAP 115.0   circuit 1
Outage case 1073              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79089 SHENDOAH 115.0 to   79111 MANCOSTP 115.0   circuit 1
Outage case 1074              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79103 GARNET M 115.0 to   79104 GARNETAP 115.0   circuit 1
Outage case 1075              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79107 HOVEN NO 115.0 to   79117 Y.JACK 2 115.0   circuit 1
Outage case 1076              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79108 HOVENWEP 115.0 to   79121 SANDCANY 115.0   circuit 1
Outage case 1077              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79110 MAIN  CO 115.0 to   79118 Y.JACK W 115.0   circuit 1
Outage case 1078              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79110 MAIN  CO 115.0 to   79120 MOQUI C  115.0   circuit 1
Outage case 1079              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79110 MAIN  CO 115.0 to   79121 SANDCANY 115.0   circuit 1
Outage case 1080              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79110 MAIN  CO 115.0 to   79262 CEMNT CK 115.0   circuit 1
Outage case 1081              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79117 Y.JACK 2 115.0 to   79118 Y.JACK W 115.0   circuit 1
Outage case 1082              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79122 TOWAOC   115.0 to   79262 CEMNT CK 115.0   circuit 1
Outage case 1083              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79174 MOLINA-L 115.0 to   79175 MOLINA-U 115.0   circuit 1
Outage case 1084              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79179 GRT CUT  115.0 to   79180 GRCUT TP 115.0   circuit 1
Outage case 1085              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79187 NORWOOD  115.0 to   79189 SUNSH SM 115.0   circuit 1
Outage case 1086              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79188 TELLURID 115.0 to   79189 SUNSH SM 115.0   circuit 1
Outage case 1087              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79189 SUNSH SM 115.0 to   79257 AMES     115.0   circuit 1
Outage case 1088              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79190 DALLASCR 115.0 to   79193 MCKENZIX 115.0   circuit 1
Outage case 1089              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79191 COYOTE G 115.0 to   79260 ELPASOTP 115.0   circuit 1
Outage case 1090              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79192 SOCANAL  115.0 to   79193 MCKENZIX 115.0   circuit 1
Outage case 1091              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79194 BURROBDG 115.0 to   79256 SILVERTN 115.0   circuit 1
Outage case 1092              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79194 BURROBDG 115.0 to   79257 AMES     115.0   circuit 1
Outage case 1093              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63003 CUSTER   230.0 to   63002 CRSOVRUM 230.0   circuit 1
Outage case 1094              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63003 CUSTER   230.0 to   63012 ROSEBUD  230.0   circuit 1
Outage case 1095              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63004 FT PECK  161.0 to   63011 RICHARDC 161.0   circuit 1
Outage case 1096              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63006 HARLEM   161.0 to   63008 HAVRE    161.0   circuit 1
Outage case 1097              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90206 MTSHARLM 500.0 to   90208 MTSHAVRE 500.0   circuit 1
Outage case 1098              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63007 HAVRE    115.0 to   63013 RUDYARD  115.0   circuit 1
Outage case 1099              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63008 HAVRE    161.0 to   63015 VERONA   161.0   circuit 1
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Outage case 1100              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63009 MALTA UM 161.0 to   63006 HARLEM   161.0   circuit 1

Outage case 1101              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90209 MTSMALTA 500.0 to   90206 MTSHARLM 500.0   circuit 1

Outage case 1102              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63010 MILCTYDC 230.0 to   63012 ROSEBUD  230.0   circuit 1

Outage case 1103              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63011 RICHARDC 161.0 to   63009 MALTA UM 161.0   circuit 1

Outage case 1104              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90211 MTSRICHC 500.0 to   90209 MTSMALTA 500.0   circuit 1

Outage case 1105              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90250 MTSFTPCK 500.0 to   90211 MTSRICHC 500.0   circuit 1

Outage case 1106              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        90208 MTSHAVRE 500.0 to   90400 MTSGFALL 500.0   circuit 1

Outage case 1107              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63013 RUDYARD  115.0 to   63014 TIBERTAP 115.0   circuit 1

Outage case 1108              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        26043 INTERMT  345.0 to   65995 MONA     345.0   circuit 1

Outage case 1109              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        26043 INTERMT  345.0 to   65995 MONA     345.0   circuit 2

Outage case 1110              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40391 ELMO     115.0 to   62066 KERR     115.0   circuit 1

Outage case 1111              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40457 GARRISON 230.0 to   62072 OVANDO   230.0   circuit 1

Outage case 1112              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        40551 HOT SPR  230.0 to   62072 OVANDO   230.0   circuit 1

Outage case 1113              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        50822 NLYPHS   230.0 to   40145 BOUNDARY 230.0   circuit 1

Outage case 1114              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62004 ANACOND  230.0 to   40457 GARRISON 230.0   circuit 1

Outage case 1115              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62004 ANACOND  230.0 to   40457 GARRISON 230.0   circuit 2

Outage case 1116              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62012 TOWN2    500.0 to   40453 GAR2EAST 500.0   circuit 2

Outage case 1117              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62013 TOWN1    500.0 to   40451 GAR1EAST 500.0   circuit 1

Outage case 1118              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62027 SHELBY   115.0 to   63014 TIBERTAP 115.0   circuit 1

Outage case 1119              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62030 PTRSNFLT 230.0 to   65025 AMPS     230.0   circuit 1

Outage case 1120              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62051 HARDIN   230.0 to   63002 CRSOVRUM 230.0   circuit 1

Outage case 1121              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62056 HUNTLEY  230.0 to   63002 CRSOVRUM 230.0   circuit 1

Outage case 1122              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62084 DILLON S 161.0 to   65155 BIGGRASS 161.0   circuit 1

Outage case 1123              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62085 CROWCR B 115.0 to   48055 BURKAVAB 115.0   circuit 1

Outage case 1124              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        62086 THOMSON  115.0 to   48053 BURKAVAA 115.0   circuit 1

Outage case 1125              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63008 HAVRE    161.0 to   62023 GT FALLS 161.0   circuit 1

Outage case 1126              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65060 ANT MINE 230.0 to   73276 TEKLA    230.0   circuit 1

Outage case 1127              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65085 ASHLEY   138.0 to   79067 VERNAL   138.0   circuit 1

Outage case 1128              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65305 CASPERPP 115.0 to   73167 REFNRYTP 115.0   circuit 1

Outage case 1129              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65420 DAVEJOHN 230.0 to   73107 LAR.RIVR 230.0   circuit 1

Outage case 1130              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65420 DAVEJOHN 230.0 to   73190 STEGALL  230.0   circuit 1

Outage case 1131              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65425 DAVEJOHN 115.0 to   73070 GLENRCKN 115.0   circuit 1

Outage case 1132              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65425 DAVEJOHN 115.0 to   73071 GLENRCKS 115.0   circuit 1

Outage case 1133              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66235 PINTO PS 345.0 to   14101 FOURCORN 345.0   circuit 1

Outage case 1134              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66540 THERPACE 115.0 to   73197 THERMOPL 115.0   circuit 1

Outage case 1135              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66720 WORLAND  115.0 to   73222 WORLANTP 115.0   circuit 1

Outage case 1136              Y, WAPA UGP, JUNE 2002
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    switched OUT LINE        66725 WYODAK   230.0 to   73148 OSAGE    230.0   circuit 1
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Outage case 1137              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66725 WYODAK   230.0 to   73168 RENO     230.0   circuit 1
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Outage case 1138              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66725 WYODAK   230.0 to   73294 HUGHES   230.0   circuit 1
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Outage case 1139              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66750 YELOWTLP 230.0 to   62045 BLGS PHA 230.0   circuit 1
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Outage case 1140              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66755 YELOWTLP 161.0 to   62061 RMRK PHA 161.0   circuit 1
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Outage case 1141              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66750 YELOWTLP 230.0 to   73229 YELLOWBR 230.0   circuit 1
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Outage case 1142              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73042 CASPERLM 115.0 to   65305 CASPERPP 115.0   circuit 1
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Outage case 1143              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73229 YELLOWBR 230.0 to   63001 CROS PHA 230.0   circuit 1
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Outage case 1144              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79001 ARTESIA  138.0 to   66278 RANGELY  138.0   circuit 1
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Outage case 1145              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79005 BEARS    345.0 to   65193 BONANZA  345.0   circuit 1
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Outage case 1146              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79046 MEEKER   138.0 to   66278 RANGELY  138.0   circuit 1
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Outage case 1147              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79067 VERNAL   138.0 to   65192 BONANZA  138.0   circuit 1
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Outage case 1148              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        60030 BLACKFT  161.0 to   65670 GOSHEN   161.0   circuit 1
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Outage case 1149              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        60073 BRADY    230.0 to   65075 ANTLOPE  230.0   circuit 1
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Outage case 1150              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        60085 BRIDGER  345.0 to   65665 GOSHEN   345.0   circuit 1
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Outage case 1151              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65135 BENLOMND 345.0 to   60060 BORAH    345.0   circuit 1
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Outage case 1152              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65665 GOSHEN   345.0 to   60190 KINPORT  345.0   circuit 1
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Outage case 1153              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        65920 MALAD    138.0 to   60020 AMFLS    138.0   circuit 1
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Outage case 1154              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        66565 TREASTON 230.0 to   60073 BRADY    230.0   circuit 1
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Outage case 1155              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70193 FTN VALL 115.0 to   73412 MIDWAYBR 115.0   circuit 1
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Outage case 1156              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70274 MALTA    230.0 to   73138 MT.ELBRT 230.0   circuit 1
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Outage case 1157              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70287 MILL     115.0 to   73296 FRASER   115.0   circuit 1
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Outage case 1158              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70308 PALMER   115.0 to   73414 MONUMENT 115.0   circuit 1
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Outage case 1159              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70327 PONCHA   115.0 to   79037 GUNNISON 115.0   circuit 1
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Outage case 1160              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70358 RIFLE PS 230.0 to   79059 RIFLE WA 230.0   circuit 1
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Outage case 1161              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70410 ST.VRAIN 230.0 to   73116 LONGPEAK 230.0   circuit 1
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Outage case 1162              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70470 WELD  PS 115.0 to   73211 WELD  LM 115.0   circuit 1
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Outage case 1163              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70471 WELD  PS 230.0 to   73212 WELD  LM 230.0   circuit 1
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Outage case 1164              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70476 WOODLAND 115.0 to   73400 EMIL AND 115.0   circuit 1
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Outage case 1165              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73011 AULT     230.0 to   70474 WINDSOR  230.0   circuit 1
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Outage case 1166              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70005 BRUSHCPP 115.0 to   73013 B.CK PS  115.0   circuit 1
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Outage case 1167              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70005 BRUSHCPP 115.0 to   73013 B.CK PS  115.0   circuit 2
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Outage case 1168              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73044 COBBLKTP 115.0 to   70116 COBBLAKE 115.0   circuit 1
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Outage case 1169              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73105 LAPORTE  115.0 to   70256 LAPORTPS 115.0   circuit 1
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Outage case 1170              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73192 STORY    230.0 to   70311 PAWNEE   230.0   circuit 1
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Outage case 1171              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73477 FULLER   230.0 to   70122 COMANCHE 230.0   circuit 1
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Outage case 1172              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73477 FULLER   230.0 to   70139 DANIELPK 230.0   circuit 1
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Outage case 1173              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73413 MIDWAYBR 230.0 to   70286 MIDWAYPS 230.0   circuit 1
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Outage case 1174              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79054 PONCHABR 230.0 to   70375 SAN LUIS 230.0   circuit 1
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Outage case 1175              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79105 GLADETAP 115.0 to   79260 ELPASOTP 115.0   circuit 1
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Outage case 1176              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        63015 VERONA   161.0 to   62024 RAINBOW  161.0   circuit 1
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Outage case 1177              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70358 RIFLE PS 230.0 to   79250 AMATLAS  230.0   circuit 1
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Outage case 1178              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        70525 MTHARRIS 138.0 to   79038 HAYDEN   138.0   circuit 1
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Outage case 1179              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79173 COLBRAN  115.0 to   79174 MOLINA-L 115.0   circuit 1
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Outage case 1180              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79033 GOREPASS 230.0 to   79039 HAYDEN   230.0   circuit 1
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Outage case 1181              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79034 GRANDJCT 115.0 to   79048 MONTROSE 115.0   circuit 1
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Outage case 1182              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79039 HAYDEN   230.0 to   79091 WOLCOTTP 230.0   circuit 1
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Outage case 1183              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79046 MEEKER   138.0 to   79056 RIFLE CU 138.0   circuit 1
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Outage case 1184              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79057 RIFLE CU 230.0 to   79059 RIFLE WA 230.0   circuit 1
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Outage case 1185              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79014 CRAIG    345.0 to   79058 RIFLE CU 345.0   circuit 1
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Outage case 1186              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        79036 GRANDJCT 345.0 to   79058 RIFLE CU 345.0   circuit 1
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Outage case 1187              Y, WAPA UGP, JUNE 2002
    switched OUT LINE        73412 MIDWAYBR 115.0 to   70285 MIDWAYPS 115.0   circuit 1
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Outage case 1188              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 63008 HAVRE    161.0 to   90208 MTSHAVRE 500.0   circuit 1
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Outage case 1189              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62004 ANACOND  230.0 to   62005 ANACOND  161.0   circuit 1
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Outage case 1190              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62004 ANACOND  230.0 to   62005 ANACOND  161.0   circuit 2
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Outage case 1191              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62005 ANACOND  161.0 to   62115 ANACOND  100.0   circuit 1
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Outage case 1192              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62005 ANACOND  161.0 to   62115 ANACOND  100.0   circuit 2
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Outage case 1193              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62006 TAFTAUTO 115.0 to   62090 TAFTAUTO 100.0   circuit 1
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Outage case 1194              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62007 KERR B   161.0 to   62066 KERR     115.0   circuit 1
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Outage case 1195              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62007 KERR B   161.0 to   62066 KERR     115.0   circuit 2
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Outage case 1196              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62008 KERR A   161.0 to   62066 KERR     115.0   circuit 1
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Outage case 1197              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62008 KERR A   161.0 to   62066 KERR     115.0   circuit 2
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Outage case 1198              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62009 RATTLE S 161.0 to   62114 MISOULA  100.0   circuit 1
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Outage case 1199              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62009 RATTLE S 161.0 to   62114 MISOULA  100.0   circuit 2
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Outage case 1200              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62019 WILSALL  230.0 to   62016 WILSALL  161.0   circuit 1
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Outage case 1201              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62019 WILSALL  230.0 to   62016 WILSALL  161.0   circuit 2
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Outage case 1202              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62023 GT FALLS 161.0 to   62119 RAINBOW  100.0   circuit 1
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Outage case 1203              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62024 RAINBOW  161.0 to   62119 RAINBOW  100.0   circuit 1
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Outage case 1204              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62026 SHELBY   230.0 to   62027 SHELBY   115.0   circuit 1
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Outage case 1205              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62033 ANA BPA  115.0 to   62004 ANACOND  230.0   circuit 1
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Outage case 1206              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62035 CNRDWAPA 230.0 to   62069 CNRDWAPA 115.0   circuit 1
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Outage case 1207              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62036 JUDITHGP 230.0 to   62104 JUDITHGP 100.0   circuit 1
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Outage case 1208              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62046 BROADVU  500.0 to   62223 BROADVU  230.0   circuit 1
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Outage case 1209              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62046 BROADVU  500.0 to   62223 BROADVU  230.0   circuit 2
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Outage case 1210              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62051 HARDIN   230.0 to   62080 HARDIN   115.0   circuit 1

Outage case 1211              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62052 ALKALI   230.0 to   62109 ALKALI   161.0   circuit 1

Outage case 1212              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62052 ALKALI   230.0 to   62109 ALKALI   161.0   circuit 2

Outage case 1213              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62055 BASELINE 230.0 to   62099 BASELINE 100.0   circuit 1

Outage case 1214              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62057 COLSTRP  500.0 to   62060 COLSTRP  230.0   circuit 1

Outage case 1215              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62057 COLSTRP  500.0 to   62060 COLSTRP  230.0   circuit 2

Outage case 1216              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62060 COLSTRP  230.0 to   62081 COLSTRP  115.0   circuit 1

Outage case 1217              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62060 COLSTRP  230.0 to   62081 COLSTRP  115.0   circuit 2

Outage case 1218              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62062 RIMROCK  161.0 to   62061 RMRK PHA 161.0   circuit 1

Outage case 1219              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62062 RIMROCK  161.0 to   62096 RIMROCK  100.0   circuit 1

Outage case 1220              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62062 RIMROCK  161.0 to   62096 RIMROCK  100.0   circuit 2

Outage case 1221              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62064 BRADLEYC 161.0 to   62105 BRADLEYC 100.0   circuit 1

Outage case 1222              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62070 GT FALLS 115.0 to   62118 GT FALLS 100.0   circuit 1

Outage case 1223              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62071 GT FALLS 230.0 to   62118 GT FALLS 100.0   circuit 1

Outage case 1224              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62071 GT FALLS 230.0 to   62118 GT FALLS 100.0   circuit 2

Outage case 1225              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62076 TRIDENT  161.0 to   62021 THREERIV 100.0   circuit 1

Outage case 1226              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62077 BUTTE MT 161.0 to   62116 BUTTE MT 100.0   circuit 1

Outage case 1227              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62077 BUTTE MT 161.0 to   62116 BUTTE MT 100.0   circuit 2

Outage case 1228              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62078 RESERVST 161.0 to   62113 RESERVST 100.0   circuit 1

Outage case 1229              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62079 MILLERCK 161.0 to   62112 MILLERCK 100.0   circuit 1

Outage case 1230              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62082 BILINGS  230.0 to   62045 BLGS PHA 230.0   circuit 1

Outage case 1231              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62082 BILINGS  230.0 to   62097 BILINGS  100.0   circuit 1

Outage case 1232              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62082 BILINGS  230.0 to   62097 BILINGS  100.0   circuit 2

Outage case 1233              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62205 COLRPLJE 161.0 to   62220 COLRPLJE 100.0   circuit 1

Outage case 1234              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62223 BROADVU  230.0 to   62089 BROADVU  100.0   circuit 2

Outage case 1235              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 40021 ADDY 2   230.0 to   40017 ADDY     115.0   circuit 1

Outage case 1236              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 40091 BELL BPA 500.0 to   40090 BELL SO  230.0   circuit 1

Outage case 1237              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 40088 BELL MI  230.0 to   40087 BELL BPA 115.0   circuit 1

Outage case 1238              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 40145 BOUNDARY 230.0 to   40143 BOUNDARY 115.0   circuit 1

Outage case 1239              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 47126 BOX PS   115.0 to   47009 BOX CANY 115.0   circuit 1

Outage case 1240              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 40909 SACHEEN  230.0 to   40907 SACHEEN  115.0   circuit 1

Outage case 1241              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 47091 USK      230.0 to   47254 USK      115.0   circuit 1

Outage case 1242              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65075 ANTLOPE  230.0 to   65080 ANTLOPE  161.0   circuit 1

Outage case 1243              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65080 ANTLOPE  161.0 to   65065 ANTLOP 1 138.0   circuit 1

Outage case 1244              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65080 ANTLOPE  161.0 to   65070 ANTLOP 2 138.0   circuit 1

Outage case 1245              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65135 BENLOMND 345.0 to   65140 BENLOMND 230.0   circuit 1

Outage case 1246              Y, WAPA UGP, JUNE 2002
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    switched OUT TRANSFORMER 65135 BENLOMND 345.0 to   65145 BENLOMND 138.0   circuit 1
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Outage case 1247              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65135 BENLOMND 345.0 to   65190 BNLMD MP 100.0   circuit 2
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Outage case 1248              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65140 BENLOMND 230.0 to   65145 BENLOMND 138.0   circuit 1
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Outage case 1249              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65140 BENLOMND 230.0 to   65145 BENLOMND 138.0   circuit 2
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Outage case 1250              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65140 BENLOMND 230.0 to   65190 BNLMD MP 100.0   circuit 2
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Outage case 1251              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65193 BONANZA  345.0 to   65192 BONANZA  138.0   circuit 1
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Outage case 1252              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65260 CAMP WIL 345.0 to   65261 CAMP WIL 138.0   circuit 1
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Outage case 1253              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65300 CASPERPP 230.0 to   65305 CASPERPP 115.0   circuit 1
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Outage case 1254              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65395 CUTLER   138.0 to   65385 CTLR MP  100.0   circuit 1
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Outage case 1255              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65420 DAVEJOHN 230.0 to   65425 DAVEJOHN 115.0   circuit 1
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Outage case 1256              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65510 EMERY    345.0 to   65515 EMERY    138.0   circuit 1
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Outage case 1257              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65510 EMERY    345.0 to   65515 EMERY    138.0   circuit 2
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Outage case 1258              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65665 GOSHEN   345.0 to   65670 GOSHEN   161.0   circuit 1
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Outage case 1259              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65665 GOSHEN   345.0 to   65685 GOSHN MP 100.0   circuit 2
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Outage case 1260              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65670 GOSHEN   161.0 to   65675 GOSHEN   115.0   circuit 1
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Outage case 1261              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65670 GOSHEN   161.0 to   65675 GOSHEN   115.0   circuit 2
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Outage case 1262              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65670 GOSHEN   161.0 to   65685 GOSHN MP 100.0   circuit 2
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Outage case 1263              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65690 GRACE    161.0 to   65695 GRACE    138.0   circuit 1
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Outage case 1264              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65805 HUNTNGTN 345.0 to   65810 HUNTNGTN 138.0   circuit 1
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Outage case 1265              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65805 HUNTNGTN 345.0 to   65810 HUNTNGTN 138.0   circuit 2
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Outage case 1266              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65860 JFRSNPHA 161.0 to   65850 JEFFERSN 161.0   circuit 1
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Outage case 1267              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65945 MIDVALLY 345.0 to   66550 THIRTY S 138.0   circuit 1
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Outage case 1268              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65945 MIDVALLY 345.0 to   66550 THIRTY S 138.0   circuit 2
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Outage case 1269              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66020 MUSTANG  230.0 to   66025 MUSTANG  115.0   circuit 1
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Outage case 1270              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66050 NAUGHTON 230.0 to   66040 NAUGHTN1 138.0   circuit 1
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Outage case 1271              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66050 NAUGHTON 230.0 to   66045 NAUGHTN2 138.0   circuit 1
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Outage case 1272              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66080 NINETY S 345.0 to   66085 NINETY S 138.0   circuit 1
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Outage case 1273              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66080 NINETY S 345.0 to   66085 NINETY S 138.0   circuit 2
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Outage case 1274              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66080 NINETY S 345.0 to   66085 NINETY S 138.0   circuit 3
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Outage case 1275              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66080 NINETY S 345.0 to   66085 NINETY S 138.0   circuit 4
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Outage case 1276              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66134 OQUIRRH  345.0 to   66135 OQUIRRH  138.0   circuit 1
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Outage case 1277              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66225 PINTO    345.0 to   66226 PINT MP2 100.0   circuit 2
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Outage case 1278              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66225 PINTO    345.0 to   66227 PINT MP3 100.0   circuit 3
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Outage case 1279              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66225 PINTO    345.0 to   66230 PINTO    138.0   circuit 1
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Outage case 1280              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66225 PINTO    345.0 to   66230 PINTO    138.0   circuit 2
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Outage case 1281              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66225 PINTO    345.0 to   66235 PINTO PS 345.0   circuit 1
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Outage case 1282              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66240 PLATTE   230.0 to   66245 PLATTE   115.0   circuit 1
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Outage case 1283              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66270 RAILROAD 230.0 to   66275 RAILROAD 138.0   circuit 1

Outage case 1284              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66270 RAILROAD 230.0 to   66275 RAILROAD 138.0   circuit 2

Outage case 1285              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66465 SWAN VAL 161.0 to   66470 SWAN VAL 115.0   circuit 1

Outage case 1286              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66510 TERMINAL 345.0 to   66520 TERMINAL 138.0   circuit 1

Outage case 1287              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66510 TERMINAL 345.0 to   66520 TERMINAL 138.0   circuit 2

Outage case 1288              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66515 TERMINAL 230.0 to   66520 TERMINAL 138.0   circuit 1

Outage case 1289              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66515 TERMINAL 230.0 to   66520 TERMINAL 138.0   circuit 2

Outage case 1290              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66540 THERPACE 115.0 to   66535 THERMOPL 230.0   circuit 1

Outage case 1291              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66565 TREASTON 230.0 to   66570 TREASTON 138.0   circuit 1

Outage case 1292              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66565 TREASTON 230.0 to   66580 TRSTN MP 100.0   circuit 2

Outage case 1293              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66570 TREASTON 138.0 to   66580 TRSTN MP 100.0   circuit 2

Outage case 1294              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66578 TRI CITY 345.0 to   66577 TRI CITY 138.0   circuit 1

Outage case 1295              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 66750 YELOWTLP 230.0 to   66755 YELOWTLP 161.0   circuit 1

Outage case 1296              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62071 GT FALLS 230.0 to   90400 MTSGFALL 500.0   circuit 1

Outage case 1297              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70037 ARAPAHOB 115.0 to   70038 ARAPAHOE 230.0   circuit 1

Outage case 1298              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70071 CABINCRK 115.0 to   70072 CABINCRK 230.0   circuit 1

Outage case 1299              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70071 CABINCRK 115.0 to   70072 CABINCRK 230.0   circuit 2

Outage case 1300              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70109 CHEROKES 115.0 to   70107 CHEROKEE 230.0   circuit 1

Outage case 1301              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70109 CHEROKES 115.0 to   70107 CHEROKEE 230.0   circuit 2

Outage case 1302              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70138 DANIELPK 115.0 to   70139 DANIELPK 230.0   circuit 1

Outage case 1303              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70148 DENVTM   115.0 to   70149 DENVTM   230.0   circuit 1

Outage case 1304              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70191 FTLUPTON 115.0 to   70192 FTLUPTON 230.0   circuit 1

Outage case 1305              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70259 LEETSDAL 115.0 to   70260 LEETSDAL 230.0   circuit 1

Outage case 1306              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70265 LOOKOUT  115.0 to   70266 LOOKOUT  230.0   circuit 1

Outage case 1307              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70265 LOOKOUT  115.0 to   70266 LOOKOUT  230.0   circuit 2

Outage case 1308              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70354 RIDGE    115.0 to   70355 RIDGE    230.0   circuit 1

Outage case 1309              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70354 RIDGE    115.0 to   70355 RIDGE    230.0   circuit 2

Outage case 1310              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70395 SMOKYHIL 115.0 to   70396 SMOKYHIL 230.0   circuit 1

Outage case 1311              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70395 SMOKYHIL 115.0 to   70396 SMOKYHIL 230.0   circuit 2

Outage case 1312              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70444 VALMONT  115.0 to   70447 VALMONT  230.0   circuit 1

Outage case 1313              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70463 WATERTON 115.0 to   70464 WATERTON 230.0   circuit 1

Outage case 1314              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70463 WATERTON 115.0 to   70464 WATERTON 230.0   circuit 2

Outage case 1315              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70470 WELD  PS 115.0 to   70471 WELD  PS 230.0   circuit 2

Outage case 1316              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73009 ARCHER   230.0 to   73008 ARCHER   115.0   circuit 1

Outage case 1317              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73011 AULT     230.0 to   73012 AULT     345.0   circuit 1

Outage case 1318              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73011 AULT     230.0 to   73012 AULT     345.0   circuit 2

Outage case 1319              Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73011 AULT     230.0 to   73012 AULT     345.0   circuit 3
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Outage case 1320                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73013 B.CK PS  115.0 to   73014 B.CK PS  230.0   circuit 1

Outage case 1321                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73015 B.CK TRI 115.0 to   73016 B.CK TRI 230.0   circuit 1

Outage case 1322                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73017 B.SANDY  115.0 to   73018 B.SANDY  230.0   circuit 1

Outage case 1323                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73027 BOYD     230.0 to   73026 BOYD     115.0   circuit 1

Outage case 1324                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73035 BURLNGTN 115.0 to   73036 BURLNGTN 230.0   circuit 1

Outage case 1325                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73035 BURLNGTN 115.0 to   73036 BURLNGTN 230.0   circuit 2

Outage case 1326                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73061 FRASER   138.0 to   73296 FRASER   115.0   circuit 1

Outage case 1327                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73106 LAPORTE  230.0 to   73105 LAPORTE  115.0   circuit 1

Outage case 1328                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73107 LAR.RIVR 230.0 to   73108 LAR.RIVR 345.0   circuit 1

Outage case 1329                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73116 LONGPEAK 230.0 to   73115 LONGPEAK 115.0   circuit 1

Outage case 1330                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73116 LONGPEAK 230.0 to   73115 LONGPEAK 115.0   circuit 2

Outage case 1331                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73142 N.YUMA   115.0 to   73143 N.YUMA   230.0   circuit 1

Outage case 1332                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73179 SIDNEY   115.0 to   73180 SIDNEY   230.0   circuit 1

Outage case 1333                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73180 SIDNEY   230.0 to   73181 SIDNEYDC 230.0   circuit 1

Outage case 1334                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73190 STEGALL  230.0 to   73189 STEGALL  115.0   circuit 1

Outage case 1335                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73190 STEGALL  230.0 to   73189 STEGALL  115.0   circuit 2

Outage case 1336                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73192 STORY    230.0 to   73193 STORY    345.0   circuit 1

Outage case 1337                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73192 STORY    230.0 to   73193 STORY    345.0   circuit 2

Outage case 1338                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73199 TIMBERLN 230.0 to   73198 TIMBERLN 115.0   circuit 1

Outage case 1339                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73211 WELD  LM 115.0 to   73212 WELD  LM 230.0   circuit 1

Outage case 1340                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73228 YELLOWBR 115.0 to   73229 YELLOWBR 230.0   circuit 1

Outage case 1341                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73392 CTTNWD N 230.0 to   73391 CTTNWD N 115.0   circuit 1

Outage case 1342                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73394 CTTNWD S 230.0 to   73393 CTTNWD S 115.0   circuit 1

Outage case 1343                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73407 KELKER   230.0 to   73409 KELKER W 115.0   circuit 1

Outage case 1344                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73413 MIDWAYBR 230.0 to   73412 MIDWAYBR 115.0   circuit 1

Outage case 1345                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73419 RD NIXON 230.0 to   73417 RD NIXON 115.0   circuit 1

Outage case 1346                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73477 FULLER   230.0 to   73481 FULLER   115.0   circuit 1

Outage case 1347                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79014 CRAIG    345.0 to   79013 CRAIG    230.0   circuit 1

Outage case 1348                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79014 CRAIG    345.0 to   79013 CRAIG    230.0   circuit 2

Outage case 1349                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79021 CURECANT 230.0 to   79020 CURECANT 115.0   circuit 1

Outage case 1350                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79039 HAYDEN   230.0 to   79038 HAYDEN   138.0   circuit 1

Outage case 1351                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79039 HAYDEN   230.0 to   79038 HAYDEN   138.0   circuit 2

Outage case 1352                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79045 LOSTCANY 230.0 to   79044 LOSTCANY 115.0   circuit 1

Outage case 1353                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79049 MONTROSE 345.0 to   79048 MONTROSE 115.0   circuit 1

Outage case 1354                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79070 NORTHFRK 230.0 to   79050 NORTHFRK 115.0   circuit 1

Outage case 1355                Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79070 NORTHFRK 230.0 to   79050 NORTHFRK 115.0   circuit 2

Outage case 1356                Y, WAPA UGP, JUNE 2002
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    switched OUT TRANSFORMER 79072 HESPERUS 345.0 to   79071 HESPERUS 115.0   circuit 1
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Outage case 1357               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 63002 CRSOVRUM 230.0 to   63001 CROS PHA 230.0   circuit 1
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Outage case 1358               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 63008 HAVRE    161.0 to   63007 HAVRE    115.0   circuit 1
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Outage case 1359               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 62009 RATTLE S 161.0 to   40867 RATTLE S 230.0   circuit 1
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Outage case 1360               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65565 FLAMGORG 230.0 to   79026 FLAMGORG 138.0   circuit 1
_____________________________________________________________________________________________
Outage case 1361               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65565 FLAMGORG 230.0 to   79026 FLAMGORG 138.0   circuit 2
_____________________________________________________________________________________________
Outage case 1362               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73170 RIVERTON 115.0 to   66305 RIVERTON 230.0   circuit 1
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Outage case 1363               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73197 THERMOPL 115.0 to   66535 THERMOPL 230.0   circuit 1
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Outage case 1364               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79033 GOREPASS 230.0 to   73072 GOREPASS 138.0   circuit 1
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Outage case 1365               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79060 SANJN PS 345.0 to   10292 SAN_JUAN 345.0   circuit 1
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Outage case 1366               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65220 BRIDGER  230.0 to   60085 BRIDGER  345.0   circuit 1
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Outage case 1367               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65220 BRIDGER  230.0 to   60085 BRIDGER  345.0   circuit 2
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Outage case 1368               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 65220 BRIDGER  230.0 to   60085 BRIDGER  345.0   circuit 3
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Outage case 1369               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 70205 GRANDJCT 230.0 to   79036 GRANDJCT 345.0   circuit 1
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Outage case 1370               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 79061 SHIP PS  230.0 to   79063 SHIPROCK 230.0   circuit 1
_____________________________________________________________________________________________
Outage case 1371               Y, WAPA UGP, JUNE 2002
    switched OUT TRANSFORMER 73551 W CANON  230.0 to   70550 W CANON  115.0   circuit 1
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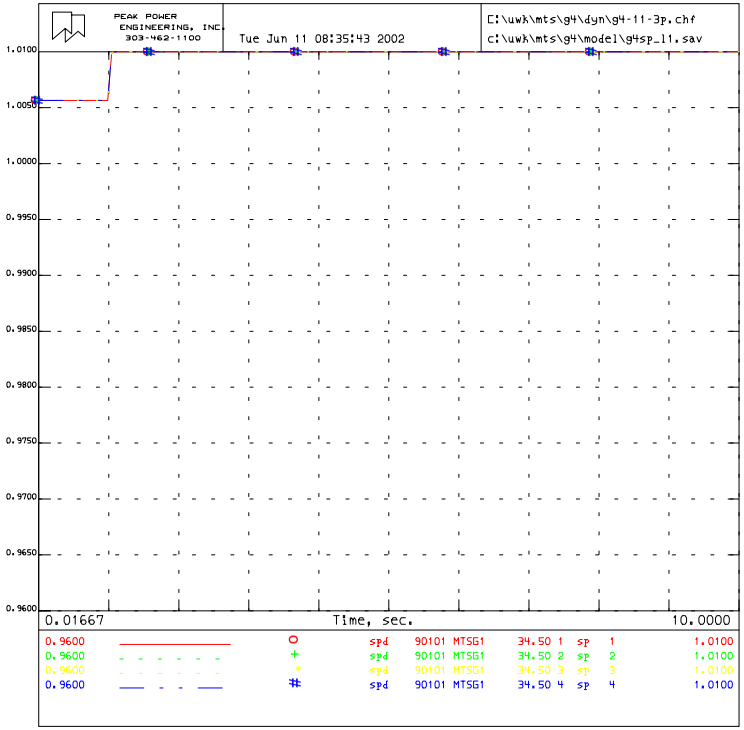
D. DYNAMIC STABILITY PLOTS

Pre-Project Cases:

Fault Location 3
Fault Location 6

Post-Project Cases:

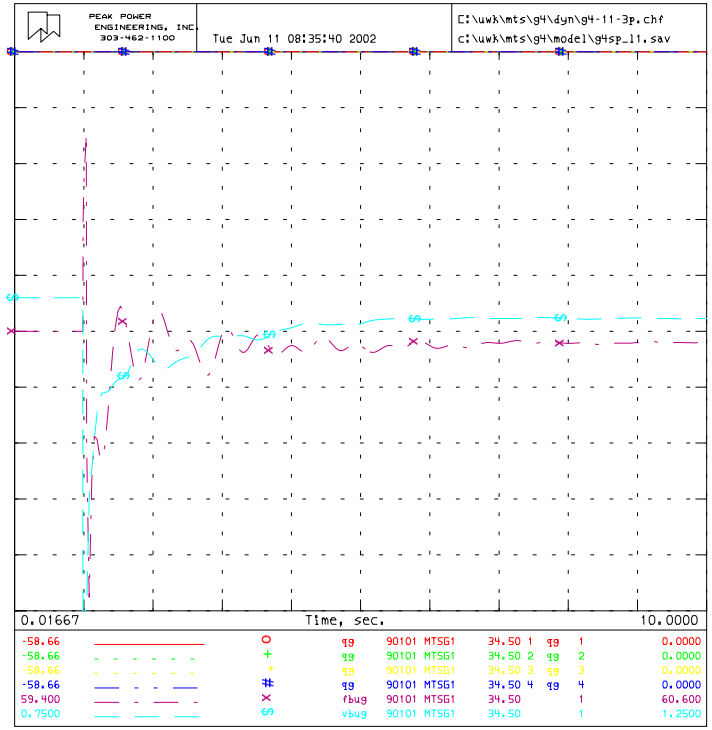
Fault Location 1
Fault Location 2
Fault Location 3
Fault Location 4
Fault Location 5
Fault Location 6



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: 3Ph Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 3 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
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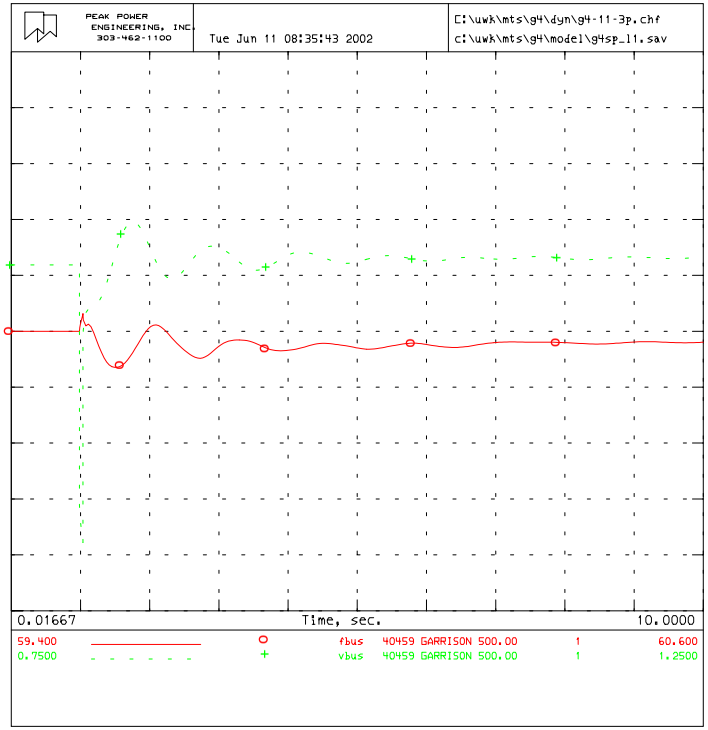

MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: 3Ph Flt @ "MTSGFALL" 500 kV BUS
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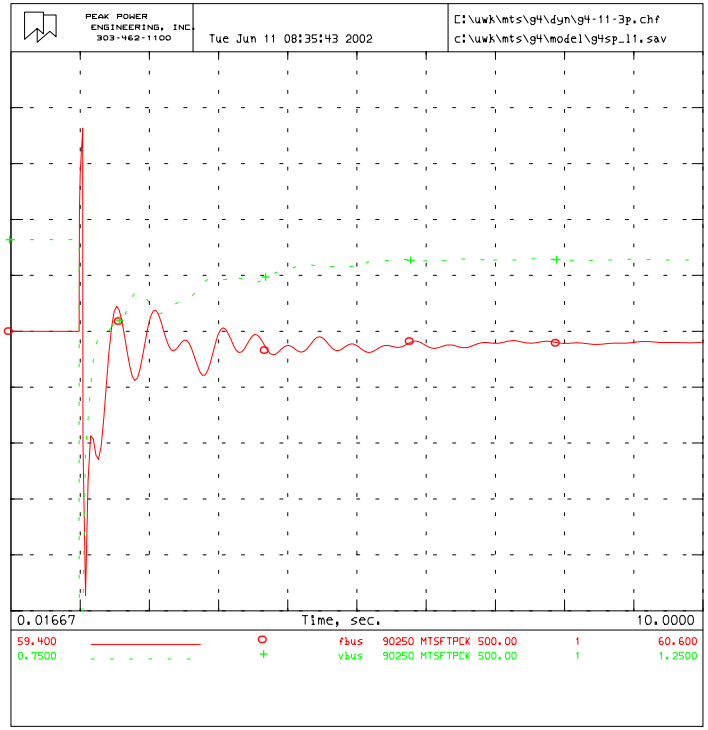
STUDY BY PEAK POWER ENGINEERING, INC.

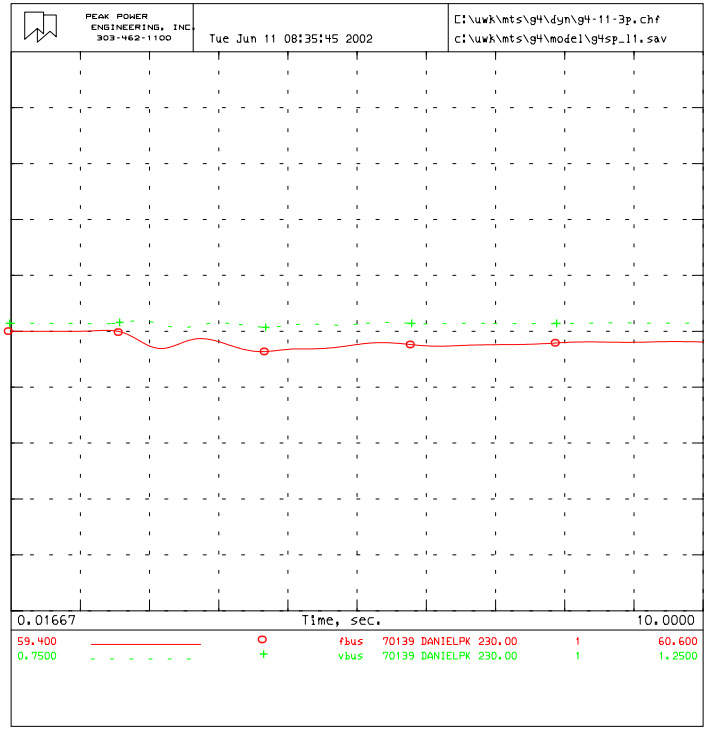
HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: 3Ph Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 3 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

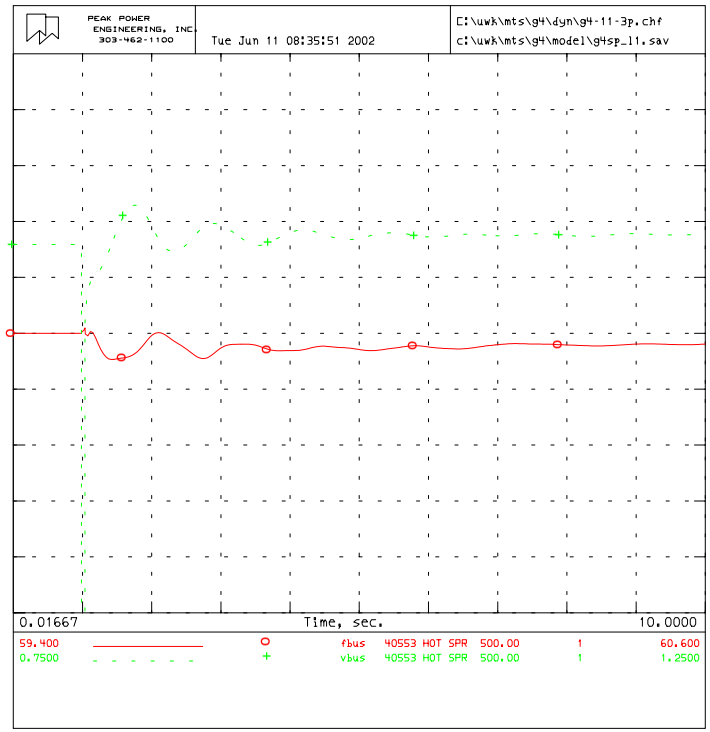
HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: 3Ph Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 3 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

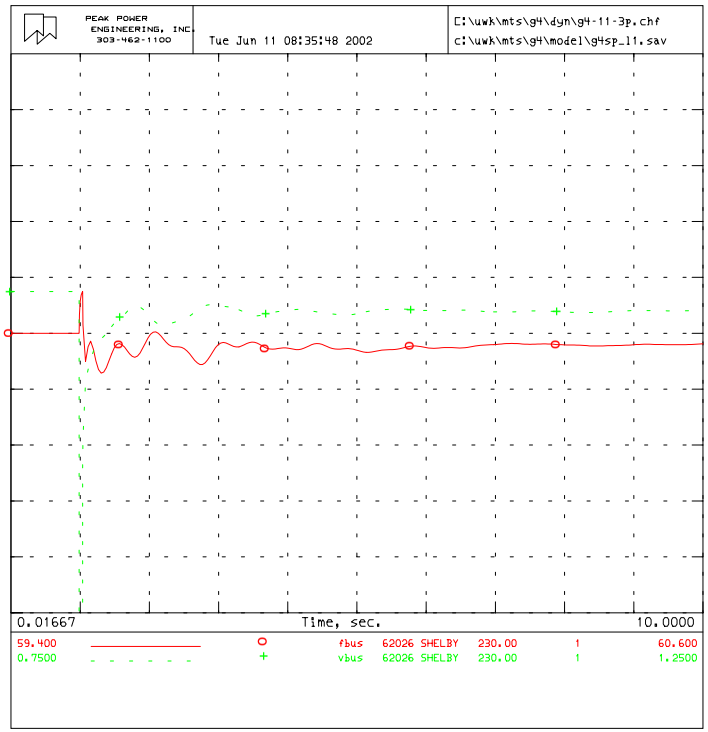
HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: 3Ph Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 3 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

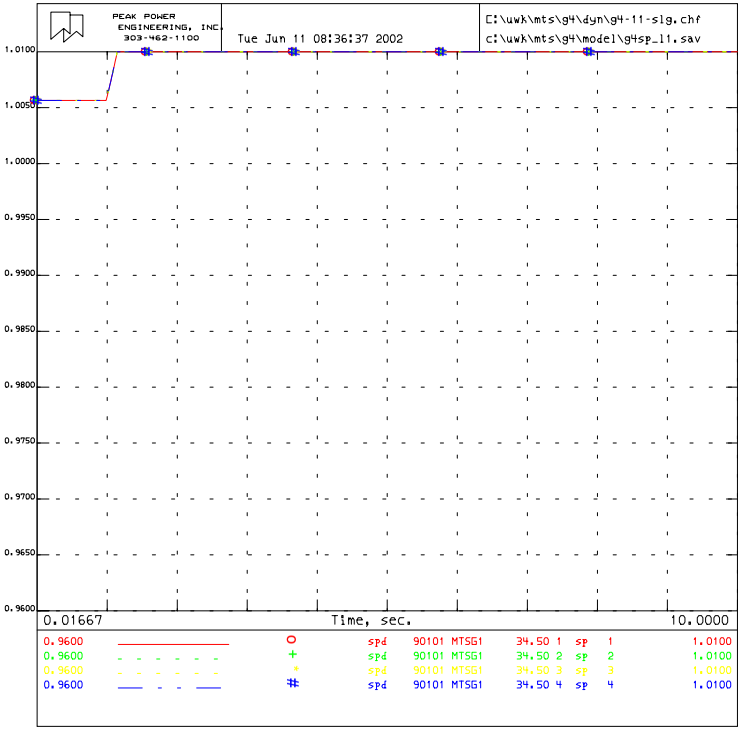
HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: 3Ph Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 3 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

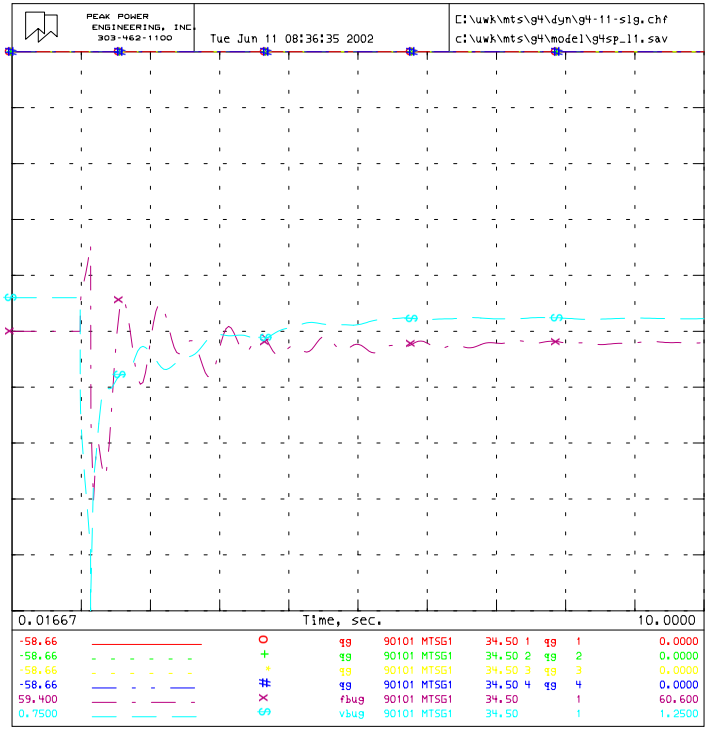
HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: SLG Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 9 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

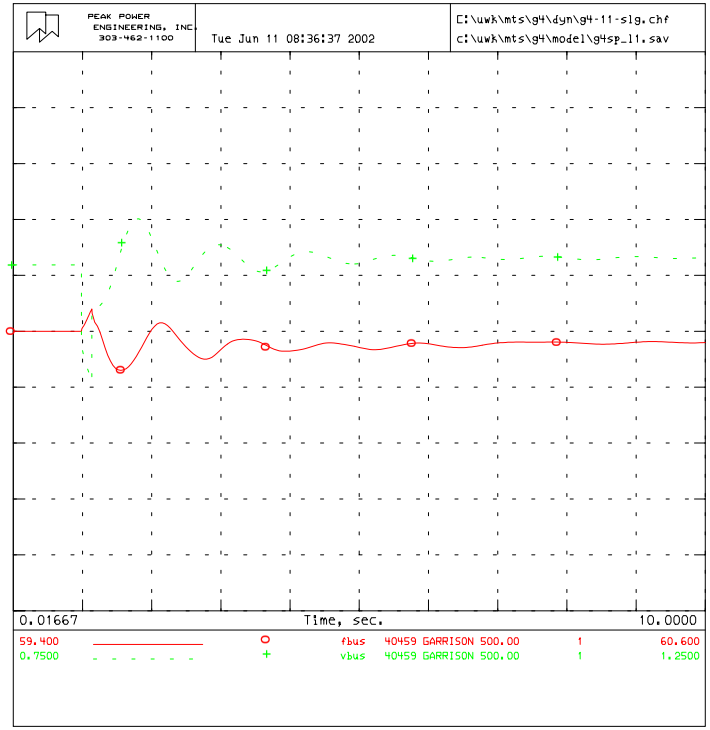
HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: SLG Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 9 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: SLG Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 9 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

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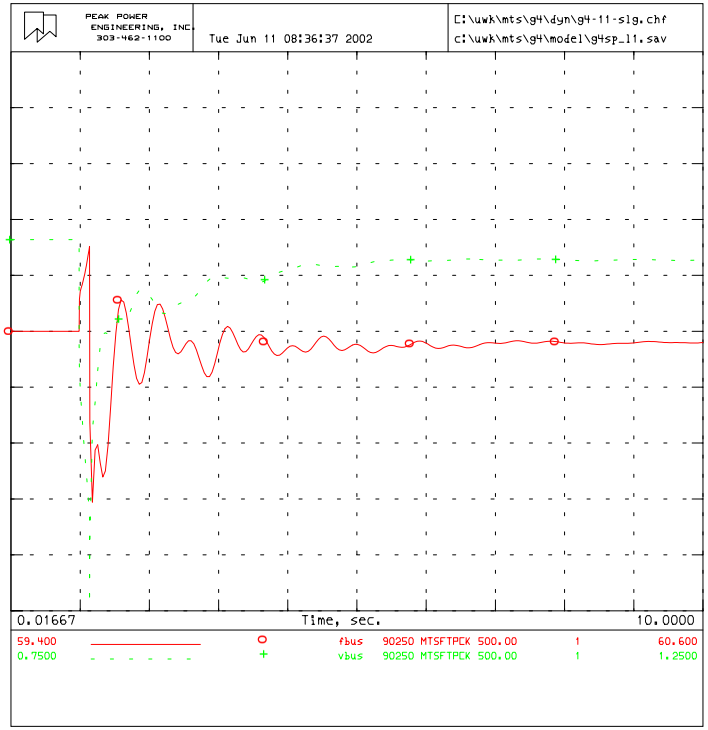
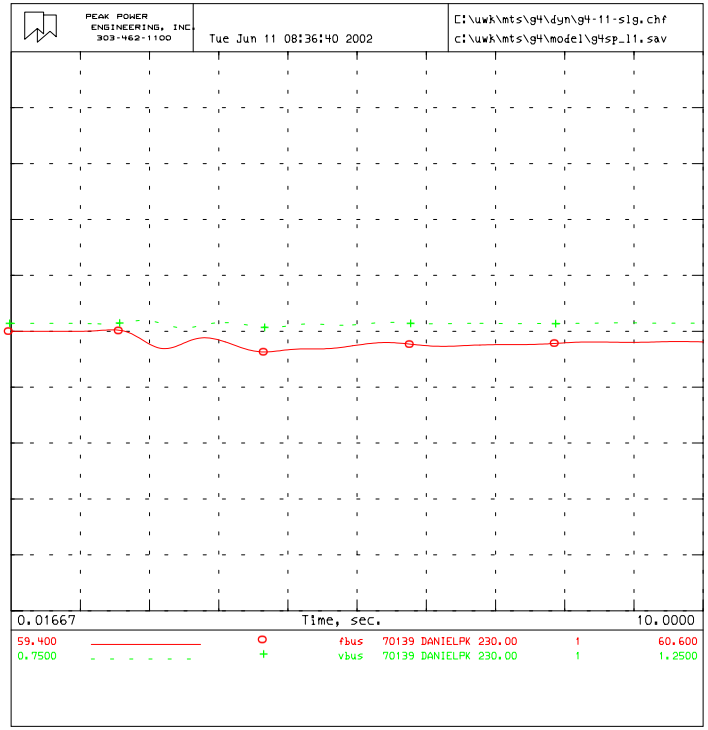
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: SLG Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 9 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

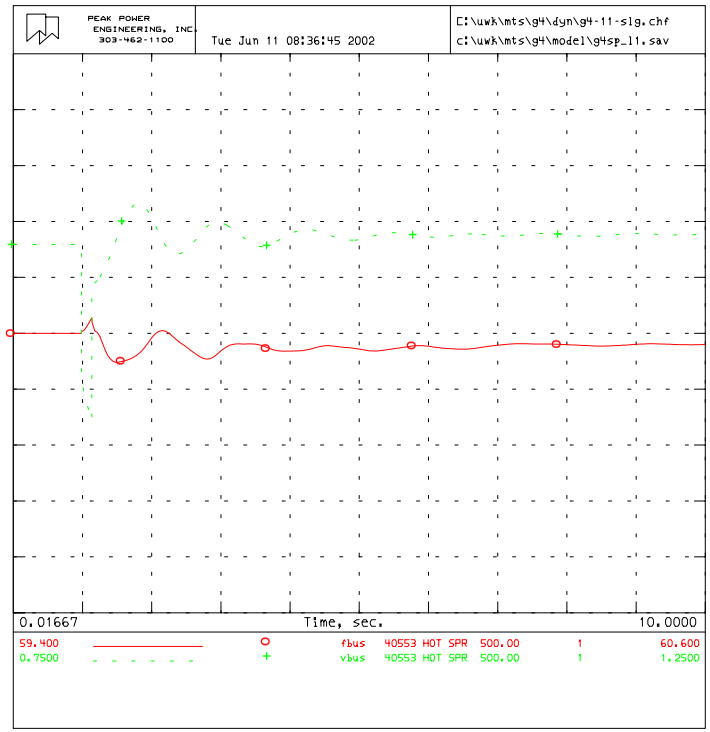
HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: SLG Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 9 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

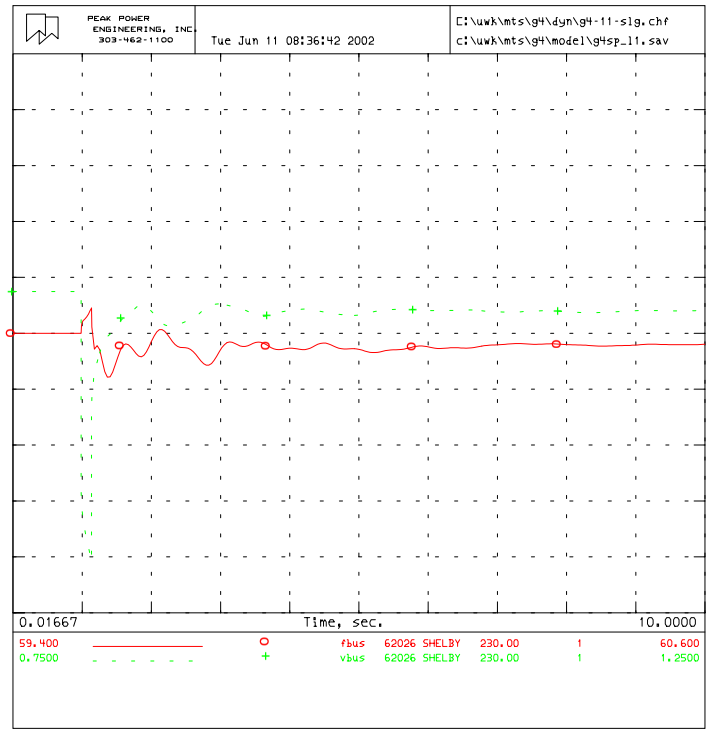
HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: SLG Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 9 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

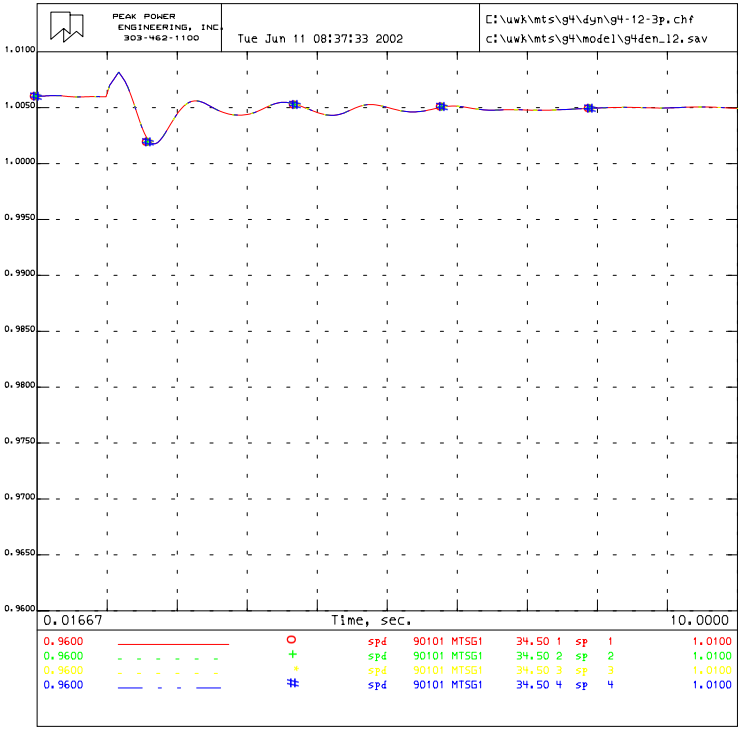
HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: SLG Flt @ "MTSGFALL" 500 kV BUS
Clear Flt: 9 cyc, Trip Line "MTSHAVRE" 500 to "MTSGFALL" 500

STUDY BY PEAK POWER ENGINEERING, INC.

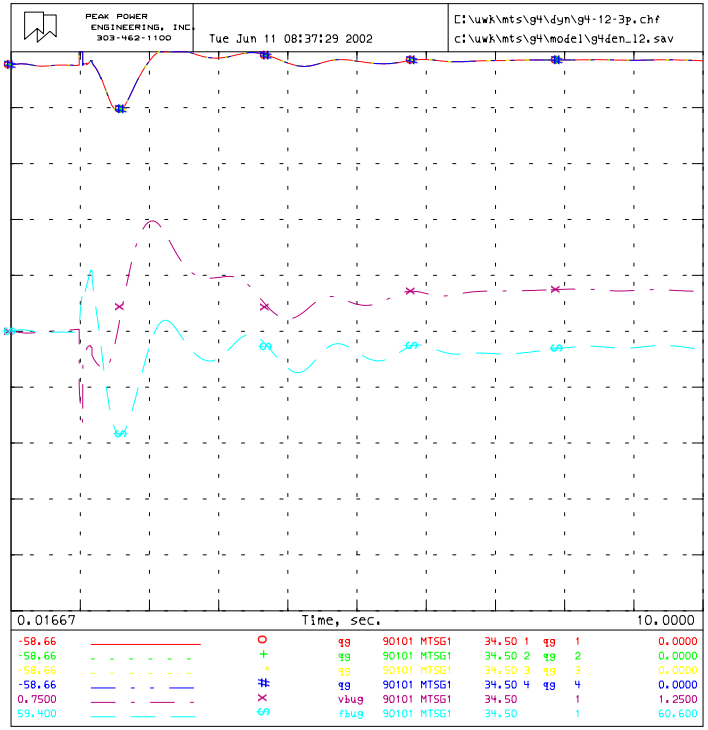
HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: 3Ph Flt @ "MTSDAVEJ" 500 kV BUS
Clear Flt: 3 cyc, Trip Line "MTSDAVEJ" 500 to "MTSDAN" 500

STUDY BY PEAK POWER ENGINEERING, INC.

HISTORY FILE BASED ON WSCC 2002 HS3A APPROVED OPERATING CASE
OCTOBER 24, 2001



MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: 3Ph Flt @ "MTSDAVEJ" 500 kV BUS
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STUDY BY PEAK POWER ENGINEERING, INC.

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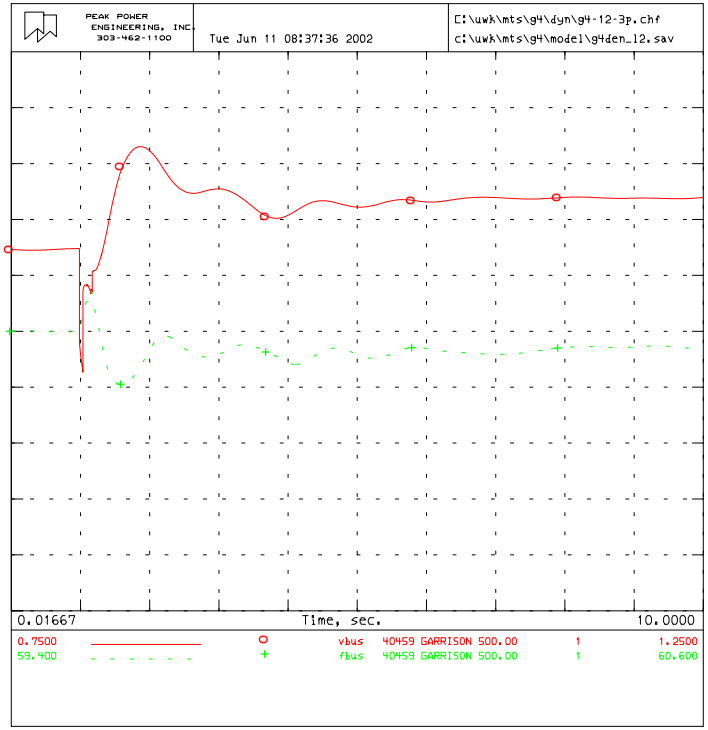

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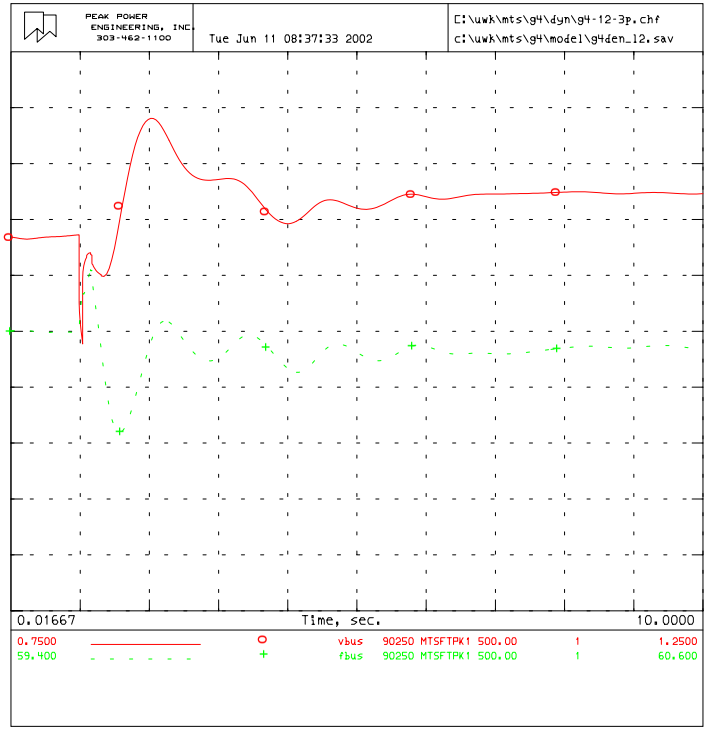

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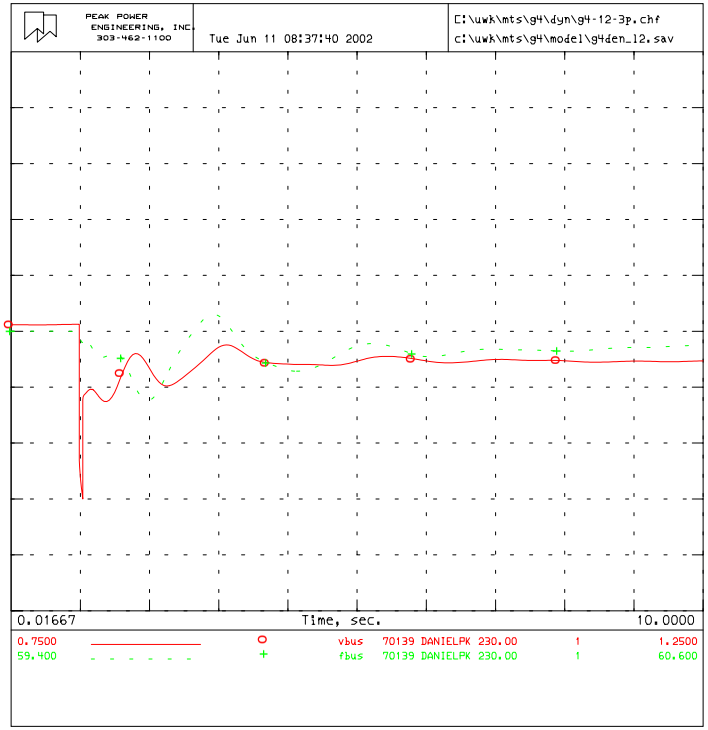

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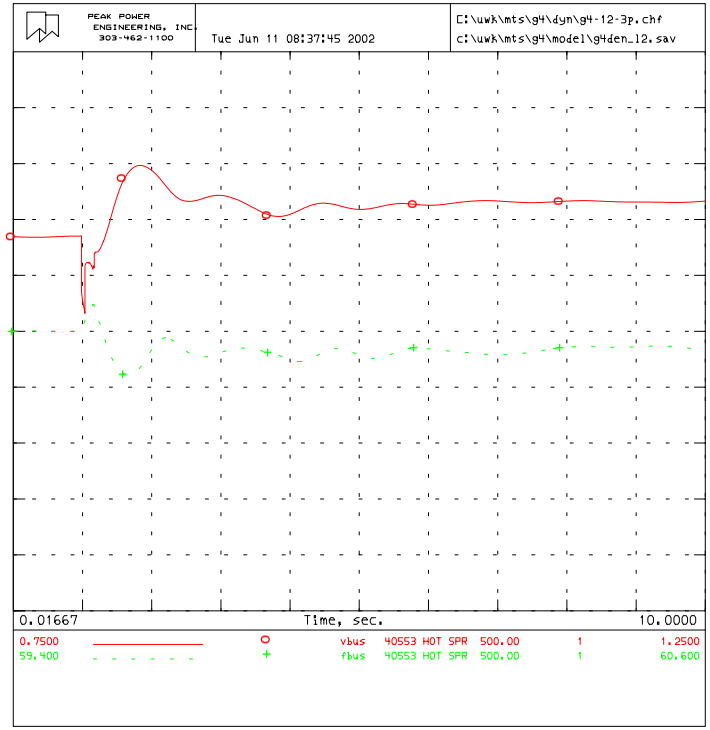

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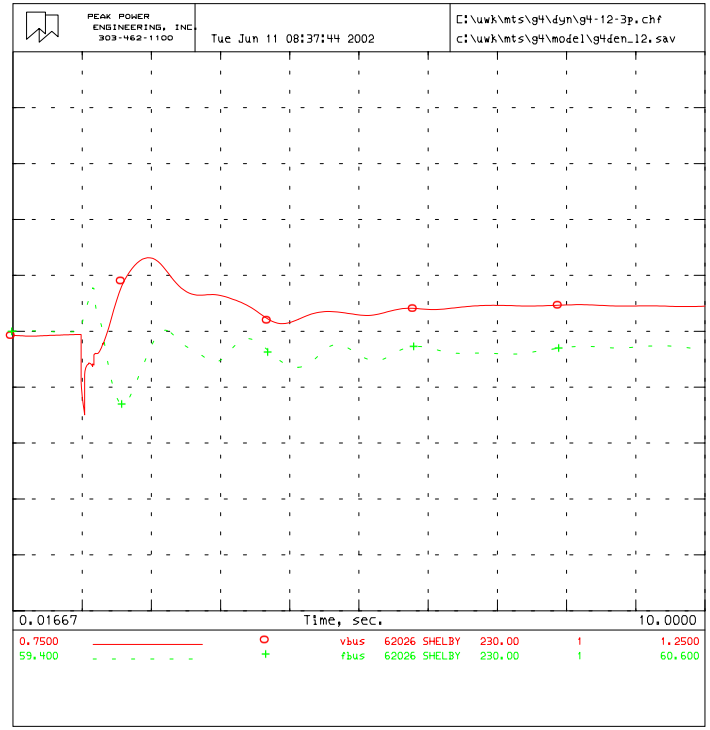

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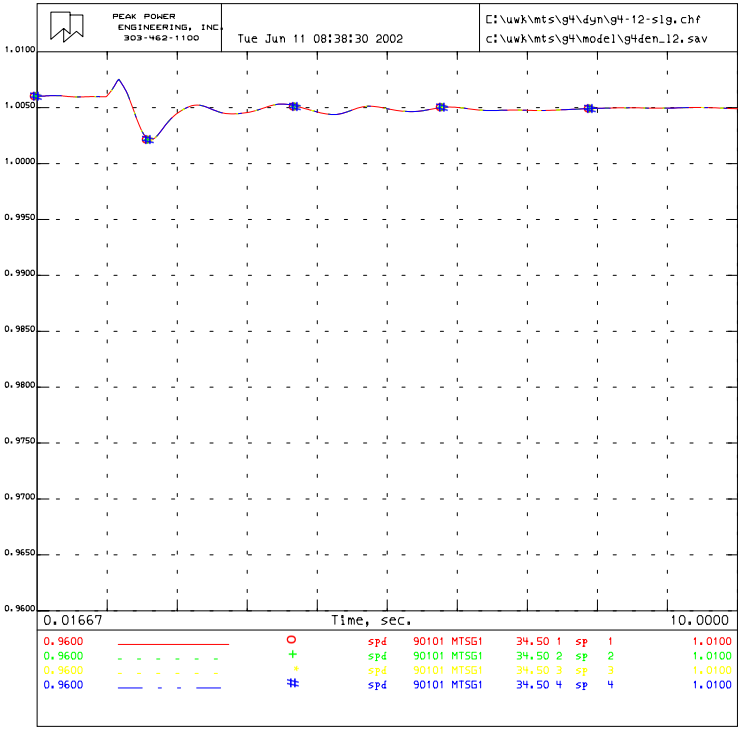

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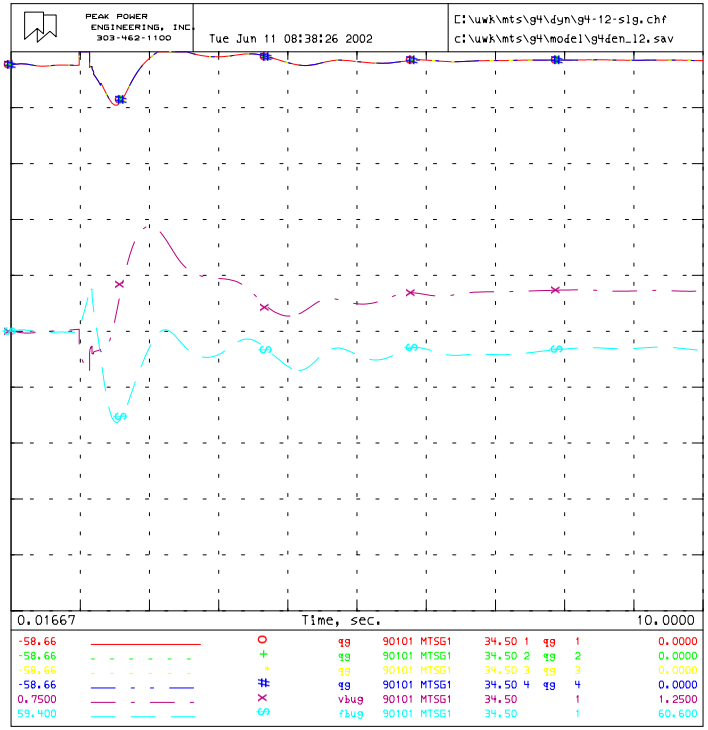

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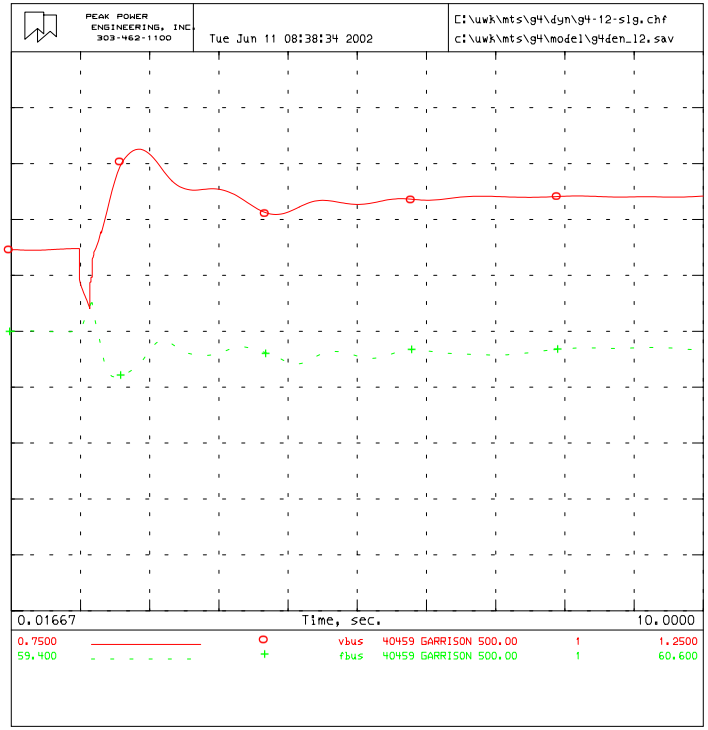

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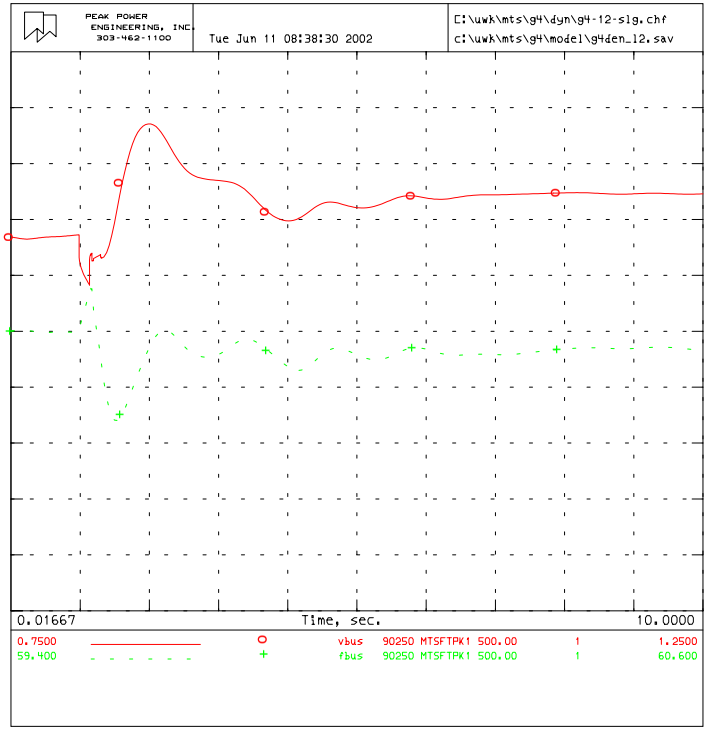

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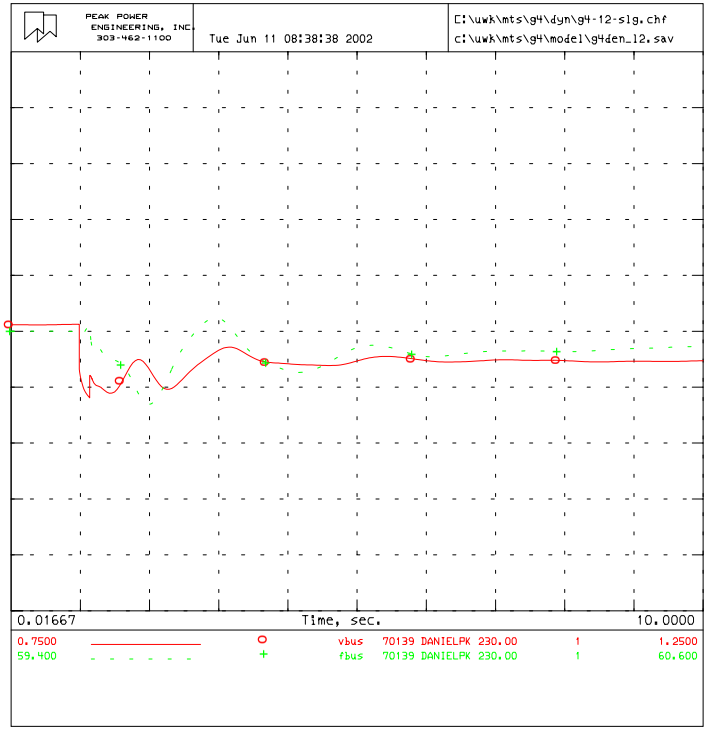

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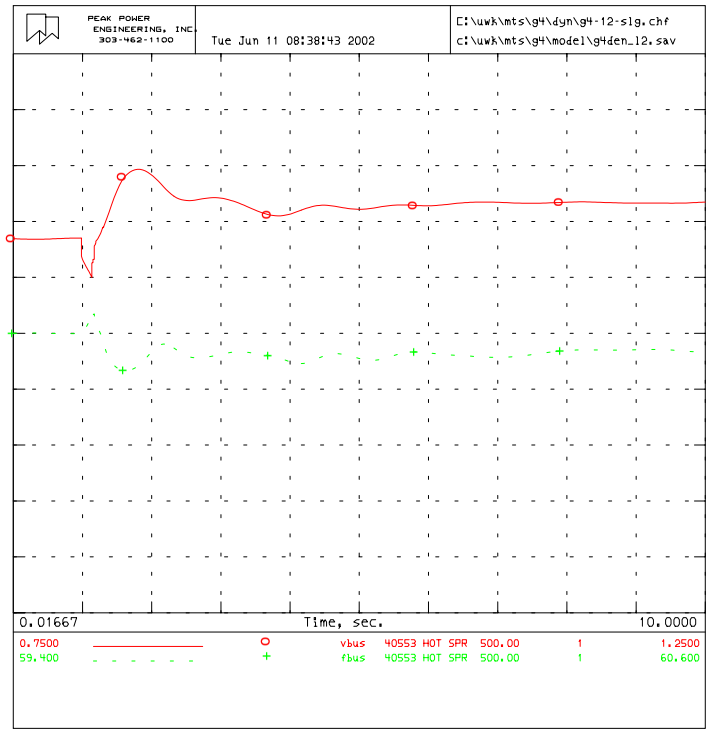

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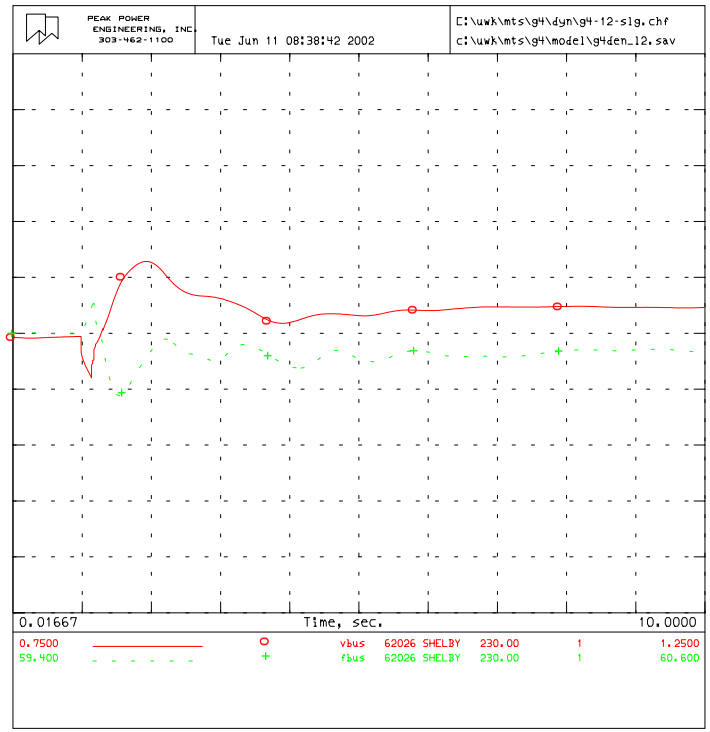

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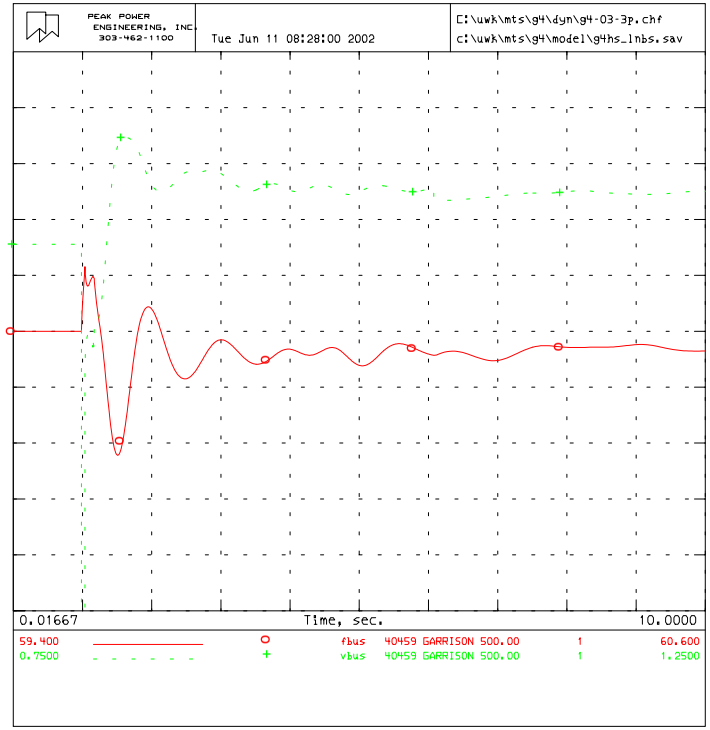

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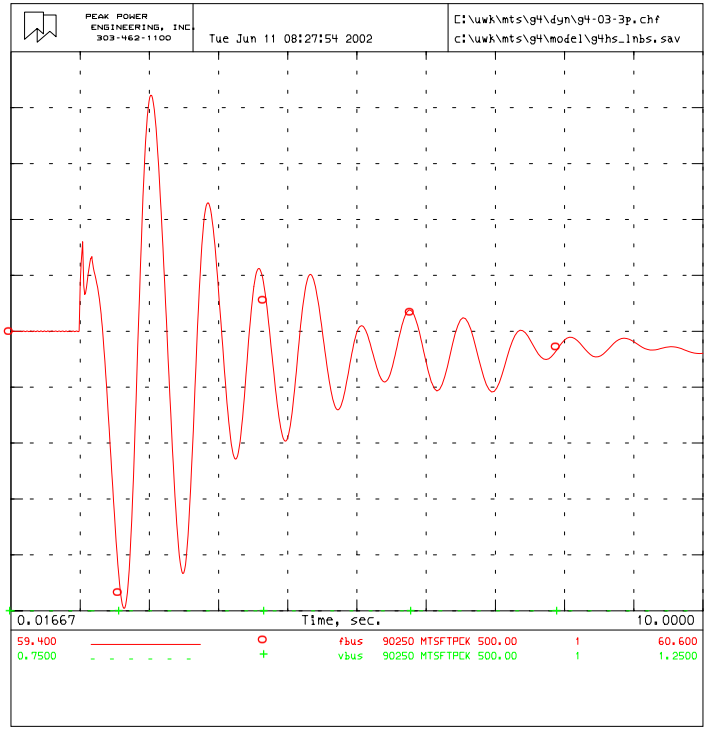

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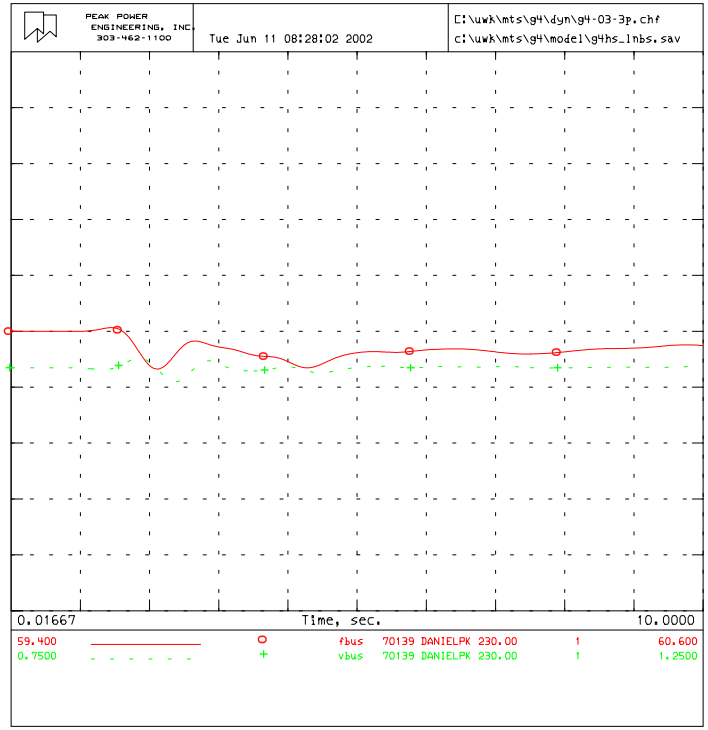

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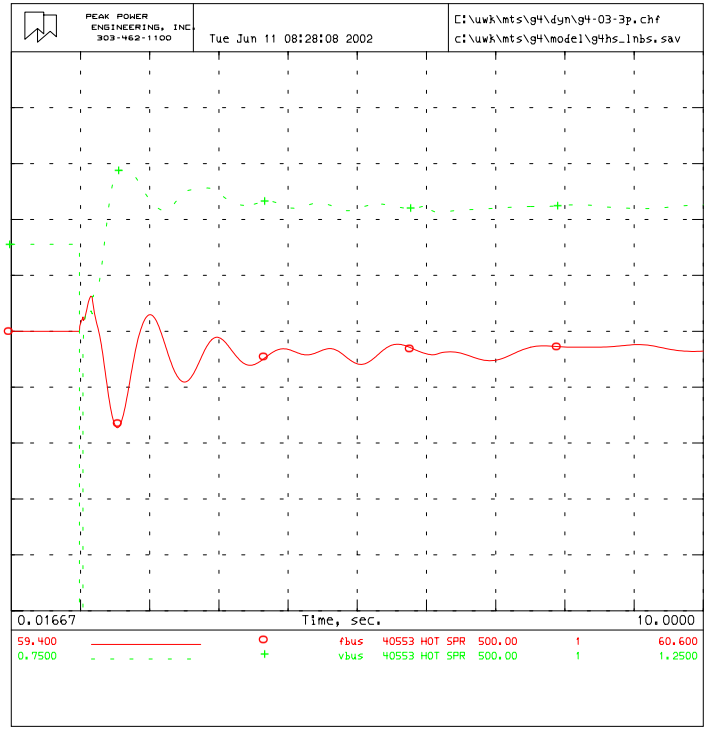

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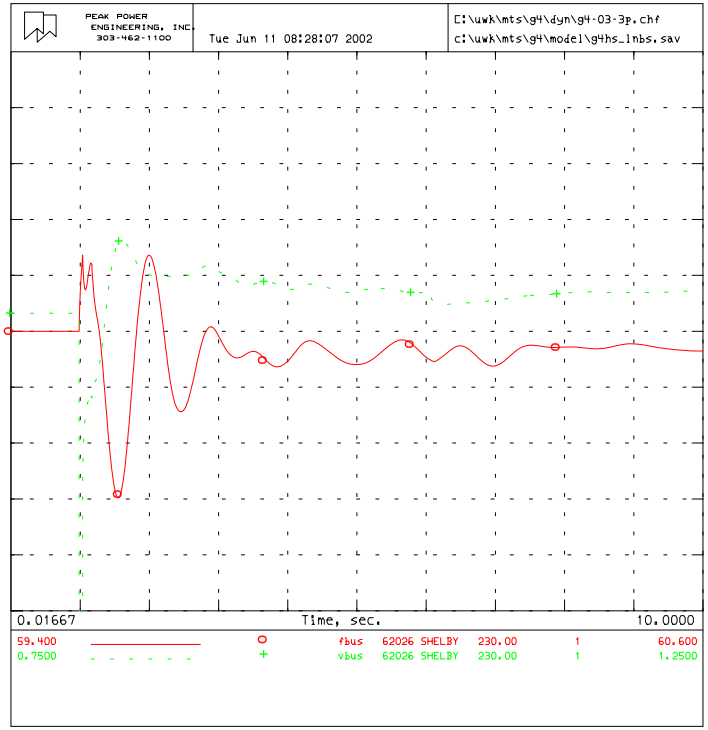

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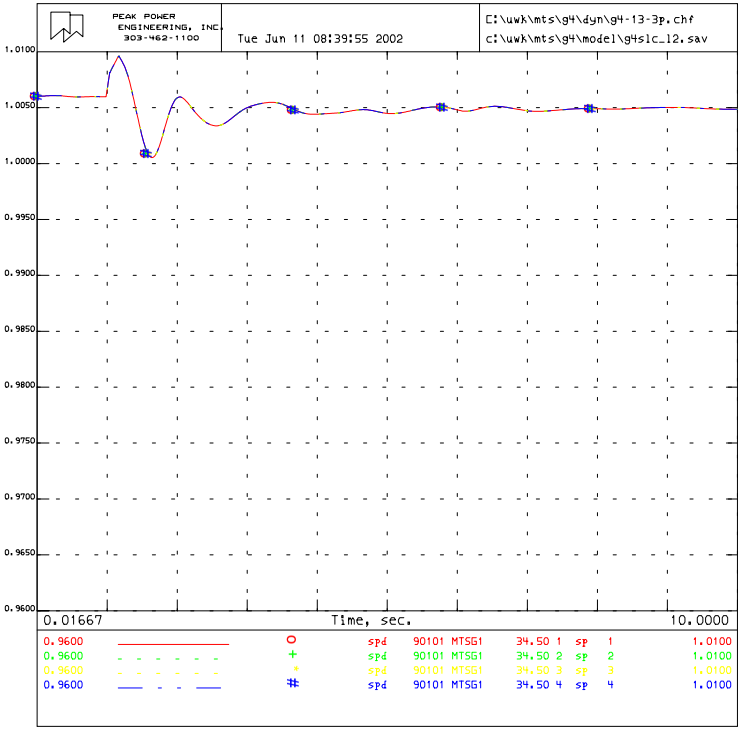

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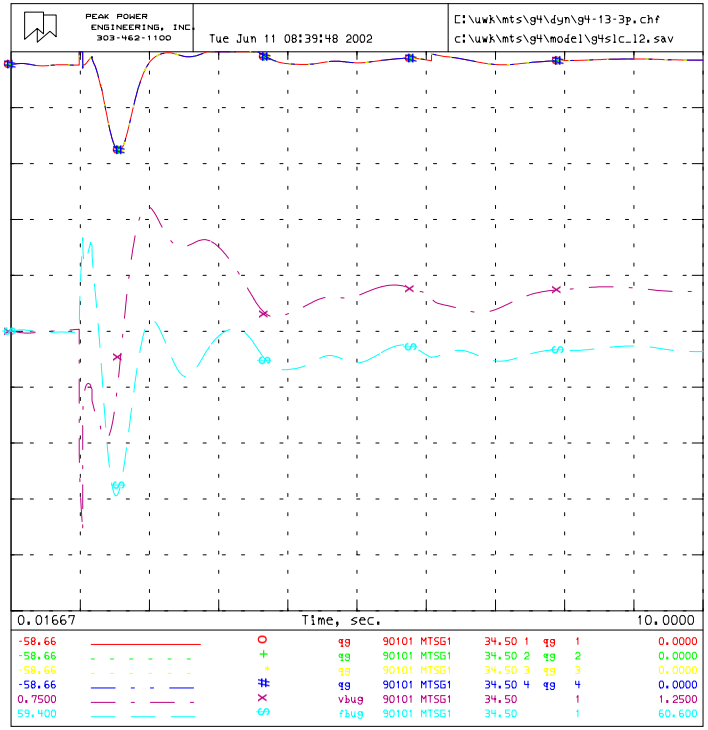

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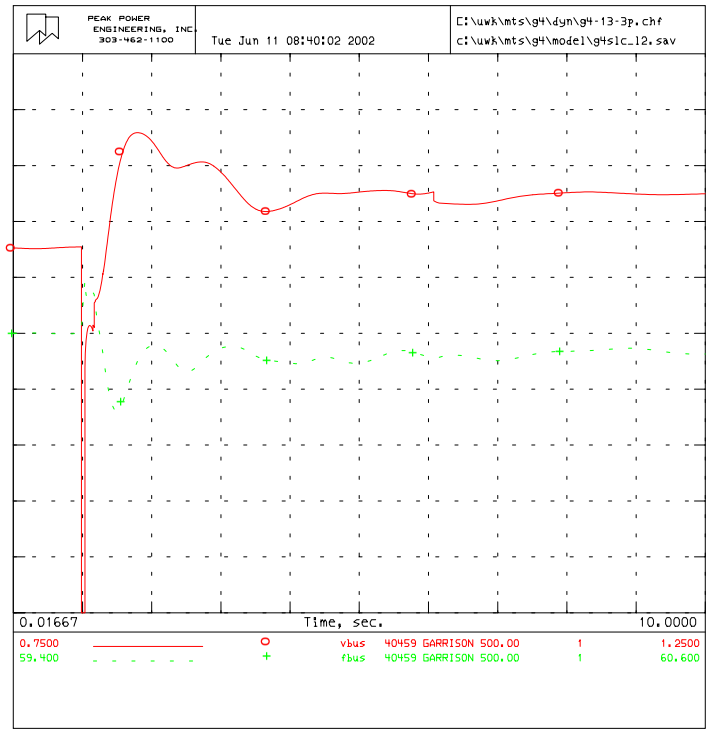

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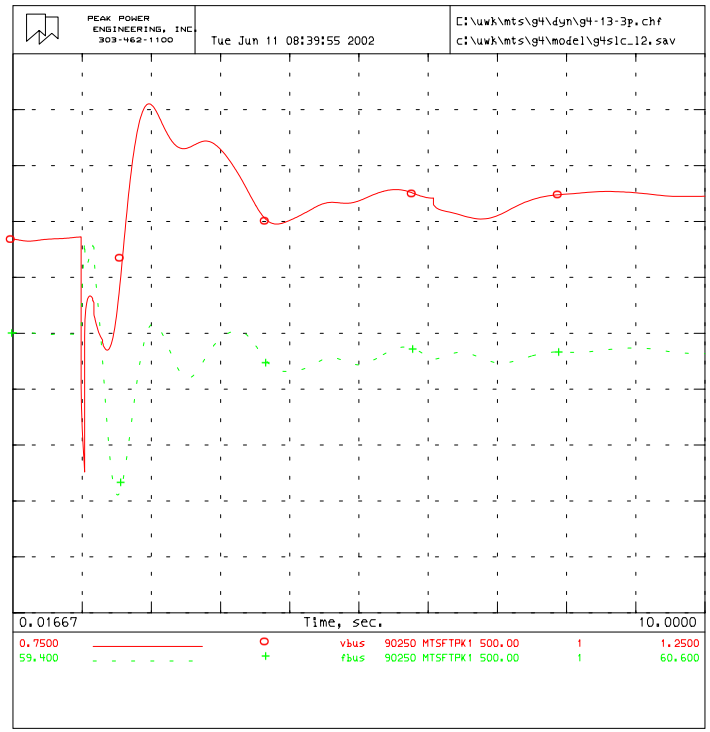

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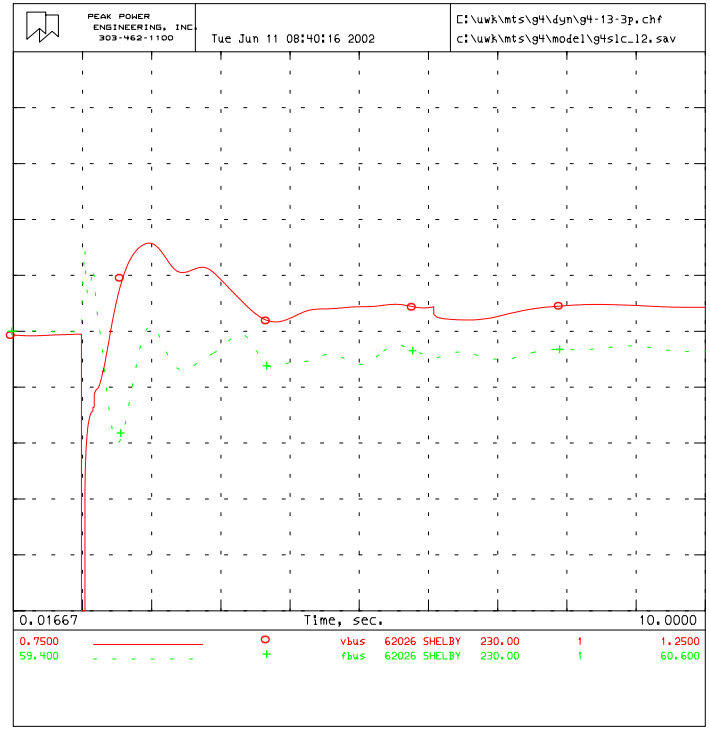

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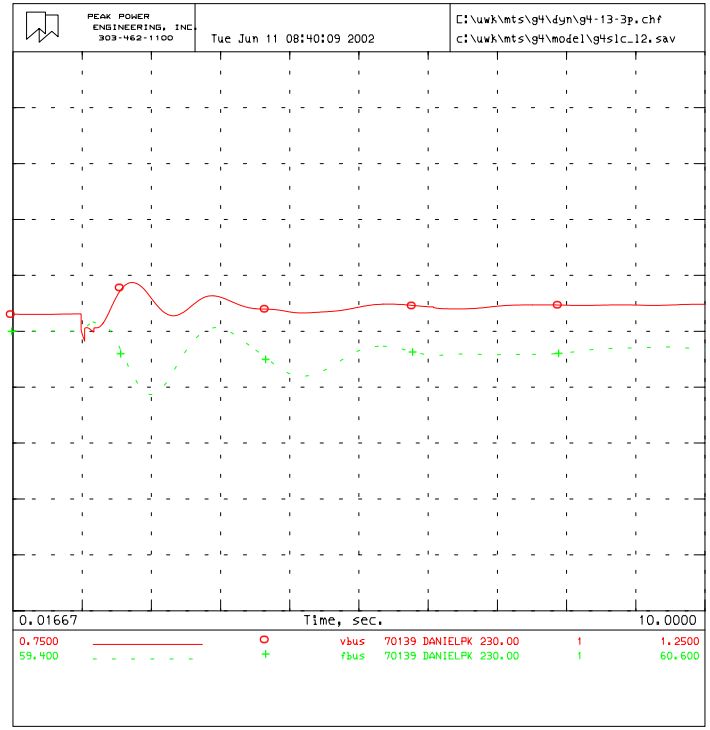

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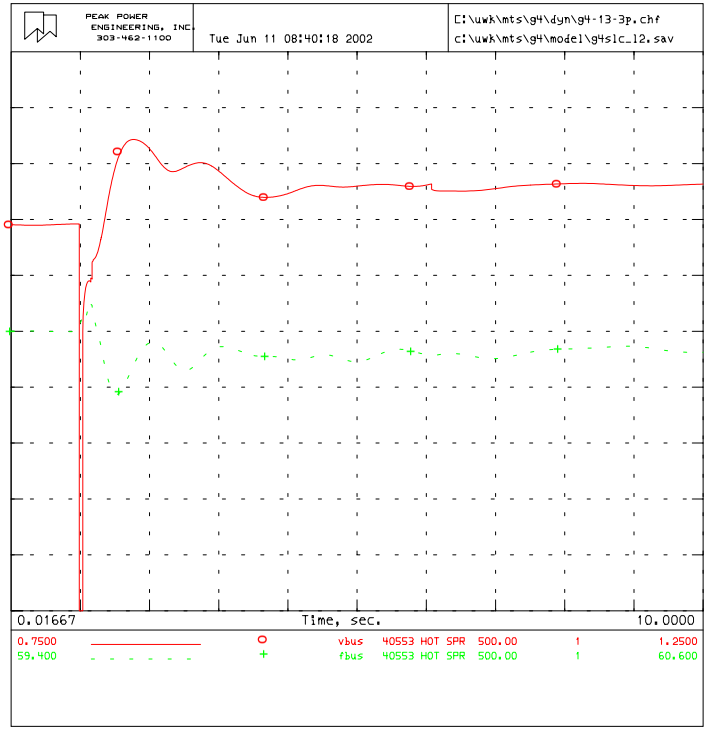

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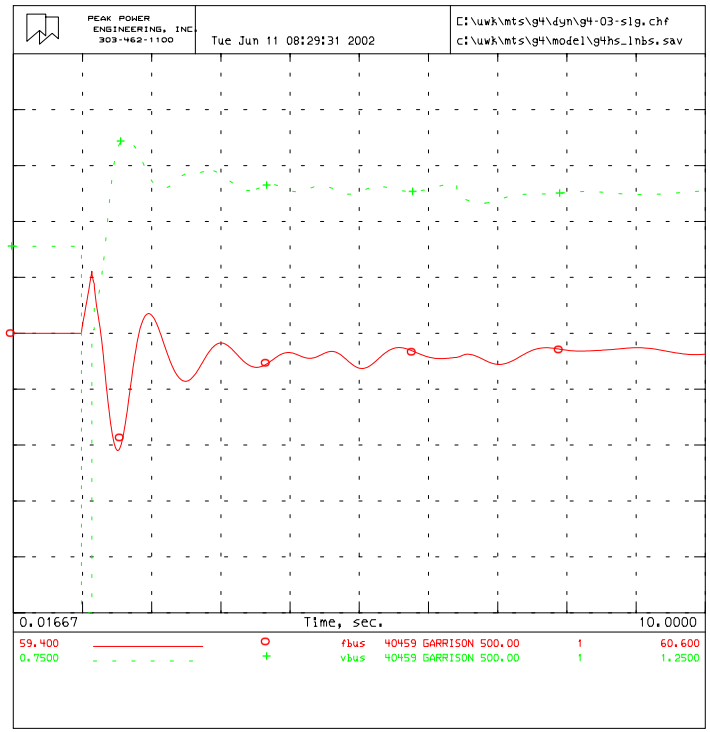

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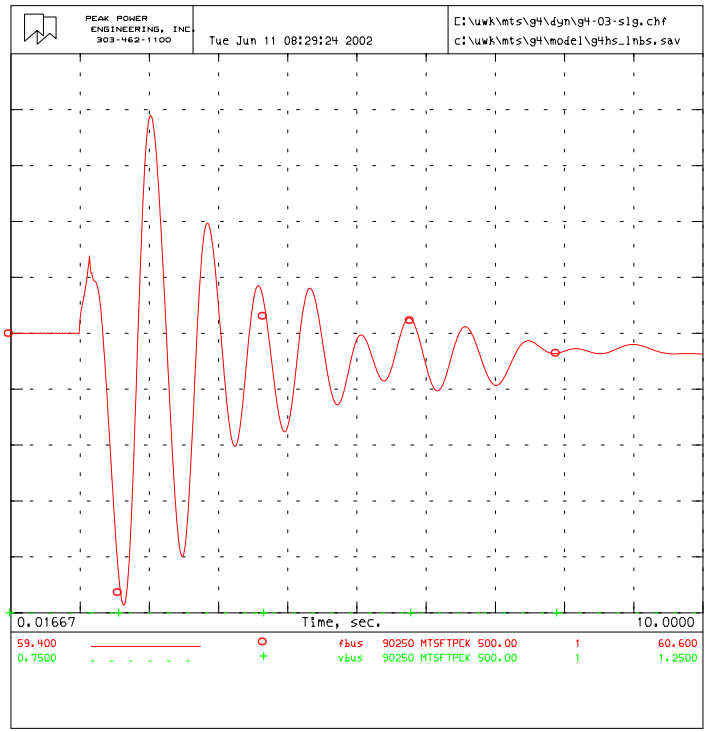

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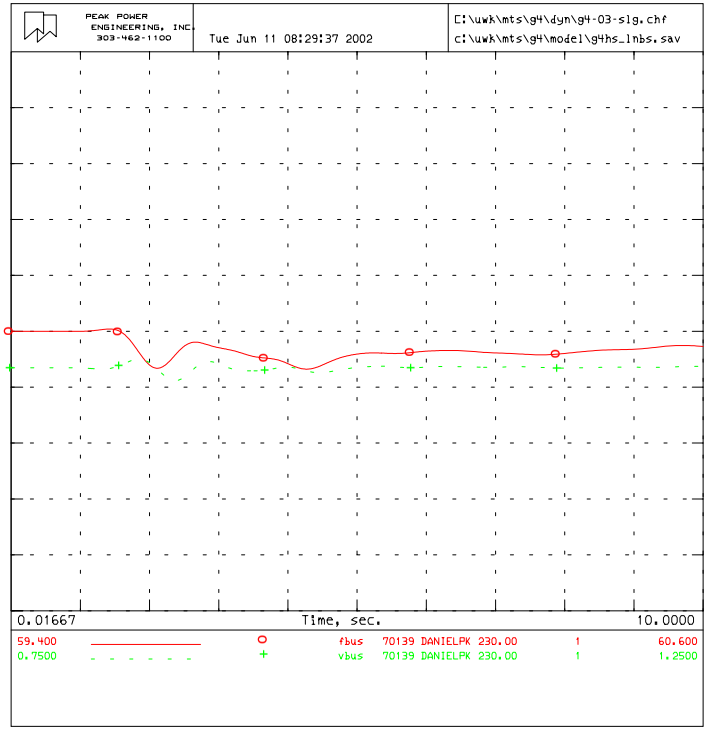

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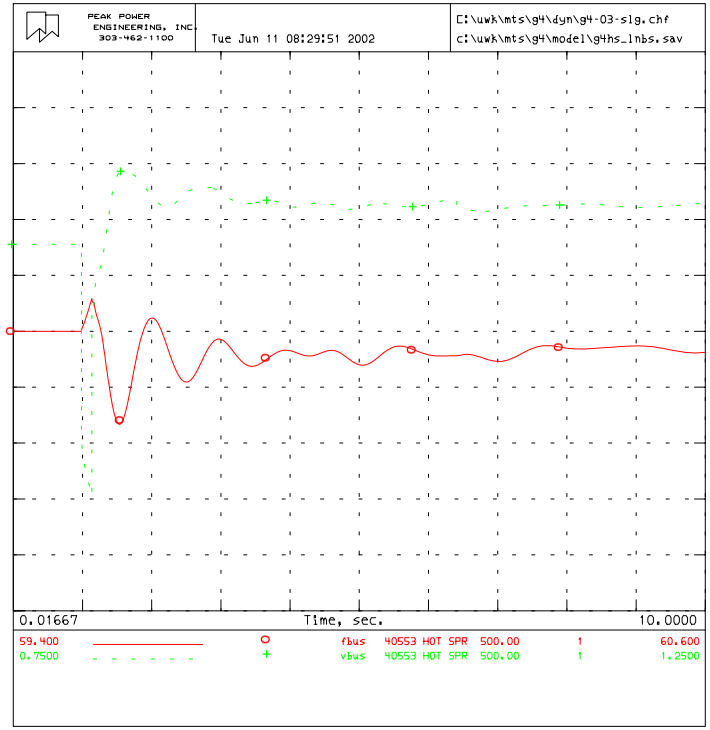

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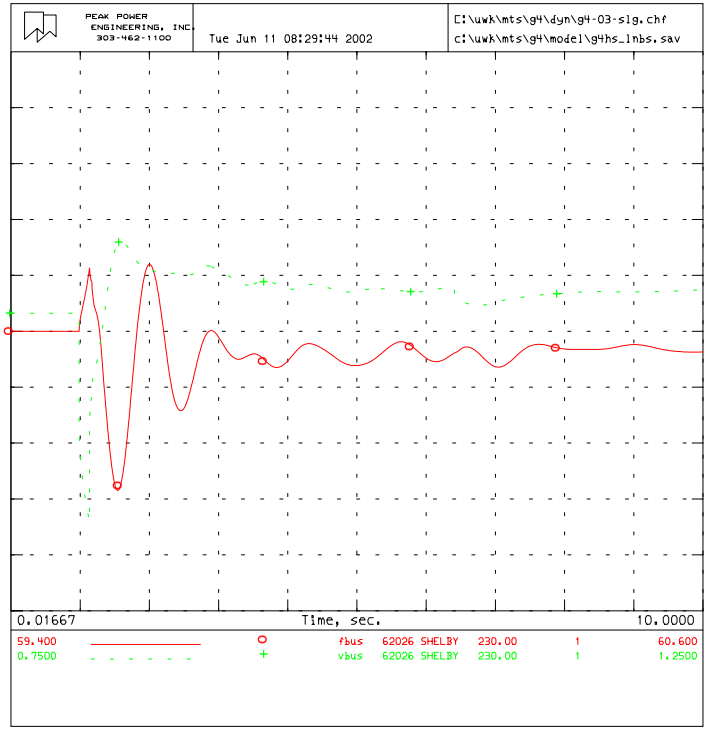

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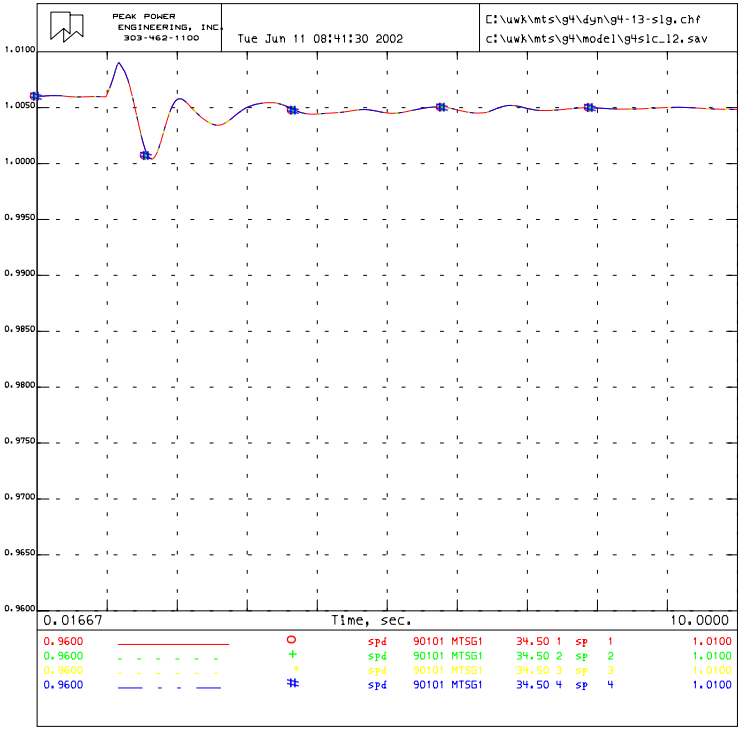

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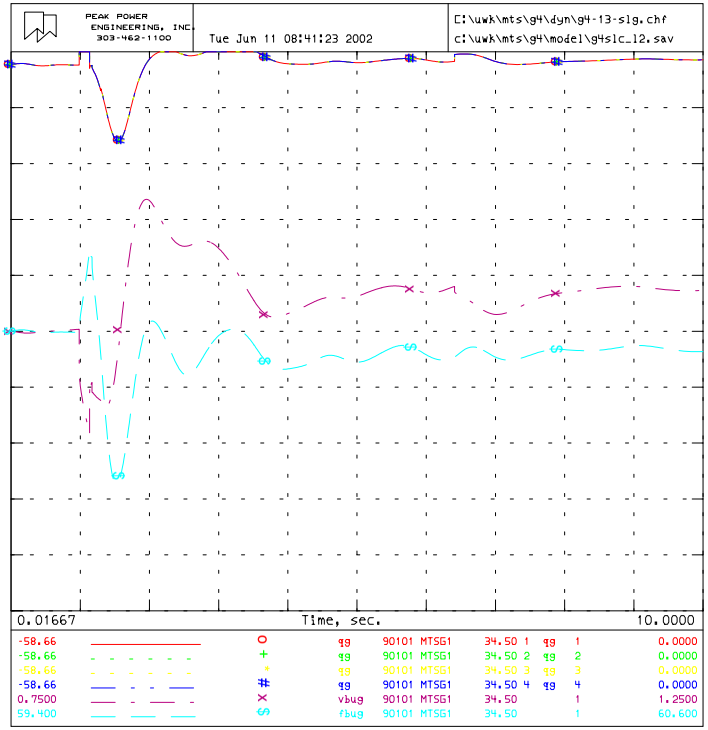

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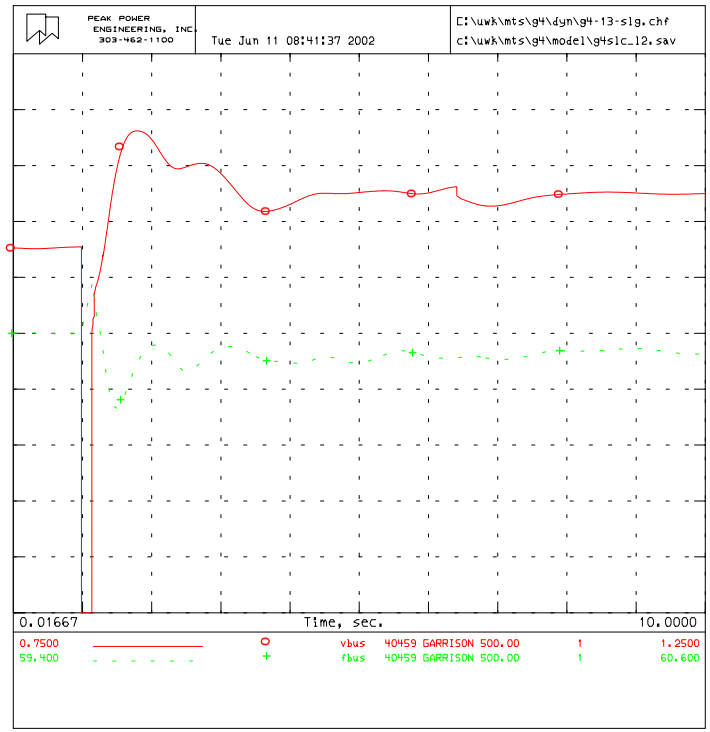

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600 MW WIND FARM AT FORT PECK
Fault: SLG Flt @ "GARRISON" 500 kV BUS
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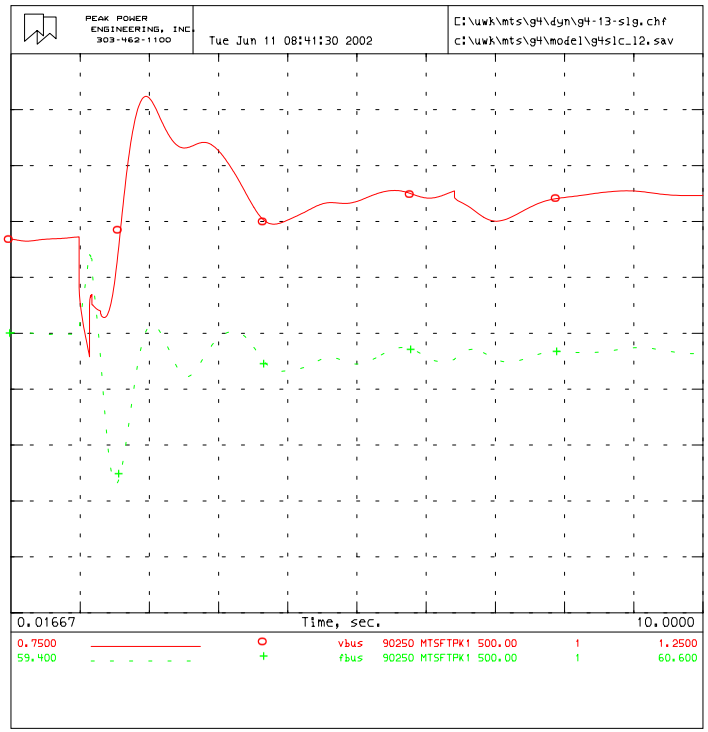

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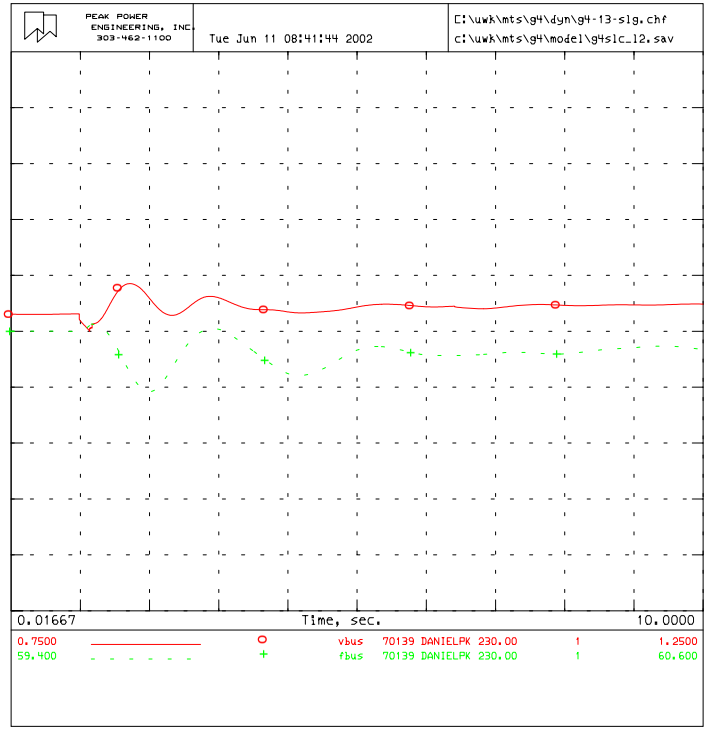

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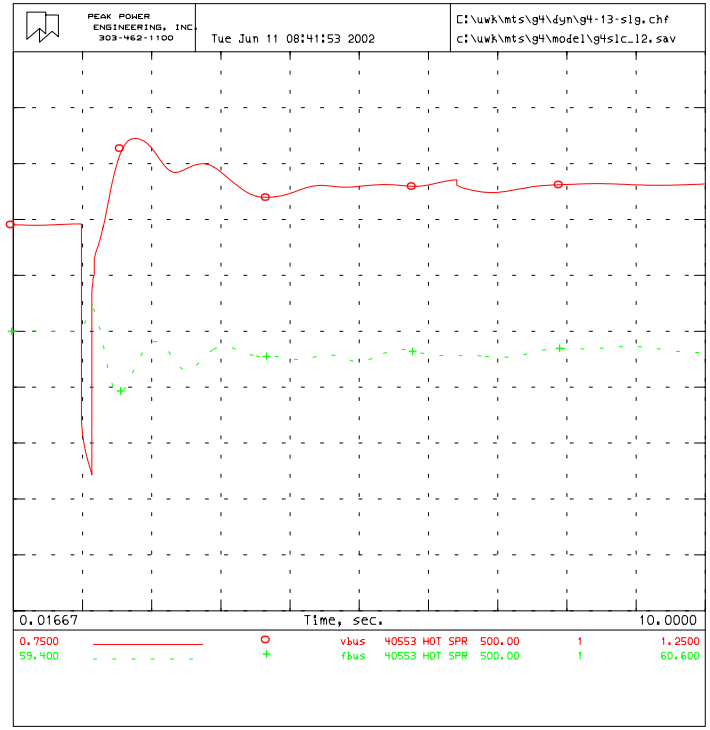

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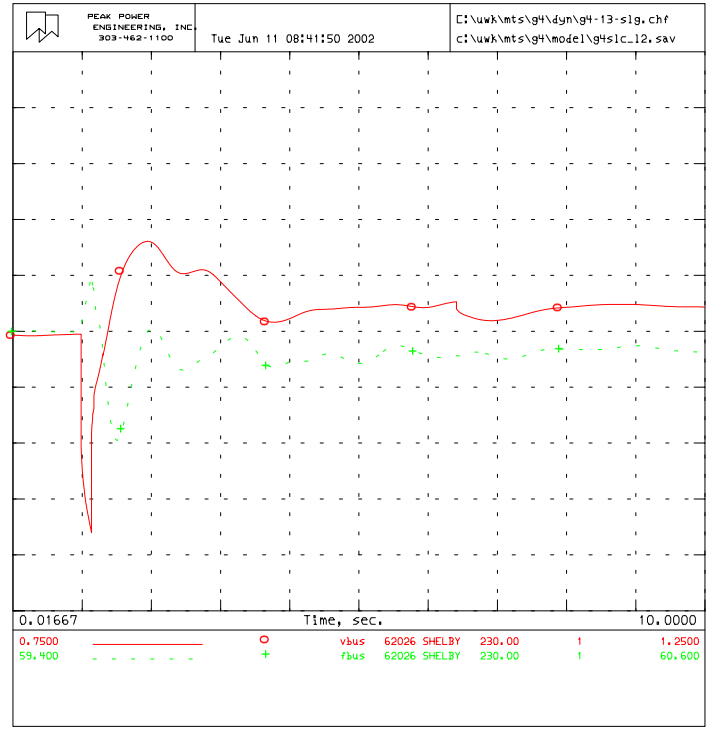

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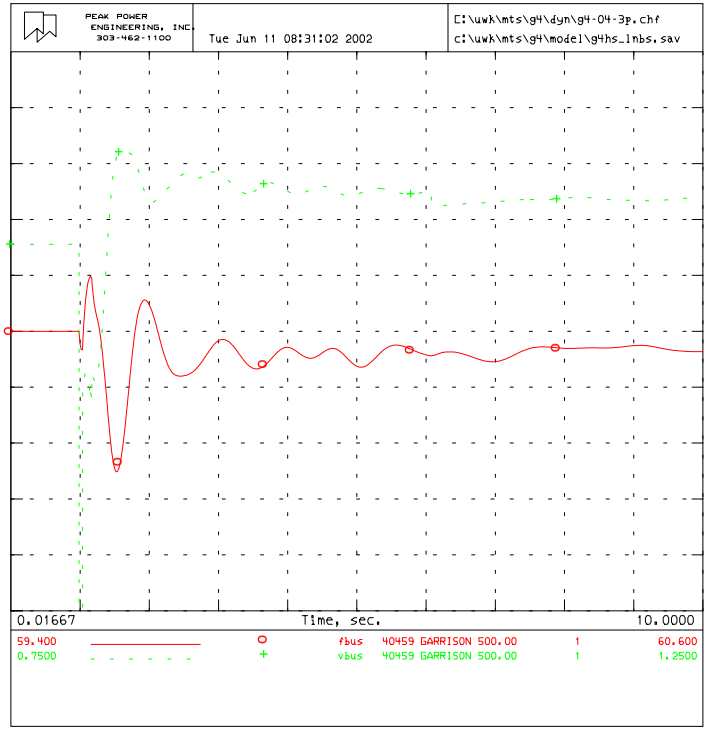

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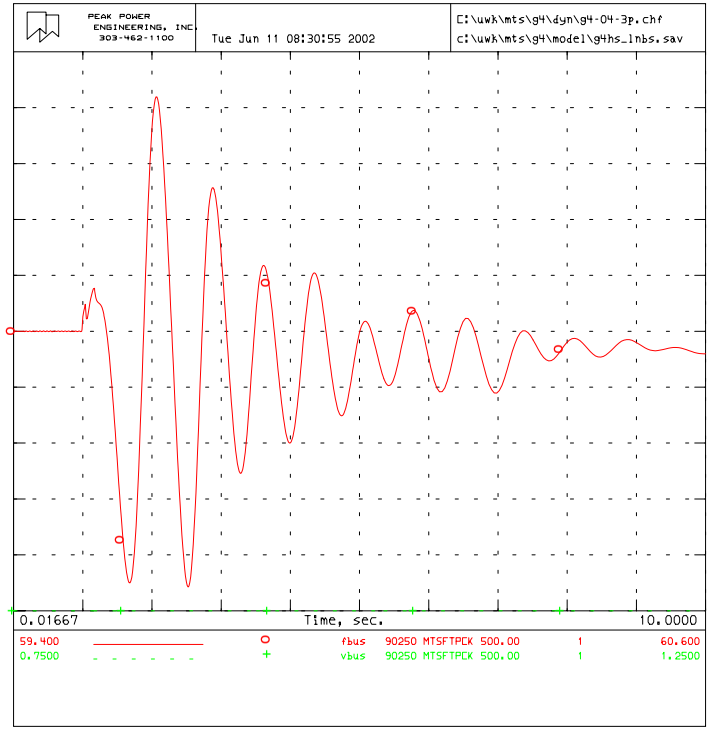

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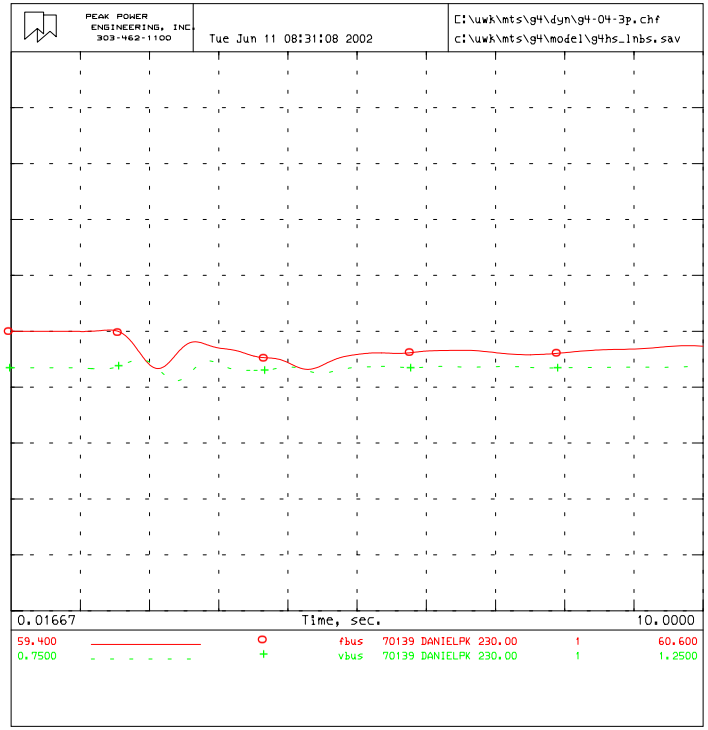

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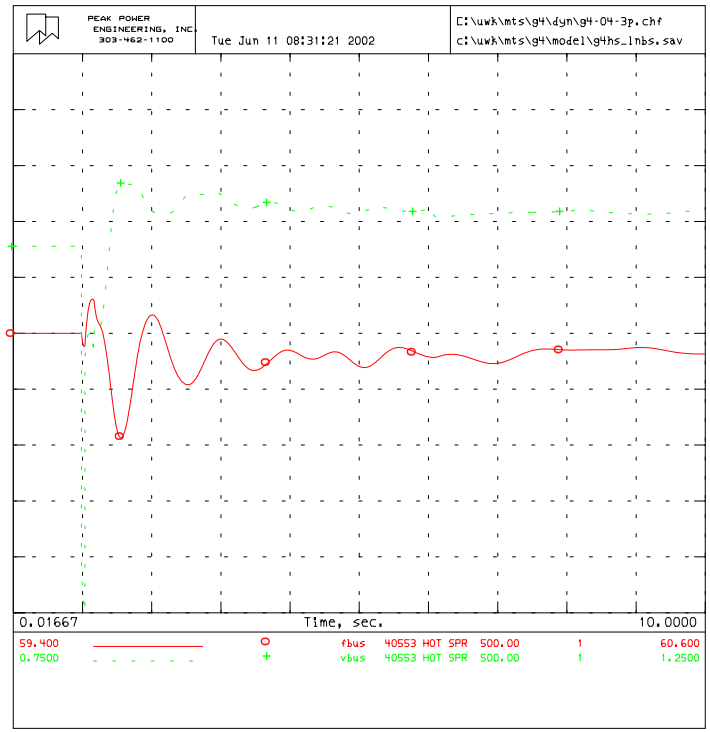

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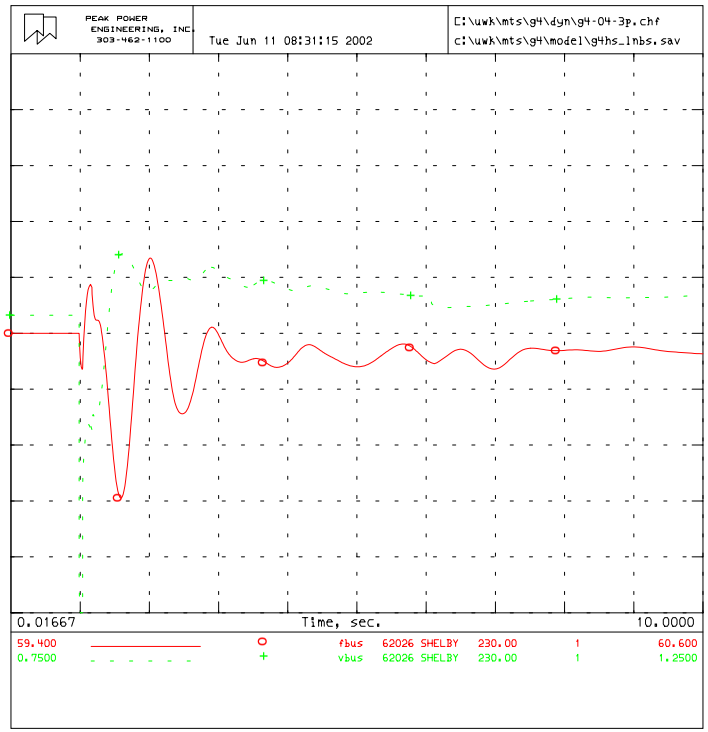

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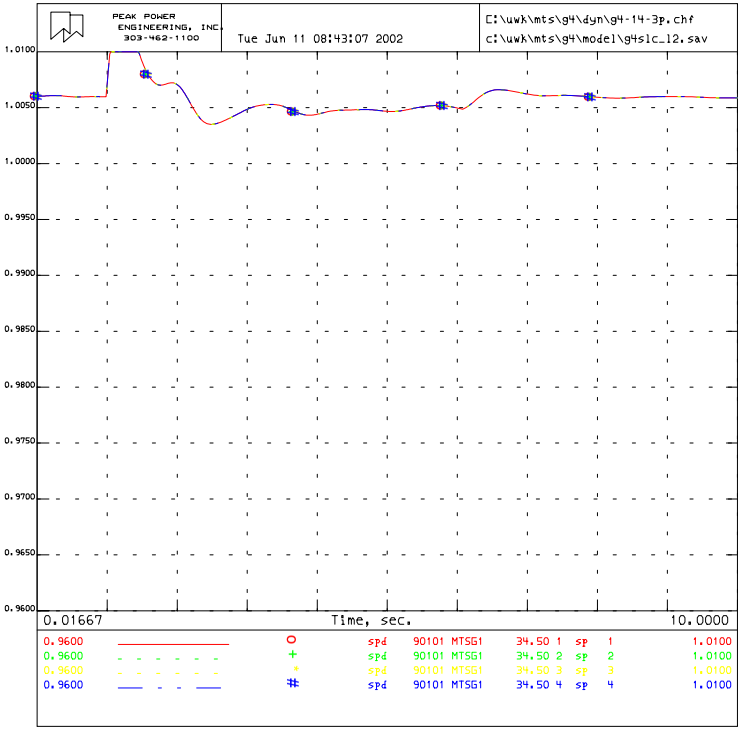

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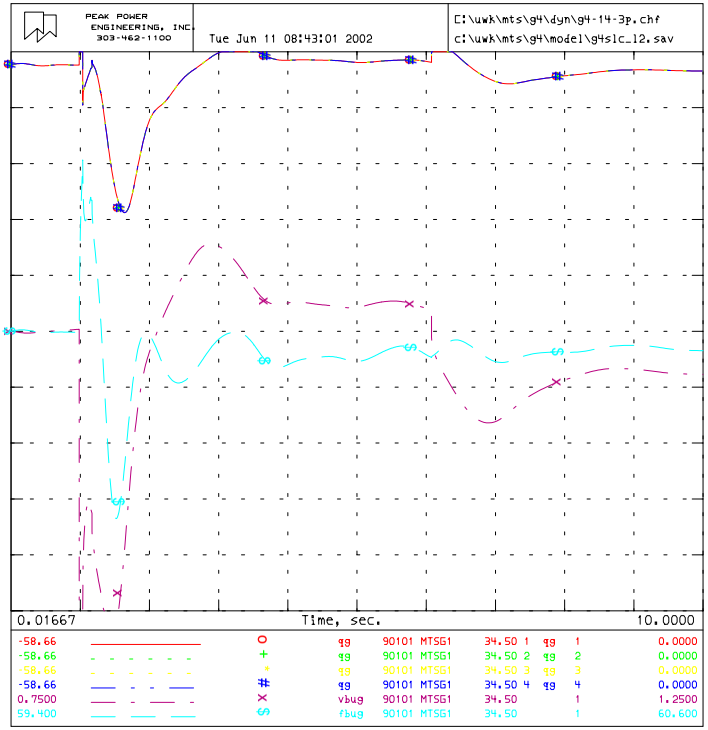

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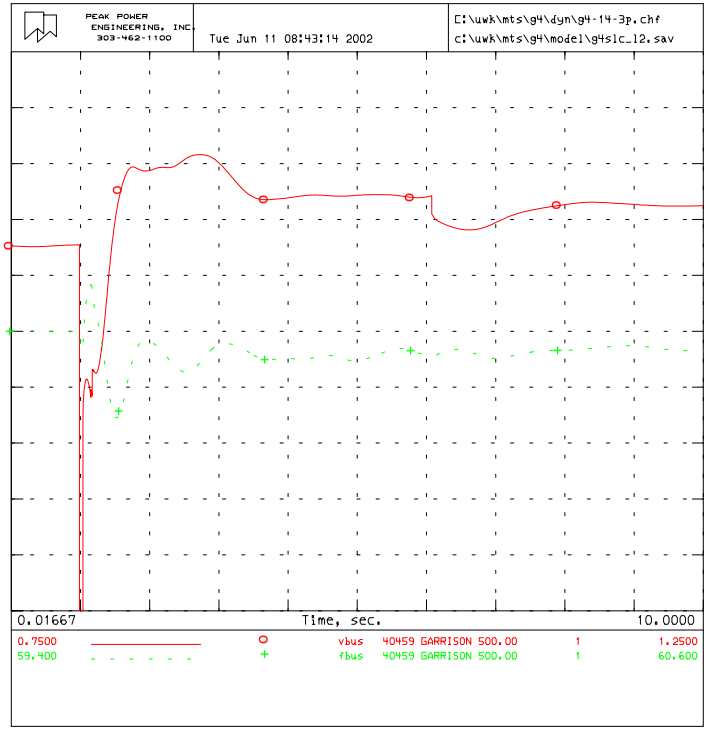

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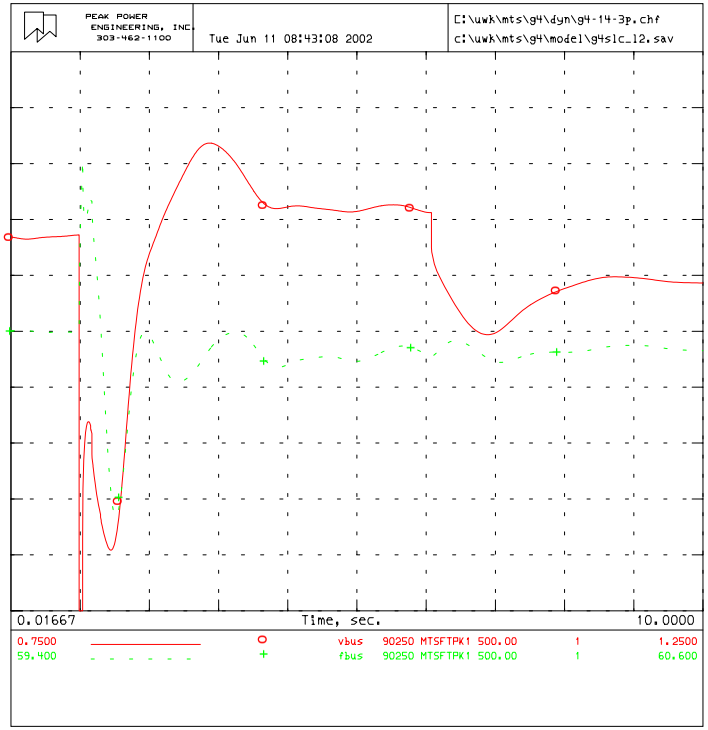

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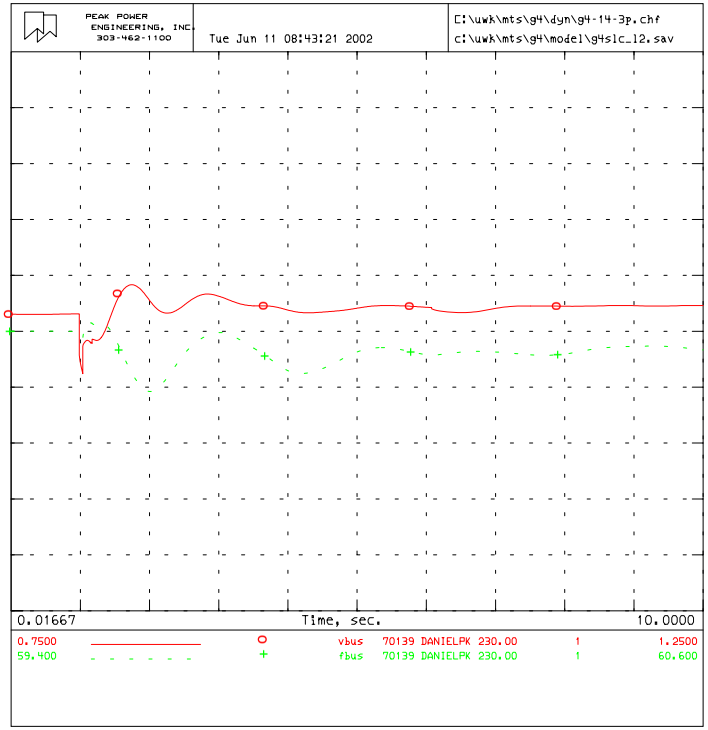

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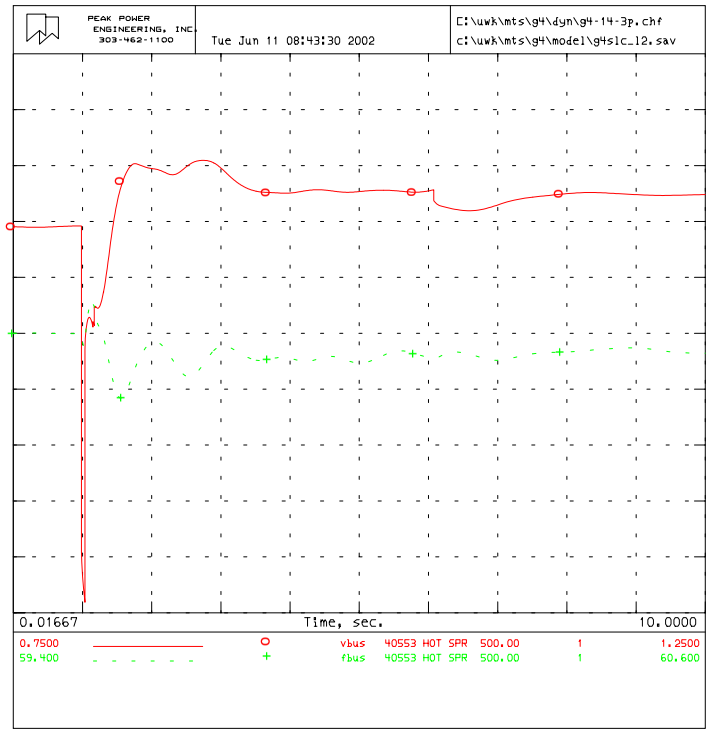

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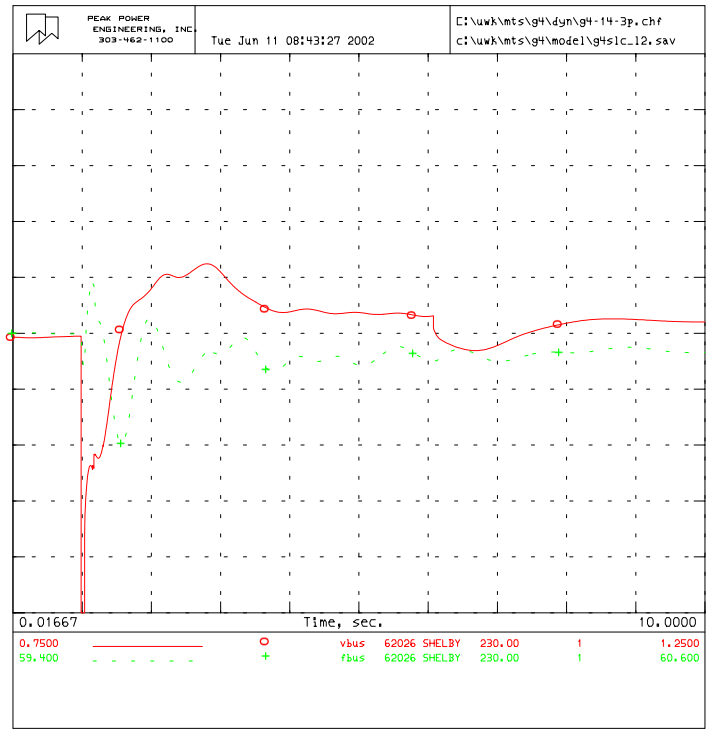

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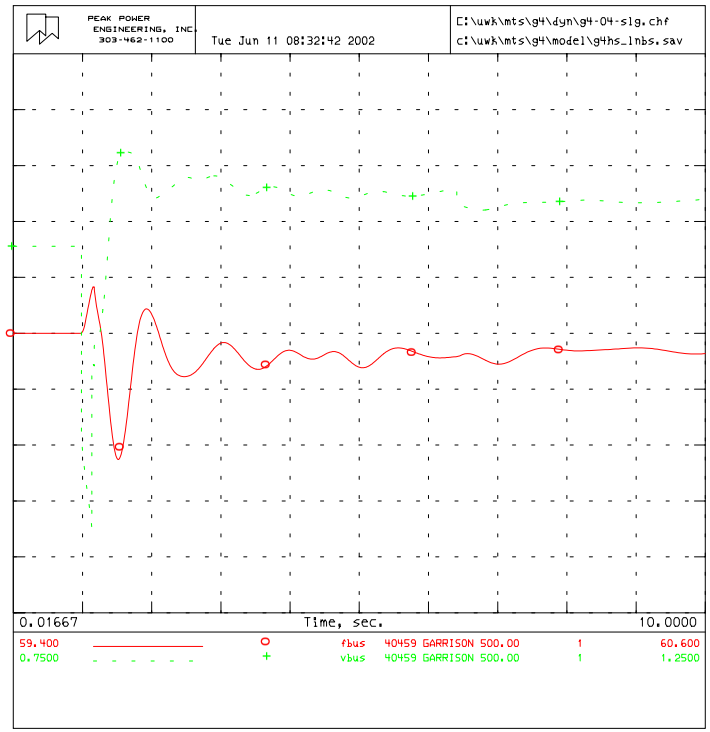

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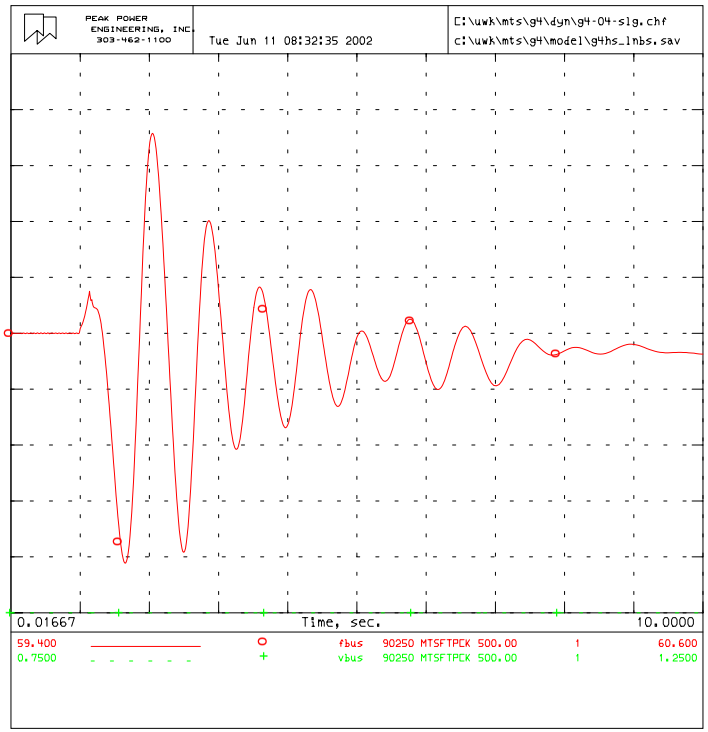

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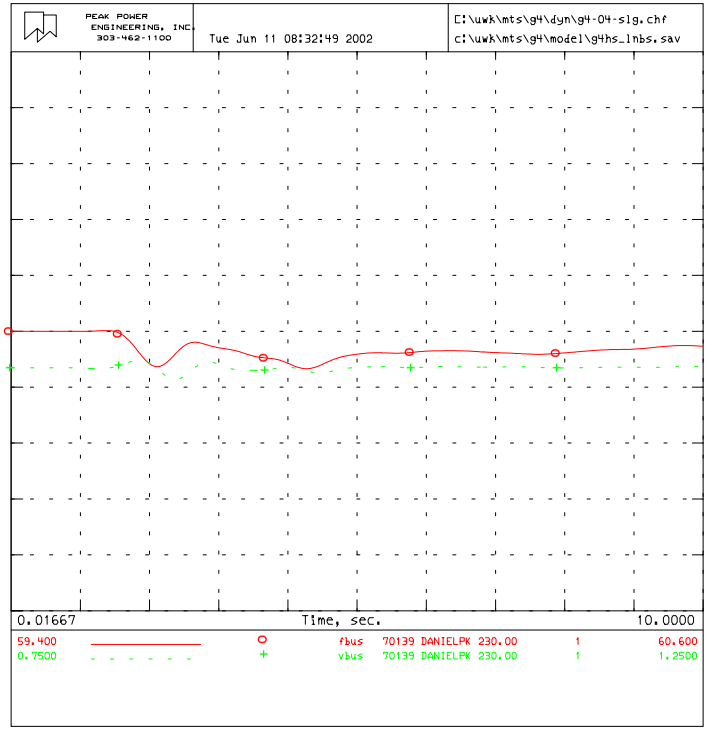

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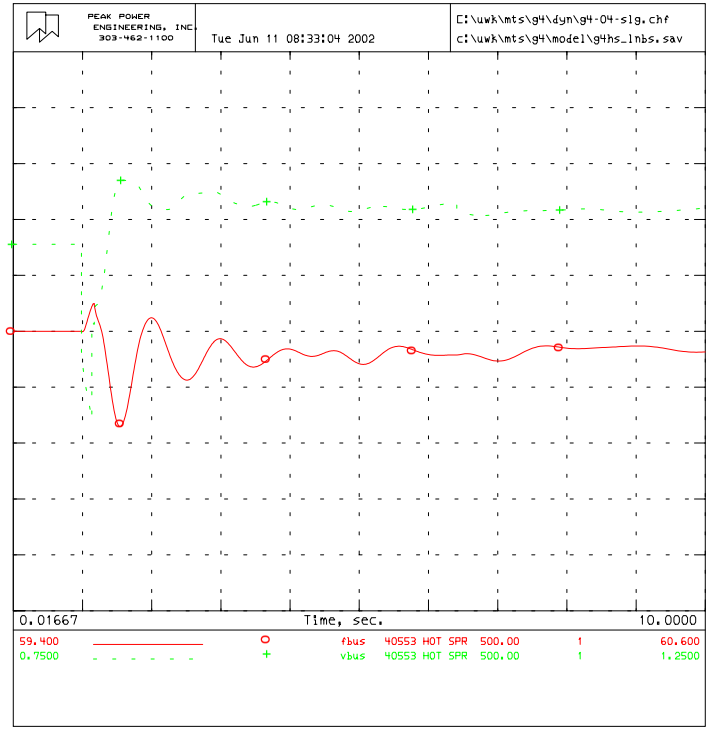

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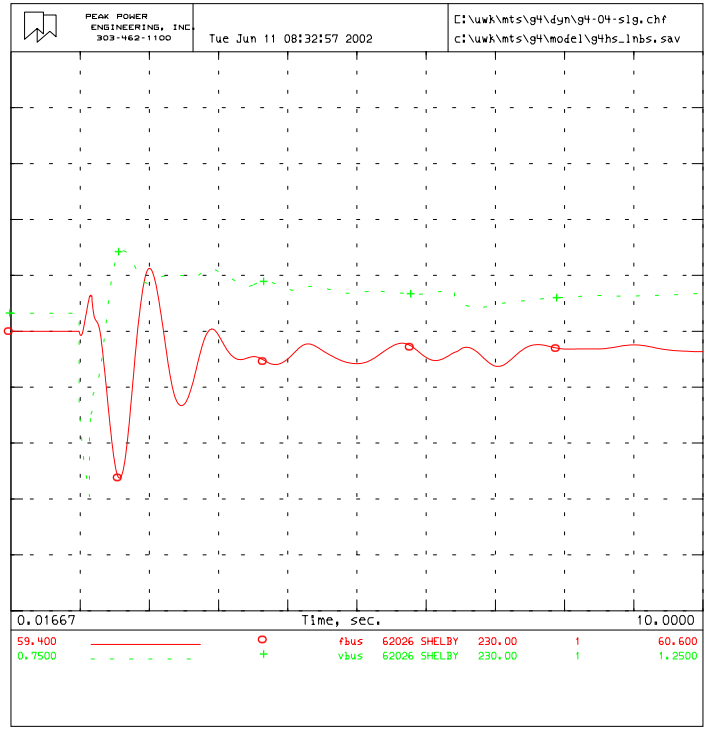

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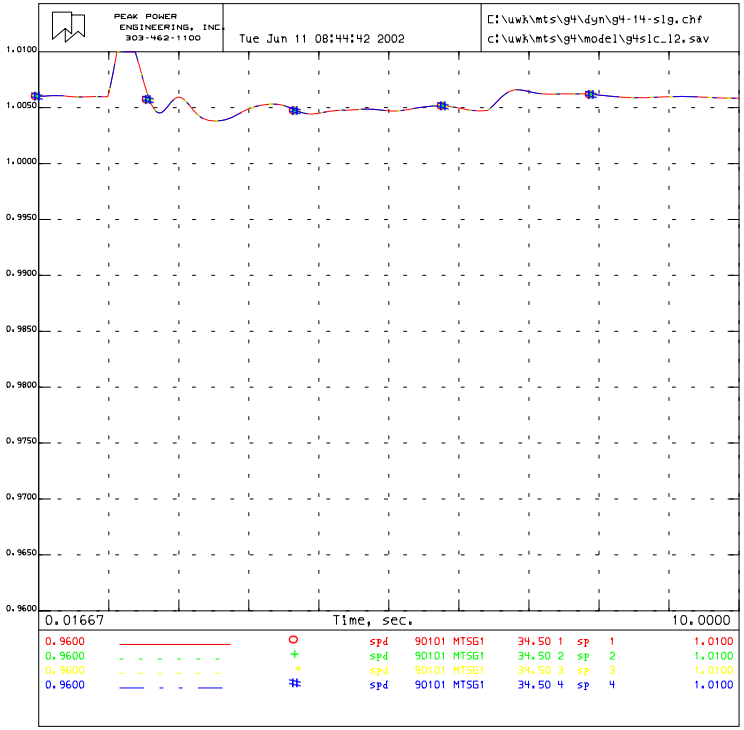

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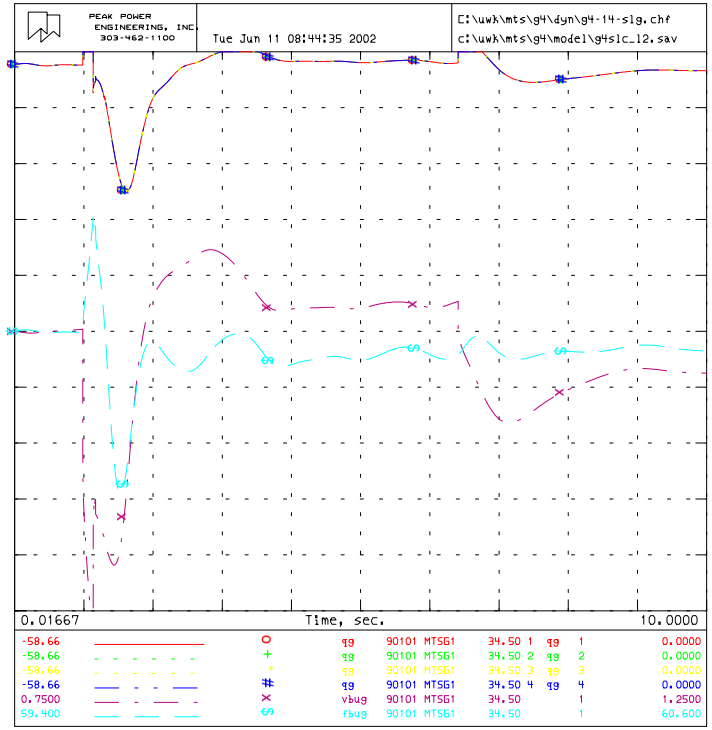

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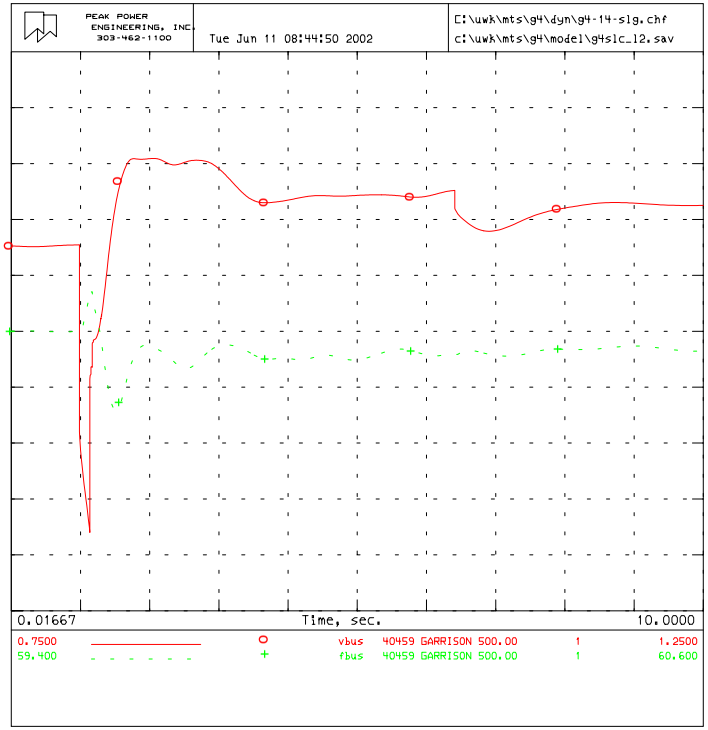

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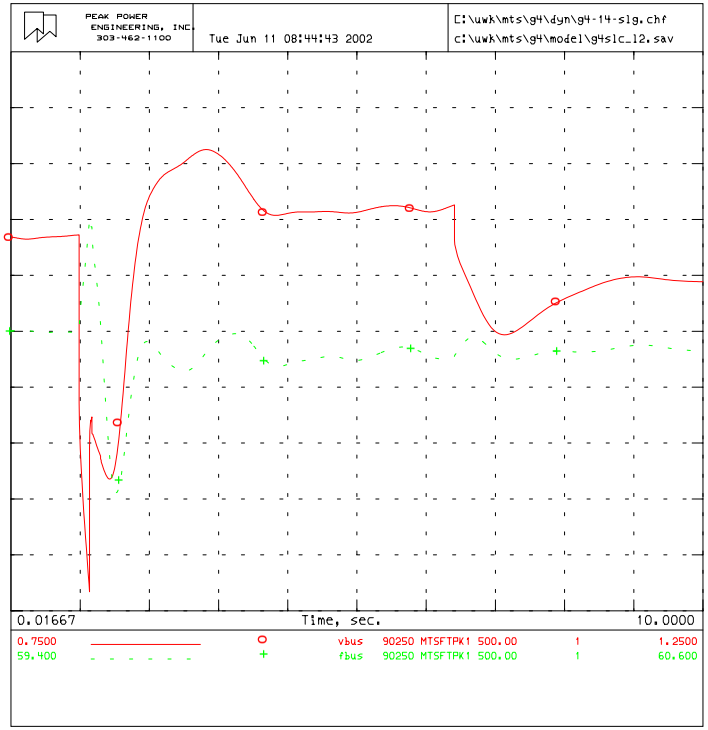

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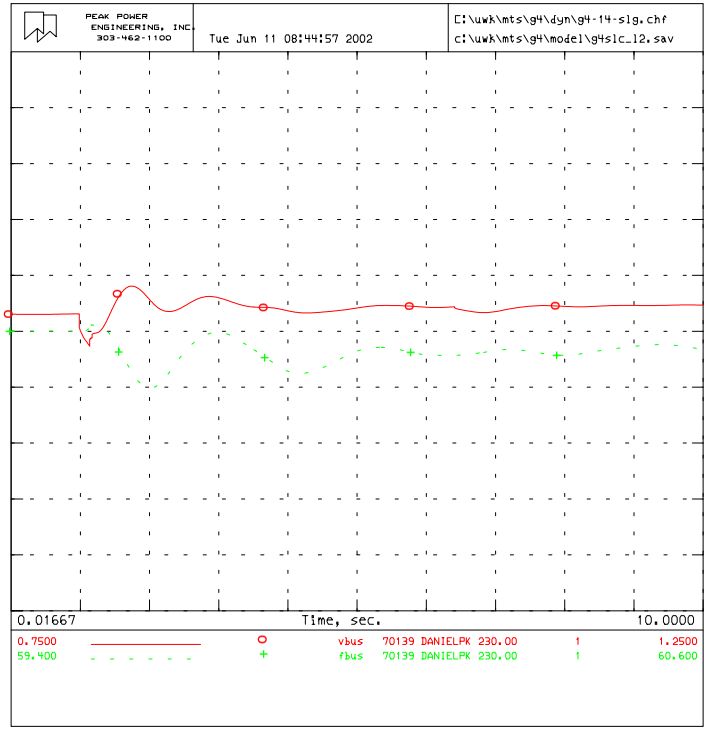

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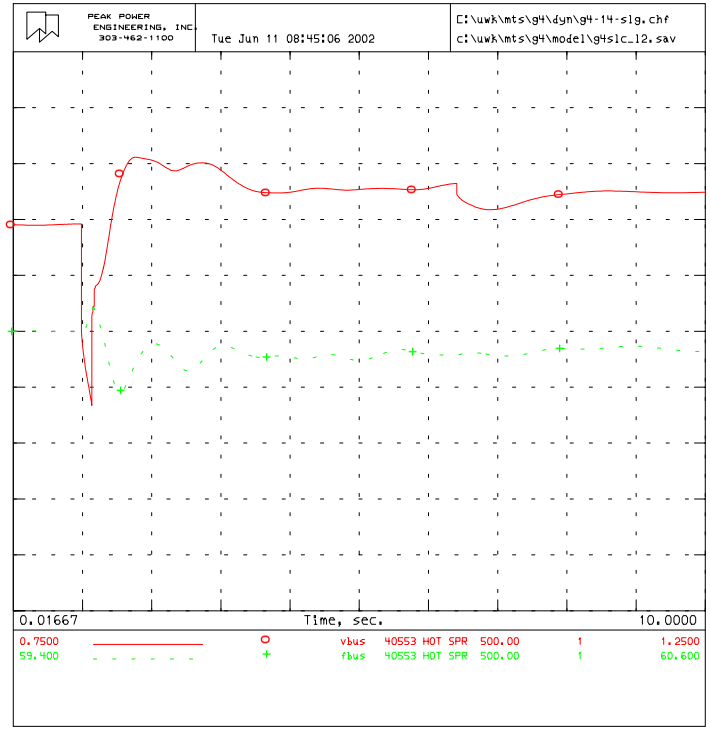

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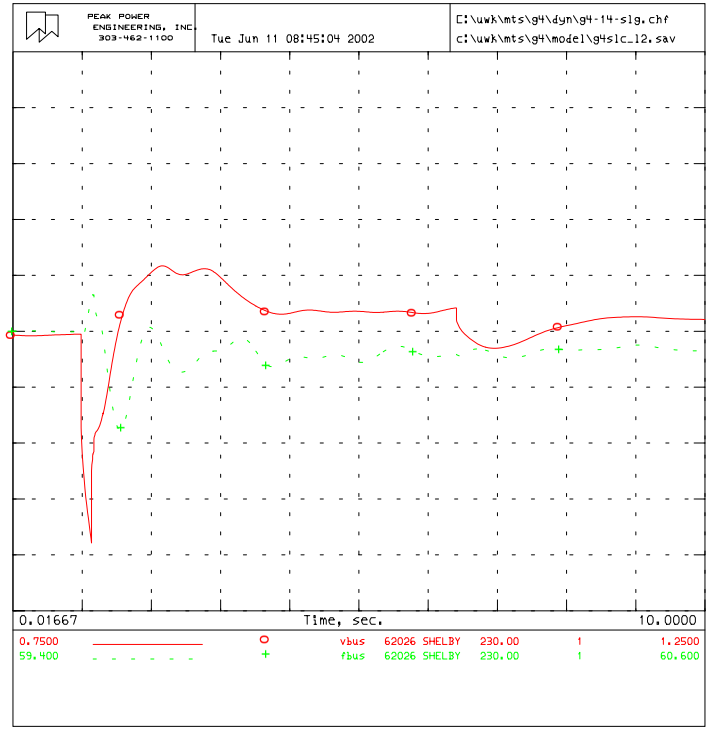

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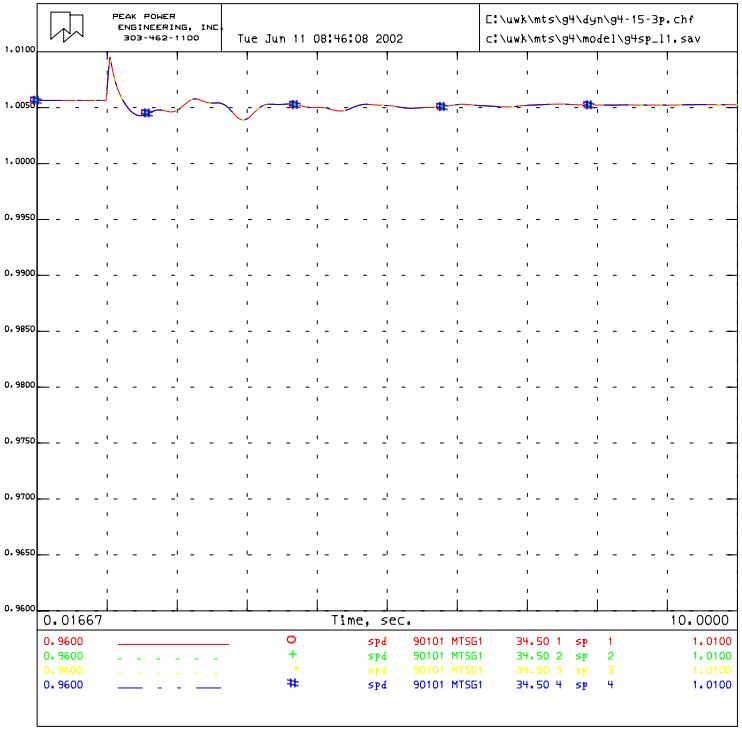

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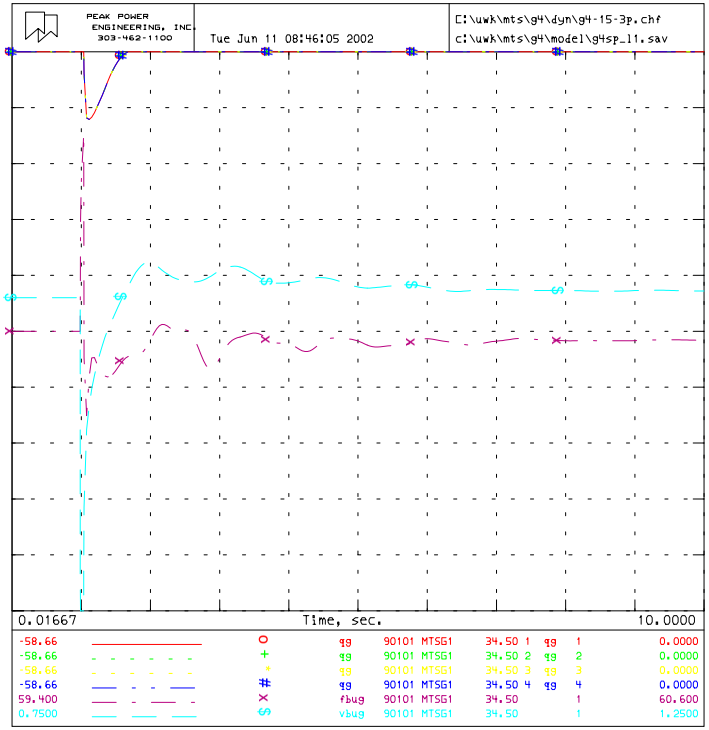
HISTORY FILE BASED ON WSCC 2002 LS2B APPROVED OPERATING CASE
NOVEMBER 27, 2001



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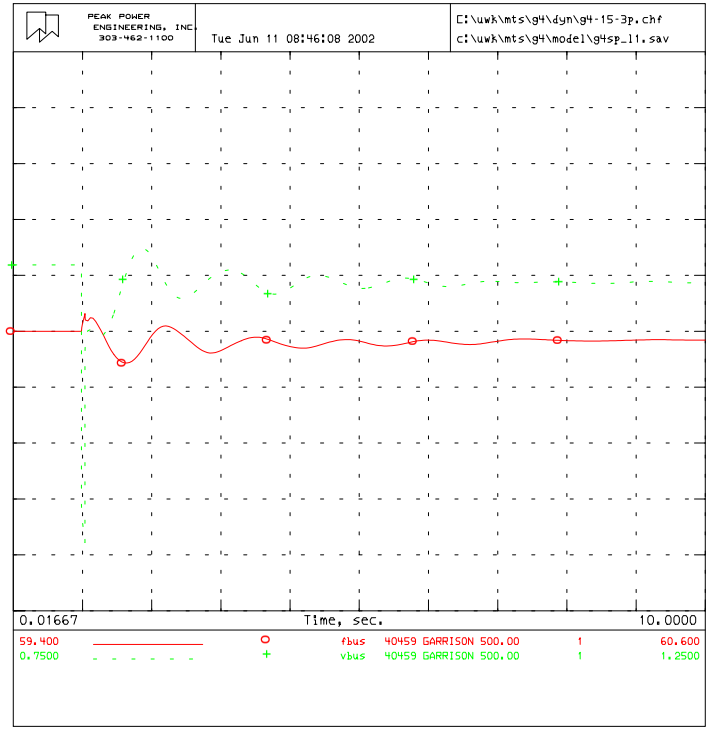

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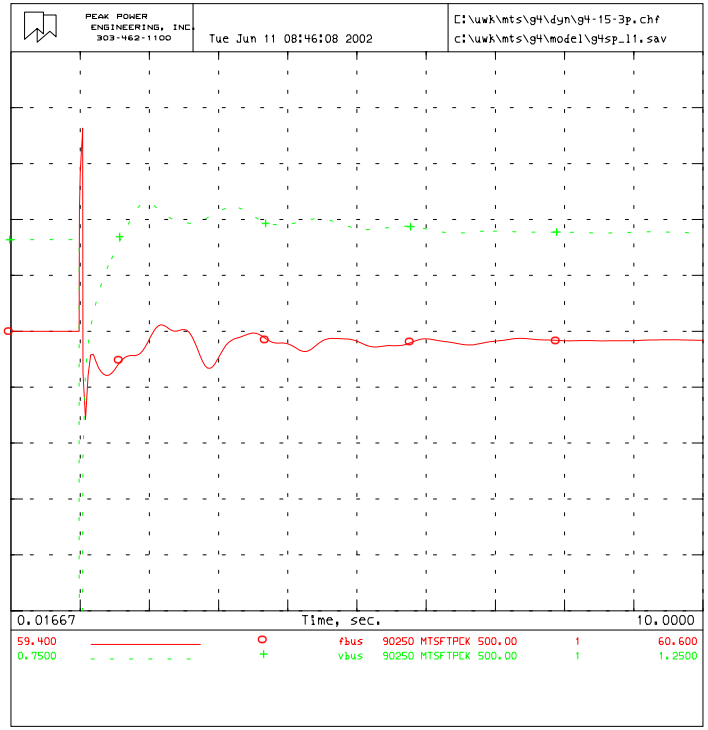

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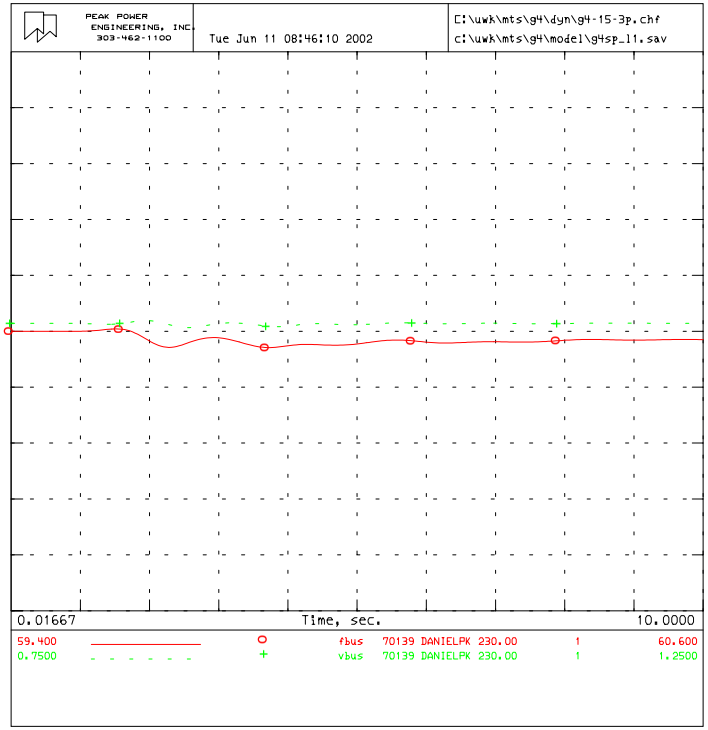

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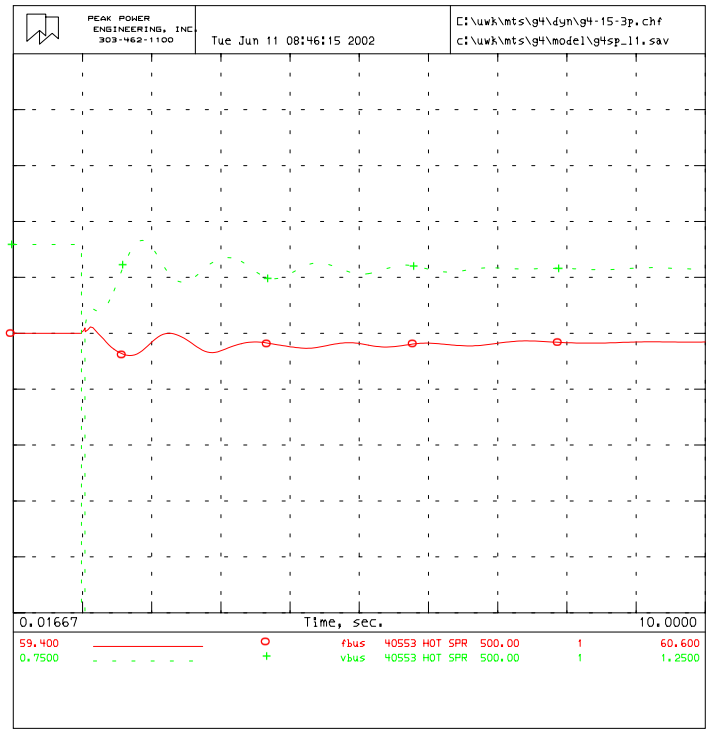

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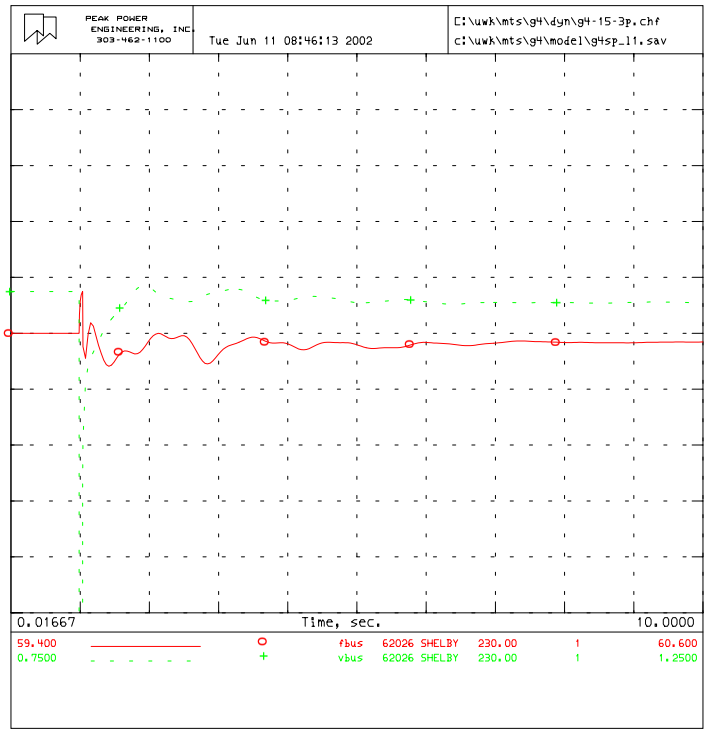

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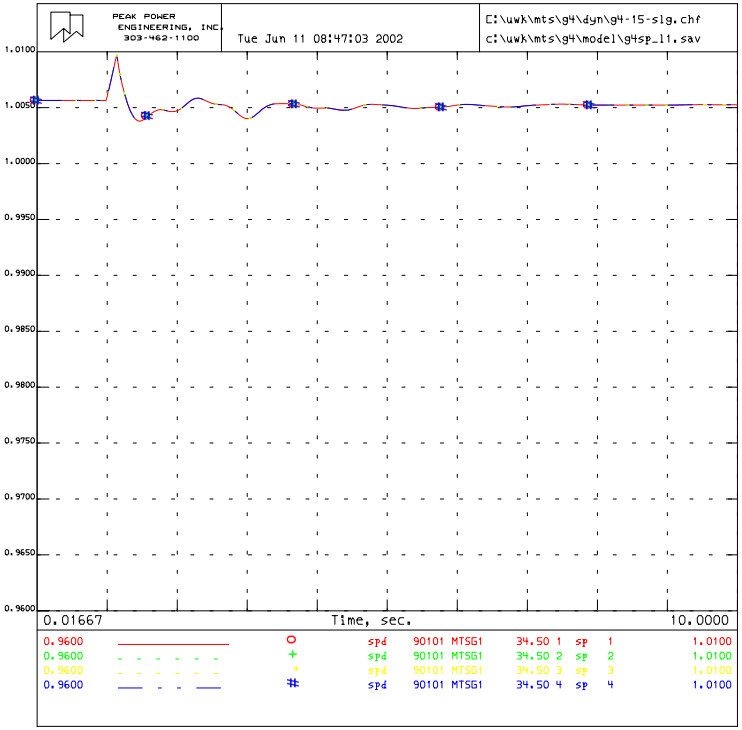

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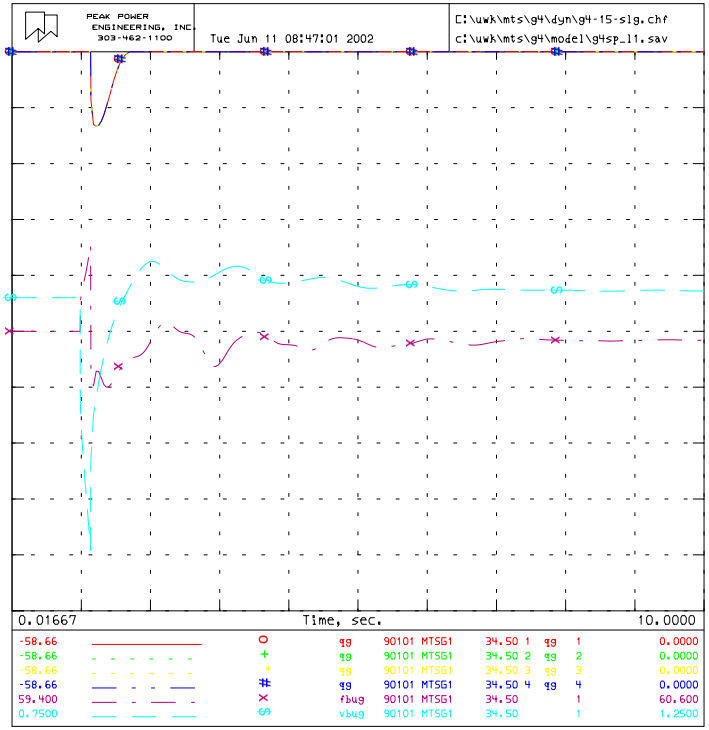

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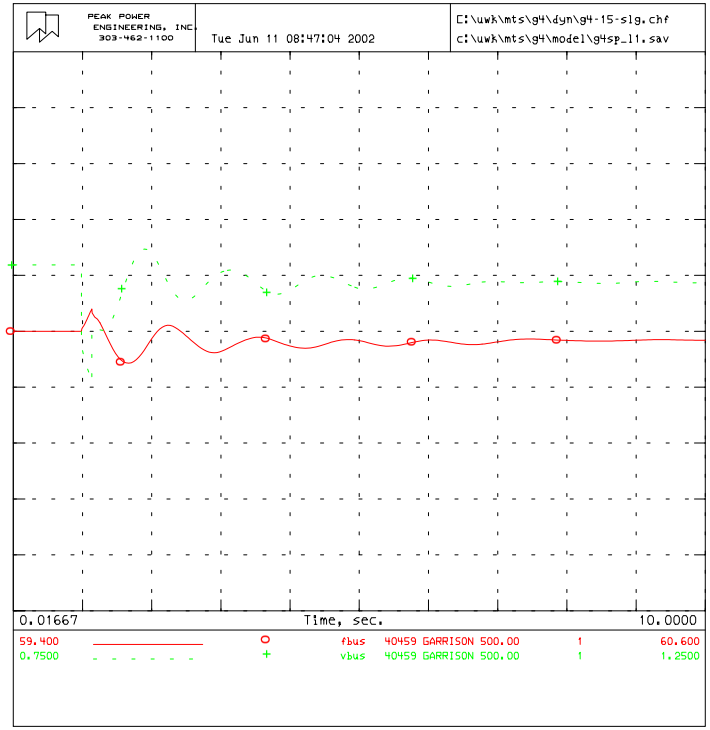

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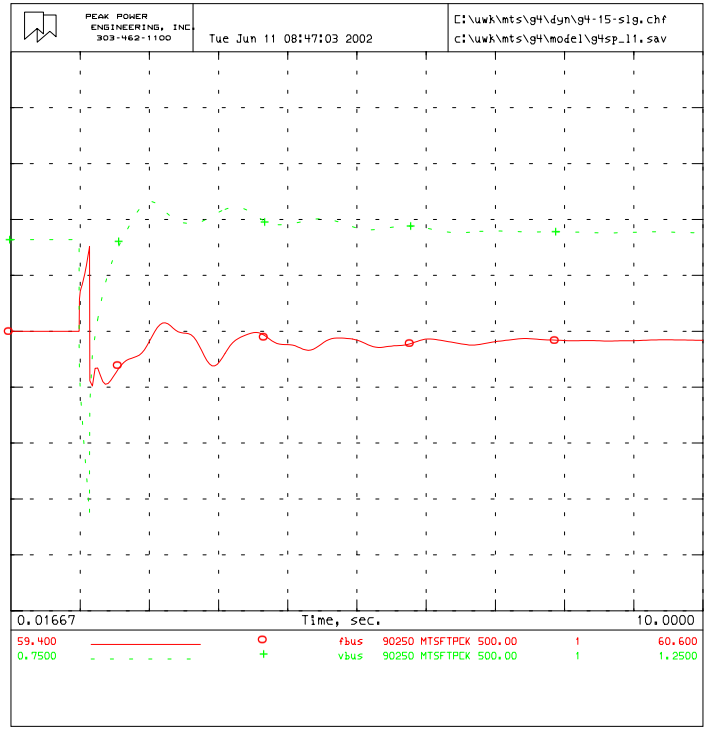

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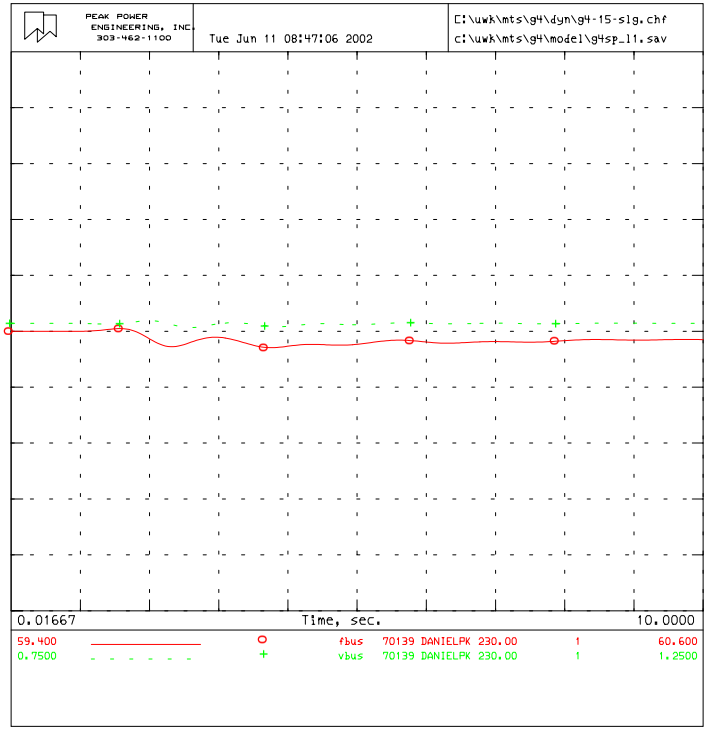

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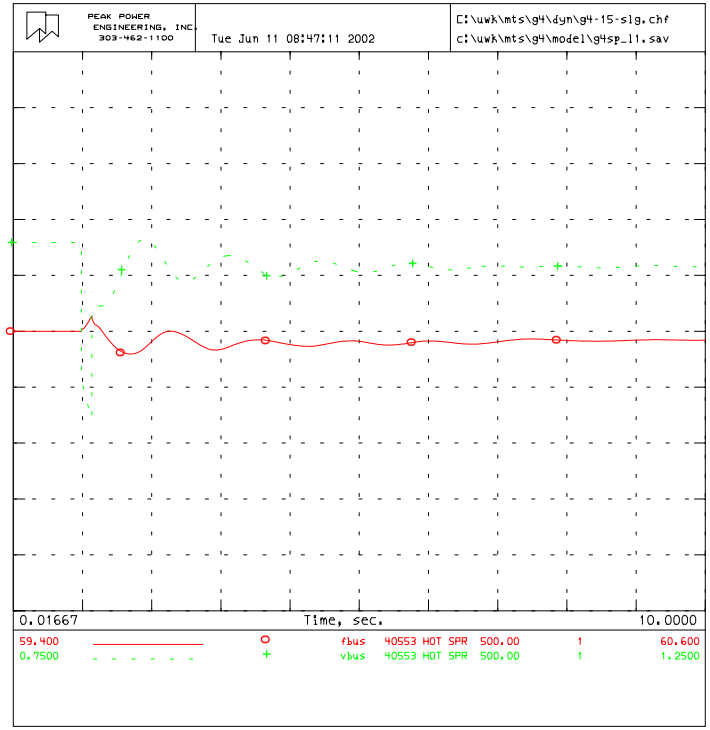

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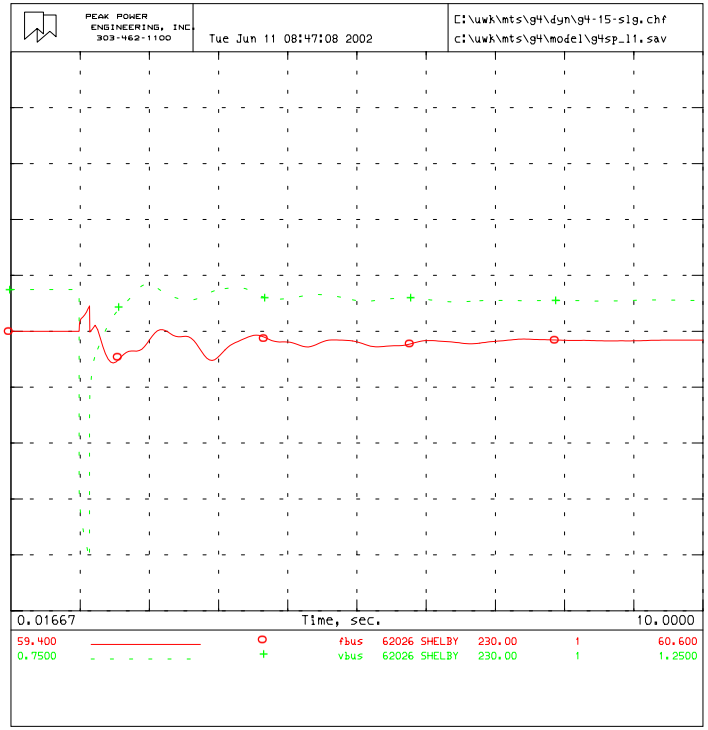

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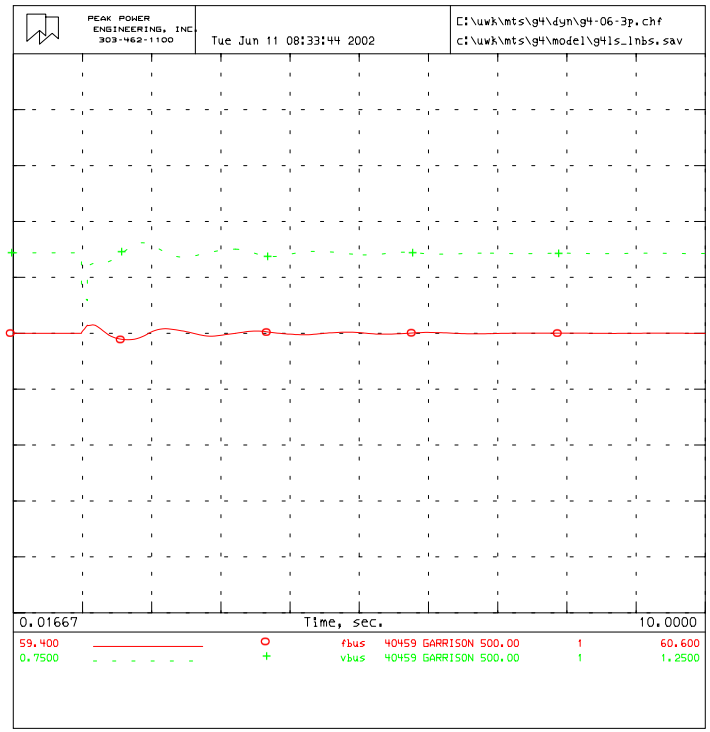

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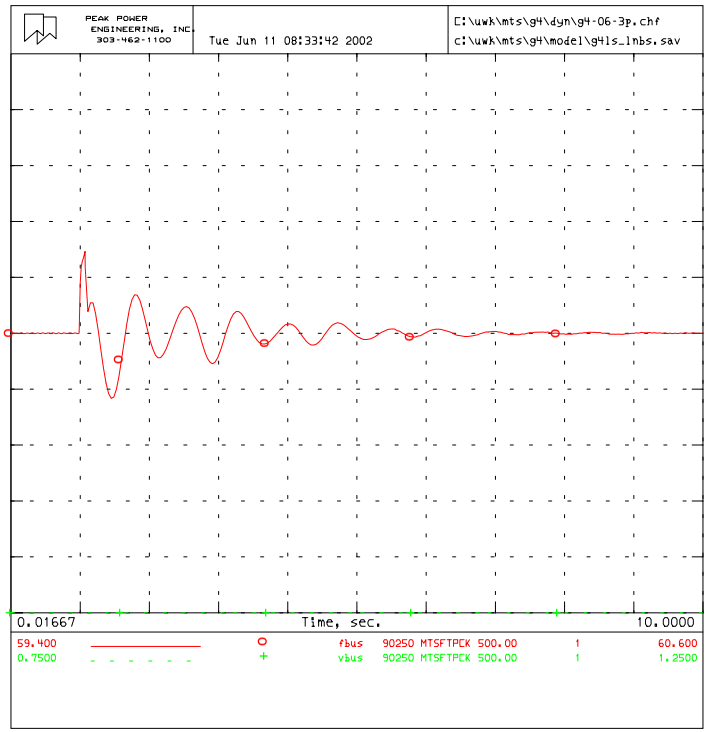

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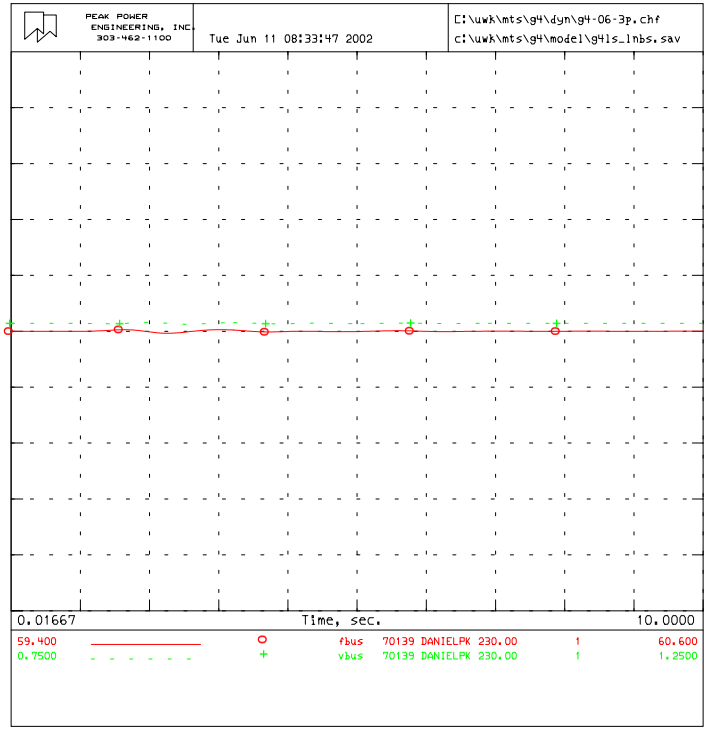

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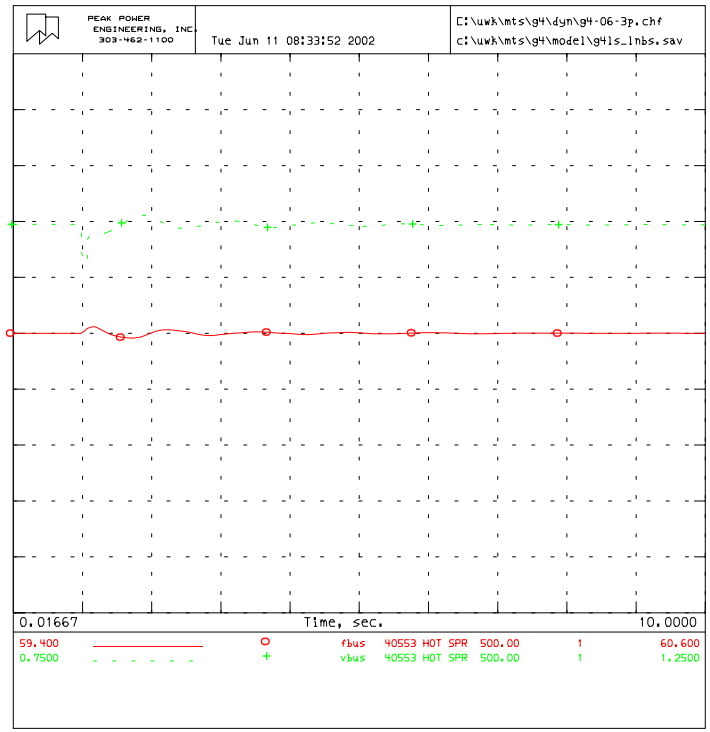

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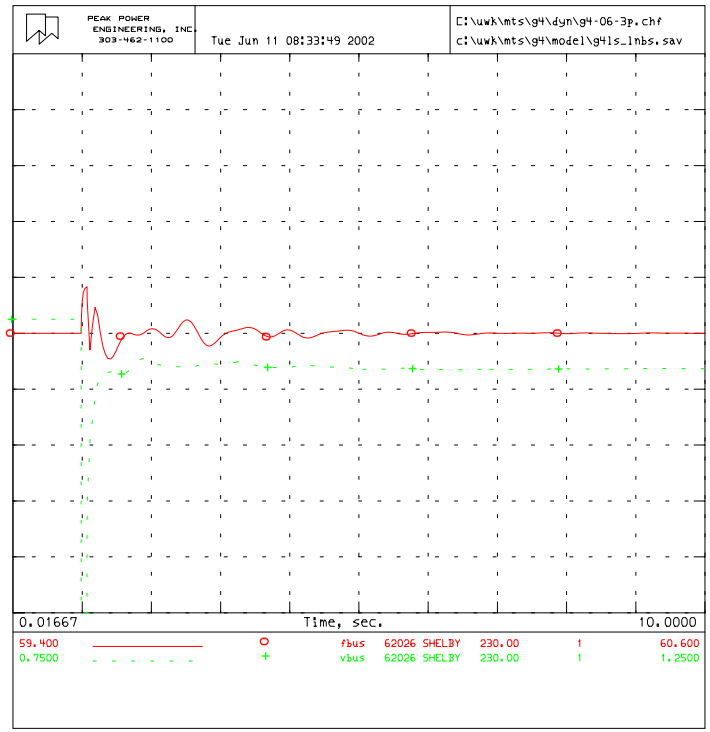

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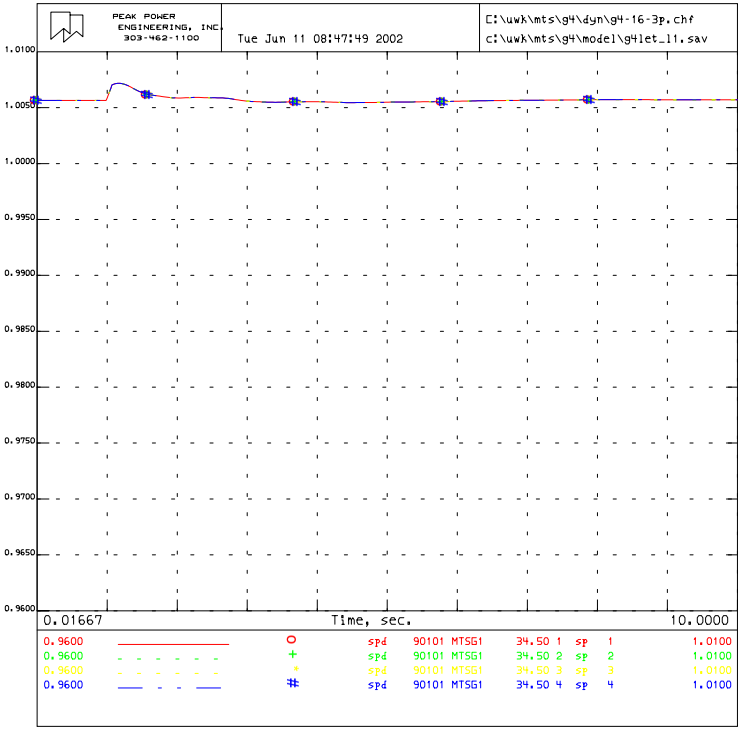

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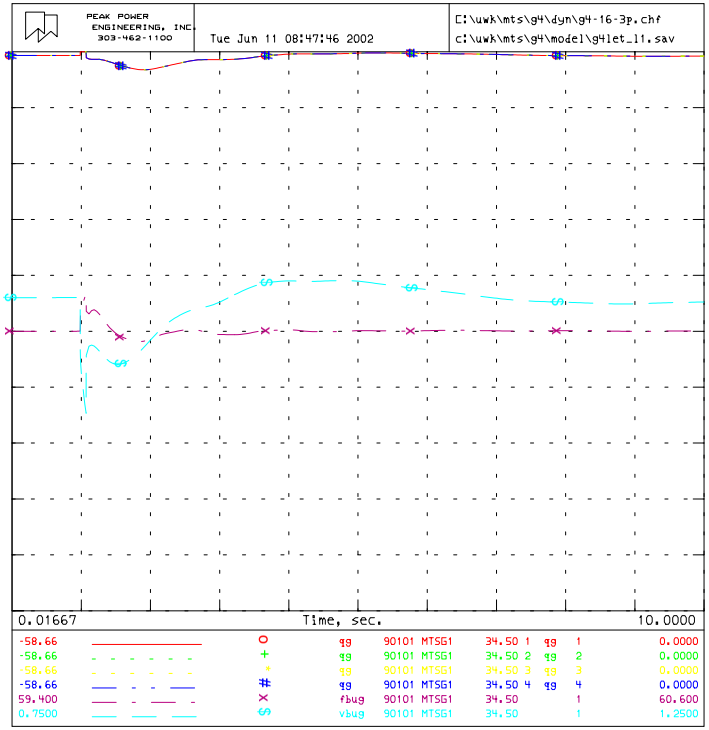

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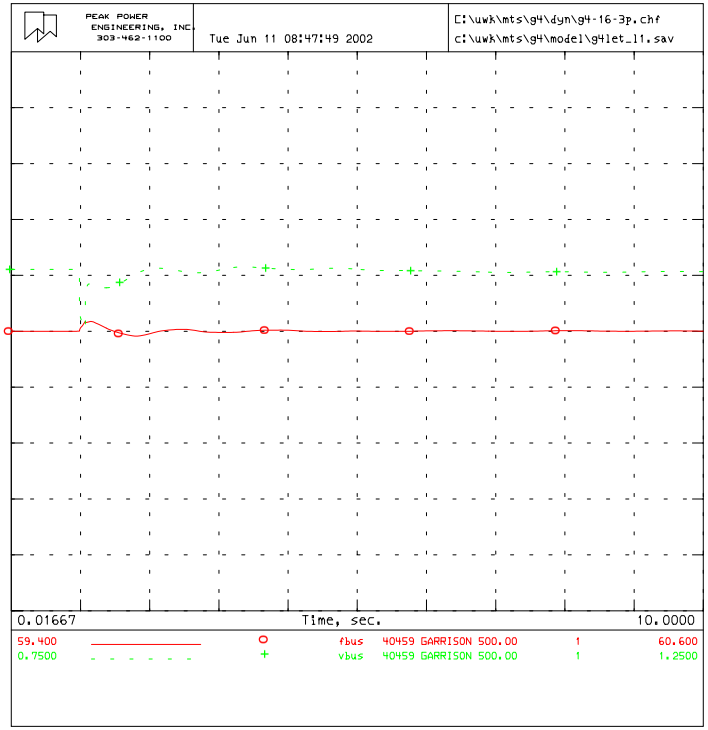

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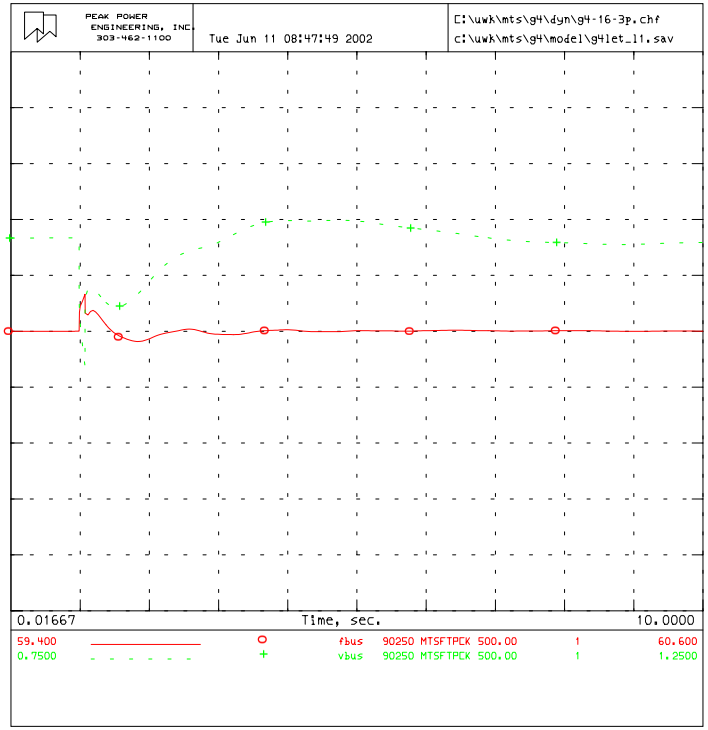

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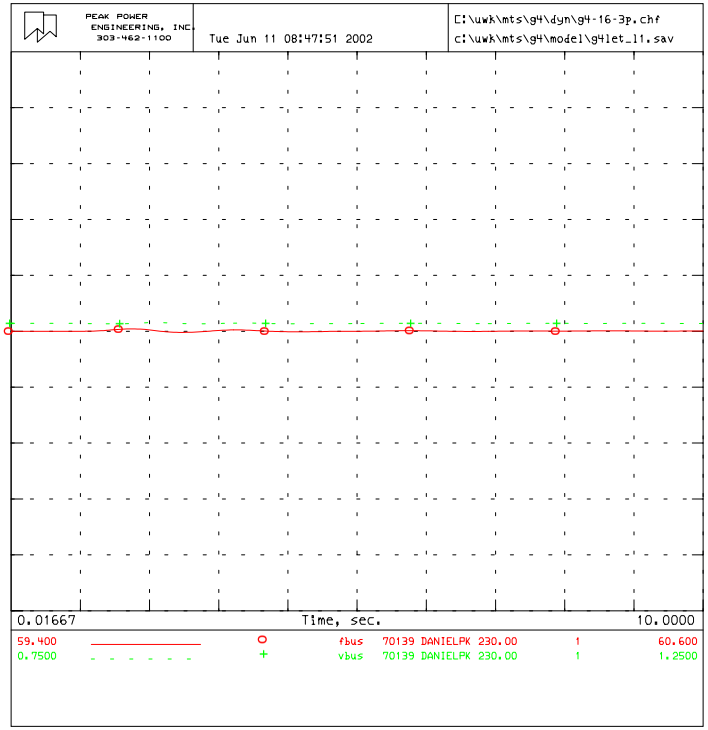

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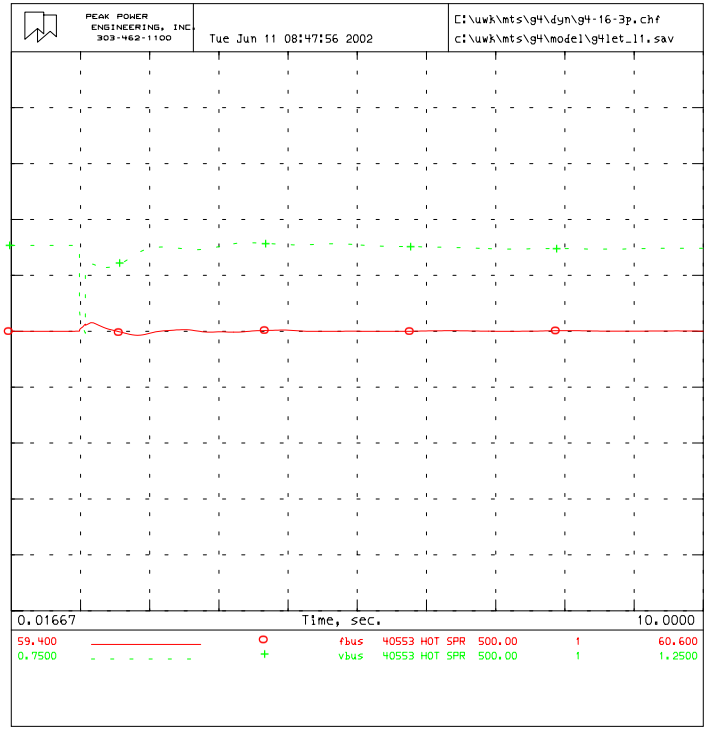

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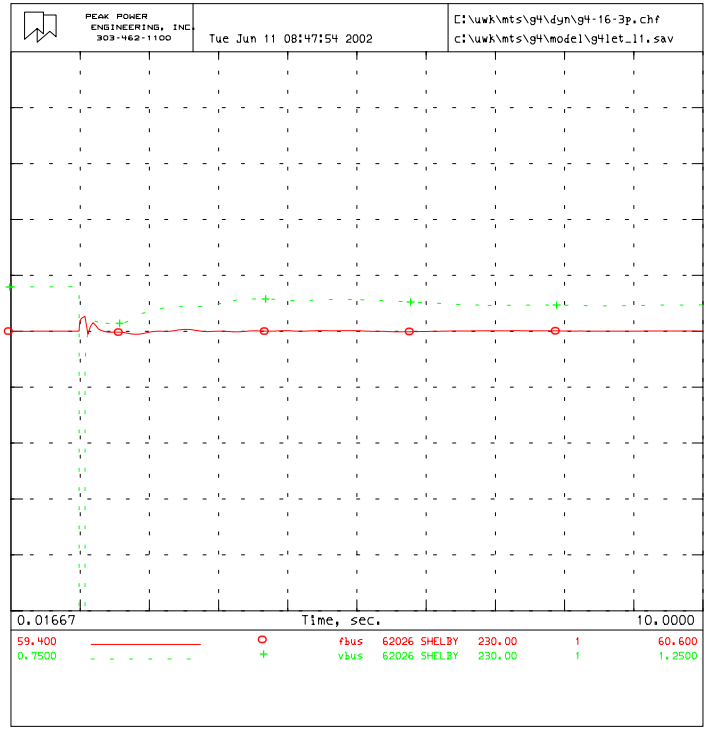

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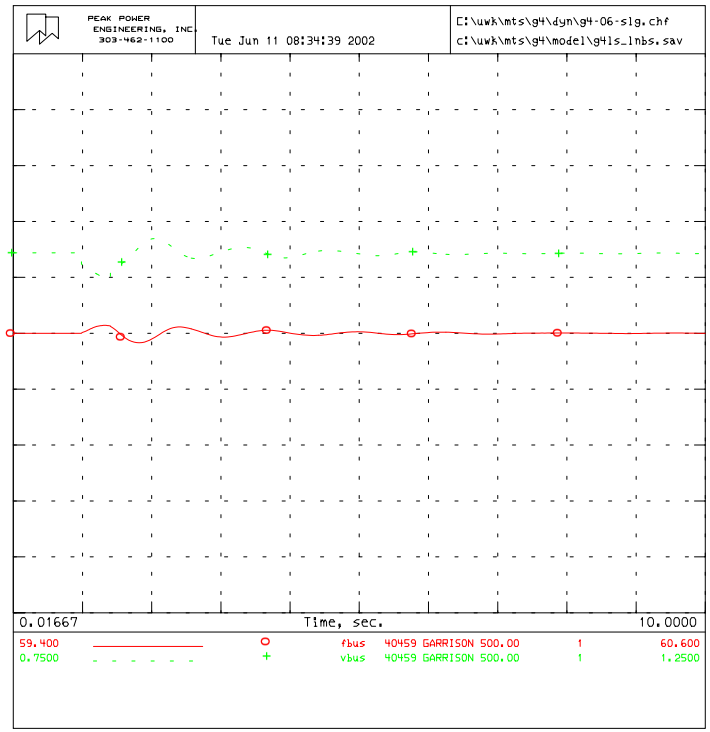

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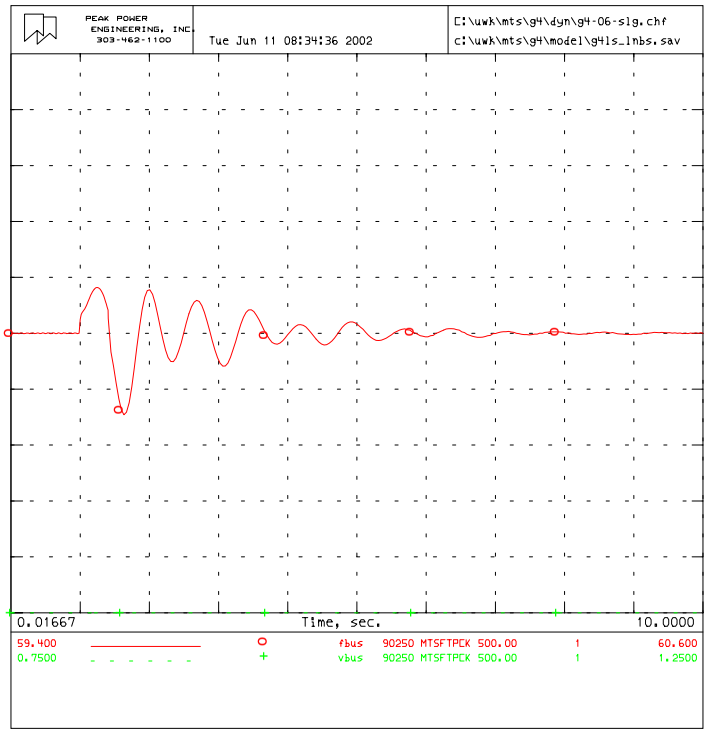

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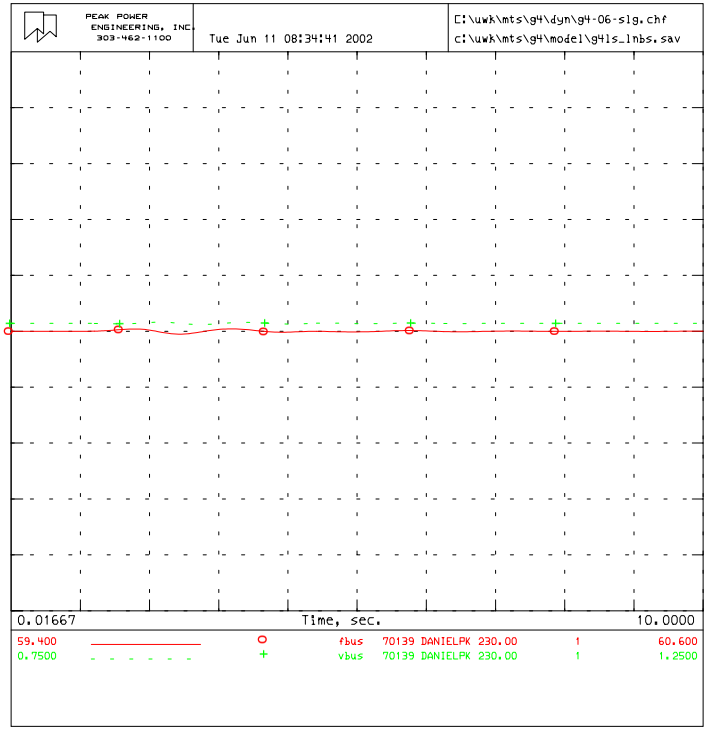

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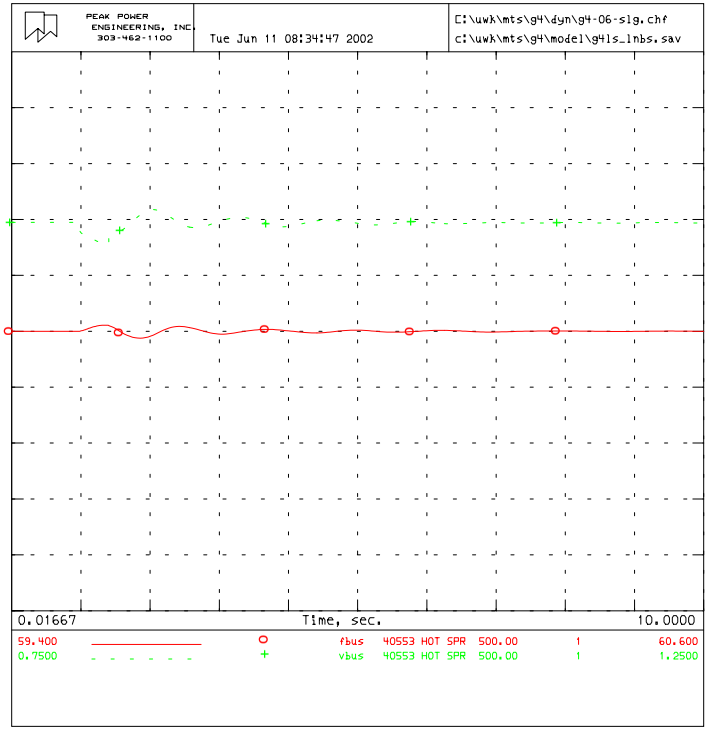

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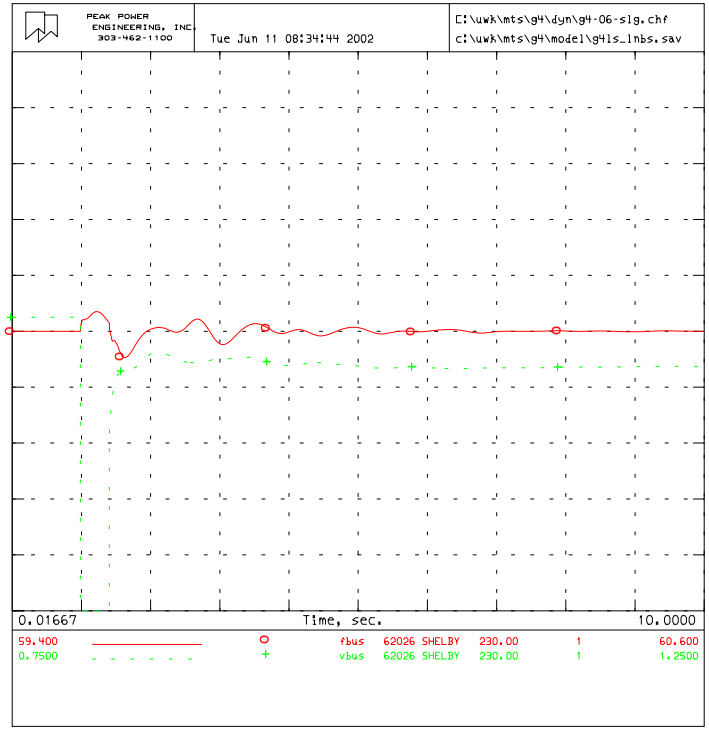

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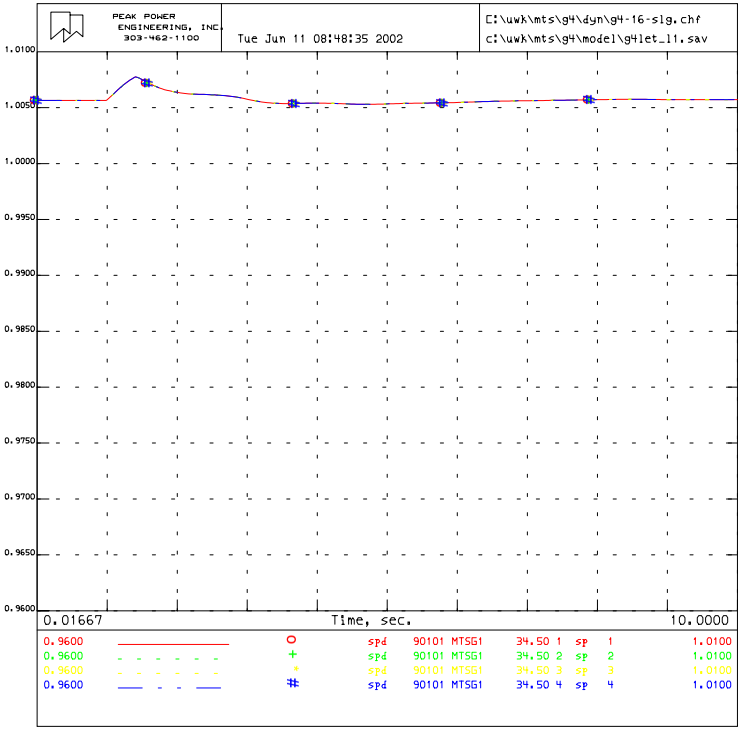

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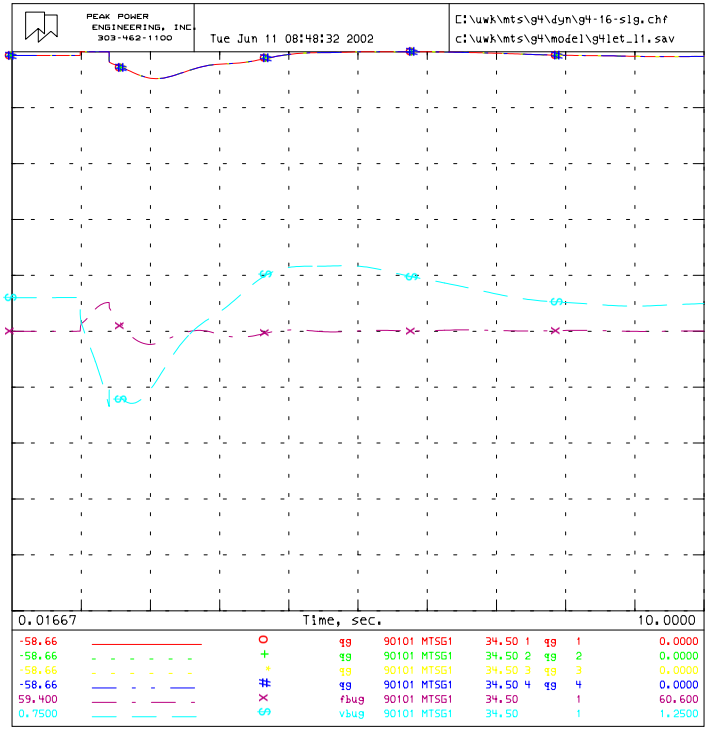

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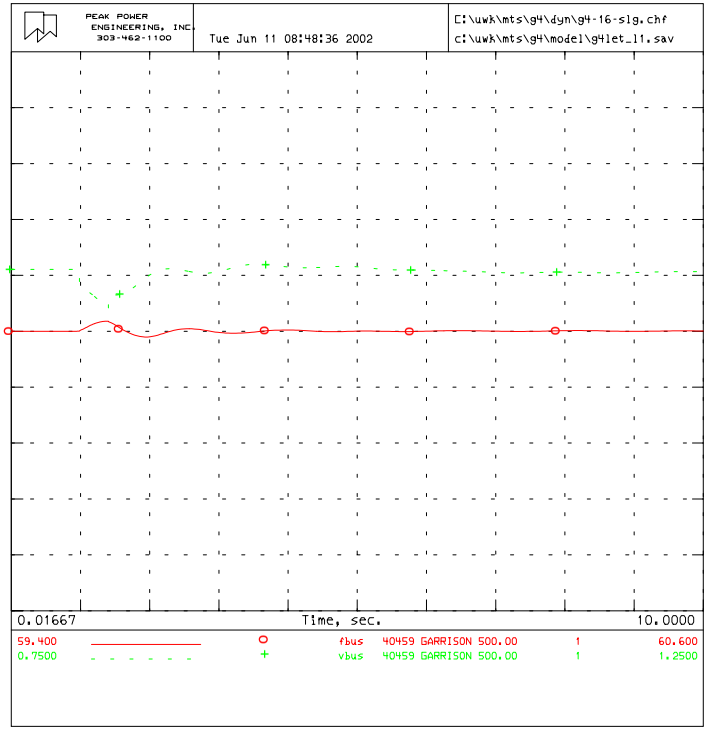

MONTANA TRANSMISSION STUDY
WAPA UGP, JUNE 2002
600 MW WIND FARM AT FORT PECK
Fault: SLG Flt @ "SHELBY" 230 kV BUS
Clear Flt: 25 cyc, Trip Line "SHELBY" 230 to "ENRDWAPA" 230

STUDY BY PEAK POWER ENGINEERING, INC.

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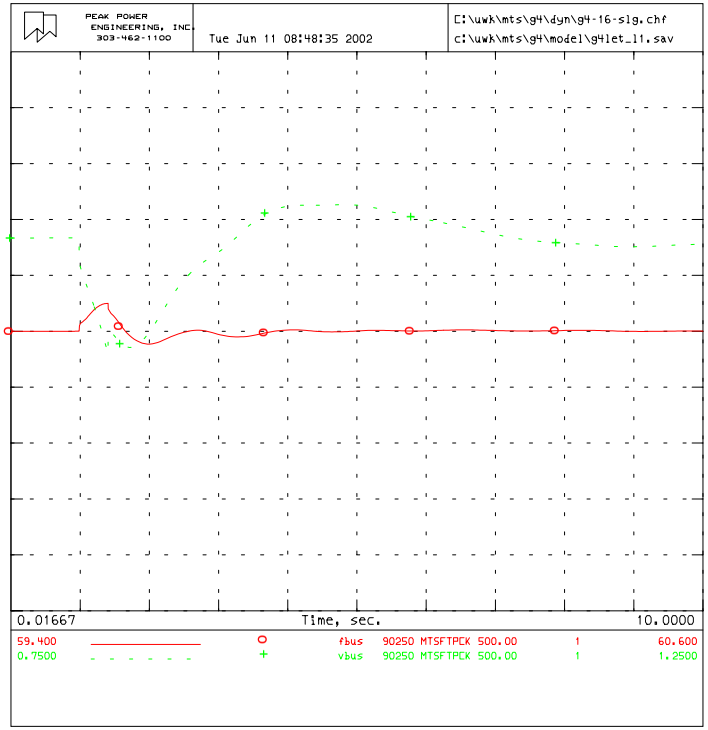

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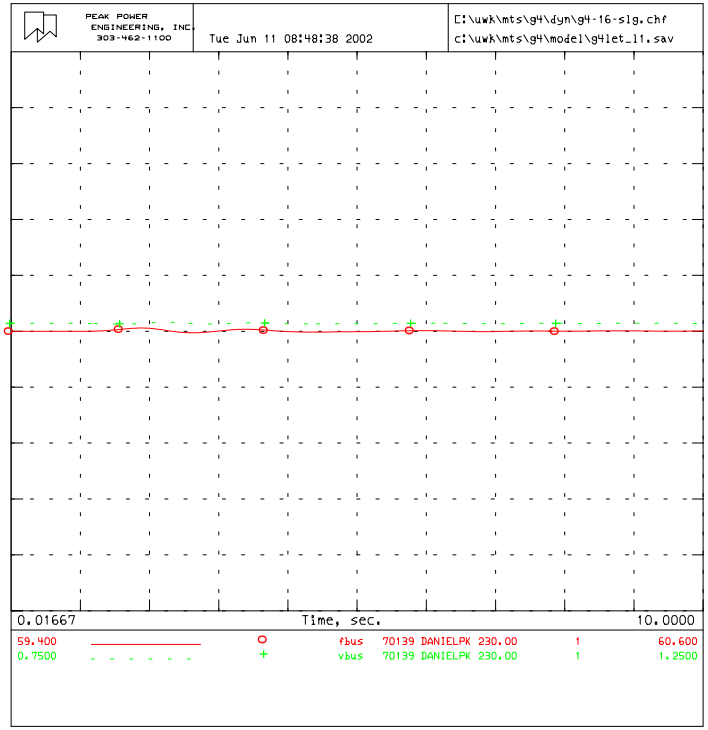

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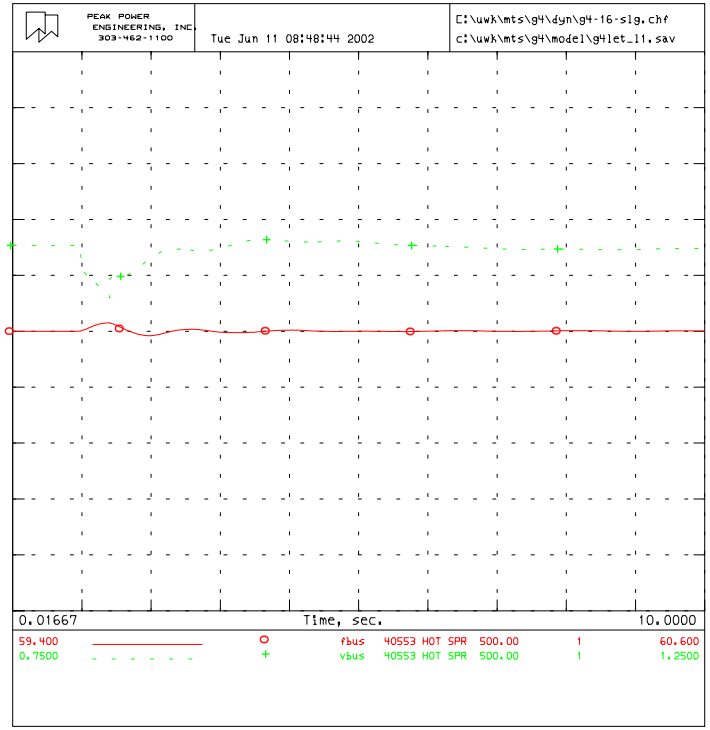

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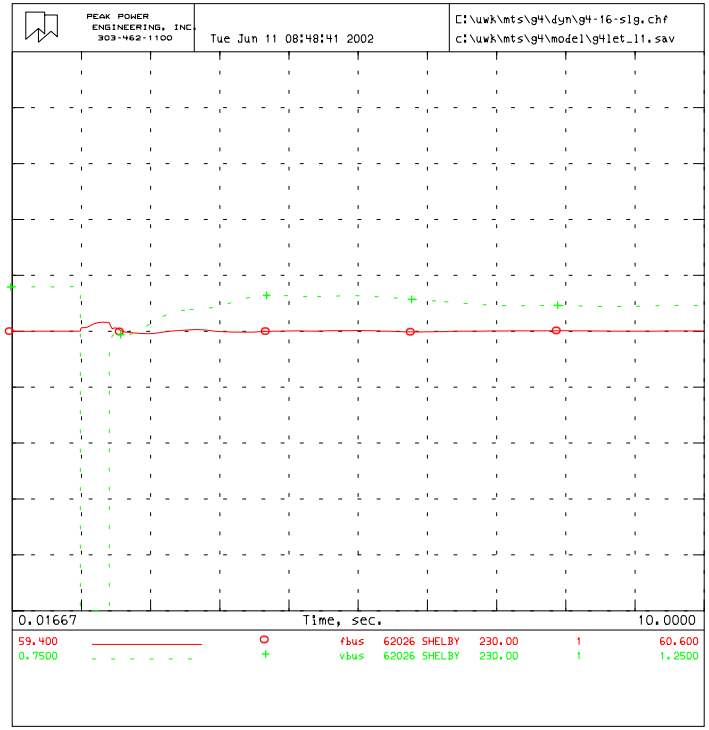

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