Appendix K

Transient Stability Results

Worst Conditions Analysis Report

Worst Condition Analysis Report
Scenario: Peak load, high import
Case(s): q_8_m.sav (pre-project) and q_8_n.sav (post-project)

Case Name	.chf Name	Parameter	Bus Name		Initial Volt/ Freq	Percent Dip	Time	Duration	
q_8_m	haa_ng_slo_pre.chf	V_ldbus	No dips violating criteria.						
		F_all buses	No dips violating criteria, worst dip 0.49 at 14998 SUN G9						13.8
		V_all buses	19050 GILA	161.0	0.9928	25.125	1.6667	0.108	
			19063 WLTNMOHK	161.0	1.0000	26.034	1.6125	0.217	
			19070 DOME TAP	161.0	0.9992	25.097	1.7208	0.054	
			19112 N.GILA	161.0	0.9949	26.322	1.6125	0.217	
			19426 WLTN_CT2	16.0	1.0118	26.501	1.6125	0.217	
			19427 WLTN_CT1	16.0	1.0118	26.501	1.6125	0.217	
q_8_n	haa_ng_slo_post.chf	V_ldbus	No dips violating criteria.						
		F_all buses	No dips violating criteria, worst dip 0.49 at 14998 SUN G9						13.8
		V_all buses	19063 WLTNMOHK	161.0	1.0004	25.617	1.6667	0.163	
			19112 N.GILA	161.0	0.9955	25.888	1.6667	0.163	
			19426 WLTN_CT2	16.0	1.0118	26.074	1.6667	0.163	
			19427 WLTN_CT1	16.0	1.0118	26.074	1.6667	0.163	
q_8_m	iv_cn_slo_pre.chf	V_ldbus	No dips violating criteria.						
		F_all buses	No dips violating criteria, worst dip 0.21 at 20139 CPU-U3						13.8
		V_all buses	No dips violating criteria, worst dip 4.75 at 22336 GRANITE						69.0
q_8_n	iv_cn_slo_post.chf	V_ldbus	No dips violating criteria.						
		F_all buses	No dips violating criteria, worst dip 0.21 at 20139 CPU-U3						13.8
		V_all buses	No dips violating criteria, worst dip 3.91 at 22796 SPRNGVLY						69.0
q_8_m	iv_ml_roa_slo_pre.chf	V_ldbus	No dips violating criteria.						
		F_all buses	No dips violating criteria, worst dip 0.40 at 20144 CPT-U4						13.8
		V_all buses	No dips violating criteria, worst dip 6.58 at 22796 SPRNGVLY						69.0
q_8_n	iv_ml_roa_slo_post.chf	V_ldbus	No dips violating criteria.						
		F_all buses	No dips violating criteria, worst dip 0.43 at 20144 CPT-U4						13.8
		V_all buses	No dips violating criteria, worst dip 5.42 at 22336 GRANITE						69.0

Case Name	.chf Name	Parameter	Bus Name	Initial Volt/ Freq	Percent Dip	Time	Duration
q_8_m	iv_ml_tji_slo_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria, worst dip	0.43	at 20014	PJZ-U7	18.0
		V_all buses	No dips violating criteria, worst dip	6.47	at 22800	STREAMVW	69.0
q_8_n	iv_ml_tji_slo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria, worst dip	0.44	at 20014	PJZ-U7	18.0
		V_all buses	No dips violating criteria, worst dip	5.42	at 22336	GRANITE	69.0
q_8_m	ng_iv_slo_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria, worst dip	0.51	at 20144	CPT-U4	13.8
		V_all buses	No dips violating criteria, worst dip	10.87	at 21020	DROP4	92.0
q_8_n	ng_iv_slo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria, worst dip	0.50	at 20144	CPT-U4	13.8
		V_all buses	No dips violating criteria, worst dip	10.99	at 21048	NILAND	92.0
q_8_m	pen_ccduo_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria, worst dip	0.21	at 20014	PJZ-U7	18.0
		V_all buses	No dips violating criteria, worst dip	4.31	at 22262	PEN_CT1	18.0
q_8_n	pen_ccduo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria, worst dip	0.19	at 20014	PJZ-U7	18.0
		V_all buses	No dips violating criteria, worst dip	4.14	at 24130	S.ONOFR3	22.0
q_8_m	pv_g2_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria, worst dip	0.46	at 57236	MUSKEG4	13.8
		V_all buses	No dips violating criteria, worst dip	8.26	at 11214	LEF_G1	18.0
q_8_n	pv_g2_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria, worst dip	0.46	at 57236	MUSKEG4	13.8
		V_all buses	No dips violating criteria, worst dip	8.21	at 11214	LEF_G1	18.0

Case Name	.chf Name	Parameter	Bus Name	Initial Volt/ Freq	Percent Dip	Time	Duration
q_8_m	songs_g2_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria,	worst dip	0.17	at 22262 PEN_CT1	18.0
		V_all buses	No dips violating criteria,	worst dip	7.48	at 22820 SWEETWTR	69.0
q_8_n	songs_g2_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria,	worst dip	0.17	at 22262 PEN_CT1	18.0
		V_all buses	No dips violating criteria.	worst dip	6.85	at 22740 SANYSDRO	69.0
q_8_m	sx_ml_slo_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria,	worst dip	0.29	at 20006 PJZ-U5	15.0
		V_all buses	No dips violating criteria,	worst dip	5.72	at 22152 CREELMAN	69.0
q_8_n	sx_sxcc_slo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria,	worst dip	0.31	at 20006 PJZ-U5	15.0
		V_all buses	No dips violating criteria,	worst dip	7.03	at 22004 ALPINE	69.0
q_8_n	sxcc_ccduo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria,	worst dip	0.29	at 20004 PJZ-U3	13.8
		V_all buses	No dips violating criteria,	worst dip	6.05	at 22004 ALPINE	69.0

Worst Condition Analysis Report
Scenario: Off-peak load, high import
Case(s): q_8_q.sav (pre-project) and q_8_r.sav (post-project)

Case Name	.chf Name	Parameter	Bus Name	Initial Volt/ Freq	Percent Dip	Time	Duration
q_8_q	haa_ng_slo_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.44	at 15189 WADDEL67	13.8
		V_all buses	No dips violating criteria.	worst dip	12.04	at 15903 AGUAFR 3	18.0
q_8_r	haa_ng_slo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria,	worst dip	0.44	at 15189 WADDEL67	13.8
		V_all buses	No dips violating criteria,	worst dip	12.09	at 15601 AF-NORTH	69.0
q_8_q	iv_cn_slo_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.20	at 20139 CPU-U3	13.8
		V_all buses	No dips violating criteria.	worst dip	4.29	at 22739 CENTRALX	12.0
q_8_r	iv_cn_slo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.20	at 20139 CPU-U3	13.8
		V_all buses	No dips violating criteria.	worst dip	4.82	at 22738 CENTRALX	230.0
q_8_q	iv_ml_roa_slo_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.22	at 20139 CPU-U3	13.8
		V_all buses	No dips violating criteria.	worst dip	5.00	at 22364 JAMACHA	69.0
q_8_r	iv_ml_roa_slo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.22	at 20139 CPU-U3	13.8
		V_all buses	No dips violating criteria.	worst dip	5.27	at 22364 JAMACHA	69.0
q_8_q	iv_ml_tji_slo_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.22	at 20139 CPU-U3	13.8
		V_all buses	No dips violating criteria.	worst dip	5.00	at 22364 JAMACHA	69.0
q_8_r	iv_ml_tji_slo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.22	at 20139 CPU-U3	13.8
		V_all buses	No dips violating criteria.	worst dip	5.00	at 22364 JAMACHA	69.0

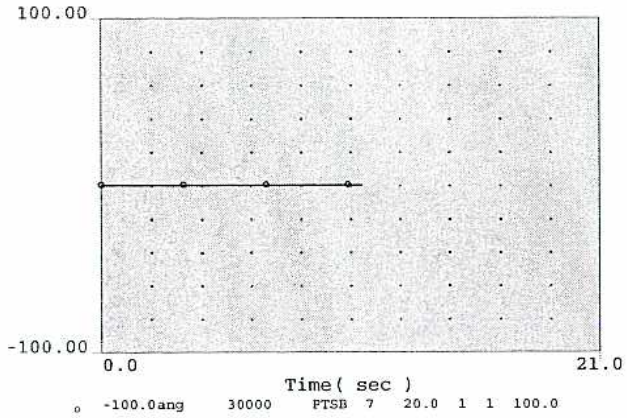
Case Name	.chf Name	Parameter	Bus Name	Initial Volt/ Freq	Percent Dip	Time	Duration
q_8_q	ng_iv_slo_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.40	at 20139 CPU-U3	13.8
		V_all buses	No dips violating criteria.	worst dip	6.01	at 21026 ELCENTSW	161.0
q_8_r	ng_iv_slo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.40	at 20139 CPU-U3	13.8
		V_all buses	No dips violating criteria.	worst dip	5.73	at 21026 ELCENTSW	161.0
q_8_q	pen_ccduo_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.15	at 20014 PJZ-U7	18.0
		V_all buses	No dips violating criteria.	worst dip	4.75	at 24130 S.ONOFR3	22.0
q_8_r	pen_ccduo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	Below test threshold		
		V_all buses	No dips violating criteria.	worst dip	2.77	at 22244 ENCINA 5	24.0
q_8_q	pv_g2_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.29	at 24709 BSPHYD26	2.2
		V_all buses	No dips violating criteria.	worst dip	4.63	at 50429 JOR 25	25.2
q_8_r	pv_g2_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.29	at 24709 BSPHYD26	2.2
		V_all buses	No dips violating criteria.	worst dip	4.70	at 50429 JOR 25	25.2
q_8_q	songs_g2_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.22	at 22262 PEN_CT1	18.0
		V_all buses	No dips violating criteria.	worst dip	3.73	at 84836 N.GILA	69.0
q_8_r	songs_g2_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.21	at 20008 PJZ-U8	21.0
		V_all buses	No dips violating criteria.	worst dip	4.16	at 21025 ELCENTRO	230.0

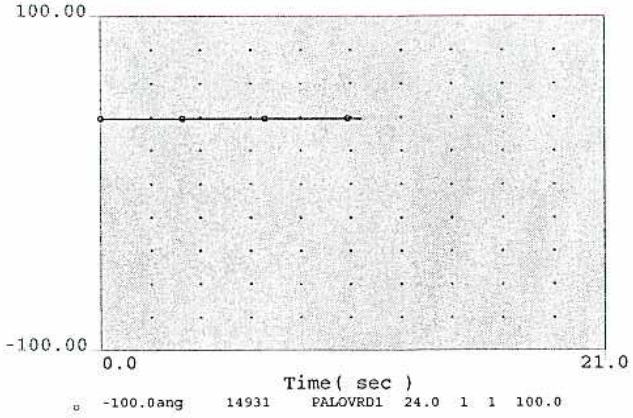
Case Name	.chf Name	Parameter	Bus Name	Initial Volt/ Freq	Percent Dip	Time	Duration
q_8_q	sx_ml_slo_pre.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.74	at 22832	SYCAMORE 230.0
		V_all buses	No dips violating criteria.	worst dip	4.76	at 24130	S.ONOFR3 22.0
q_8_r	sx_sxcc_slo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.23	at 20008	PJZ-U8 21.0
		V_all buses	No dips violating criteria.	worst dip	6.76	at 22963	SXCC-U3 21.0
q_8_r	sxcc_ccduo_post.chf	V_ldbus	No dips violating criteria.				
		F_all buses	No dips violating criteria.	worst dip	0.16	at 14963	YUCCACT3 13.8
		V_all buses	No dips violating criteria.	worst dip	6.45	at 22961	SXCC-U1 16.0

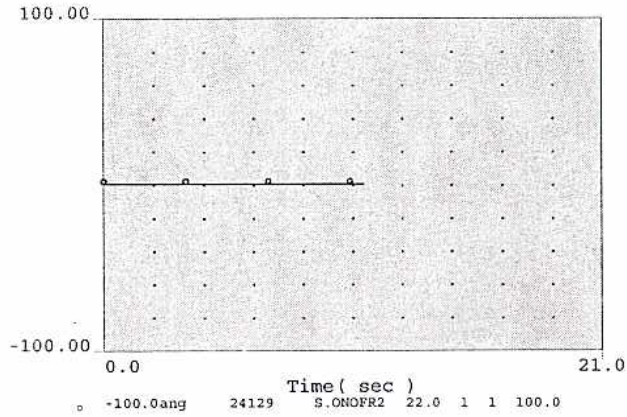
No Disturbance Plots

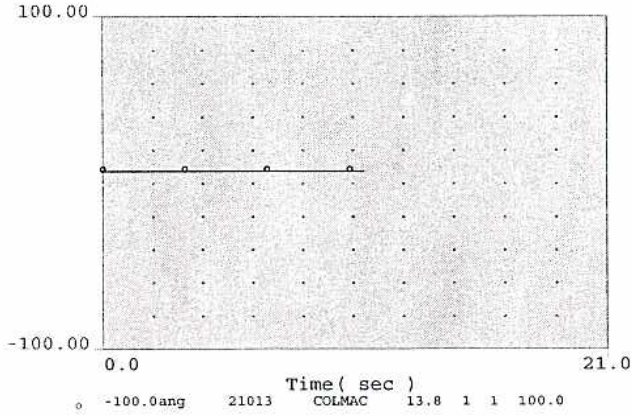
Peak Load and Off Peak

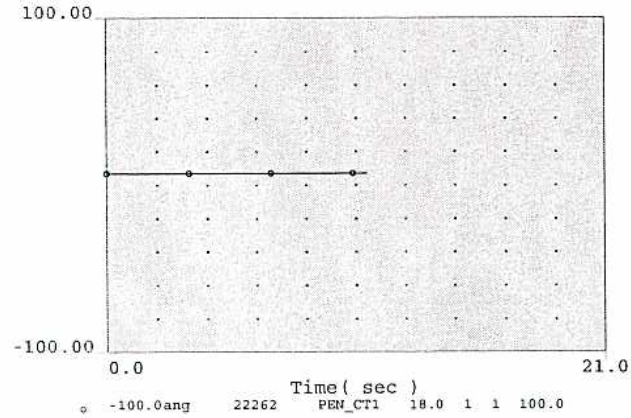
10 Second Simulations

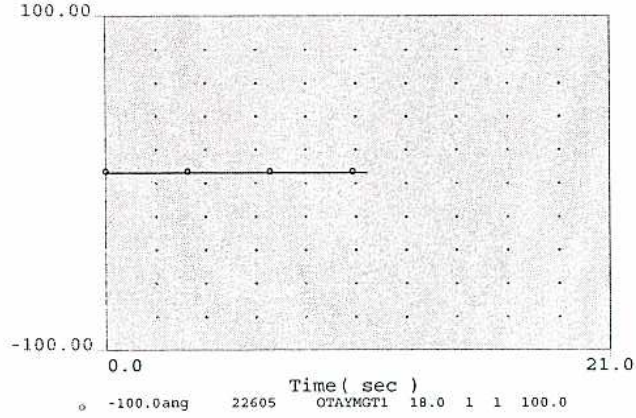




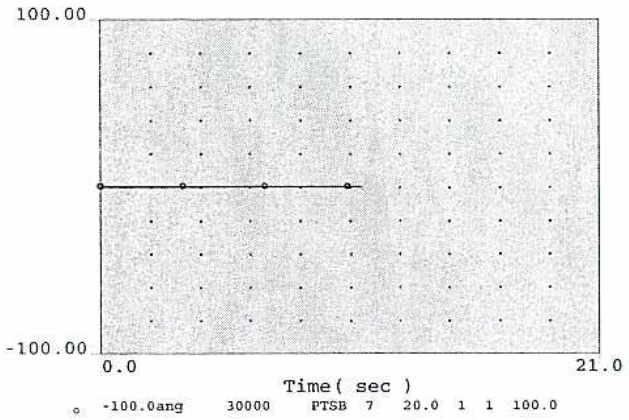


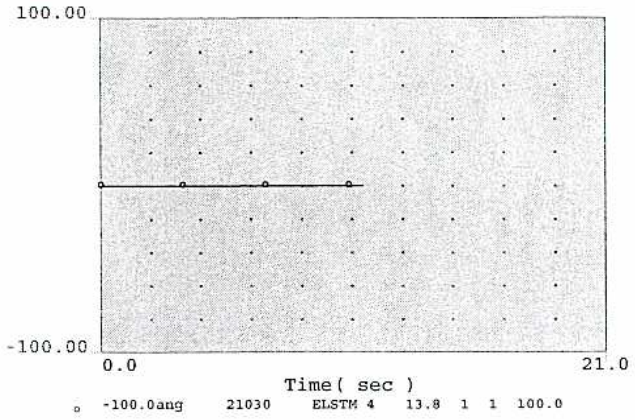


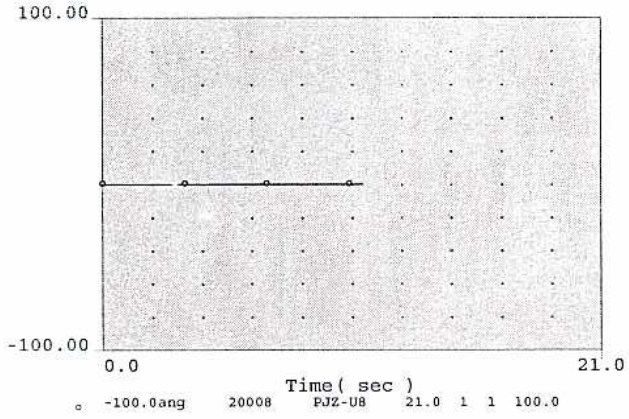


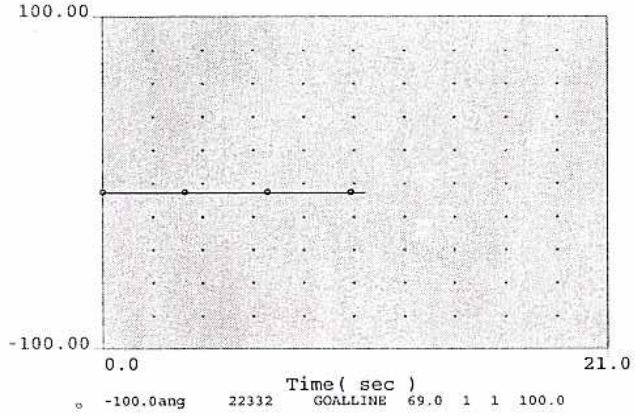


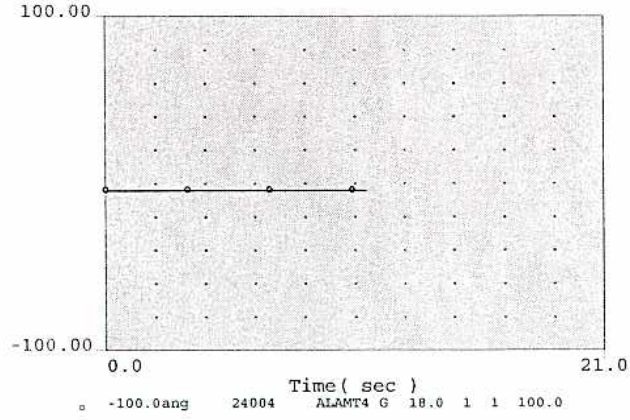
ENPEX IFAS
Peak Load, Pre-project

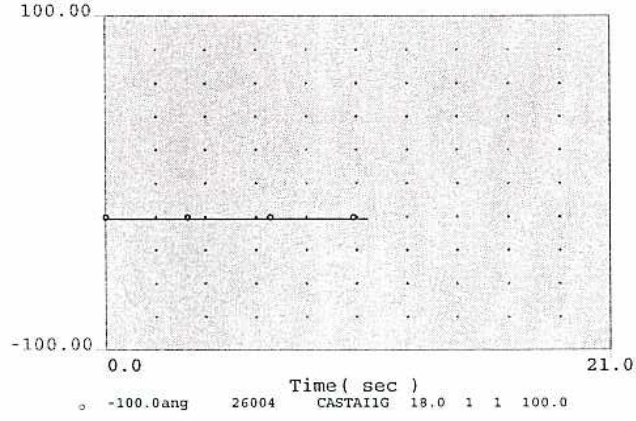




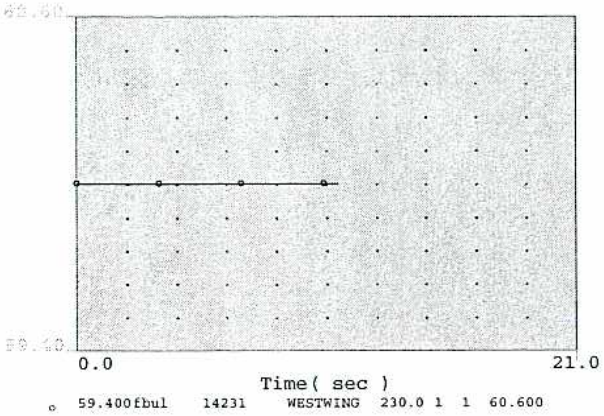




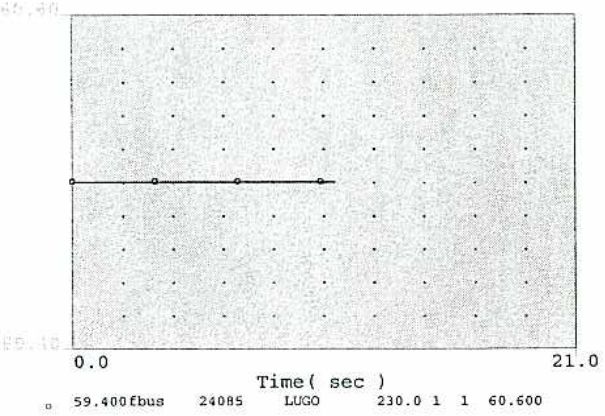




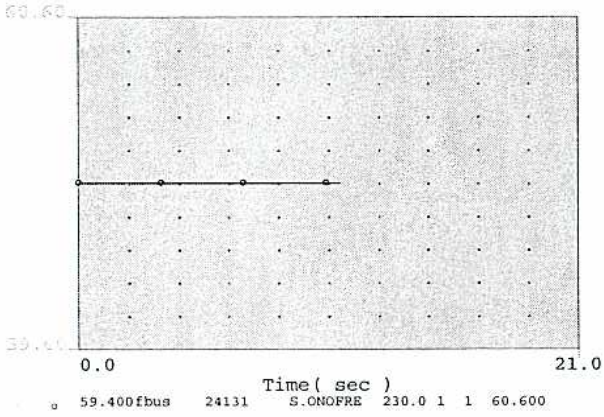
ENPEX IFAS
Peak Load, Pre-project



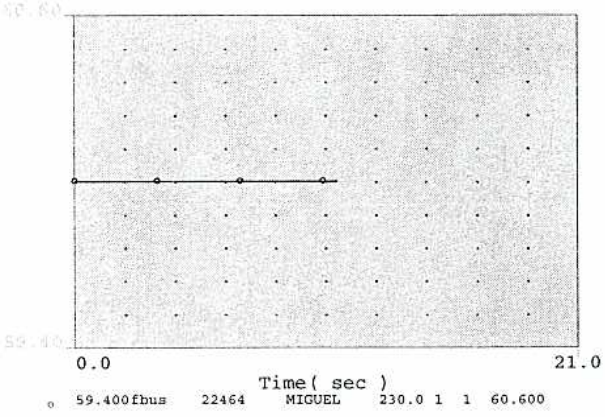
59.400fbus 14231 WESTWING 230.0 1 1 60.600



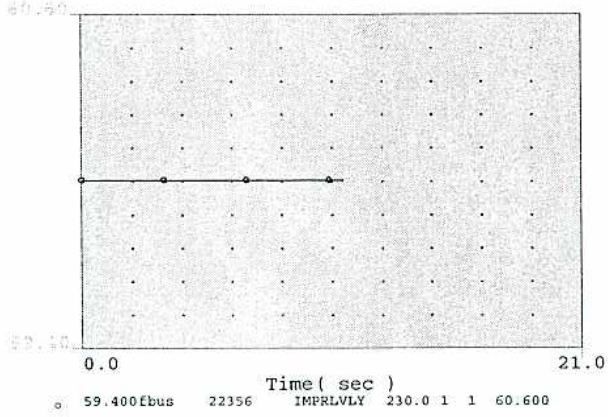
59.400fbus 24085 LUGO 230.0 1 1 60.600



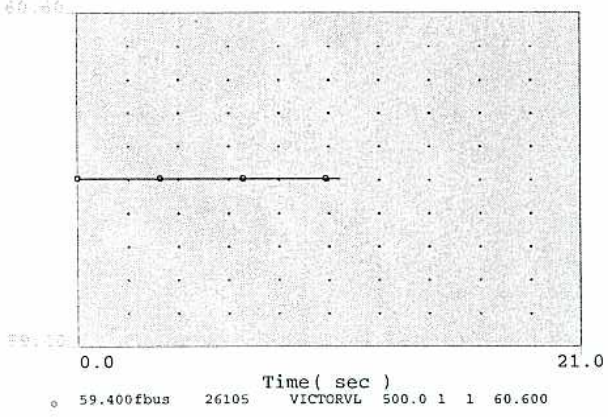
59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



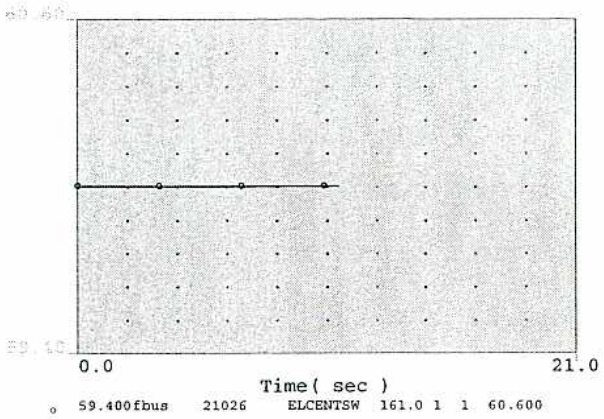
59.400fbus 22464 MIGUEL 230.0 1 1 60.600



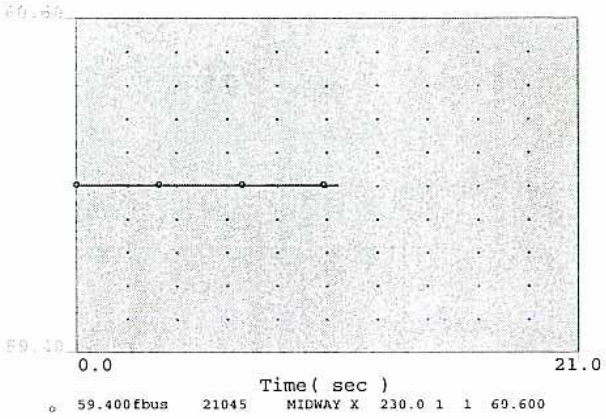
59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600



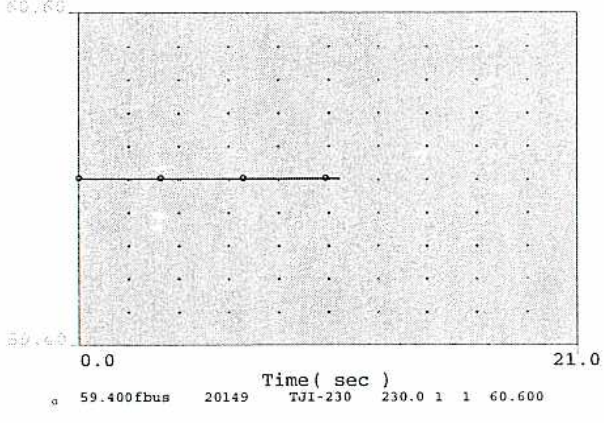
59.400fbus 26105 VICTORVL 500.0 1 1 60.600



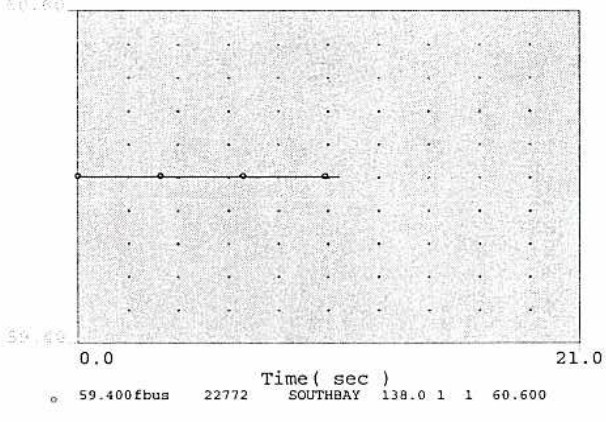
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



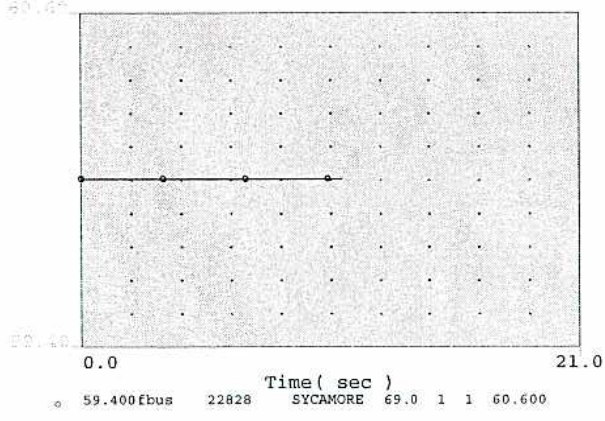
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



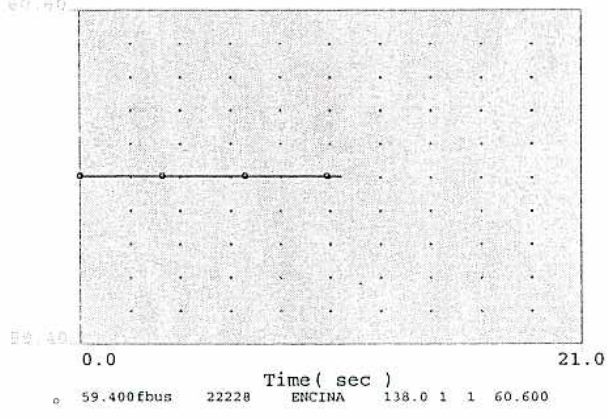
59.400fbus 20149 TJI-230 230.0 1 1 60.600



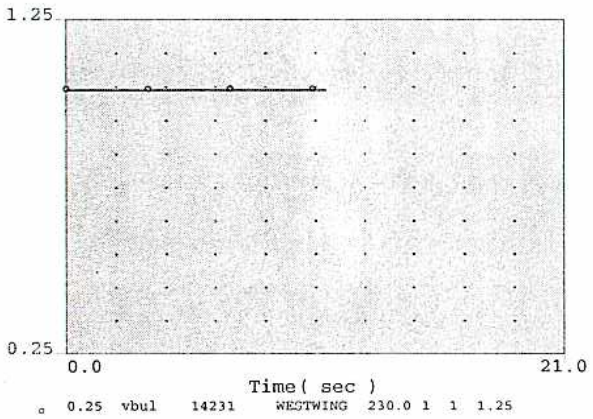
59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600

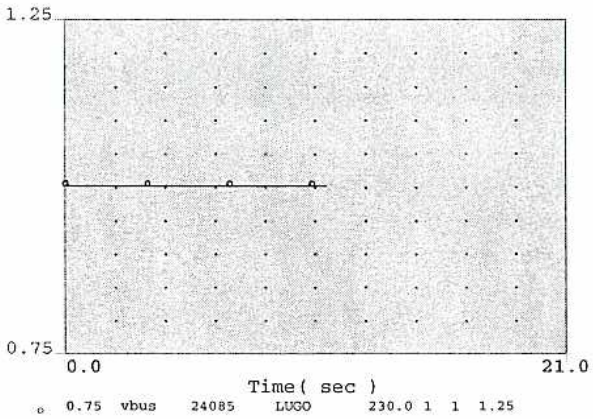


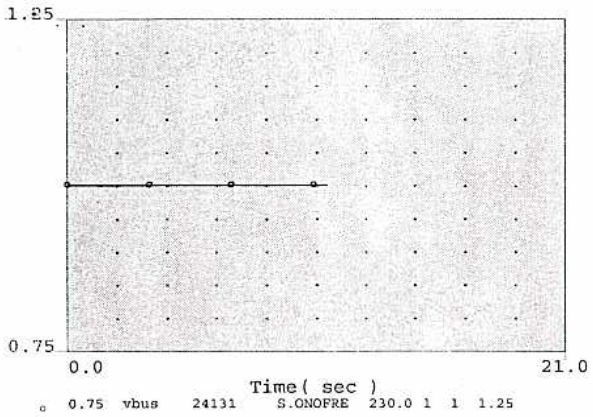
59.400fbus 22828 SYCAMORE 69.0 1 1 60.600

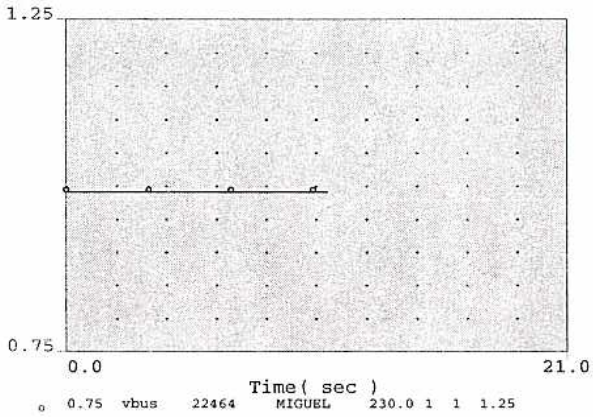


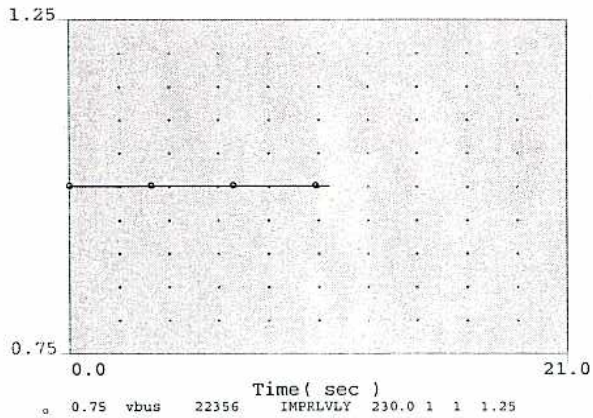
59.400fbus 22228 ENCINA 138.0 1 1 60.600

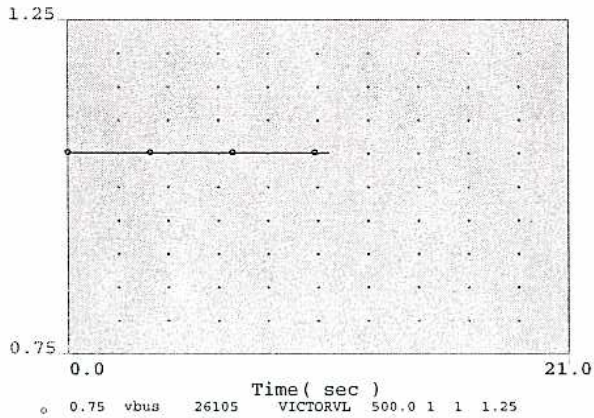




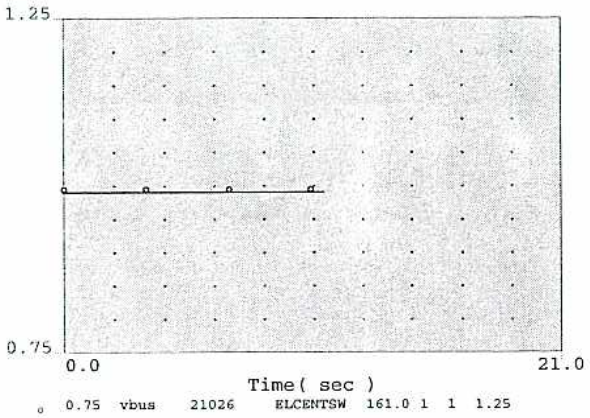








ENPEX IFAS
Peak Load, Pre-project



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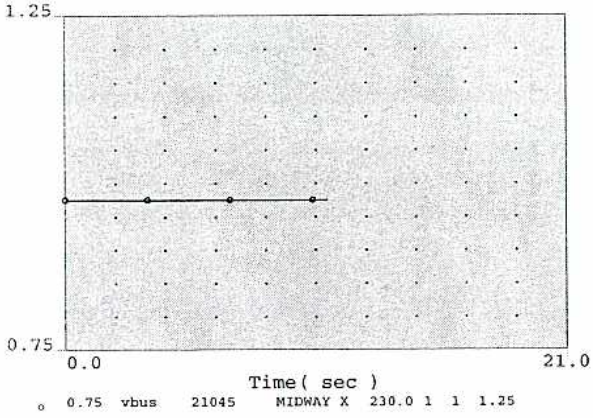

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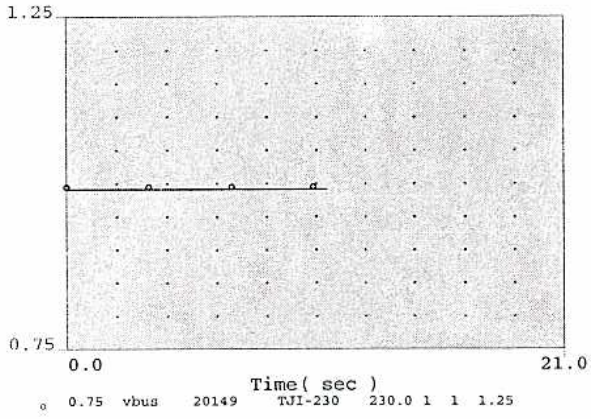

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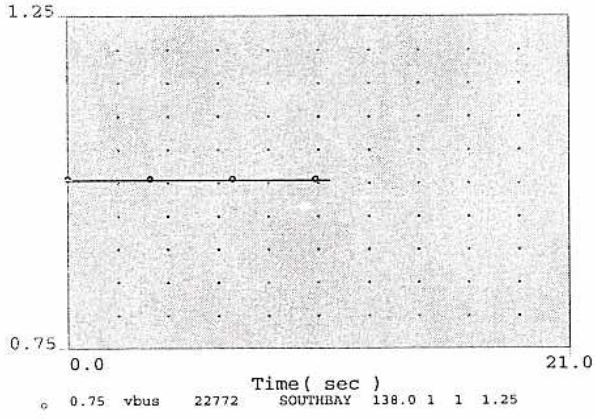

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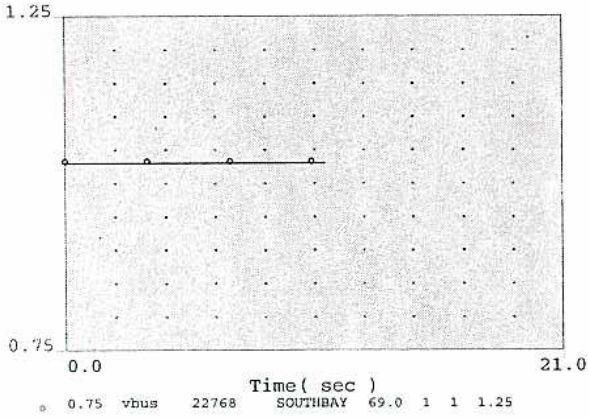

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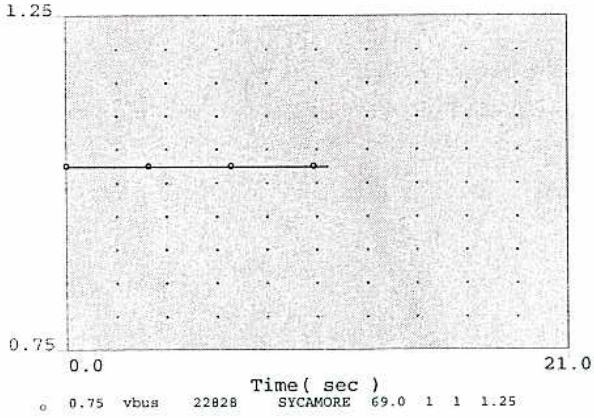

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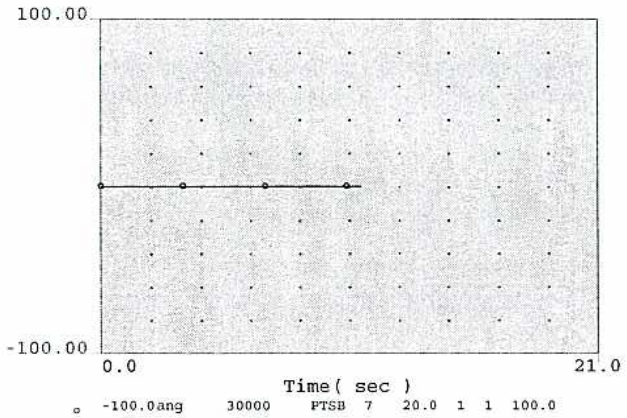
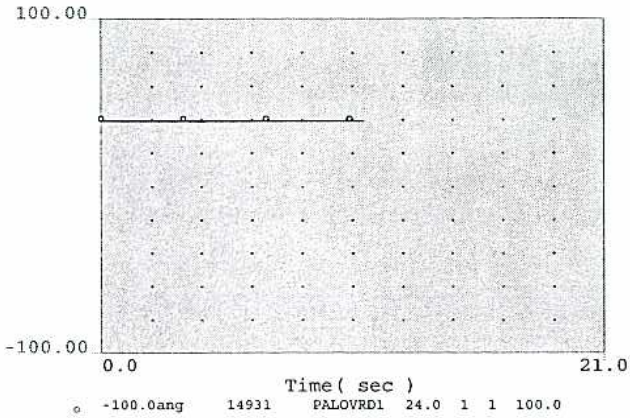
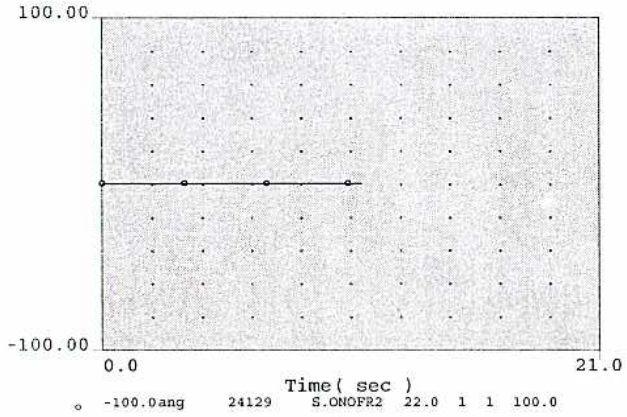
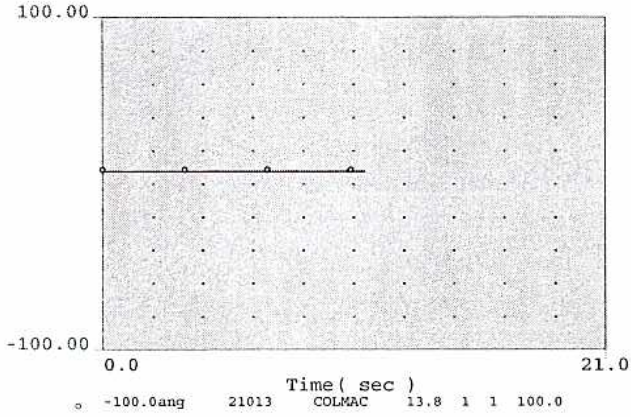
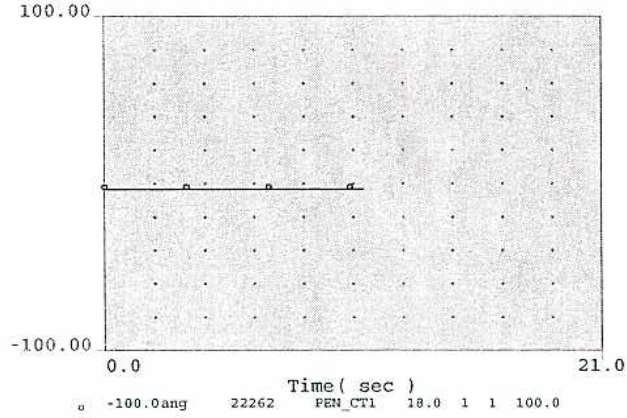
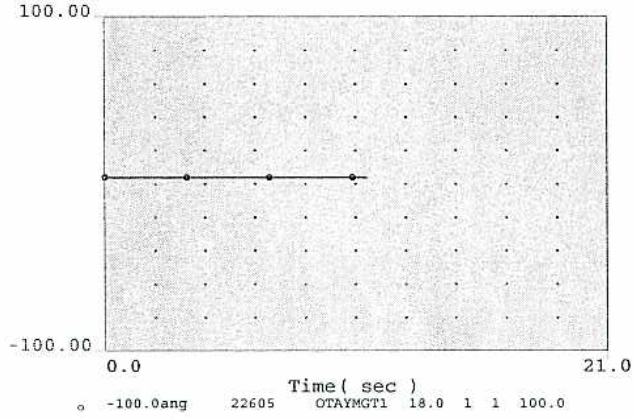




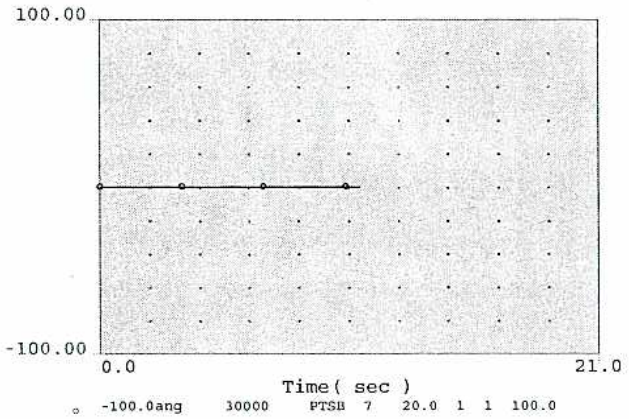








ENPEX IFAS
Peak Load, Post-project



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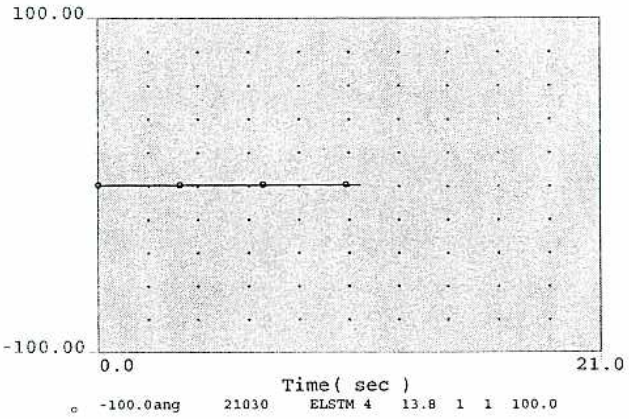

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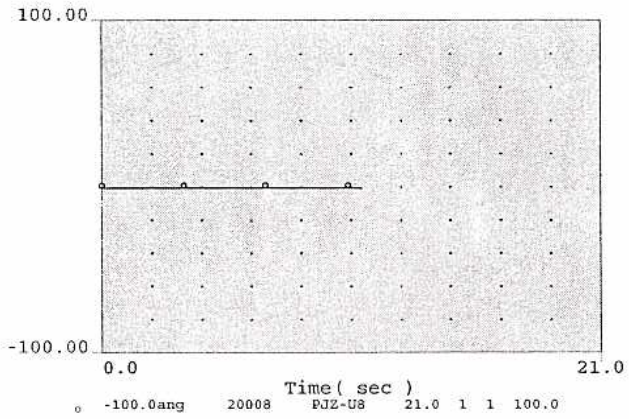

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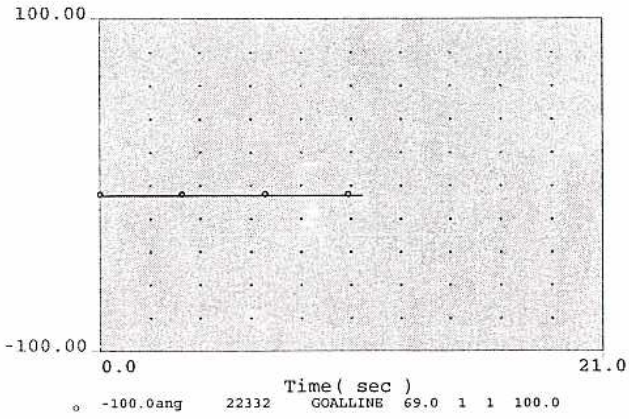

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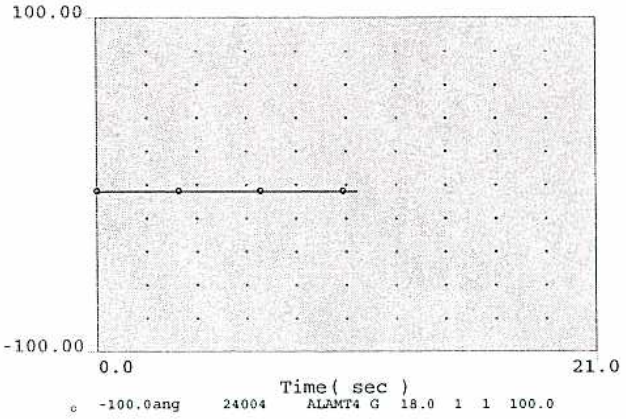

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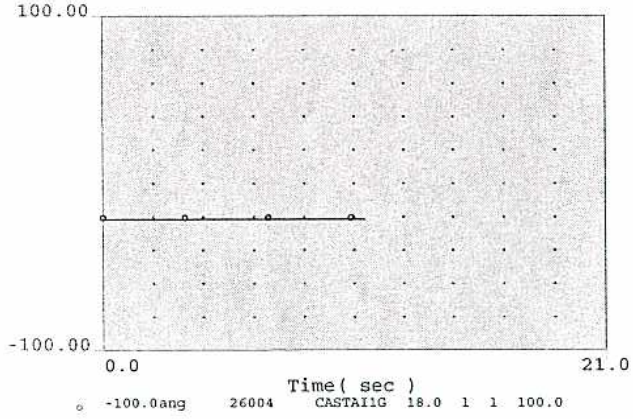
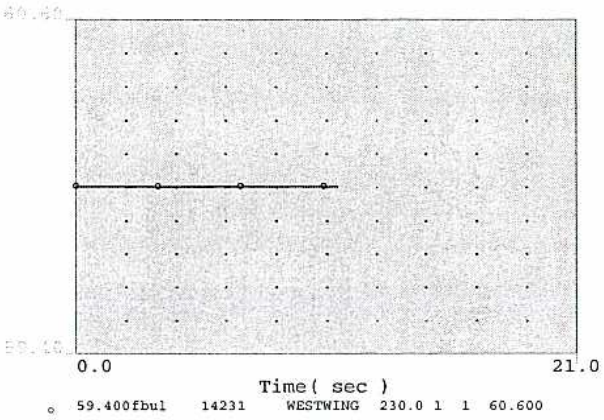


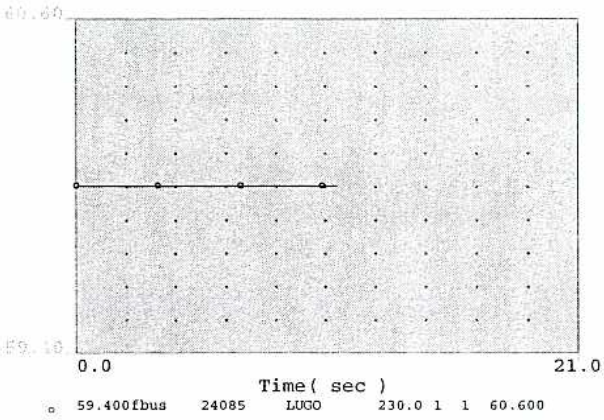
-100.0ang 26004 CASTAI1G 18.0 1 1 100.0

ENPEX IFAS

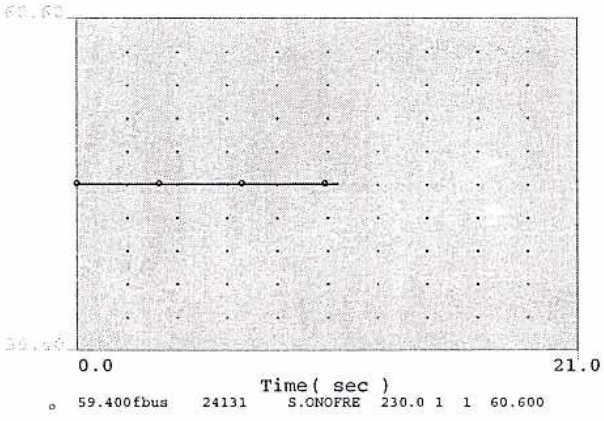
Peak Load, Post-project



59.400fbul 14231 WESTWING 230.0 1 1 60.600



59.400fbus 24085 LUGO 230.0 1 1 60.600



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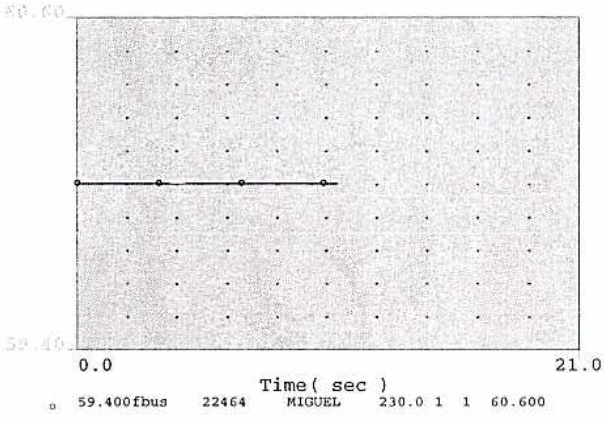

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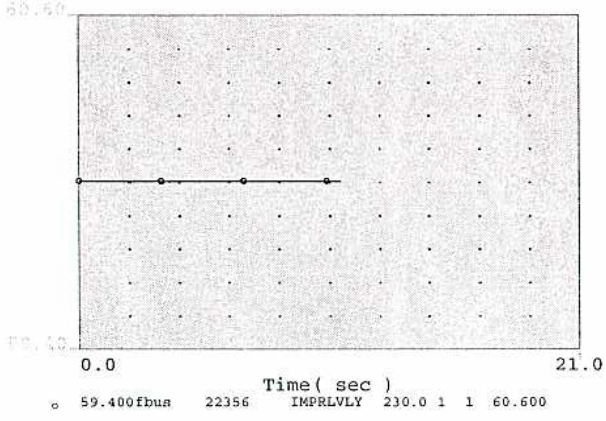
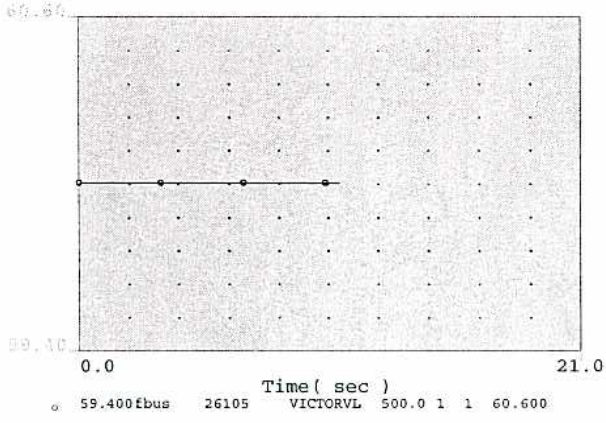
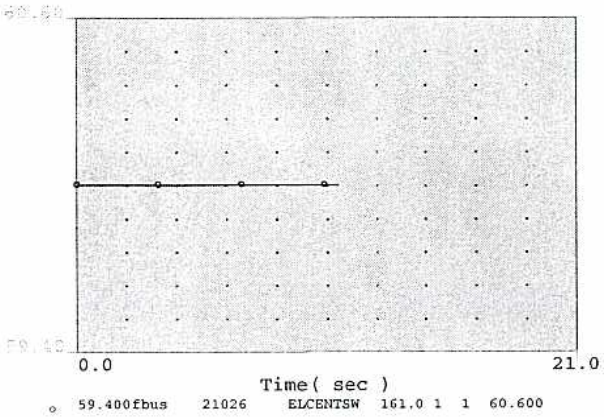


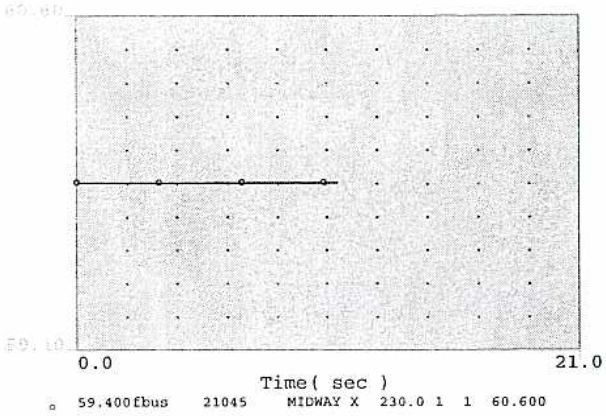
59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600



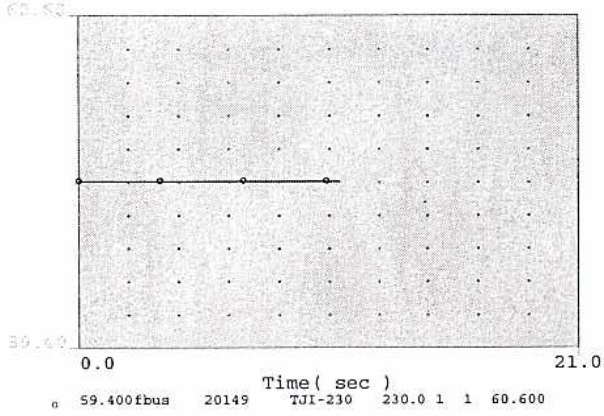
59.400fbus 26105 VICTORVL 500.0 1 1 60.600



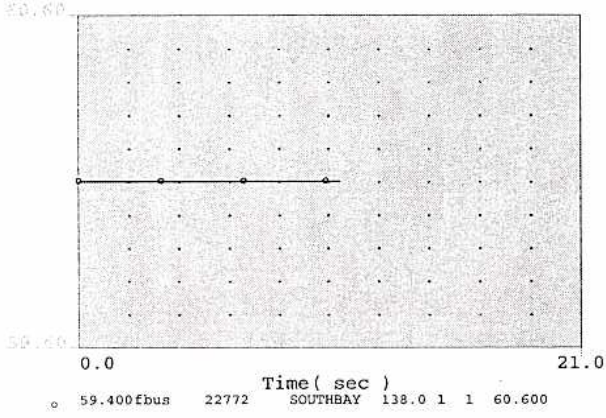
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



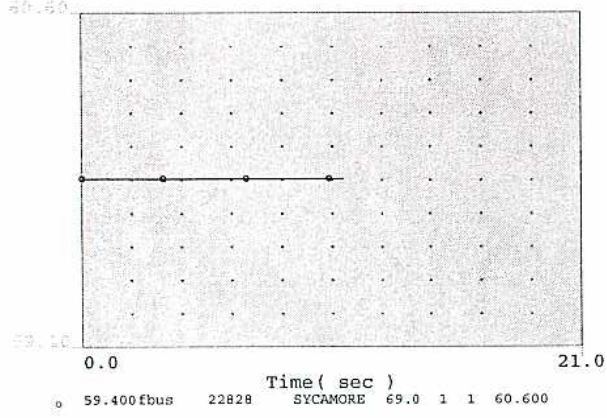
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



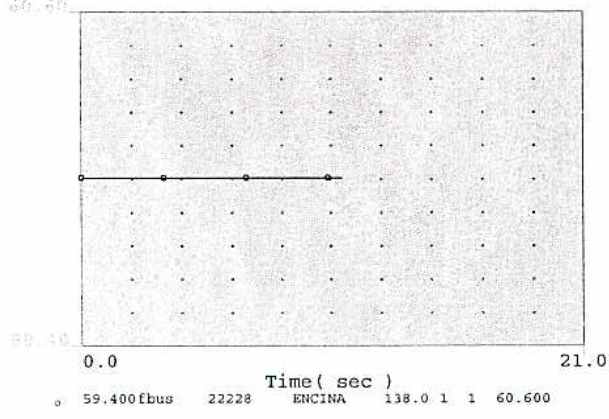
59.400fbus 20149 TJI-230 230.0 1 1 60.600



59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600



59.400fbus 22828 SYCAMORE 69.0 1 1 60.600



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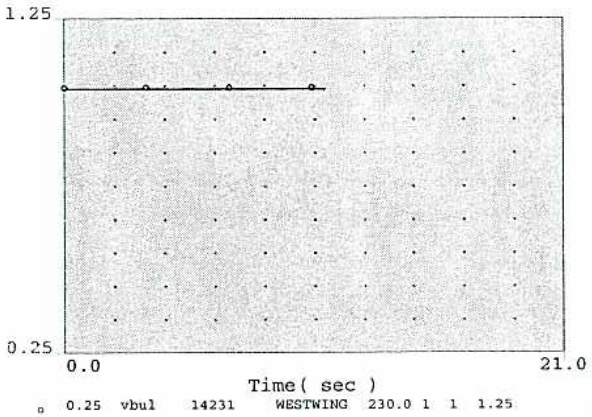
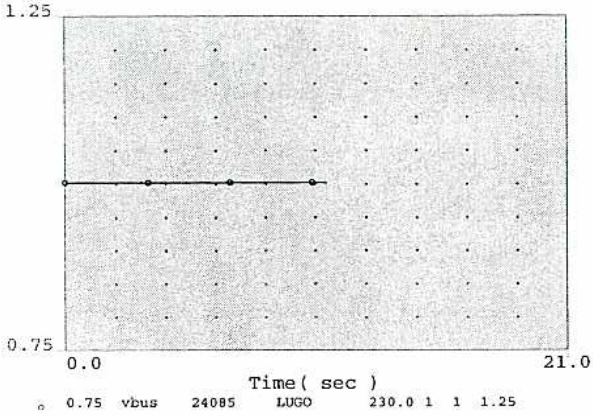
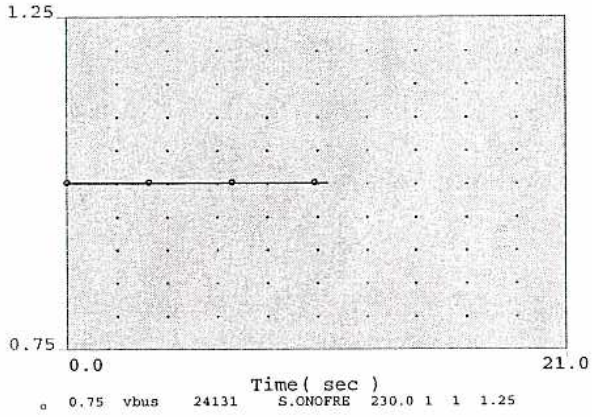
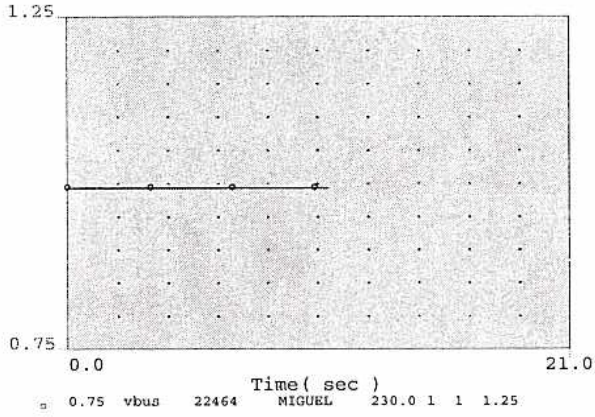
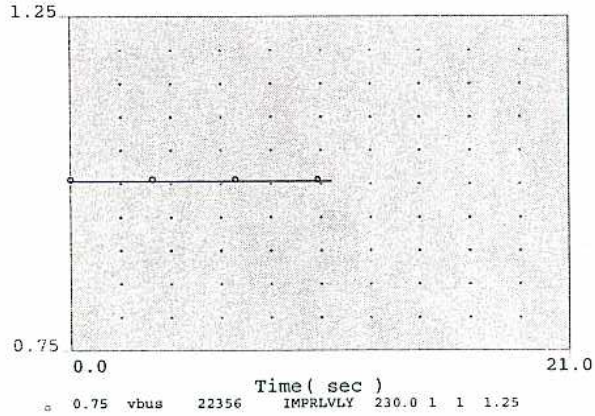
ENPEX IFAS
Peak Load, Post-project

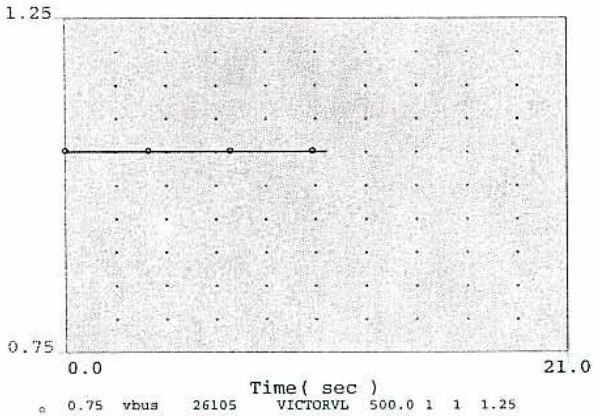




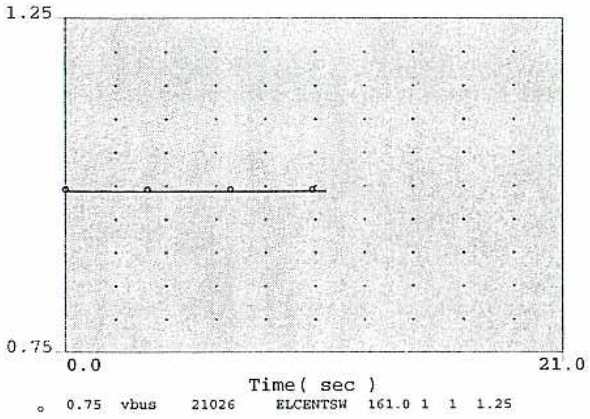


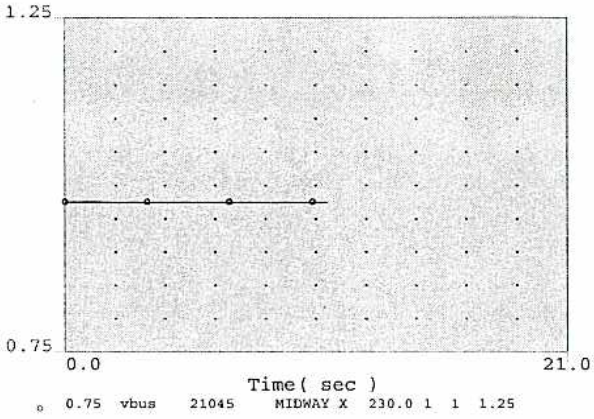


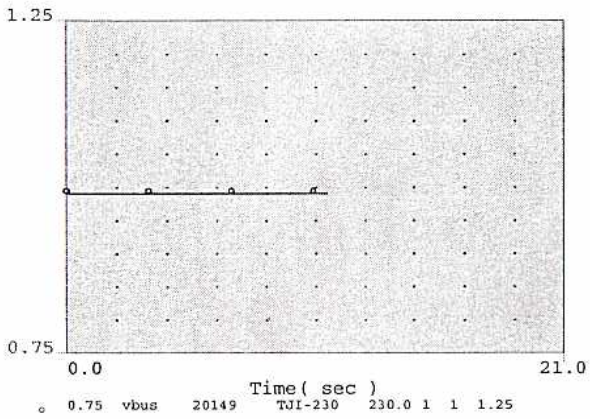


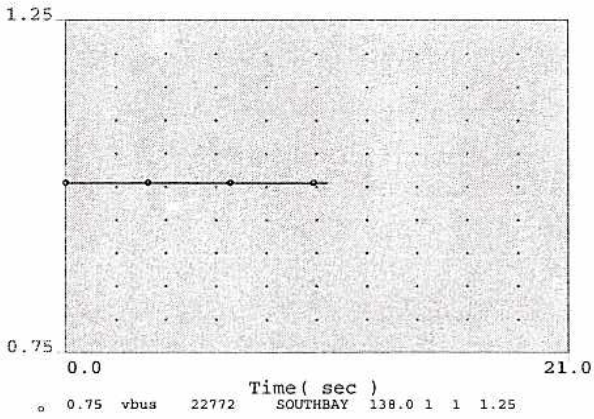


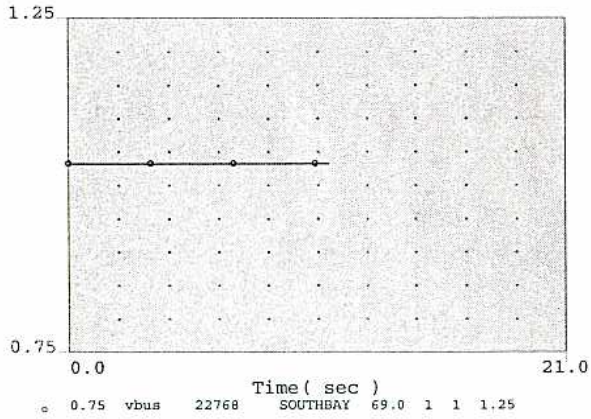
ENPEX IFAS
Peak Load, Post-project

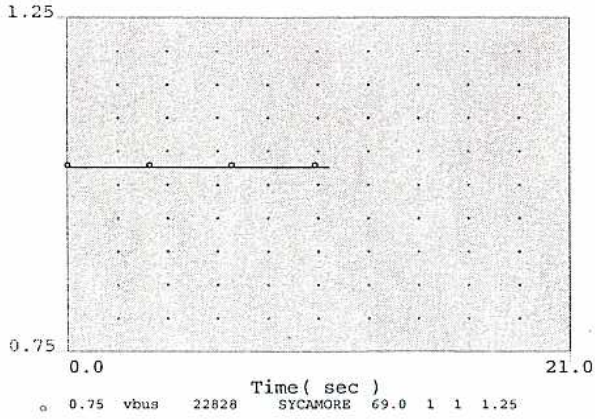




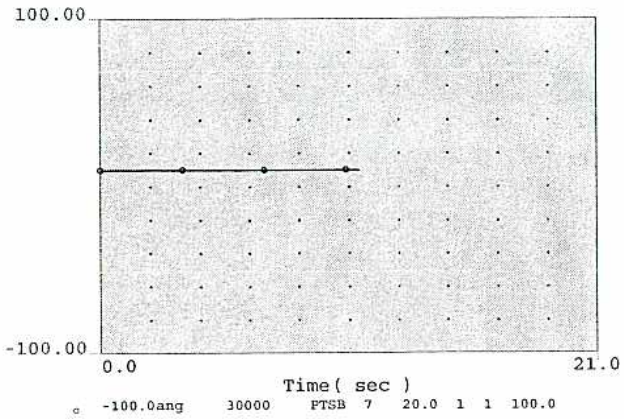


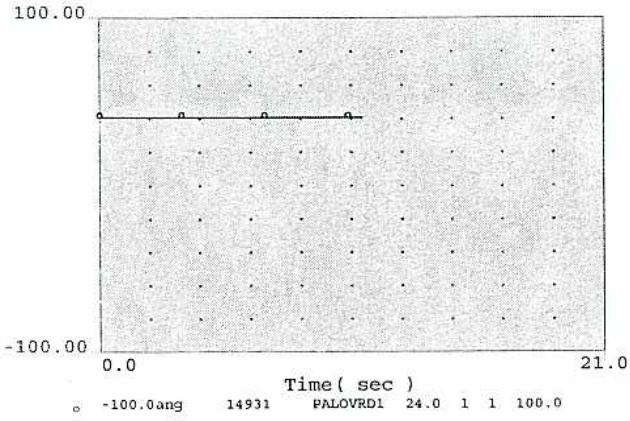


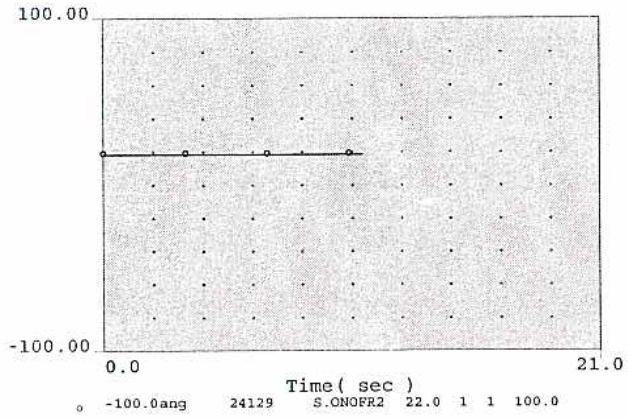


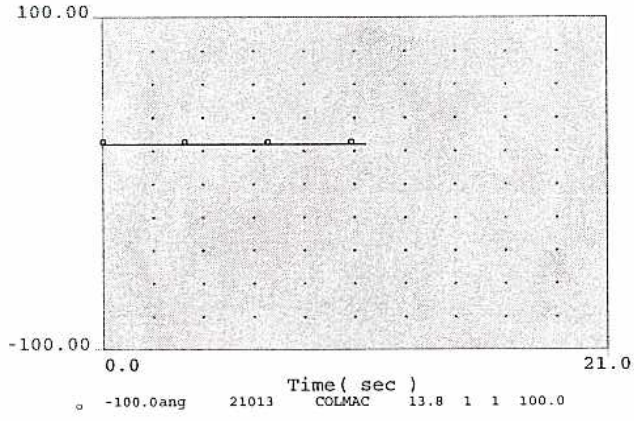


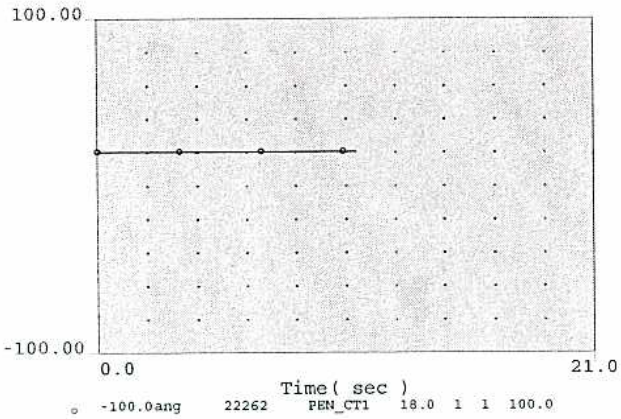
ENPEX IFAS
Peak Load, Post-project

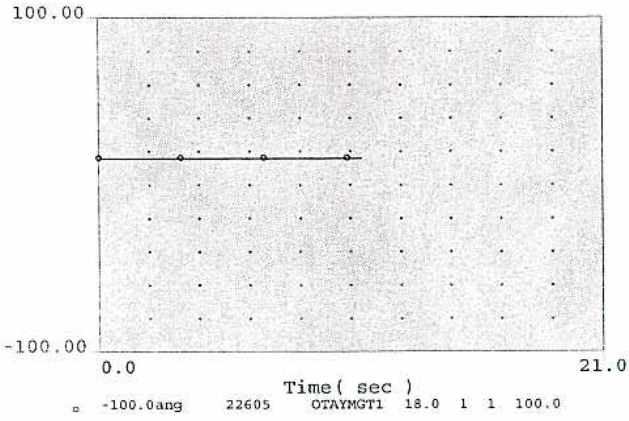




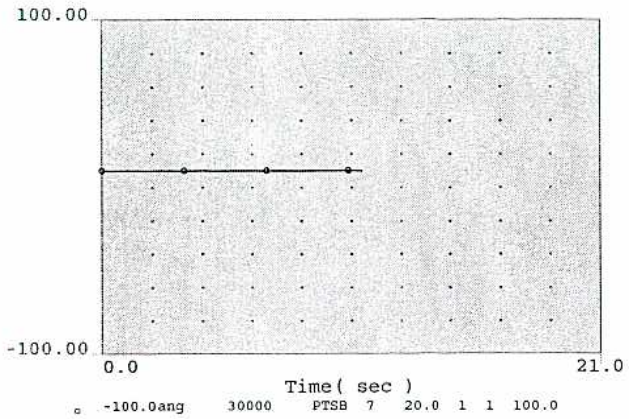


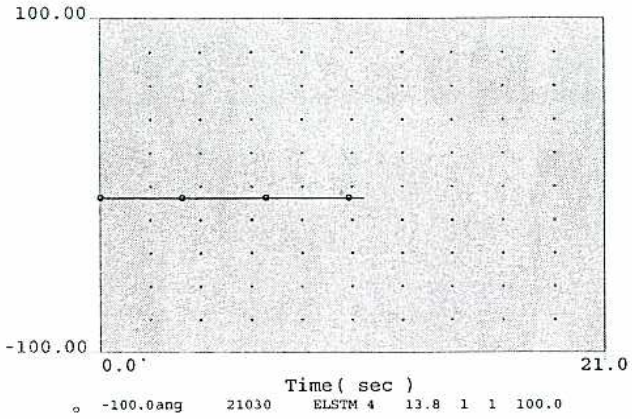


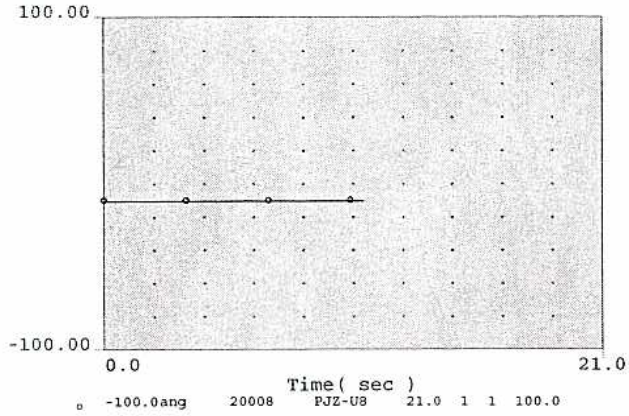


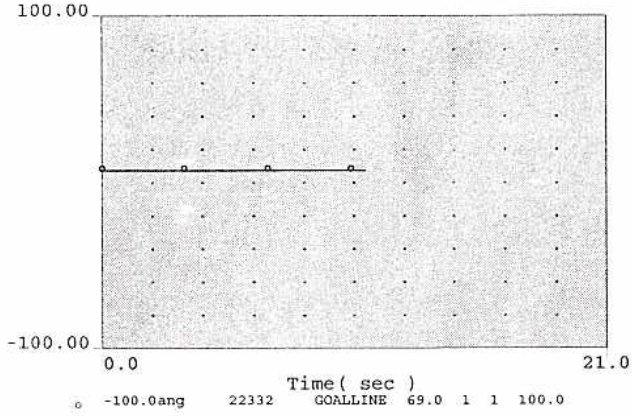


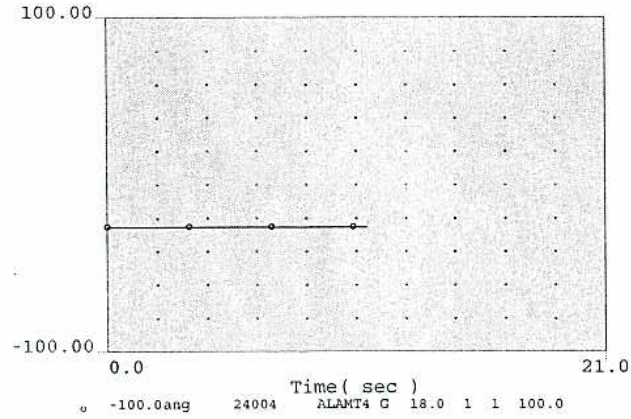
ENPEX IFAS
Off-peak load, Pre-project

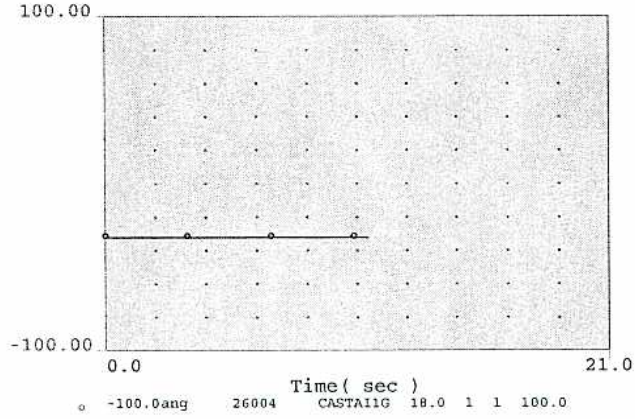




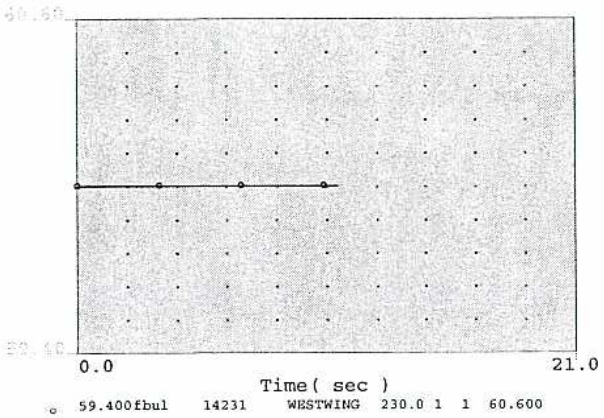




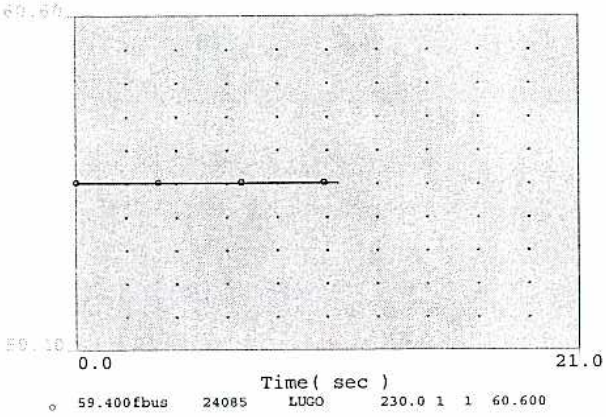




ENPEX IFAS
Off-peak load, Pre-project



59.400fbul 14231 WESTWING 230.0 1 1 60.600



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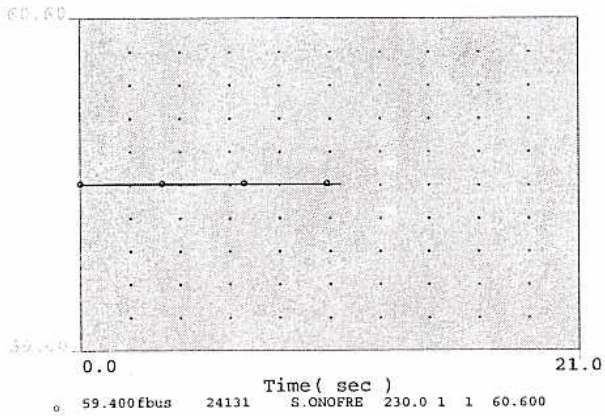

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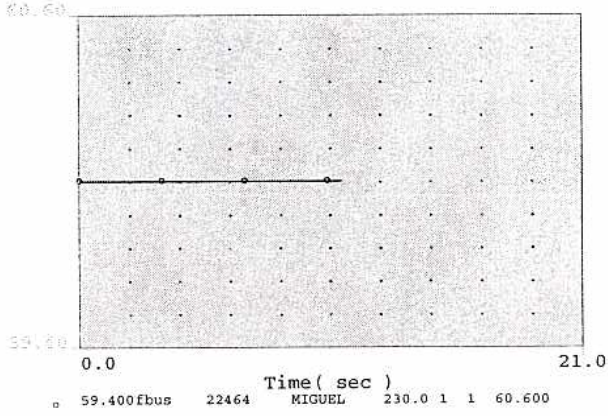

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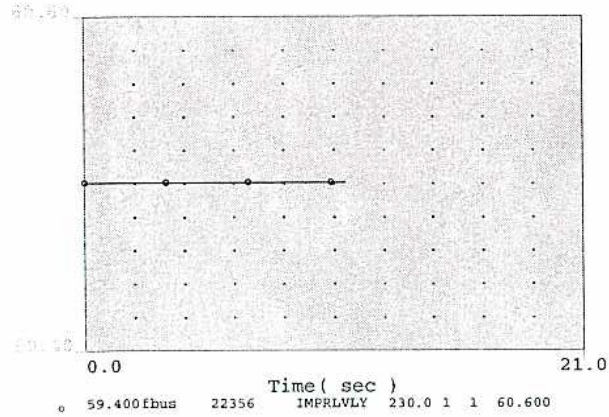
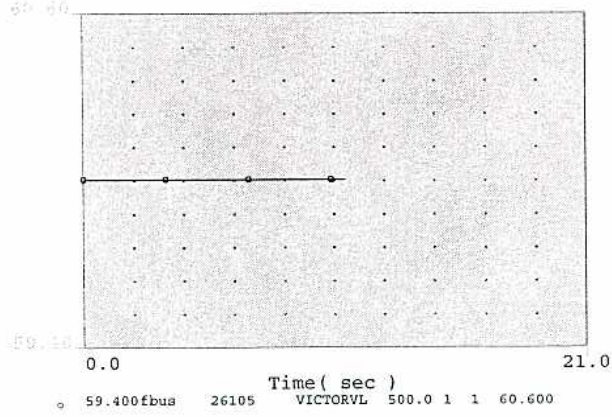
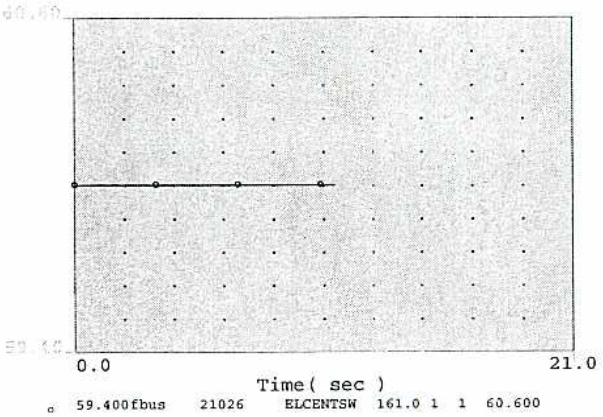


59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600



59.400fbus 26105 VICTORVL 500.0 1 1 60.600

ENPEX IFAS
Off-peak load, Pre-project



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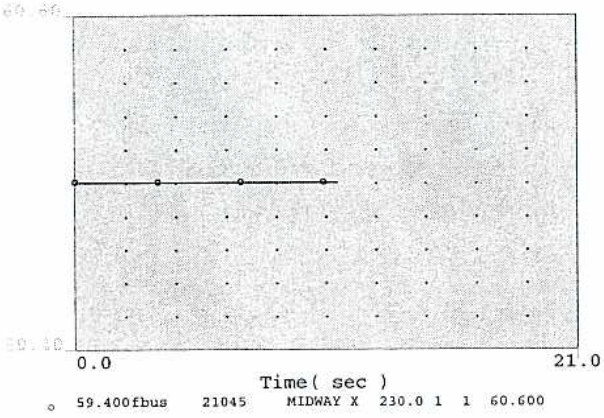
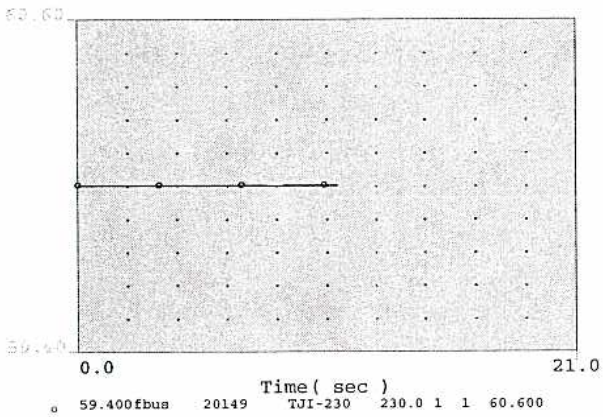


59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



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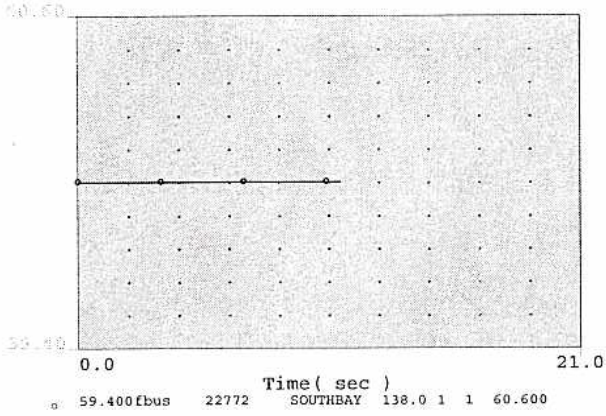
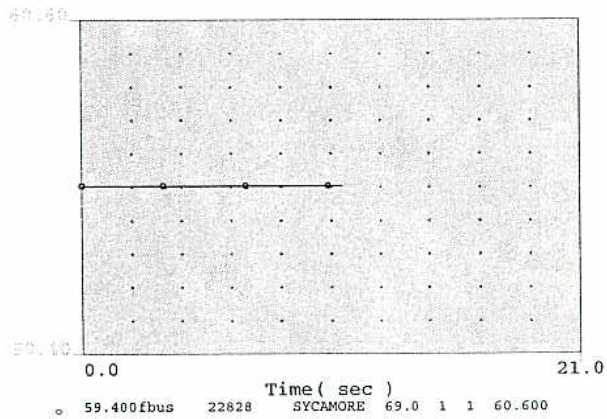
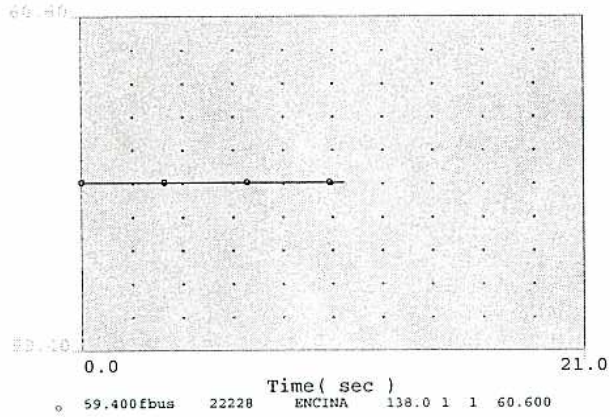


59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600



59.400fbus 22828 SYCAMORE 69.0 1 1 60.600



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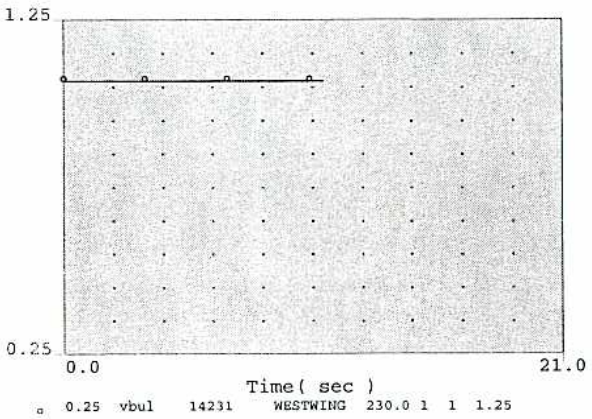
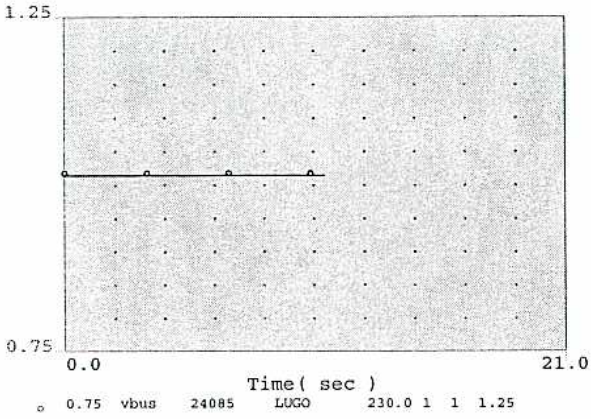
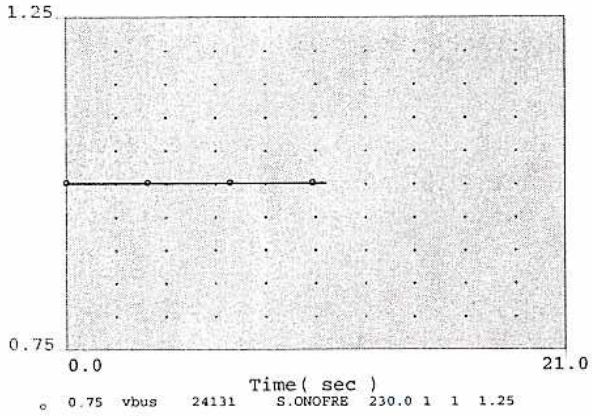
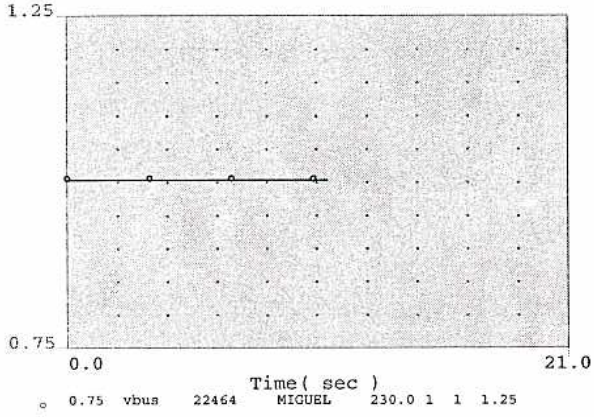
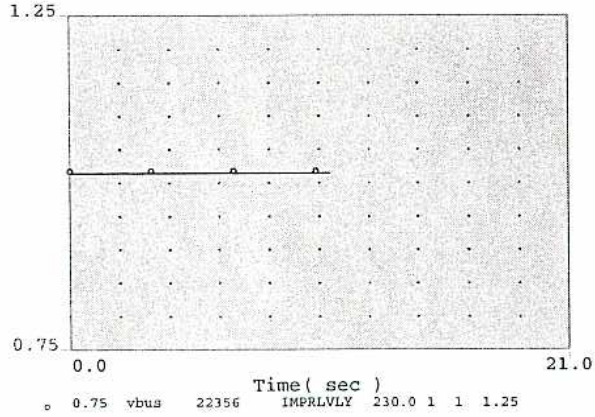
ENPEX IFAS
Off-peak load, Pre-project

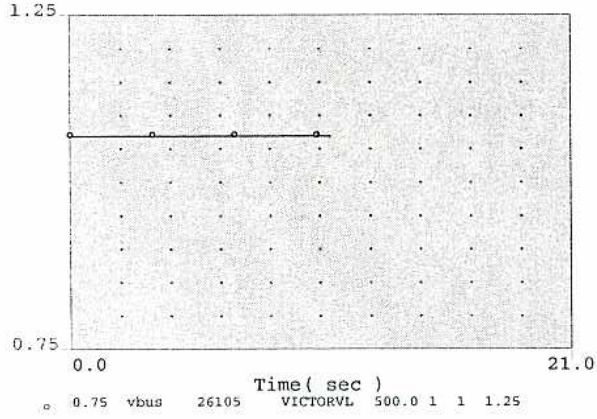












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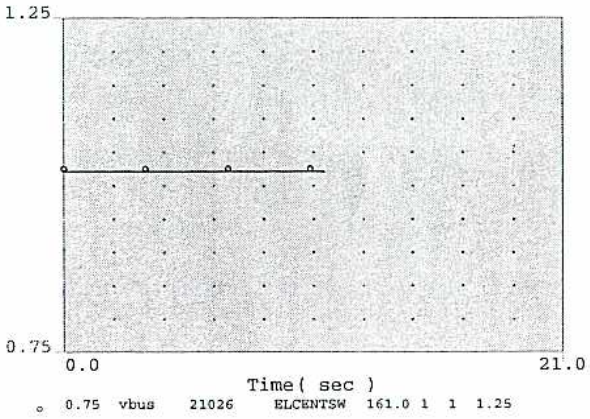

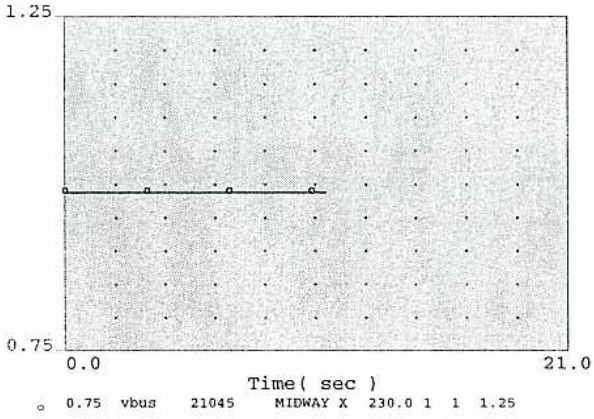

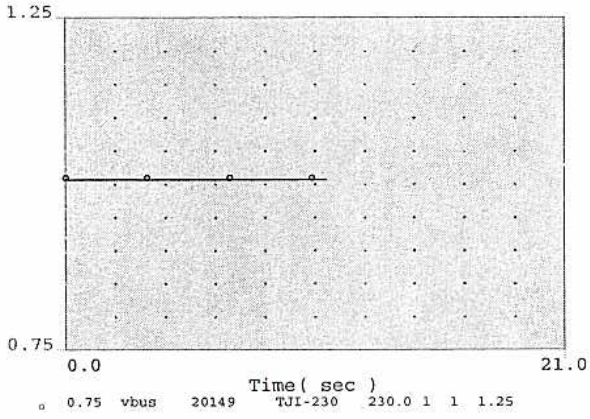

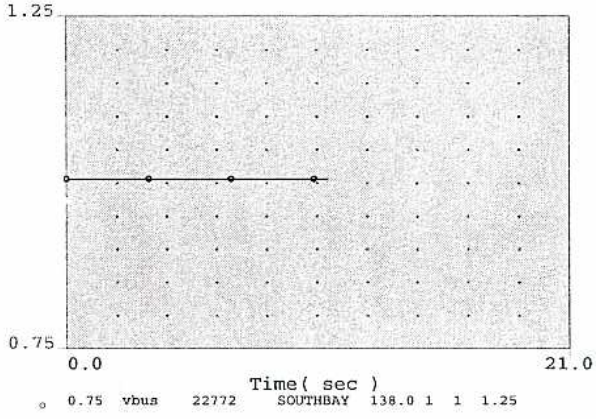

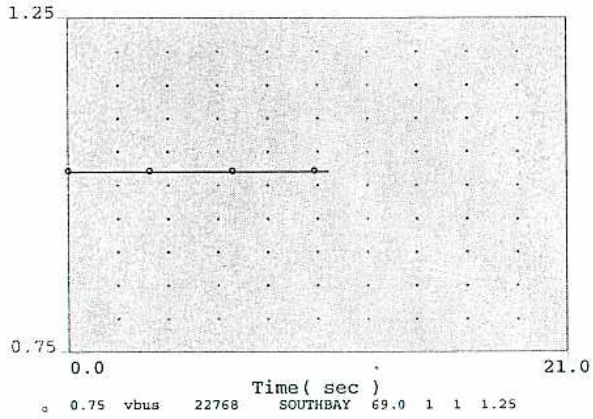

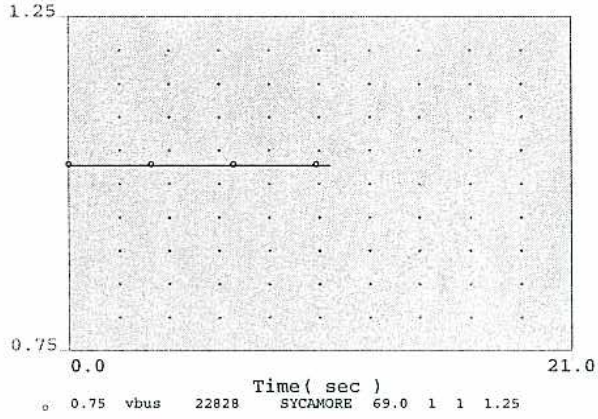

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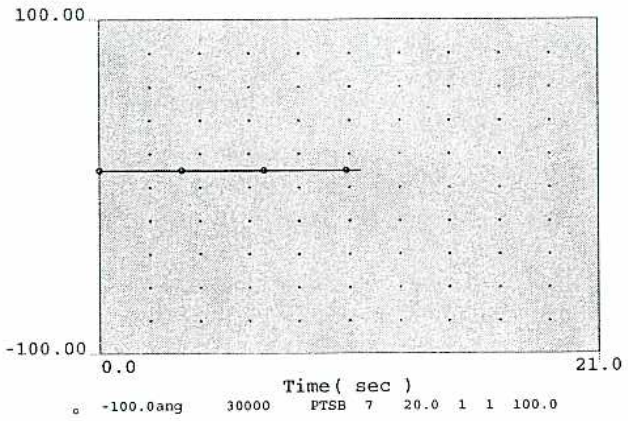
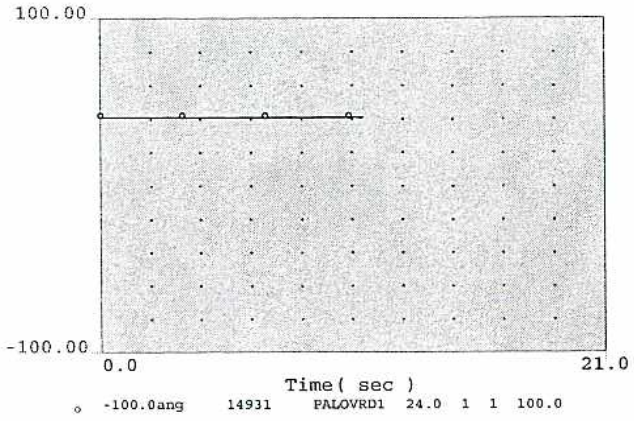
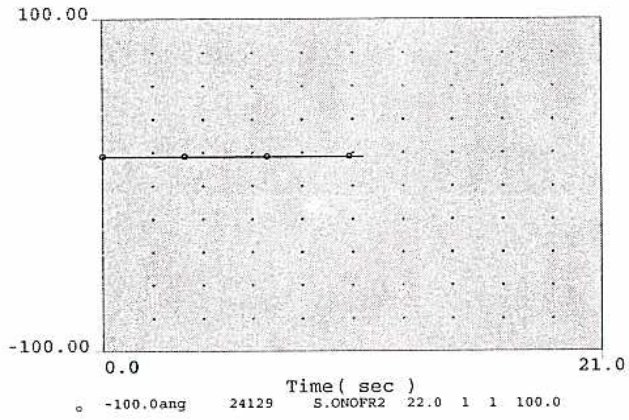
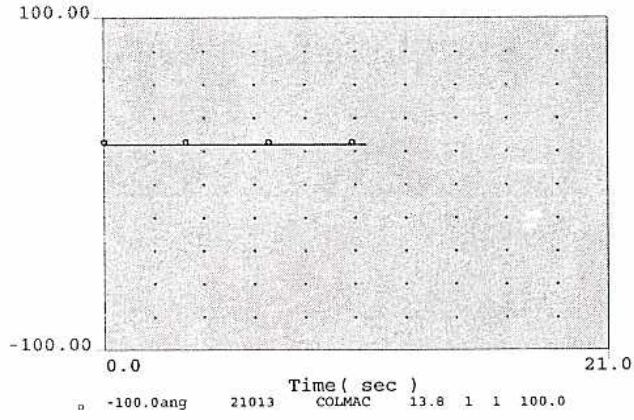
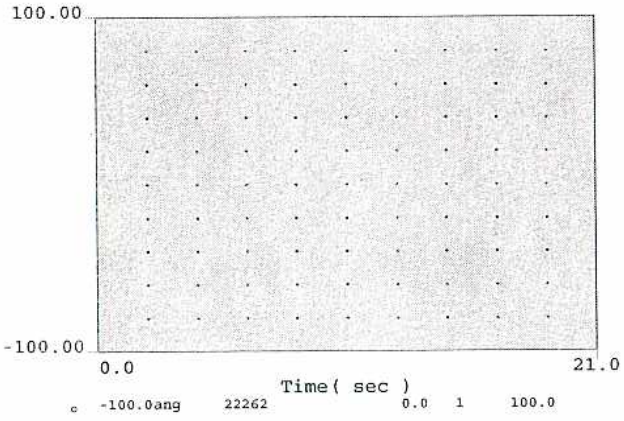
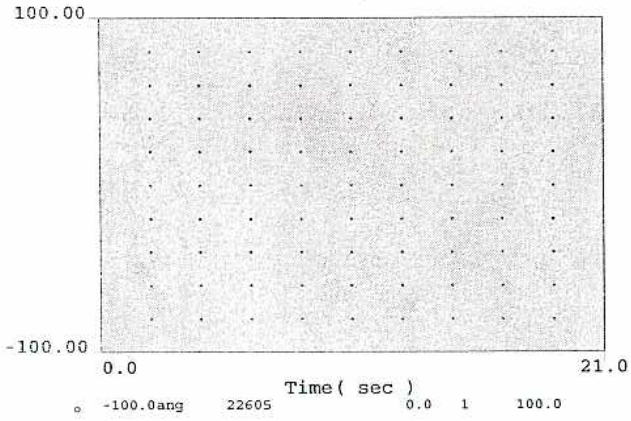




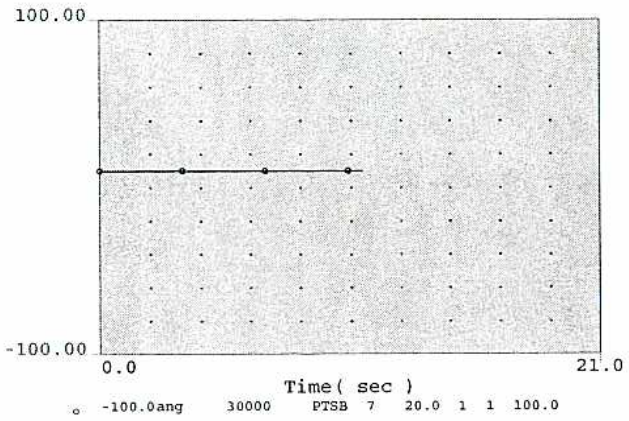


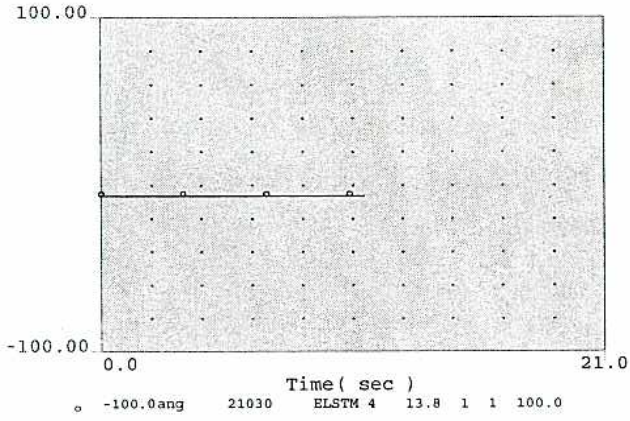


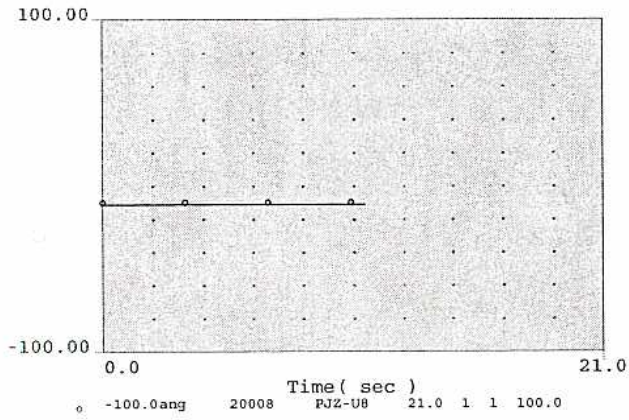


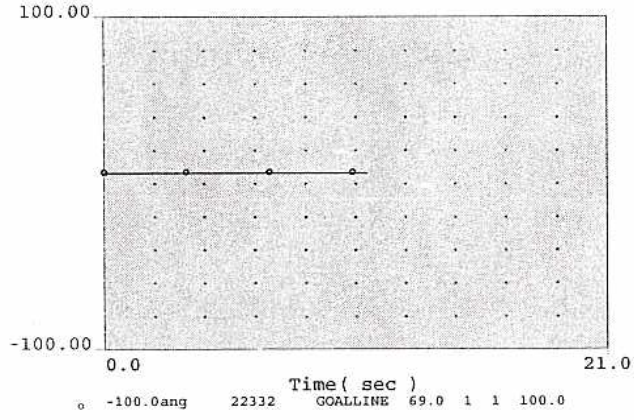


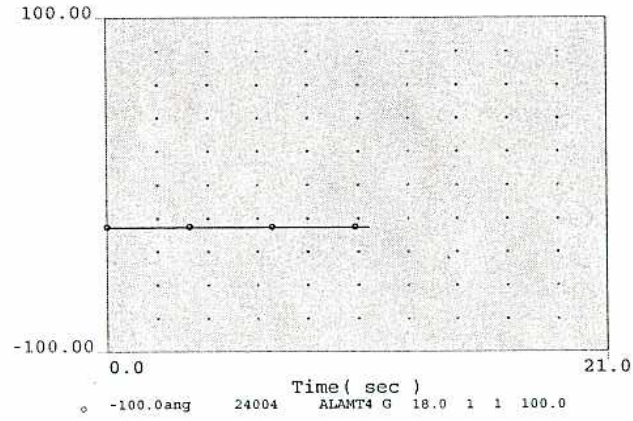
ENPEX IFAS
Off-peak load, Post-project

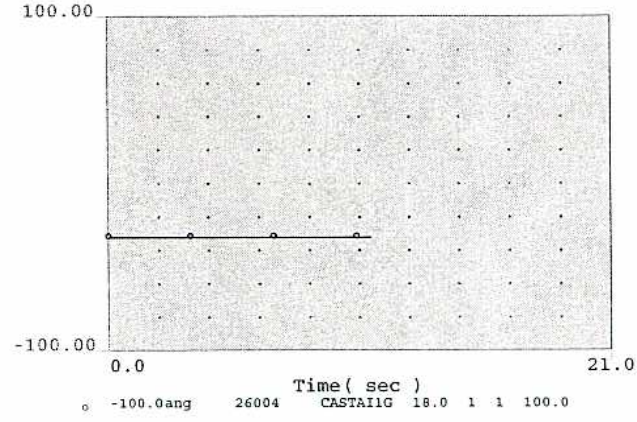




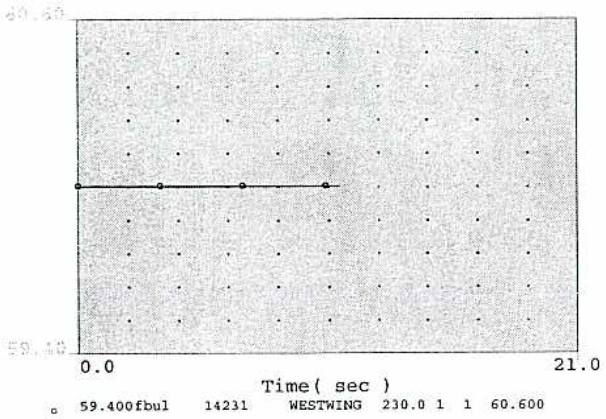








ENPEX IFAS
Off-peak load, Post-project



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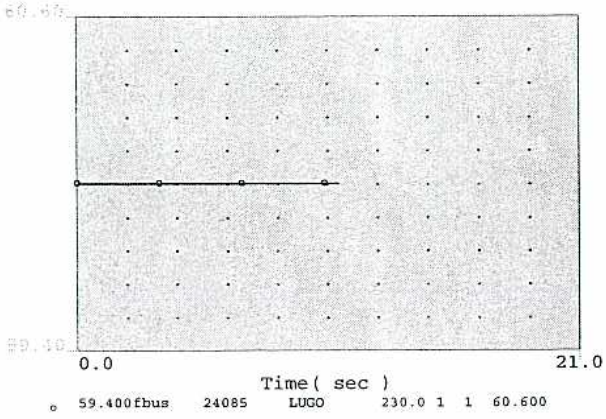
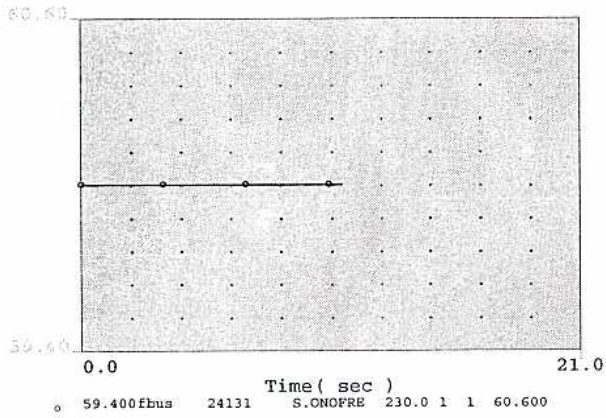


59.400fbus 24085 LUGO 230.0 1 1 60.600



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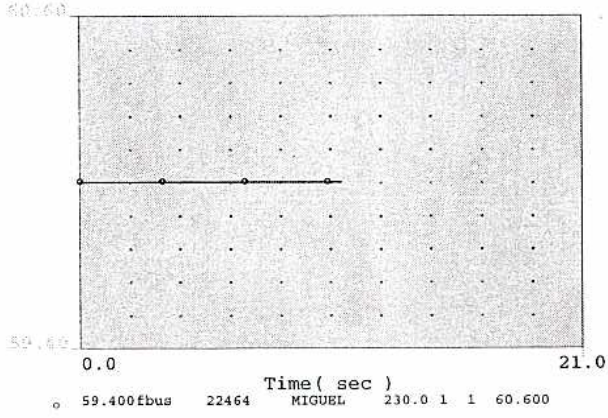

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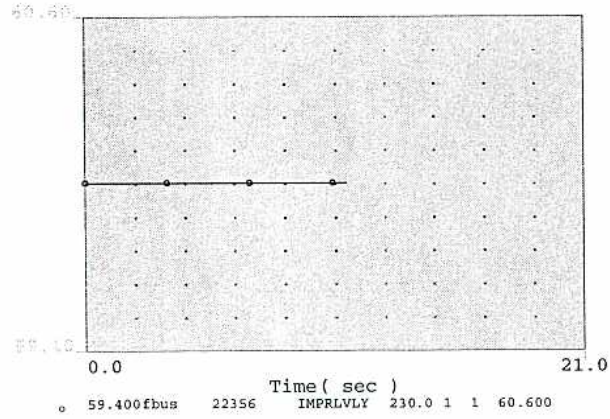

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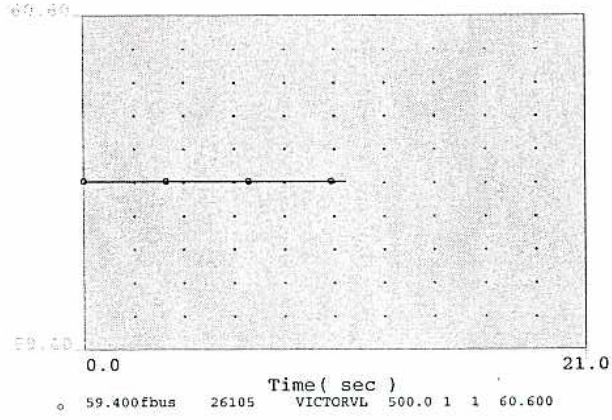
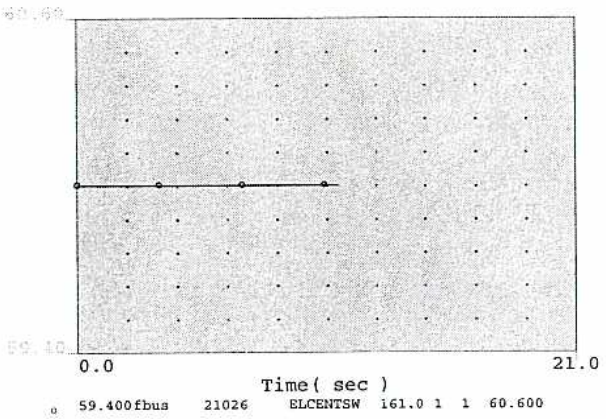
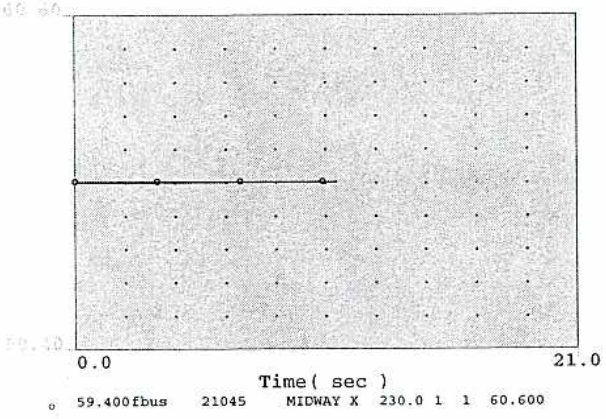
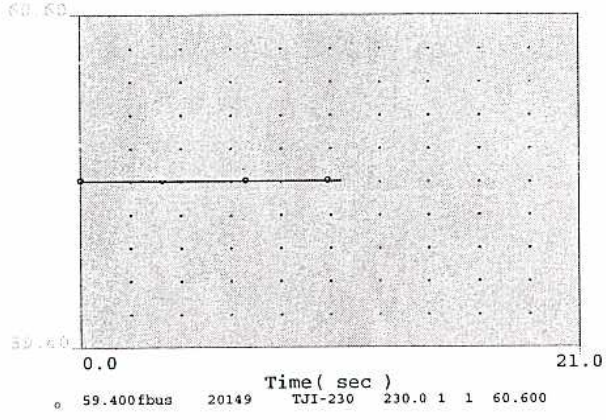


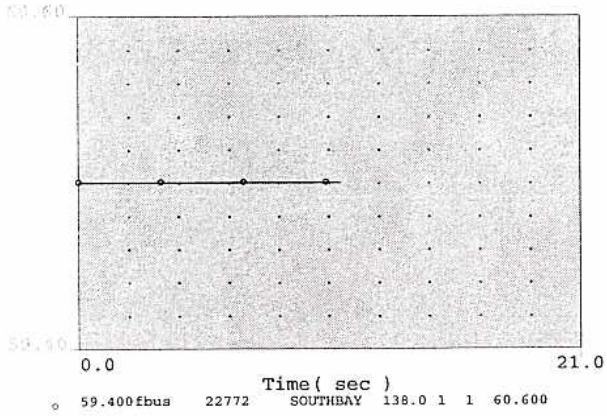
59.400fbus 26105 VICTORVL 500.0 1 1 60.600

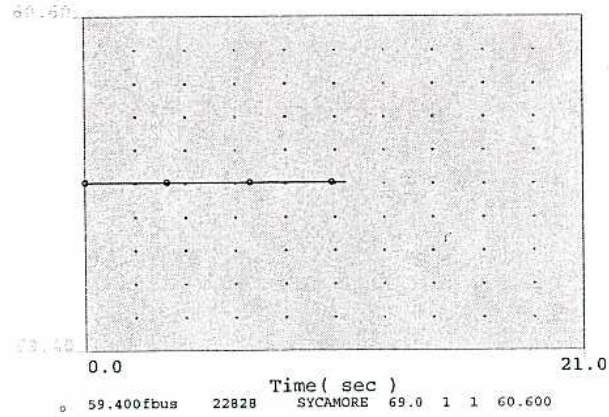
ENPEX IFAS
Off-peak load, Post-project

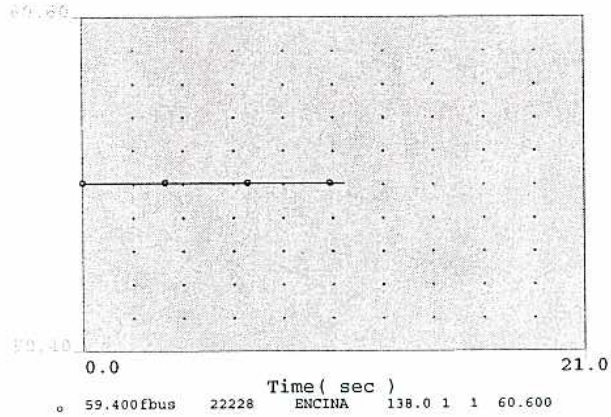




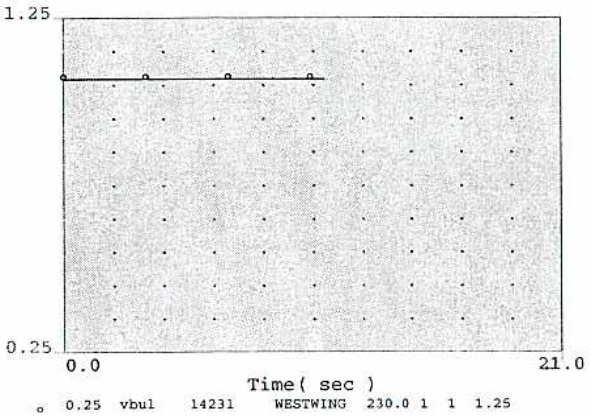


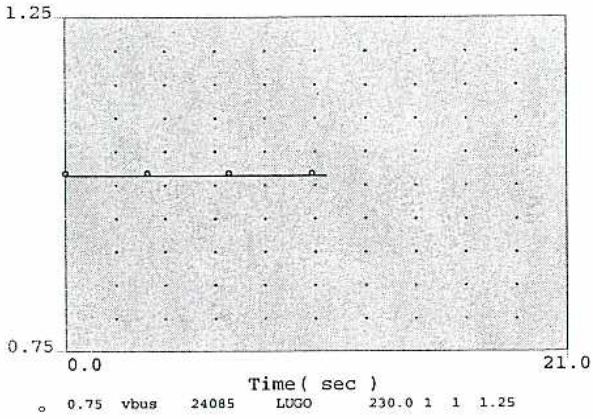


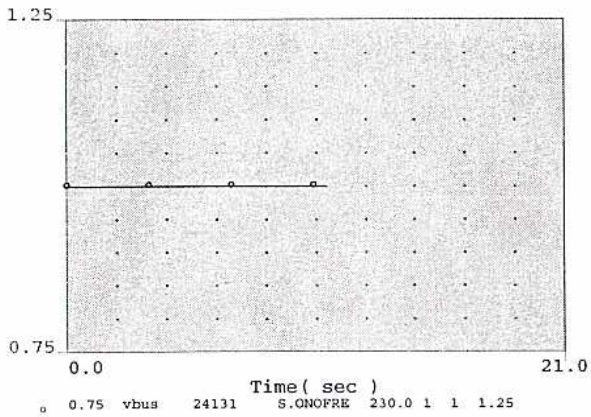


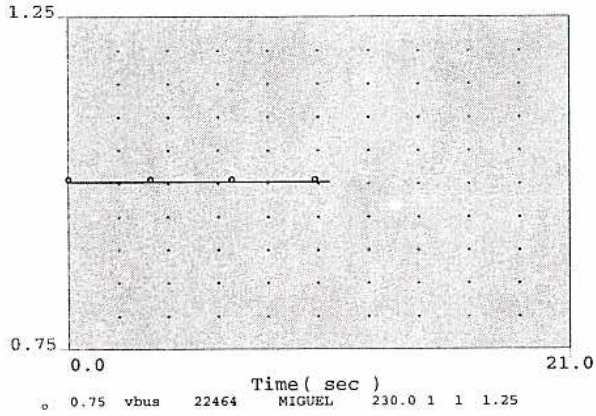


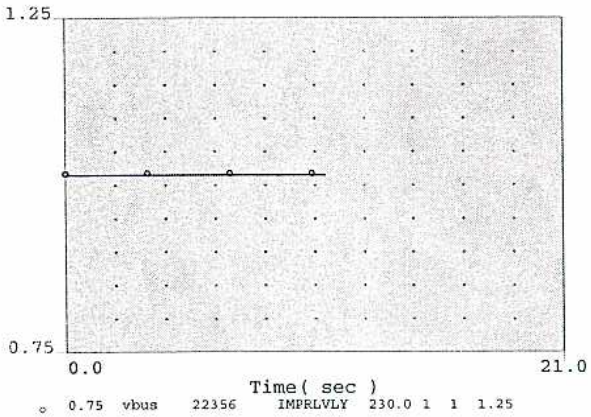
ENPEX IFAS
Off-peak load, Post-project

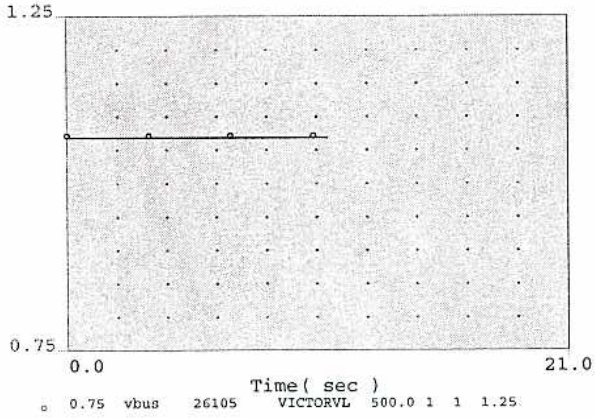




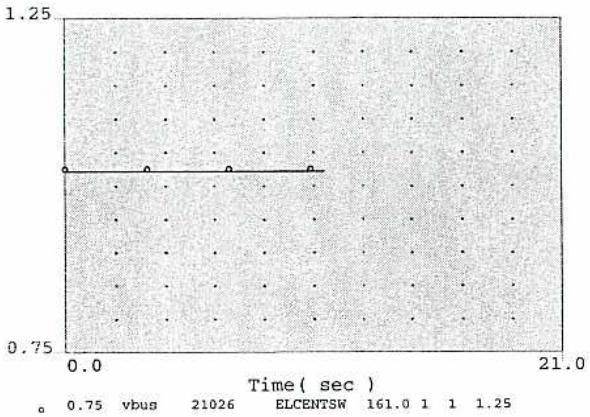


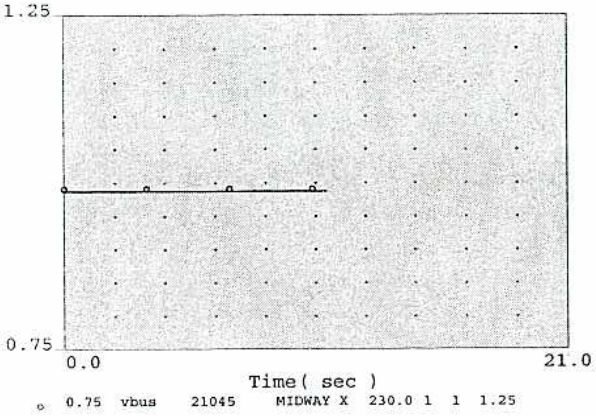


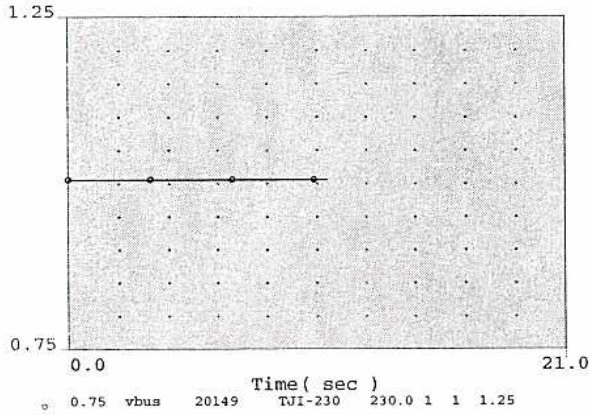


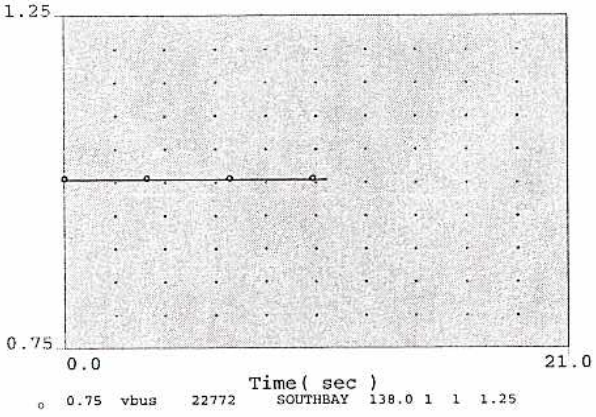


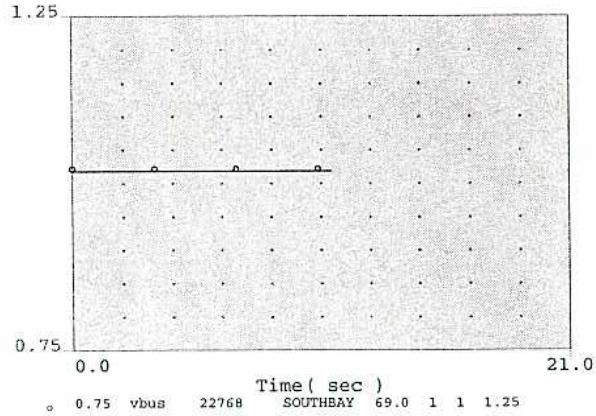
ENPEX IFAS
Off-peak load, Post-project

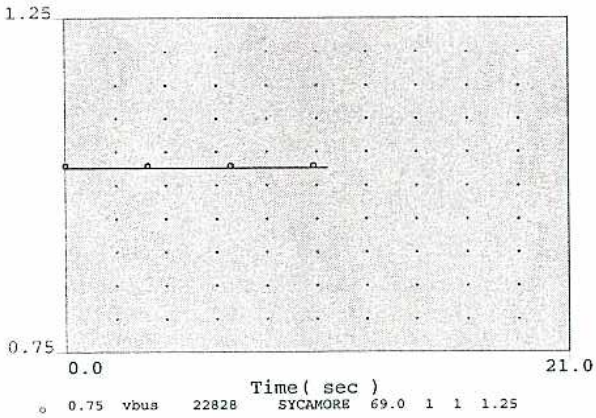








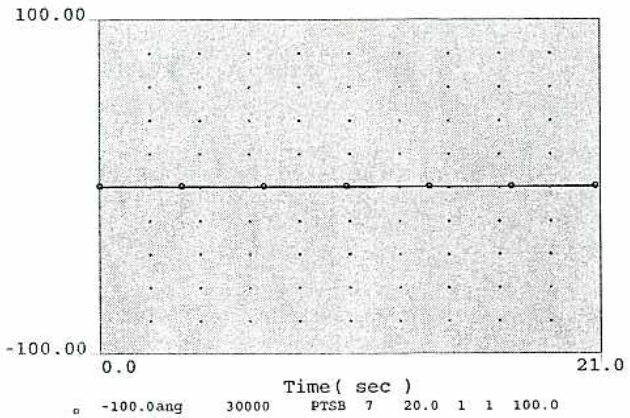




ENPEX IFAS
Off-peak load, Post-project

Peak Load Contingency Simulations

20 Second Run Time



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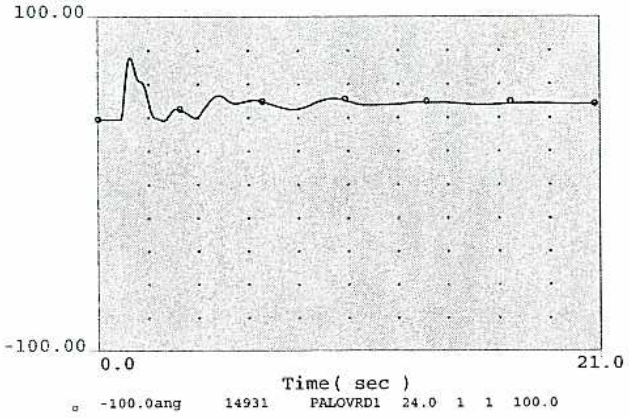

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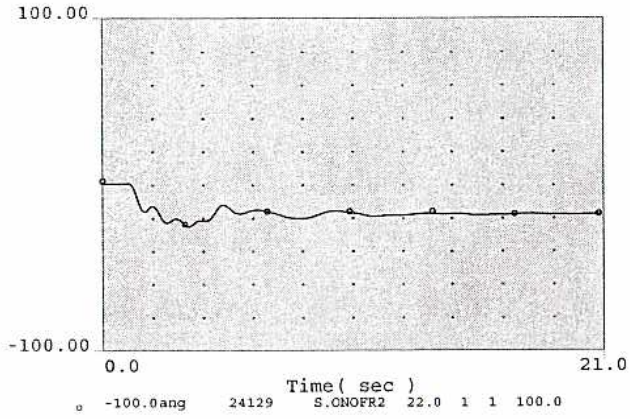

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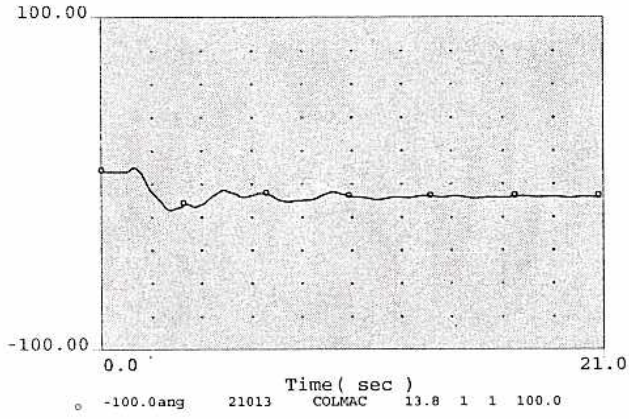

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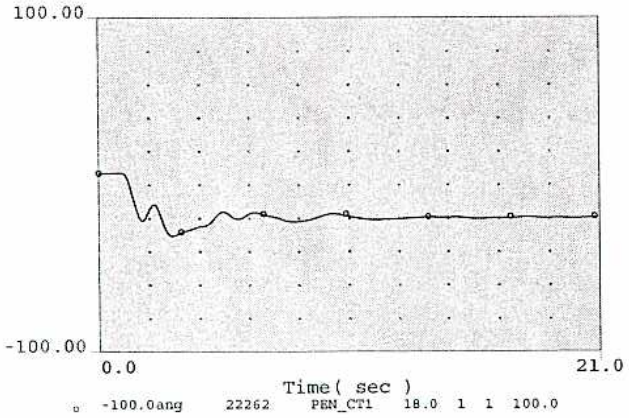

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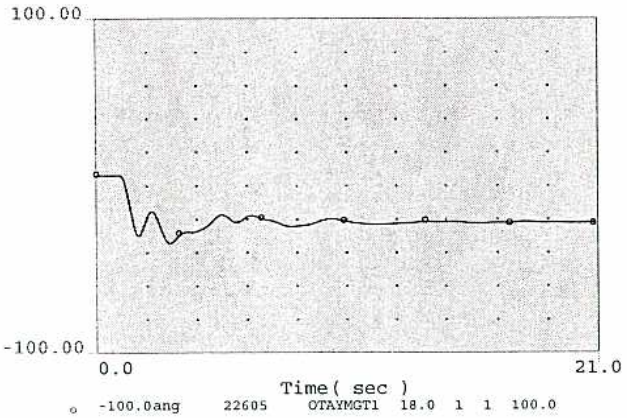

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Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's

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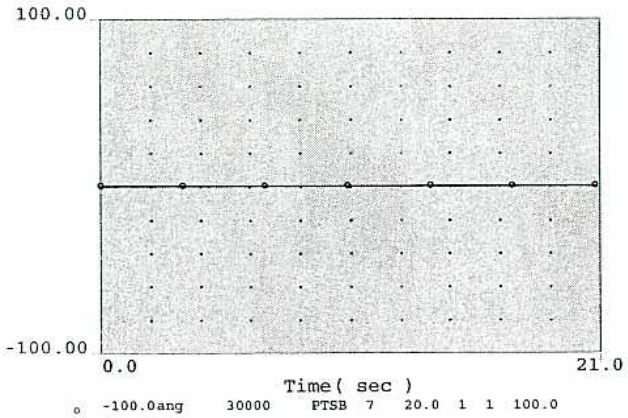

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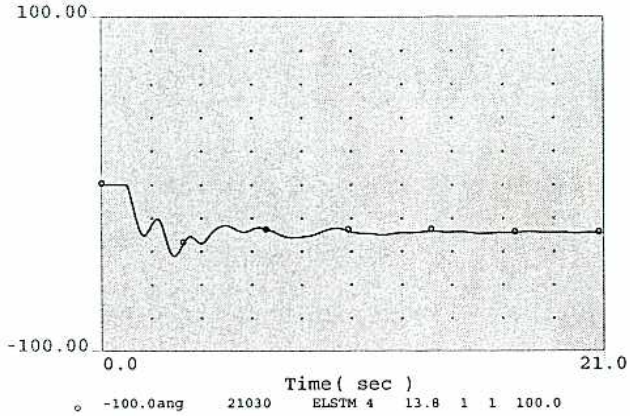

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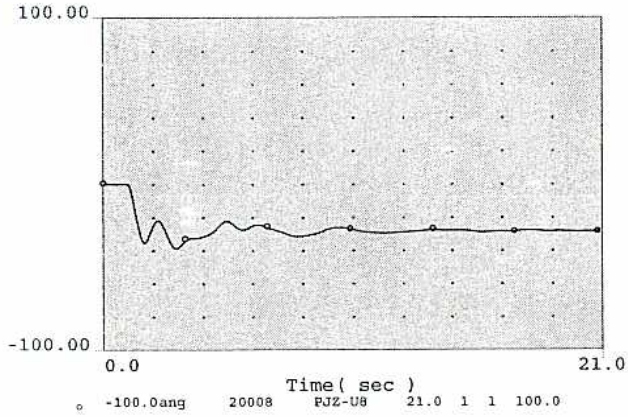

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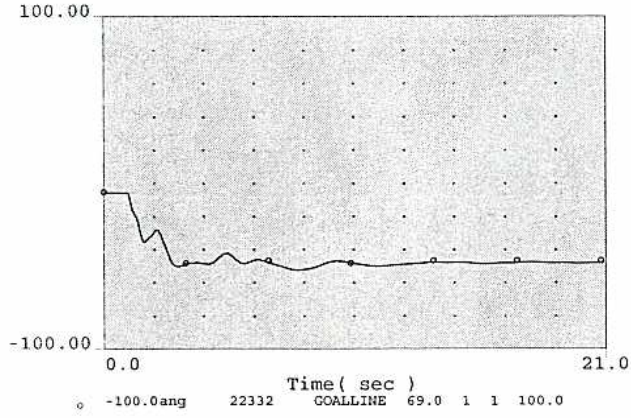

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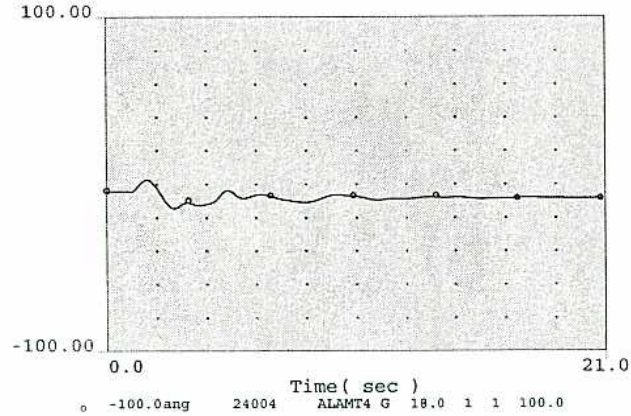

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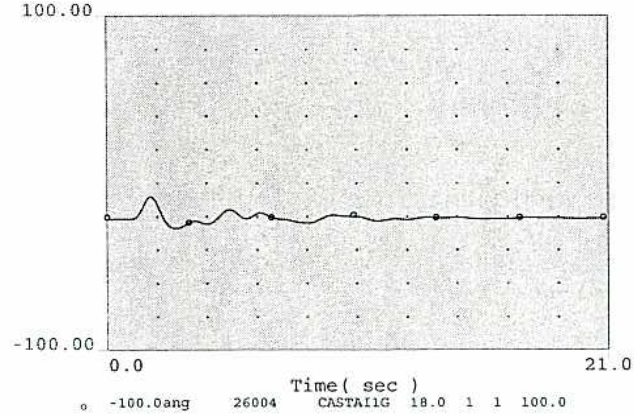

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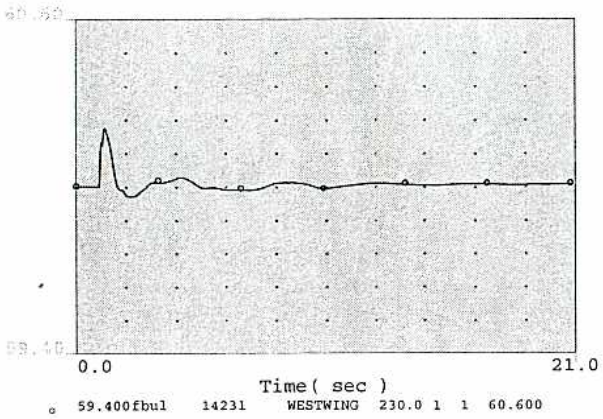
Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's



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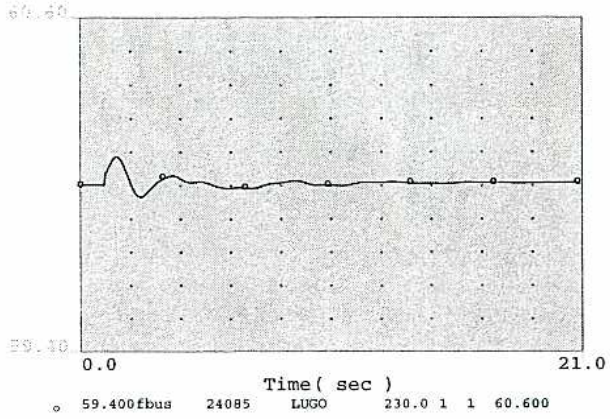

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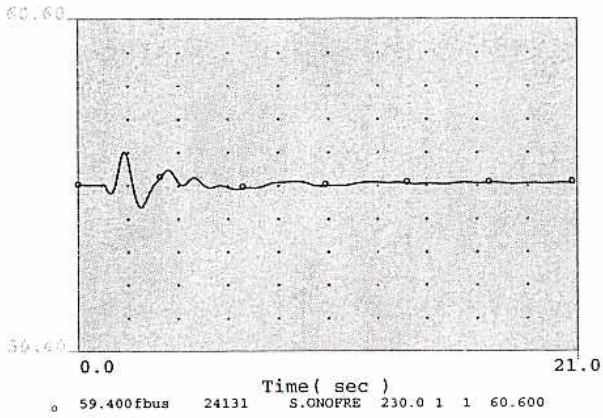

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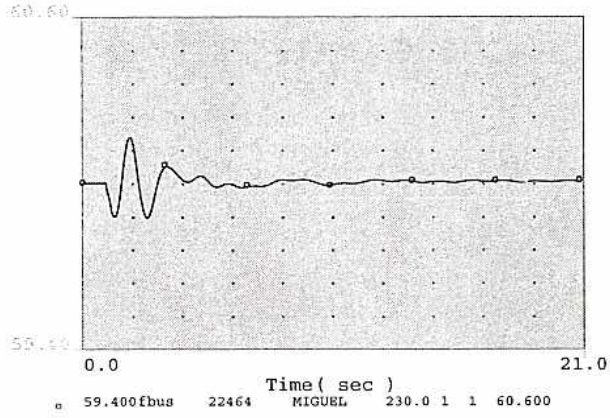

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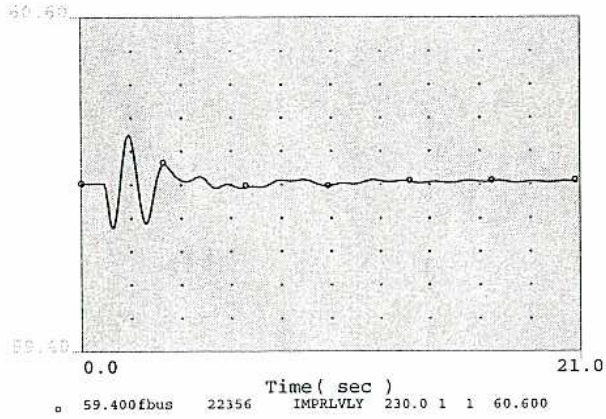

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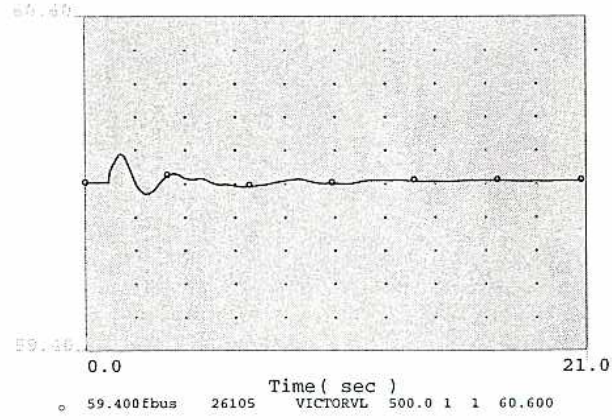

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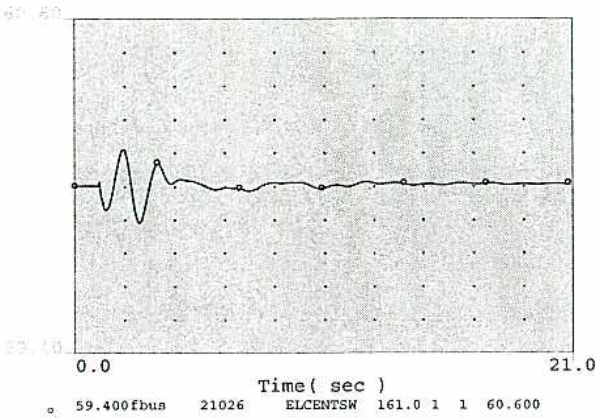
Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's



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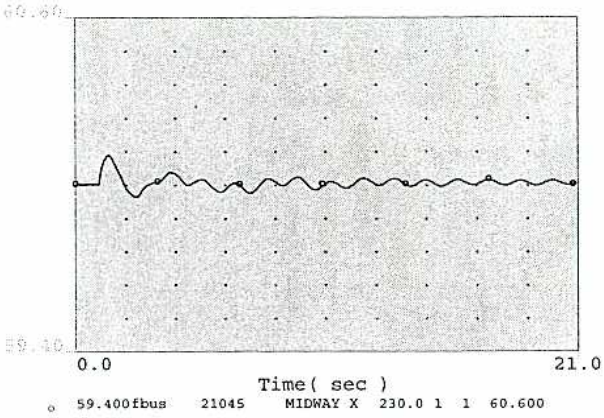

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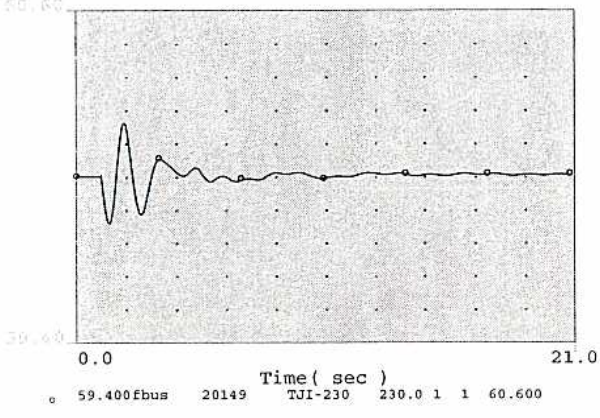

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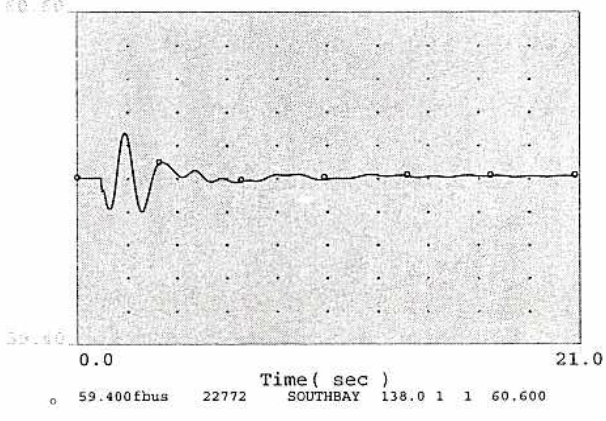

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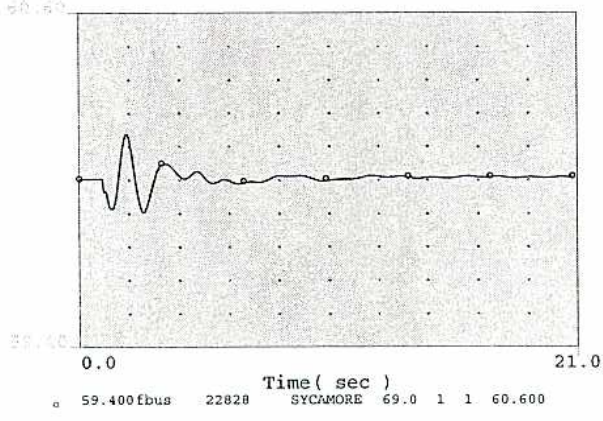

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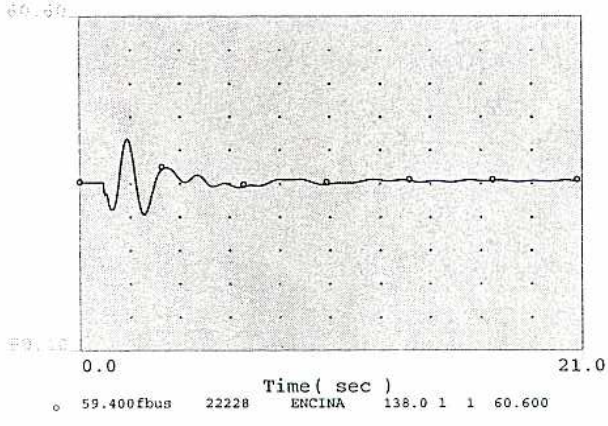

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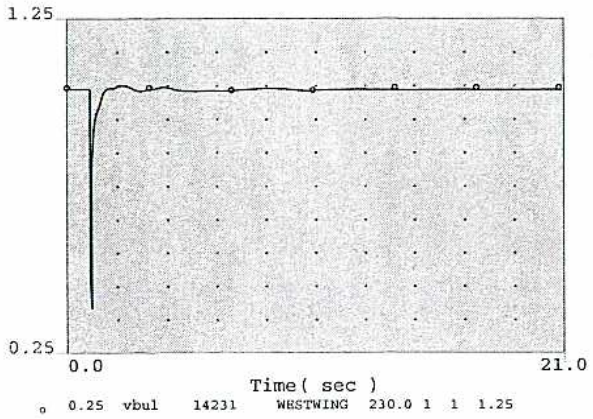
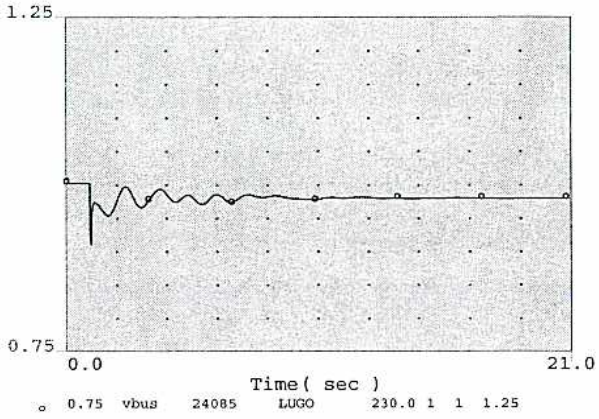
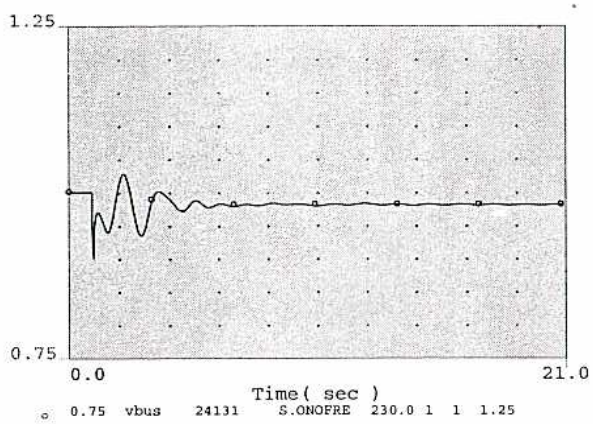
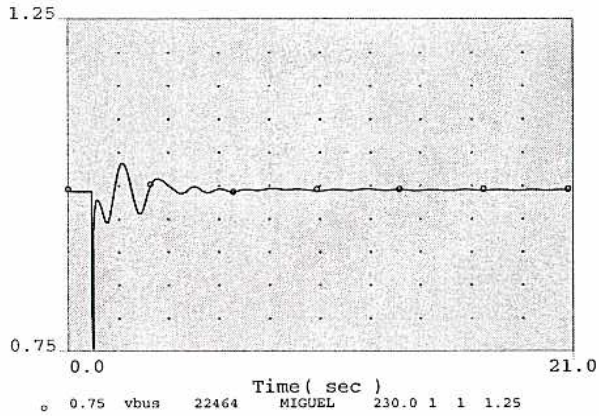
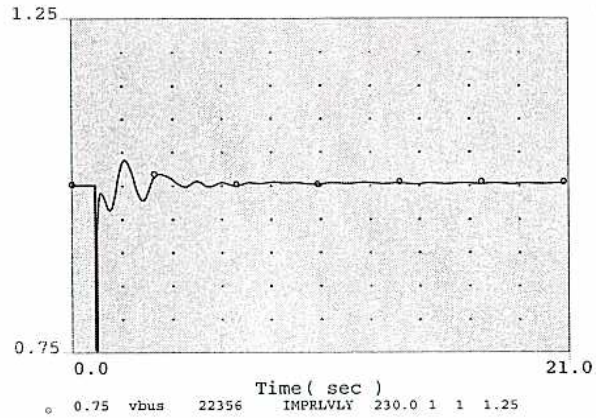
Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's

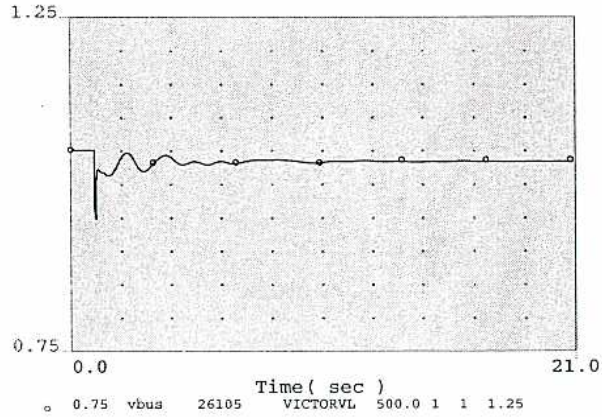




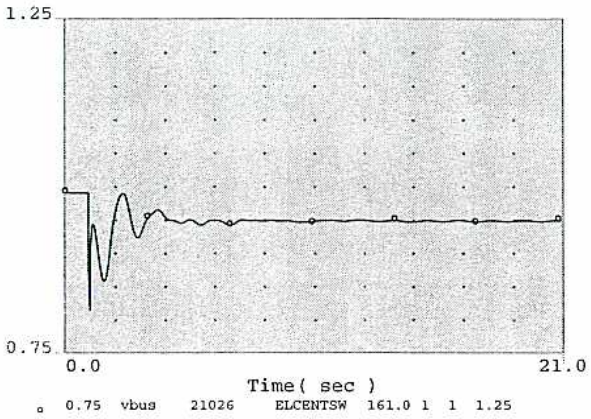


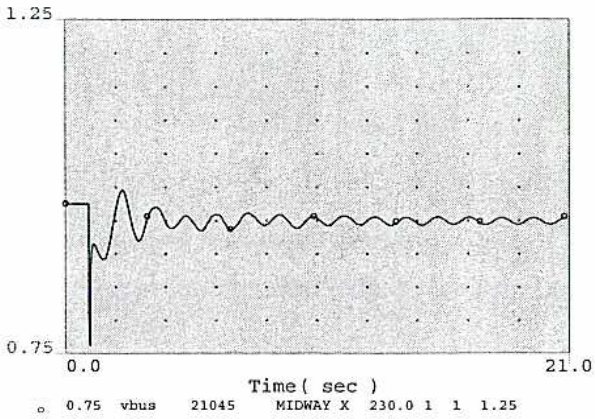


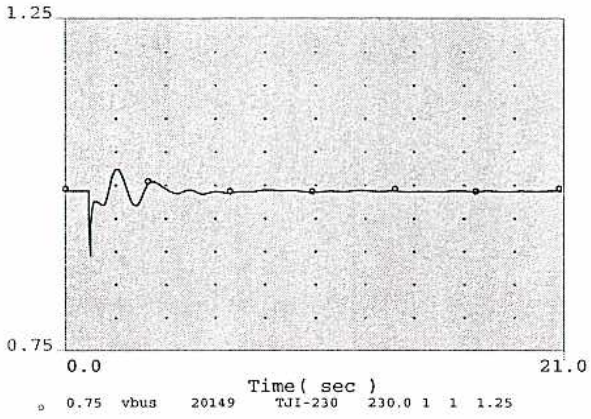


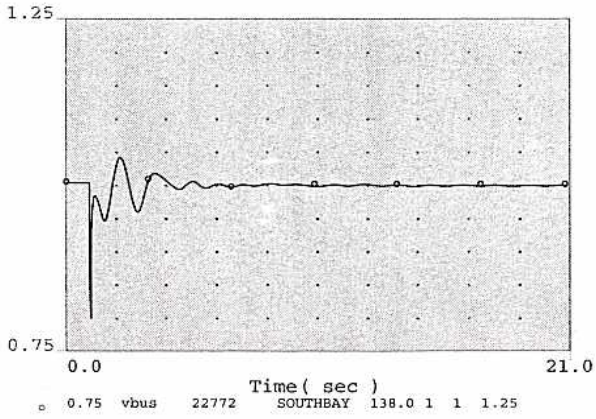


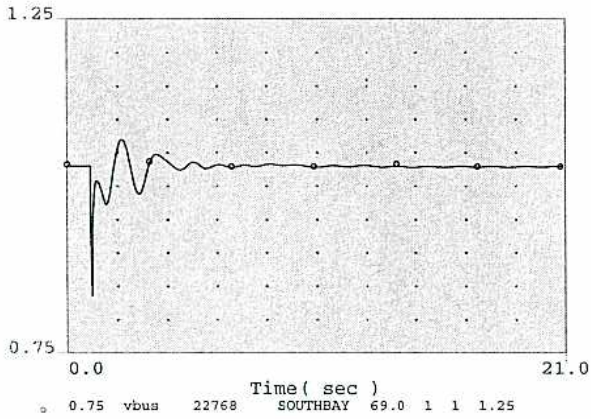
Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's

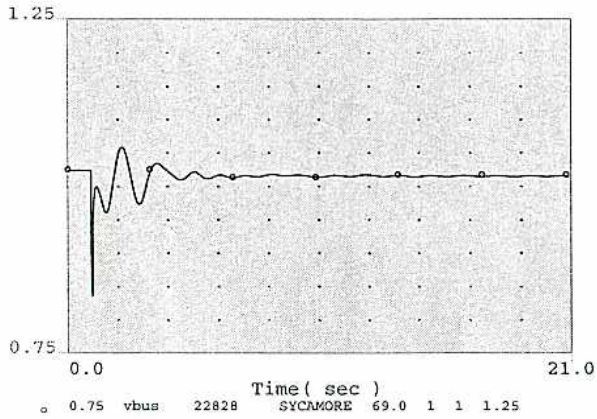




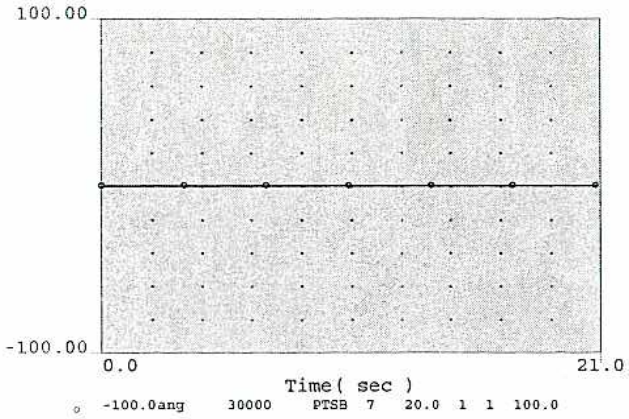








Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's



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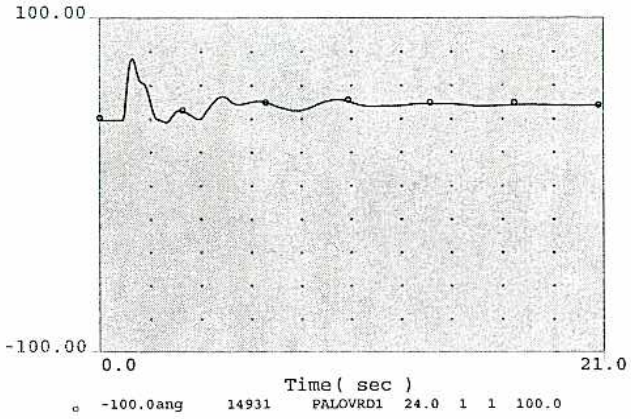

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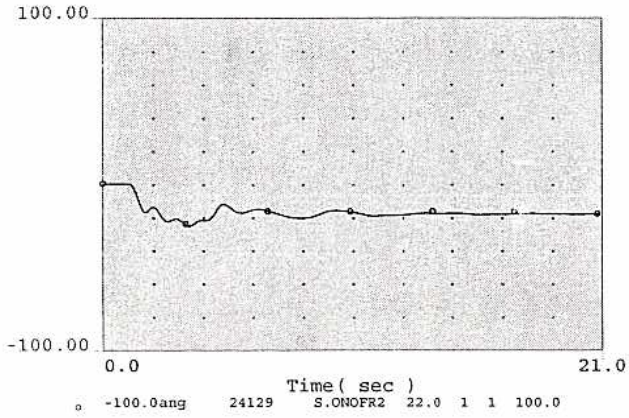

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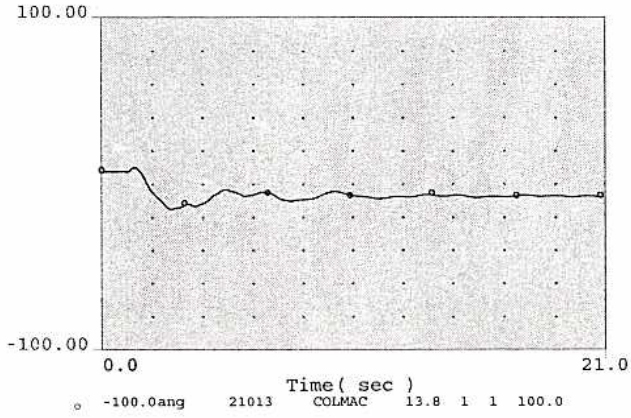

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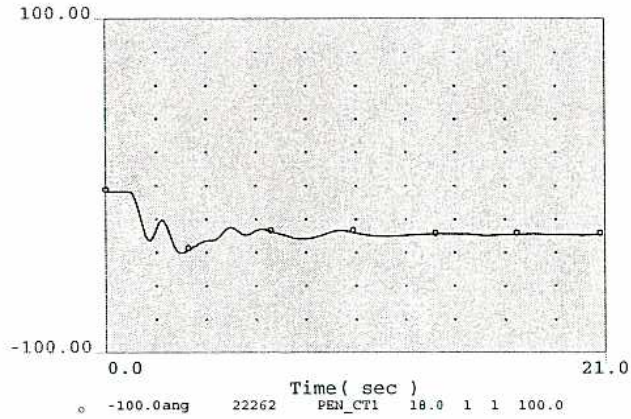

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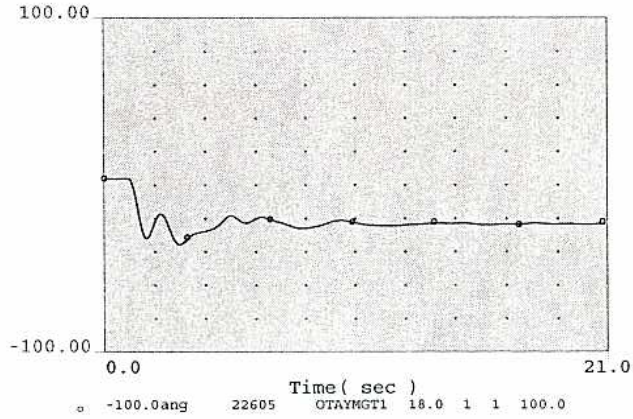

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Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's

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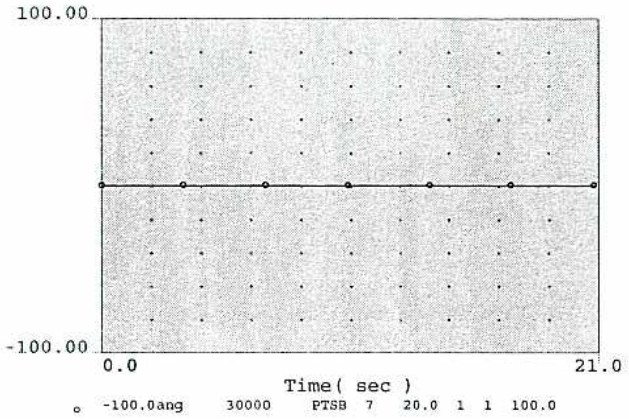

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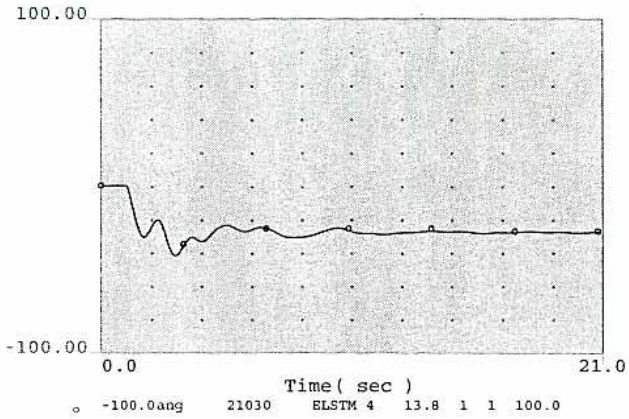

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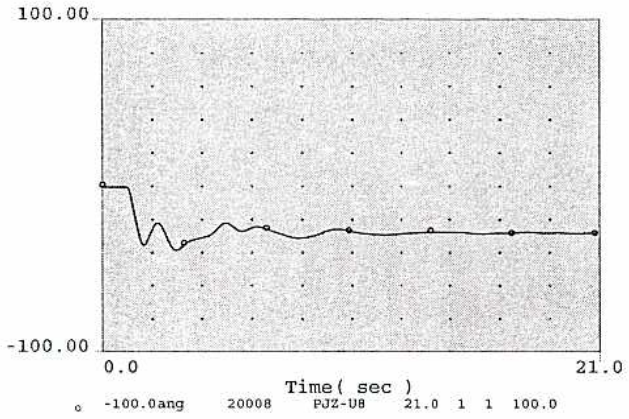

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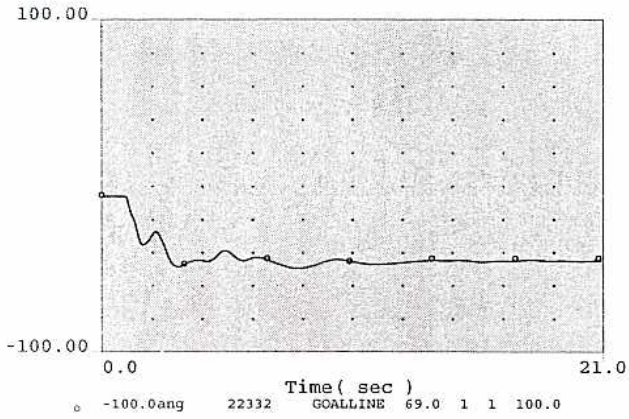

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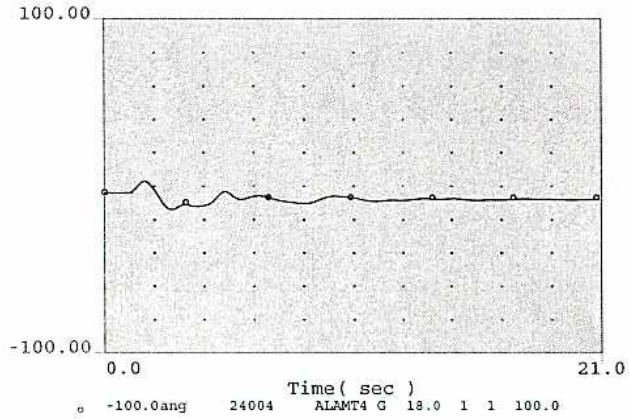

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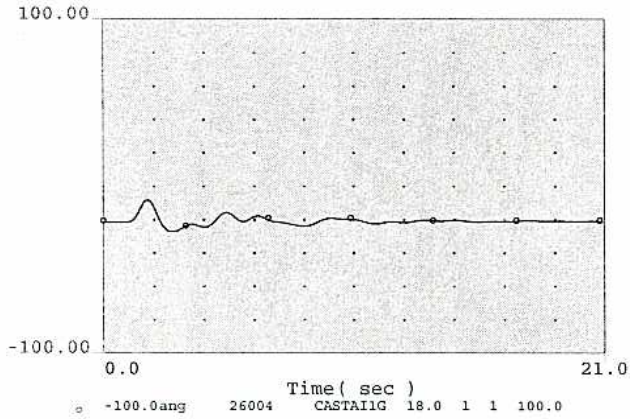

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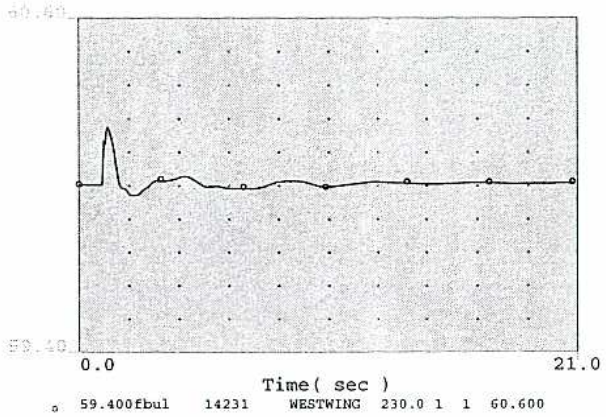
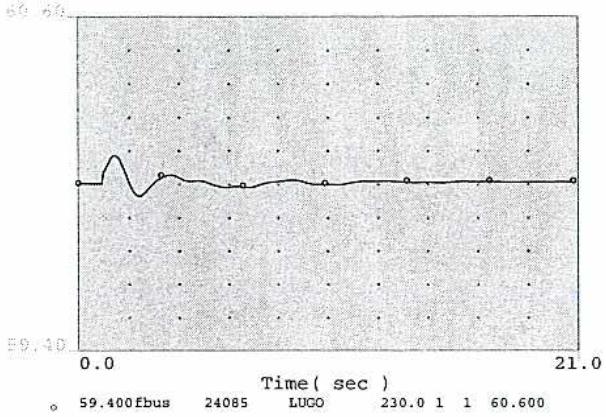
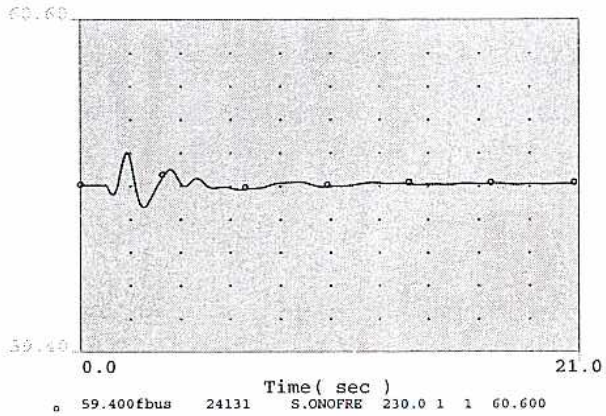
Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's



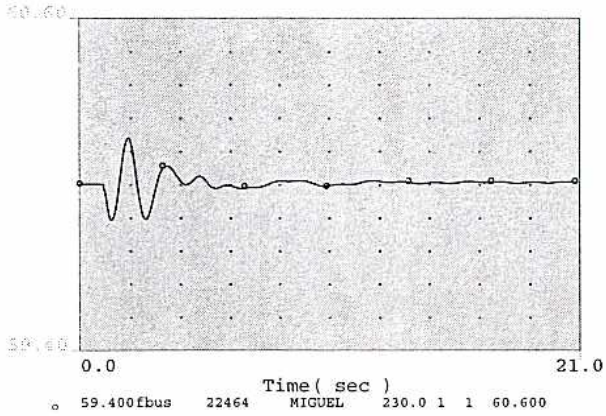
59.400fbul 14231 WESTWING 230.0 1 1 60.600



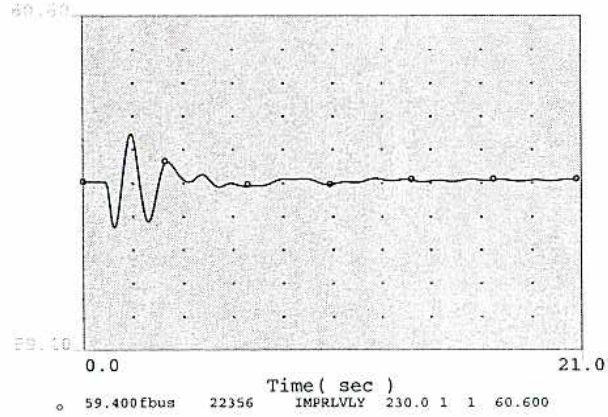
59.400fbus 24085 LUGO 230.0 1 1 60.600



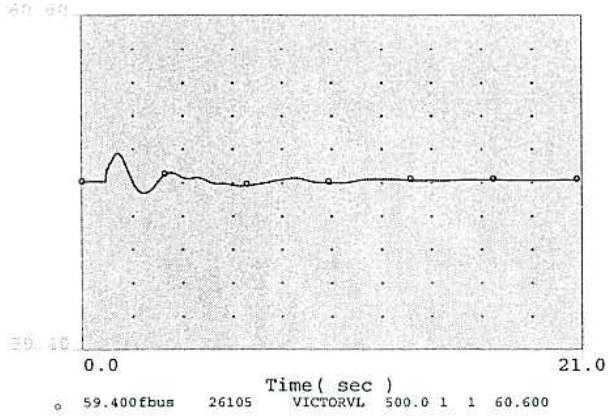
59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



59.400fbus 22464 MIGUEL 230.0 1 1 60.600

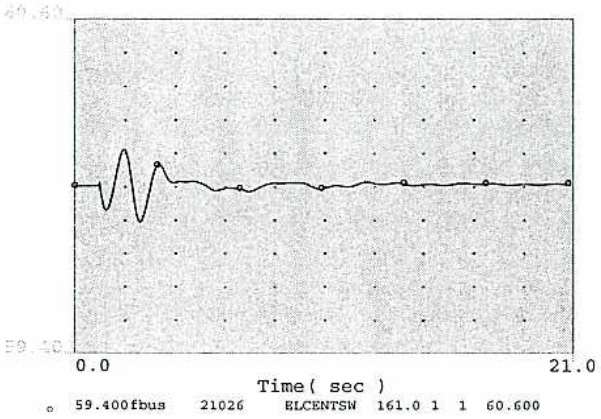


59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

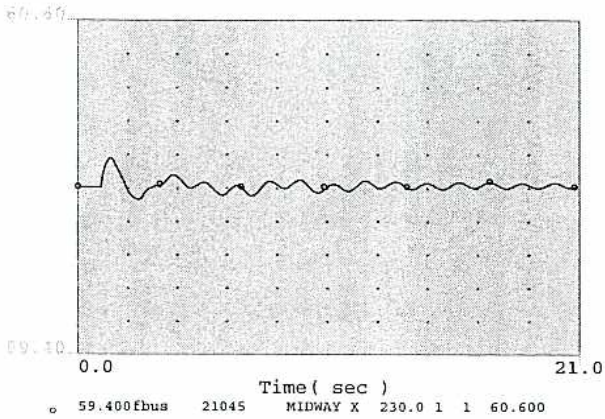


59.400fbus 26105 VICTORVL 500.0 1 1 60.600

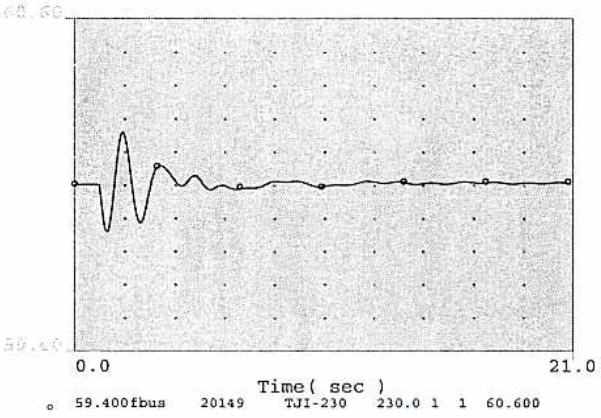
Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's



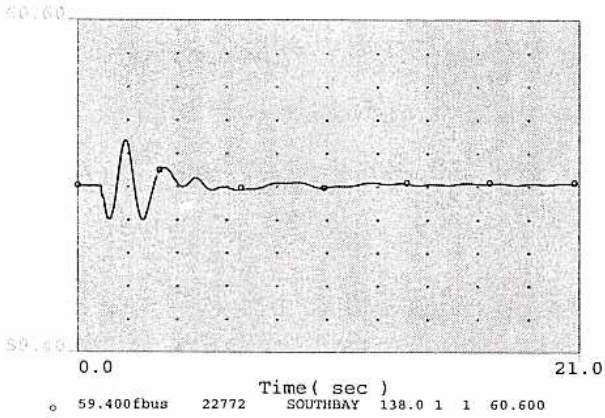
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



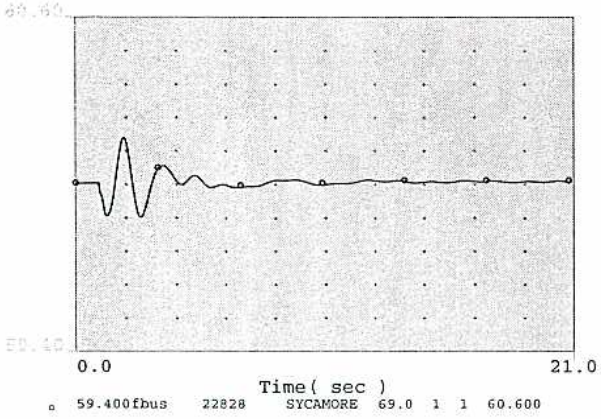
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



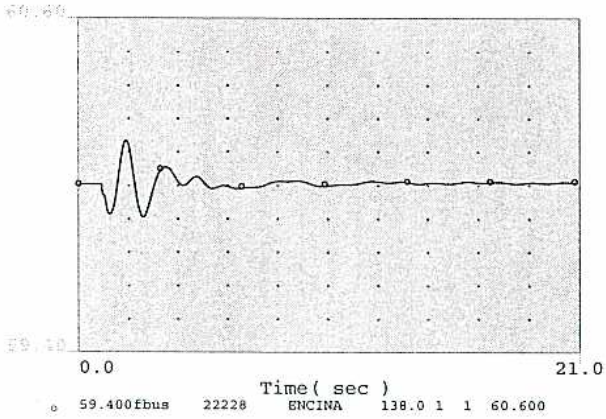
59.400fbus 20149 TJI-230 230.0 1 1 60.600



59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600

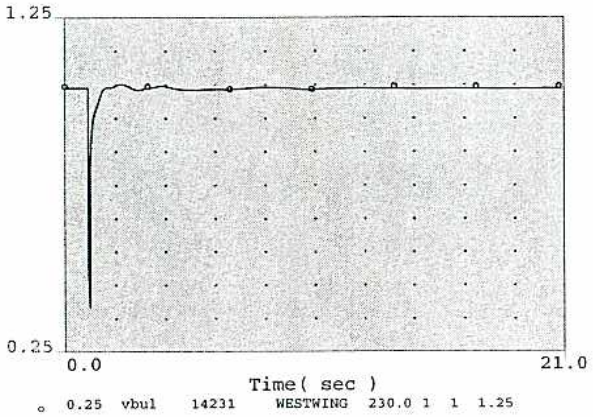


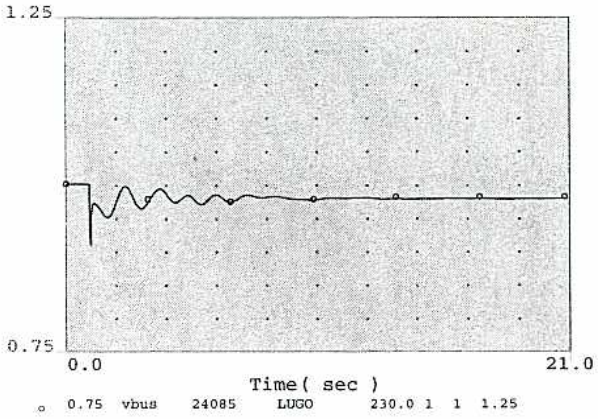
59.400fbus 22828 SYCAMORE 69.0 1 1 60.600

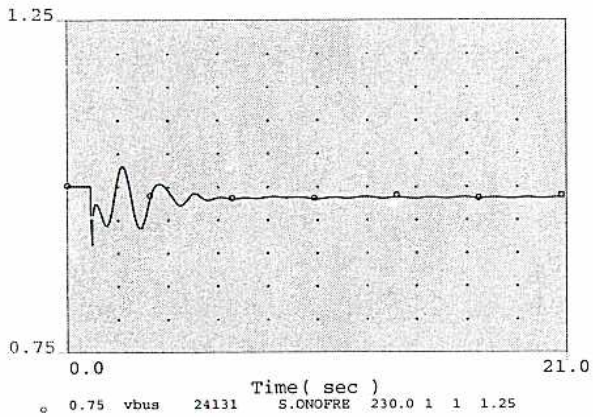


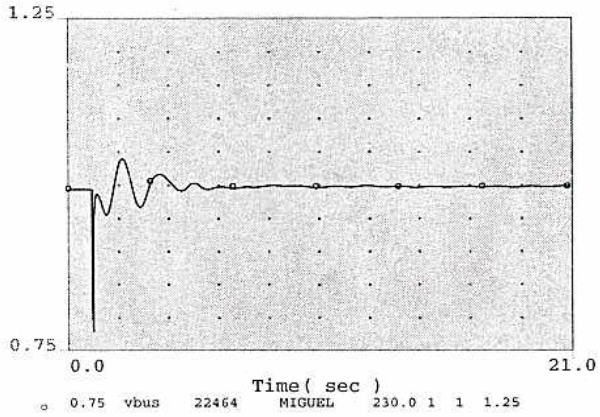
59.400fbus 22228 ENCINA 138.0 1 1 60.600

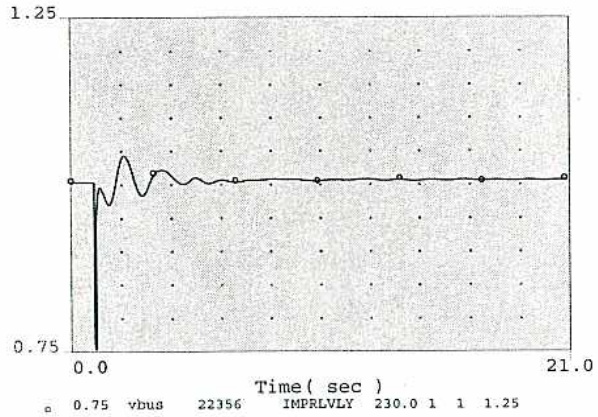
Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's

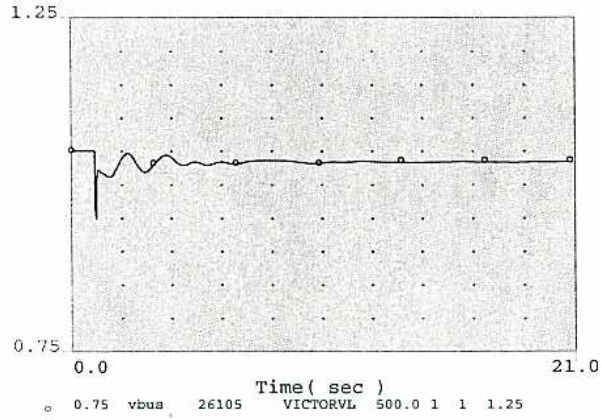




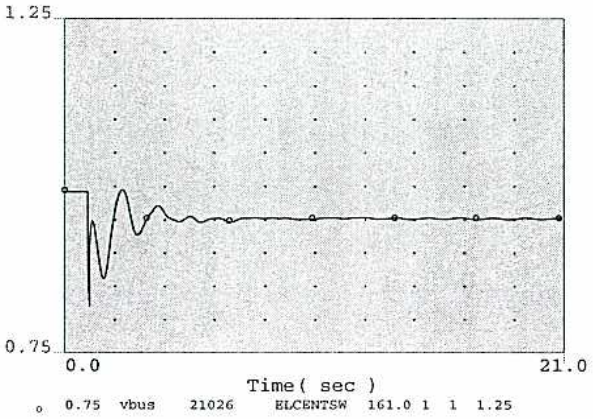


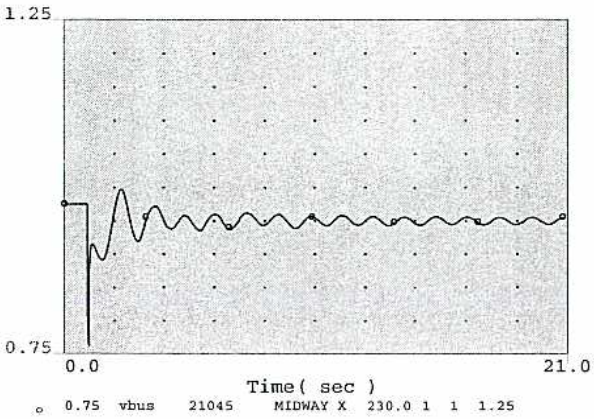


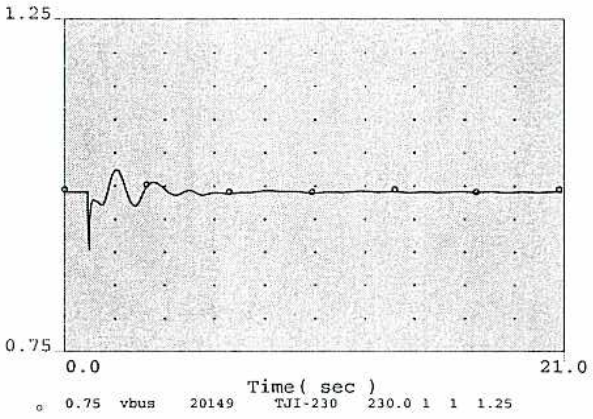


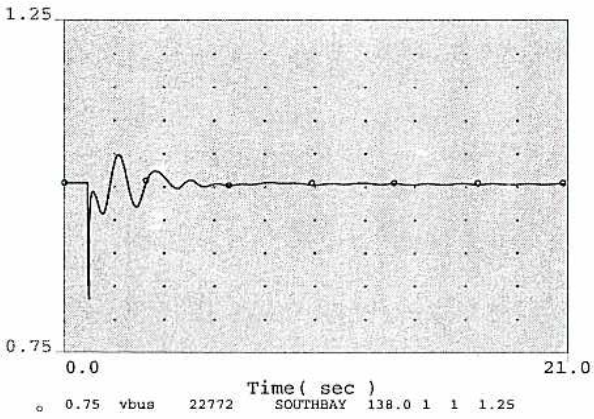


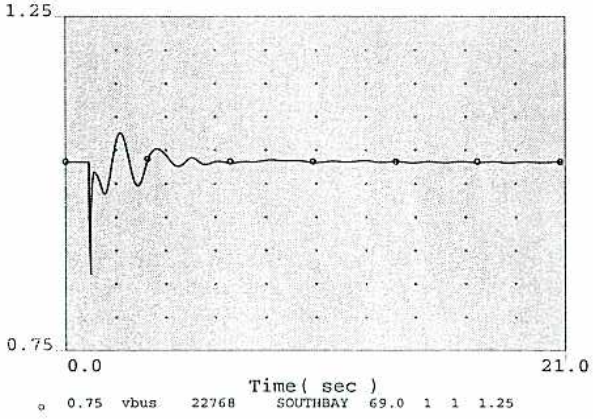
Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's

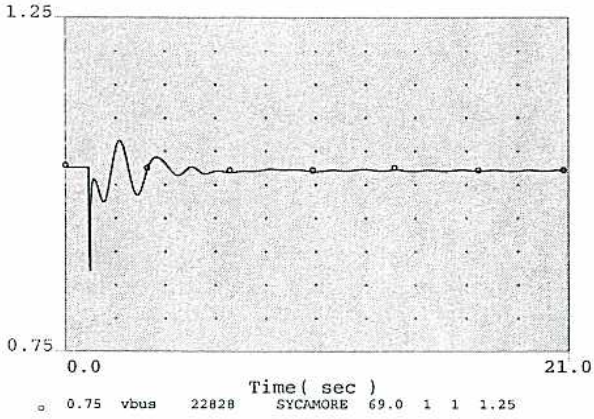




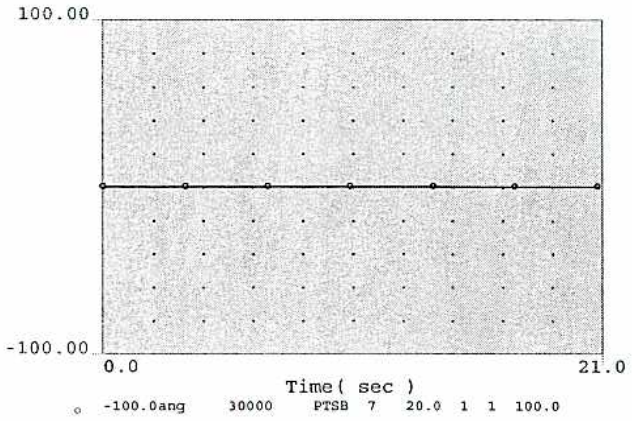








Fault bus at Hassayampa
Trip Hassayampa - N. Gila 500 kV Line
Readjust SCE/Devers SVC's



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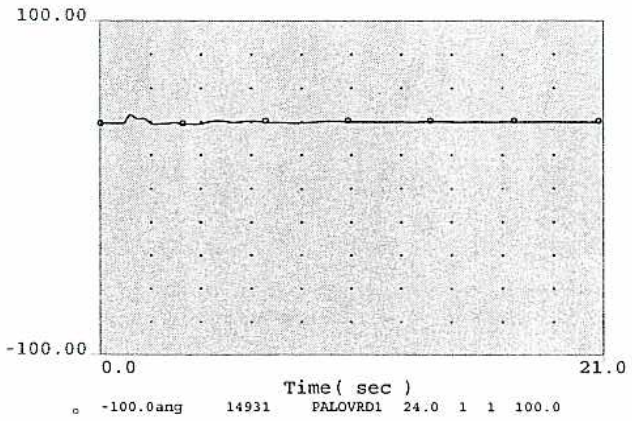

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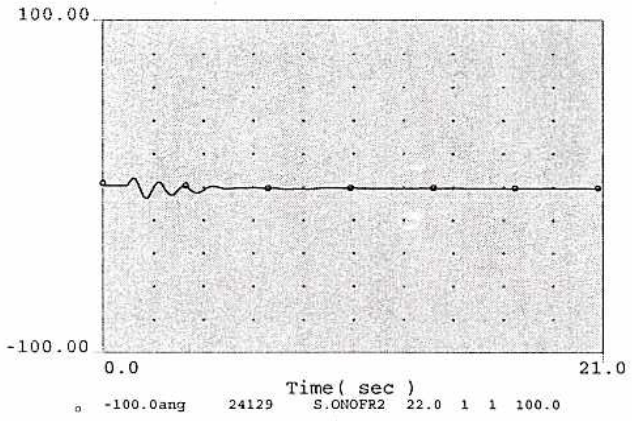

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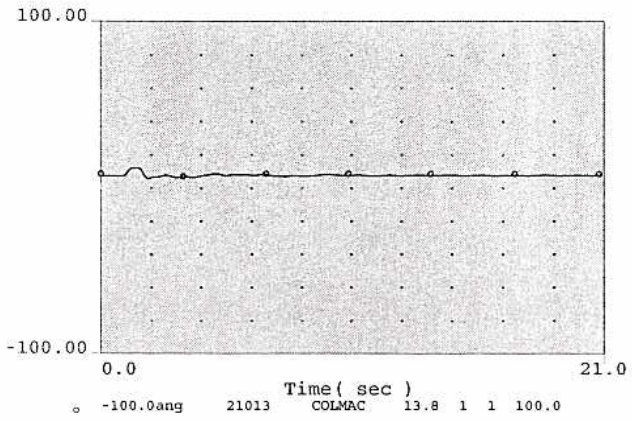

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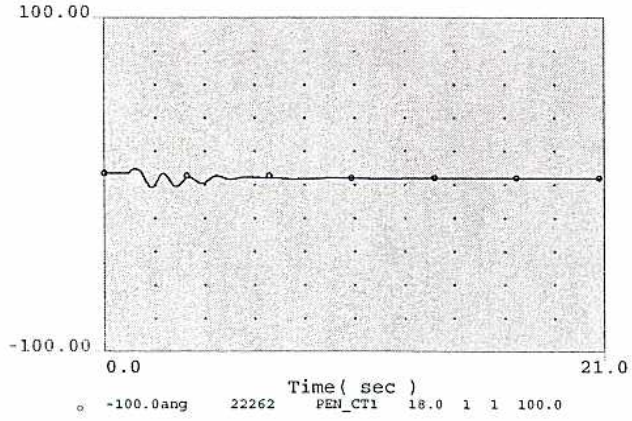

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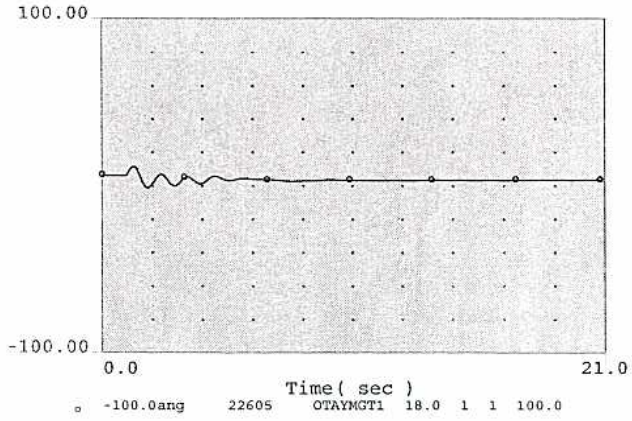

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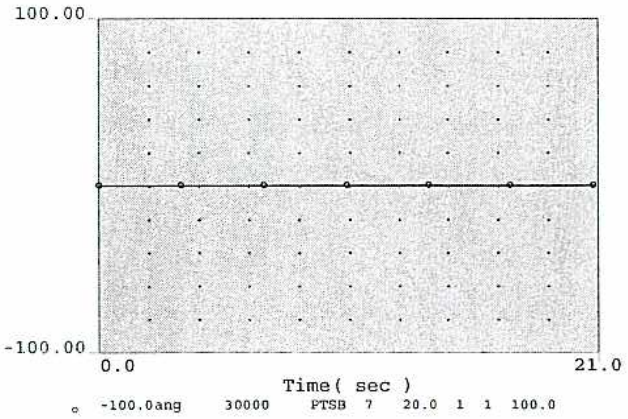
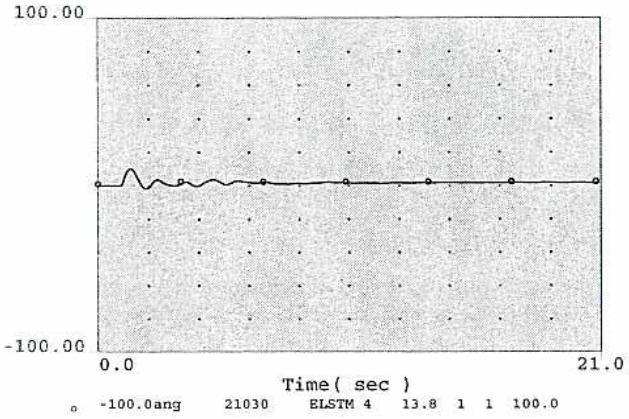
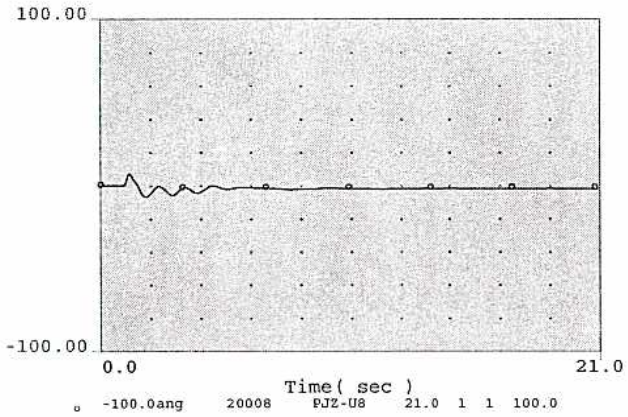
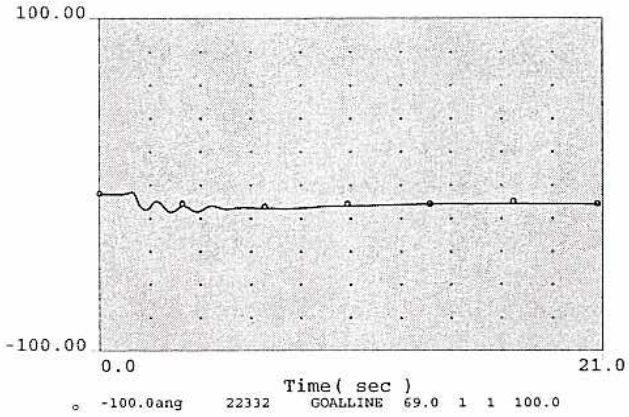
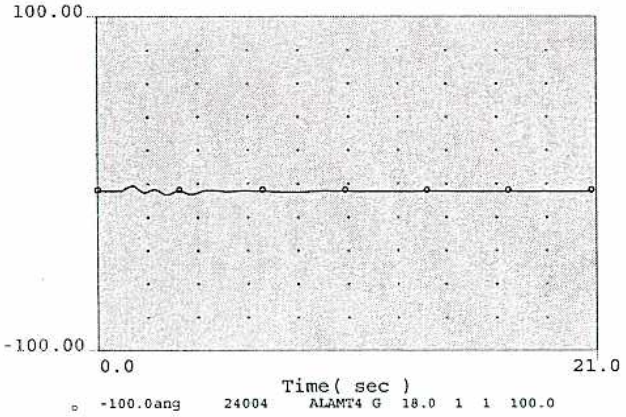
Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line

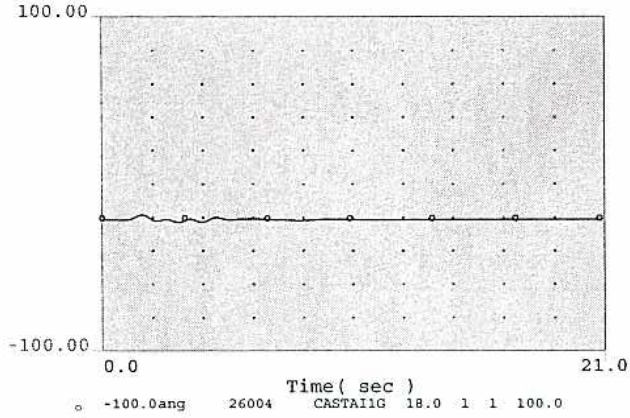




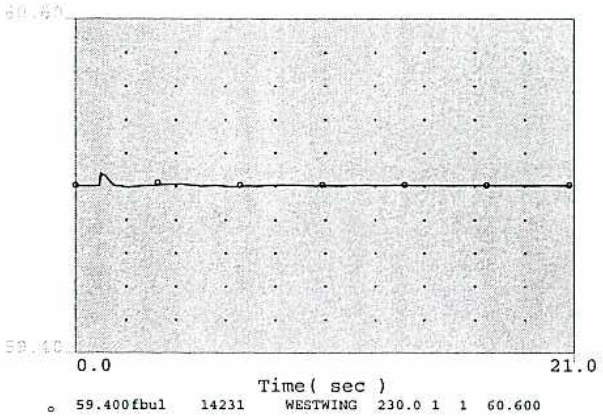




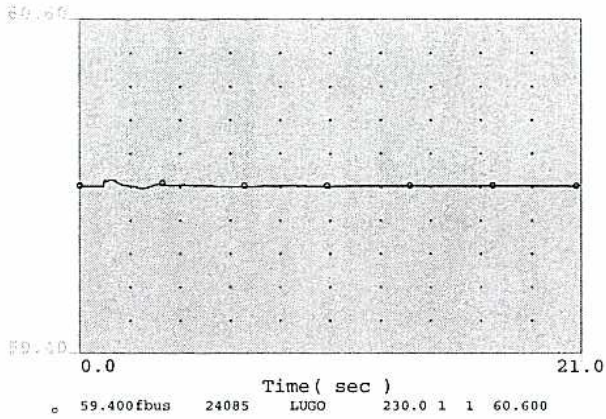




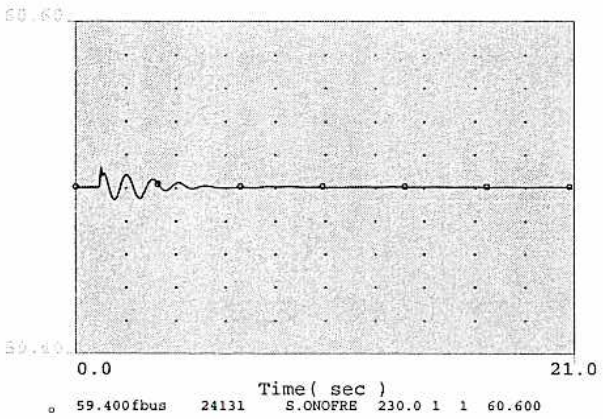
Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line



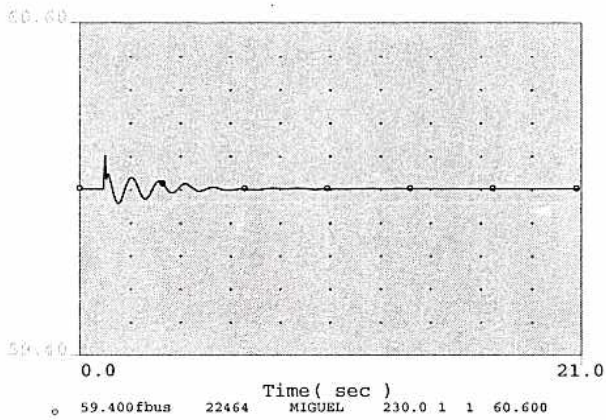
59.400fbul 14231 WESTWING 230.0 1 1 60.600



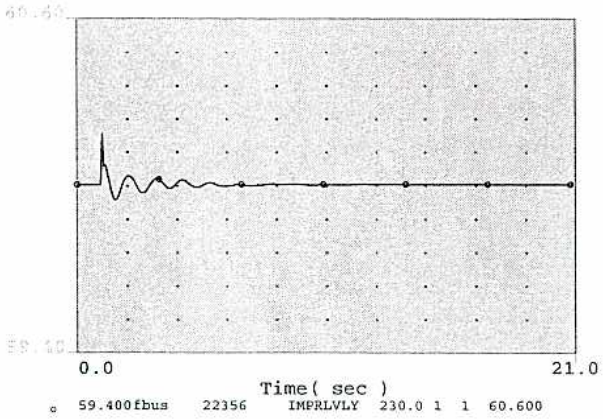
59.400fbus 24085 LUGO 230.0 1 1 60.600



59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



59.400fbus 22464 MIGUEL 230.0 1 1 60.600



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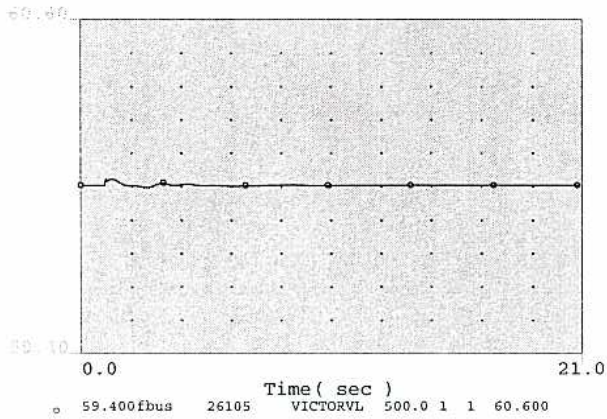
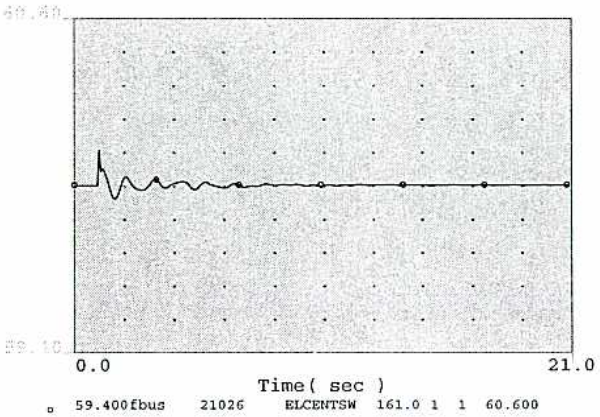
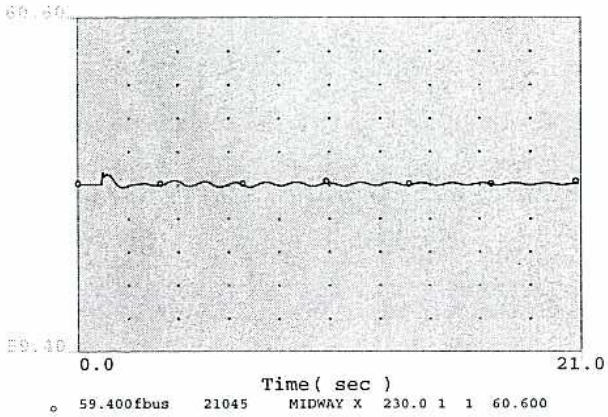


59.400fbus 26105 VICTORVL 500.0 1 1 60.600

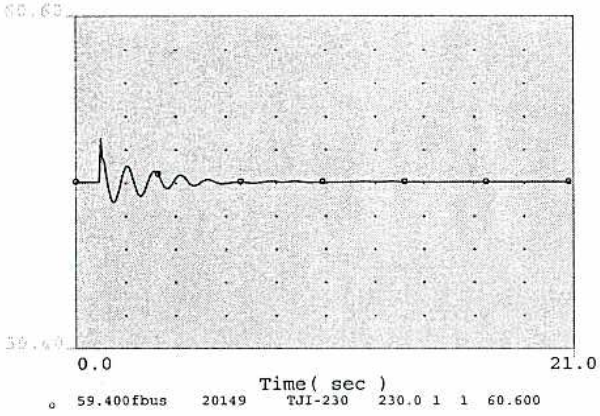
Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line



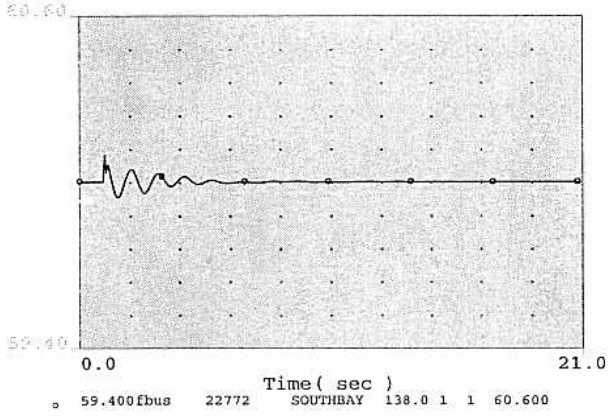
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



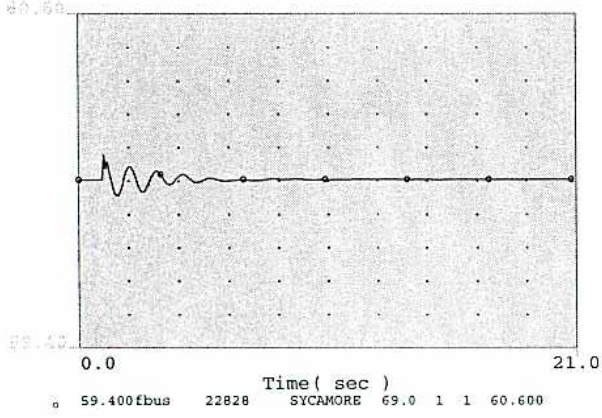
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



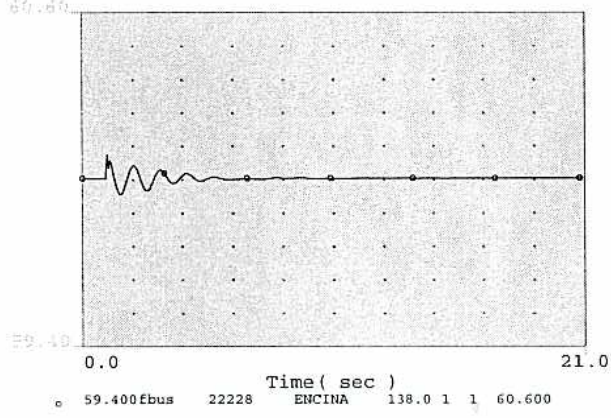
59.400fbus 20149 TJI-230 230.0 1 1 60.600



59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600

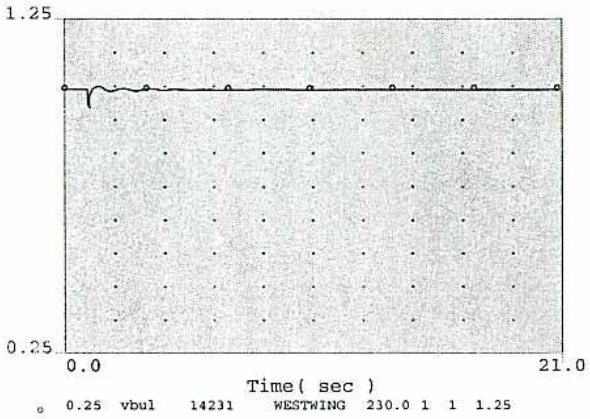


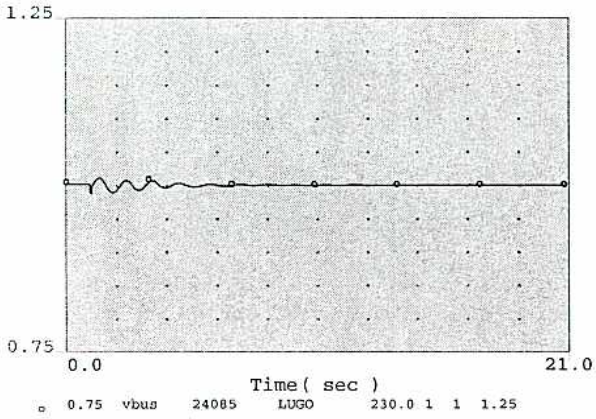
59.400fbus 22828 SYCAMORE 69.0 1 1 60.600

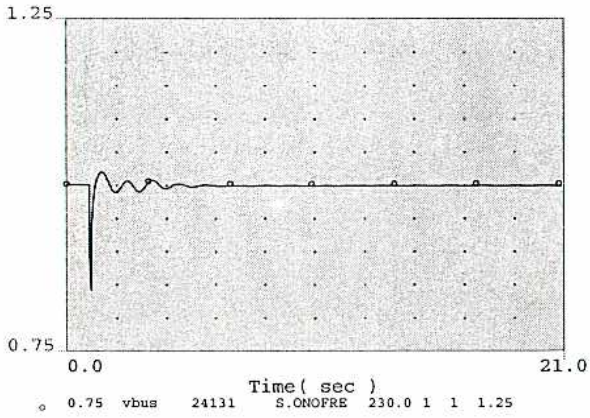


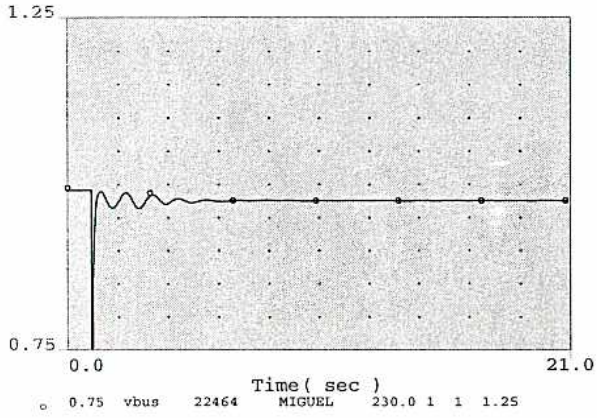
59.400fbus 22228 ENCINA 138.0 1 1 60.600

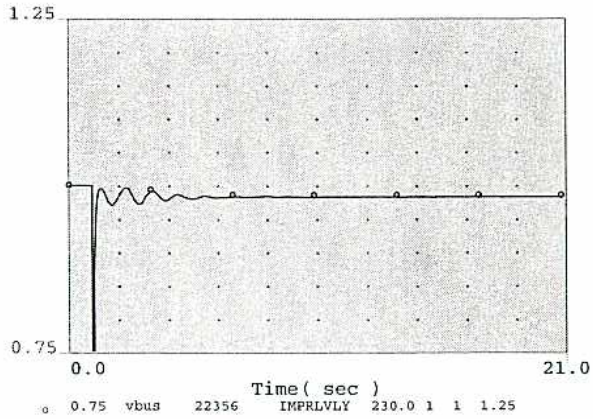
Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line

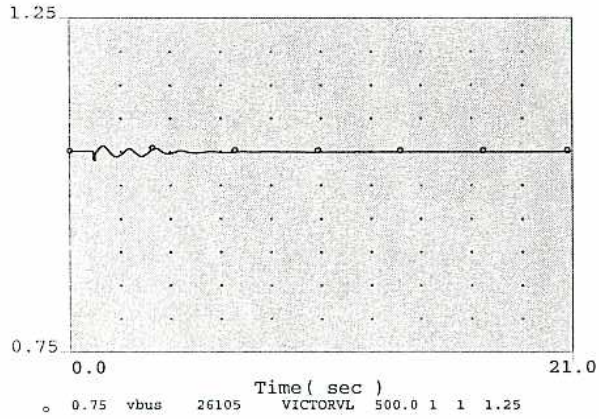




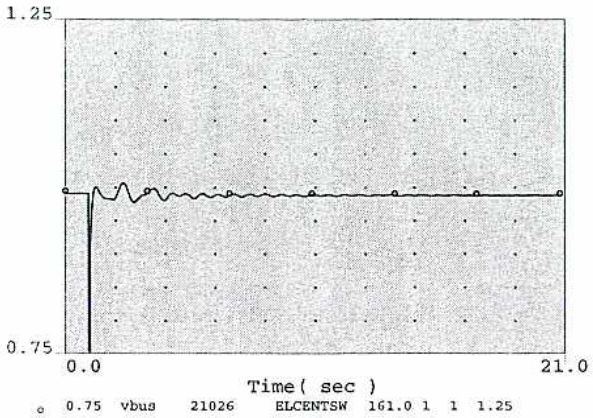








Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line



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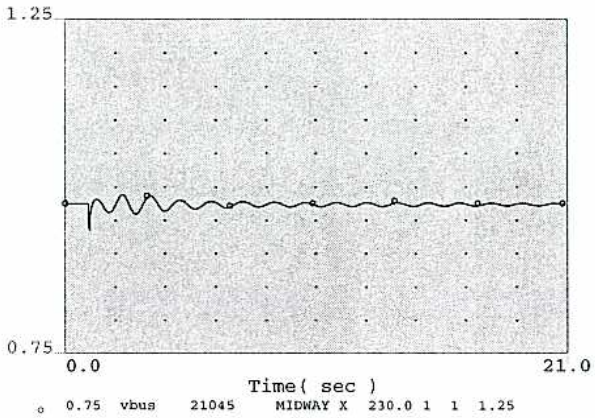
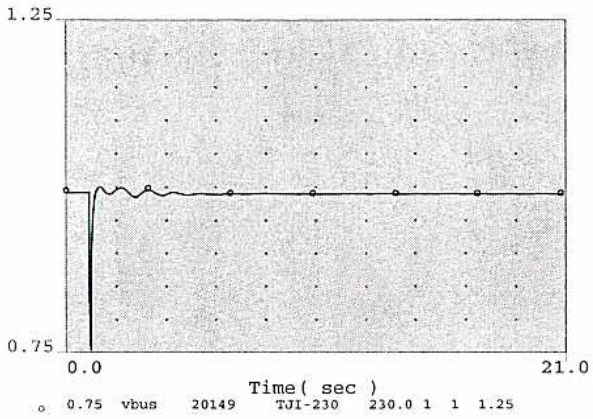
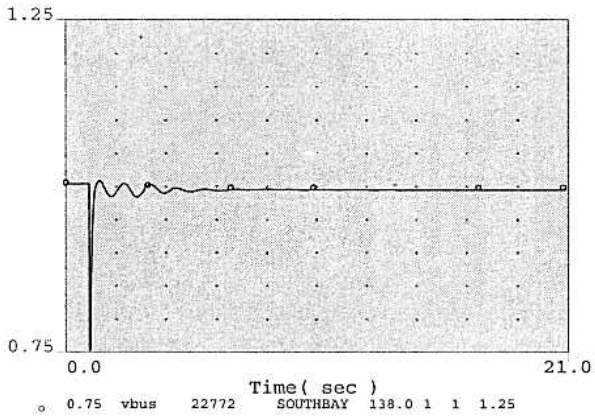


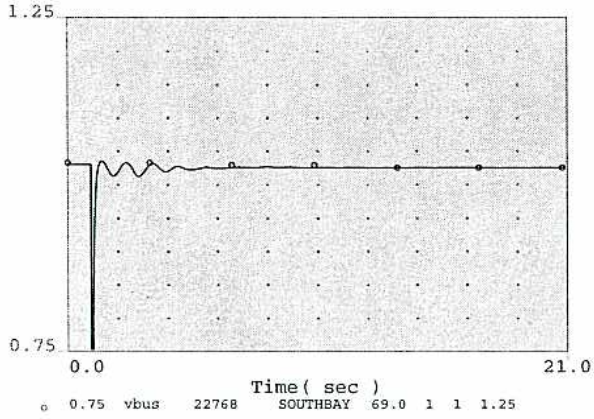
o 0.75 vbus 21045 MIDWAY X 230.0 1 1 1.25



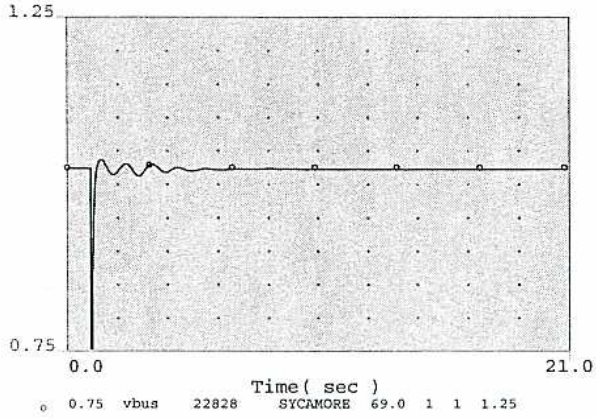
o 0.75 vbus 20149 TJI-230 230.0 1 1 1.25



o 0.75 vbus 22772 SOUTHBAY 138.0 1 1 1.25

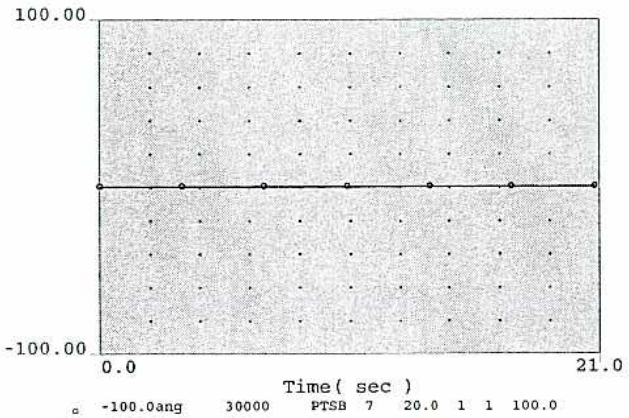


o 0.75 vbus 22768 SOUTHBAY 69.0 1 1 1.25



o 0.75 vbus 22828 SYCAMORE 69.0 1 1 1.25

Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line



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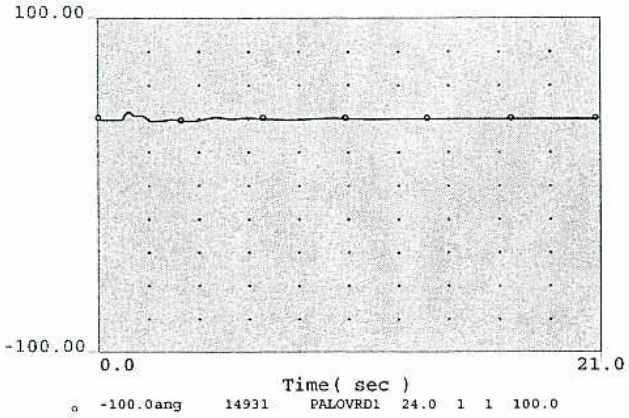

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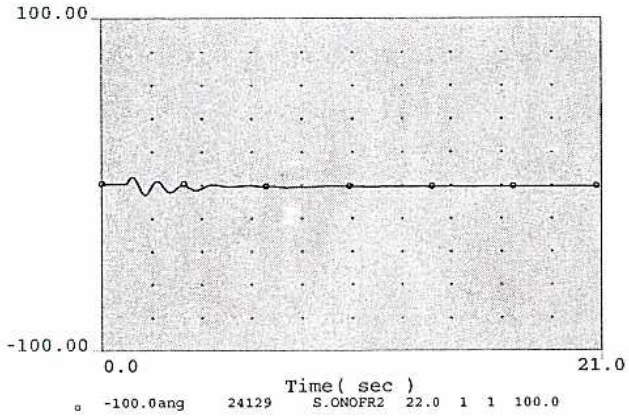

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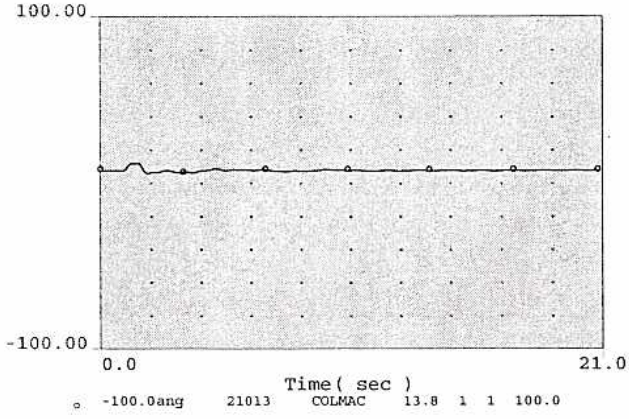
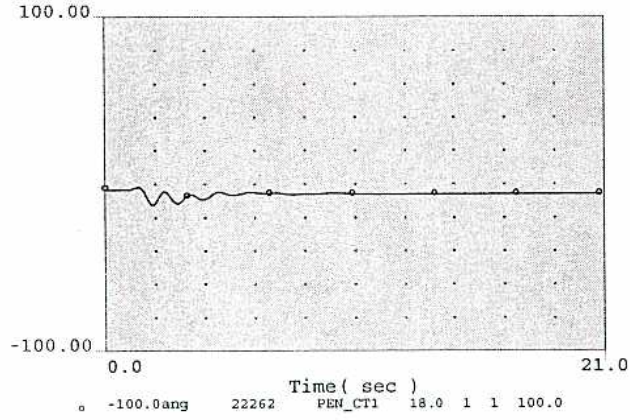


-100.0ang 21013 COLMAC 13.8 1 1 100.0



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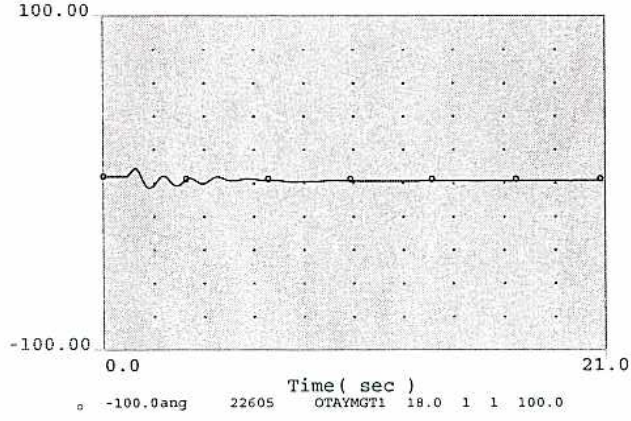

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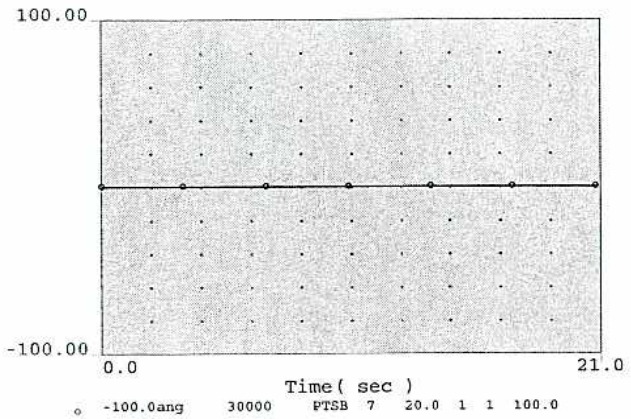
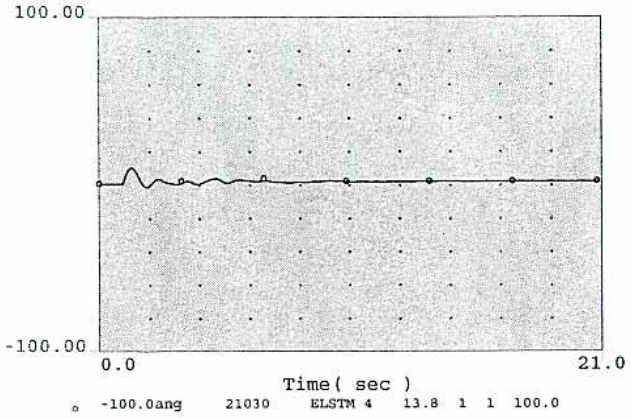
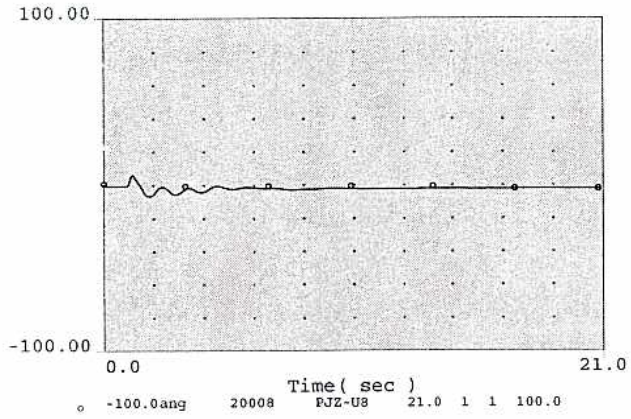
Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line



o -100.0ang 30000 PTSB 7 20.0 1 1 100.0



o -100.0ang 21030 ELSTM 4 13.8 1 1 100.0



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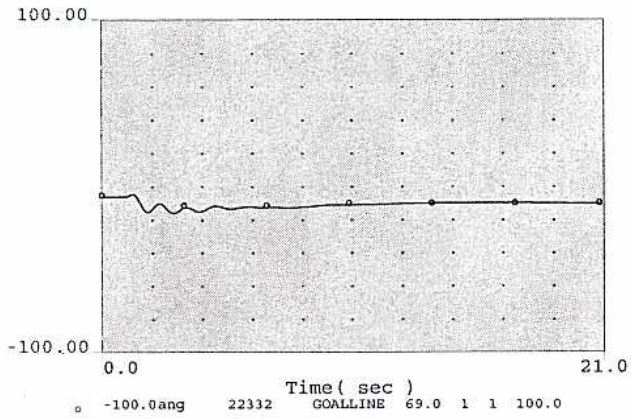
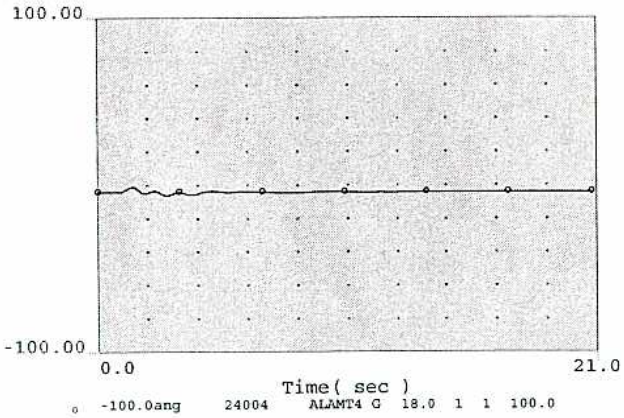
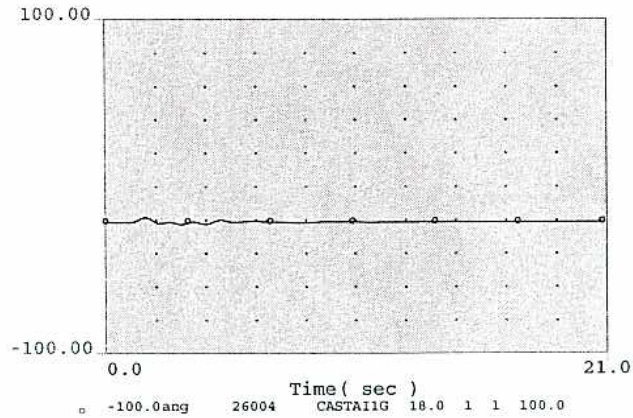


o -100.0ang 22332 GOALLINE 69.0 1 1 100.0

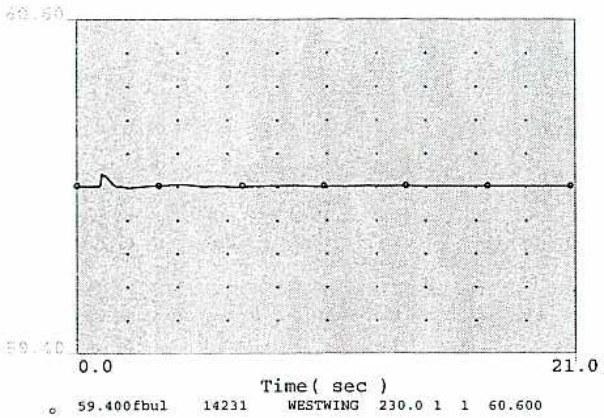


o -100.0ang 24004 ALAMT4 G 18.0 1 1 100.0

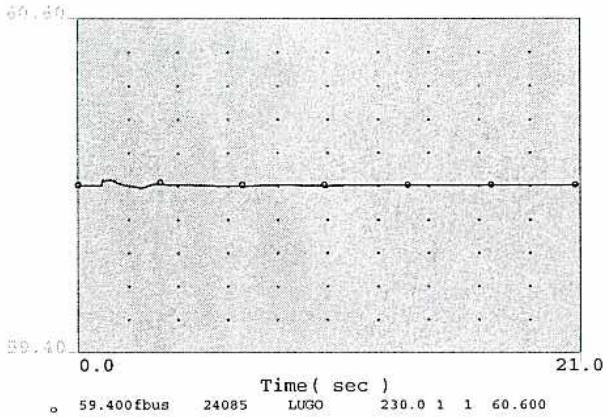


o -100.0ang 26004 CASTA11G 18.0 1 1 100.0

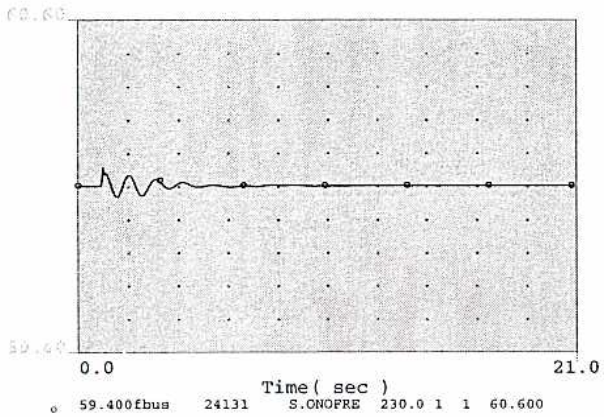
Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line



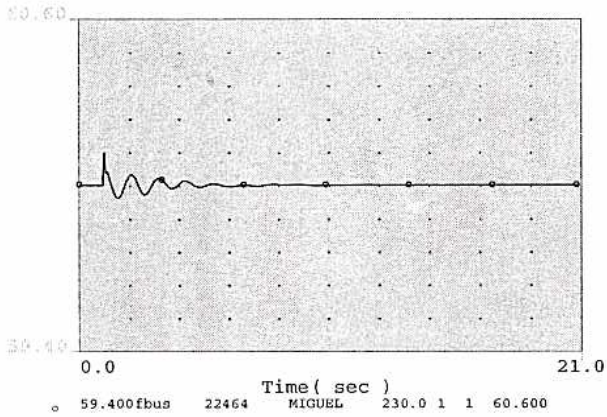
59.400fbul 14231 WESTWING 230.0 1 1 60.600



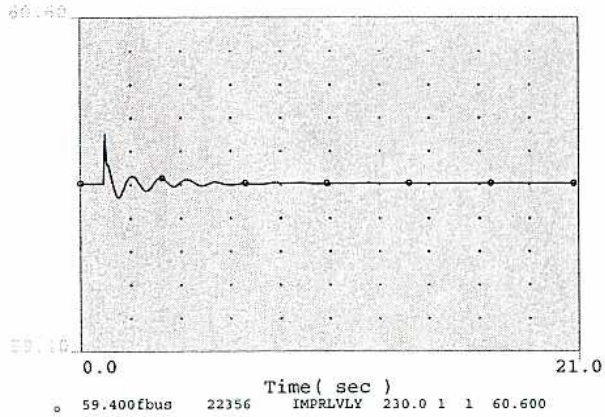
59.400fbus 24085 LUGO 230.0 1 1 60.600



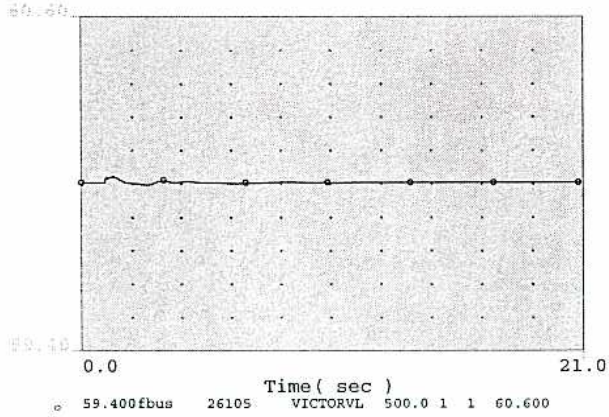
59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



59.400fbus 22464 MIGUEL 230.0 1 1 60.600

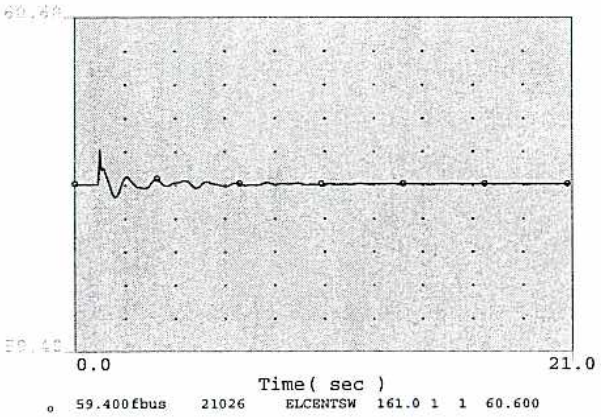


59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

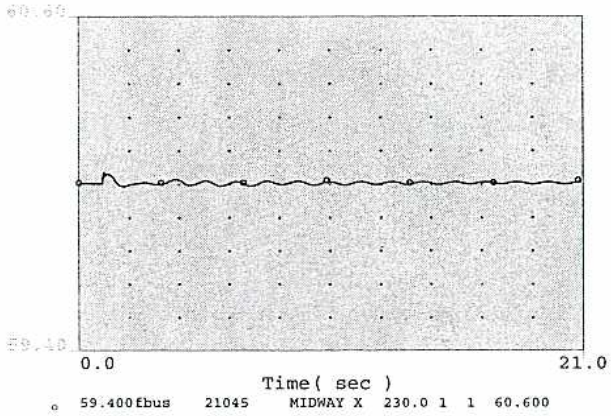


59.400fbus 26105 VICTORVL 500.0 1 1 60.600

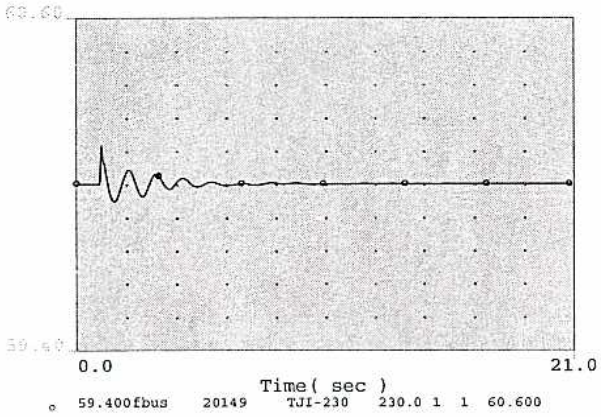
Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line



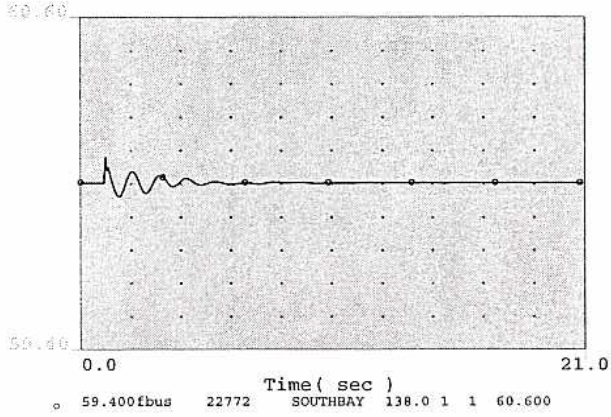
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



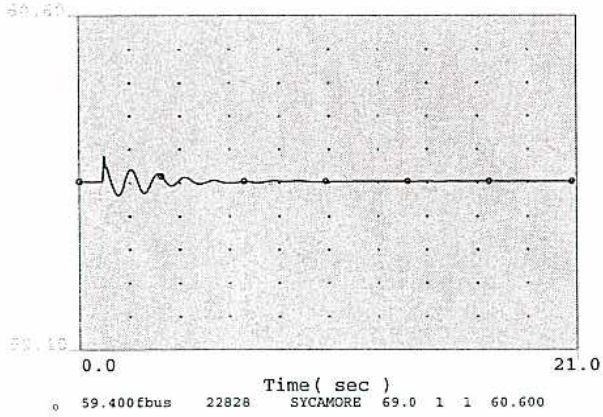
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



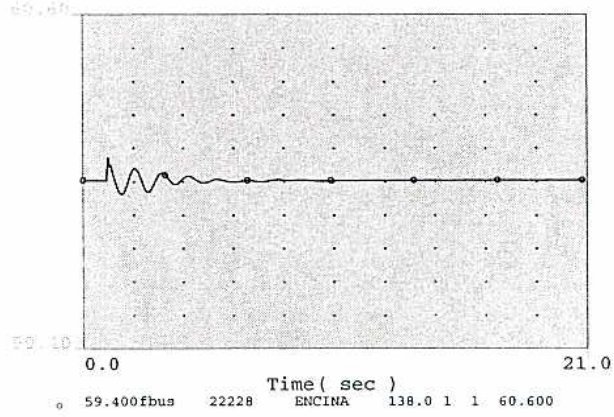
59.400fbus 20149 TJI-230 230.0 1 1 60.600



59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600

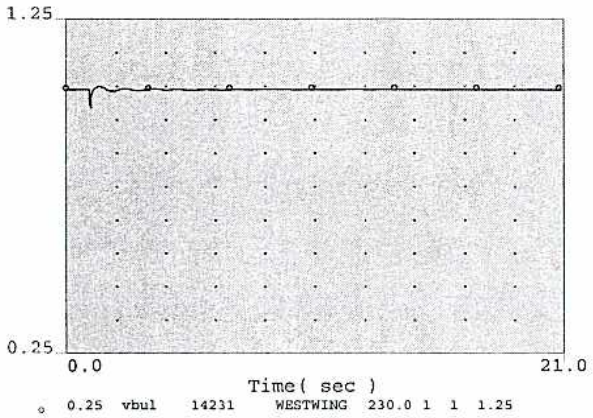


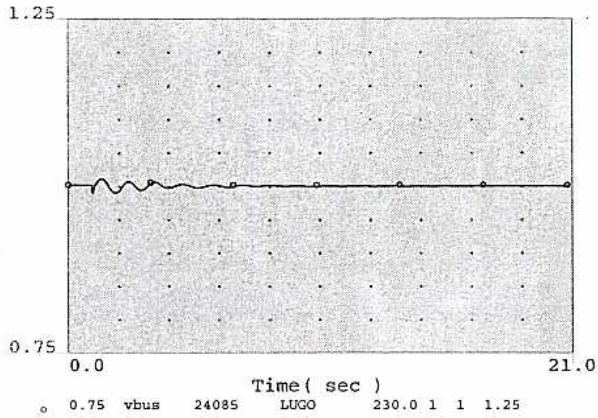
59.400fbus 22828 SYCAMORE 69.0 1 1 60.600

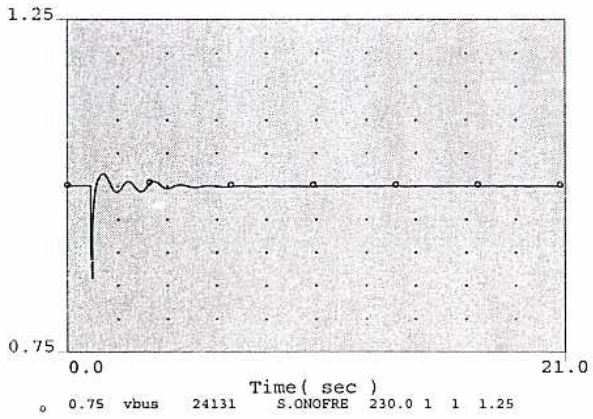


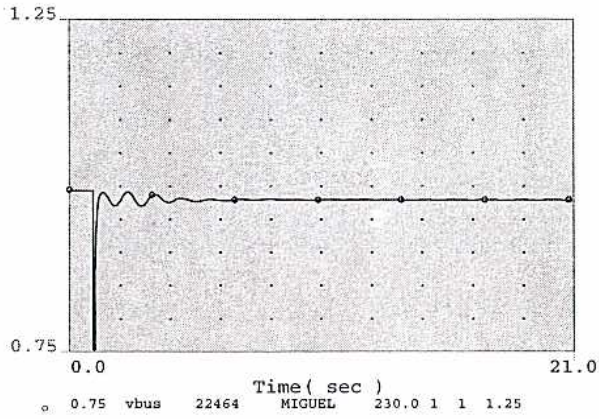
59.400fbus 22228 ENCINA 138.0 1 1 60.600

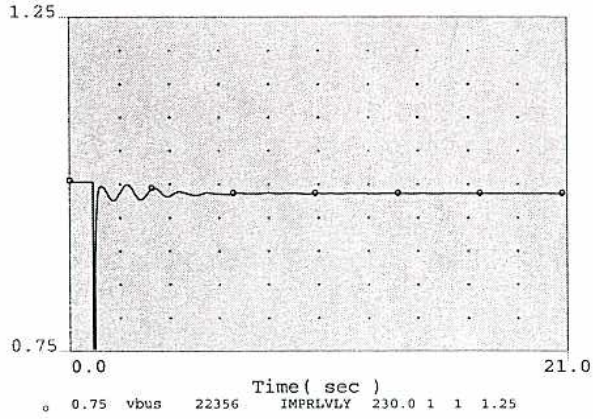
Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line

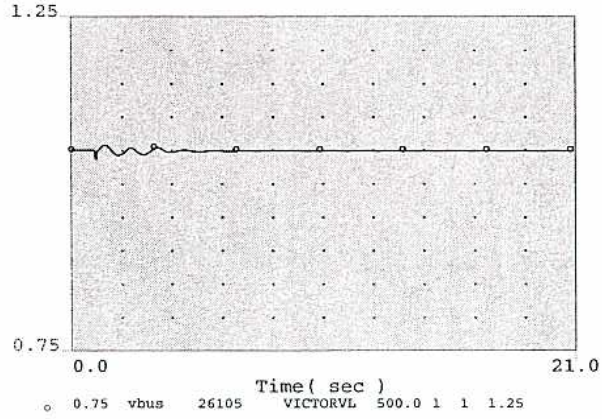




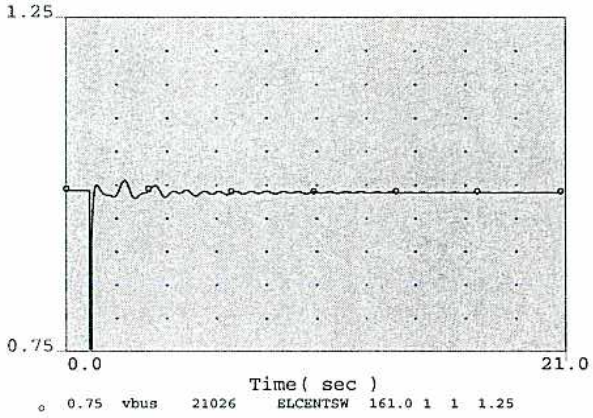




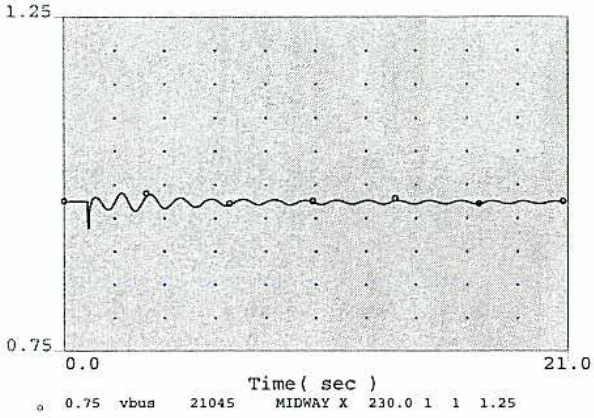




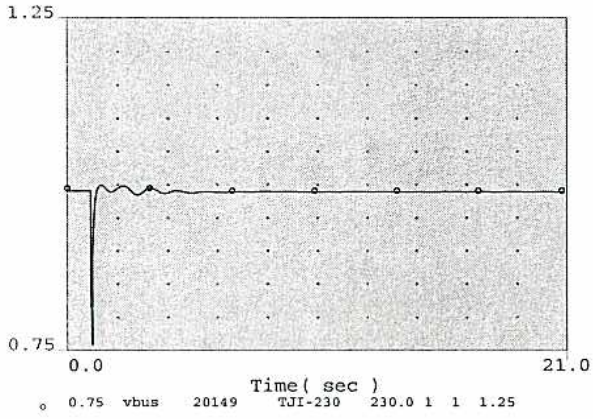
Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line



o 0.75 vbus 21026 ELCENTSW 161.0 1 1 1.25



o 0.75 vbus 21045 MIDWAY X 230.0 1 1 1.25



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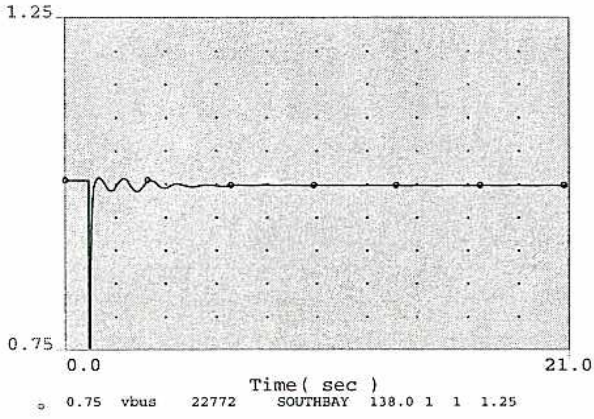
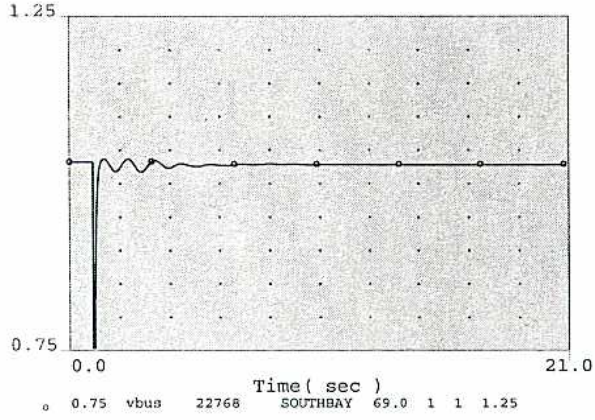
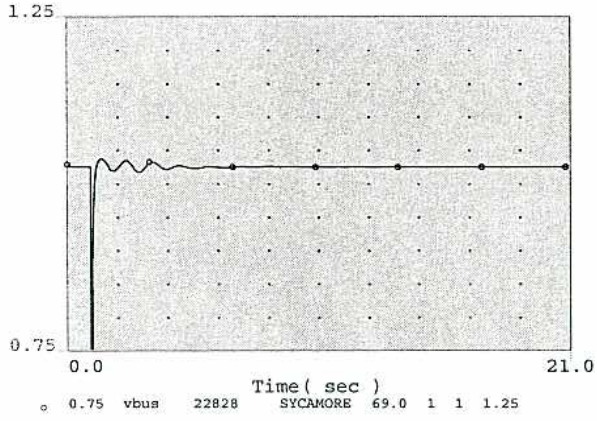


o 0.75 vbus 22772 SOUTHBAY 138.0 1 1 1.25

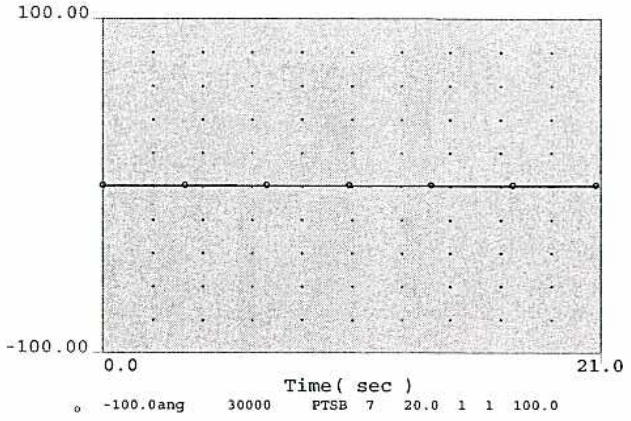


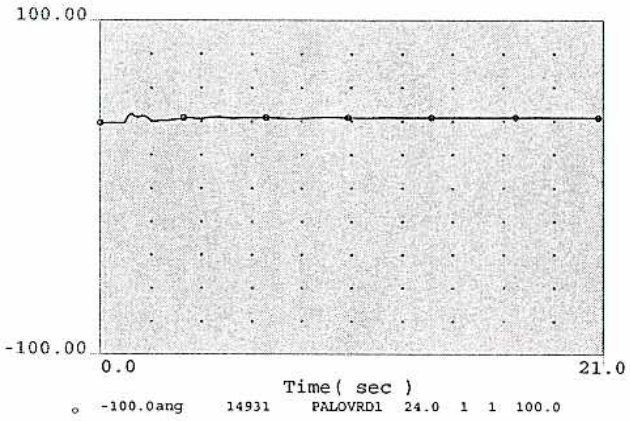
o 0.75 vbus 22768 SOUTHBAY 69.0 1 1 1.25

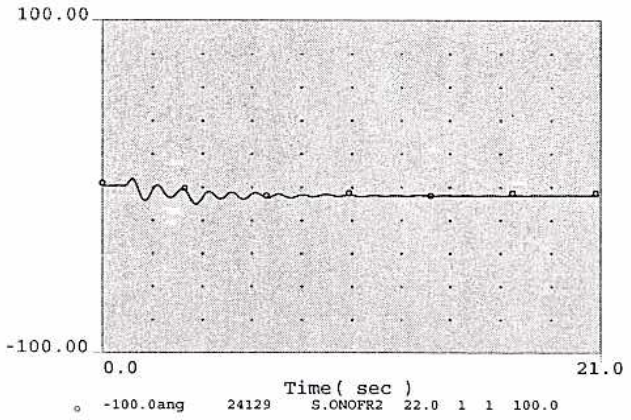


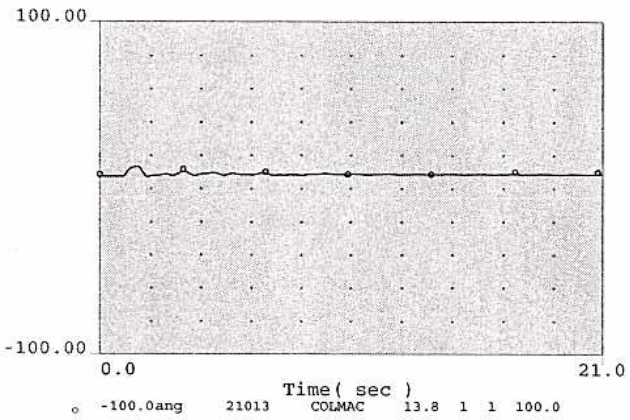
o 0.75 vbus 22828 SYCAMORE 69.0 1 1 1.25

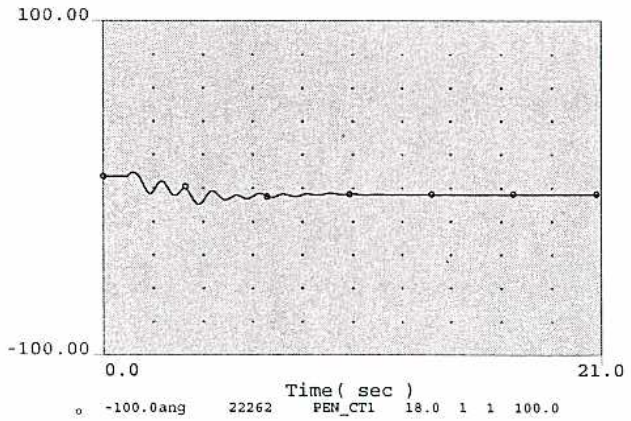
Fault bus at Imperial Valley
Trip Imperial Valley - Centralx 500 kV line

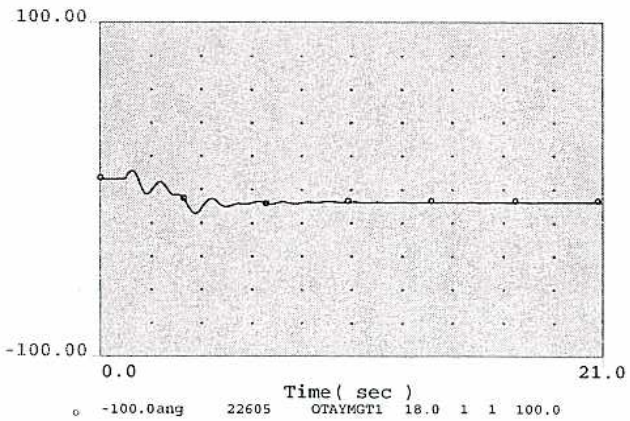




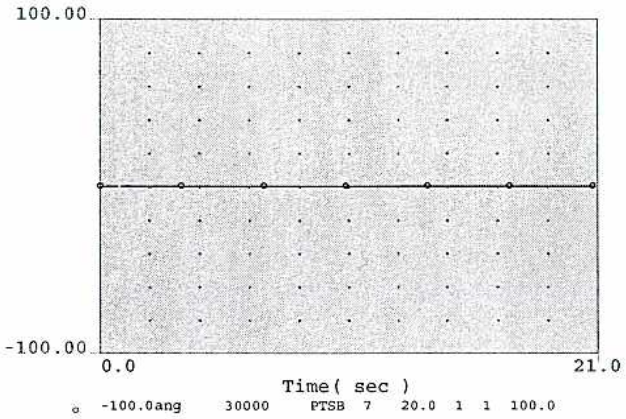


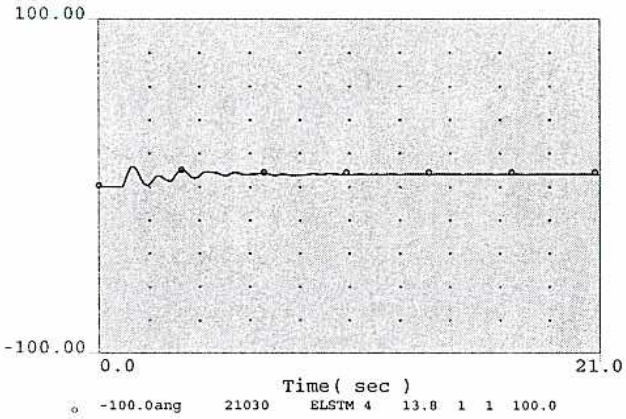


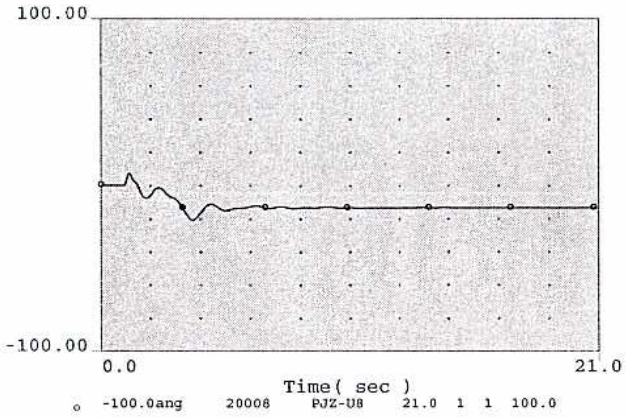


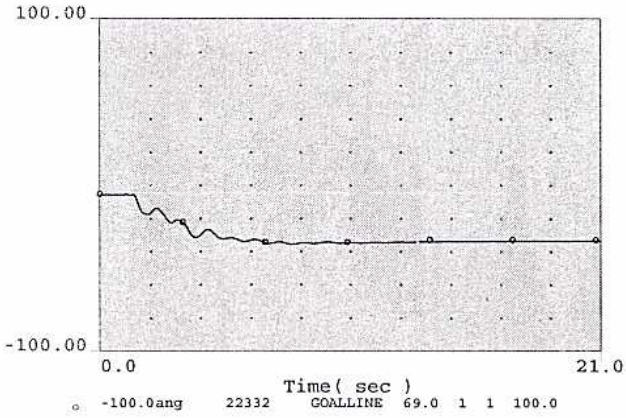


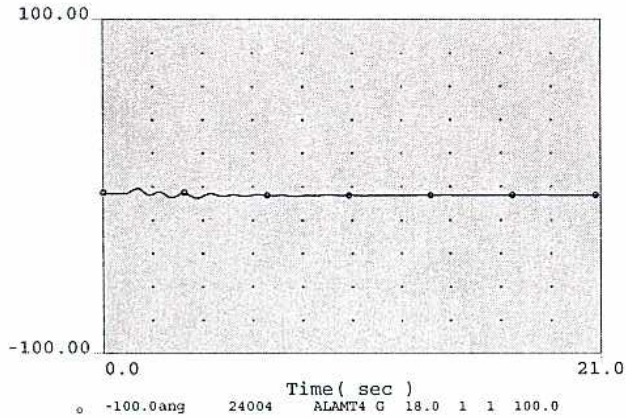
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050

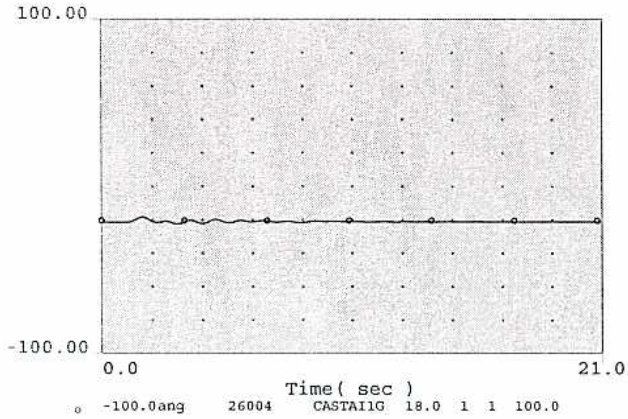




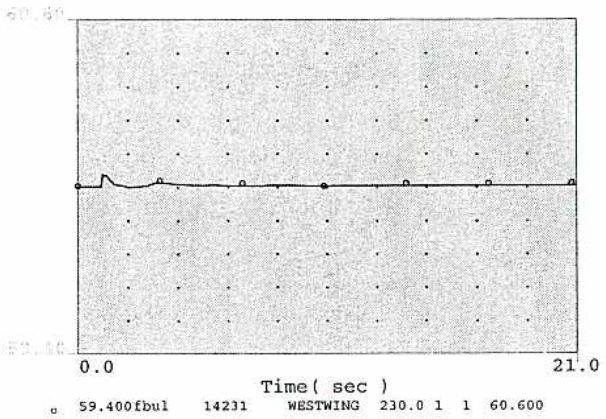




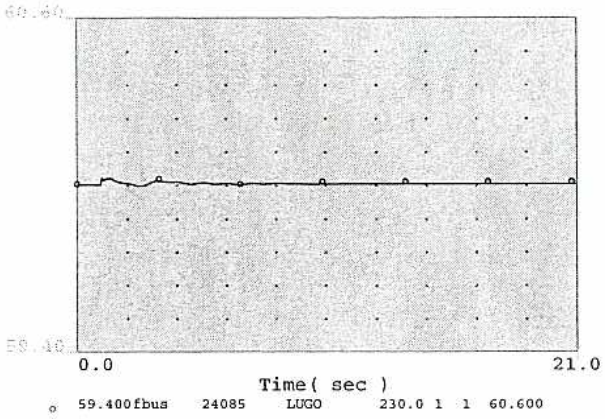




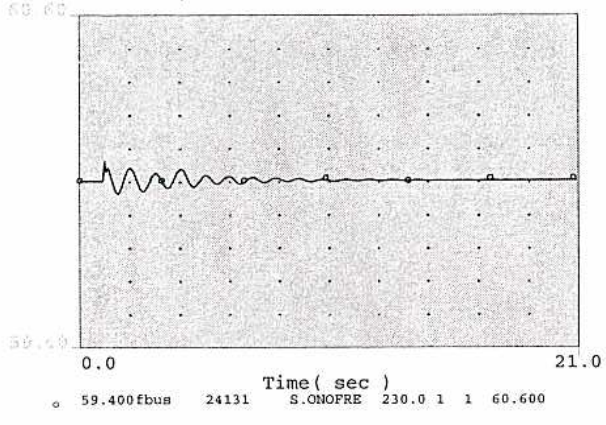
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050



59.400fbul 14231 WESTWING 230.0 1 1 60.600



59.400fbus 24085 LUGO 230.0 1 1 60.600



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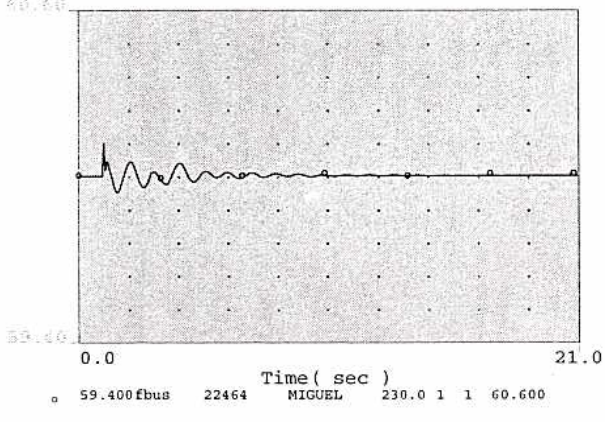

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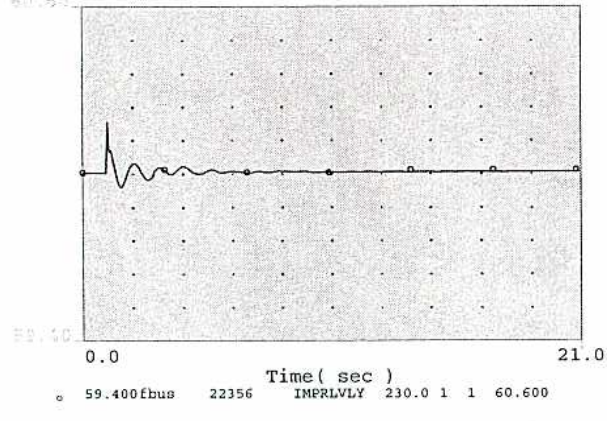
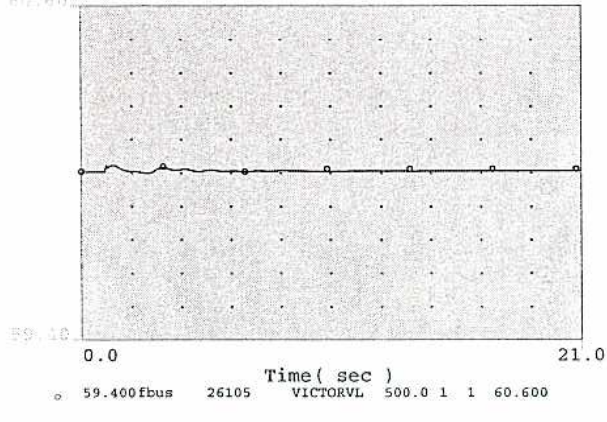
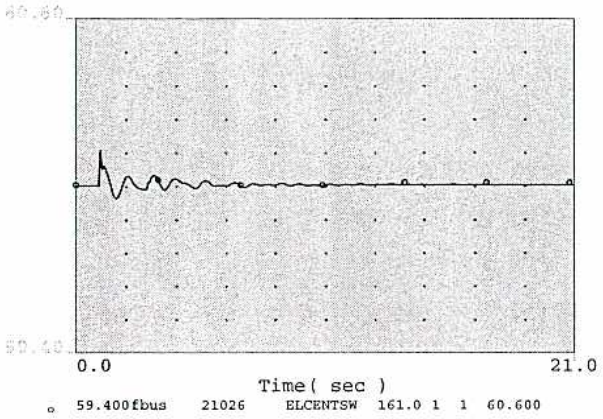


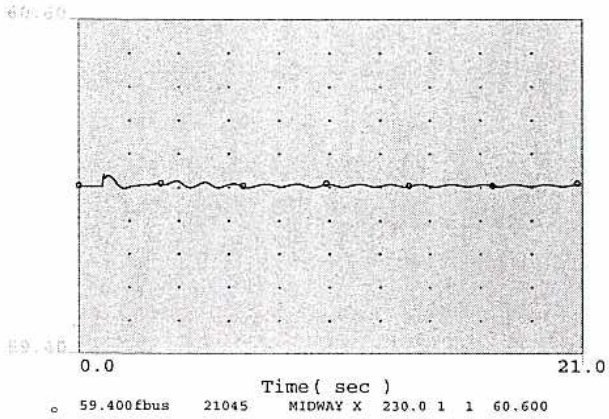
59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

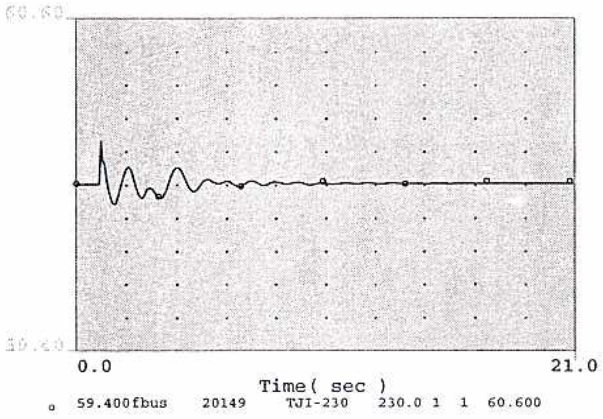


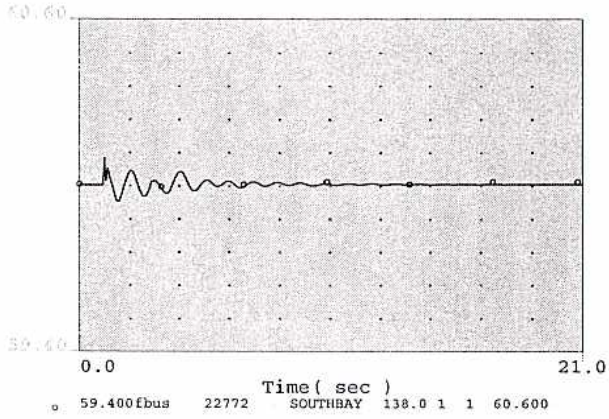
59.400fbus 26105 VICTORVL 500.0 1 1 60.600

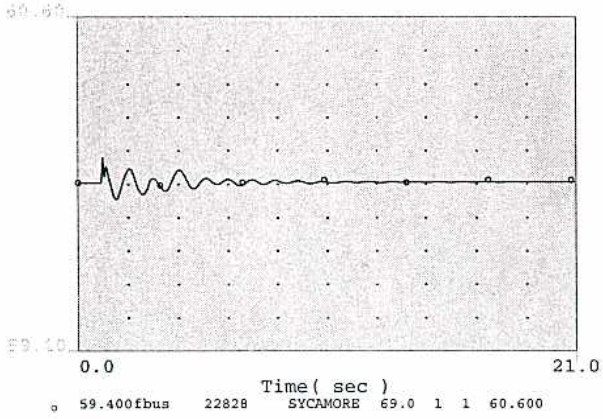
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050

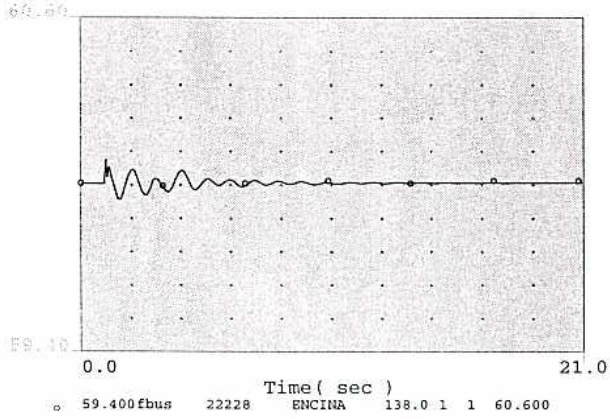




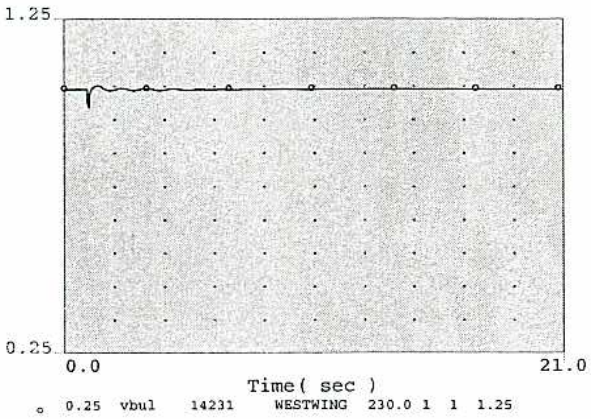


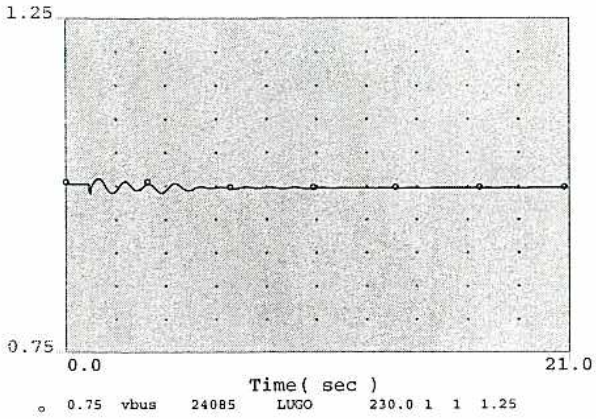


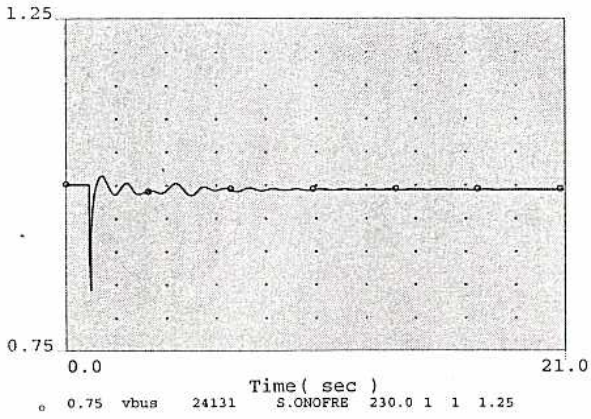


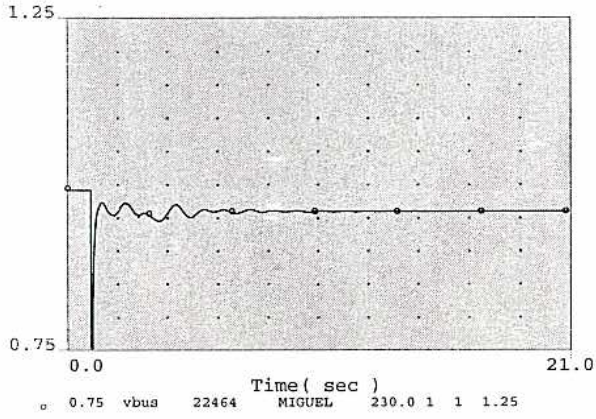


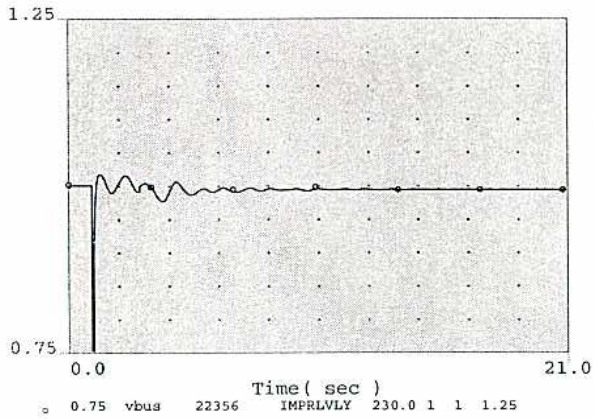
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050

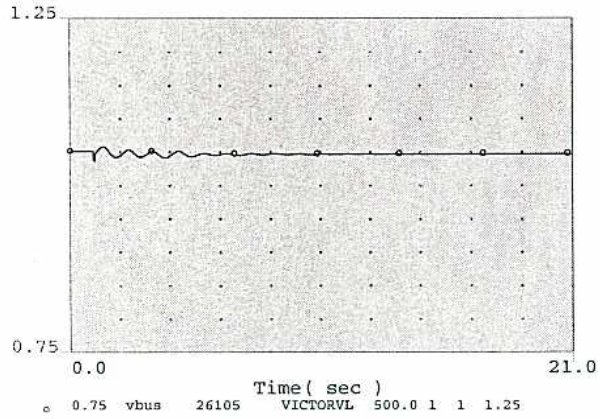




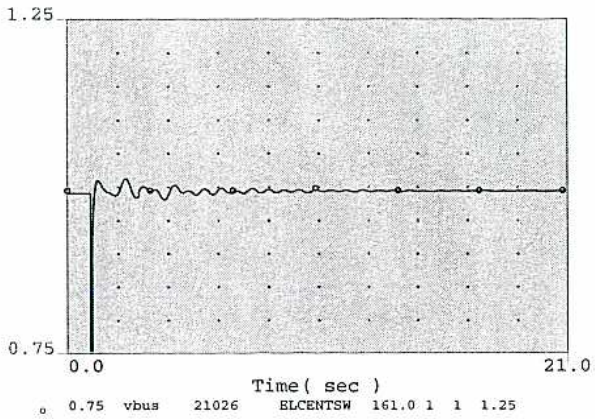


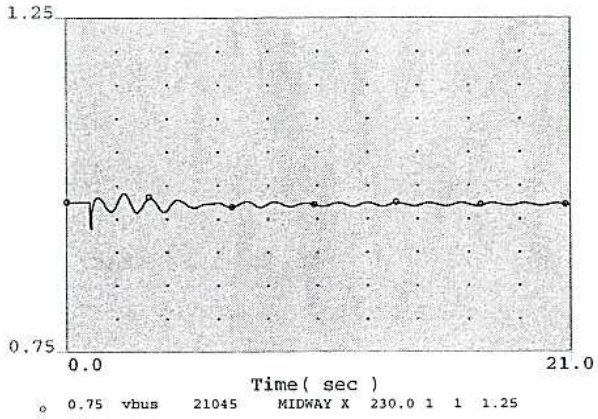


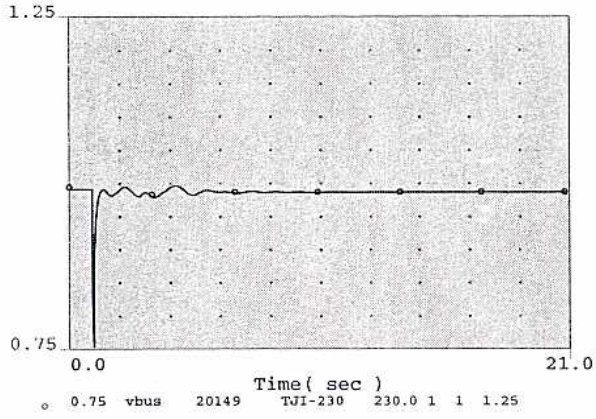


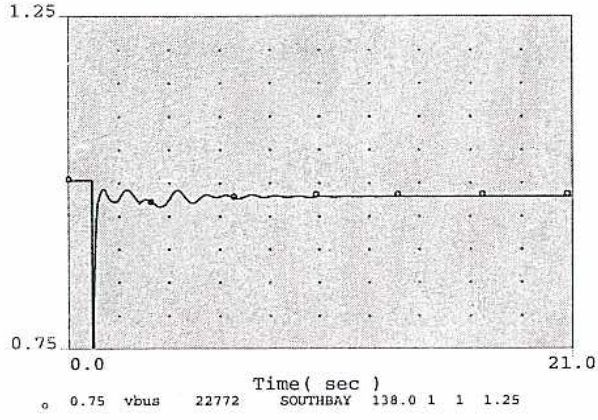


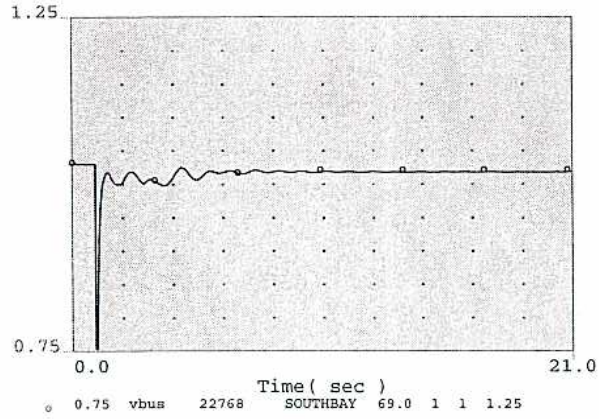
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050

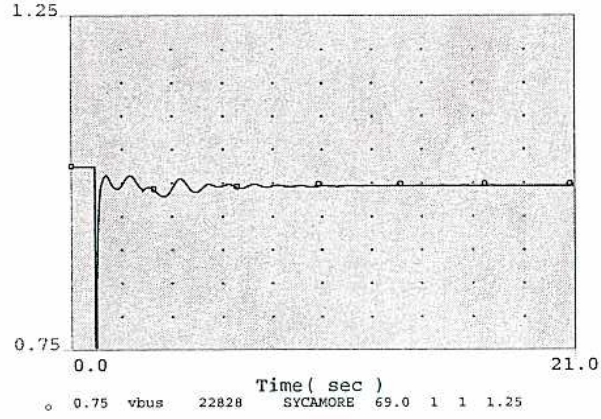




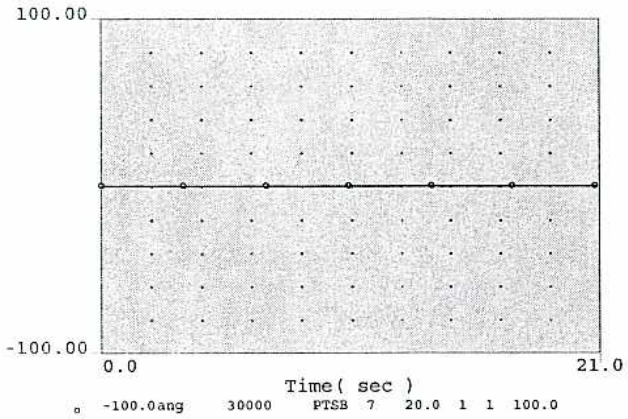


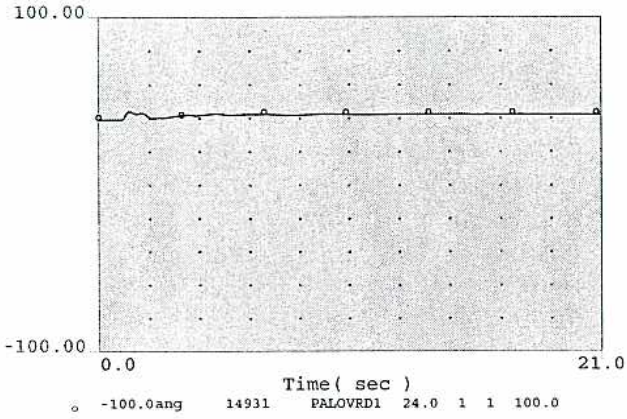


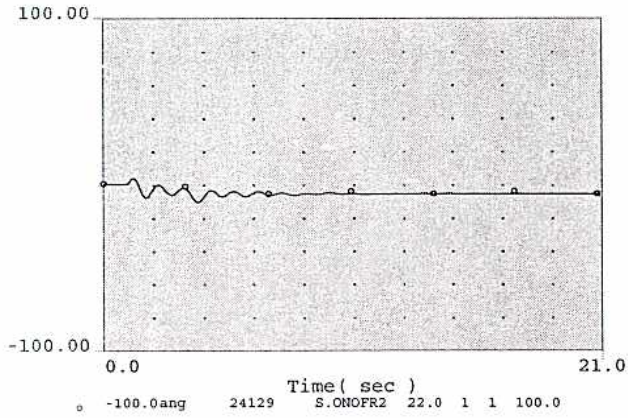


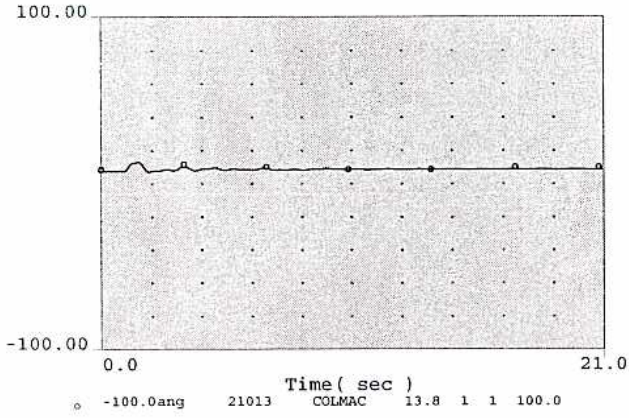


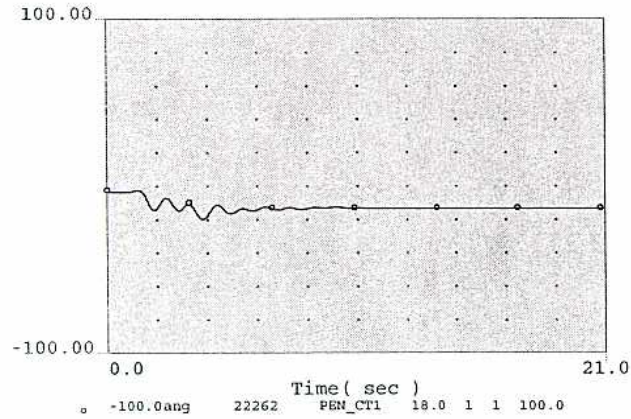
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050

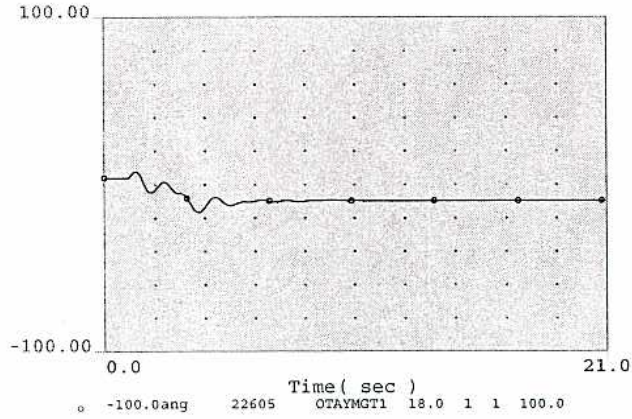




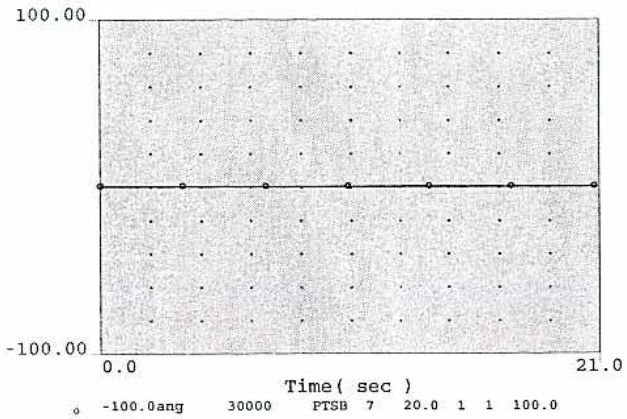


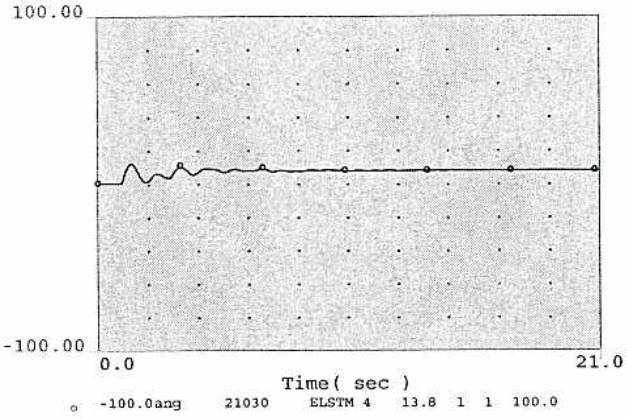


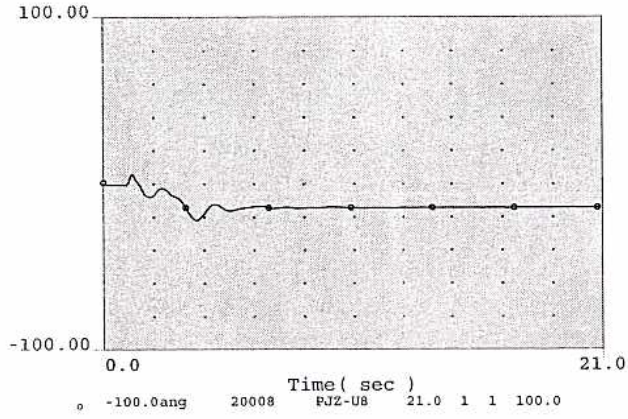


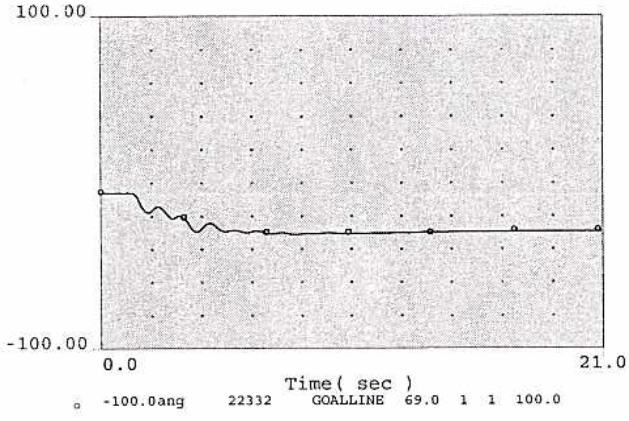


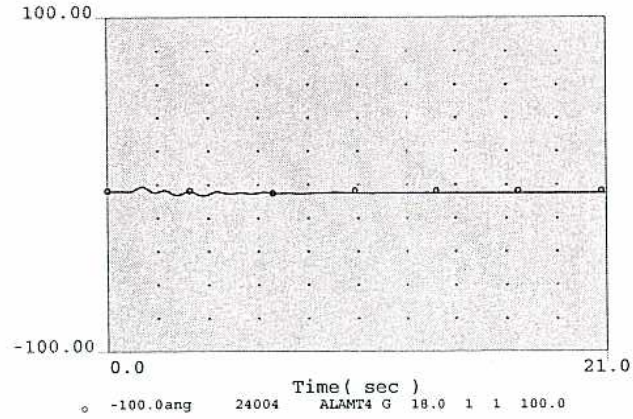
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050

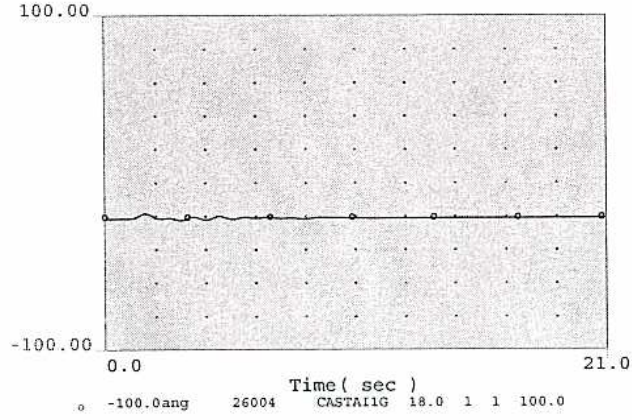




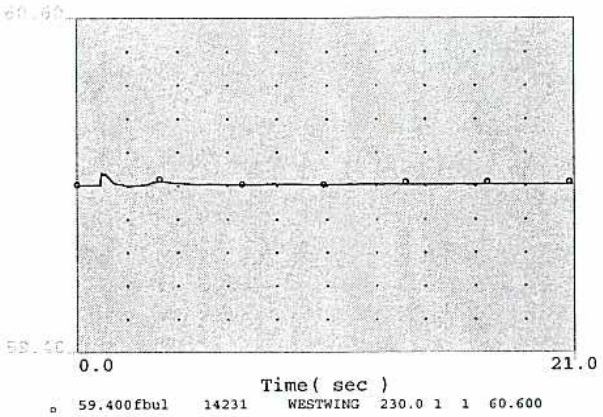




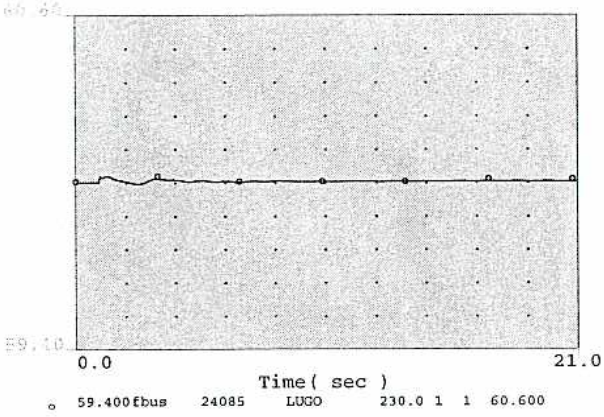




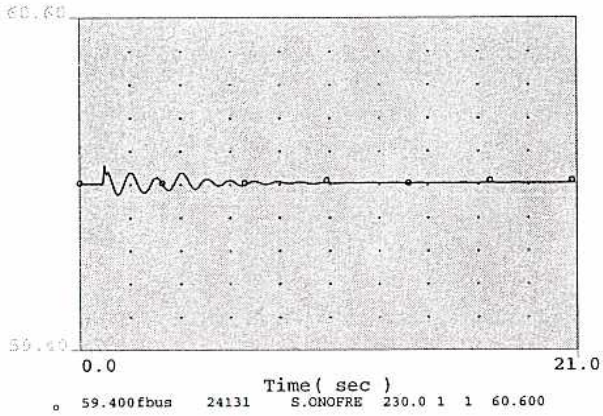
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050



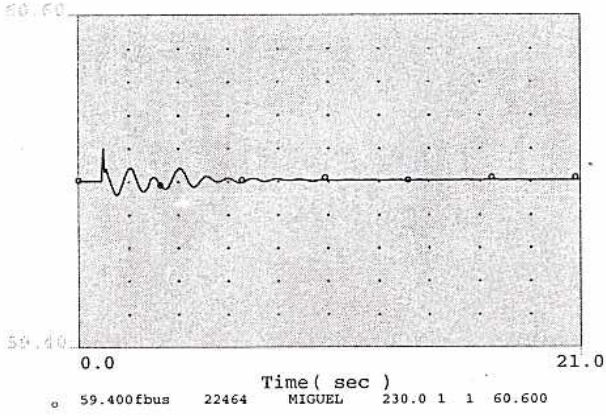
59.400fbul 14231 WESTWING 230.0 1 1 60.600



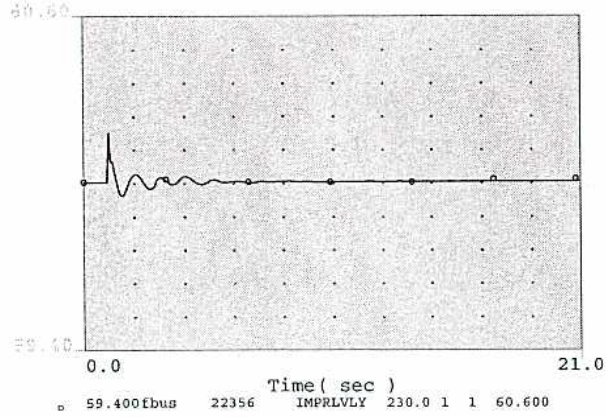
59.400fbus 24085 LUGO 230.0 1 1 60.600



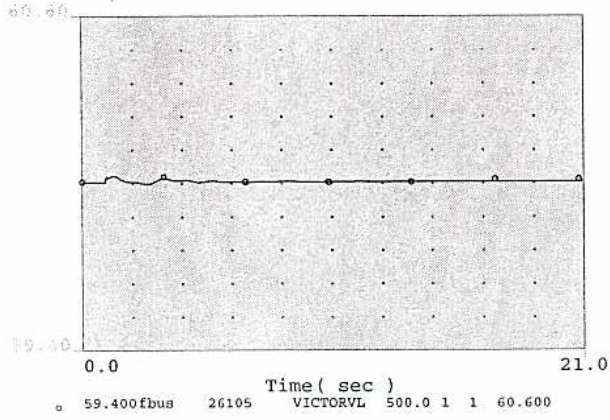
59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



59.400fbus 22464 MIGUEL 230.0 1 1 60.600

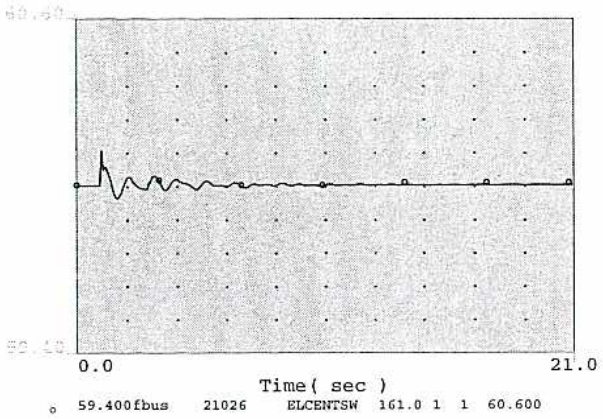


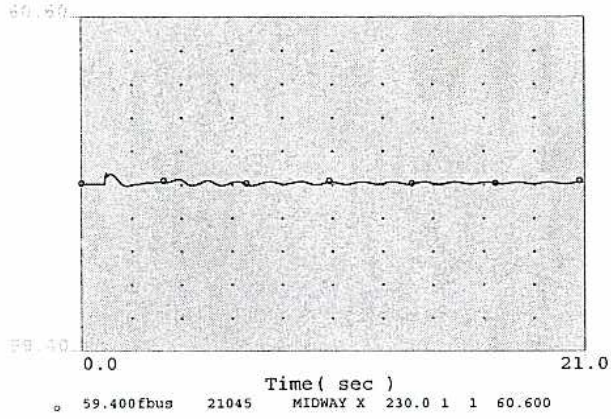
59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

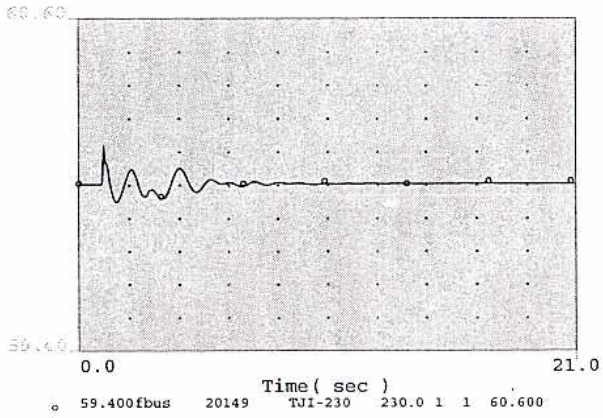


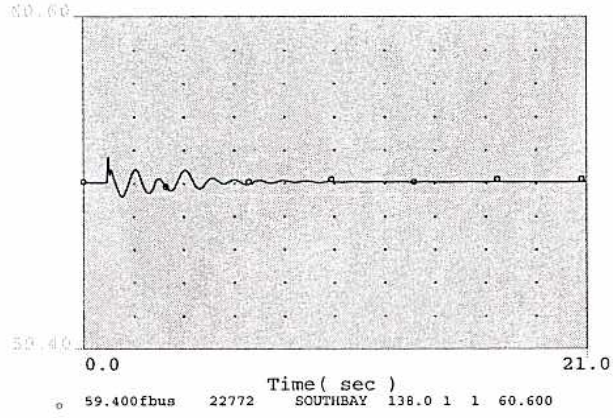
59.400fbus 26105 VICTORVL 500.0 1 1 60.600

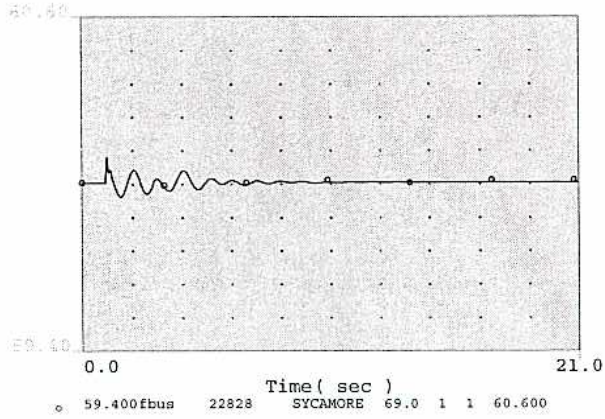
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050

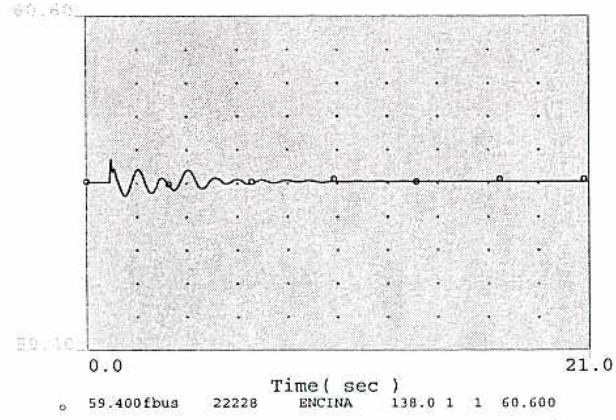




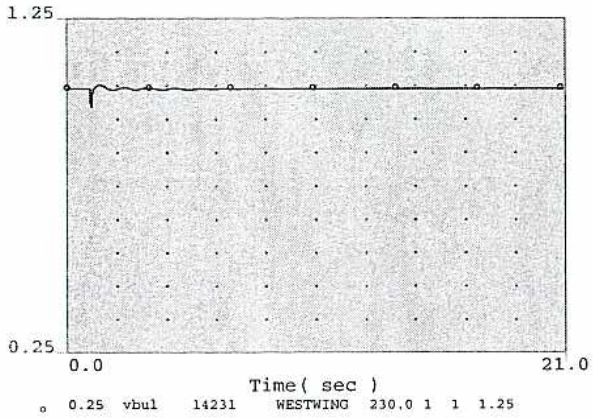


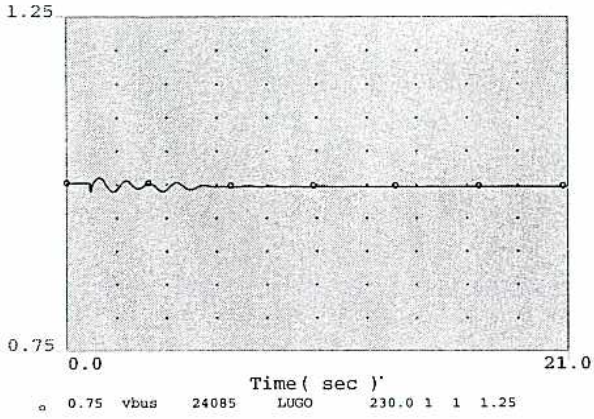


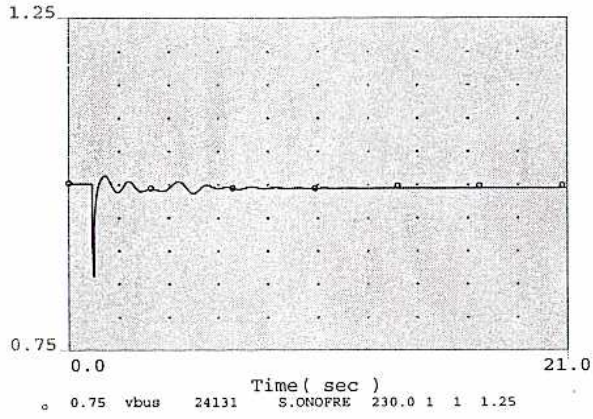


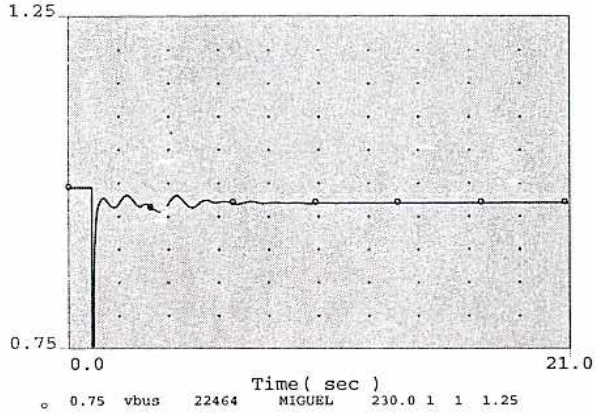


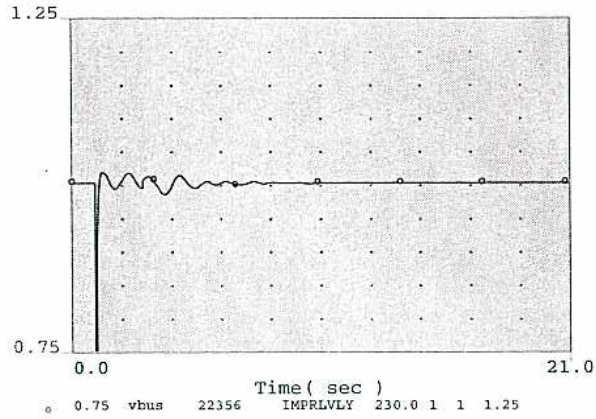
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050

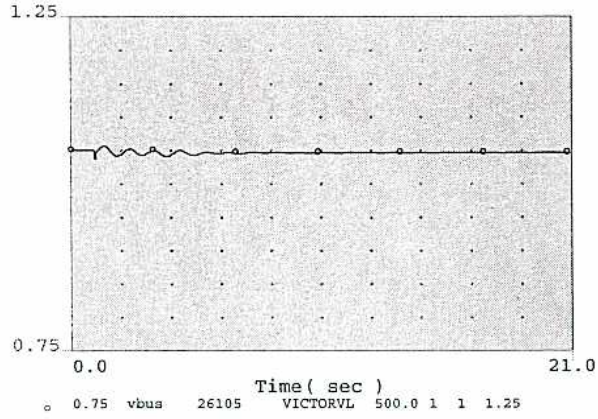




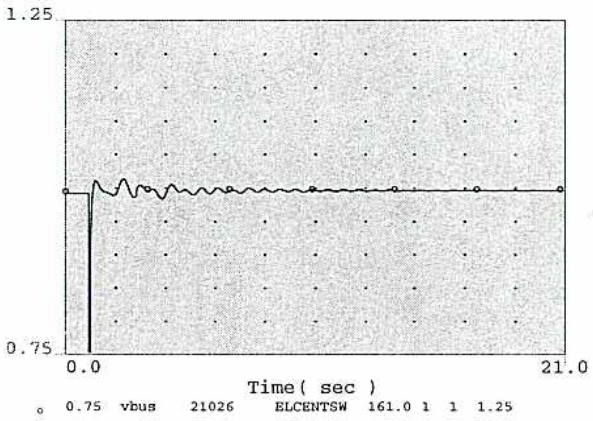


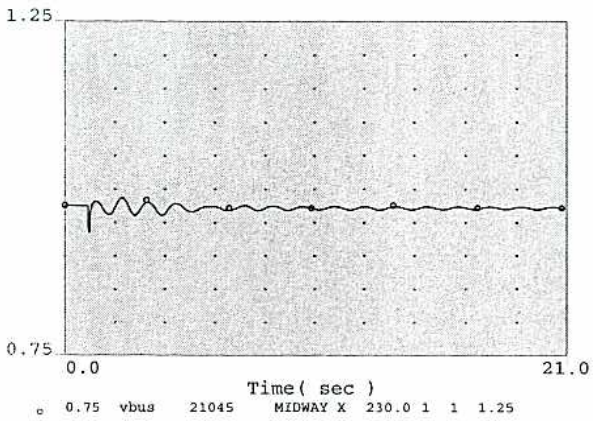


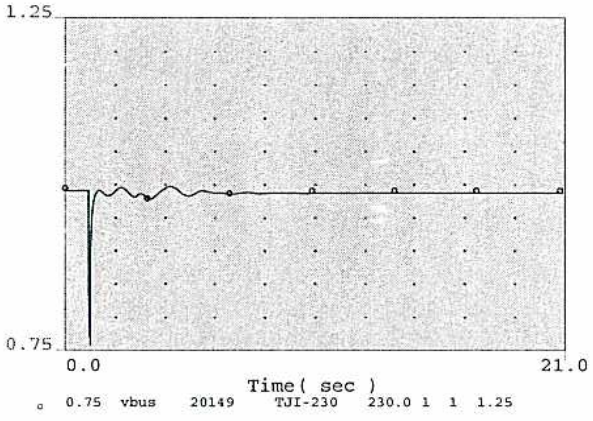


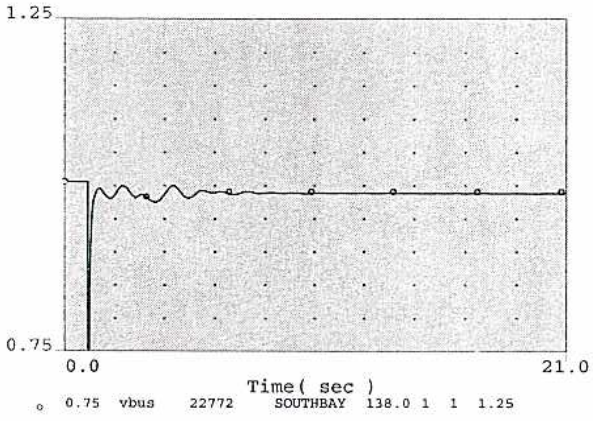


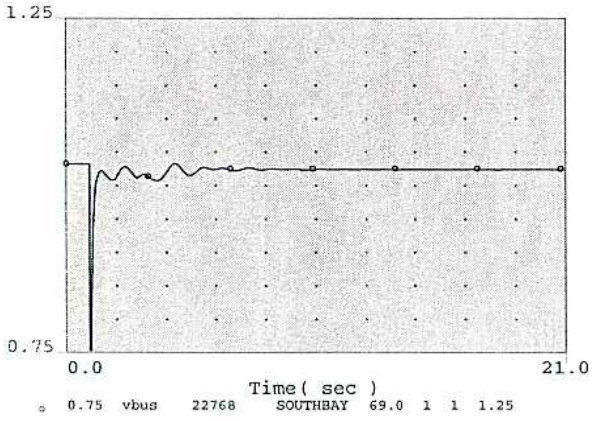
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050

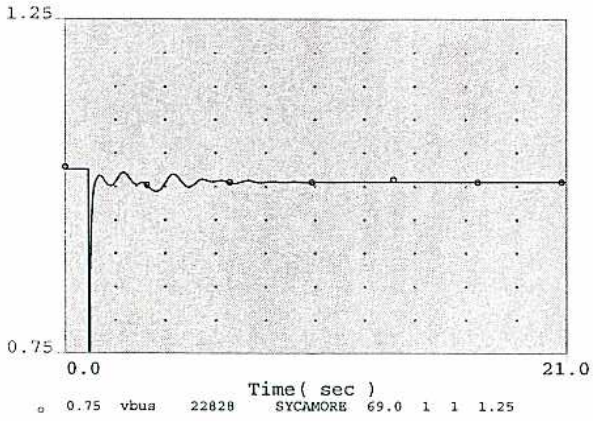




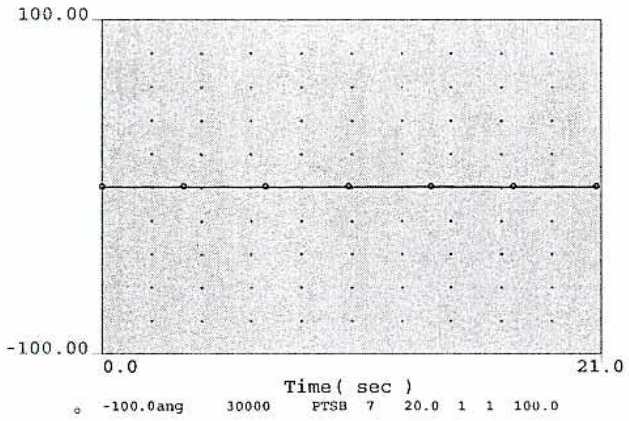


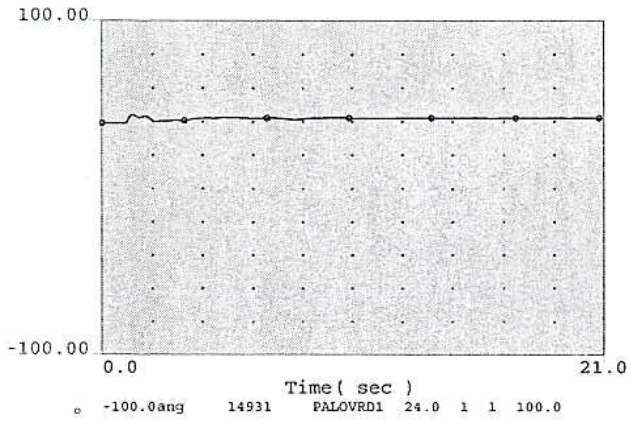


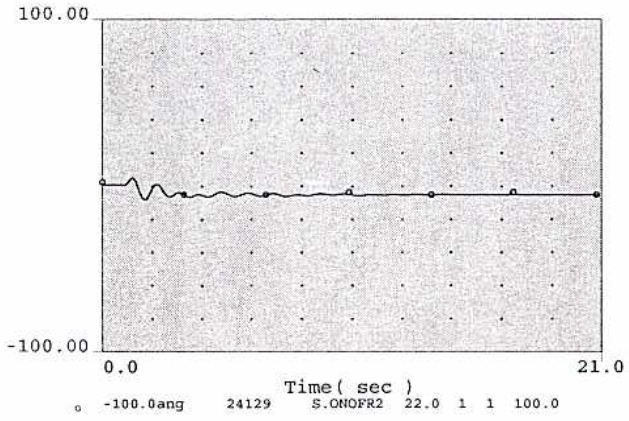


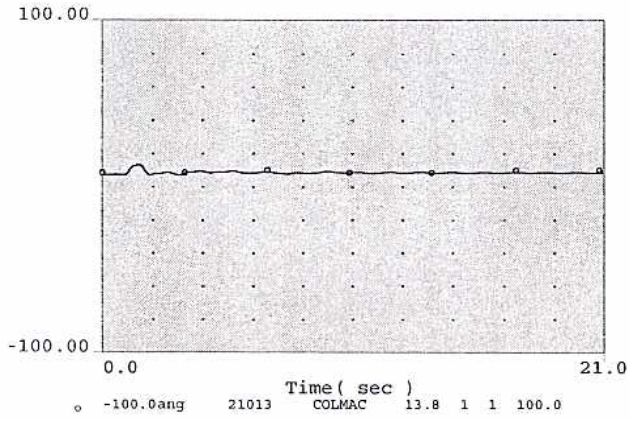


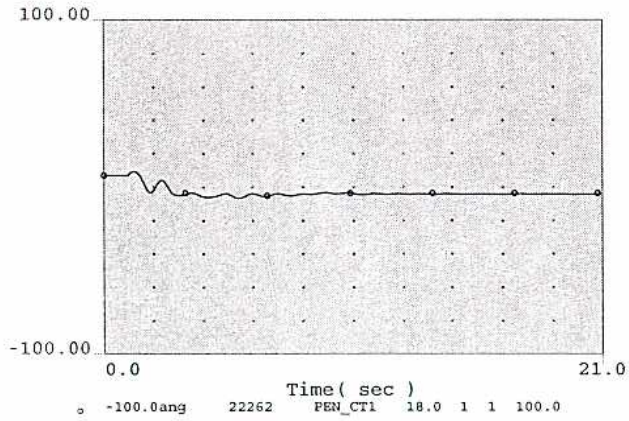
Fault bus at Imperial Valley
Trip Imperial Valley - Miguel line
Trip 23050

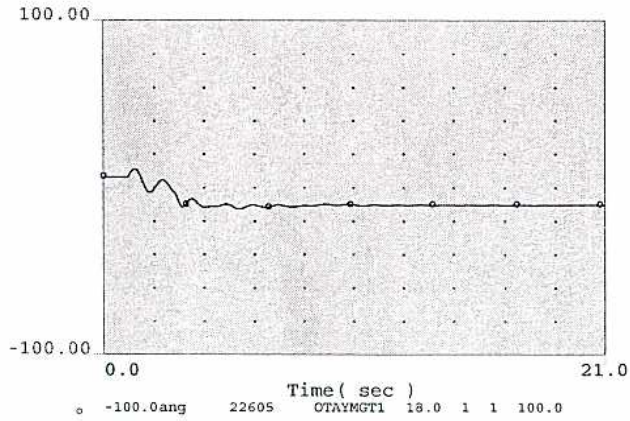












Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA

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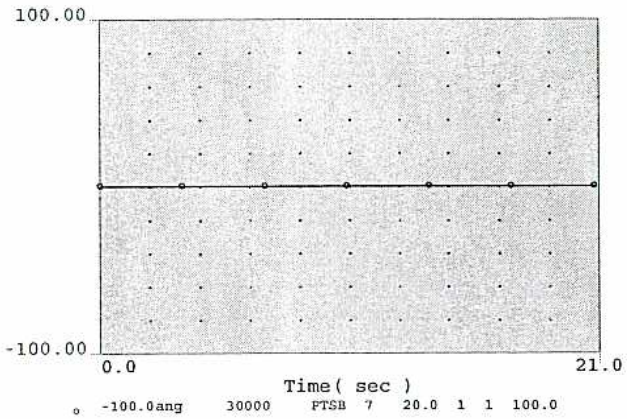
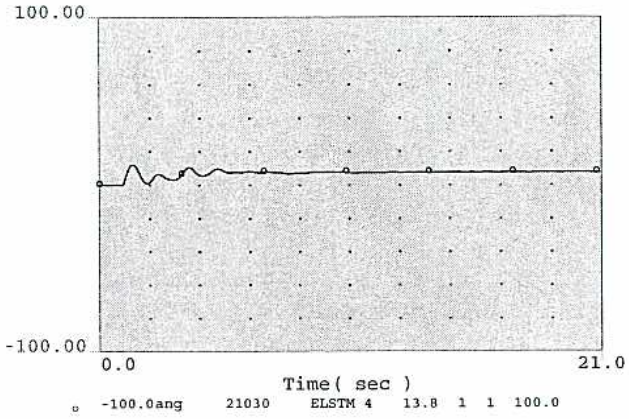
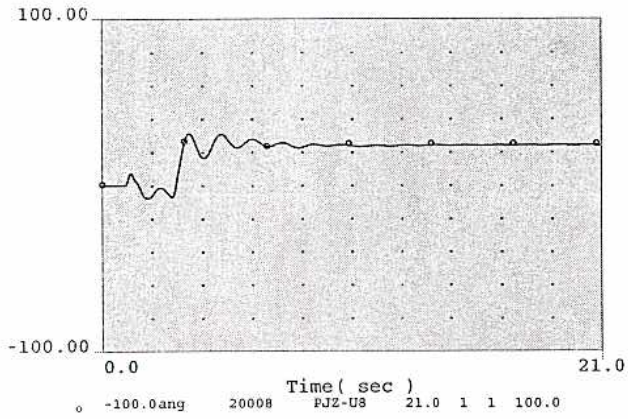
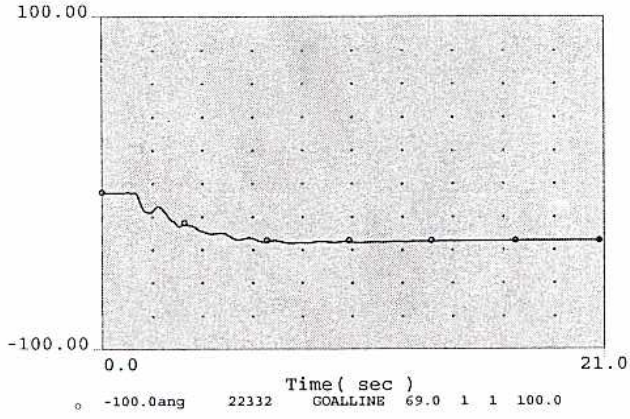
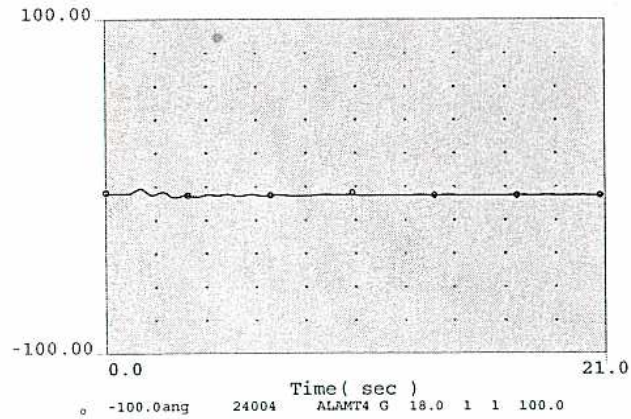
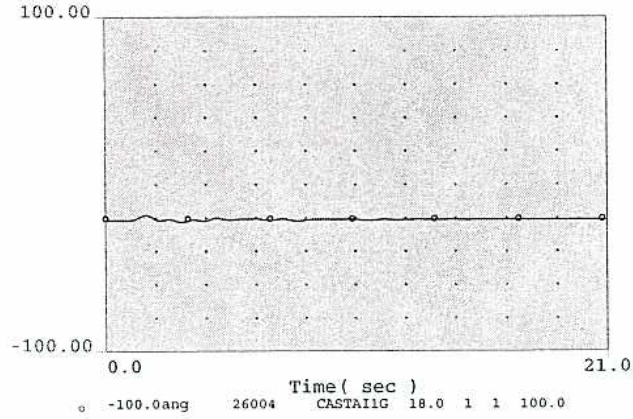




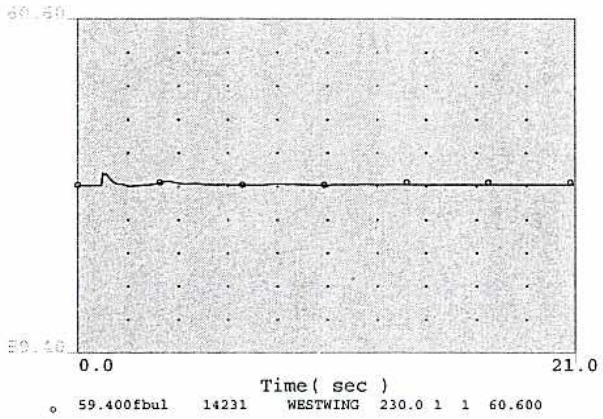




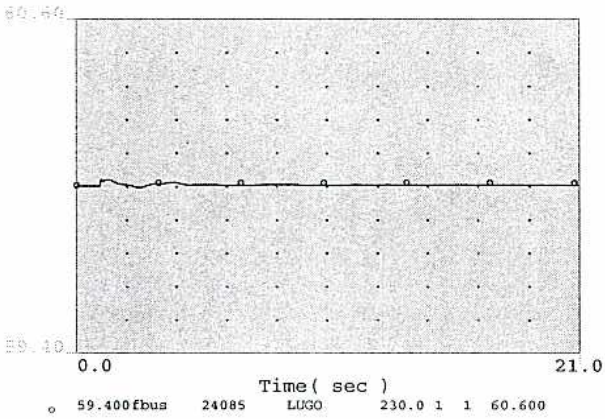




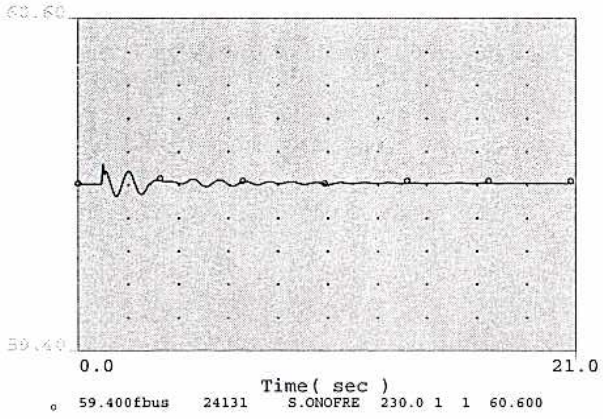
Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA



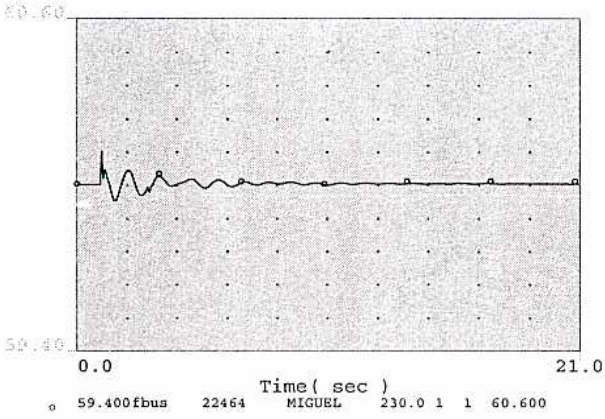
59.400fbul 14231 WESTWING 230.0 1 1 60.600



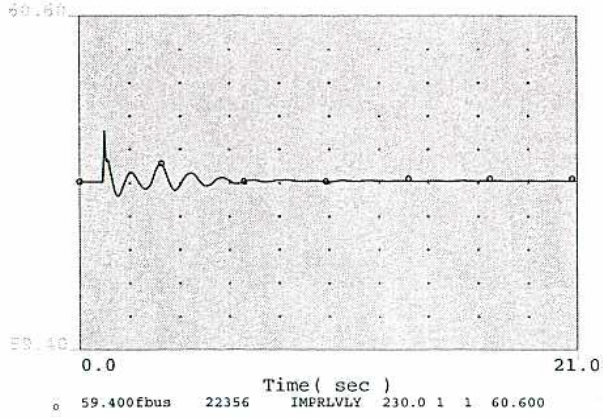
59.400fbus 24085 LUGO 230.0 1 1 60.600



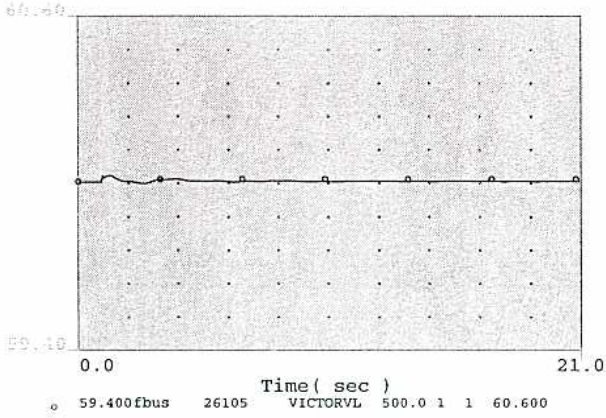
59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



59.400fbus 22464 MIGUEL 230.0 1 1 60.600

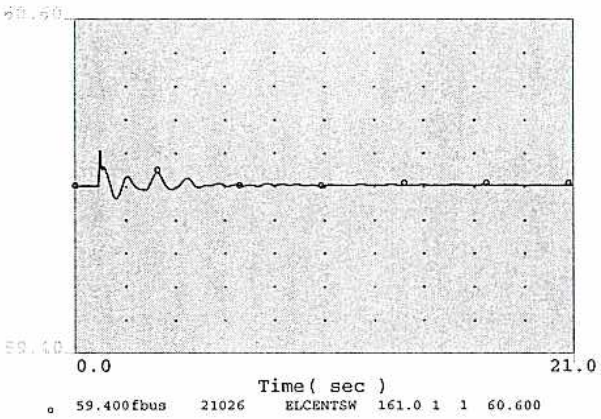


59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

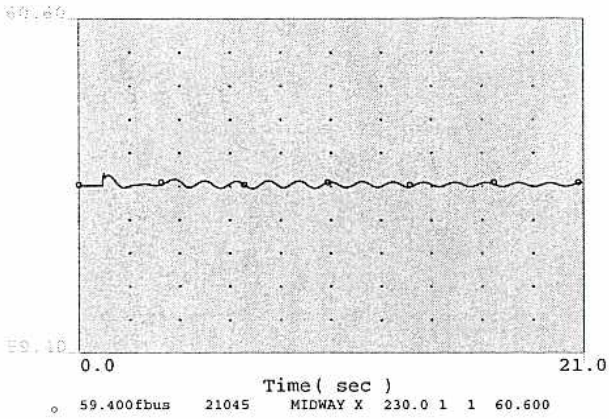


59.400fbus 26105 VICTORVL 500.0 1 1 60.600

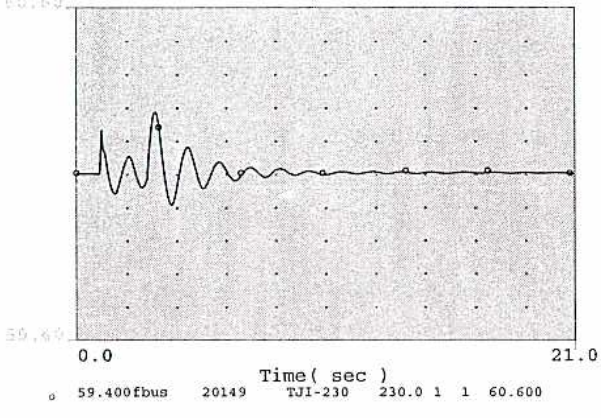
Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA



59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



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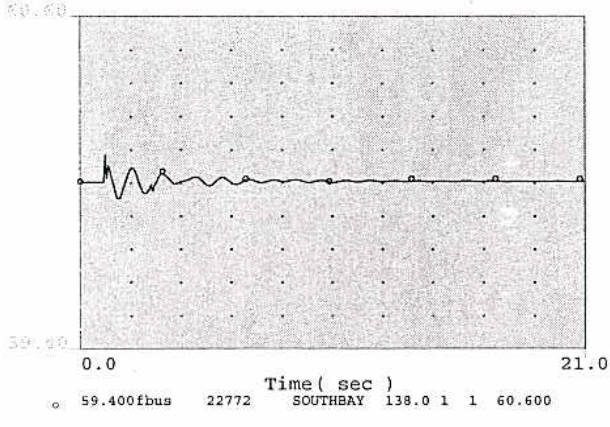
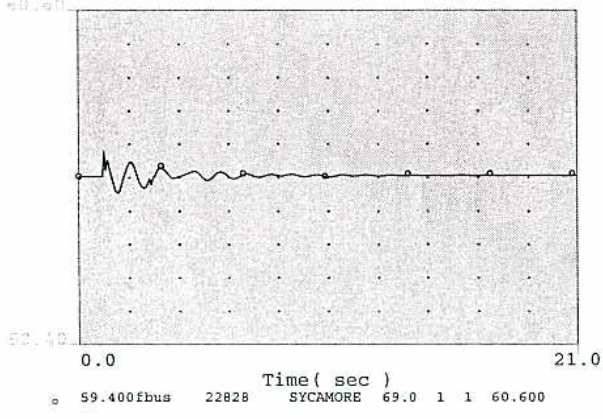
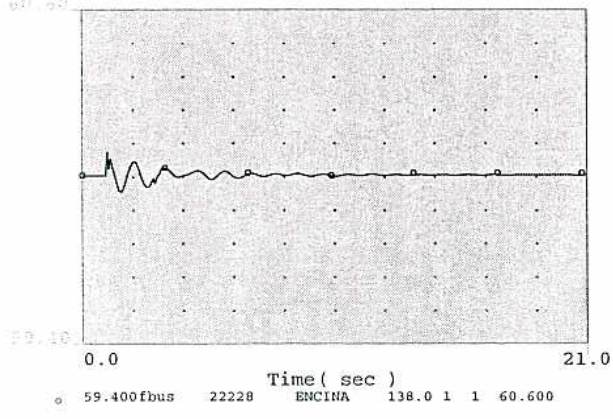


59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600



59.400fbus 22828 SYCAMORE 69.0 1 1 60.600



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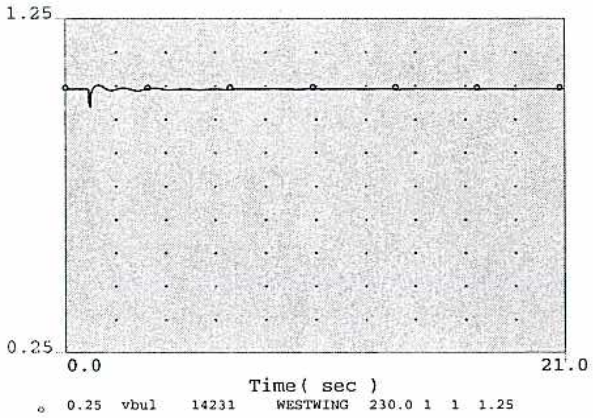
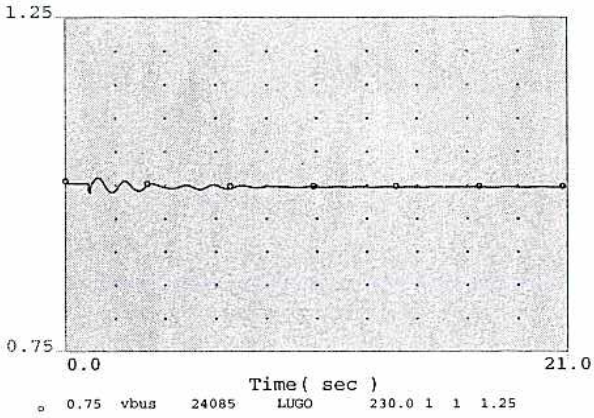
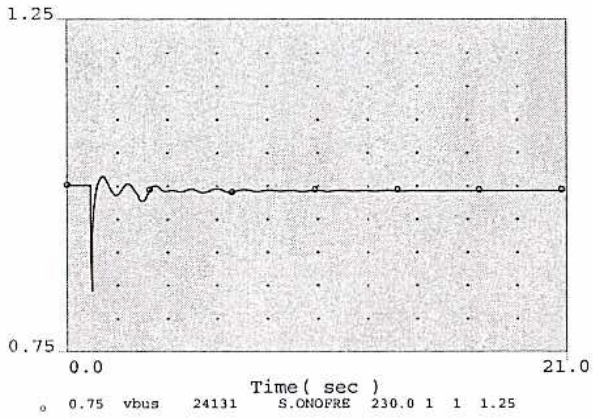
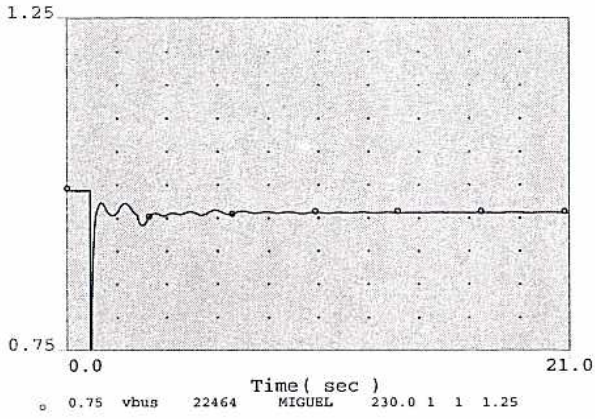
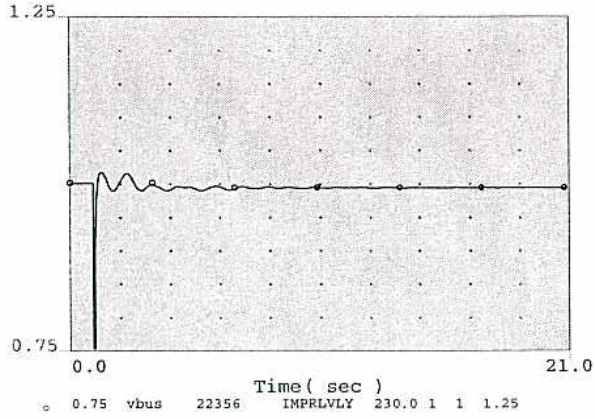
Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA

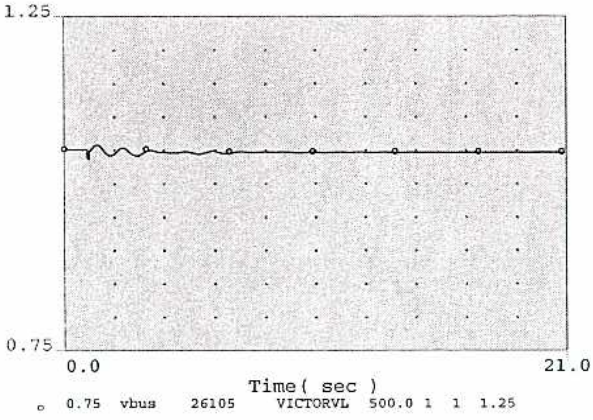




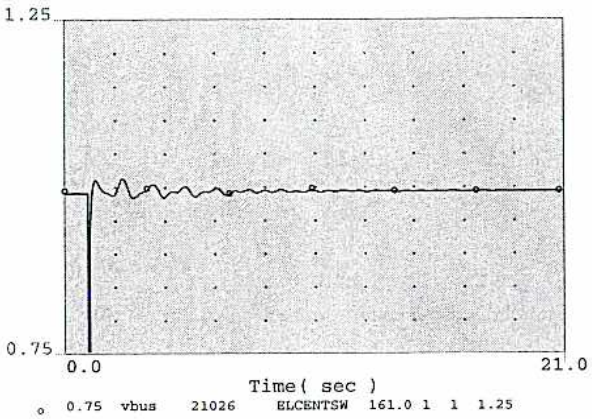


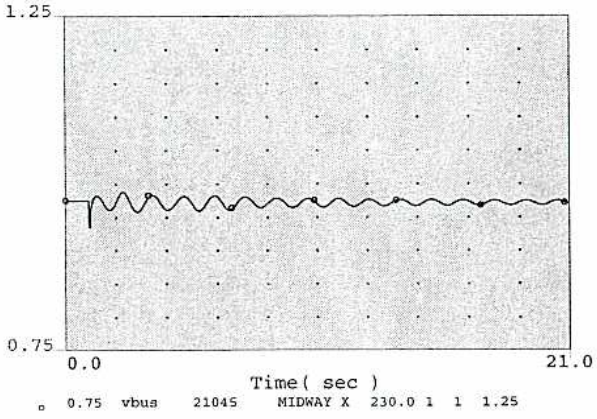


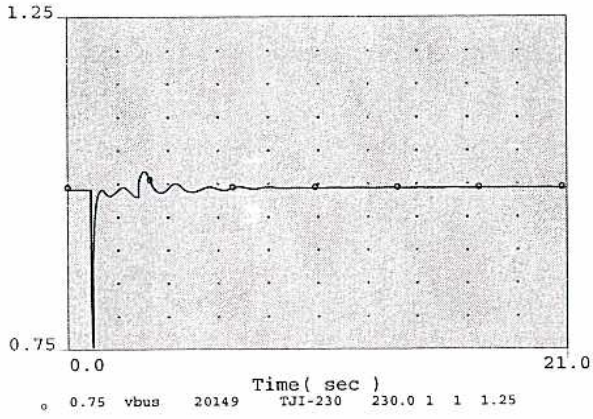


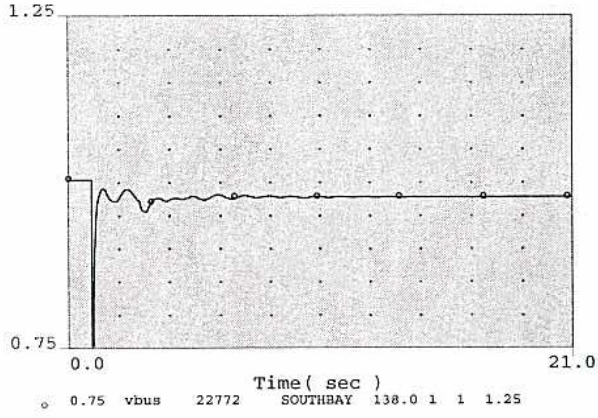


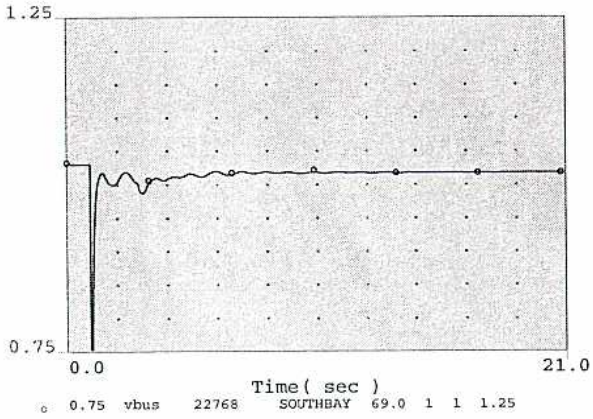
Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA

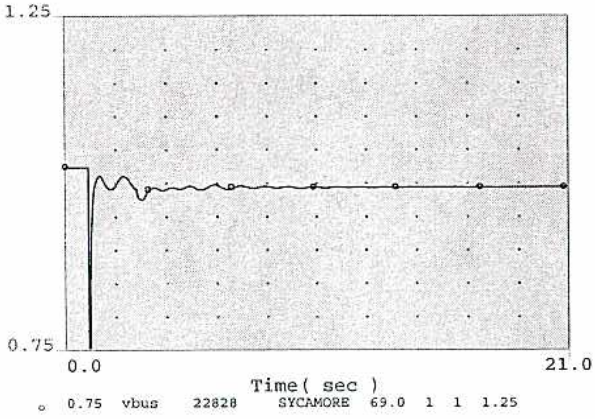




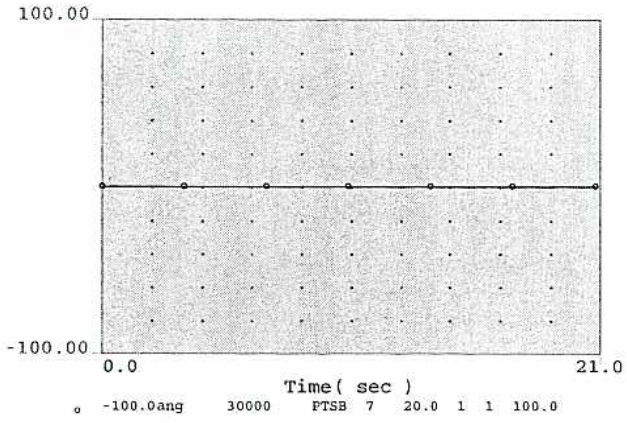


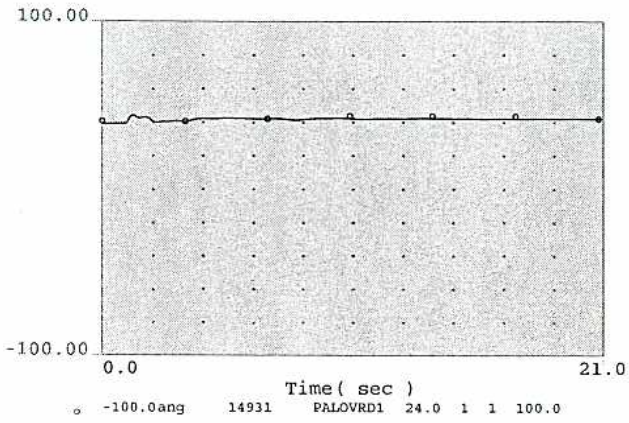


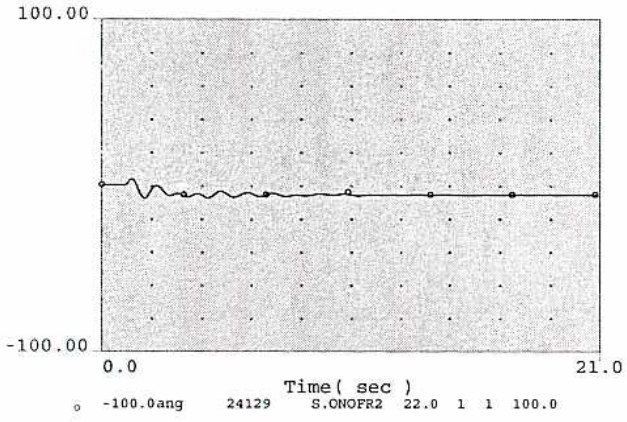


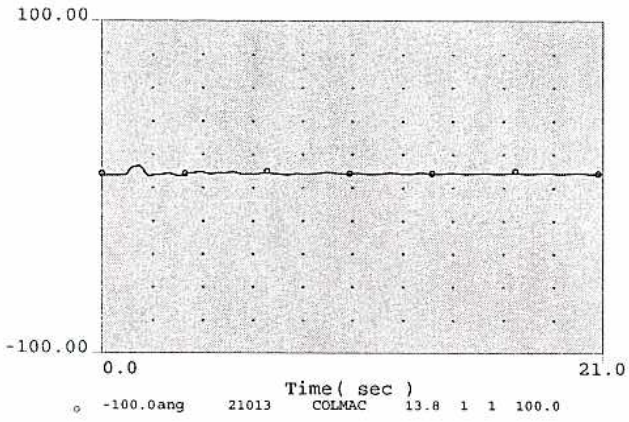


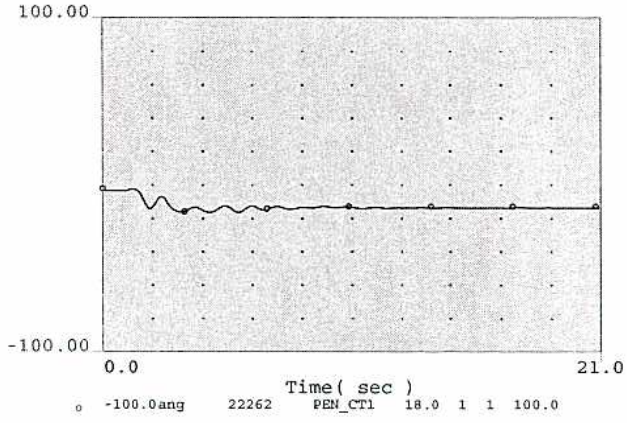
Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA

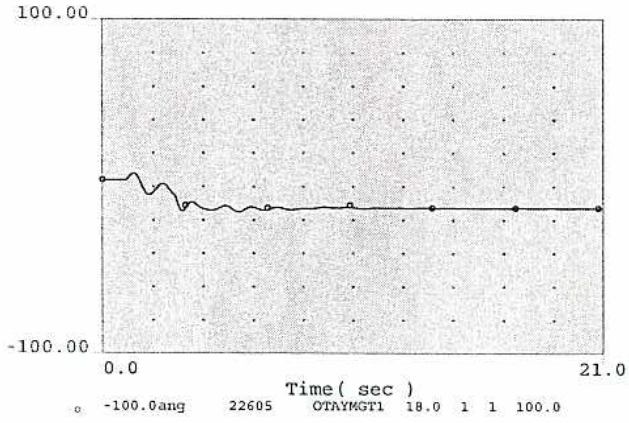












Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA

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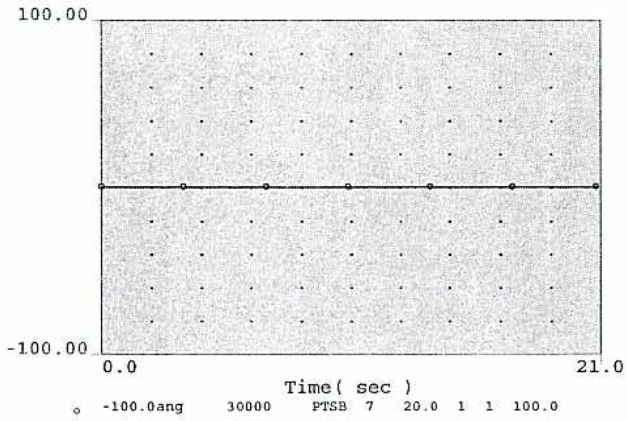
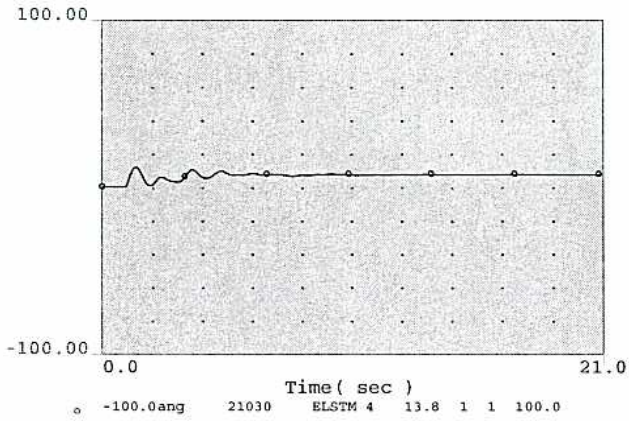
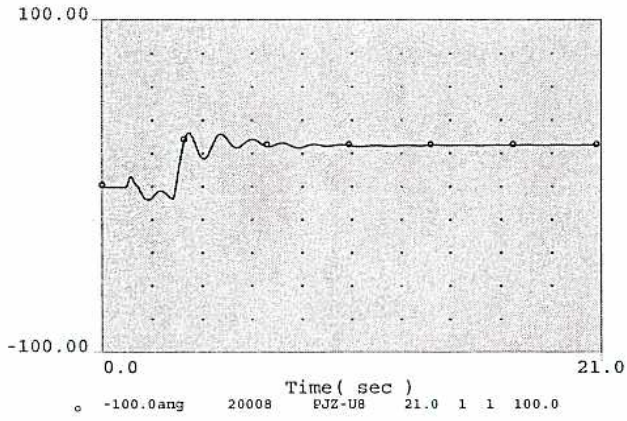
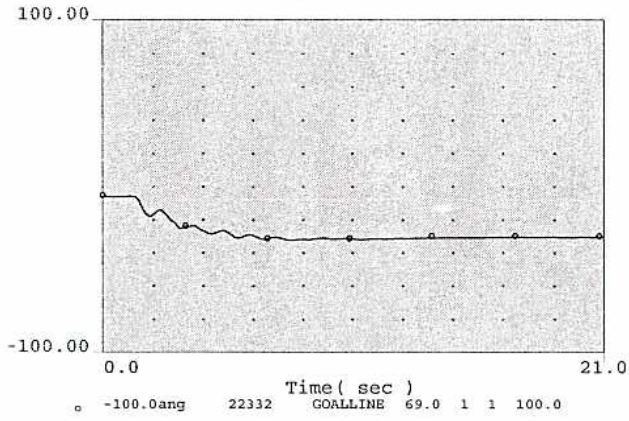
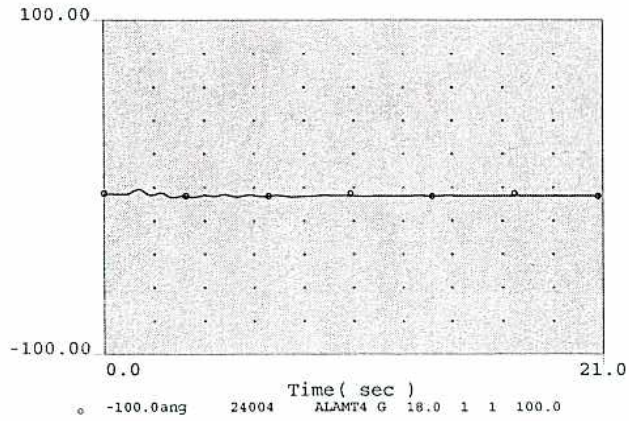
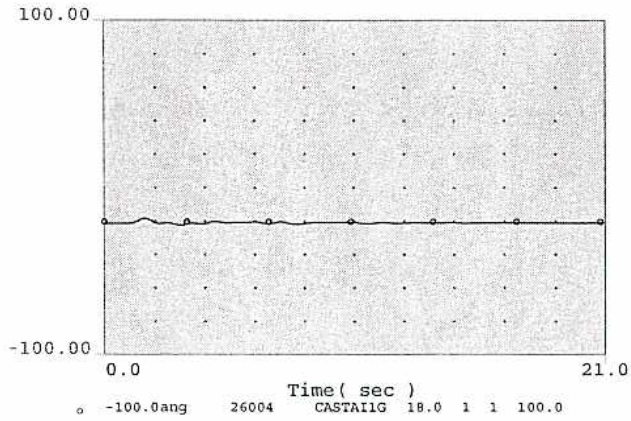




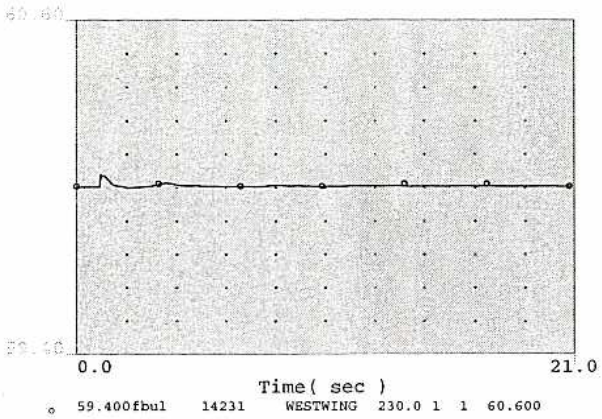




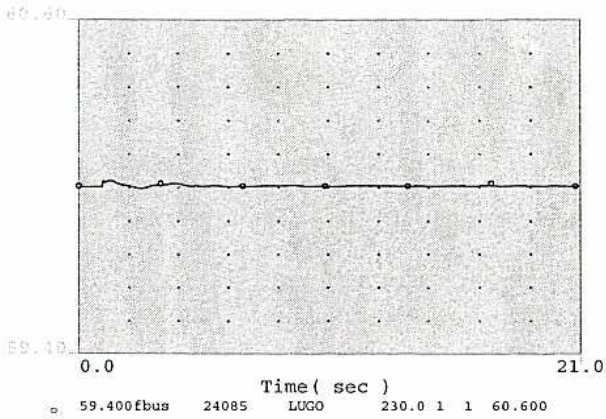




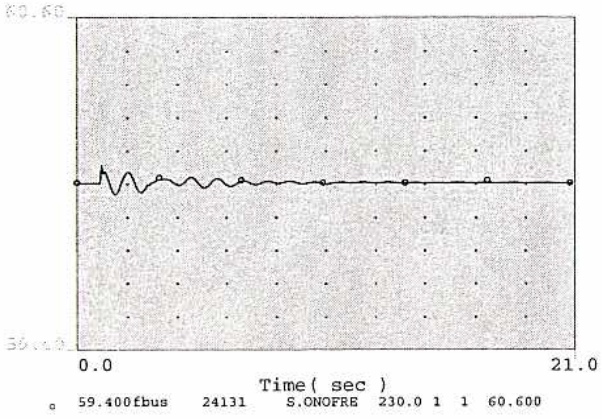
Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA



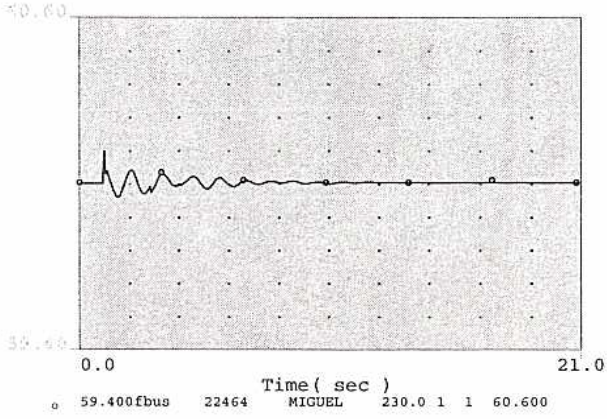
59.400fbus 14231 WESTWING 230.0 1 1 60.600



59.400fbus 24085 LUGO 230.0 1 1 60.600



59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



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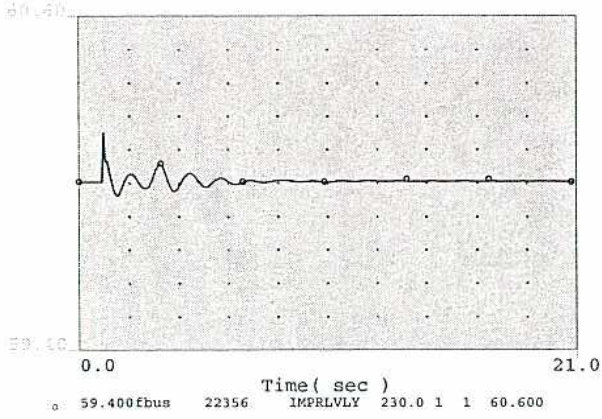
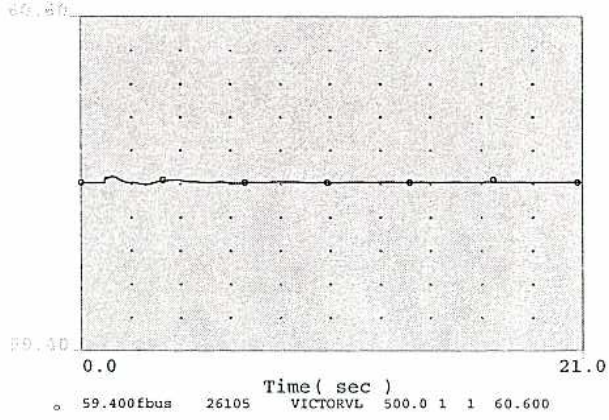
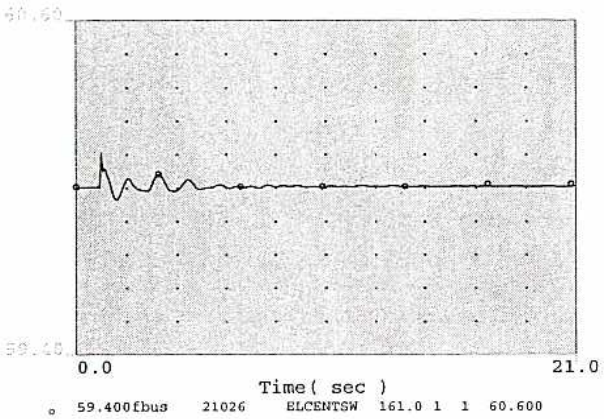


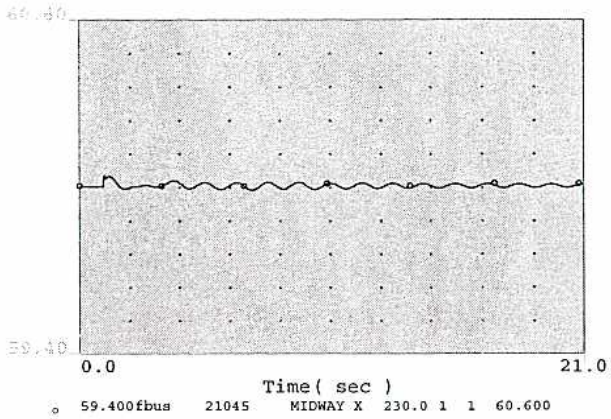
59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

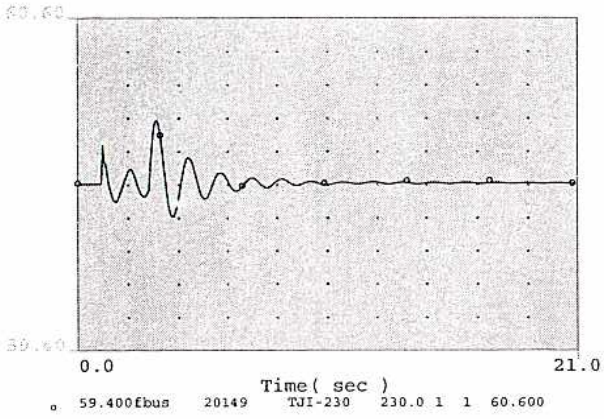


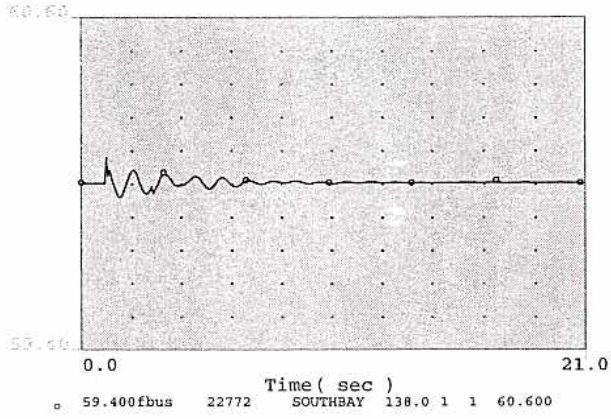
59.400fbus 26105 VICTORVL 500.0 1 1 60.600

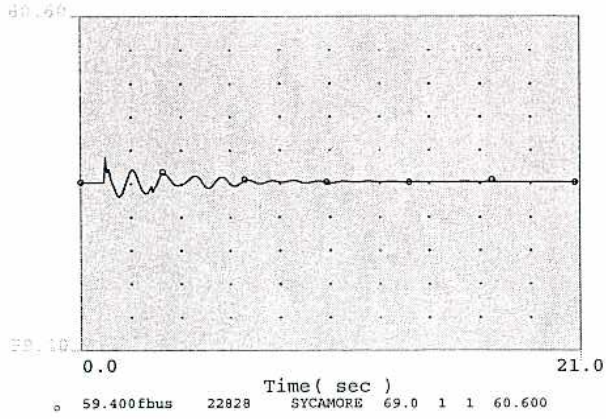
Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA

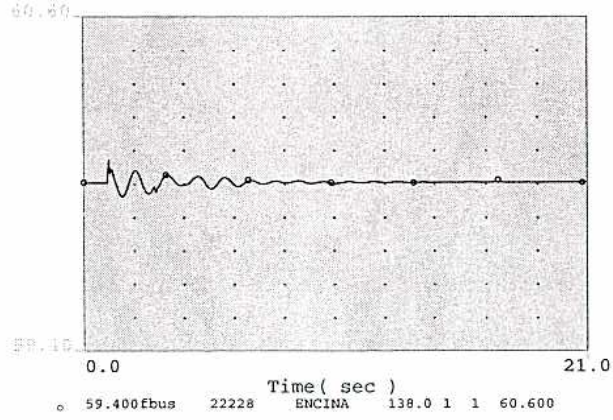




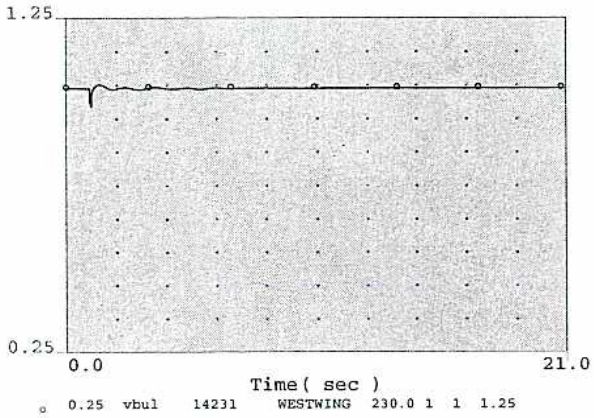


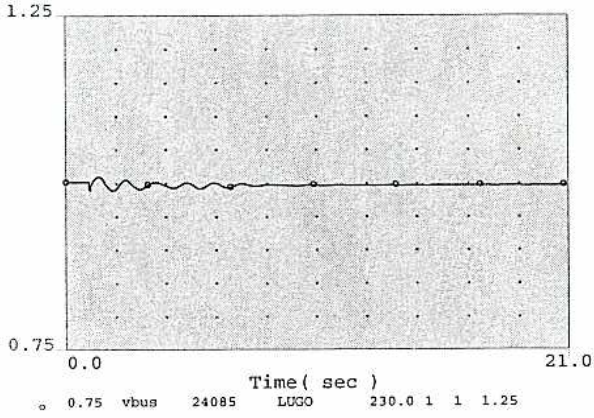


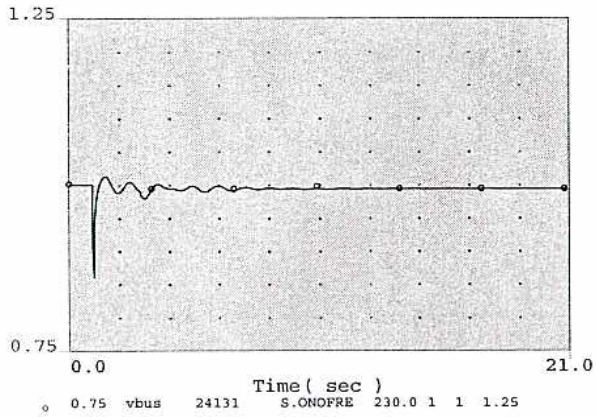


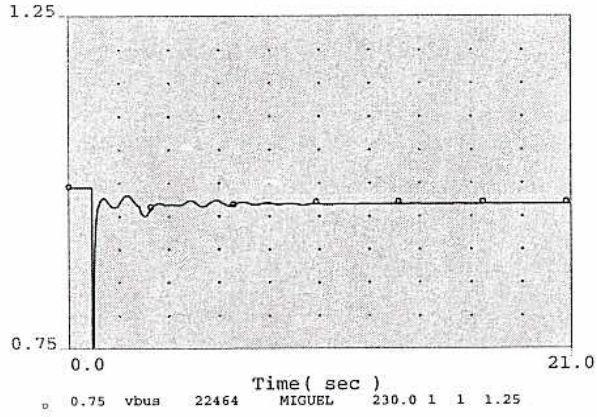


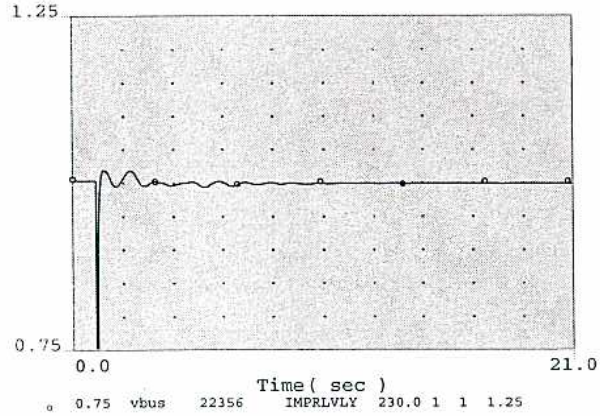
Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA

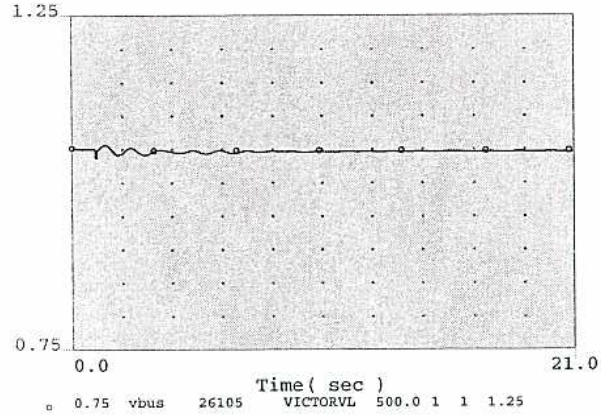




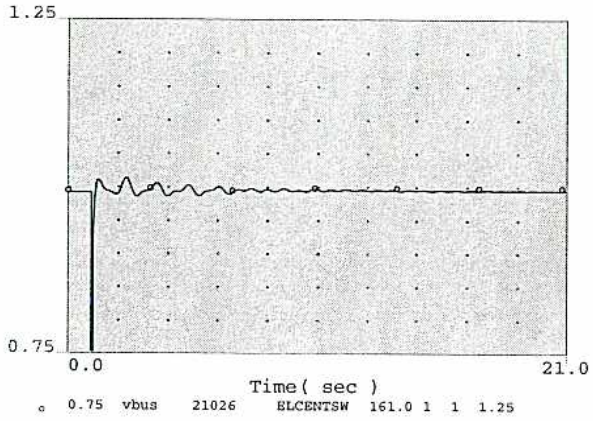


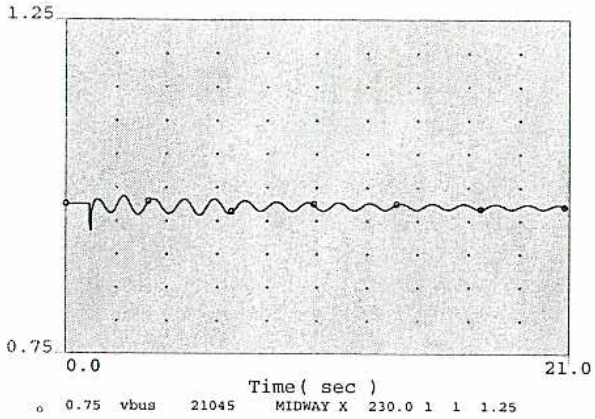


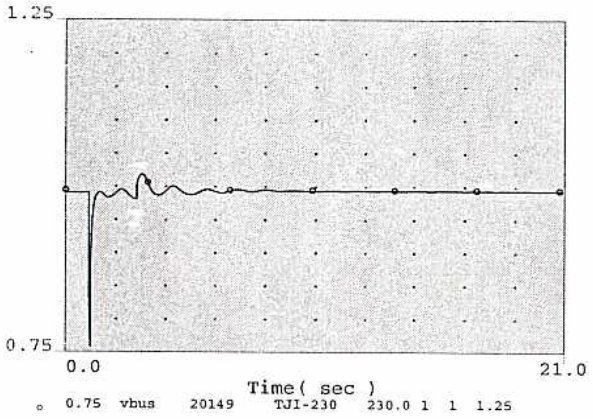


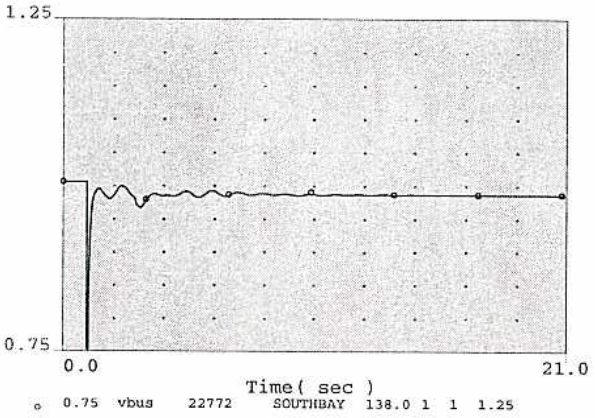


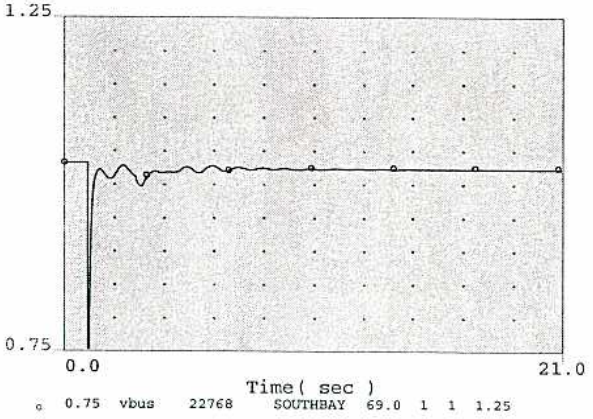
Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA

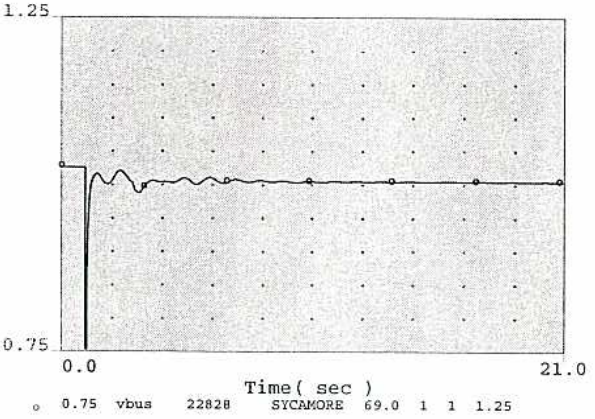




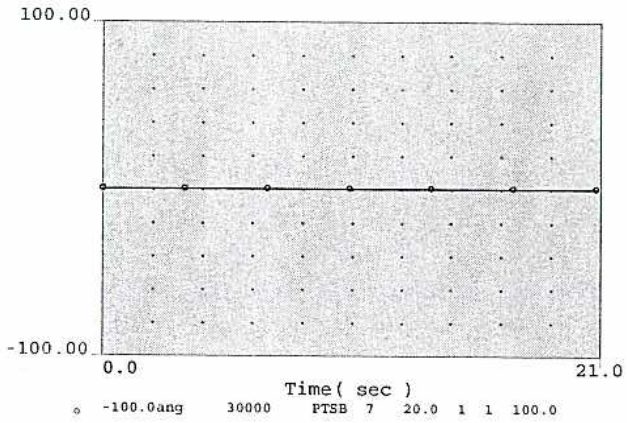


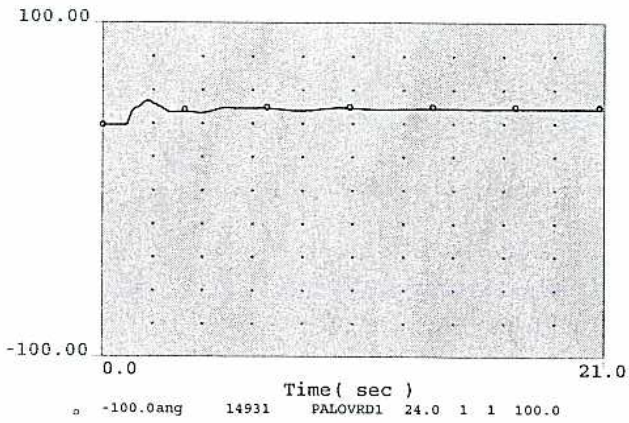


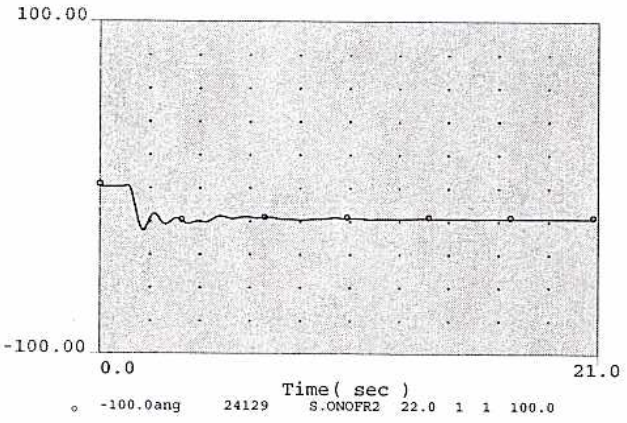


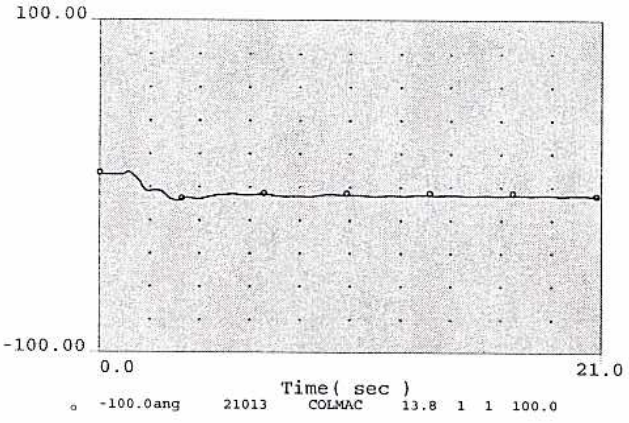


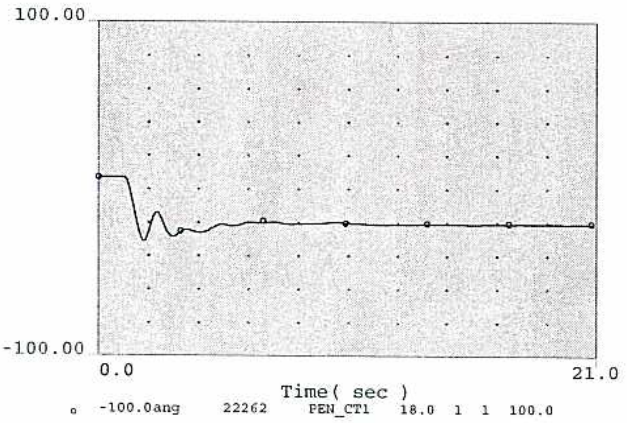
Fault bus at Inmperial Valley
IV-ML 500kV SLO w/XTrip SPS TJI-OTAYMESA

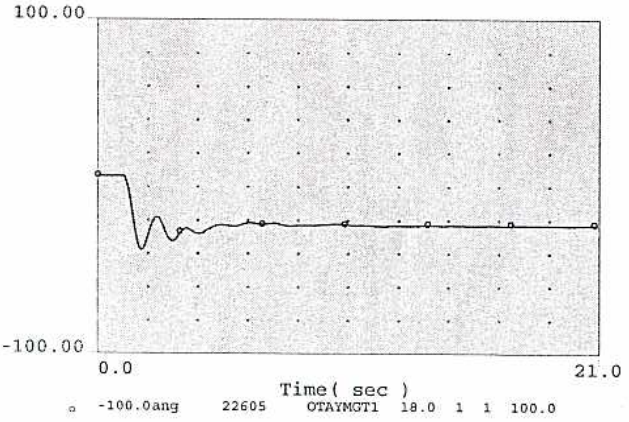












Fault bus at North Gila

Trip Imperial Valley - North Gila 500 kV line

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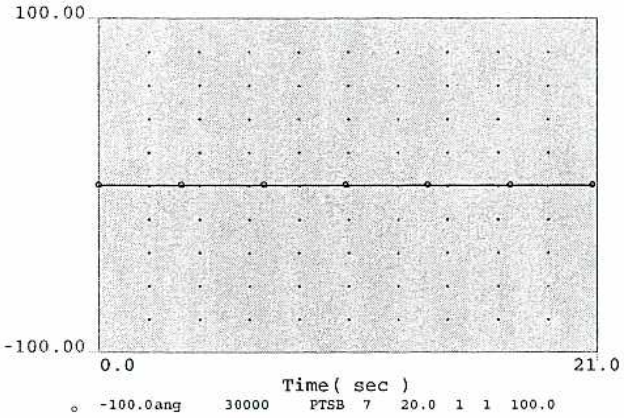
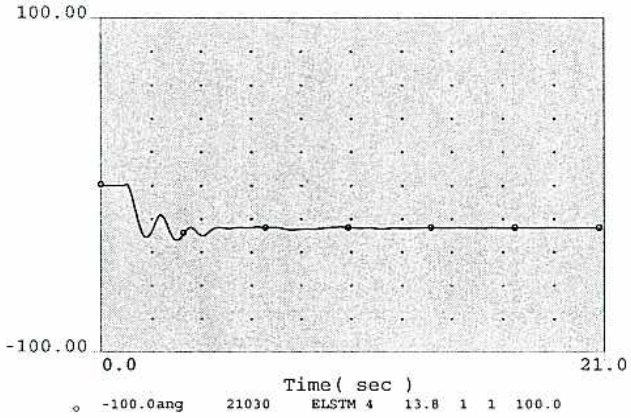
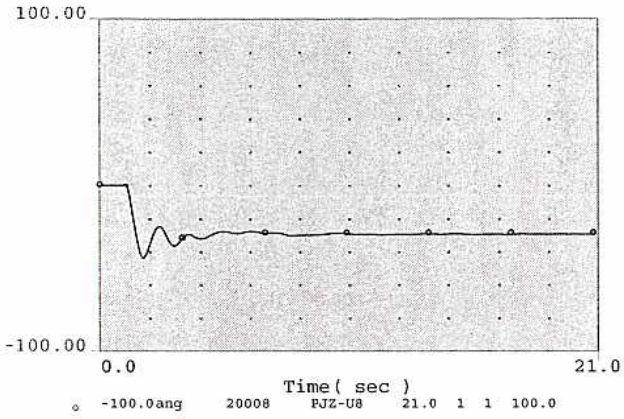
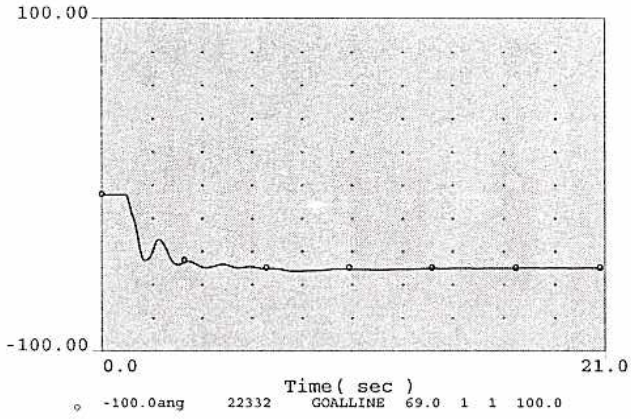
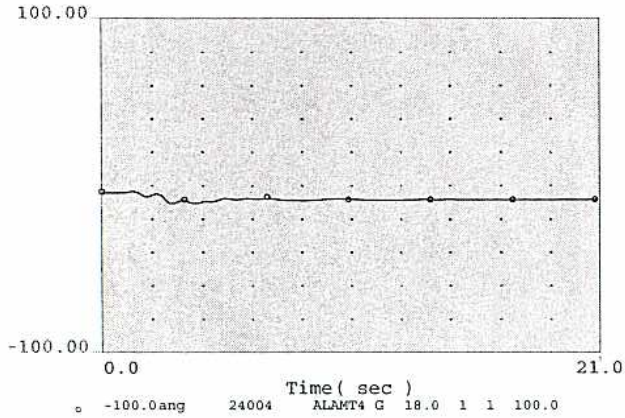
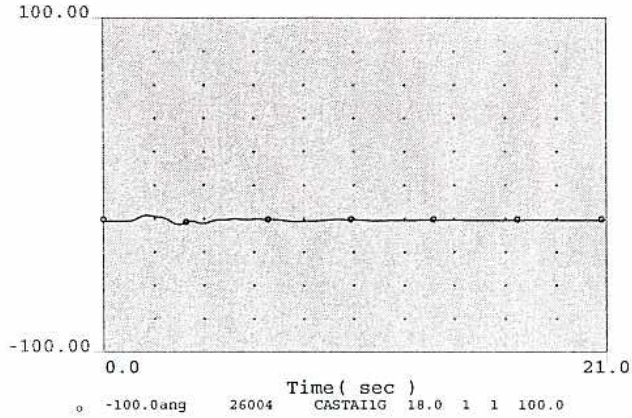




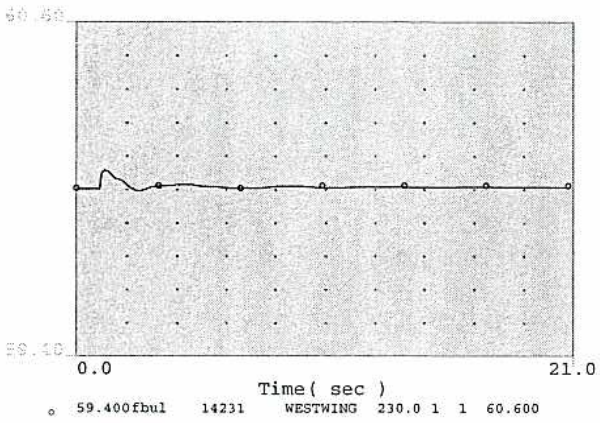


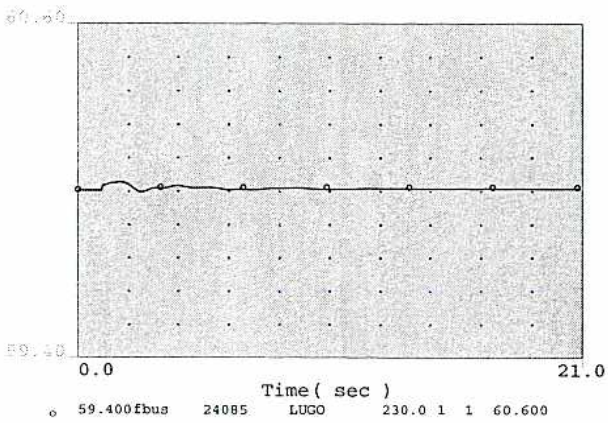


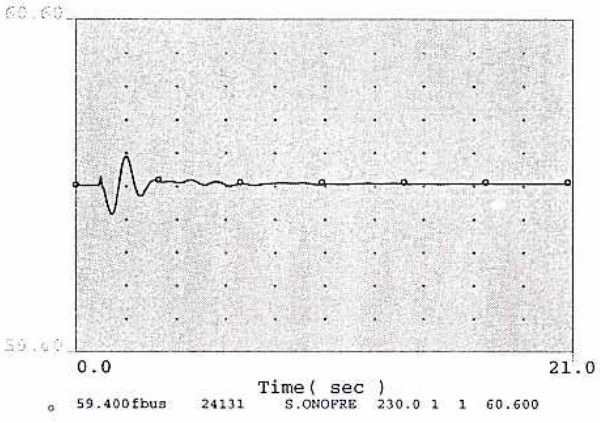


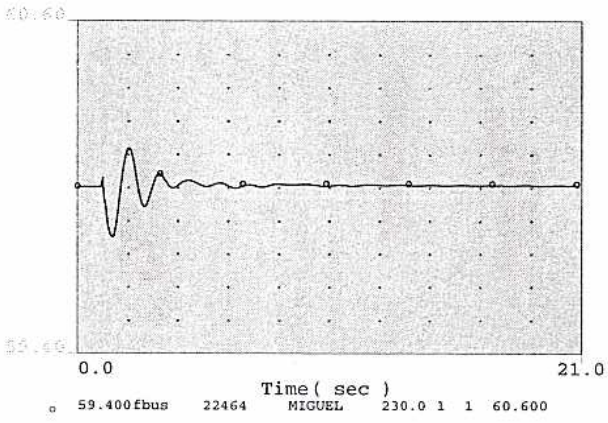


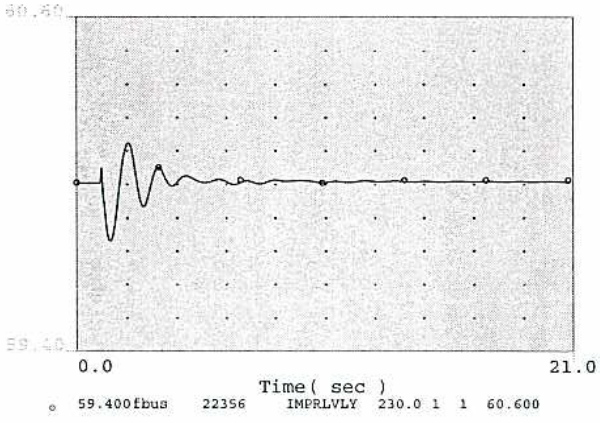
Fault bus at North Gila
Trip Imperial Valley - North Gila 500 kV line

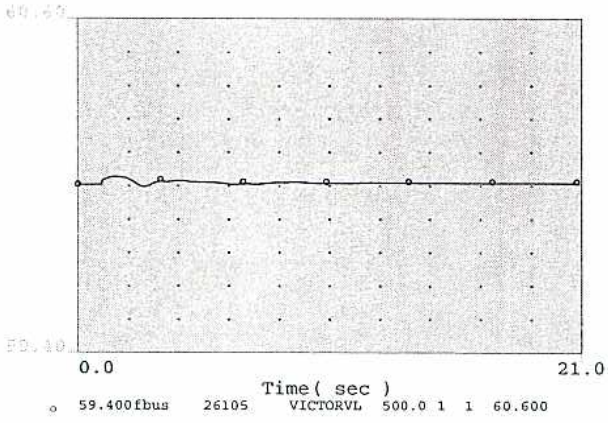




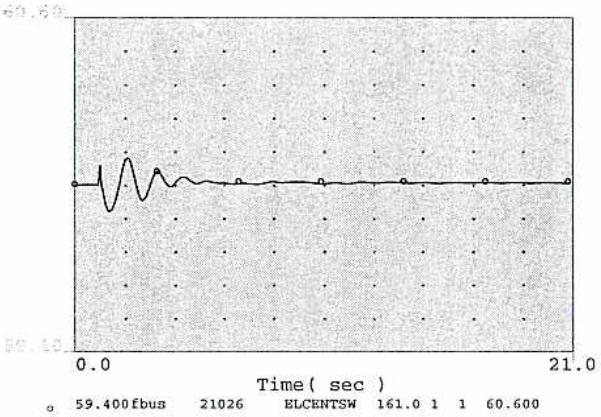




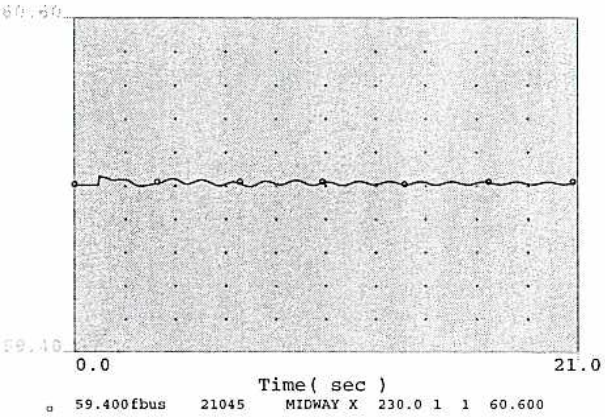




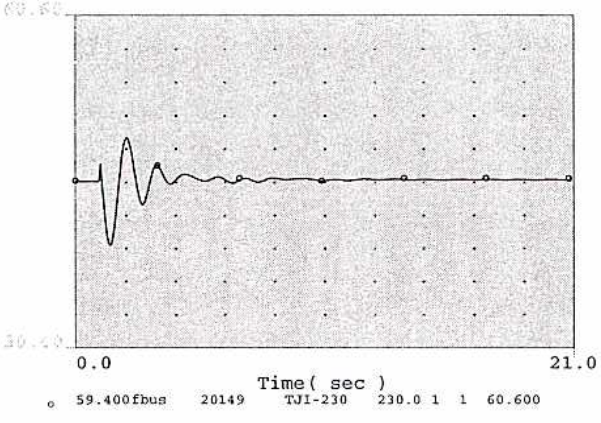
Fault bus at North Gila
Trip Imperial Valley - North Gila 500 kV line



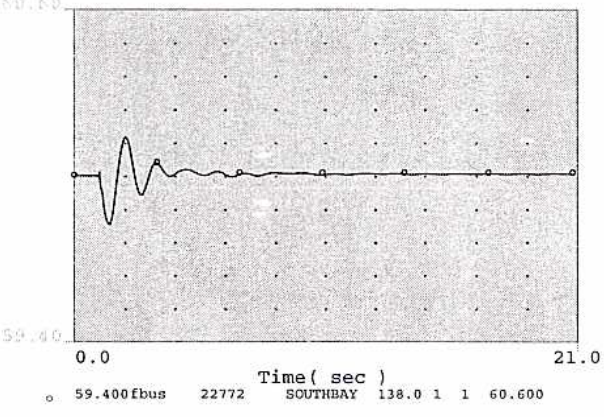
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



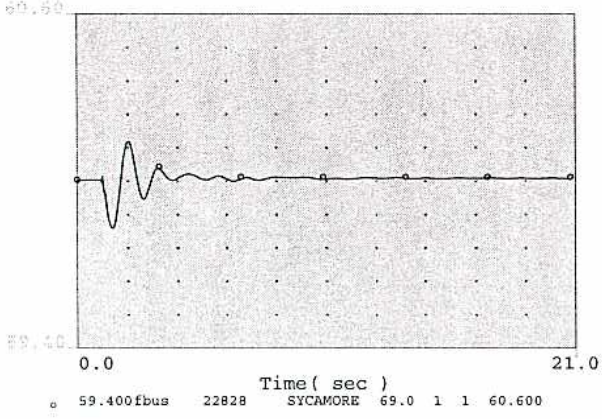
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



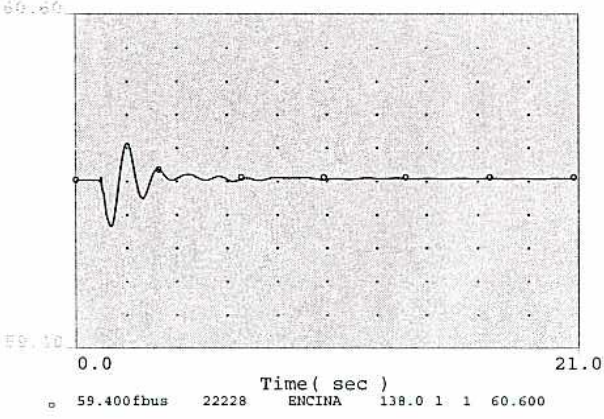
59.400fbus 20149 TJI-230 230.0 1 1 60.600



59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600

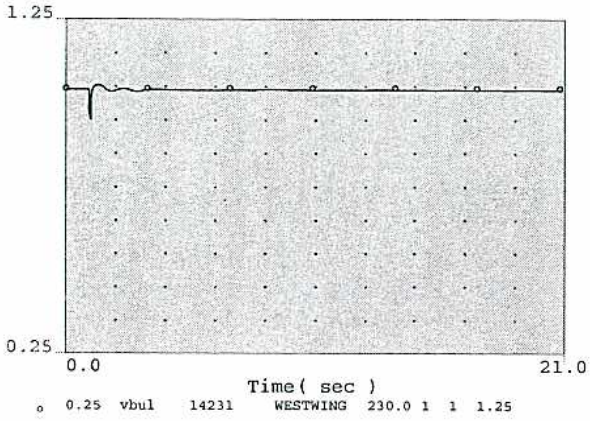


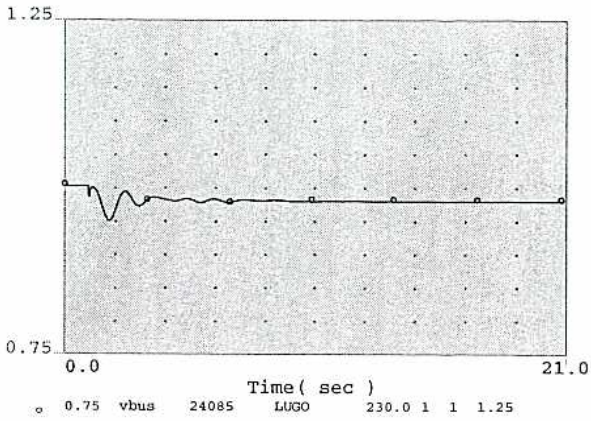
59.400fbus 22828 SYCAMORE 69.0 1 1 60.600

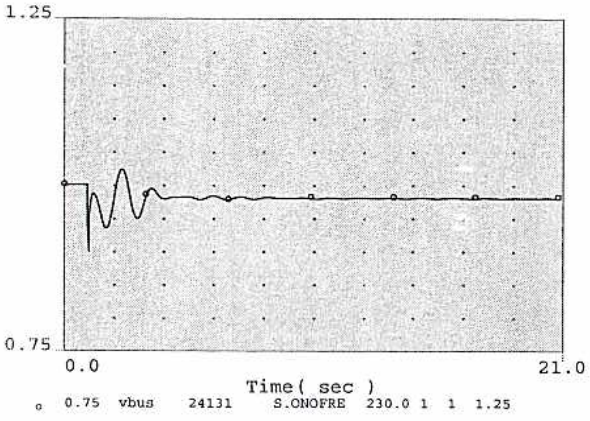


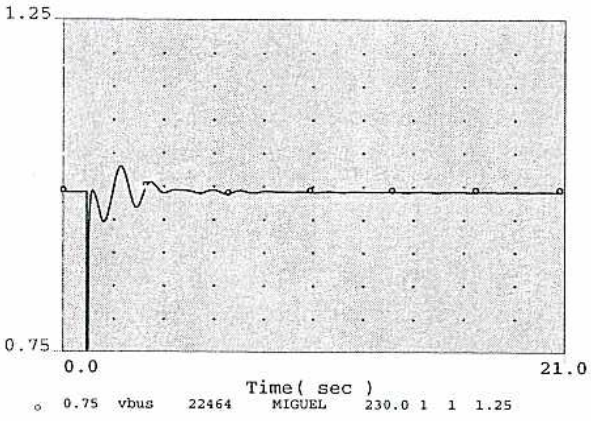
59.400fbus 22228 ENCINA 138.0 1 1 60.600

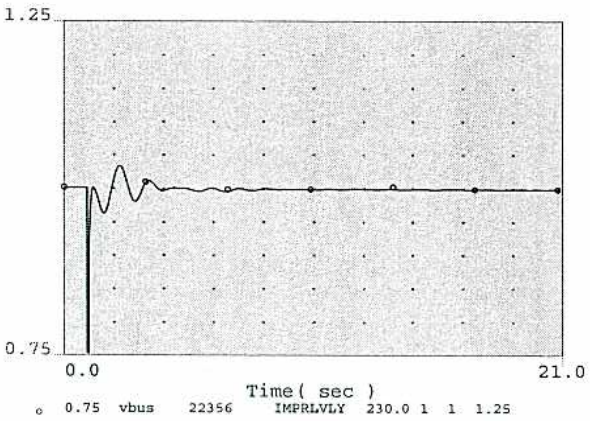
Fault bus at North Gila
Trip Imperial Valley - North Gila 500 kV line

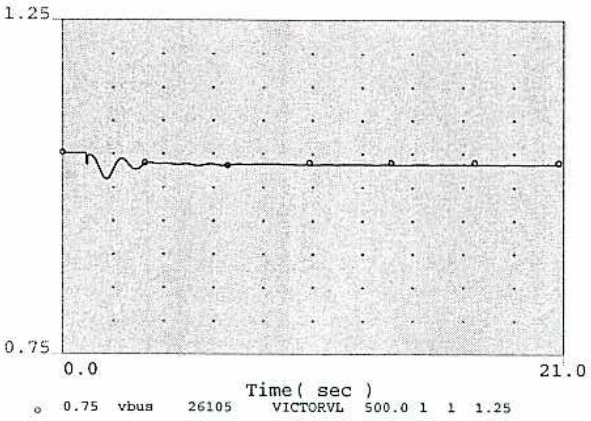




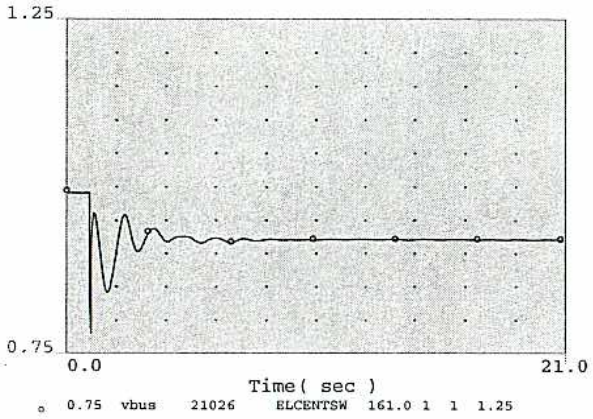


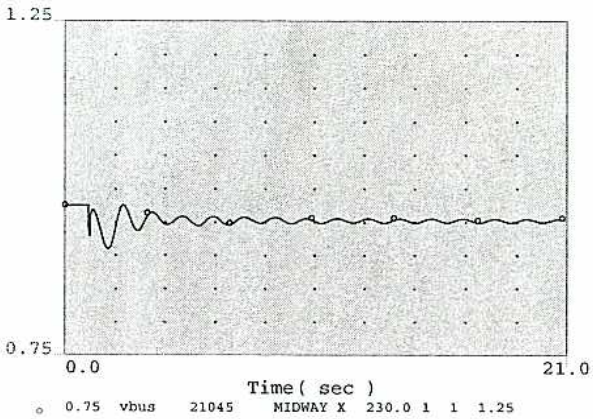


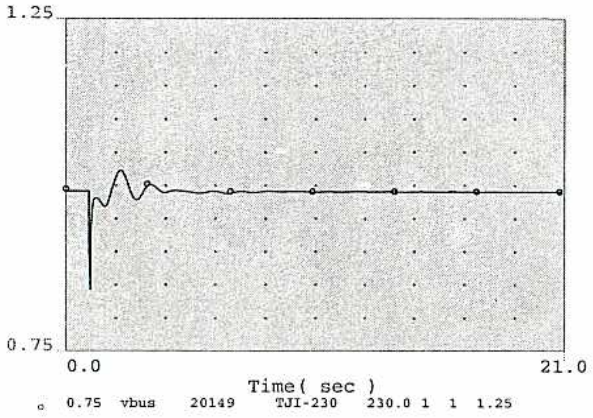


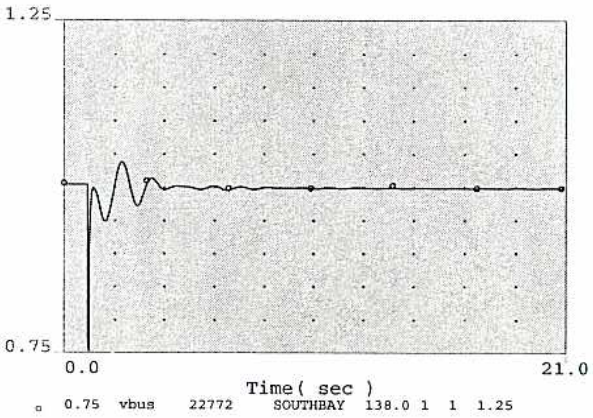


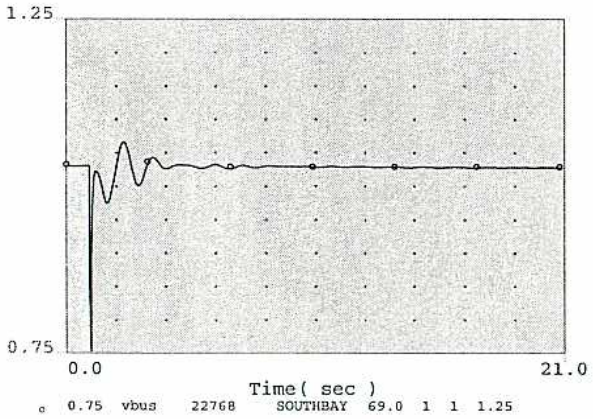
Fault bus at North Gila
Trip Imperial Valley - North Gila 500 kV line

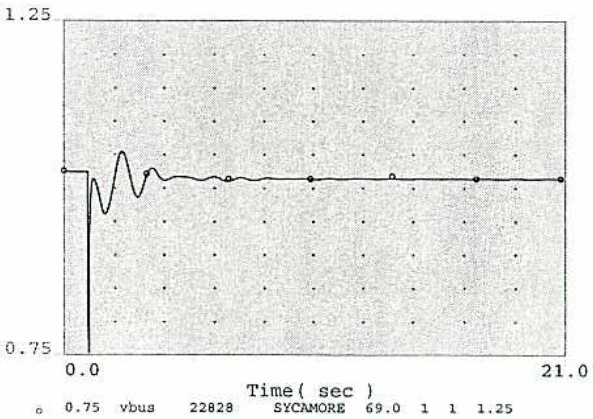




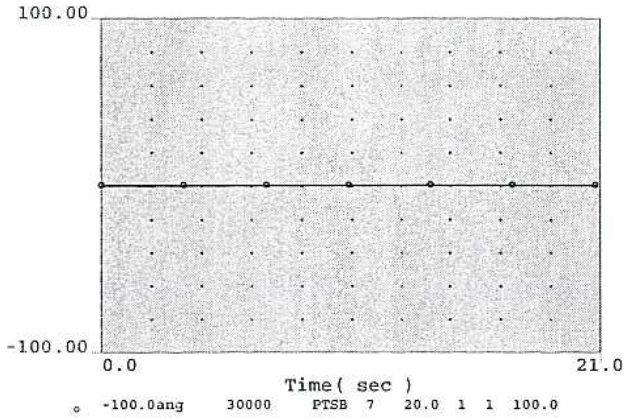


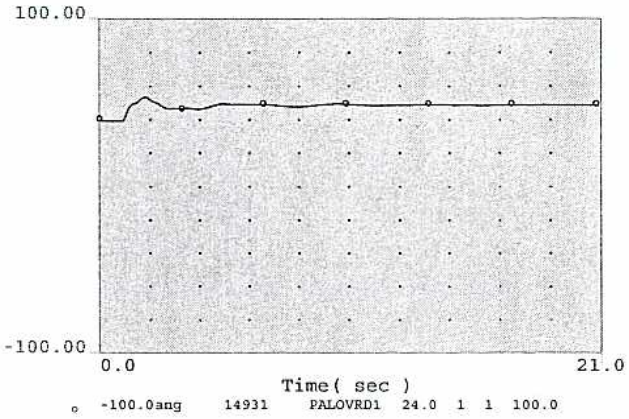


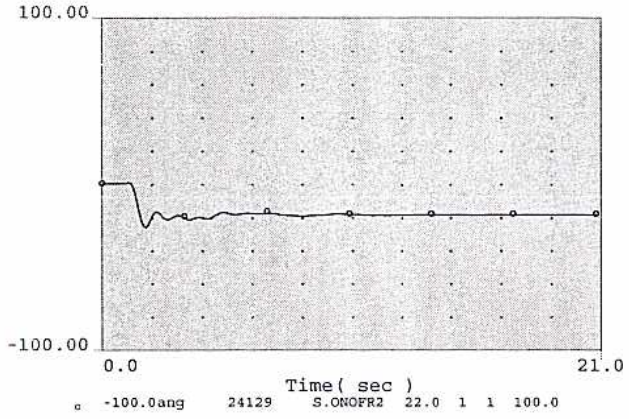


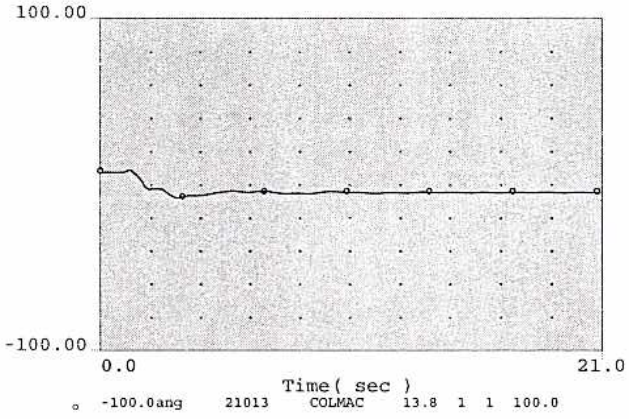


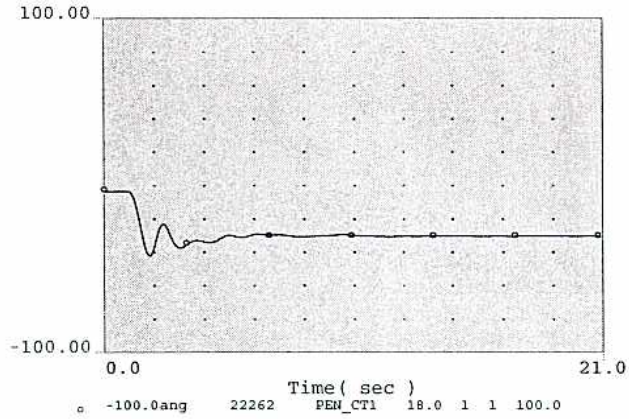
Fault bus at North Gila
Trip Imperial Valley - North Gila 500 kV line

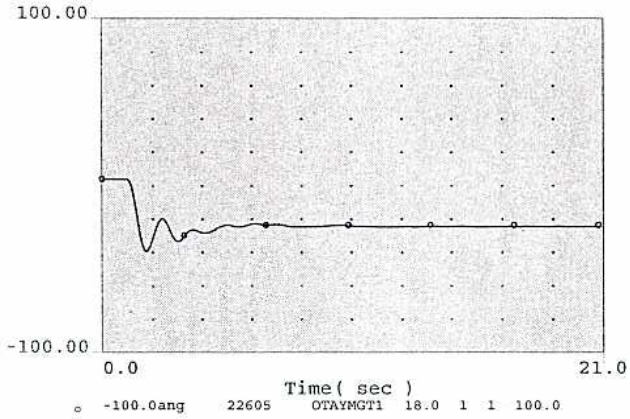




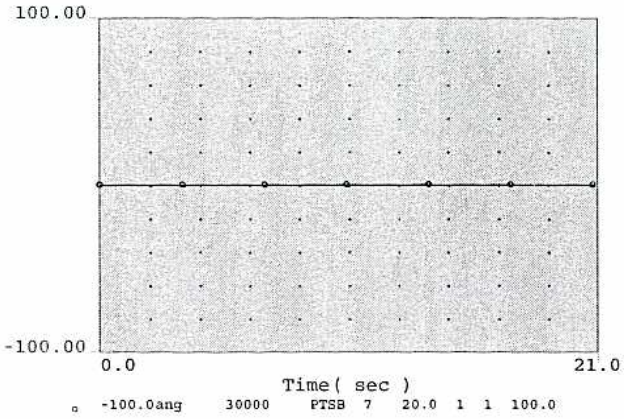








Fault bus at North Gila
Trip Imperial Valley - North Gila line



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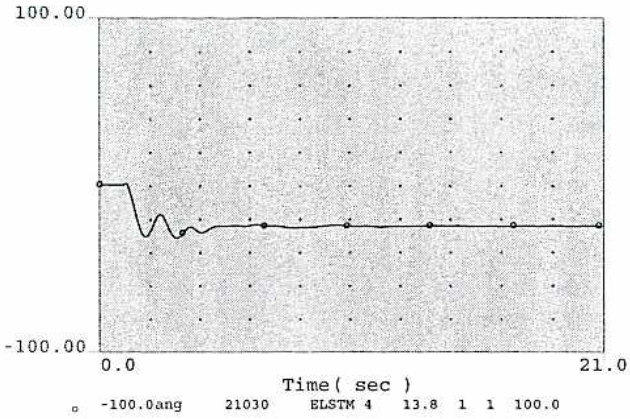

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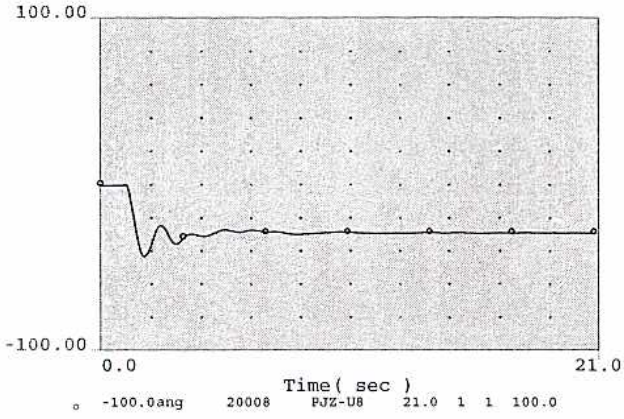

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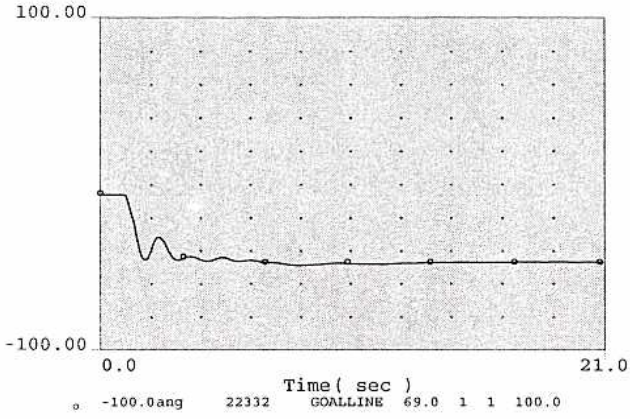

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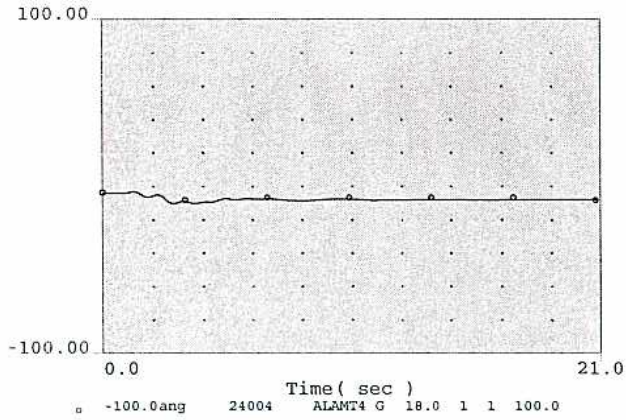

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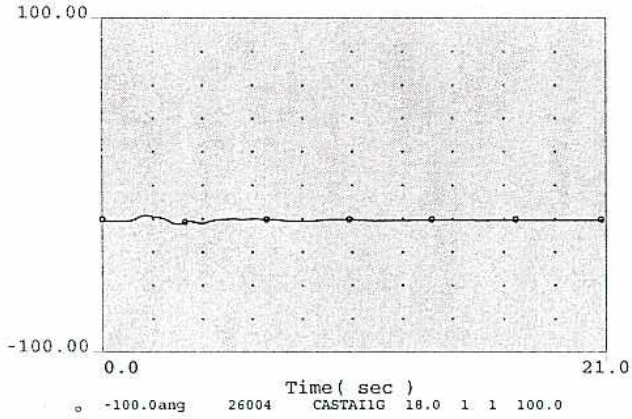

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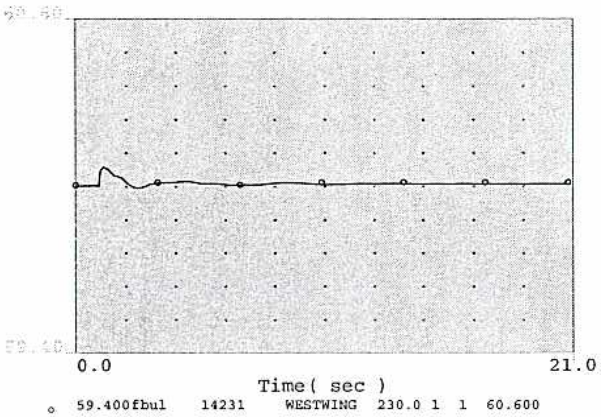
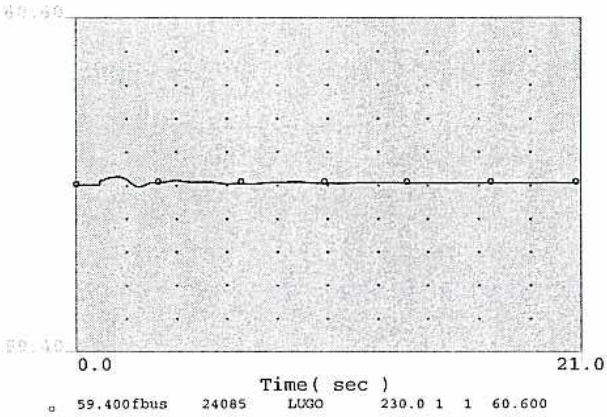
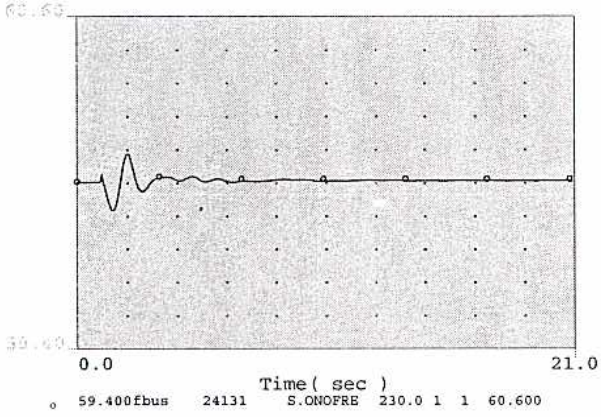
Fault bus at North Gila
Trip Imperial Valley - North Gila line



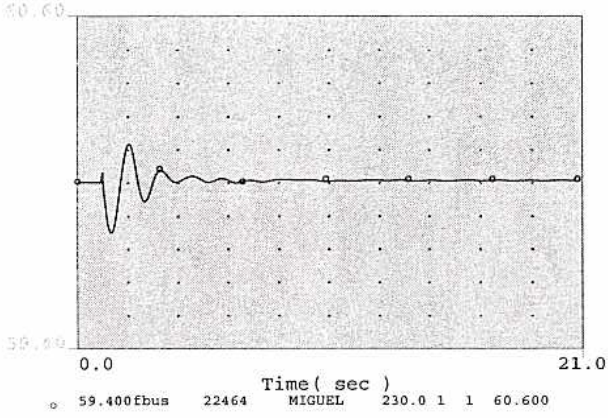
59.400fbul 14231 WESTWING 230.0 1 1 60.600



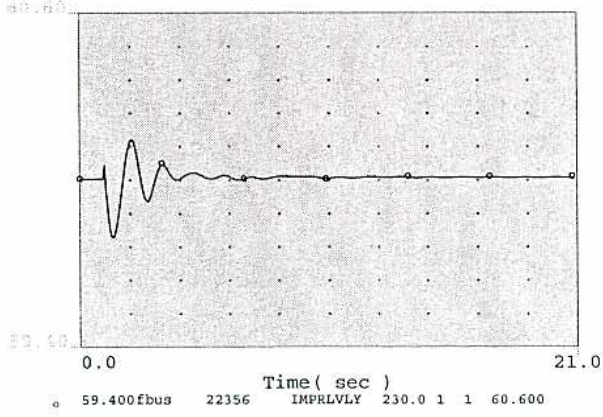
59.400fbus 24085 LUGO 230.0 1 1 60.600



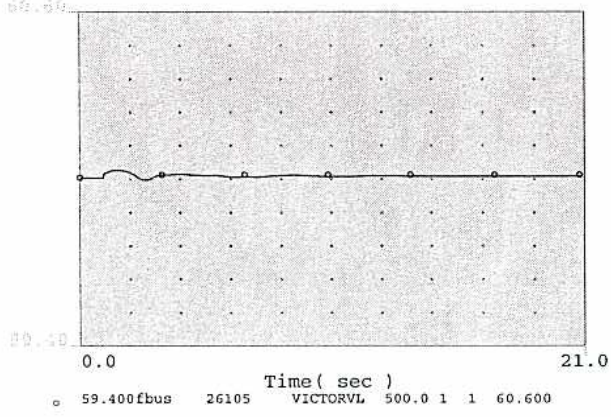
59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



59.400fbus 22464 MIGUEL 230.0 1 1 60.600

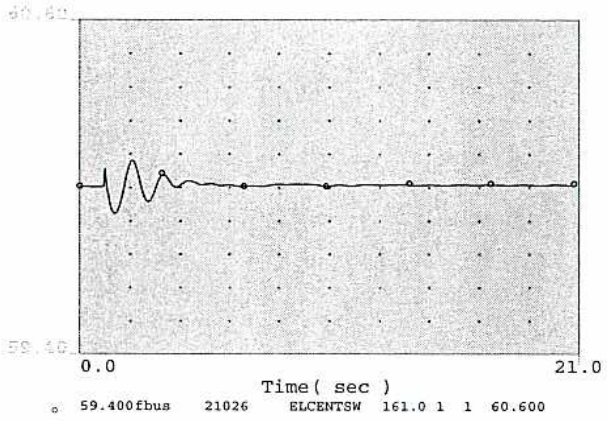


59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

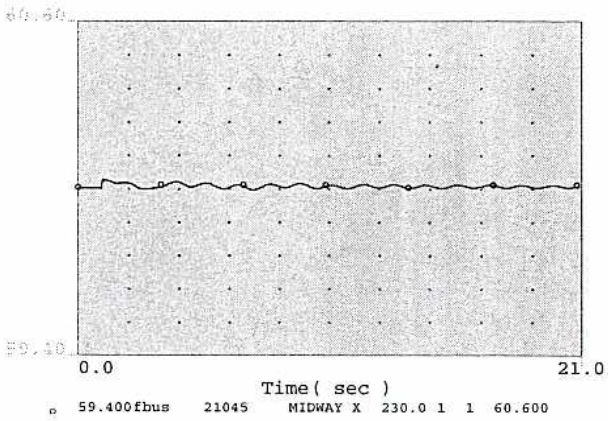


59.400fbus 26105 VICTORVL 500.0 1 1 60.600

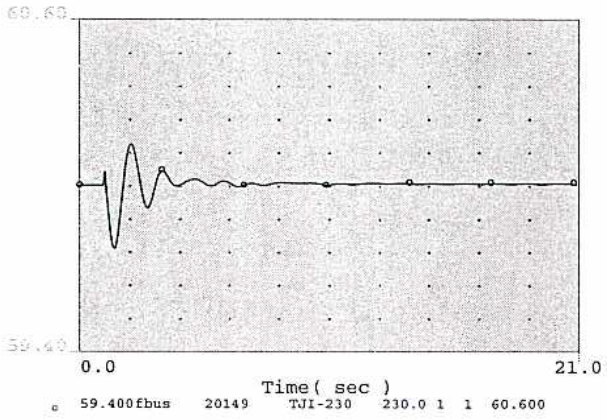
Fault bus at North Gila
Trip Imperial Valley - North Gila line



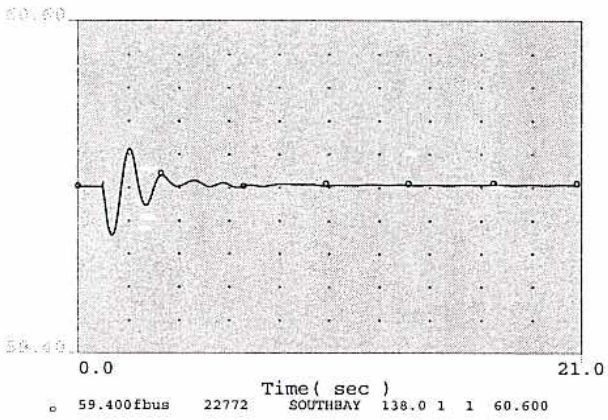
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



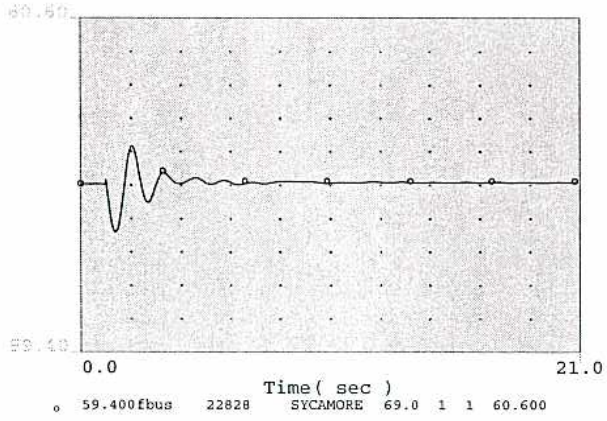
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



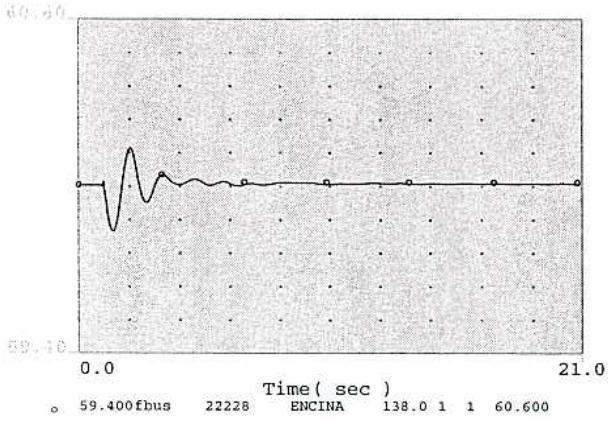
59.400fbus 20149 TJI-230 230.0 1 1 60.600



59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600

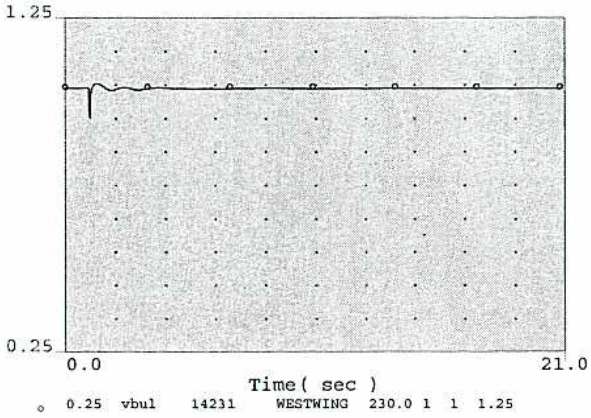


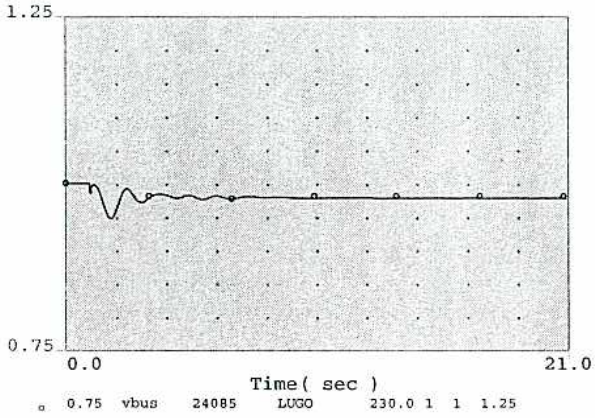
59.400fbus 22828 SYCAMORE 69.0 1 1 60.600

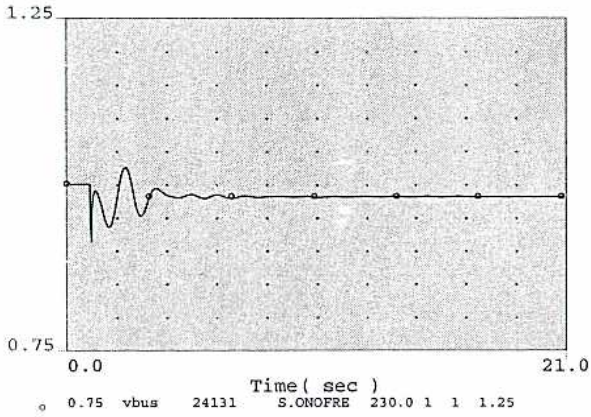


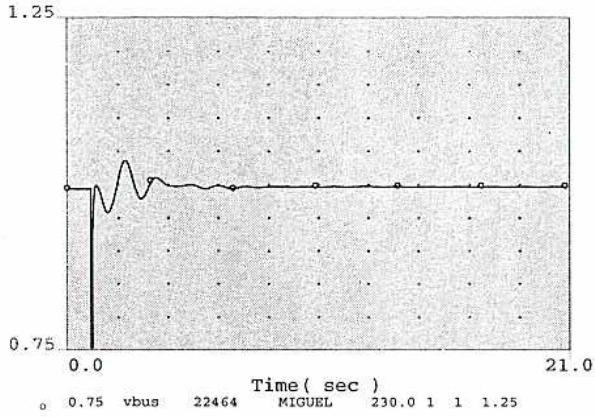
59.400fbus 22228 ENCINA 138.0 1 1 60.600

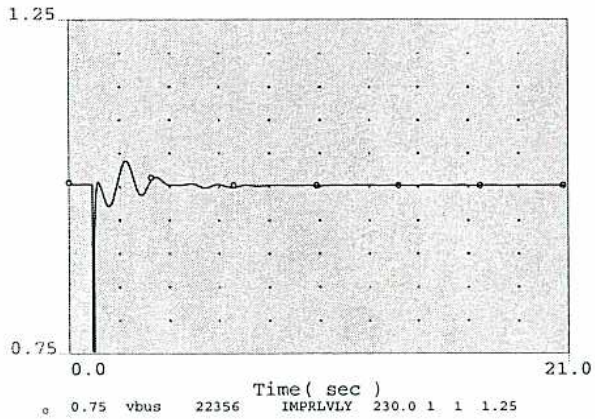
Fault bus at North Gila
Trip Imperial Valley - North Gila line

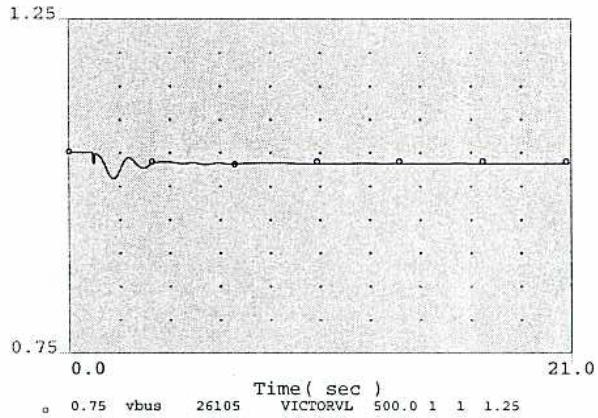




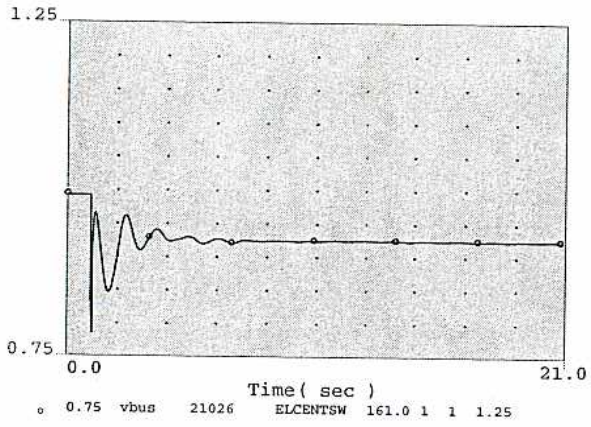


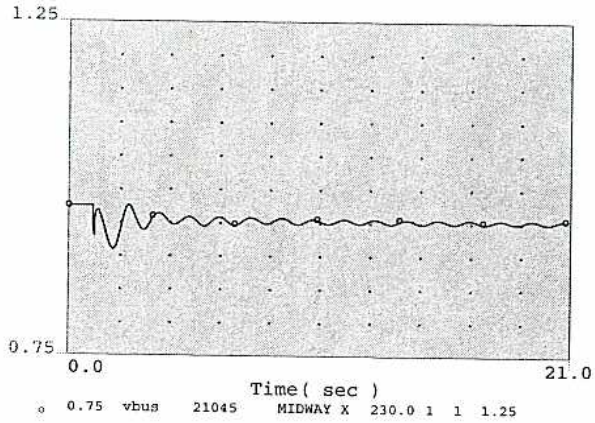


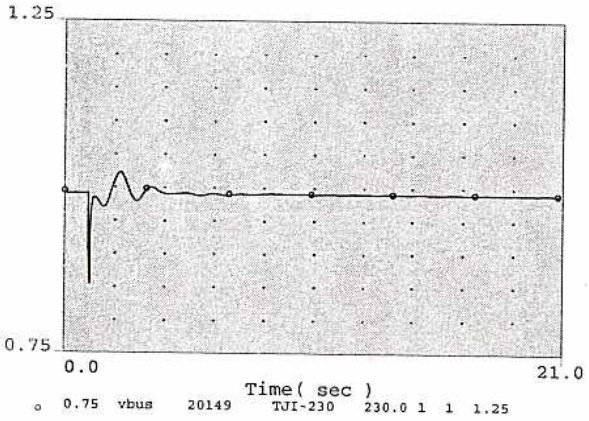


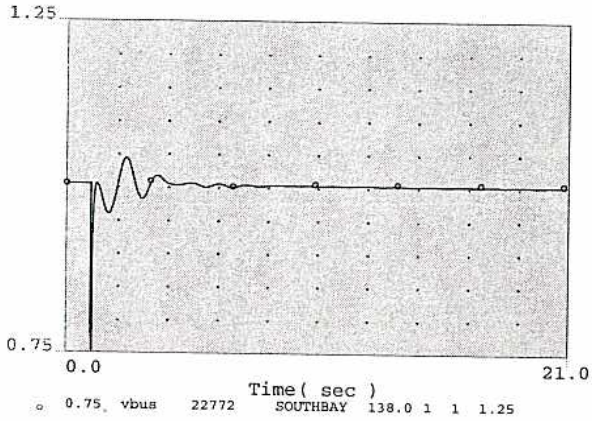


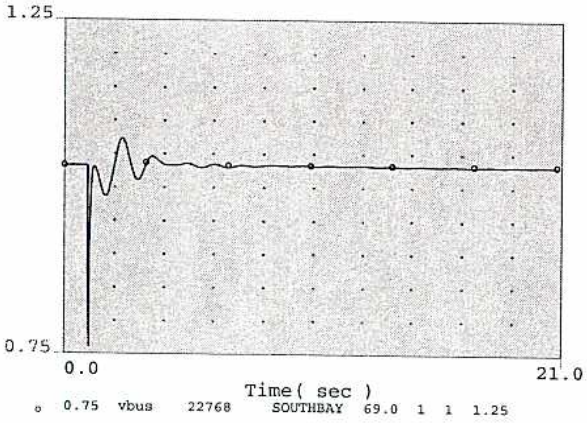
Fault bus at North Gila
Trip Imperial Valley - North Gila line

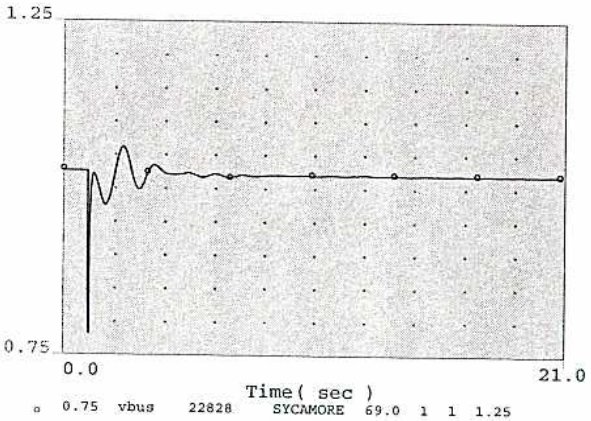




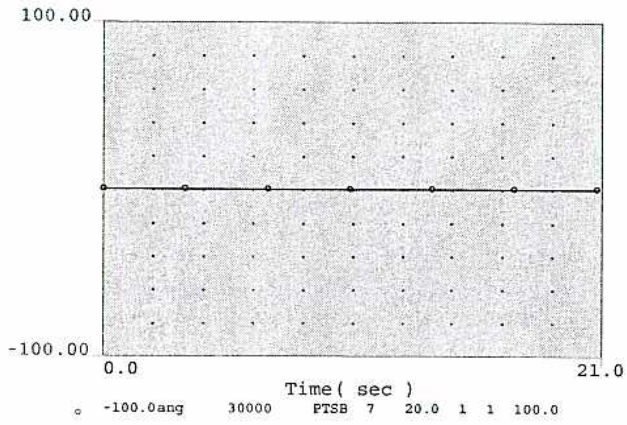


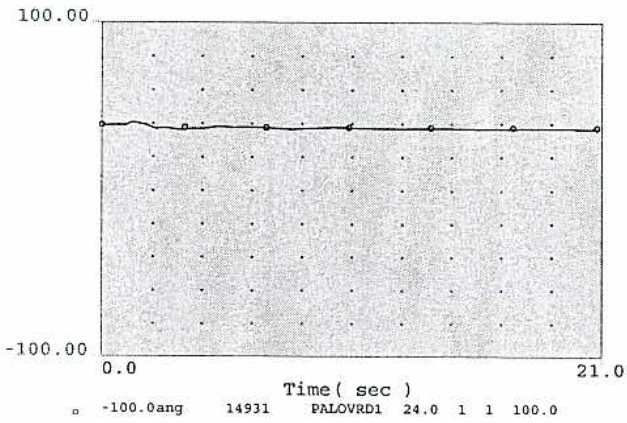


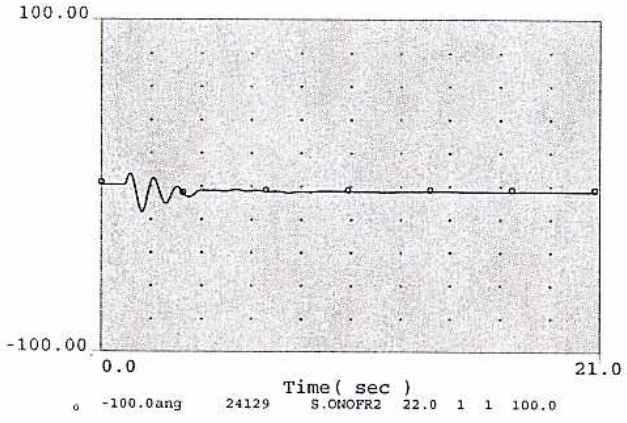


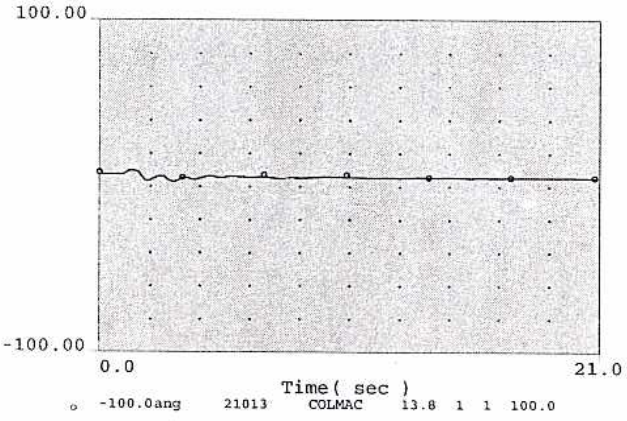


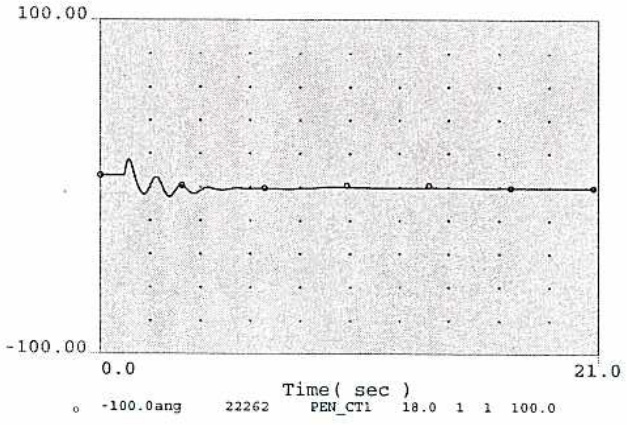
Fault bus at North Gila
Trip Imperial Valley - North Gila line

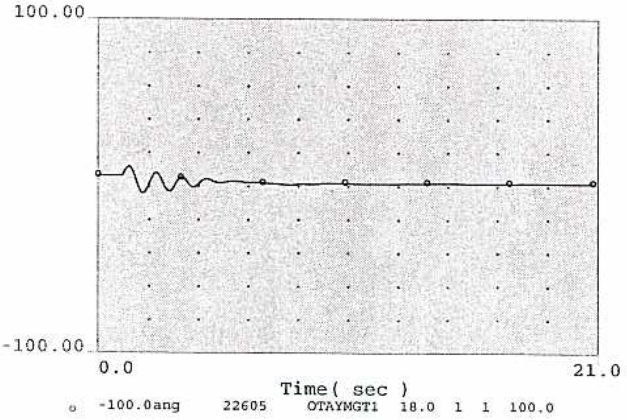












Fault bus at PEN
Trip PEN 2/ST UNITS

pen_ccduo_pre.chf

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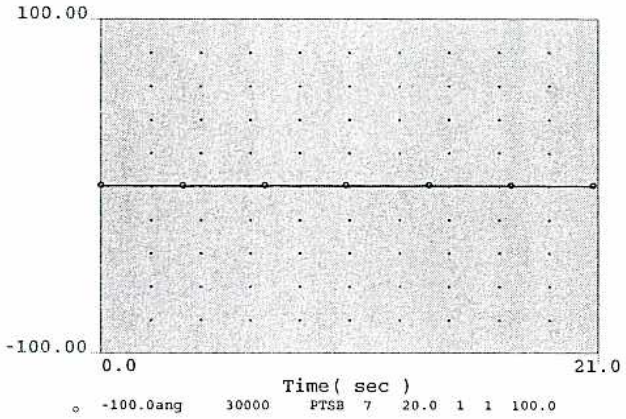
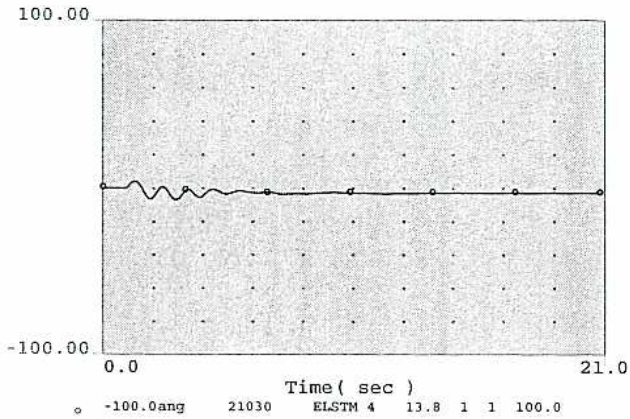
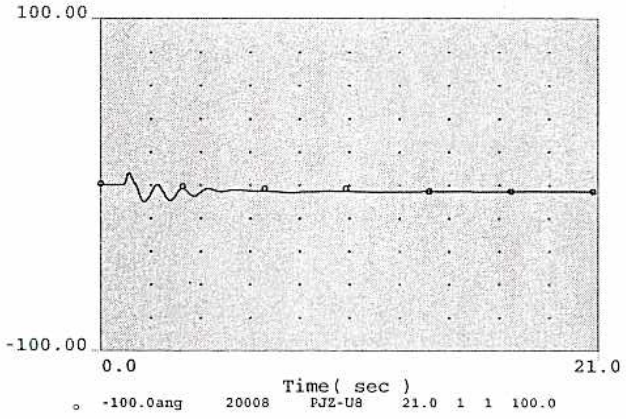
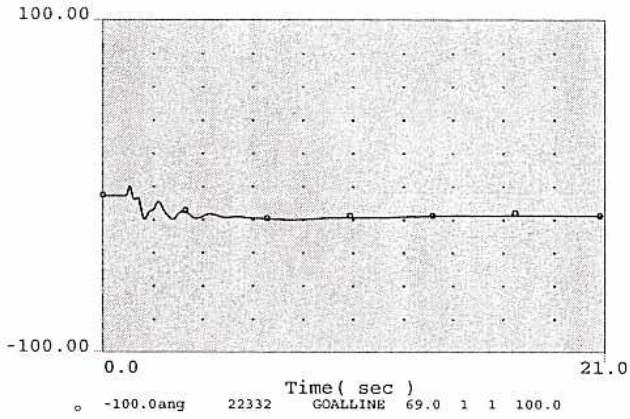
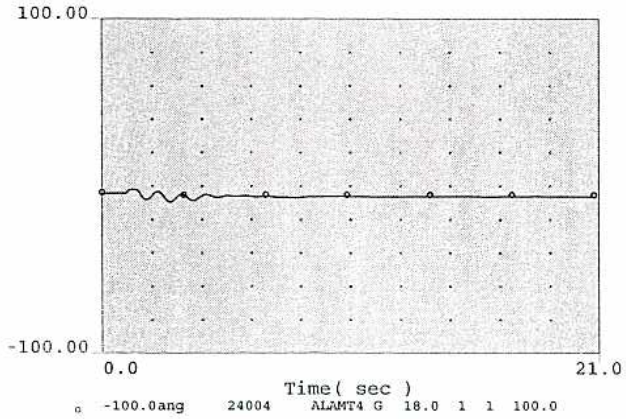
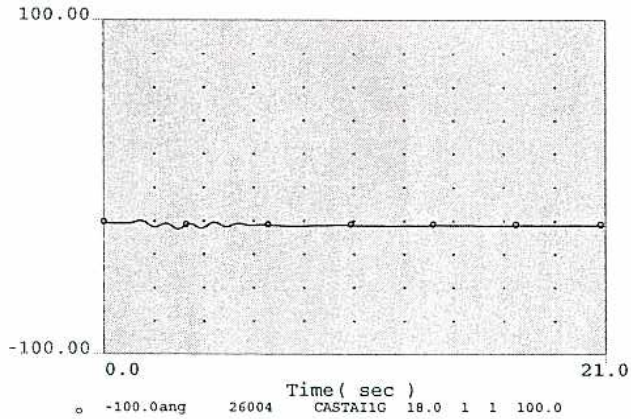




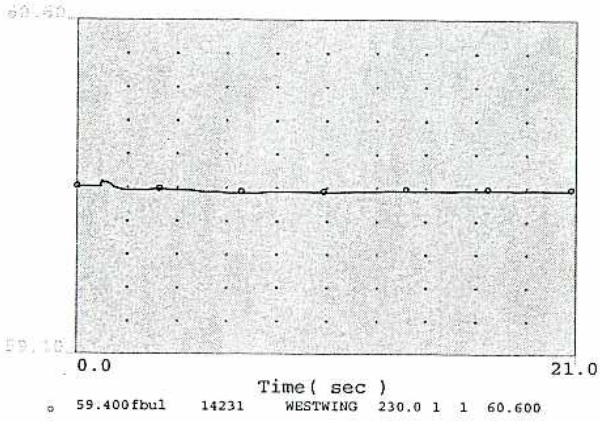




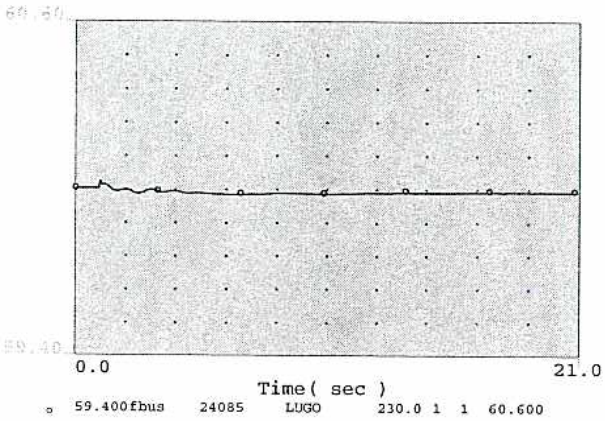




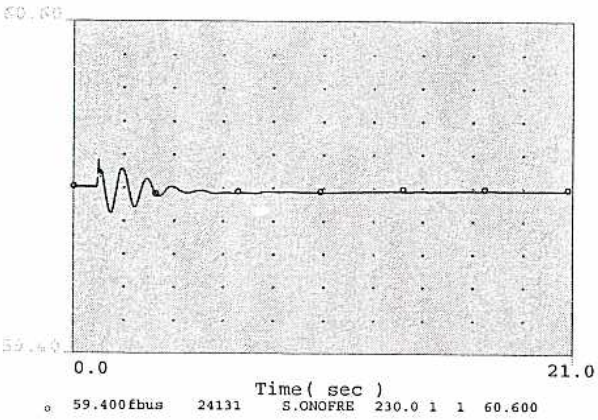
Fault bus at PEN
Trip PEN 2/ST UNITS



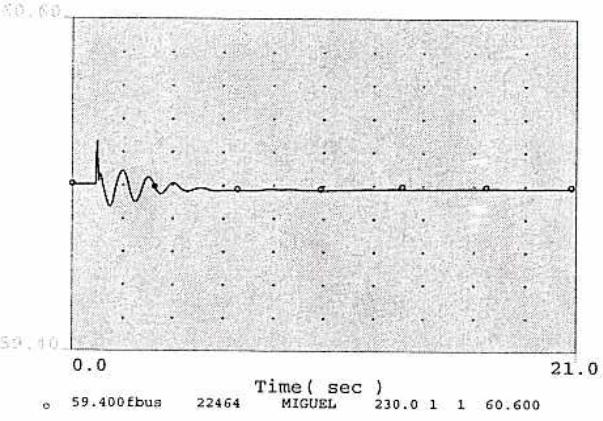
59.400fbul 14231 WESTWING 230.0 1 1 60.600



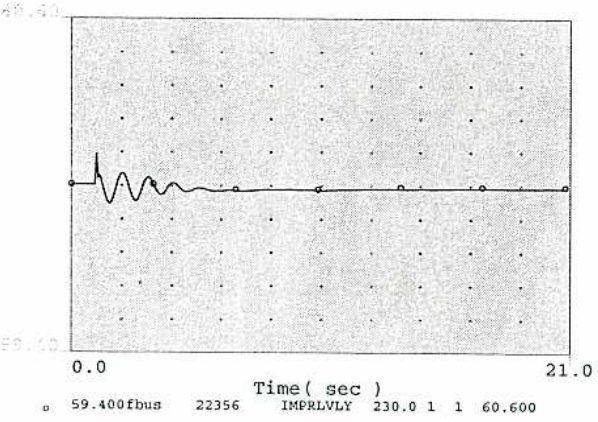
59.400fbus 24085 LUGO 230.0 1 1 60.600



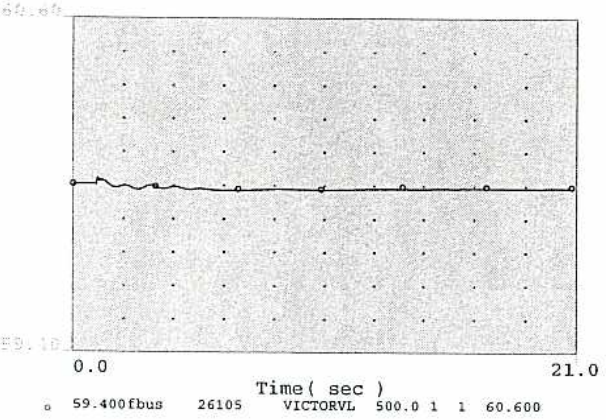
59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



59.400fbus 22464 MIGUEL 230.0 1 1 60.600

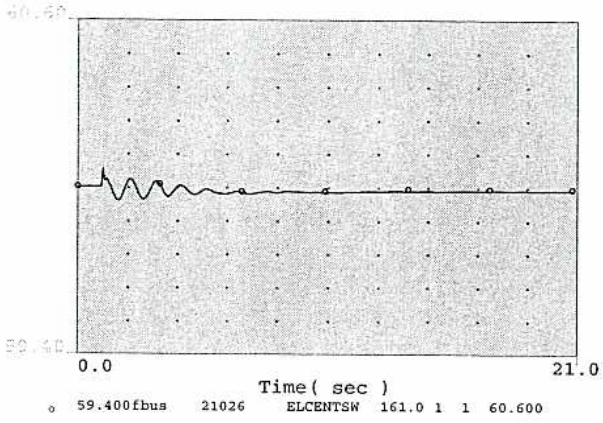


59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

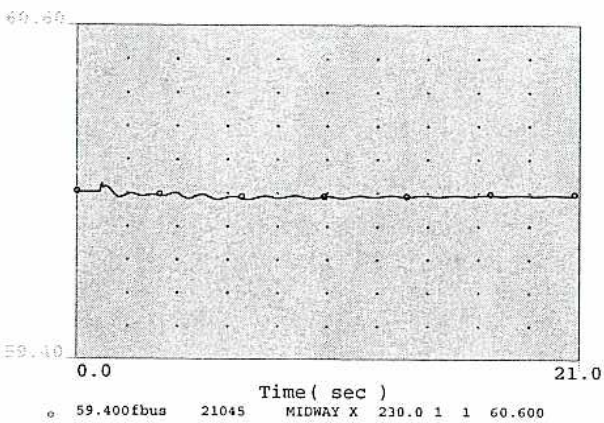


59.400fbus 26105 VICTORVL 500.0 1 1 60.600

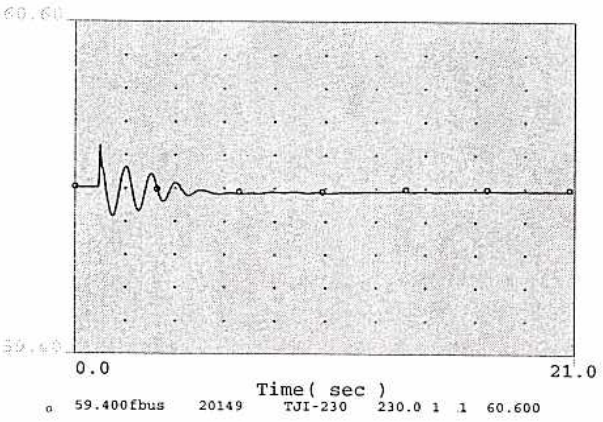
Fault bus at PEN
Trip PEN 2/ST UNITS



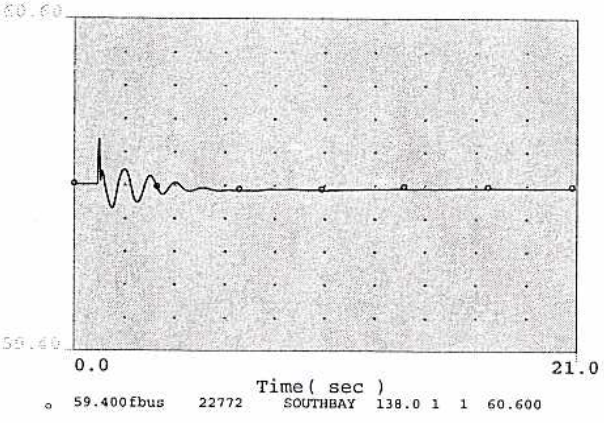
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



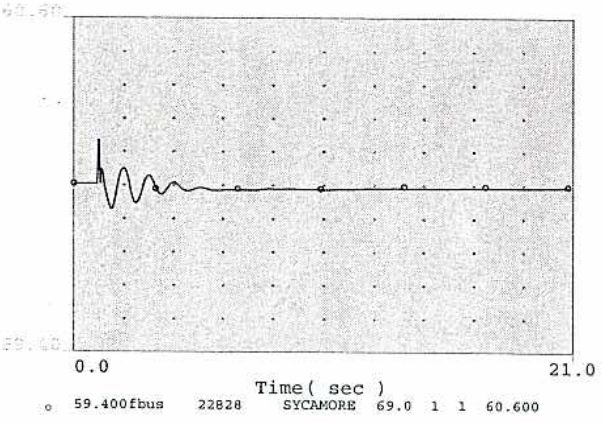
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



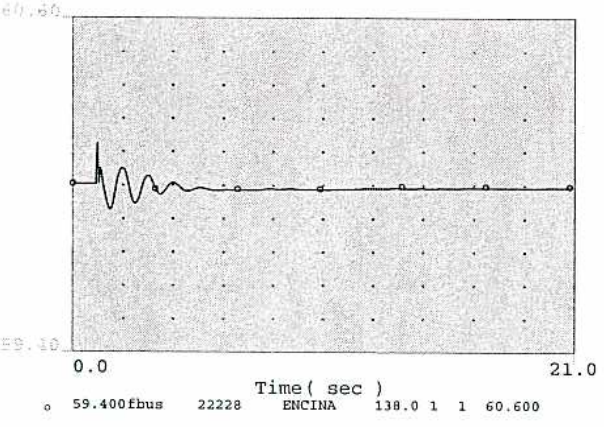
59.400fbus 20149 TJI-230 230.0 1 1 60.600



59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600

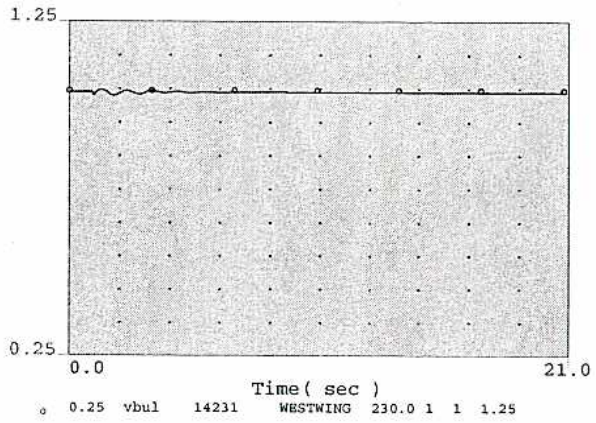


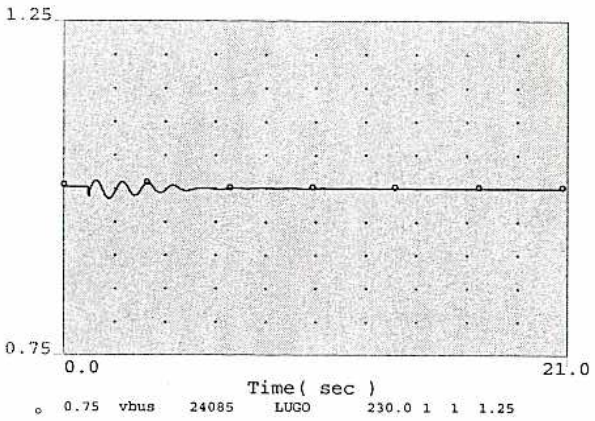
59.400fbus 22828 SYCAMORE 69.0 1 1 60.600

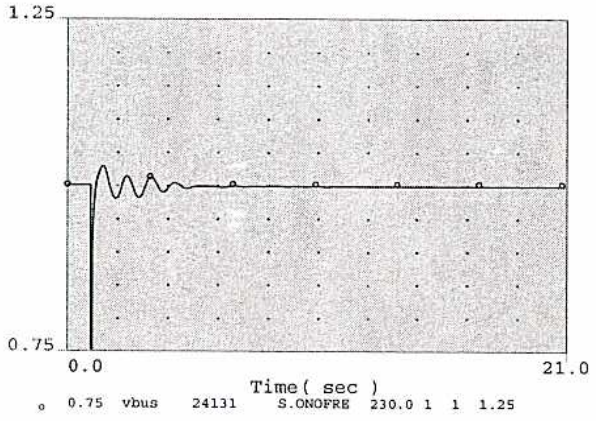


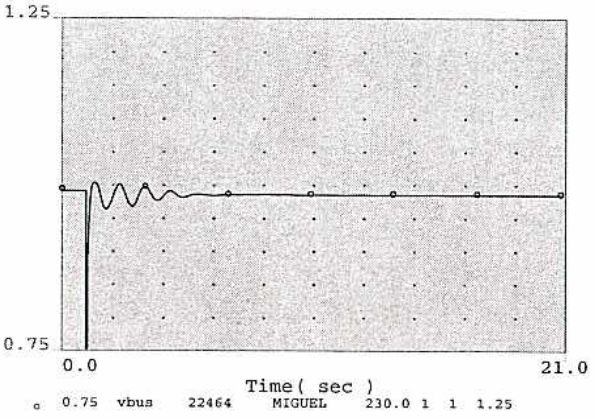
59.400fbus 22228 ENCINA 138.0 1 1 60.600

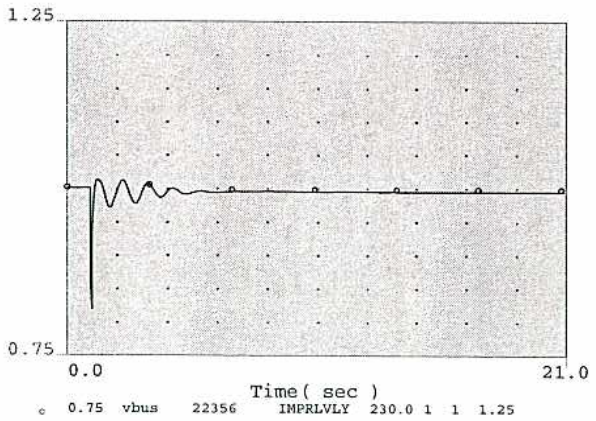
Fault bus at PEN
Trip PEN 2/ST UNITS

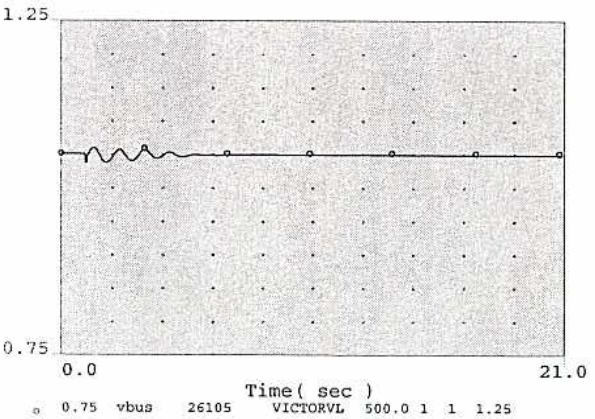




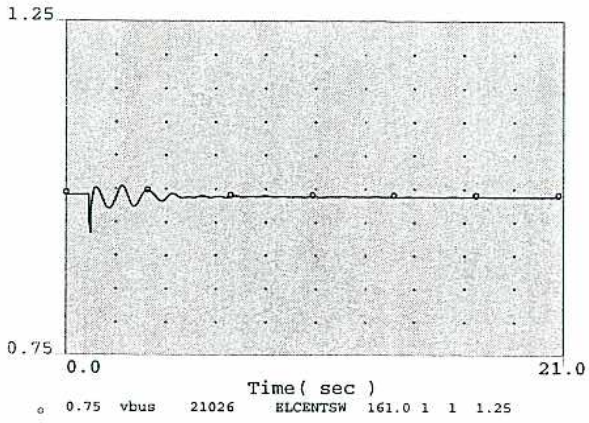


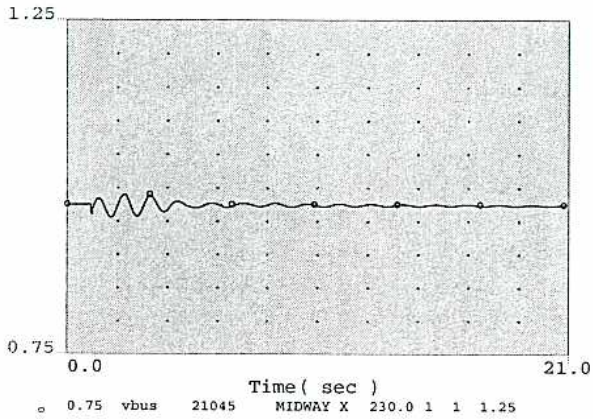


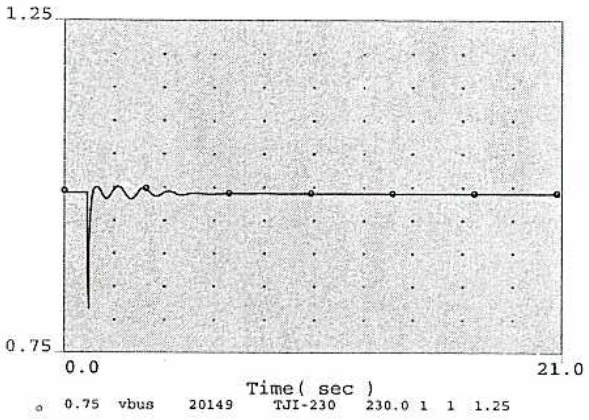


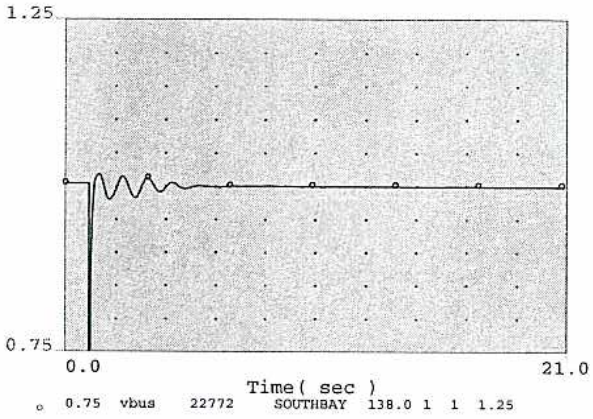


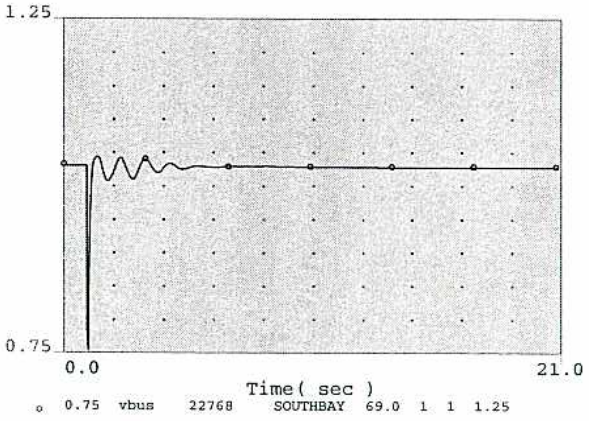
Fault bus at PEN
Trip PEN 2/ST UNITS

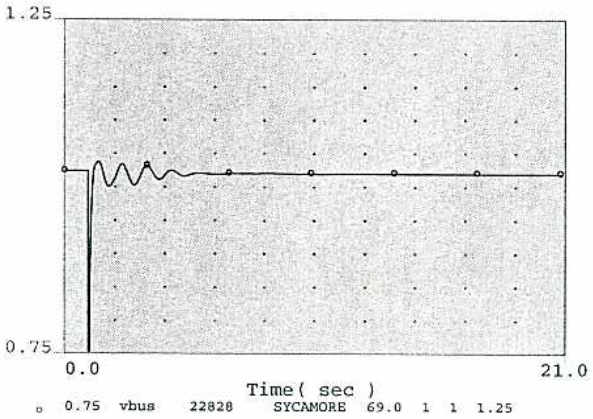




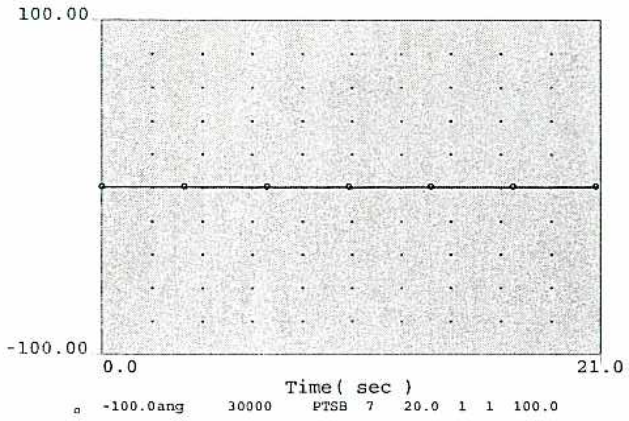


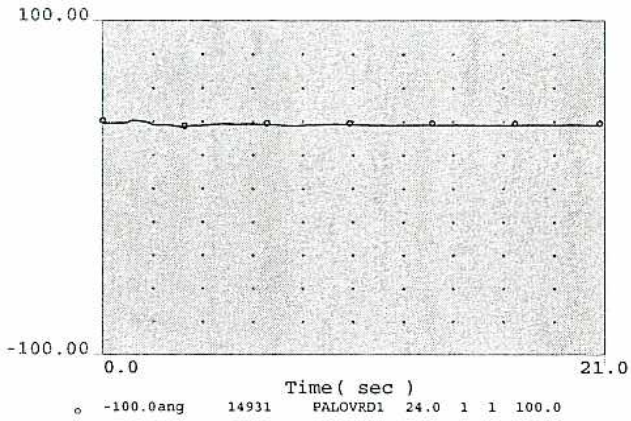


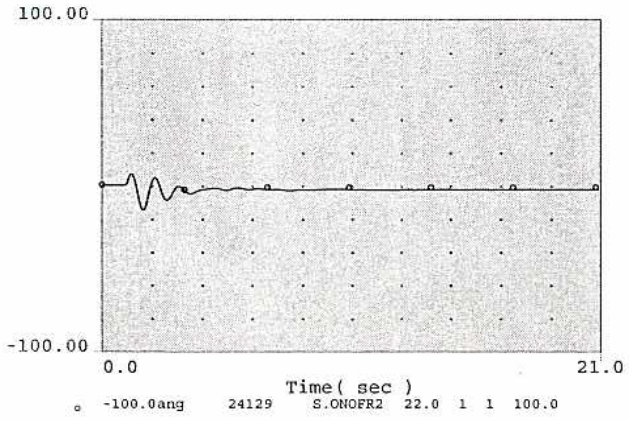


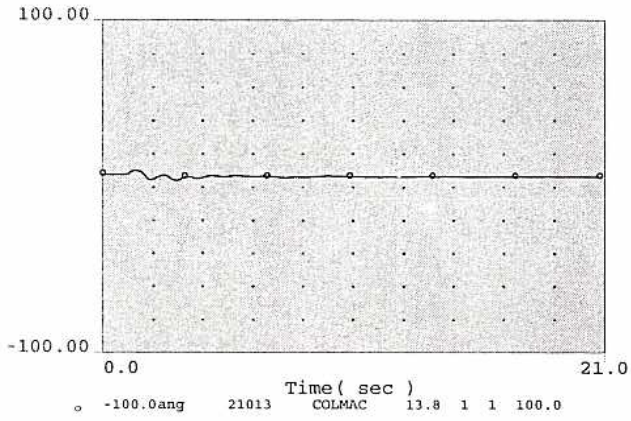


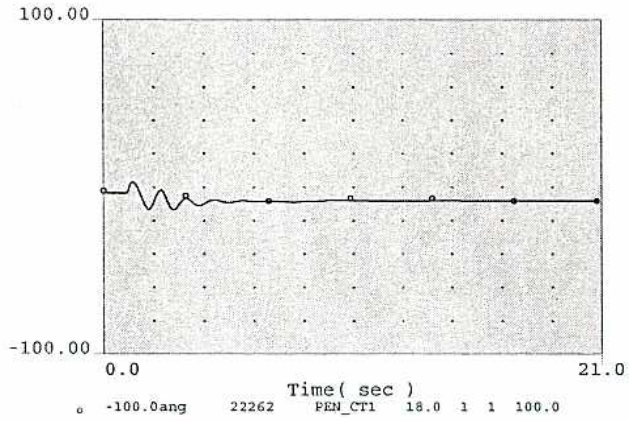
Fault bus at PEN
Trip PEN 2/ST UNITS

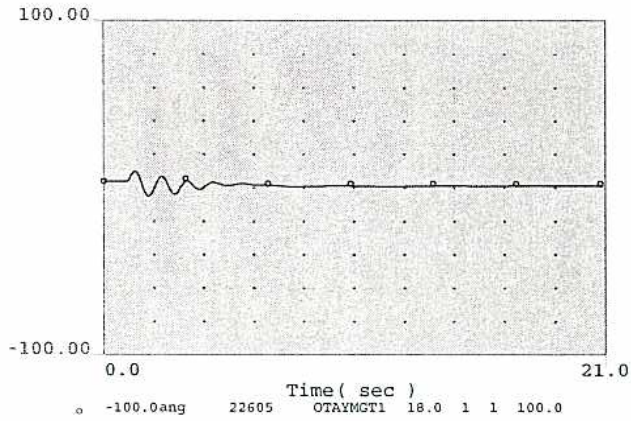




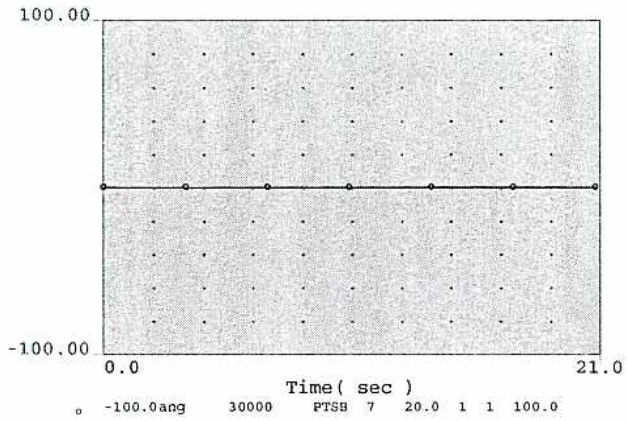


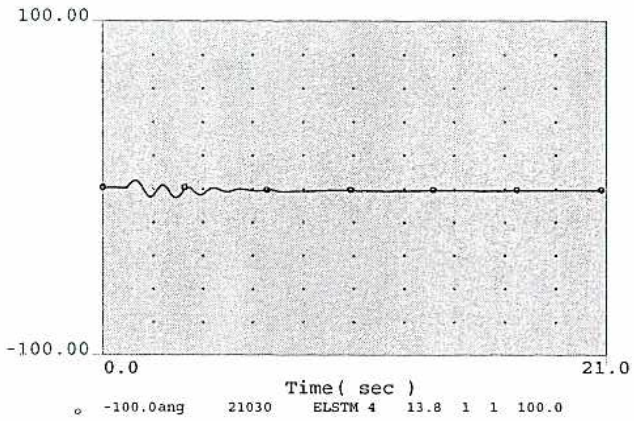


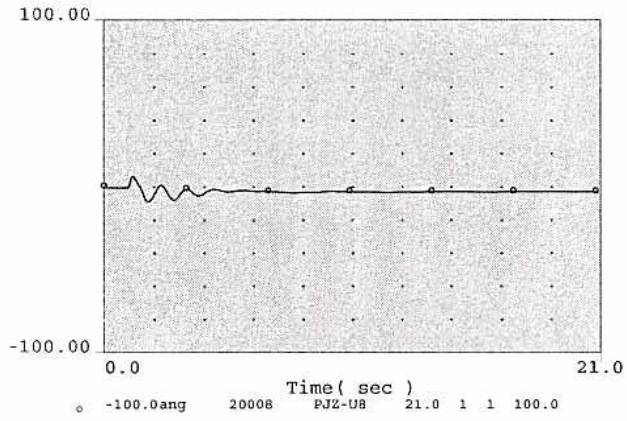


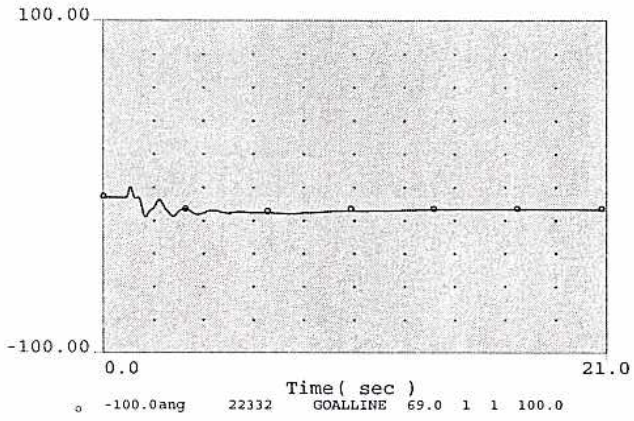


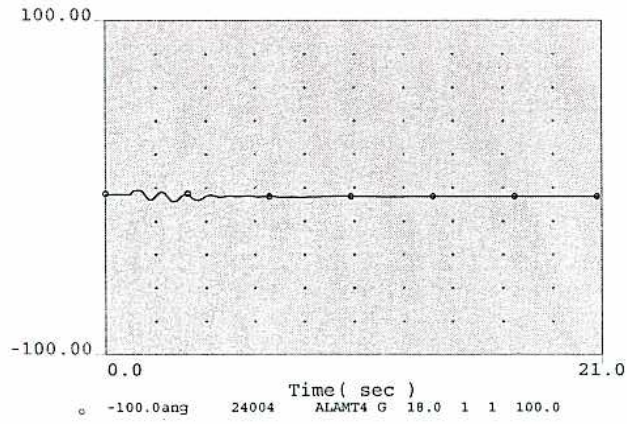
Fault bus at PEN
Trip PEN 2/ST UNITS

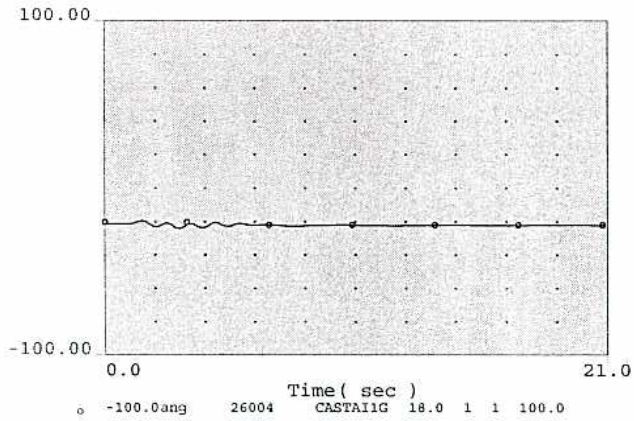




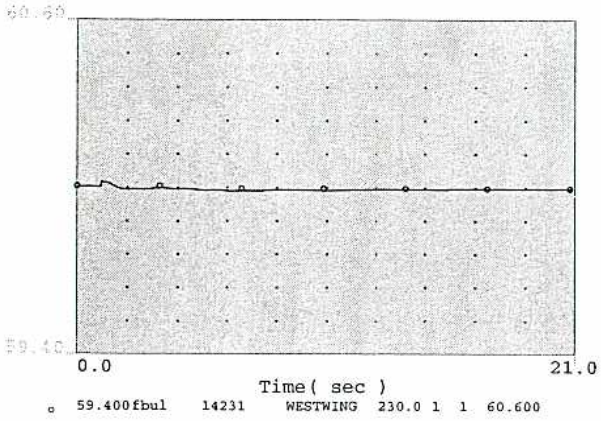




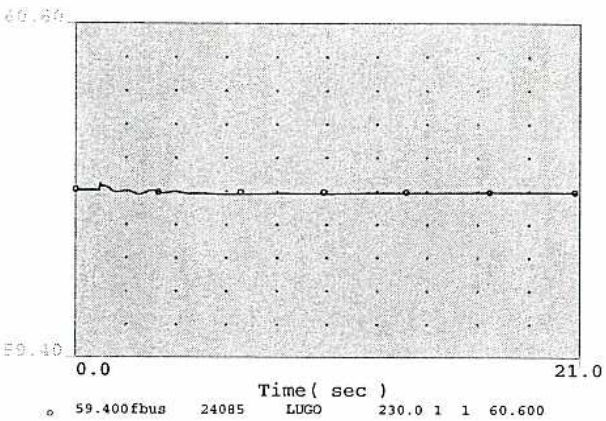




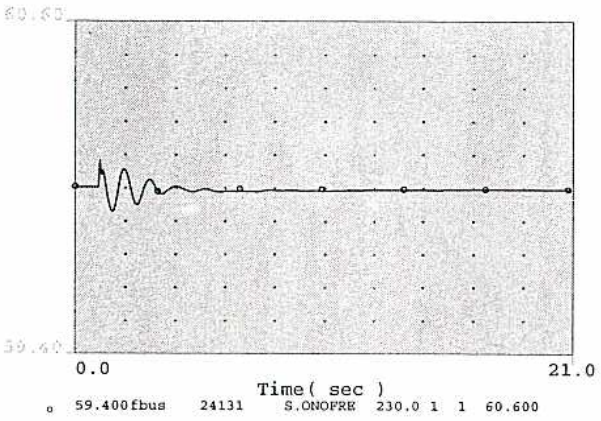
Fault bus at PEN
Trip PEN 2/ST UNITS



59.400fbus 14231 WESTWING 230.0 1 1 60.600



59.400fbus 24085 LUGO 230.0 1 1 60.600



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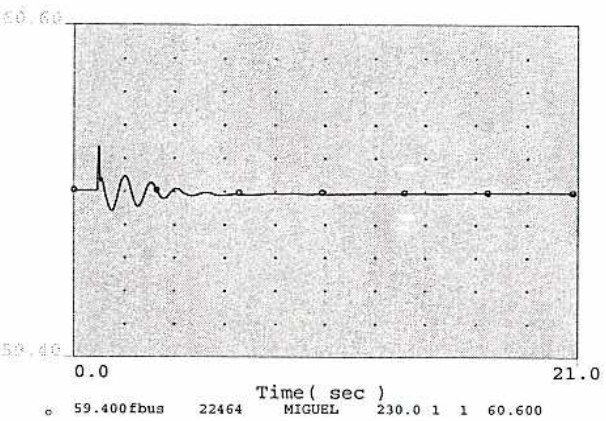

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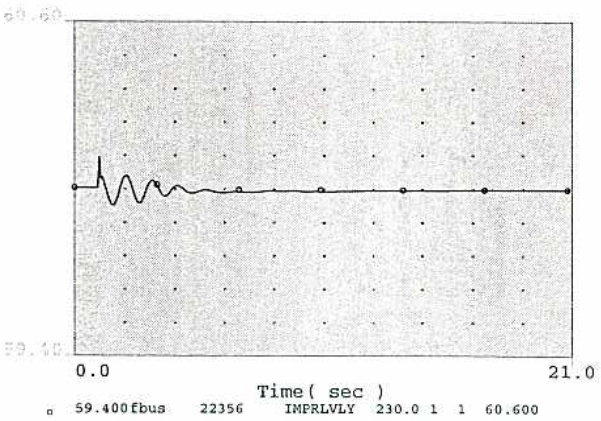
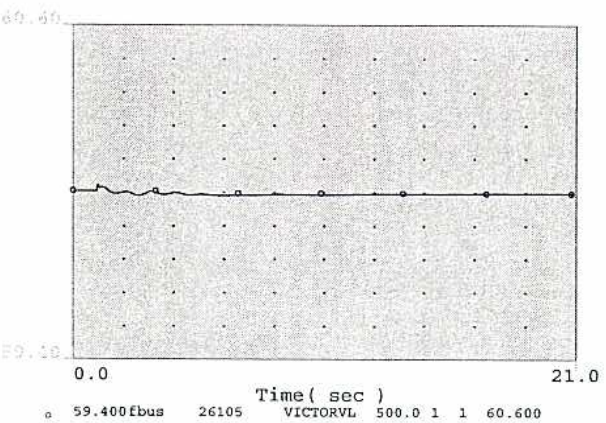
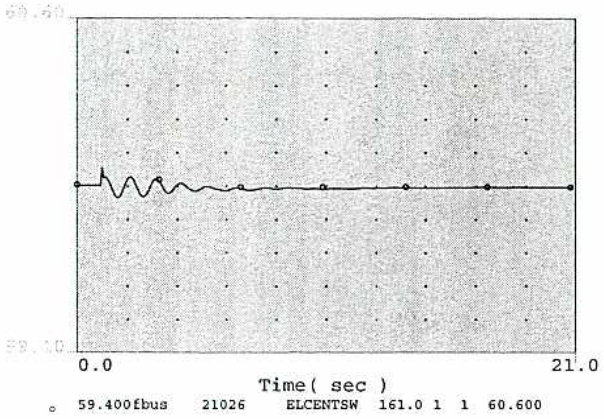


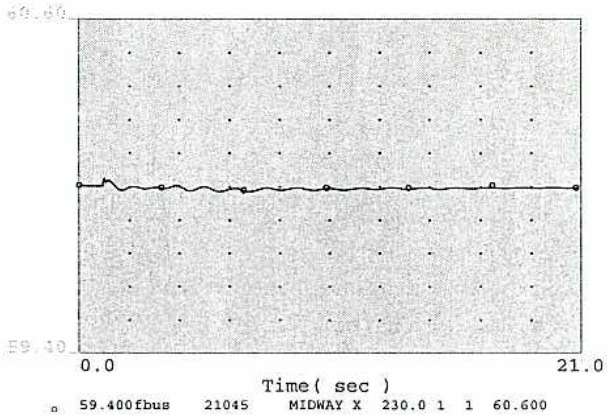
59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

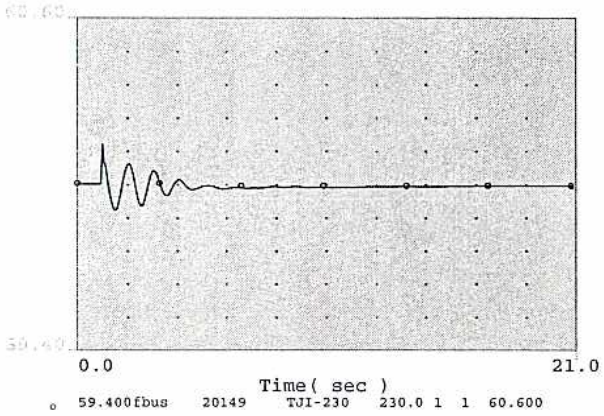


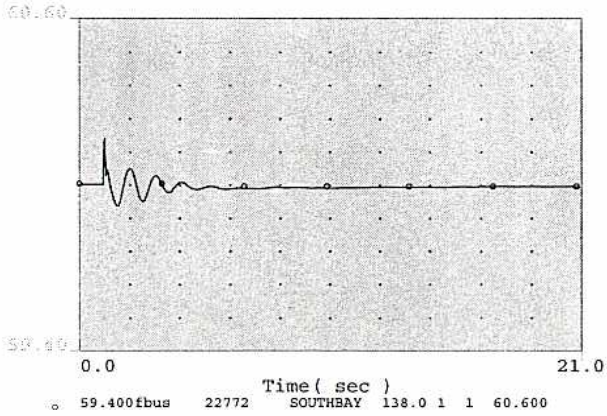
59.400fbus 26105 VICTORVL 500.0 1 1 60.600

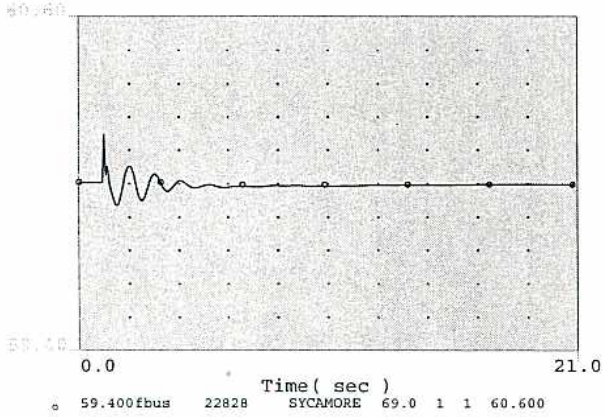
Fault bus at PEN
Trip PEN 2/ST UNITS

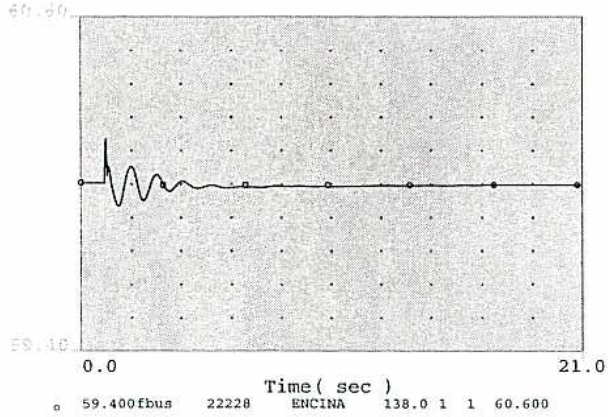




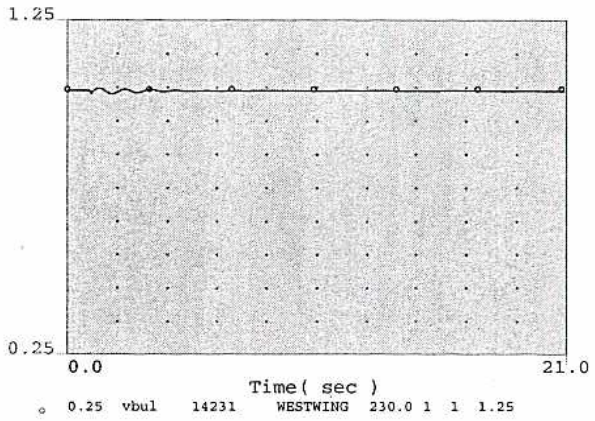


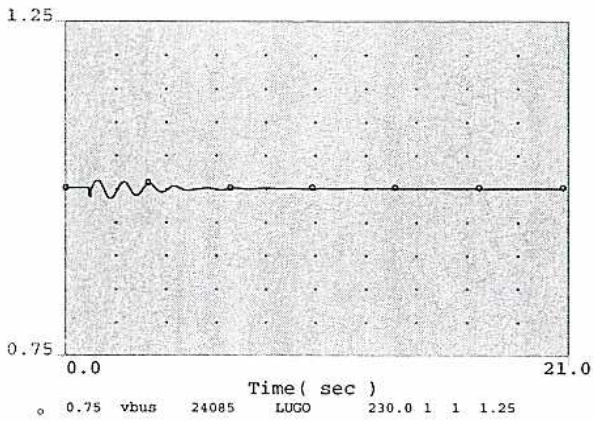


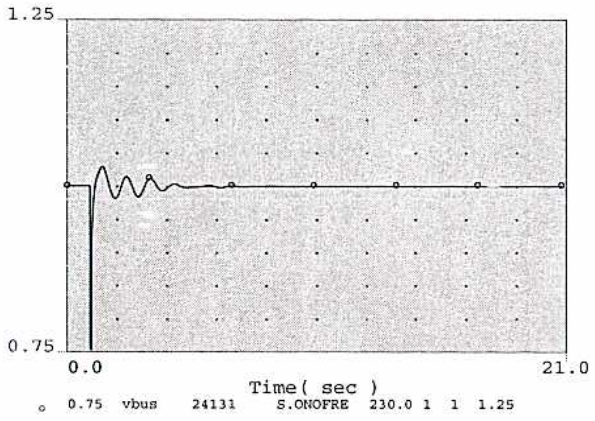


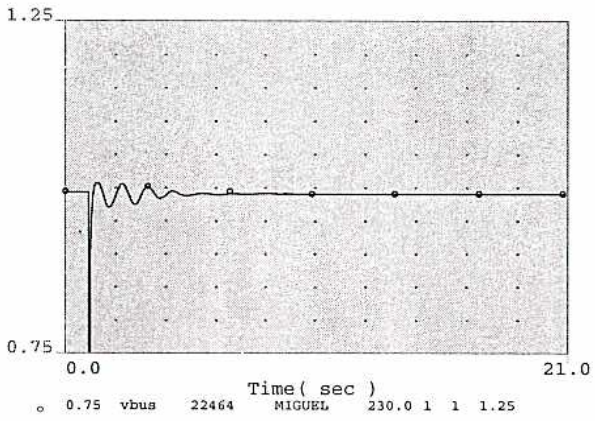


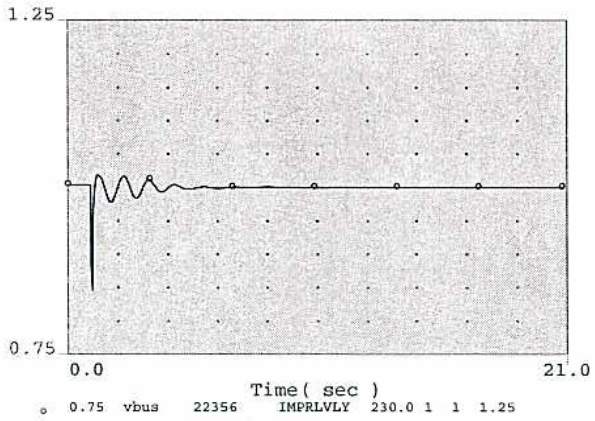
Fault bus at PEN
Trip PEN 2/ST UNITS

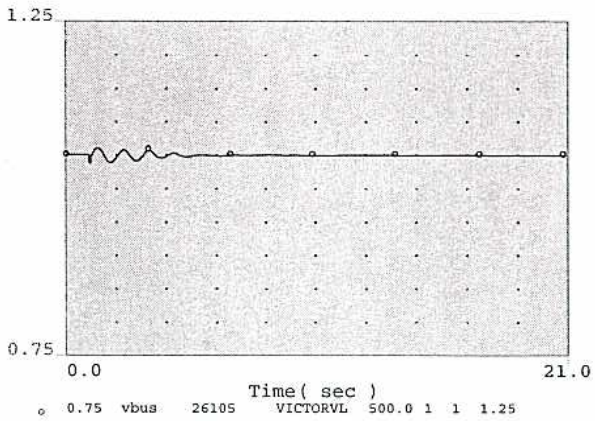




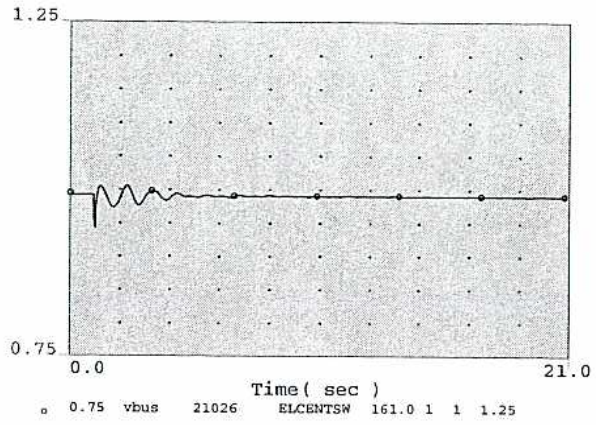


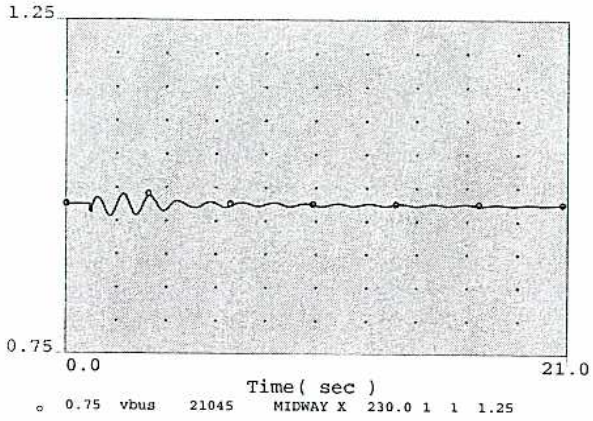


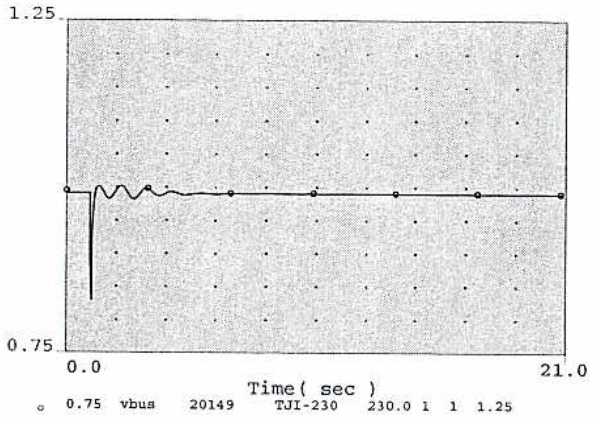


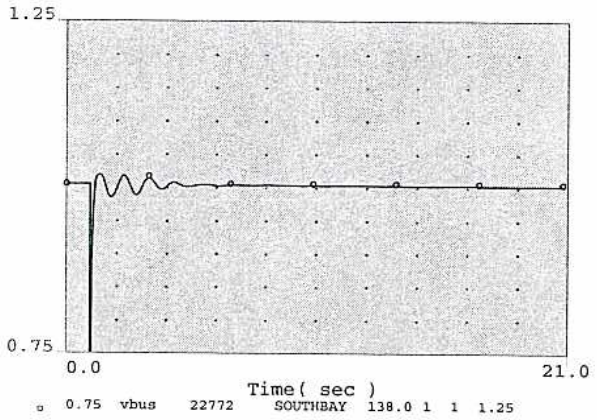


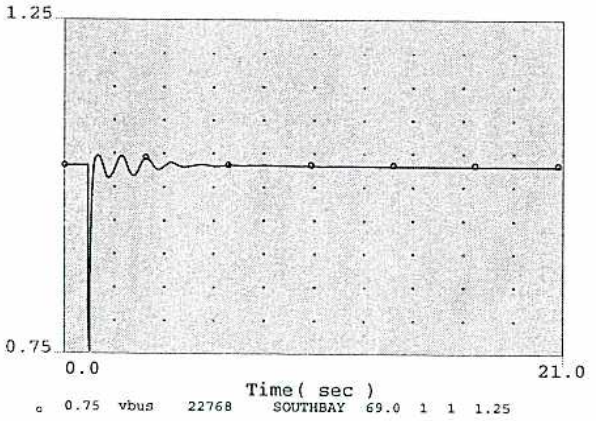
Fault bus at PEN
Trip PEN 2/ST UNITS

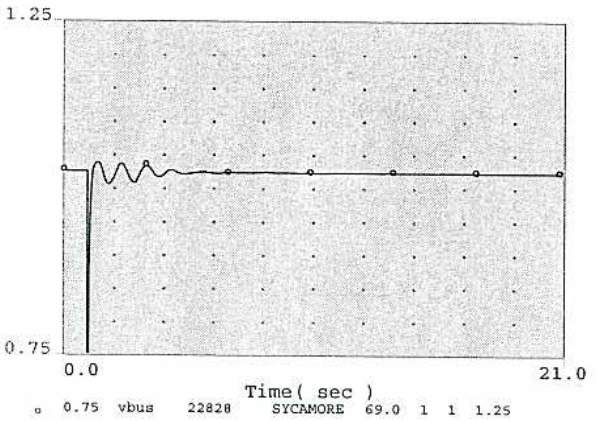




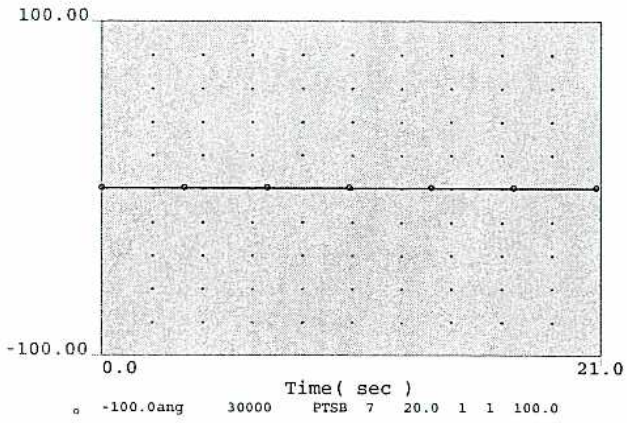


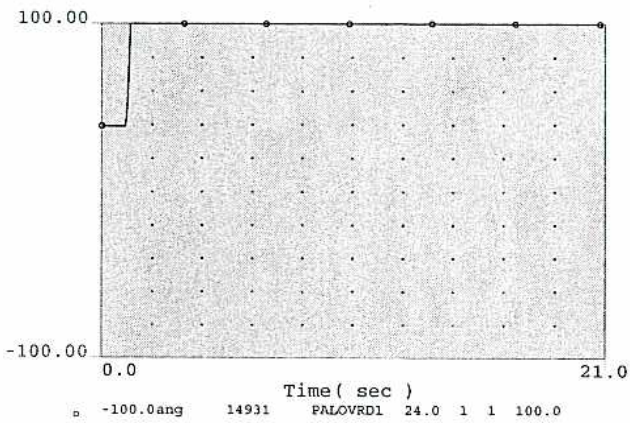


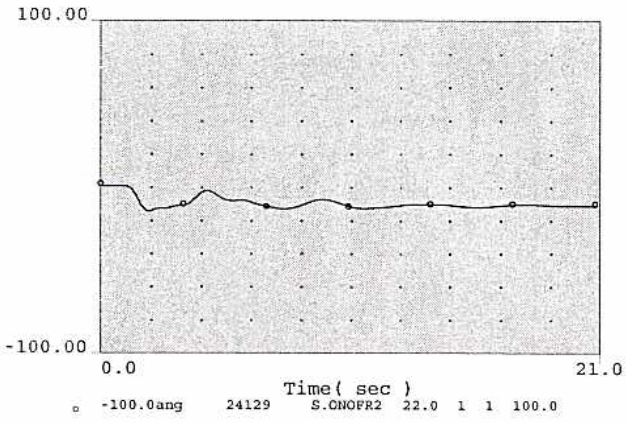


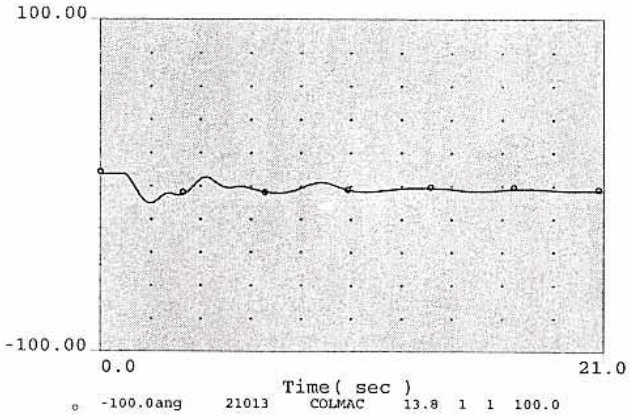


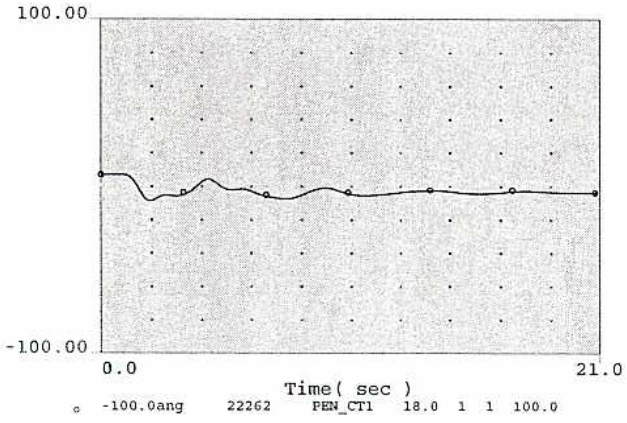
Fault bus at PEN
Trip PEN 2/ST UNITS

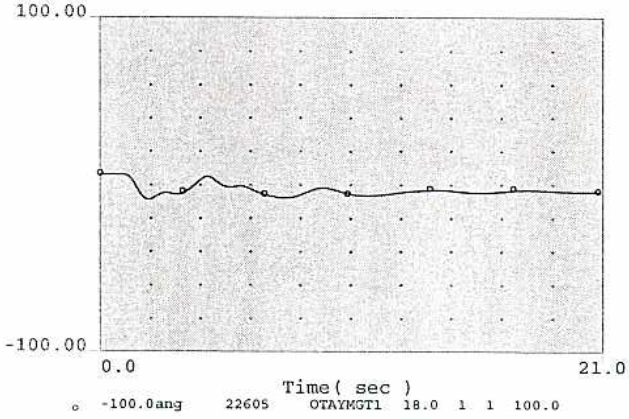










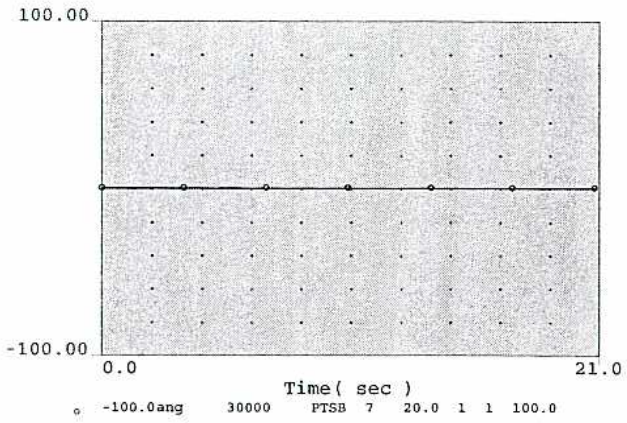


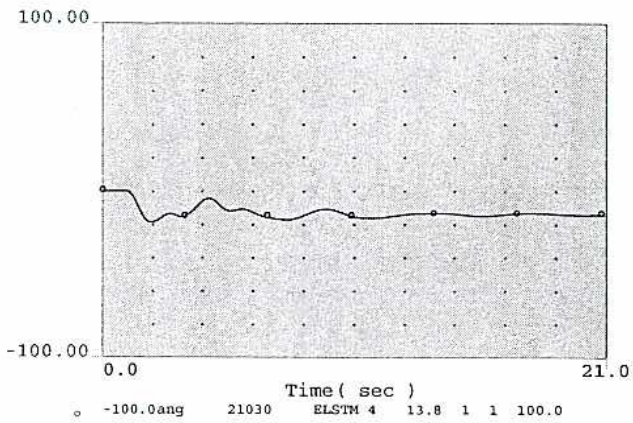
Trip Palo Verde units #1 and #2
Drop AZ load (120 MW)

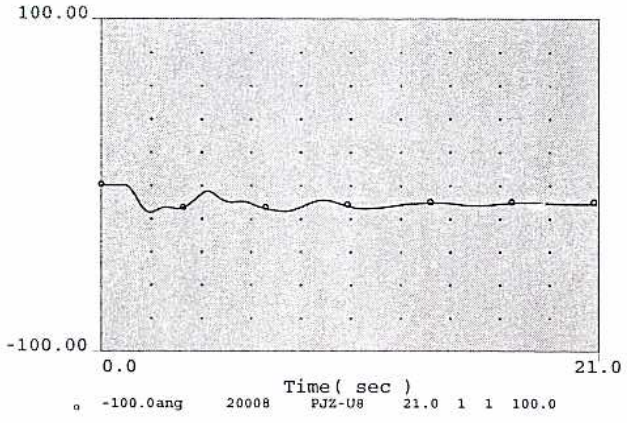
pv_g2_pre.chf

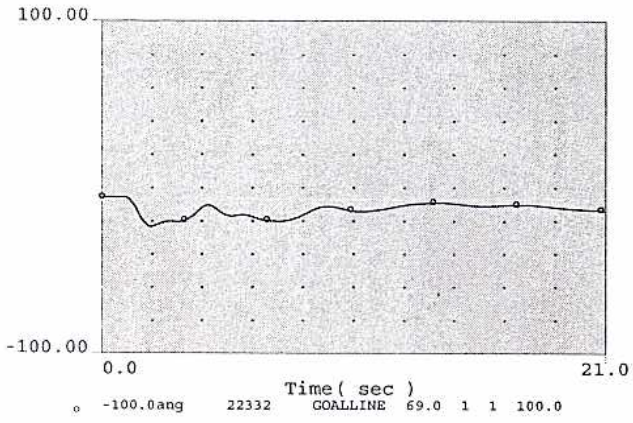
c:\upslf151\mypslf

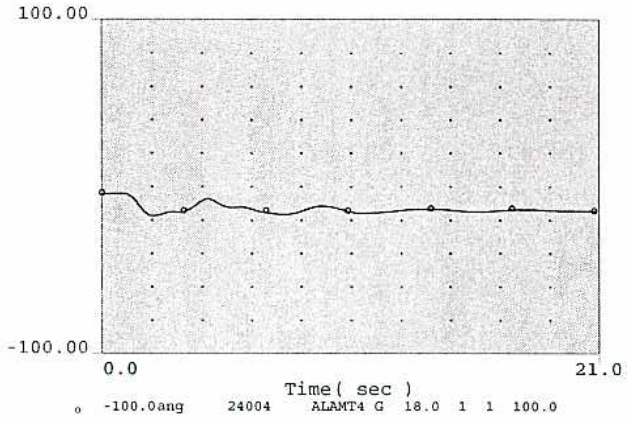
Tue Sep 12 09:30:41 2006

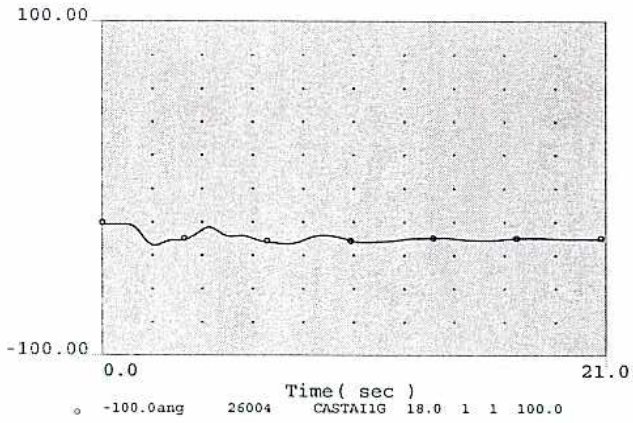










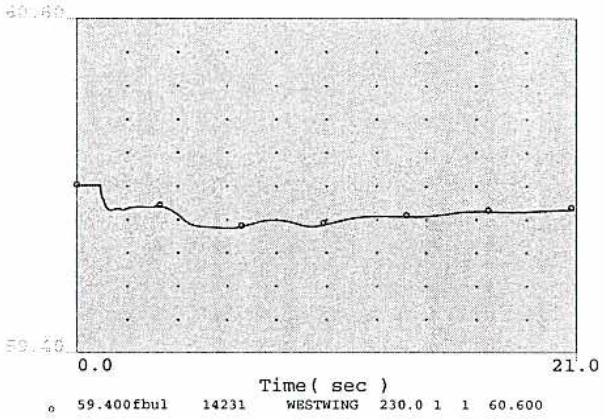


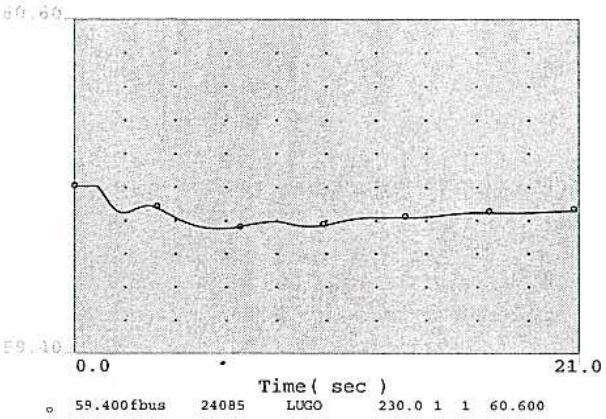
Trip Palo Verde units #1 and #2
Drop AZ load (120 MW)

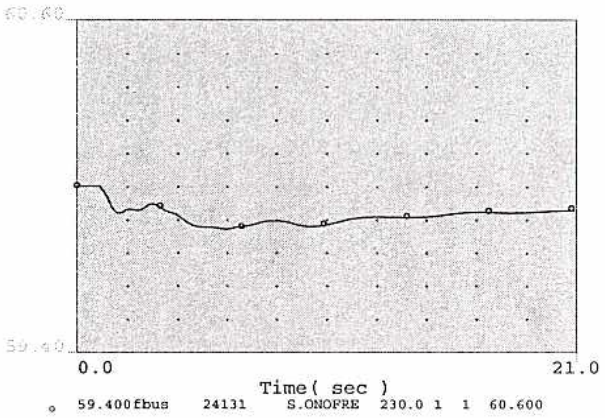
pv_g2_pre.chf

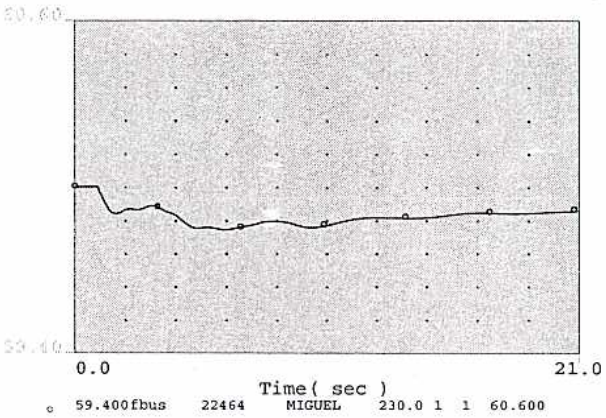
c:\upslf151\mypslf

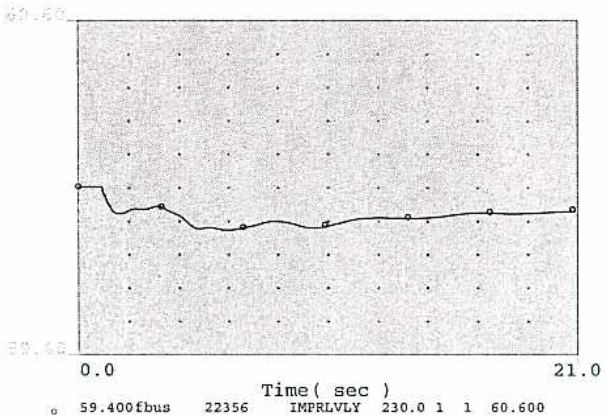
Tue Sep 12 09:30:42 2006

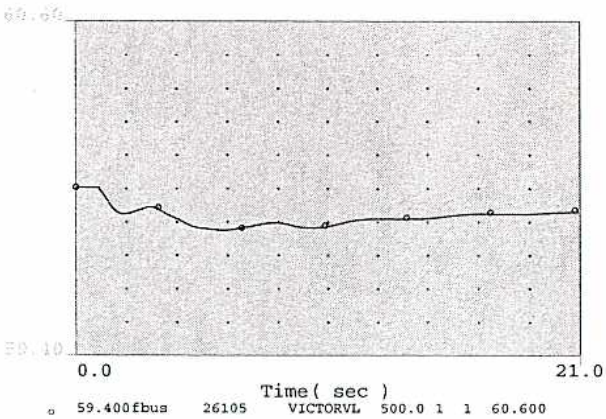




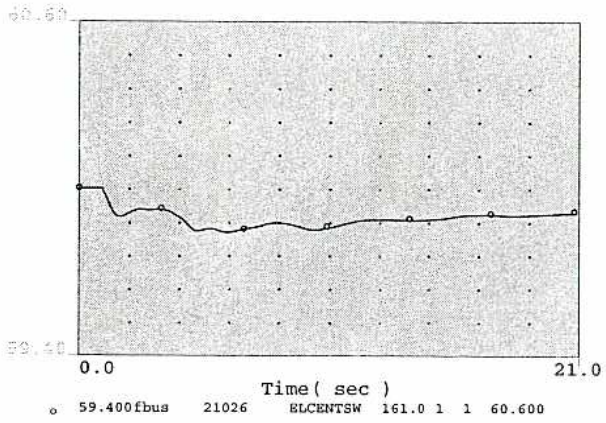








Trip Palo Verde units #1 and #2
Drop AZ load (120 MW)



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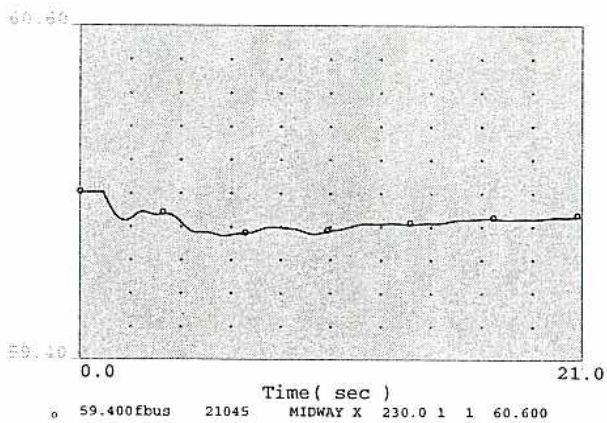
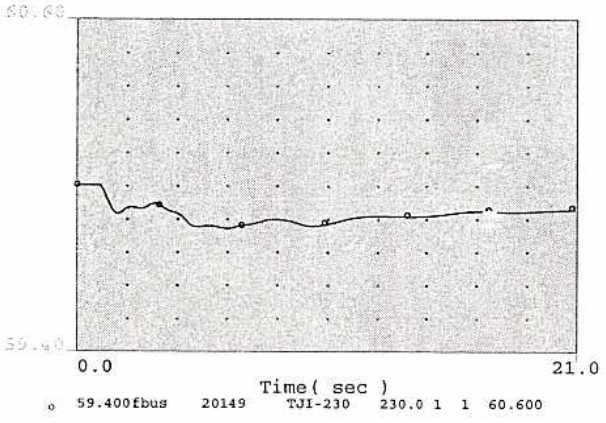


o 59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



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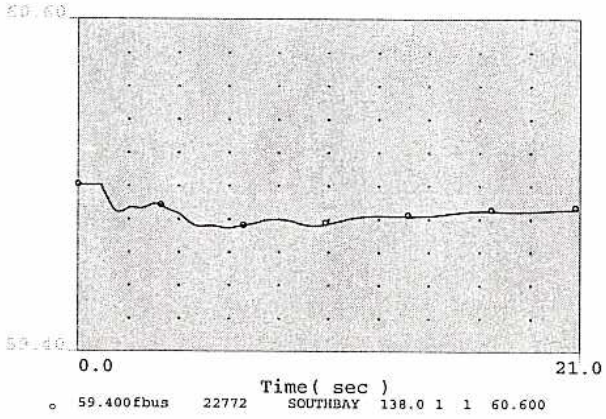
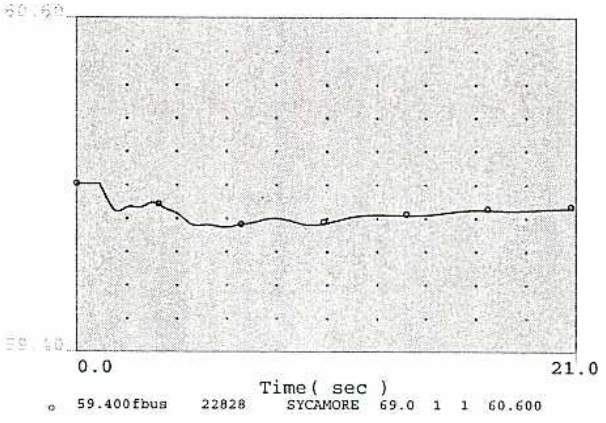


o 59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600



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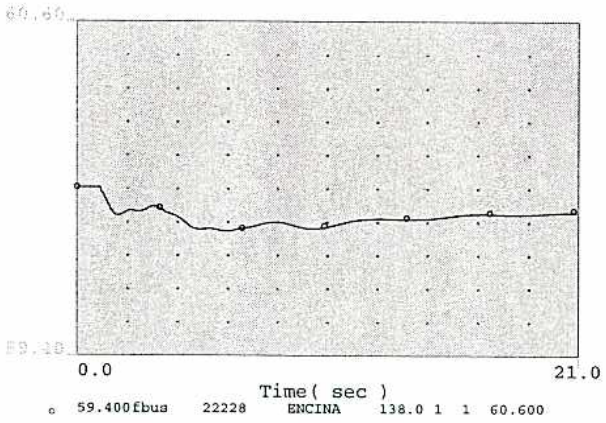
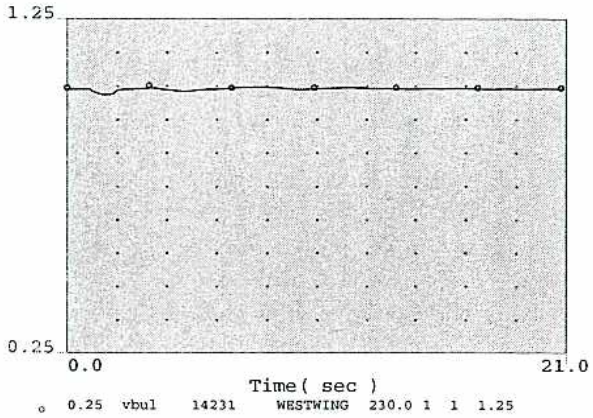
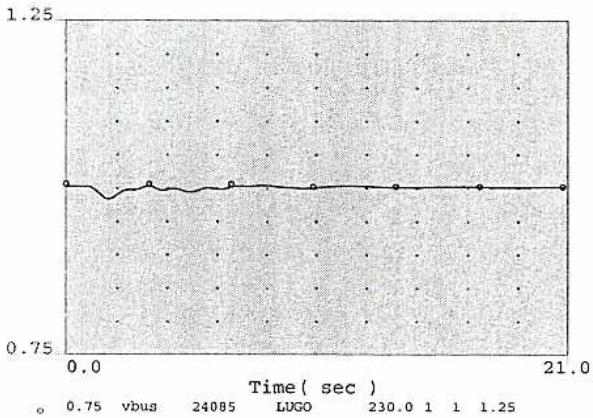
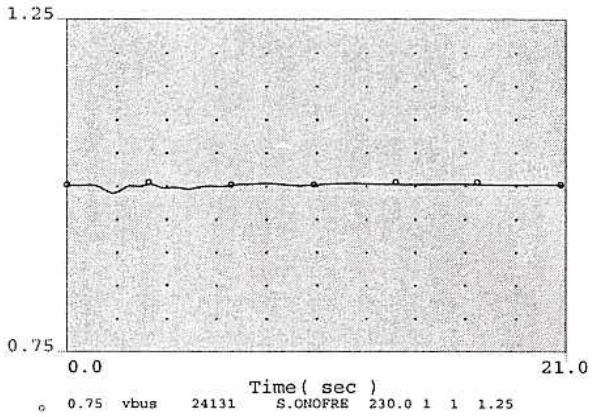


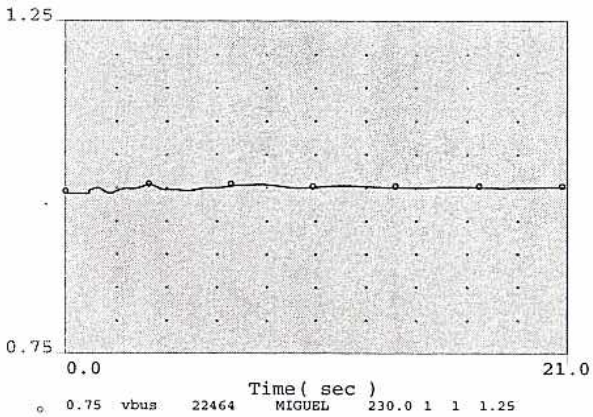
o 59.400fbus 22228 ENCINA 138.0 1 1 60.600

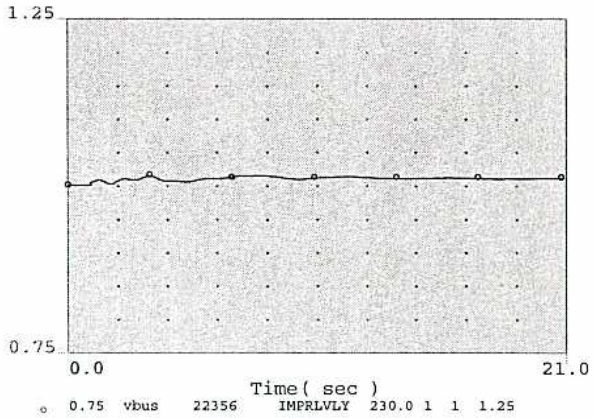
Trip Palo Verde units #1 and #2
Drop AZ load (120 MW)

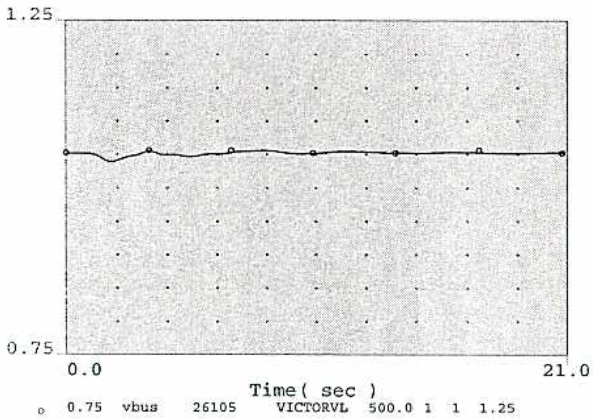




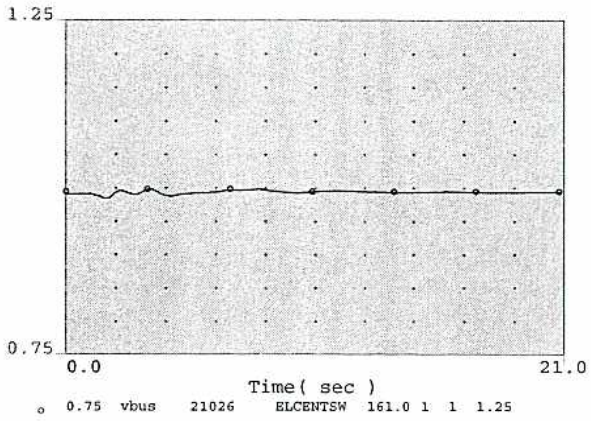


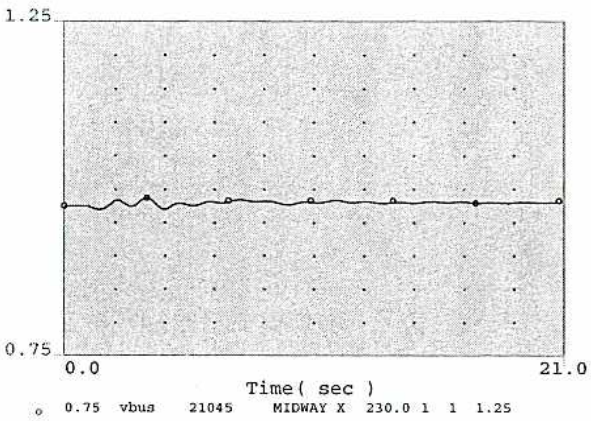


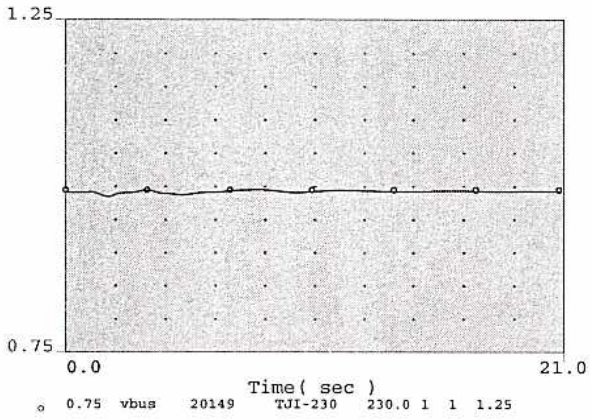


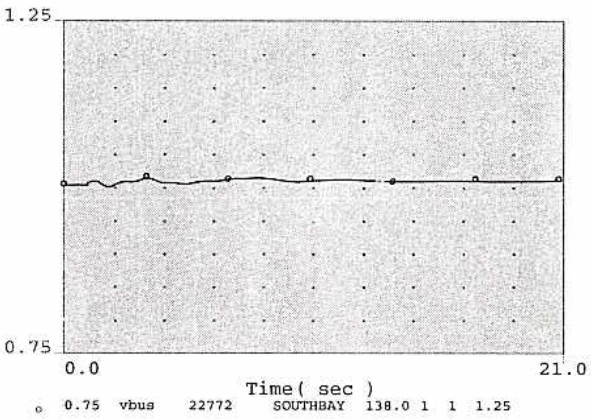


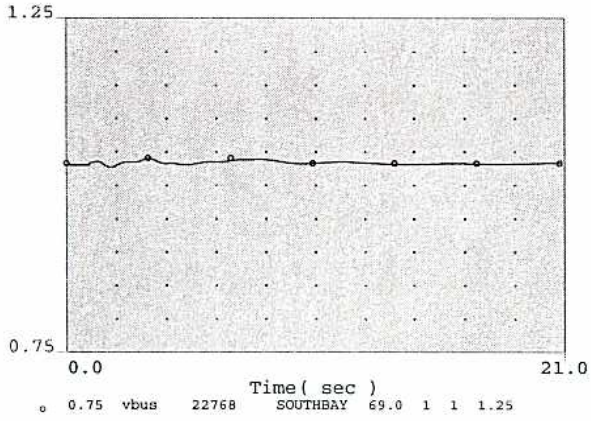
Trip Palo Verde units #1 and #2
Drop AZ load (120 MW)

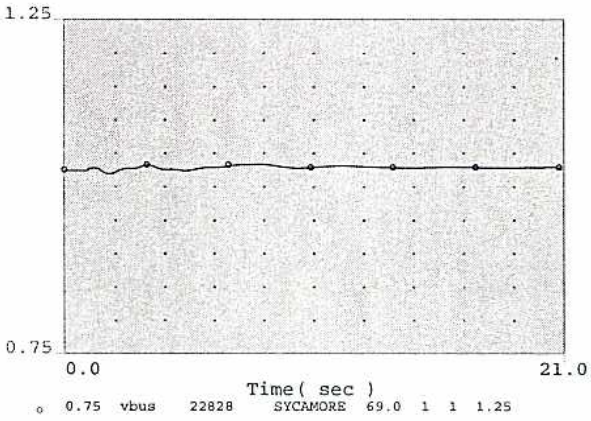




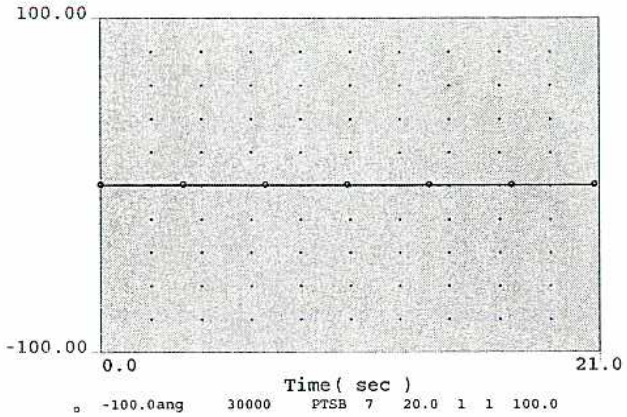


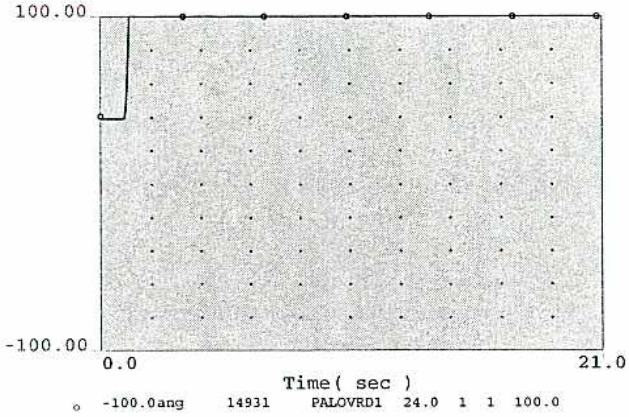


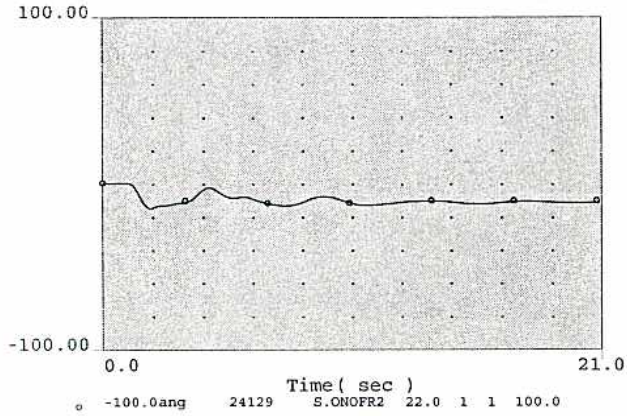


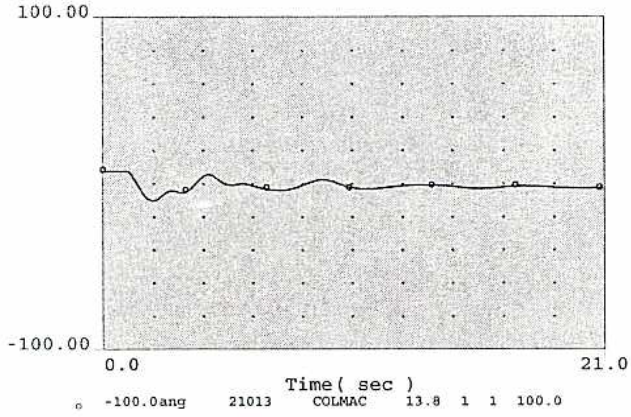


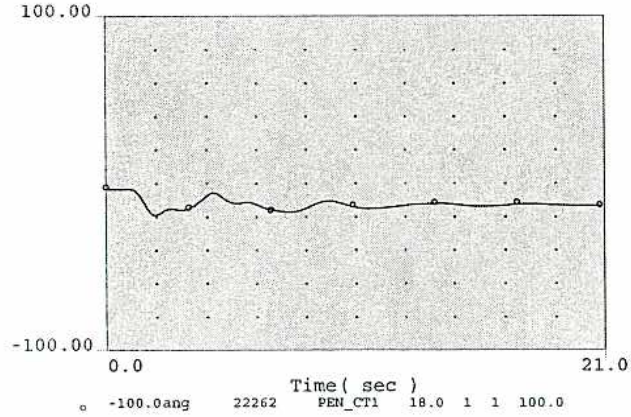
Trip Palo Verde units #1 and #2
Drop AZ load (120 MW)

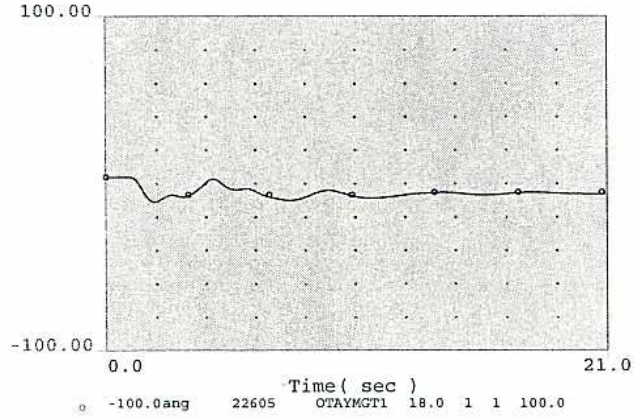




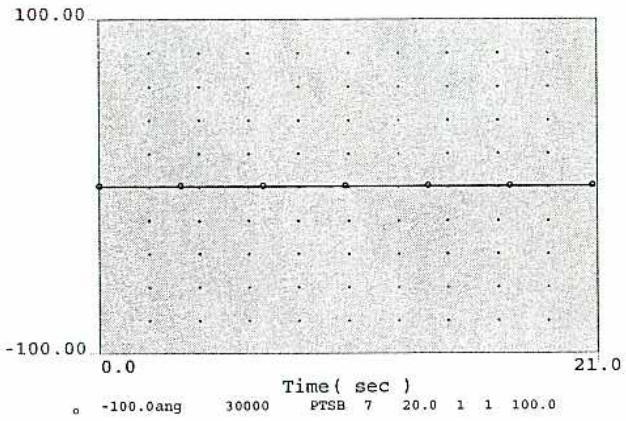


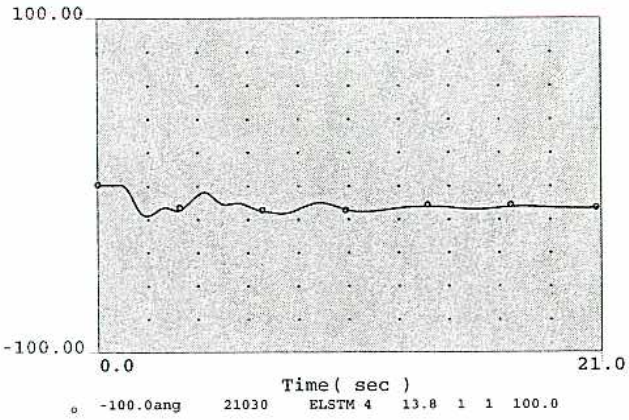


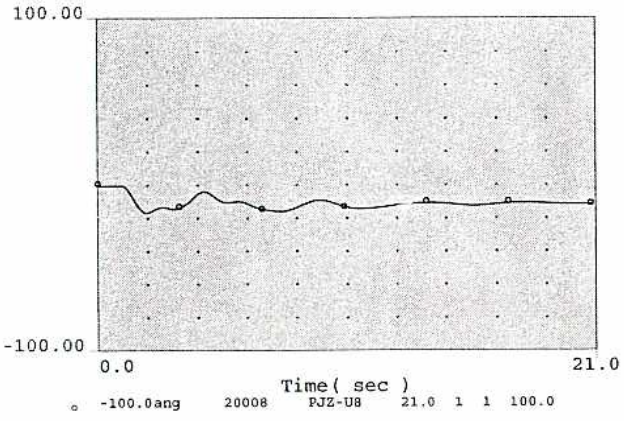


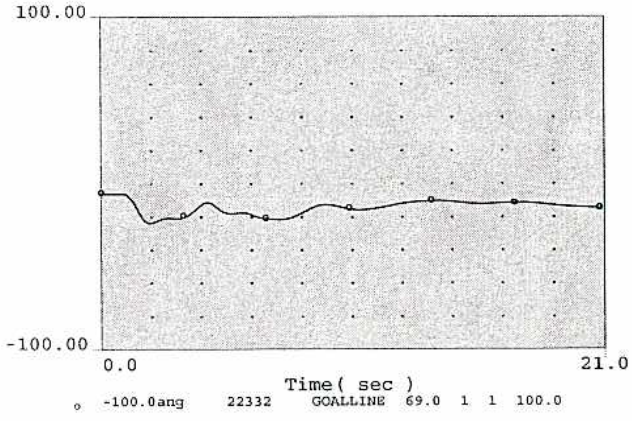


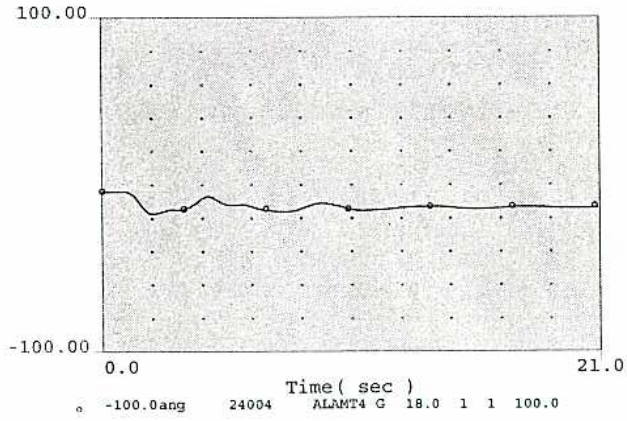
Trip Palo Verde units #1 and #2
Drop AZ load (120 MW)

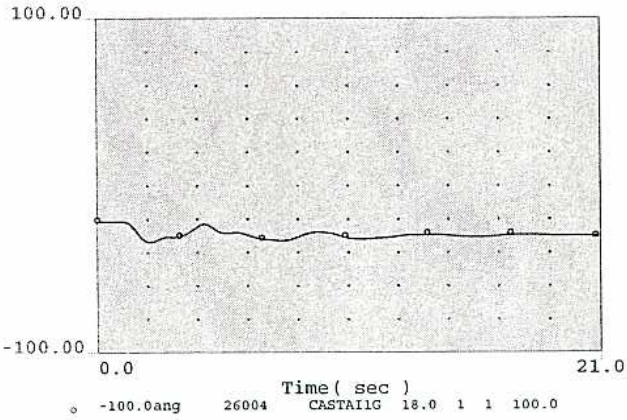




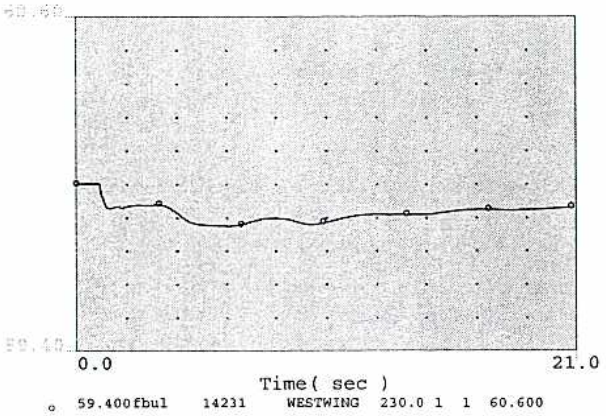




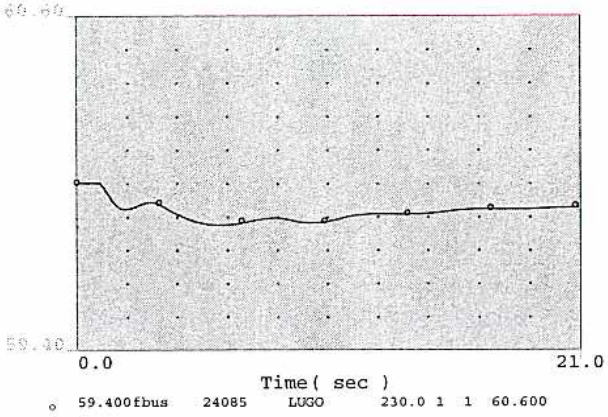




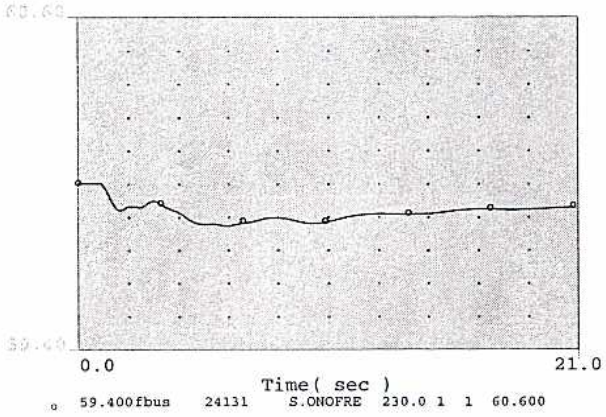
Trip Palo Verde units #1 and #2
Drop AZ load (120 MW)



59.400fbul 14231 WESTWING 230.0 1 1 60.600



59.400fbus 24085 LUGO 230.0 1 1 60.600



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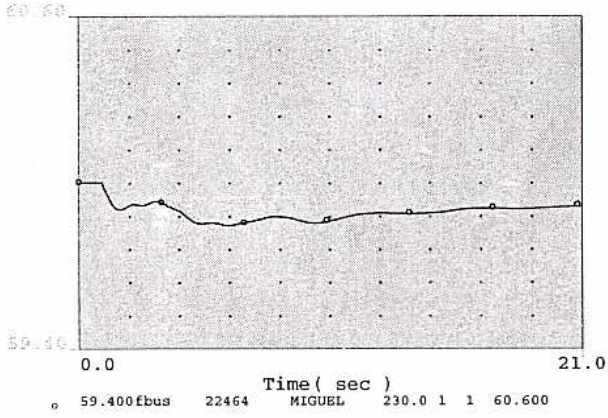

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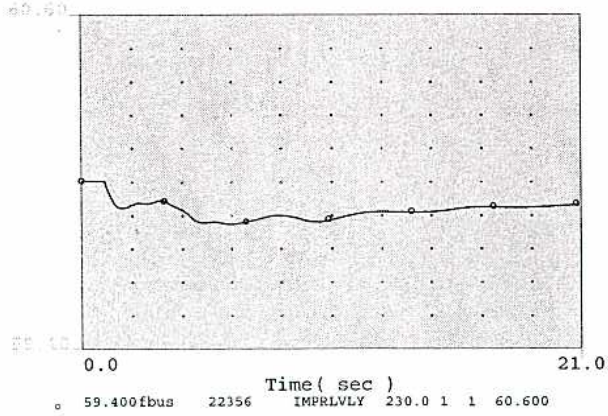
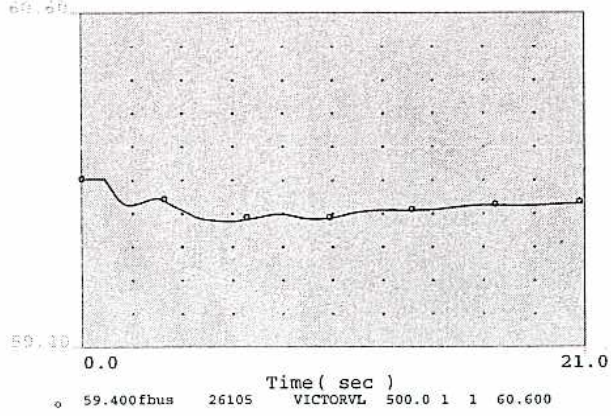
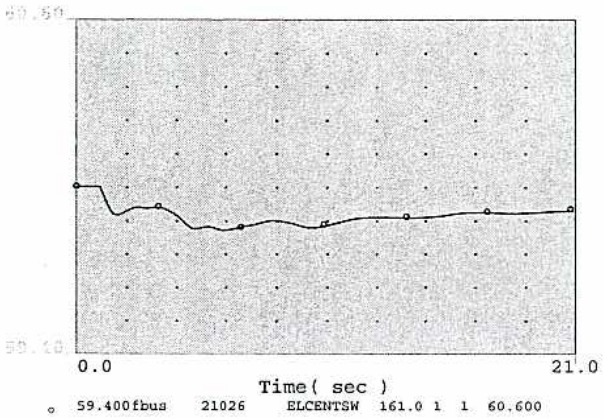


59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

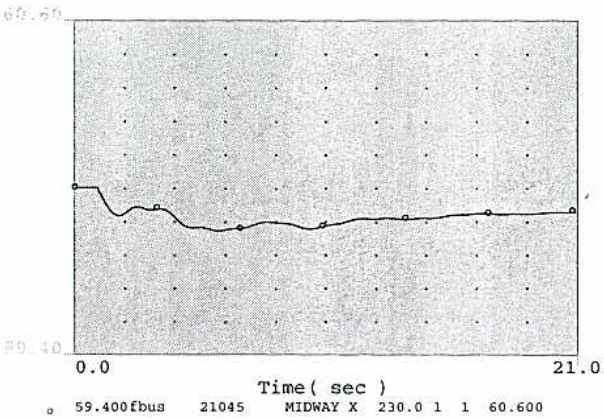


59.400fbus 26105 VICTORVL 500.0 1 1 60.600

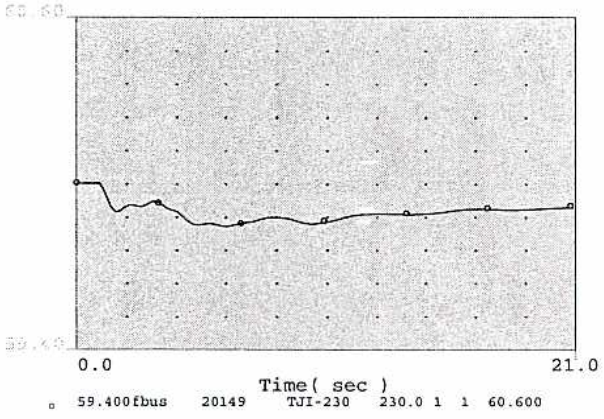
Trip Palo Verde units #1 and #2
Drop AZ load (120 MW)



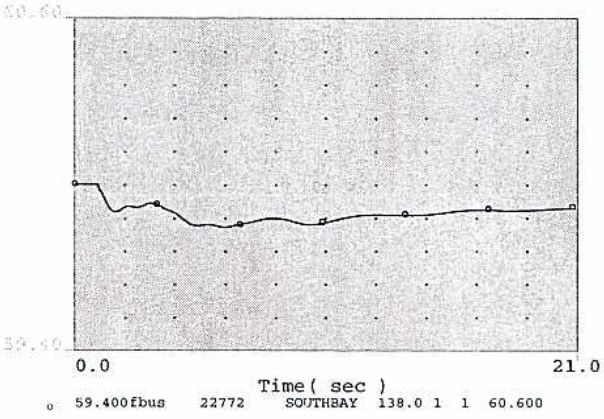
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



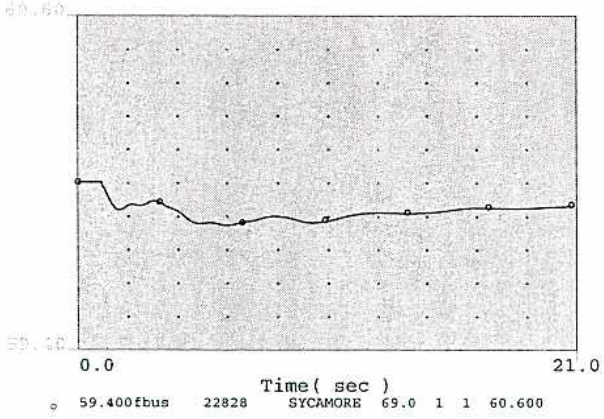
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



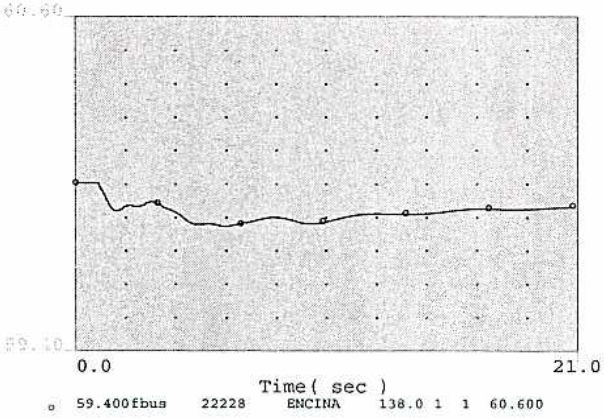
59.400fbus 20149 TJI-230 230.0 1 1 60.600



59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600

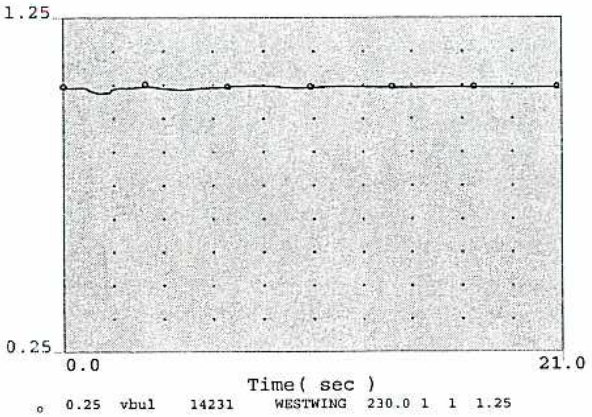


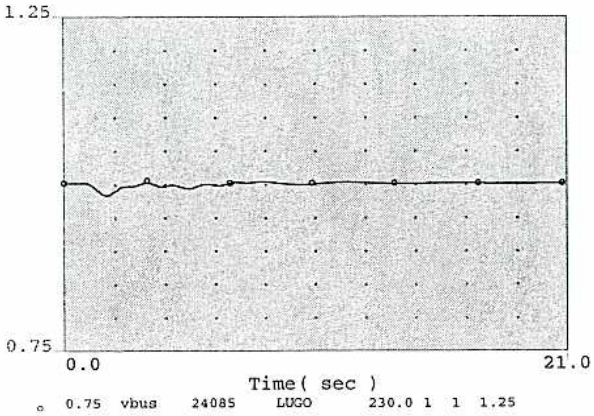
59.400fbus 22828 SYCAMORE 69.0 1 1 60.600

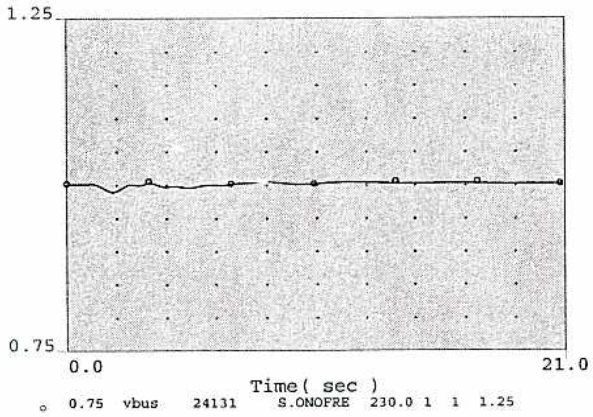


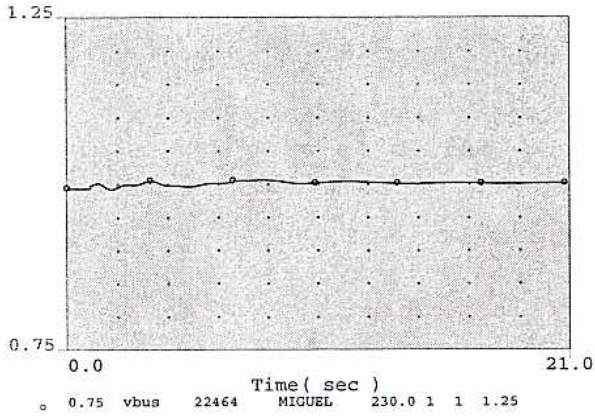
59.400fbus 22228 ENCINA 138.0 1 1 60.600

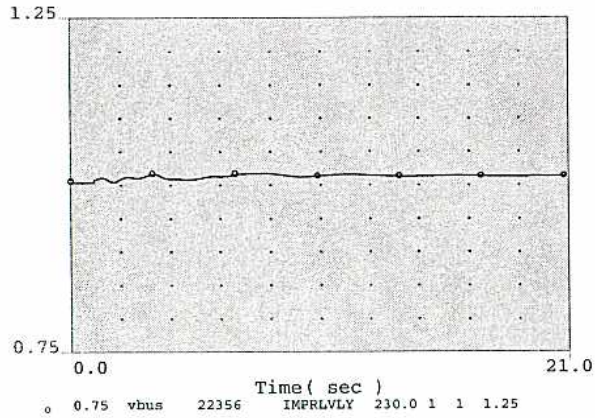
Trip Palo Verde units #1 and #2
Drop AZ load (120 MW)

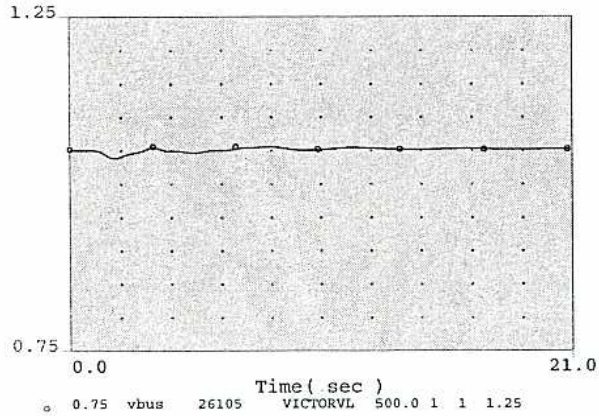




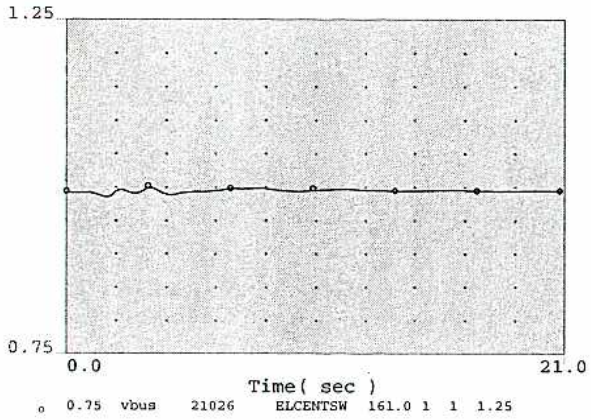


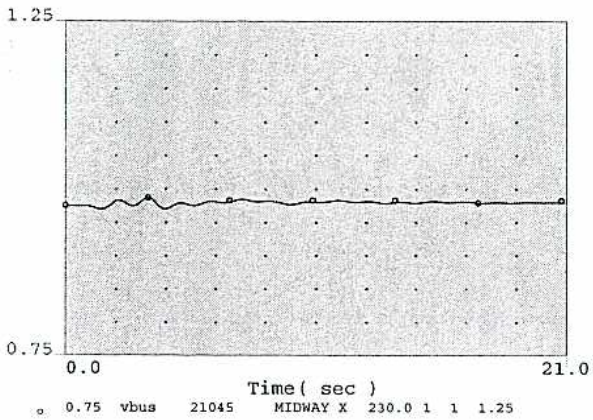


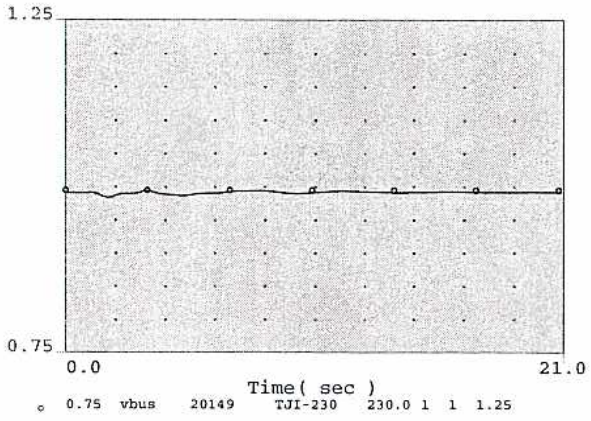


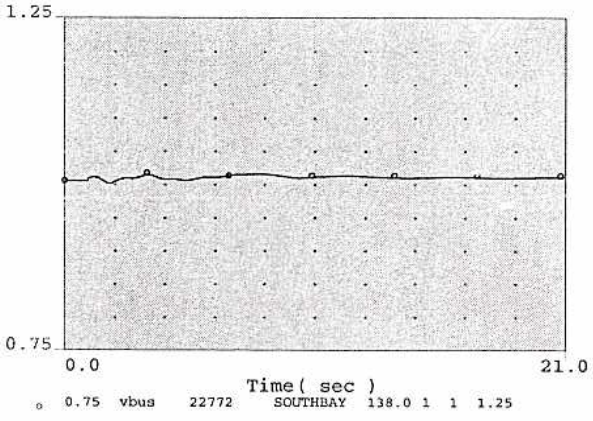


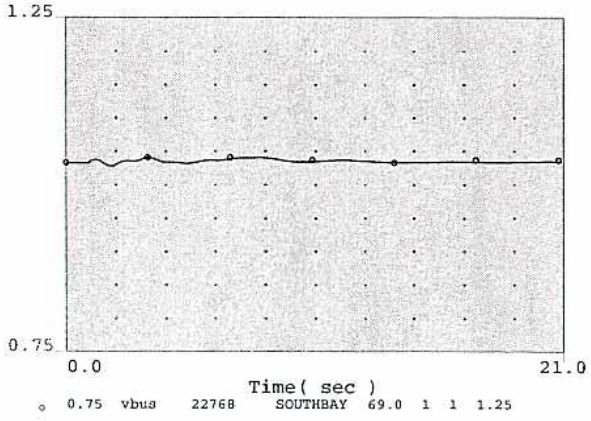
Trip Palo Verde units #1 and #2
Drop AZ load (120 MW)

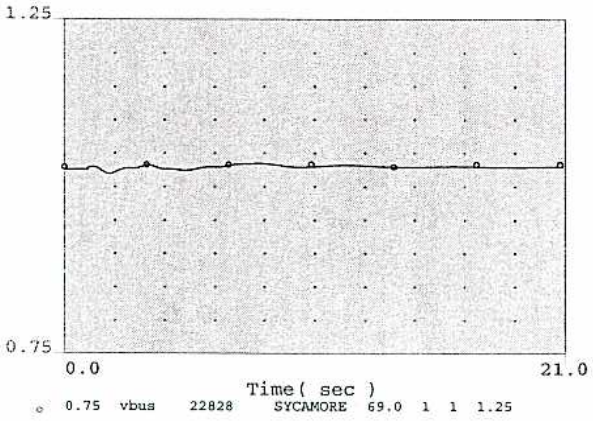












Trip Palo Verde units #1 and #2
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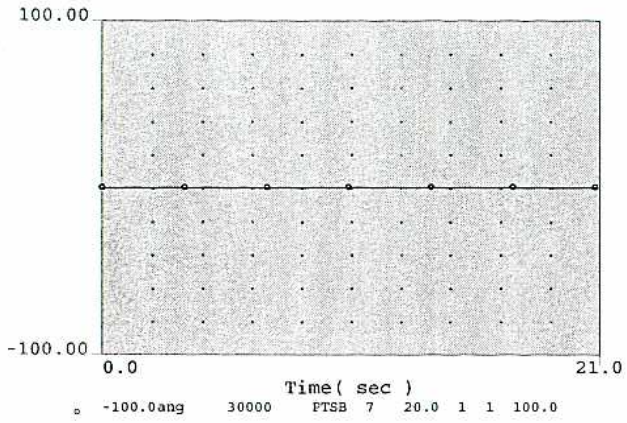

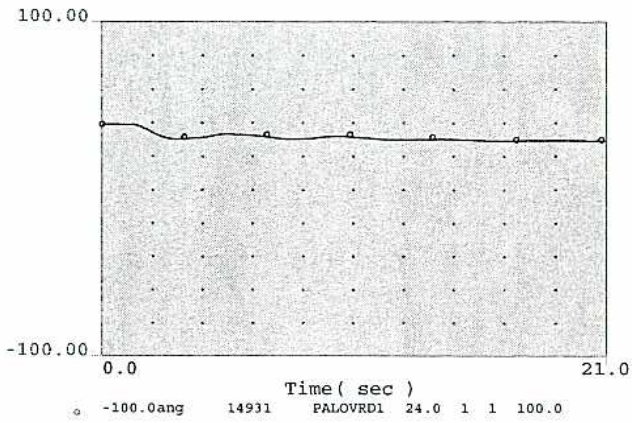

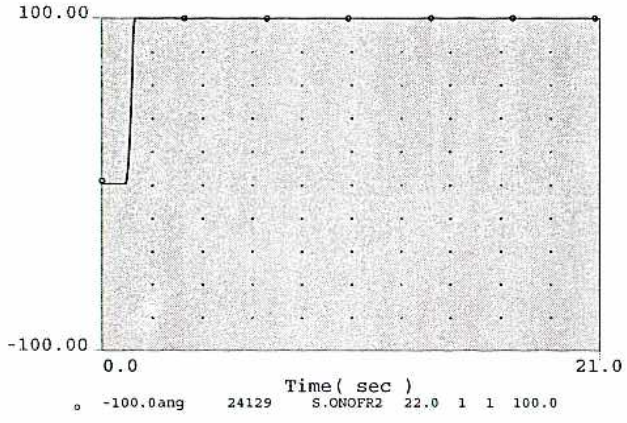

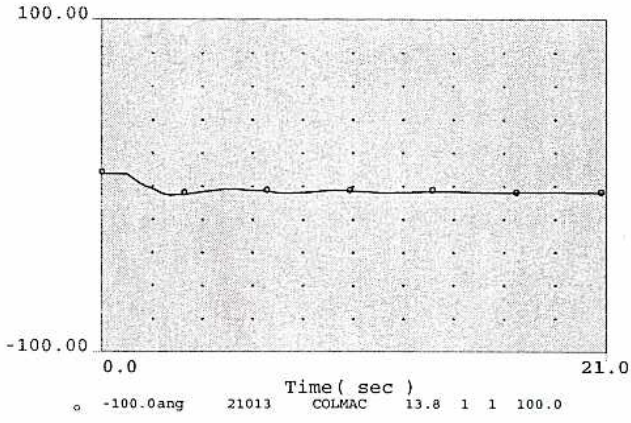

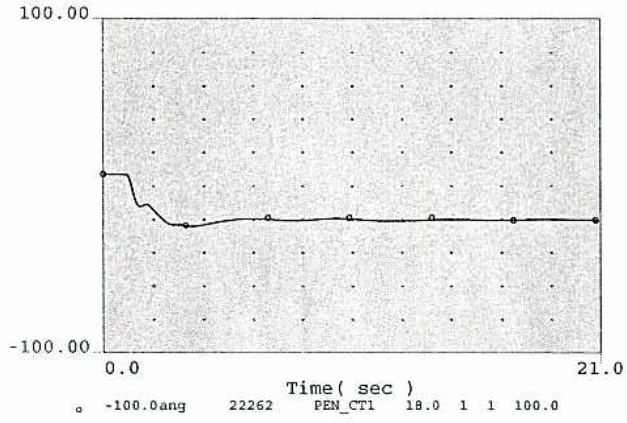

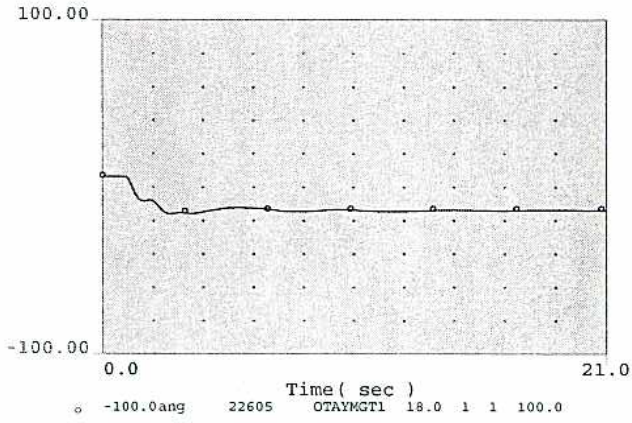

Trip SONGS #2 & #3 units

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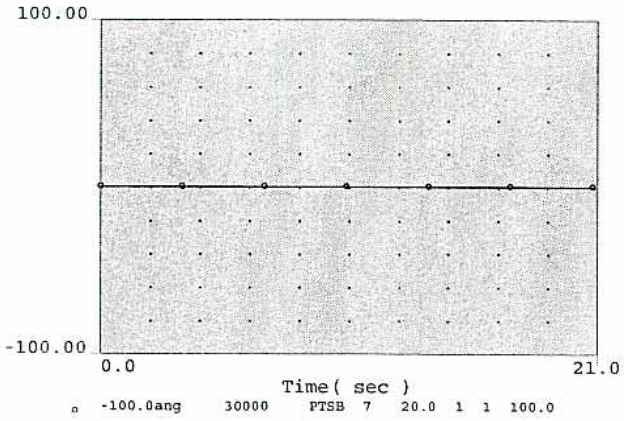

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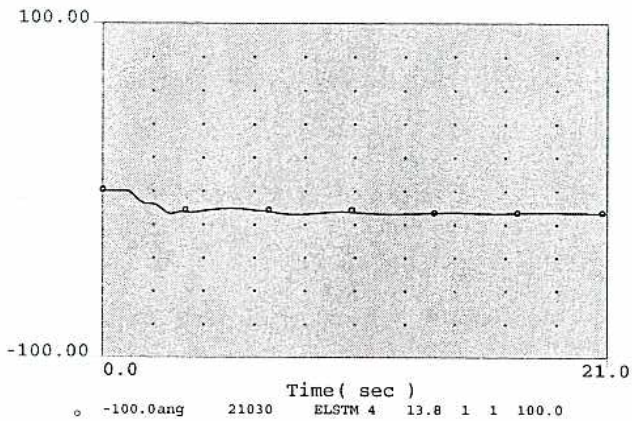

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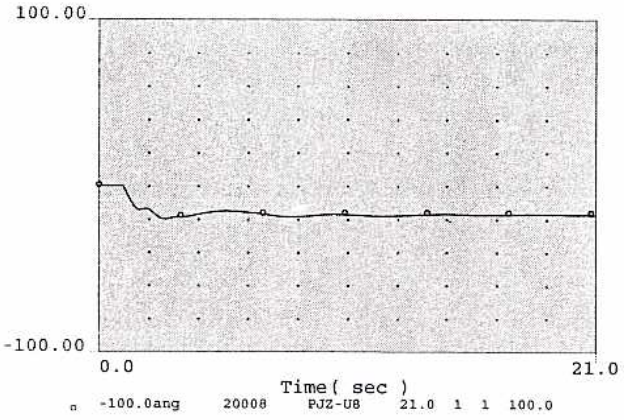

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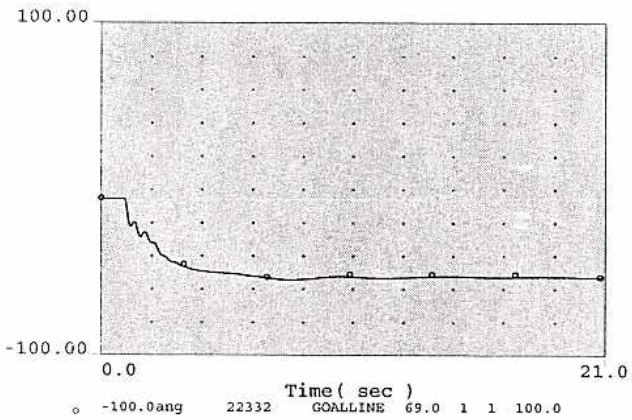

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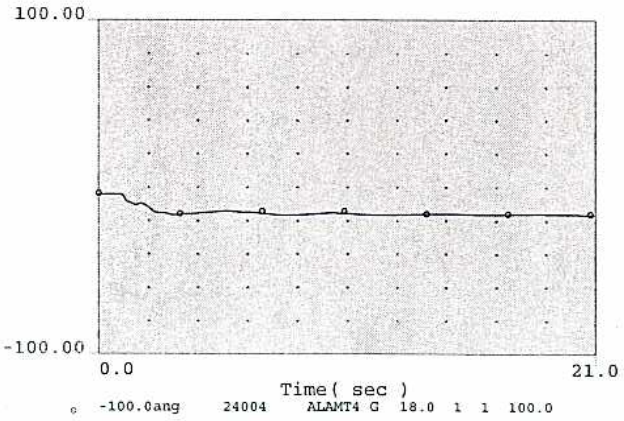

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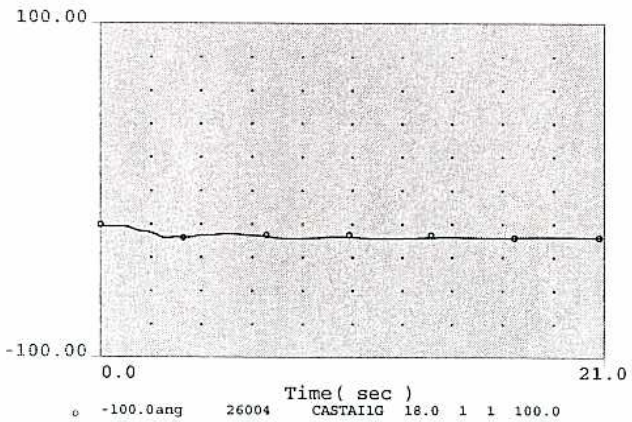

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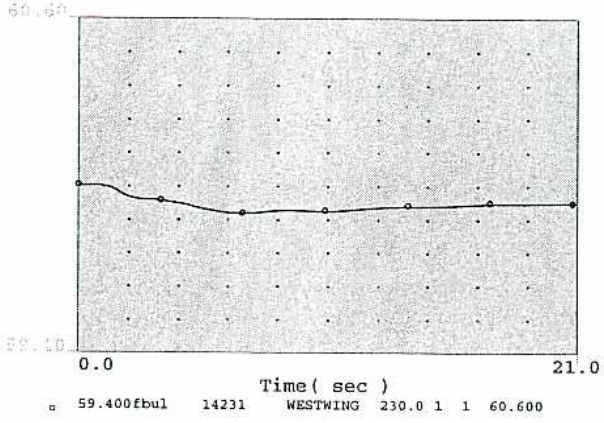
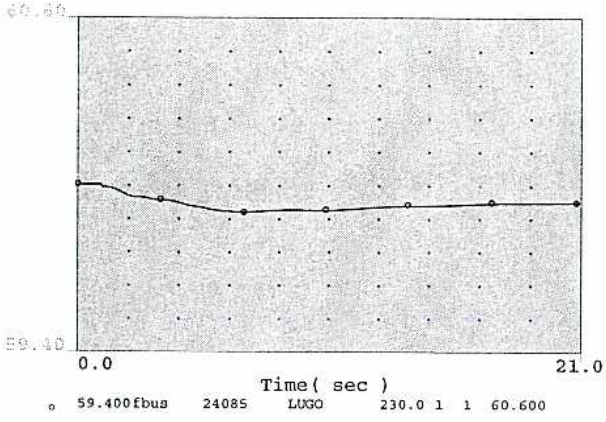
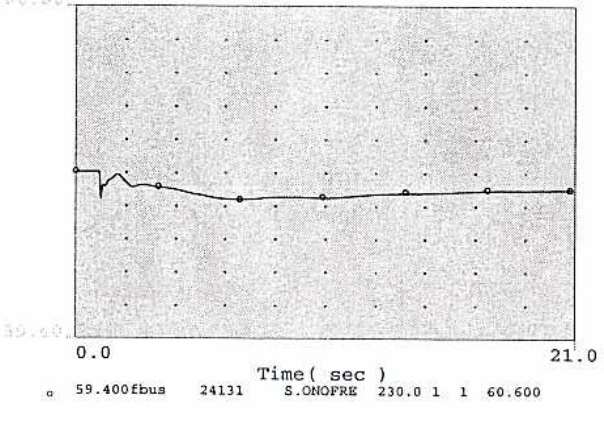
Trip SONGS #2 & #3 units



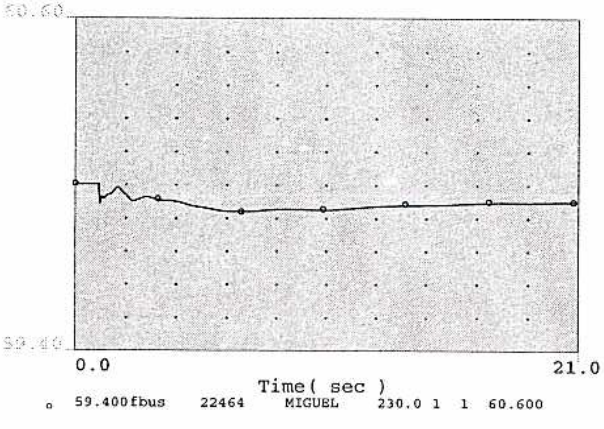
59.400fbul 14231 WESTWING 230.0 1 1 60.600



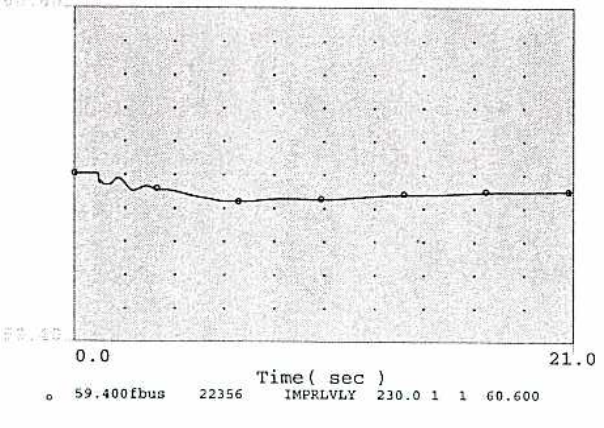
59.400fbus 24085 LUGO 230.0 1 1 60.600



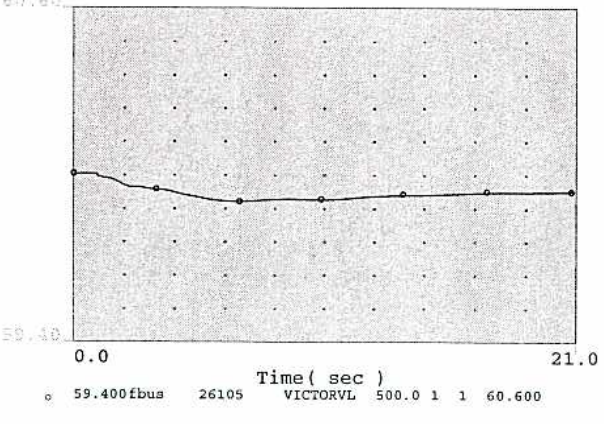
59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



59.400fbus 22464 MIGUEL 230.0 1 1 60.600

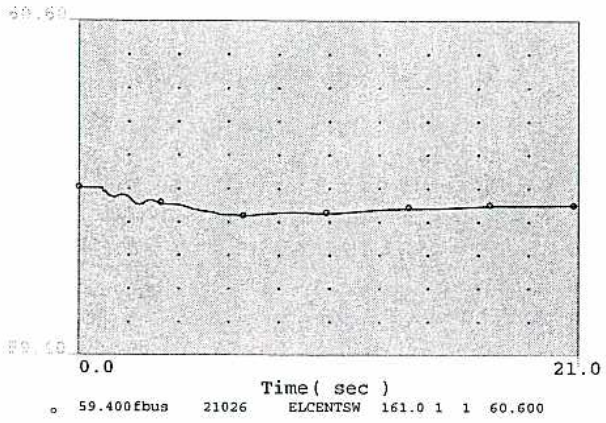


59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

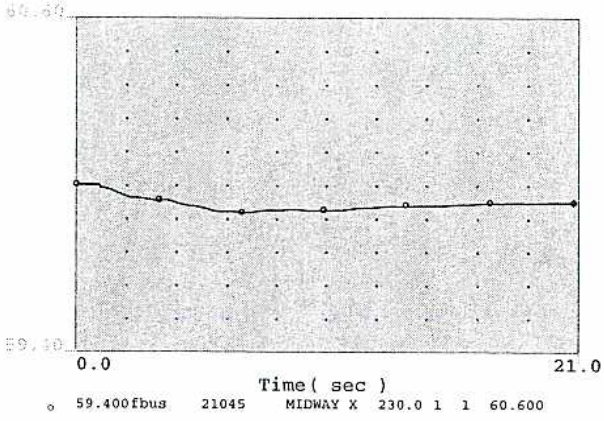


59.400fbus 26105 VICTORVL 500.0 1 1 60.600

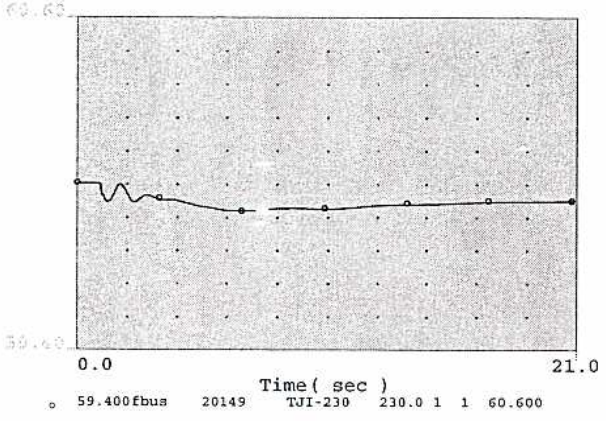
Trip SONGS #2 & #3 units



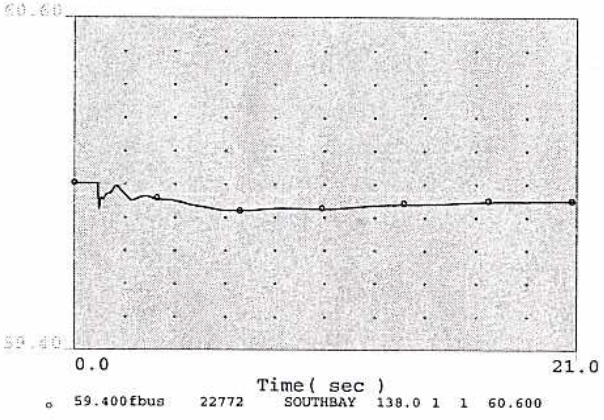
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



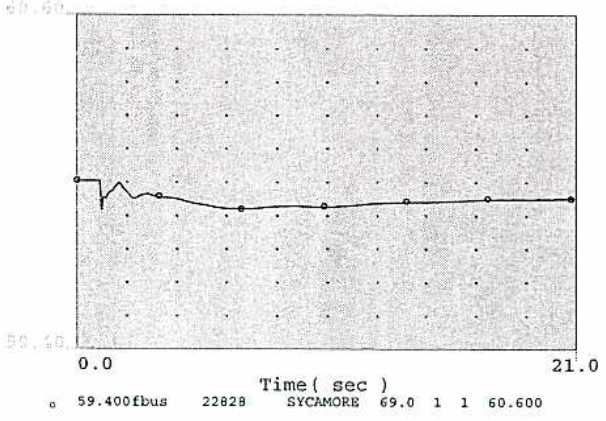
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



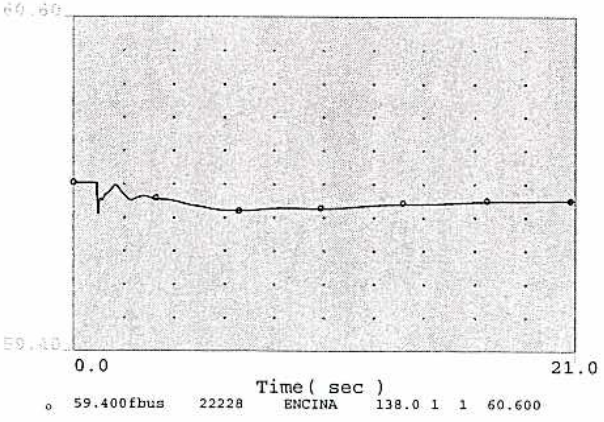
59.400fbus 20149 TJI-230 230.0 1 1 60.600



59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600

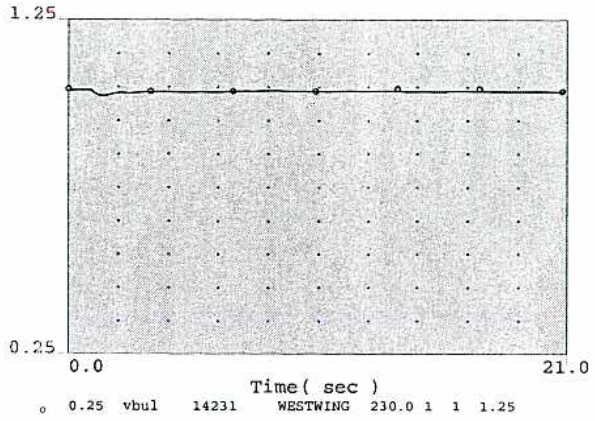


59.400fbus 22828 SYCAMORE 69.0 1 1 60.600



59.400fbus 22228 ENCINA 138.0 1 1 60.600

Trip SONGS #2 & #3 units



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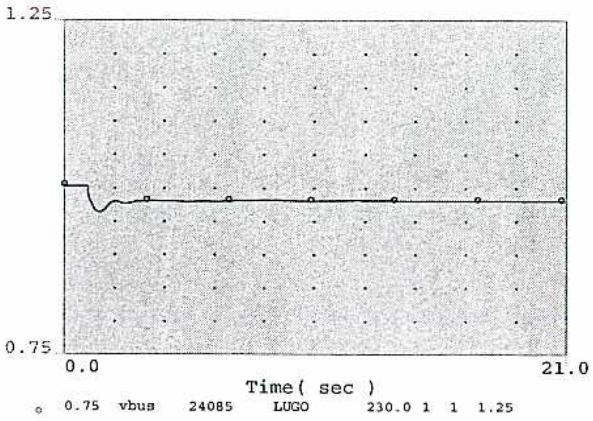

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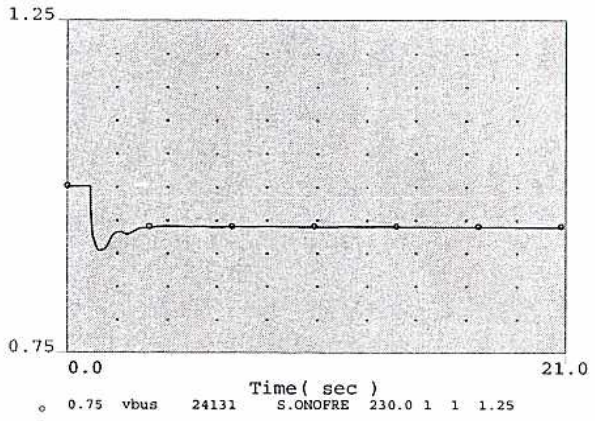
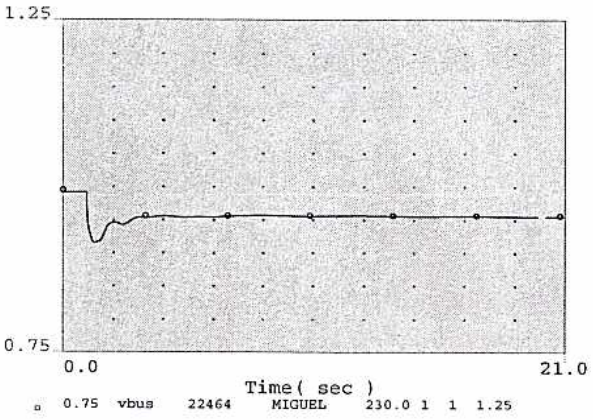


o 0.75 vbus 24131 S.ONOFRE 230.0 1 1 1.25



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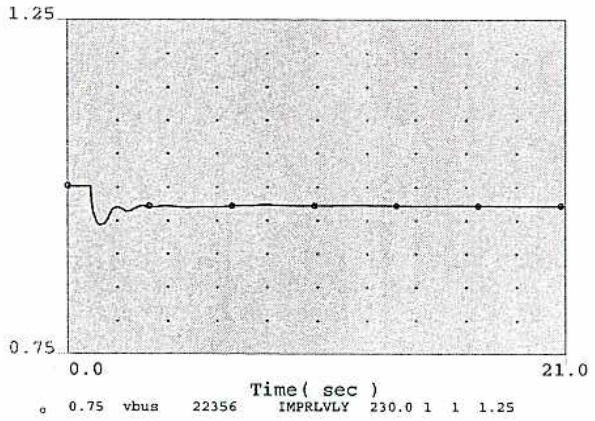

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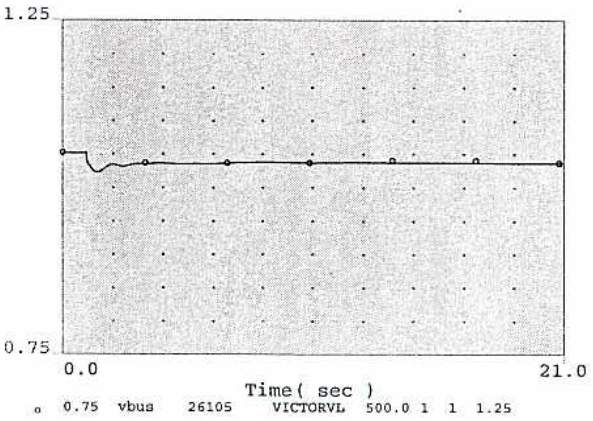
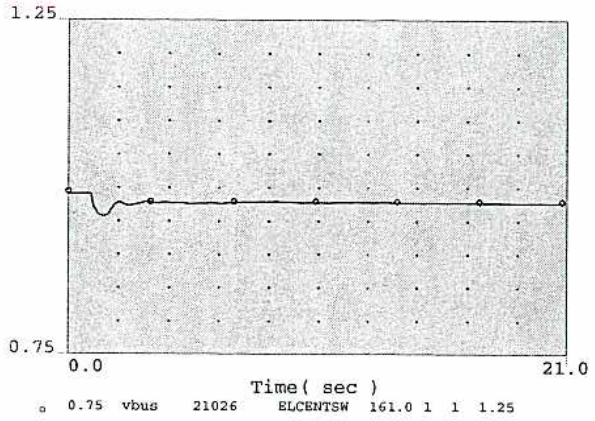


o 0.75 vbus 26105 VICTORVL 500.0 1 1 1.25

Trip SONGS #2 & #3 units



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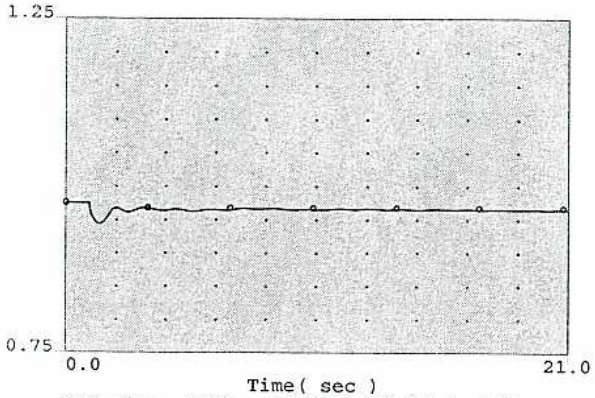
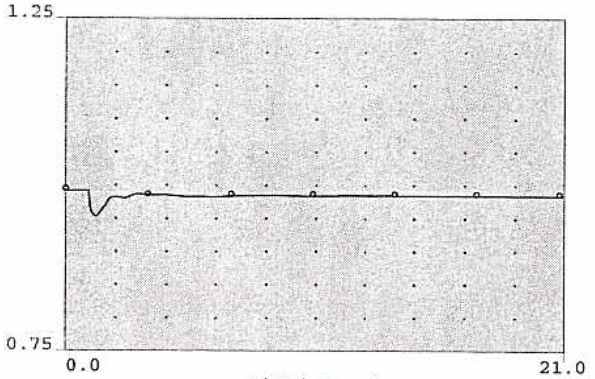


o 0.75 vbus 21045 MIDWAY X 230.0 1 1 1.25



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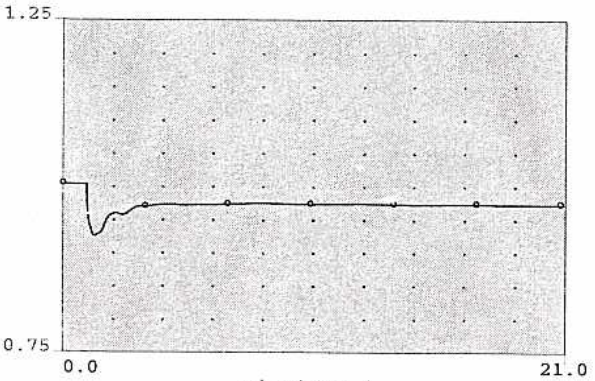
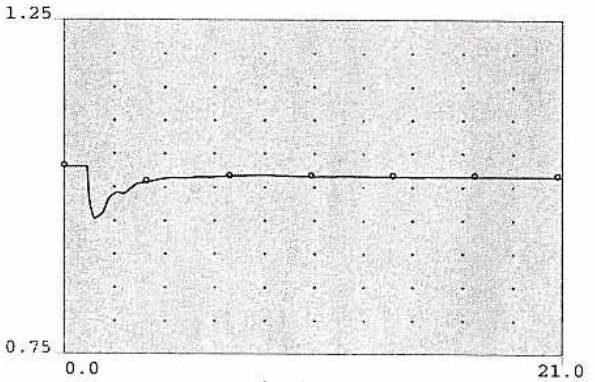


o 0.75 vbus 22772 SOUTHBAY 138.0 1 1 1.25



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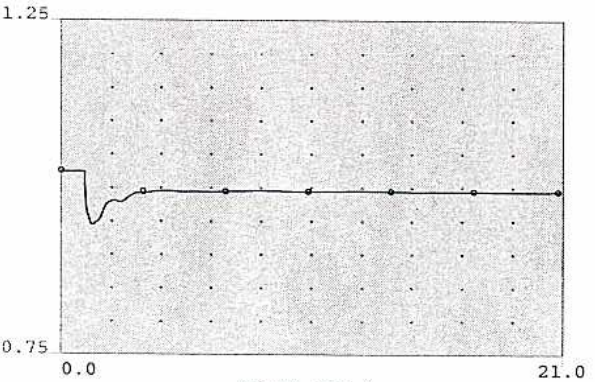
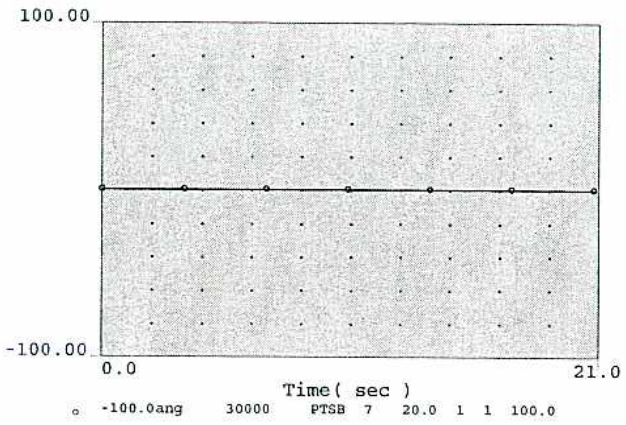
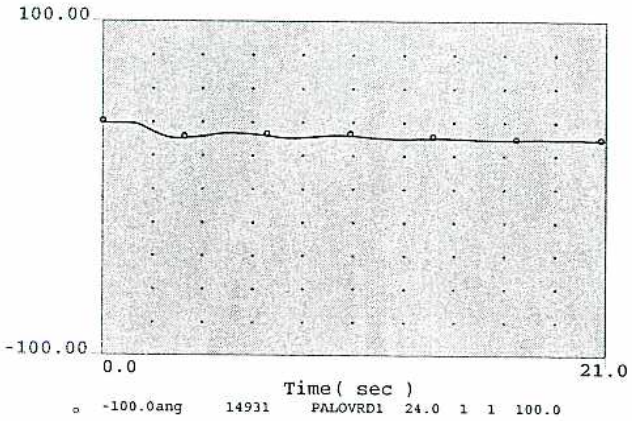
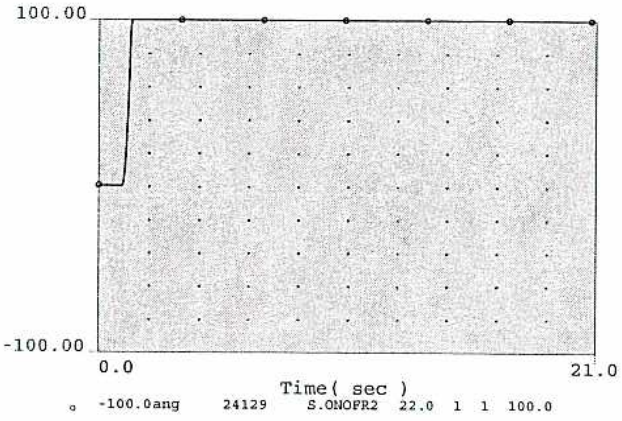


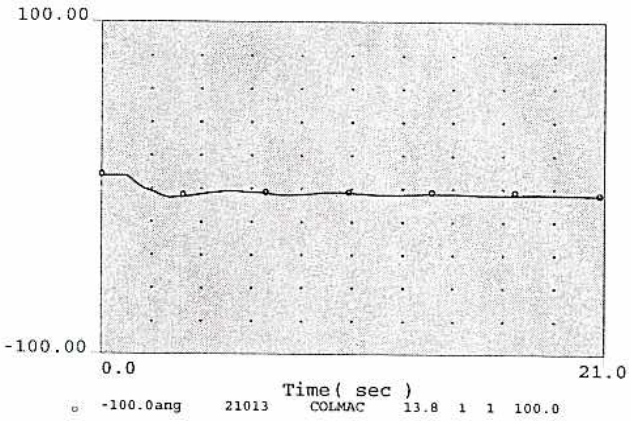
o 0.75 vbus 22828 SYCAMORE 69.0 1 1 1.25

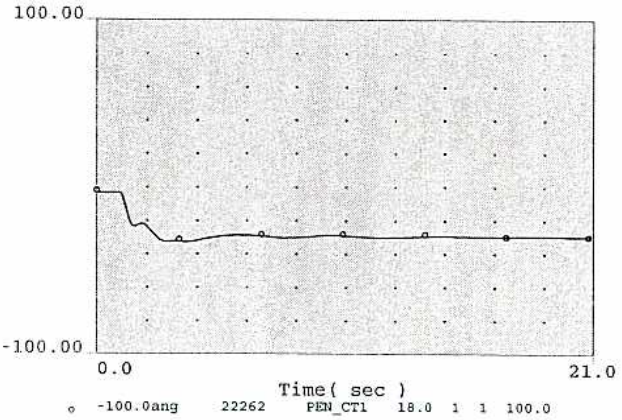
Trip SONGS #2 & #3 units

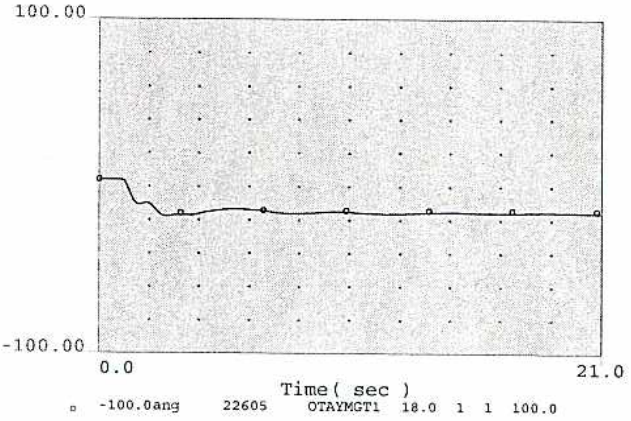












Trip SONGS #2 & #3 units

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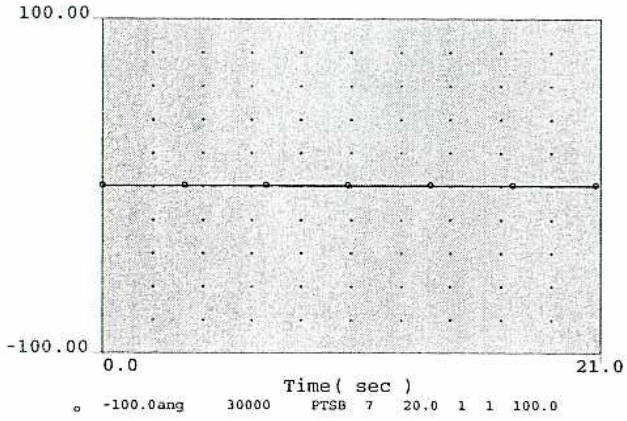
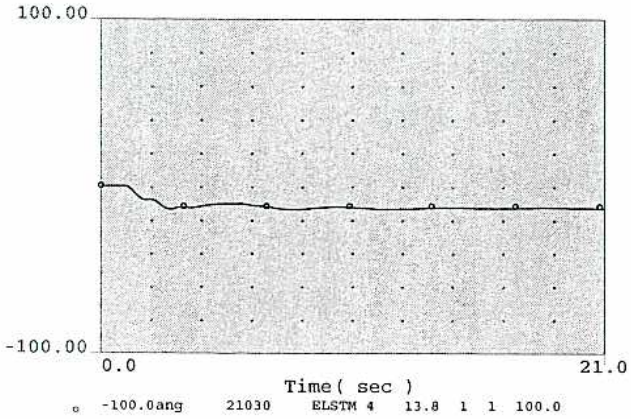


o -100.0ang 30000 PTSB 7 20.0 1 1 100.0



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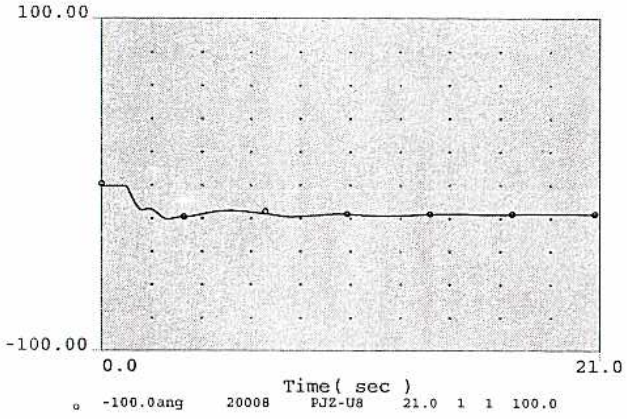

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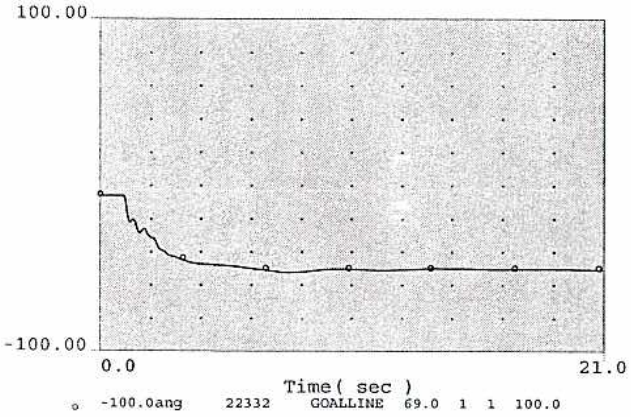

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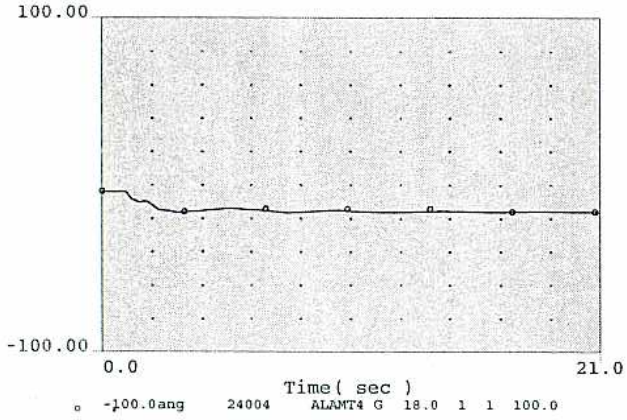

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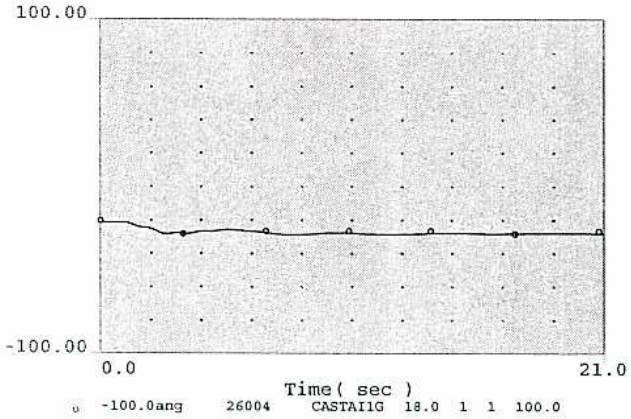

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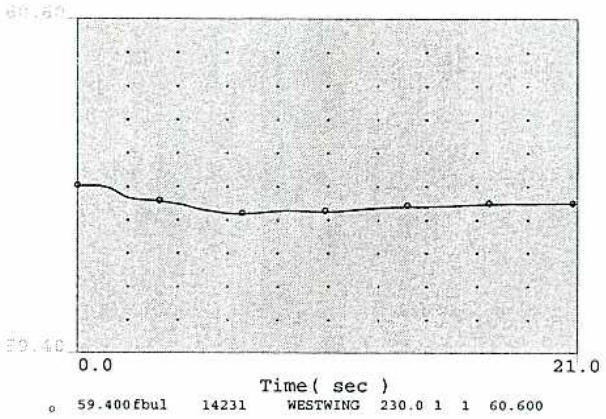
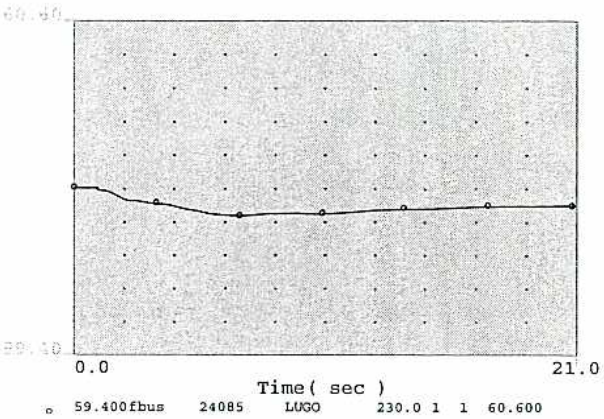
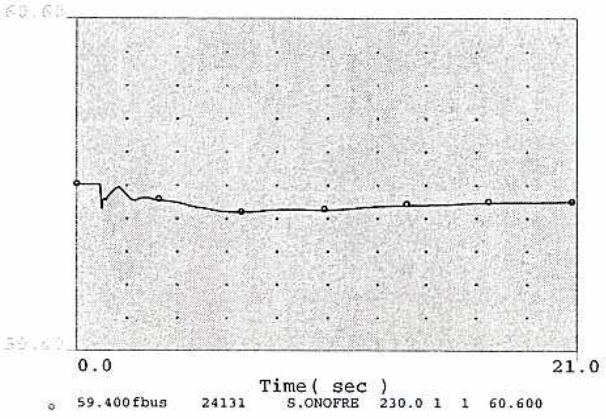
Trip SONGS #2 & #3 units



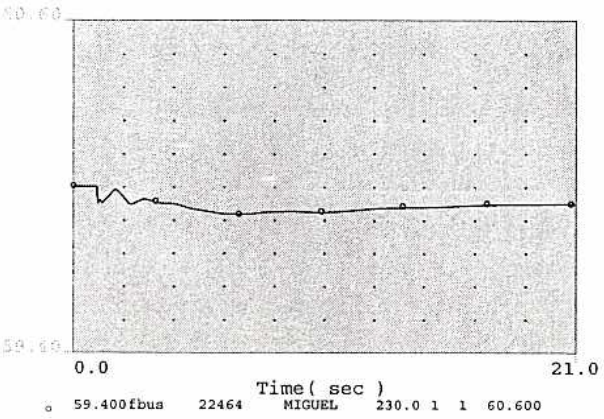
59.400fbul 14231 WESTWING 230.0 1 1 60.600



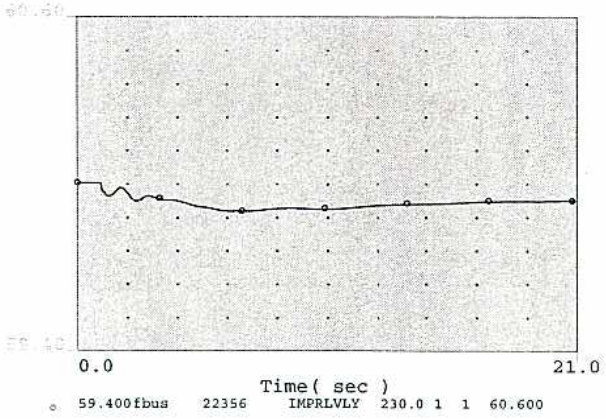
59.400fbus 24085 LUGO 230.0 1 1 60.600



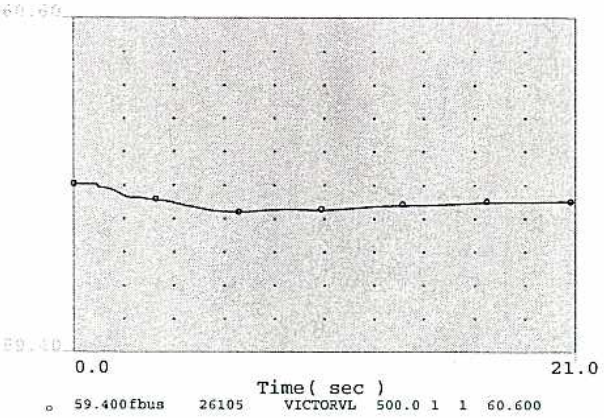
59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



59.400fbus 22464 MIGUEL 230.0 1 1 60.600

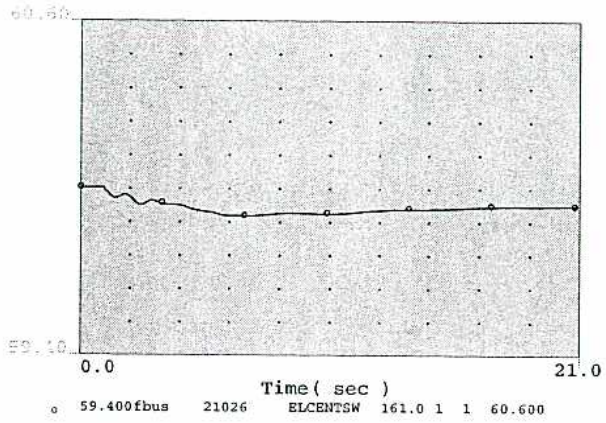


59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

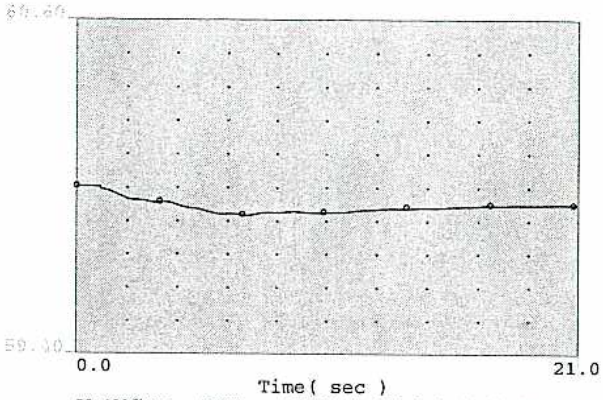


59.400fbus 26105 VICTORVL 500.0 1 1 60.600

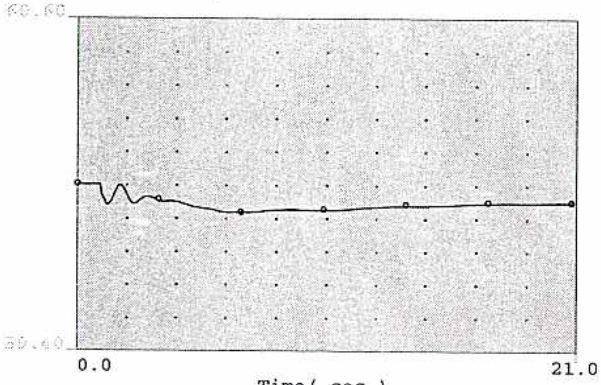
Trip SONGS #2 & #3 units



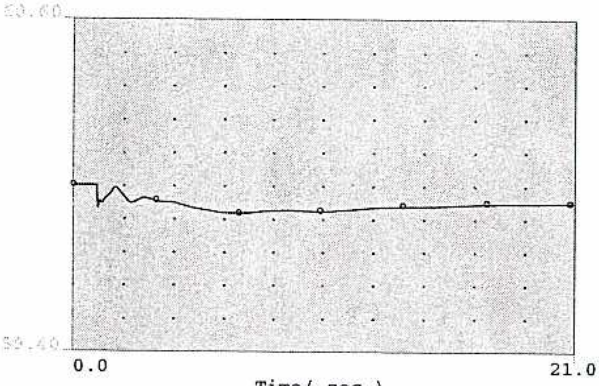
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



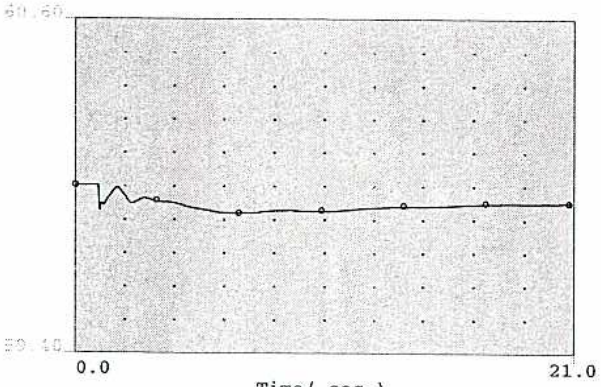
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



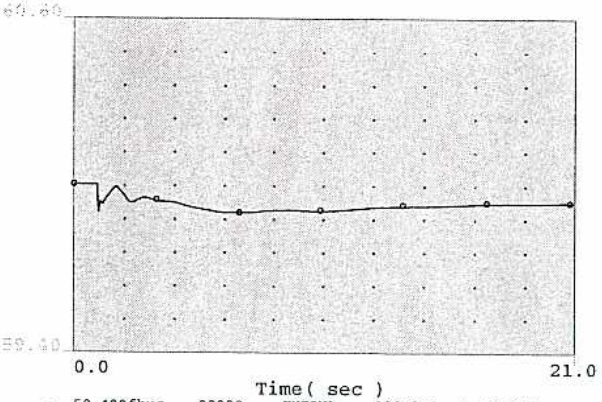
59.400fbus 20149 TJI-230 230.0 1 1 60.600



59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600

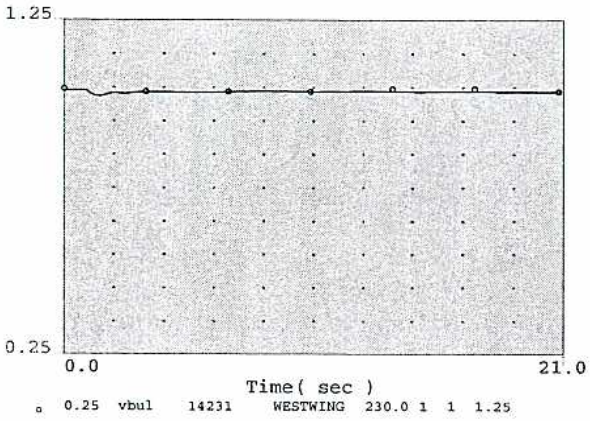


59.400fbus 22828 SYCAMORE 69.0 1 1 60.600

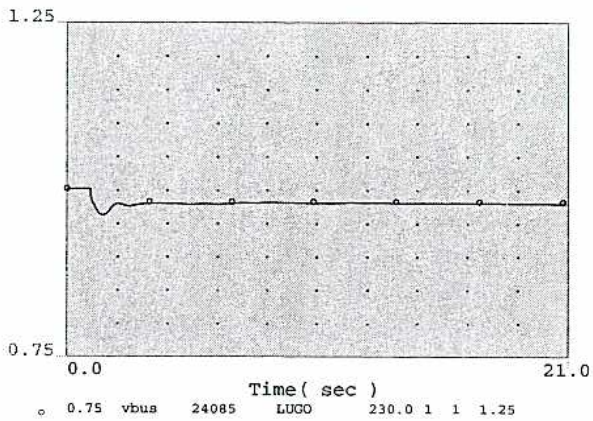


59.400fbus 22228 ENCINA 138.0 1 1 60.600

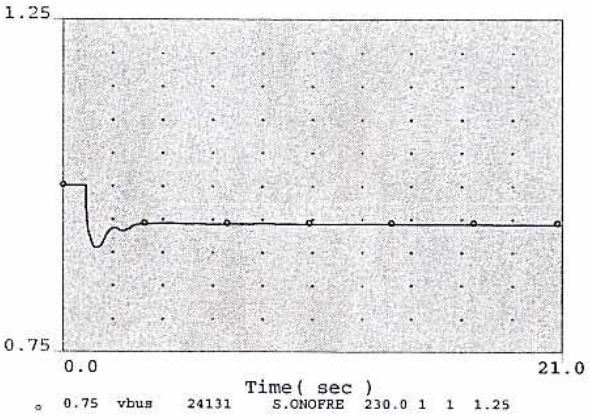
Trip SONGS #2 & #3 units



o 0.25 vbul 14231 WESTWING 230.0 1 1 1.25



o 0.75 vbus 24085 LUGO 230.0 1 1 1.25



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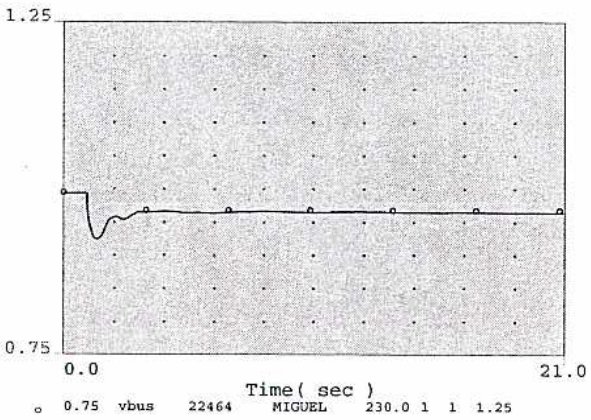

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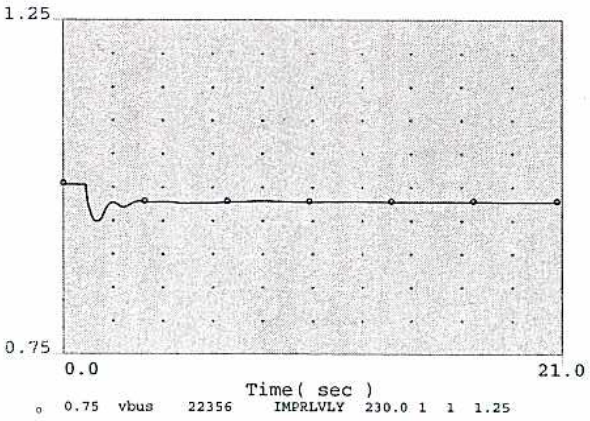

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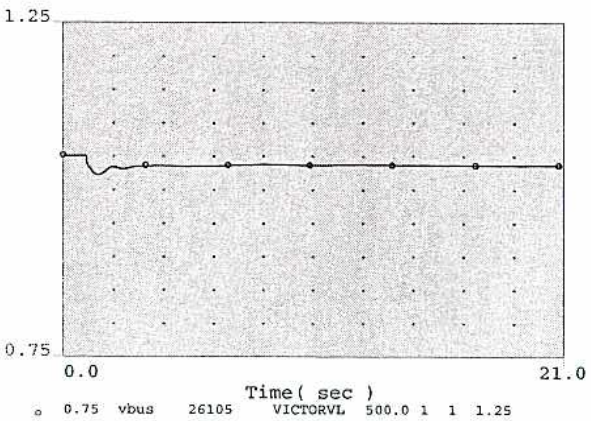
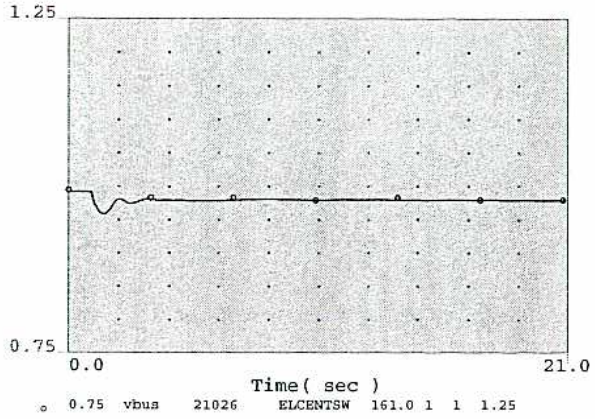
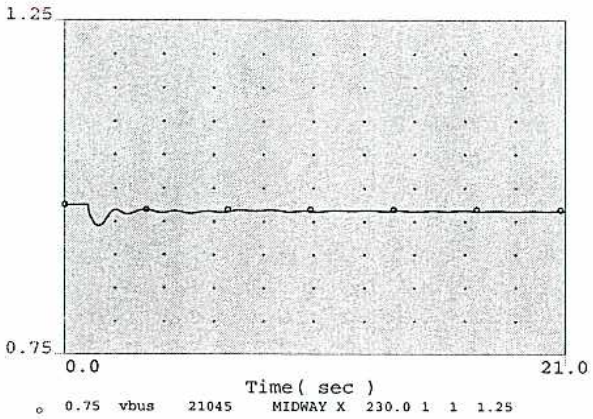
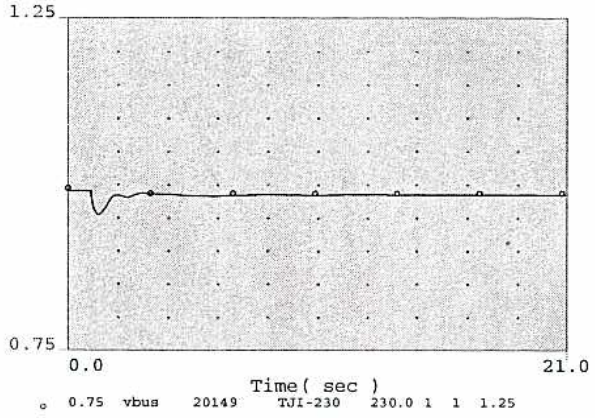


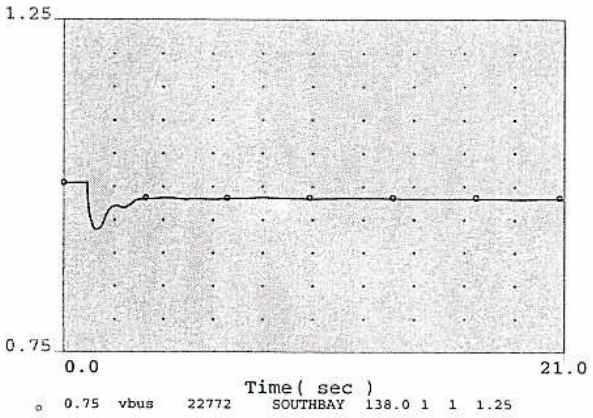
o 0.75 vbus 26105 VICTORVL 500.0 1 1 1.25

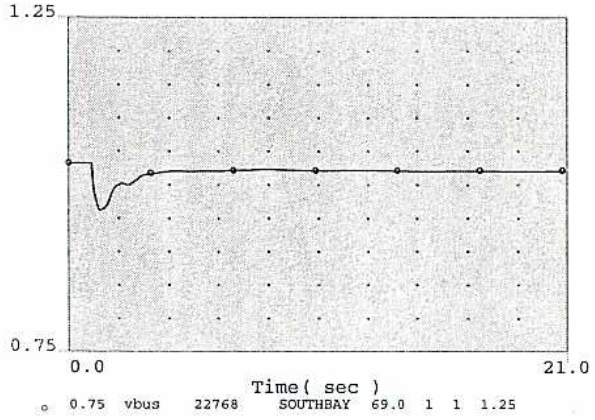
Trip SONGS #2 & #3 units

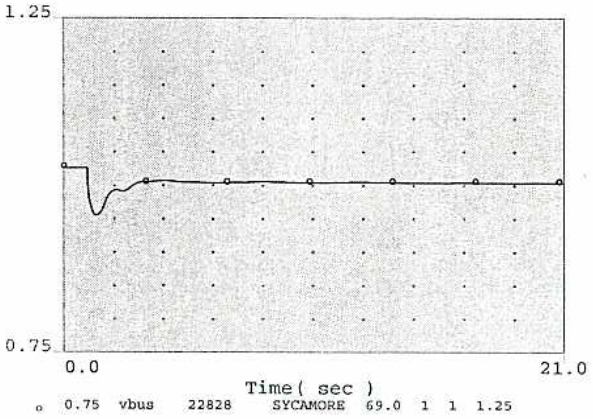




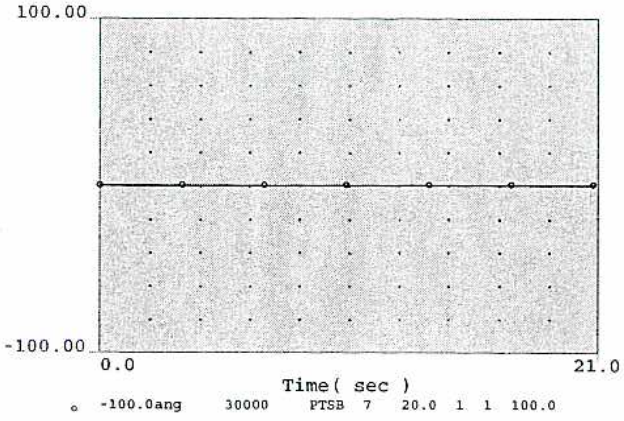


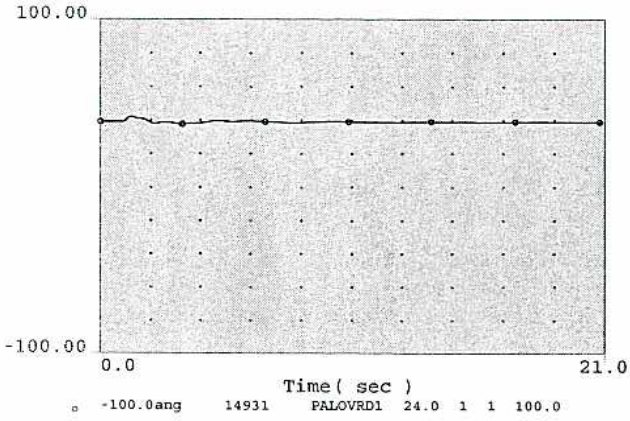


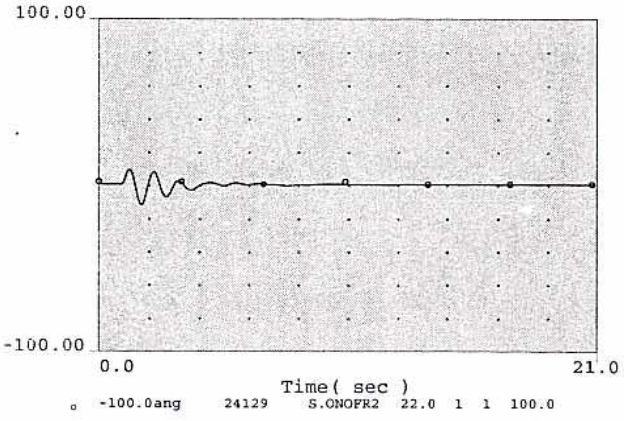


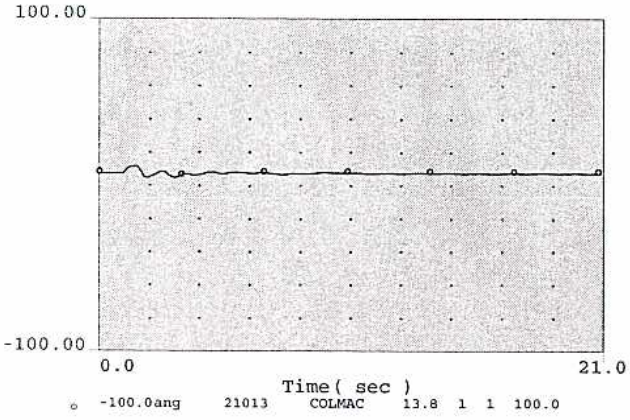


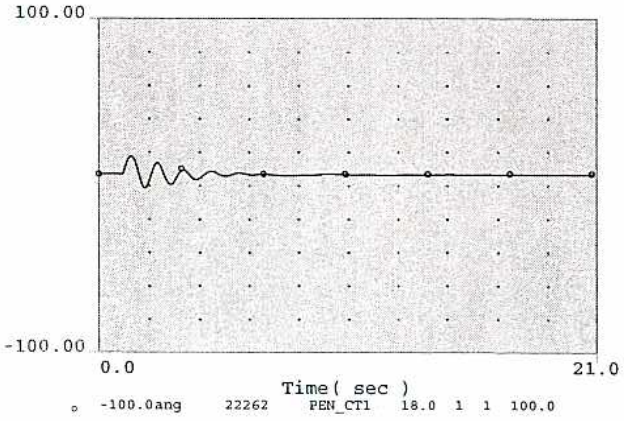
Trip SONGS #2 & #3 units

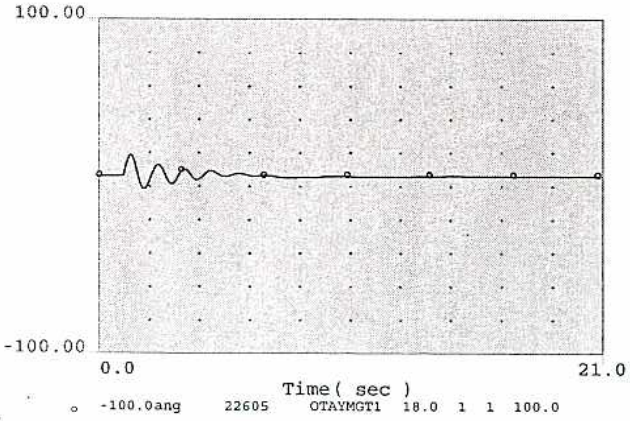












Fault bus at Sycamore
Trip Sycamore - Miguel Tap 230 kV line

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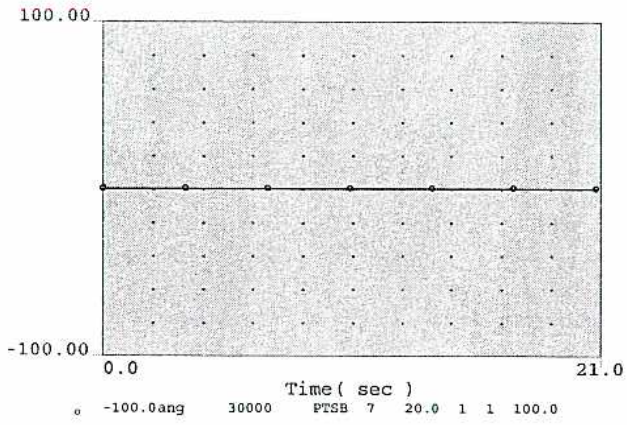

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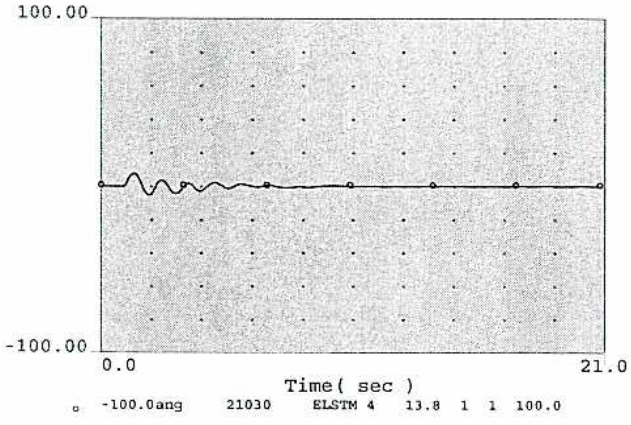

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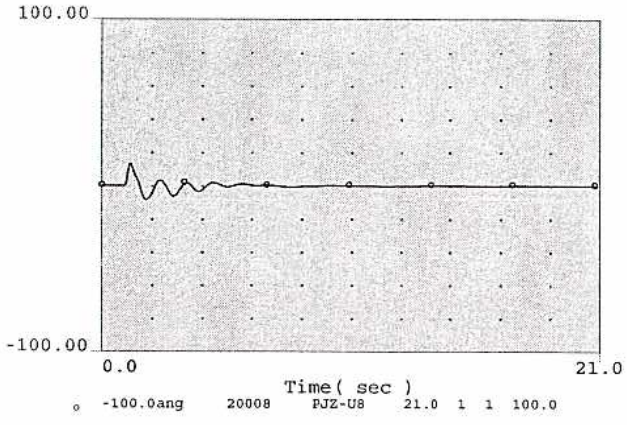

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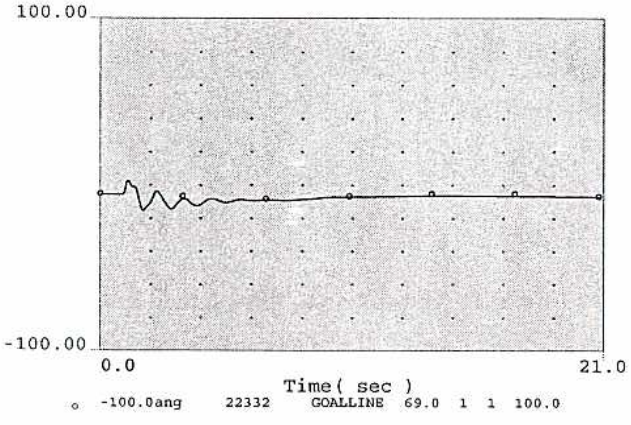

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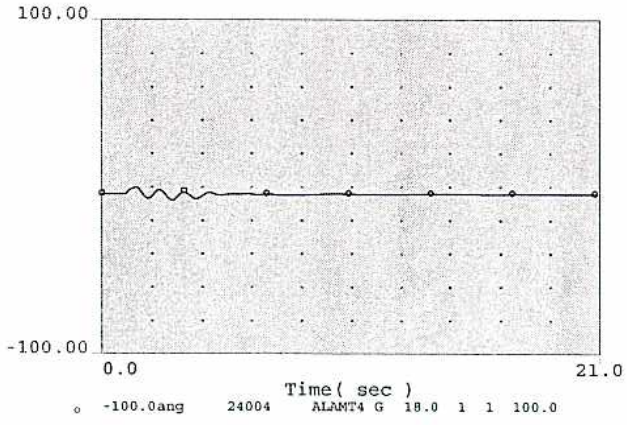

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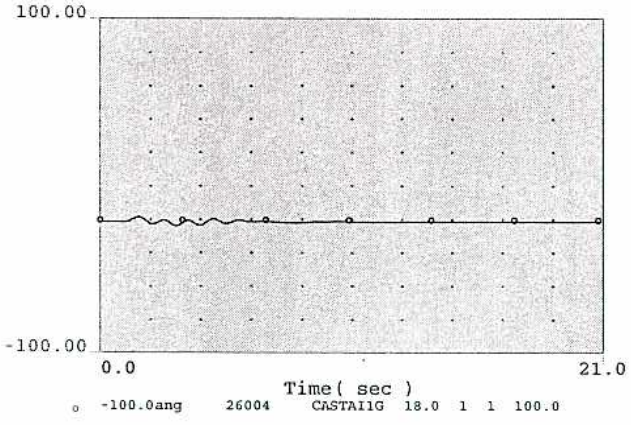
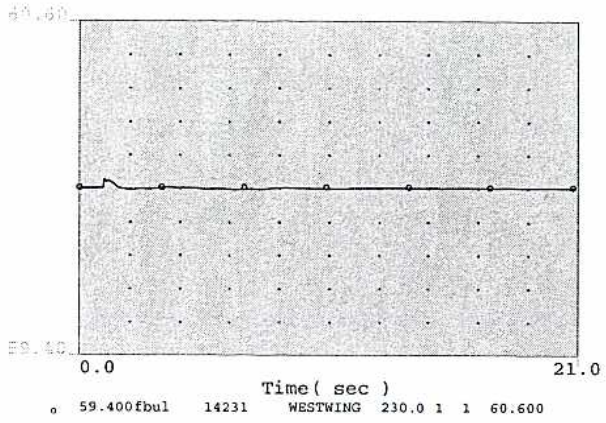
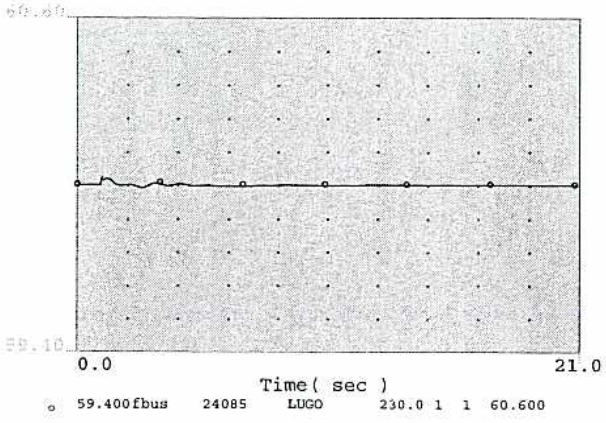


o -100.0ang 26004 CASTAI1G 18.0 1 1 100.0

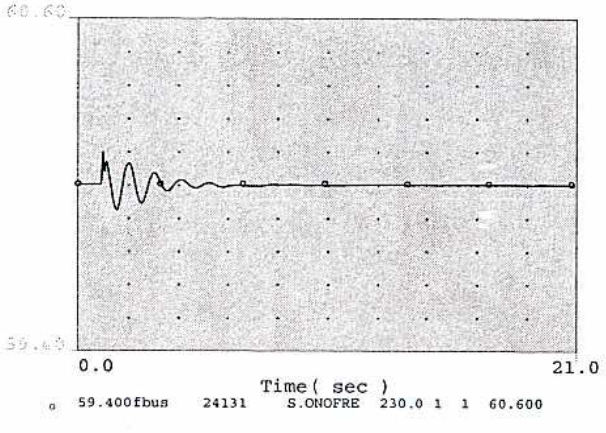
Fault bus at Sycamore
Trip Sycamore - Miguel Tap 230 kV line



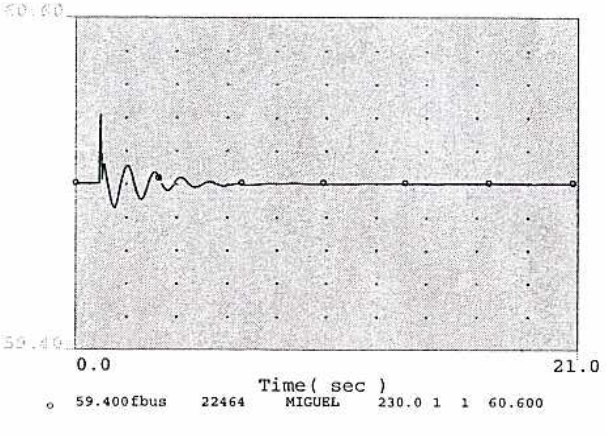
59.400fbul 14231 WESTWING 230.0 1 1 60.600



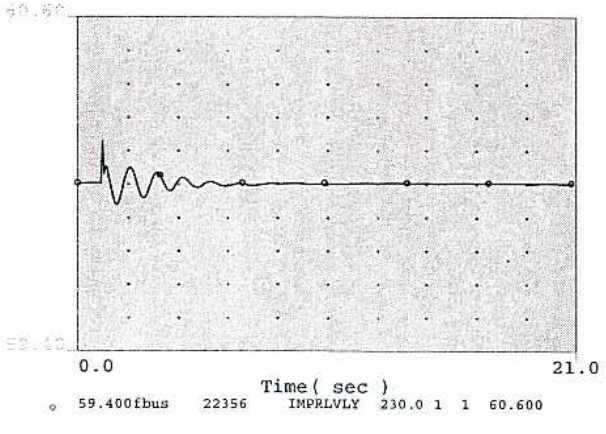
59.400fbus 24085 LUGO 230.0 1 1 60.600



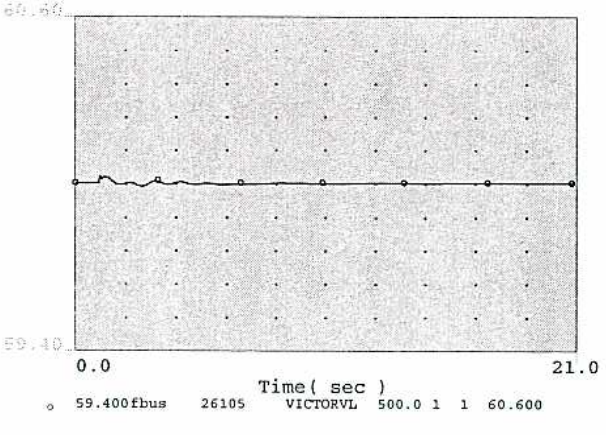
59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



59.400fbus 22464 MIGUEL 230.0 1 1 60.600

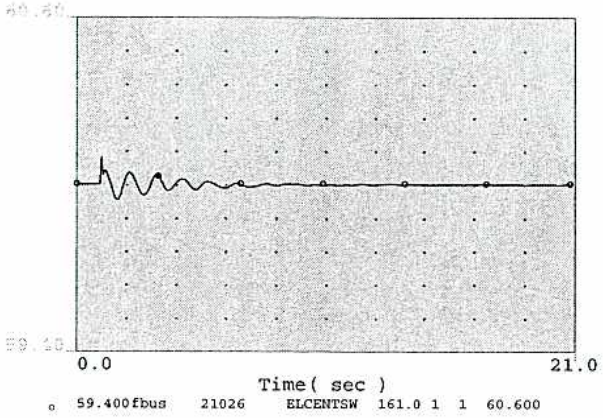


59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

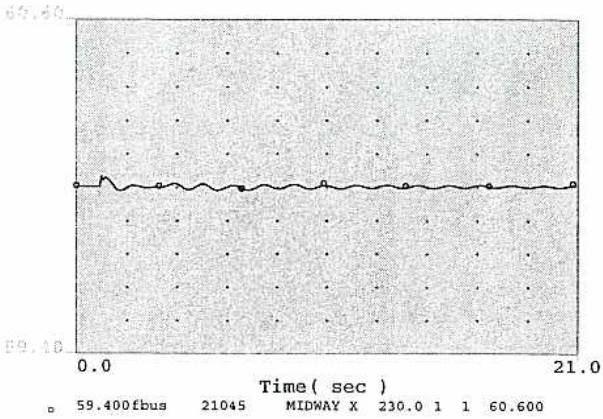


59.400fbus 26105 VICTORVL 500.0 1 1 60.600

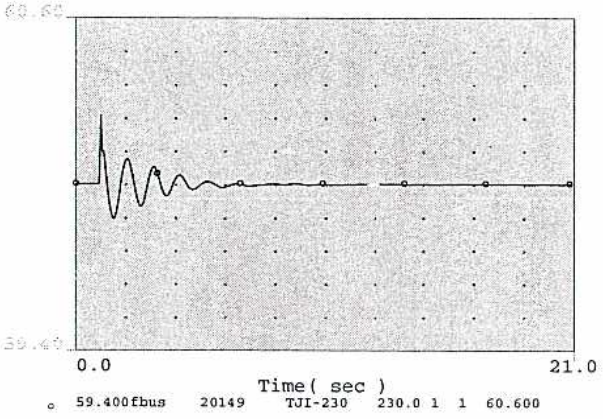
Fault bus at Sycamore
Trip Sycamore - Miguel Tap 230 kV line



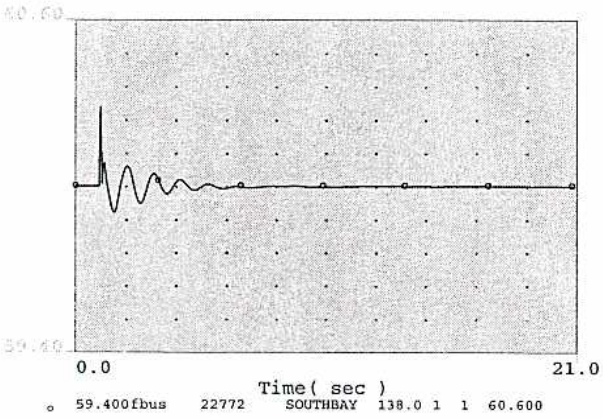
59.400fbus 21026 ELCENTSW 161.0 1 1 60.600



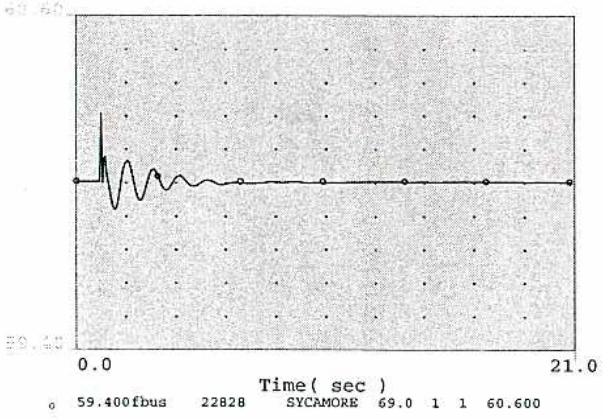
59.400fbus 21045 MIDWAY X 230.0 1 1 60.600



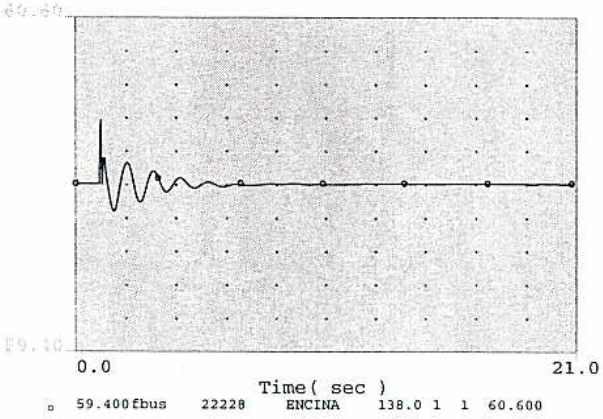
59.400fbus 20149 TJI-230 230.0 1 1 60.600



59.400fbus 22772 SOUTHBAY 138.0 1 1 60.600

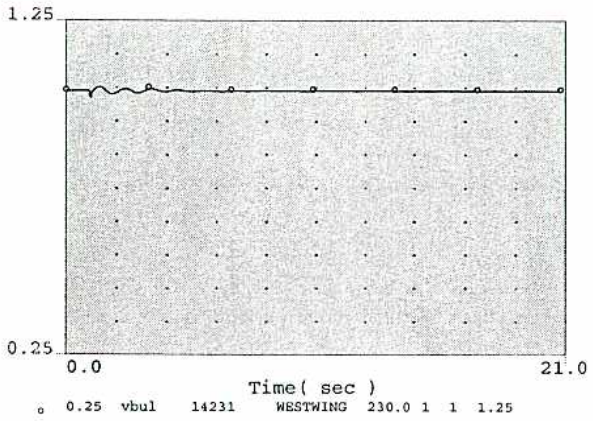


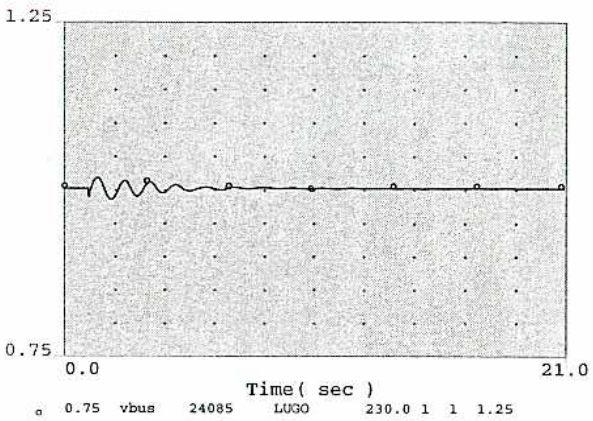
59.400fbus 22828 SYCAMORE 69.0 1 1 60.600

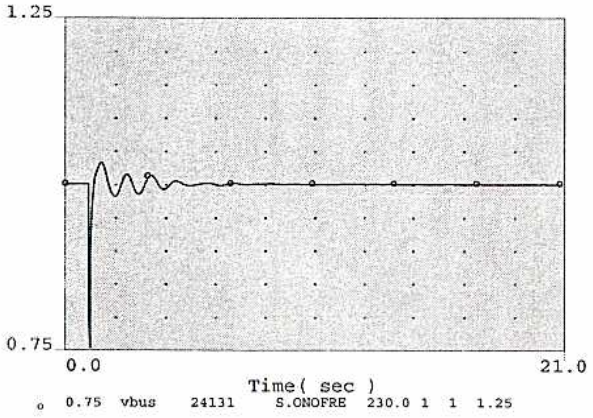


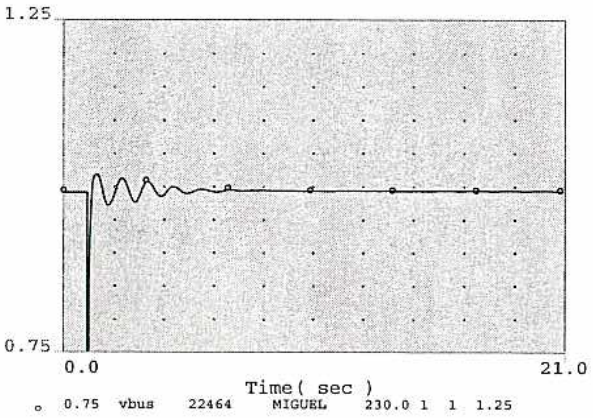
59.400fbus 22228 ENCINA 138.0 1 1 60.600

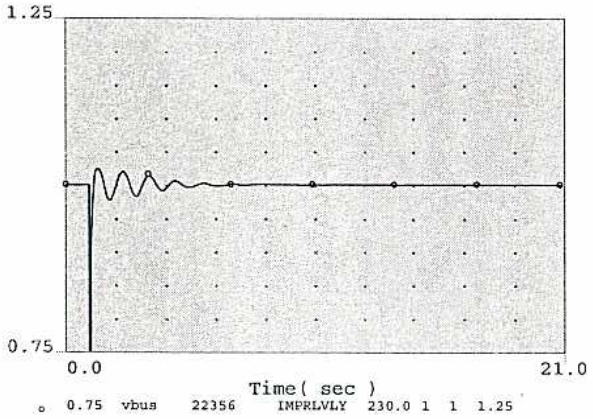
Fault bus at Sycamore
Trip Sycamore - Miguel Tap 230 kV line

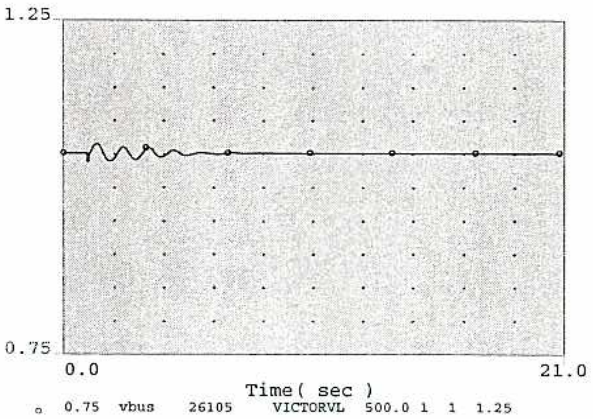




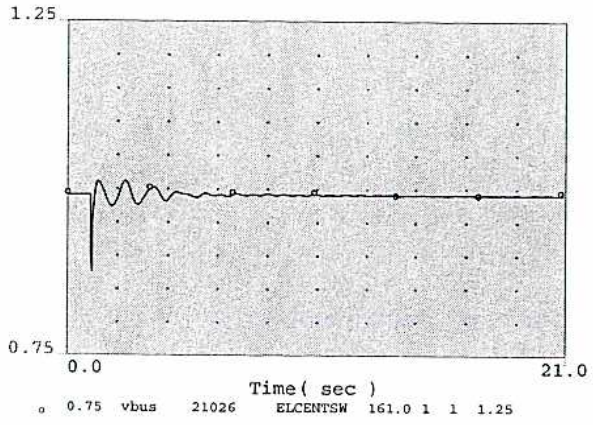


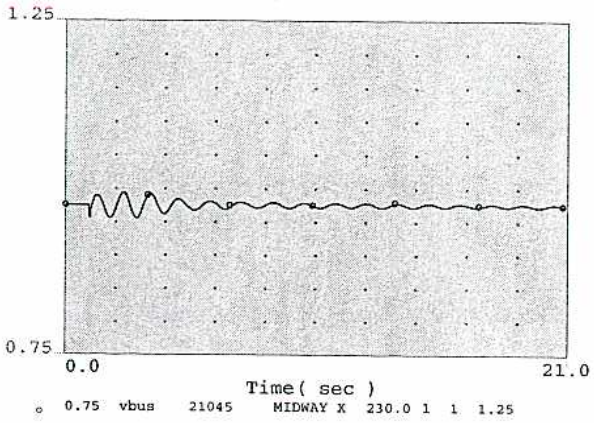


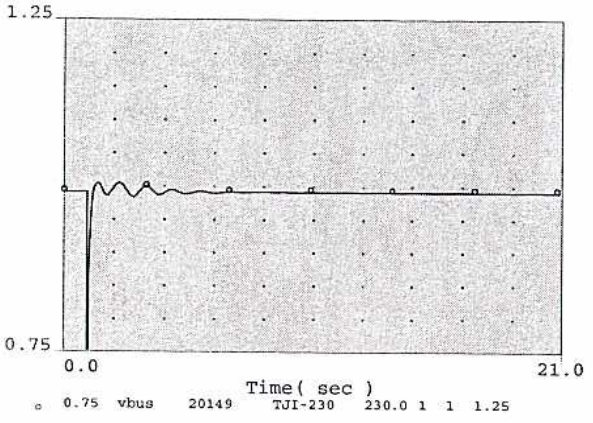


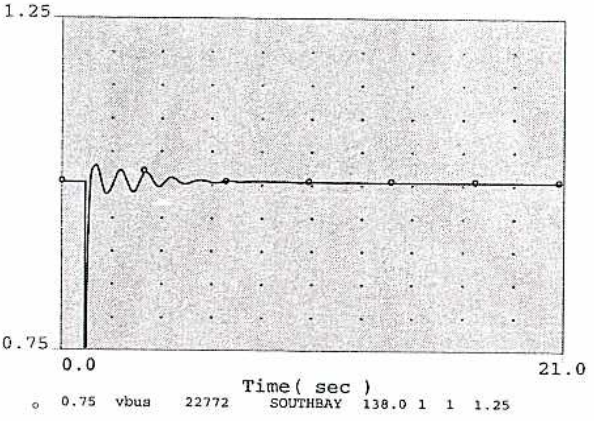


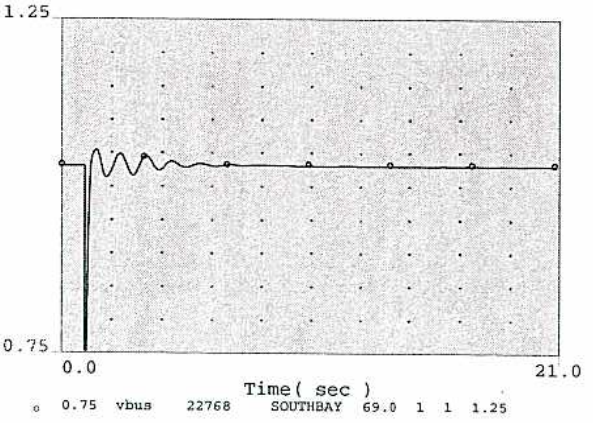
Fault bus at Sycamore
Trip Sycamore - Miguel Tap 230 kV line

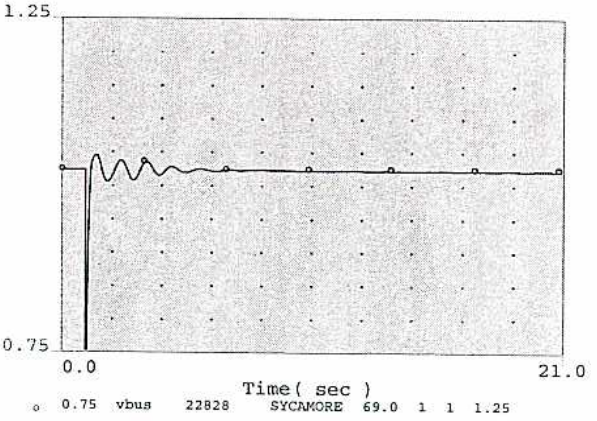




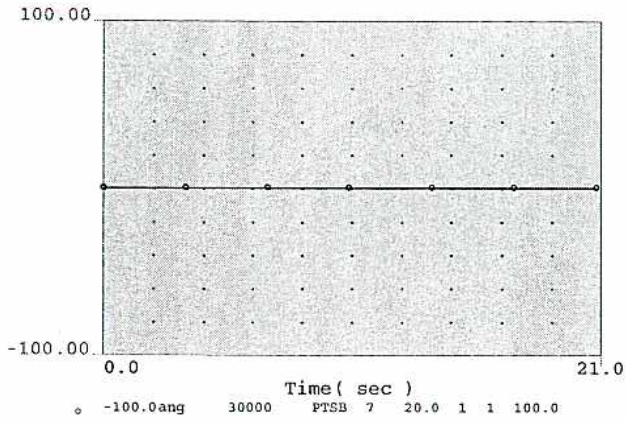




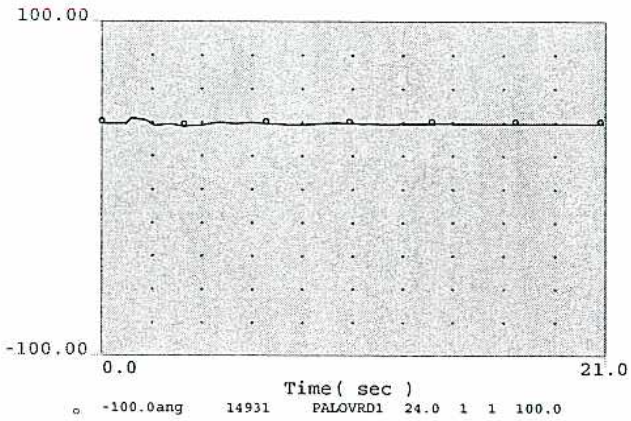




Fault bus at Sycamore
Trip Sycamore - Miguel Tap 230 kV line



-100.0ang 30000 PTSB 7 20.0 1 1 100.0



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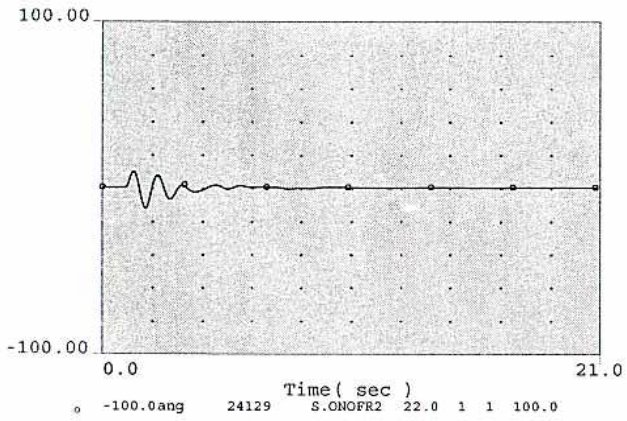
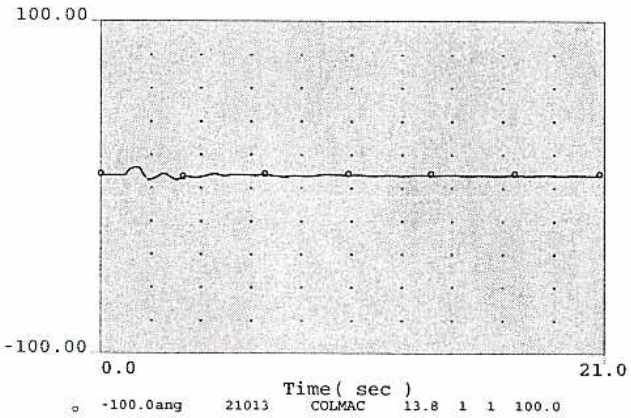
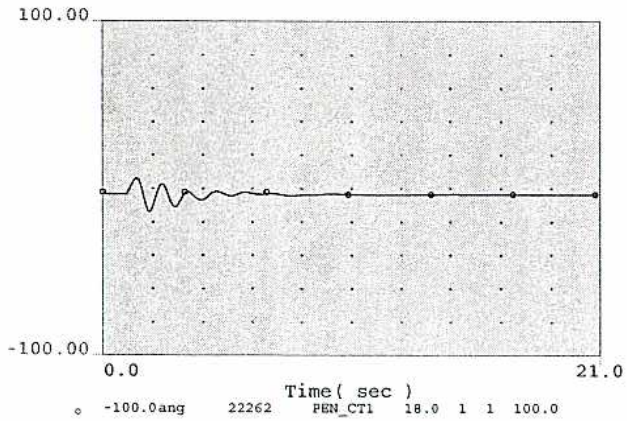


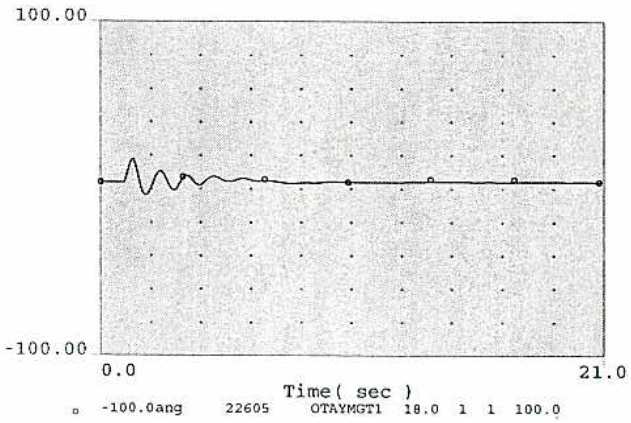
-100.0ang 24129 S.ONOFR2 22.0 1 1 100.0



-100.0ang 21013 COLMAC 13.8 1 1 100.0

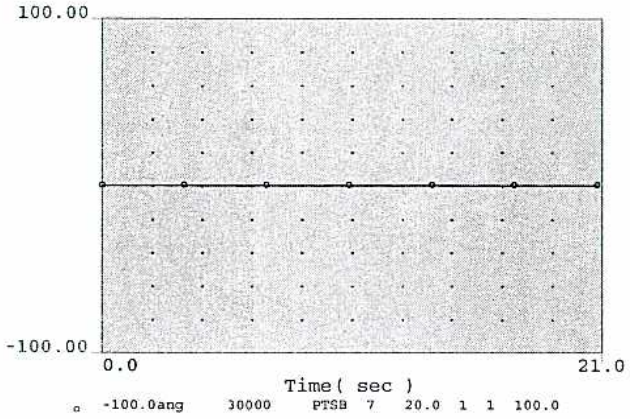


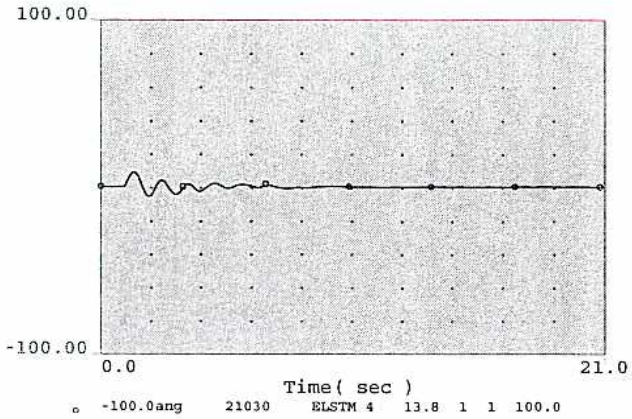
-100.0ang 22262 PEN_CT1 18.0 1 1 100.0

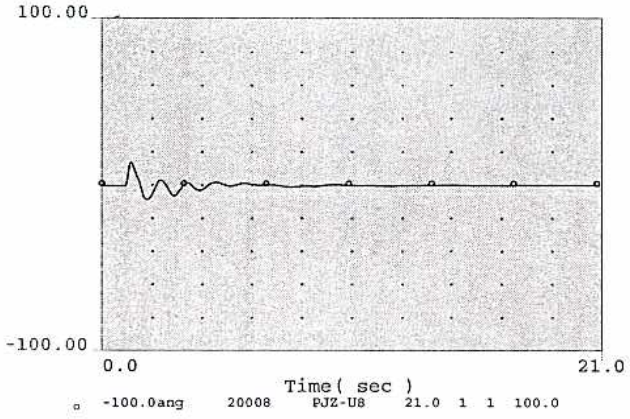


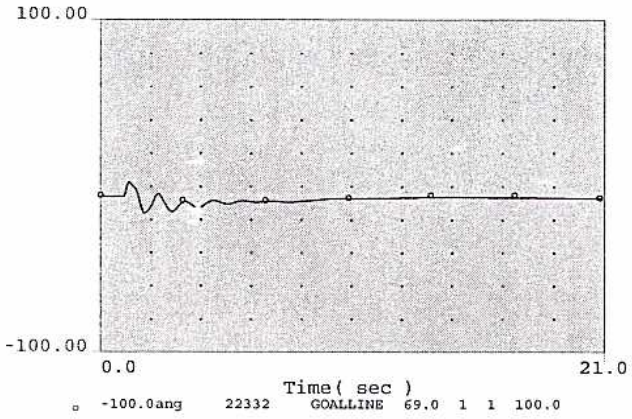
-100.0ang 22605 OTAYMGT1 18.0 1 1 100.0

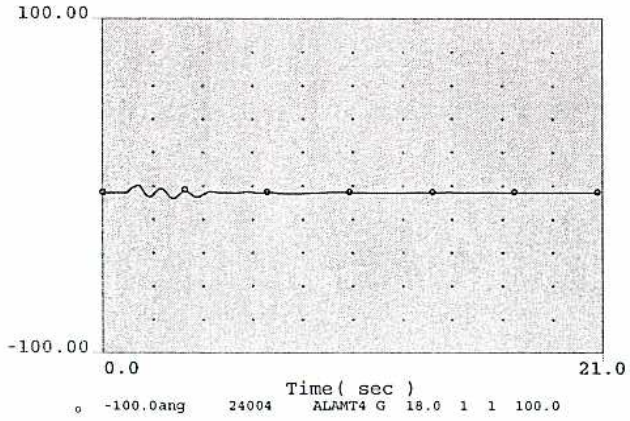
Fault bus at Sycamore
Trip Sycamore - Sxcc #1 230 kV line

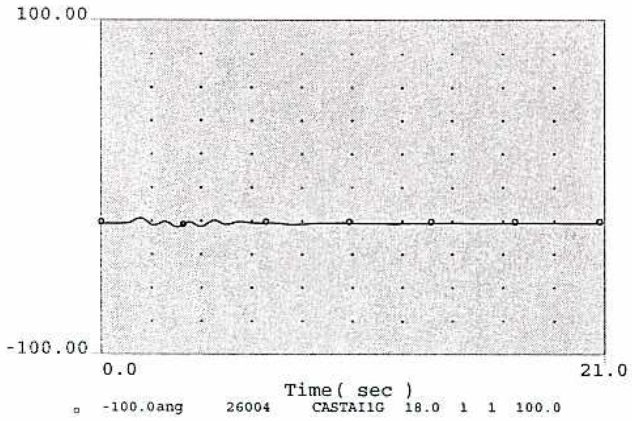




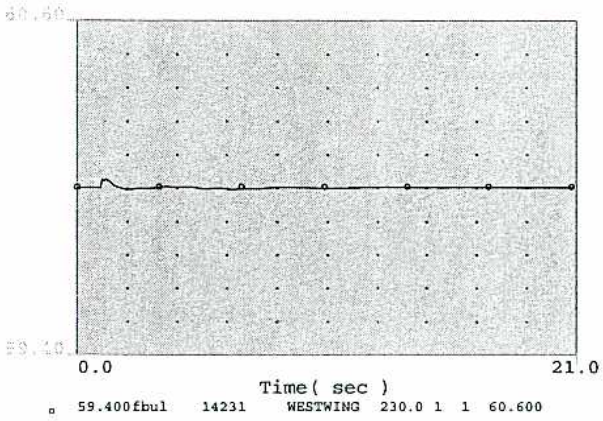




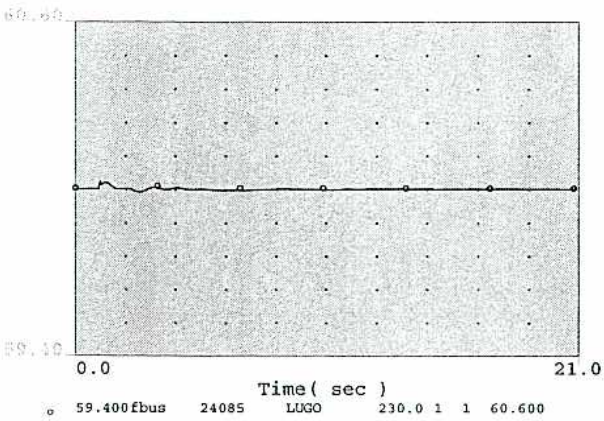




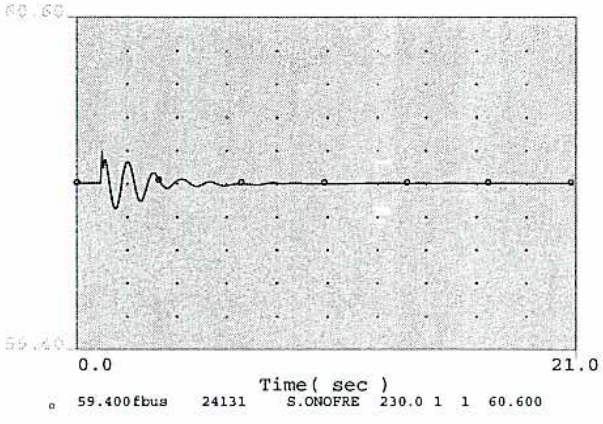
Fault bus at Sycamore
Trip Sycamore - Sxcc #1 230 kV line



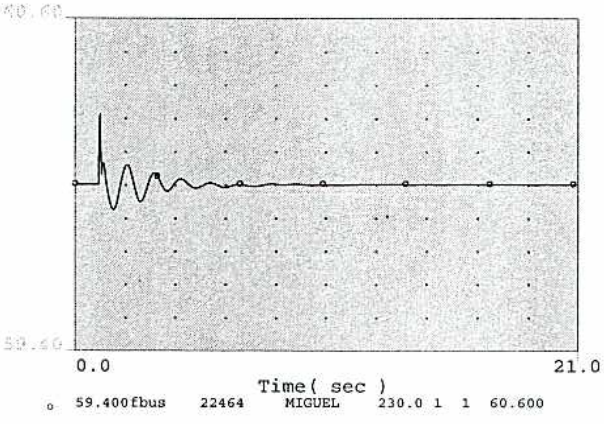
59.400fbus 14231 WESTWING 230.0 1 1 60.600



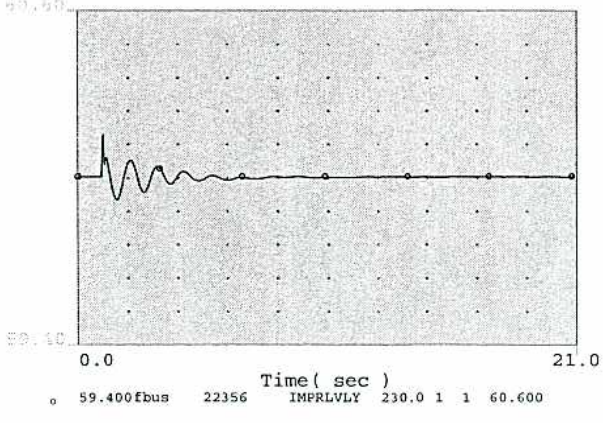
59.400fbus 24085 LUGO 230.0 1 1 60.600



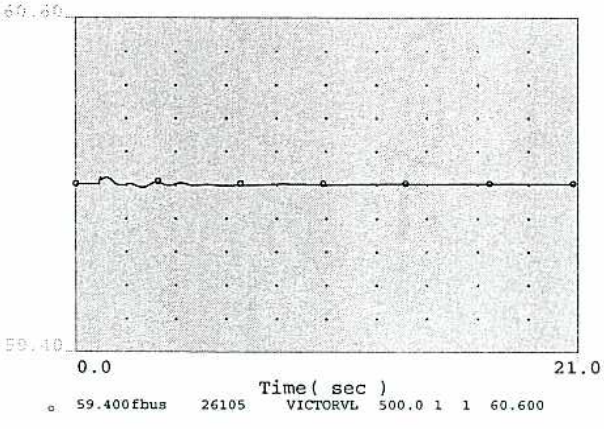
59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



59.400fbus 22464 MIGUEL 230.0 1 1 60.600

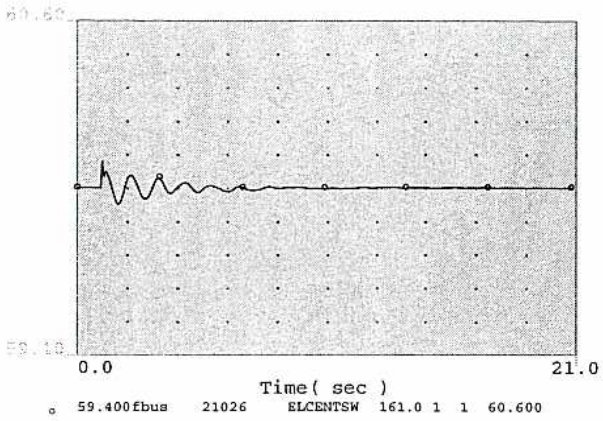


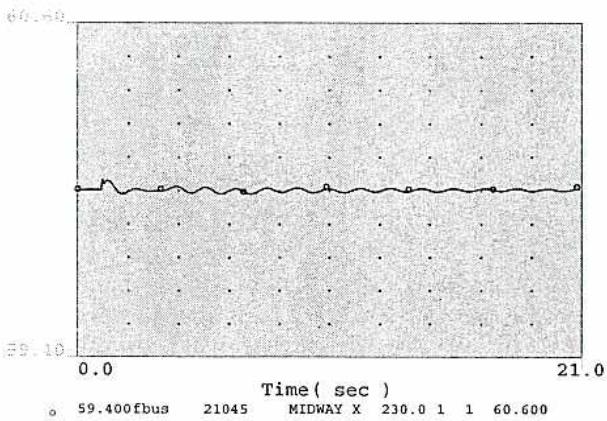
59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600

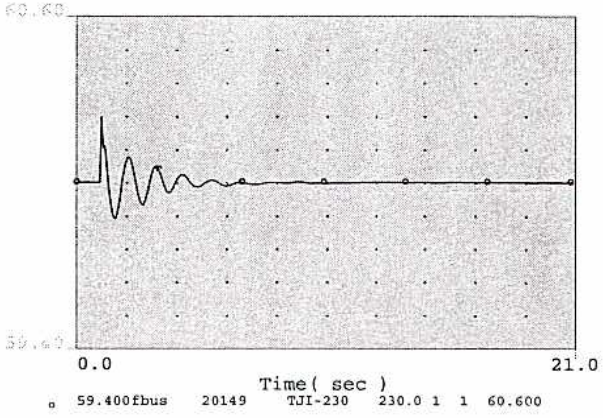


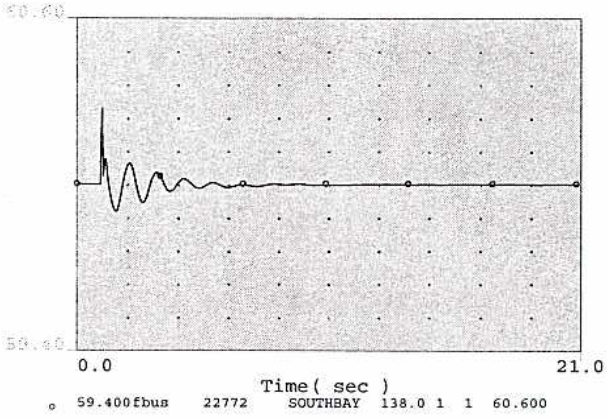
59.400fbus 26105 VICTORVL 500.0 1 1 60.600

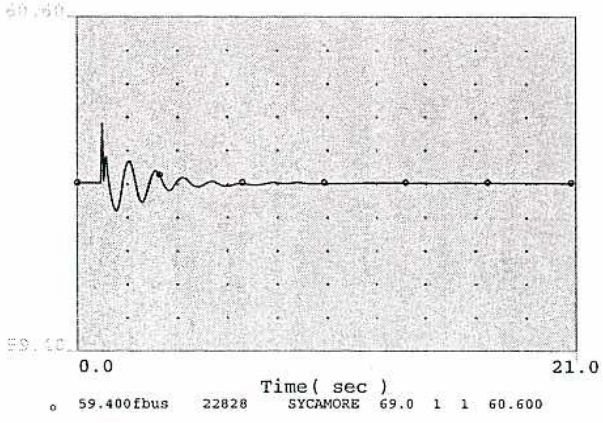
Fault bus at Sycamore
Trip Sycamore - Sxcc #1 230 kV line

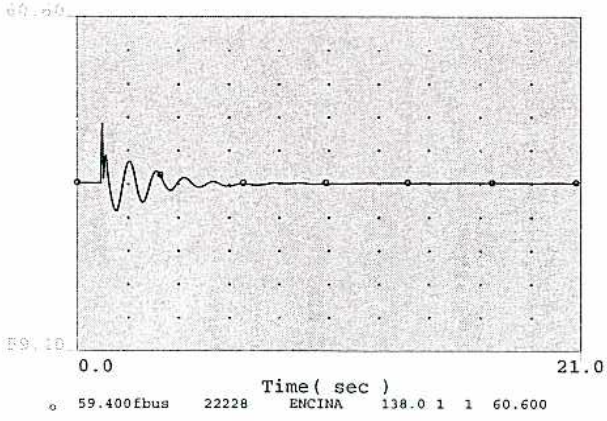




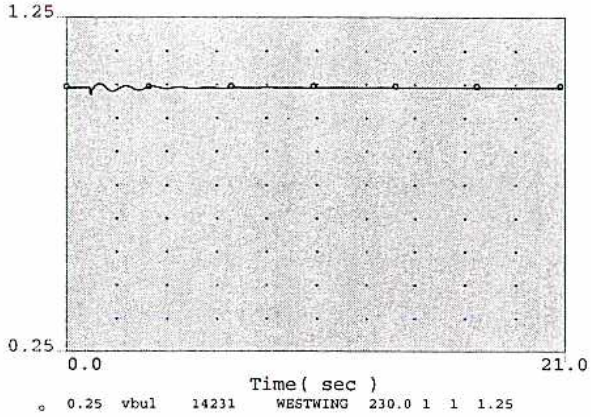


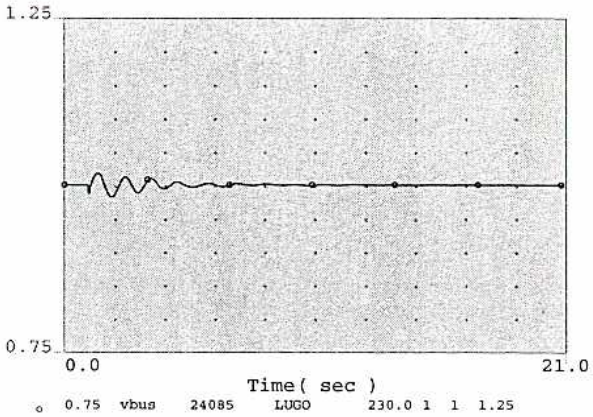


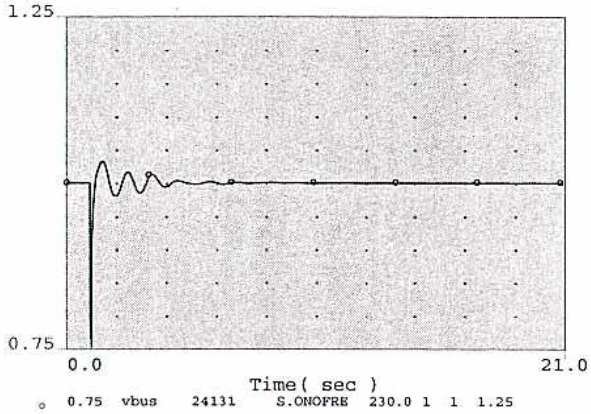


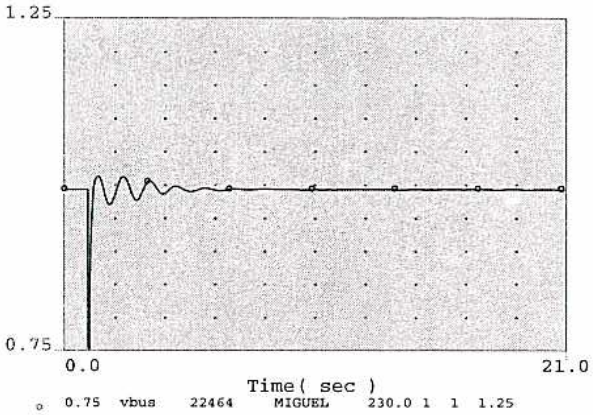


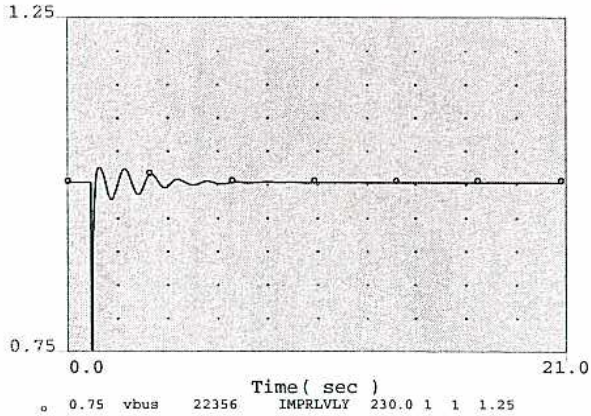
Fault bus at Sycamore
Trip Sycamore - Sxcc #1 230 kV line

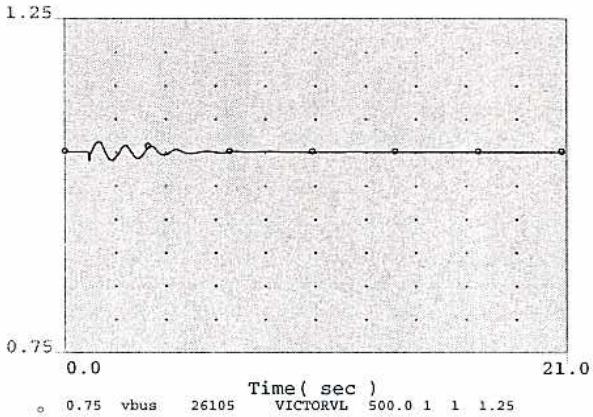




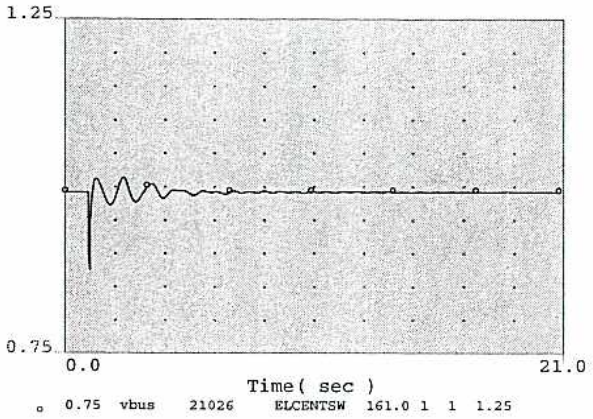


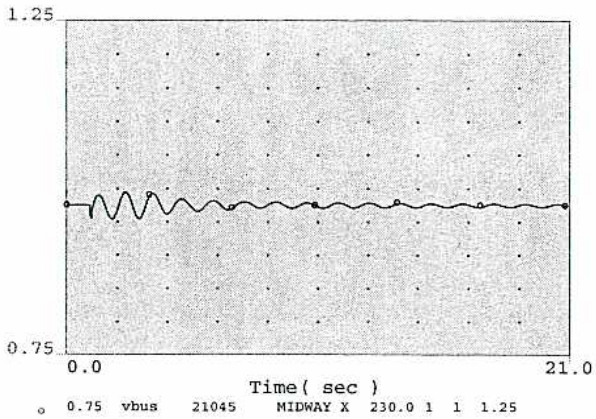


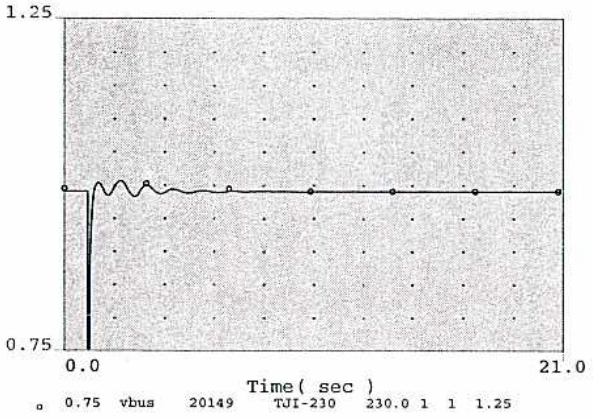


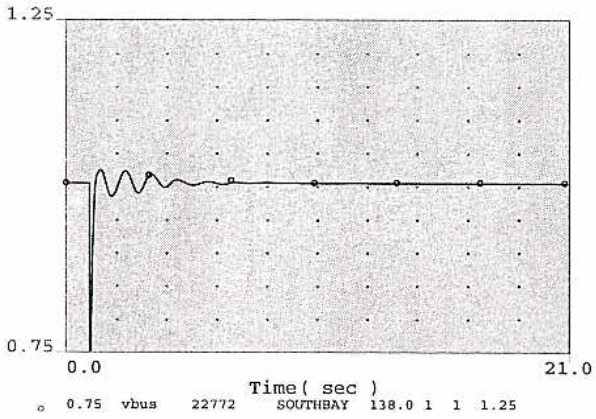


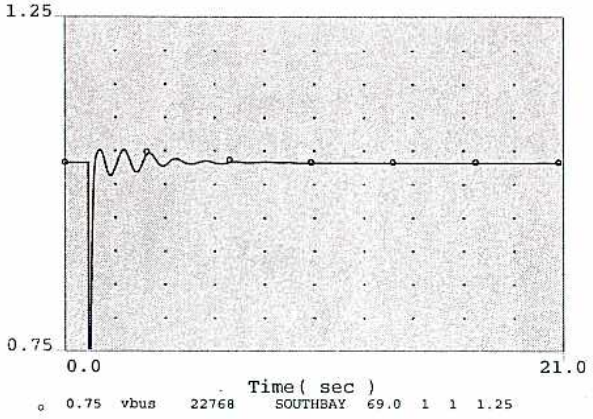
Fault bus at Sycamore
Trip Sycamore - Sxcc #1 230 kV line

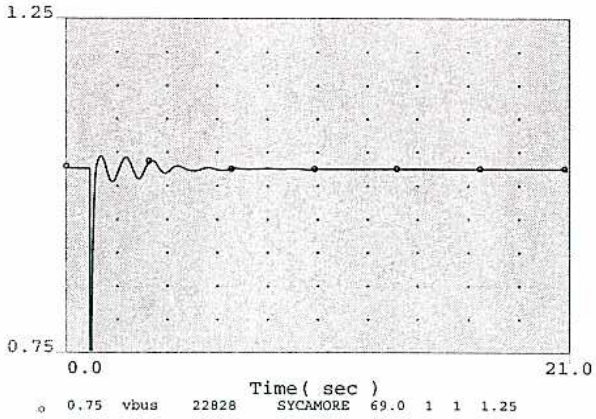






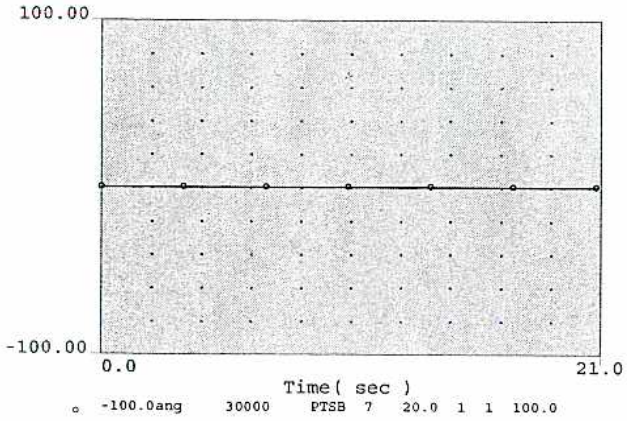


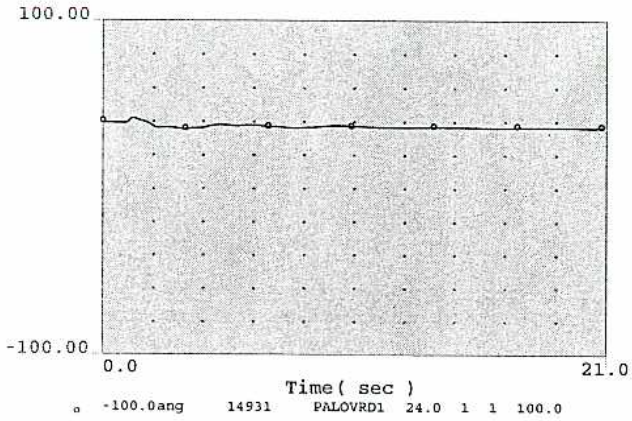


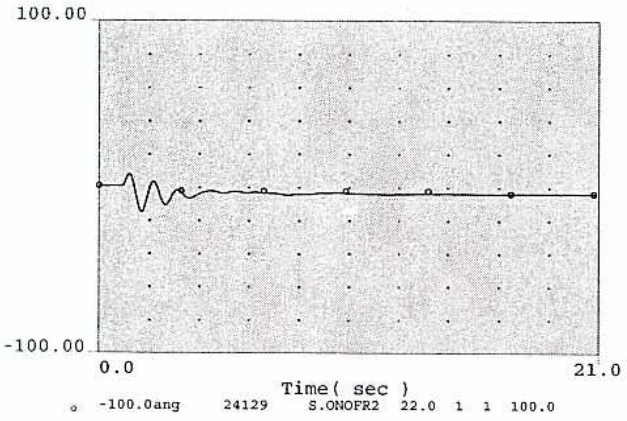


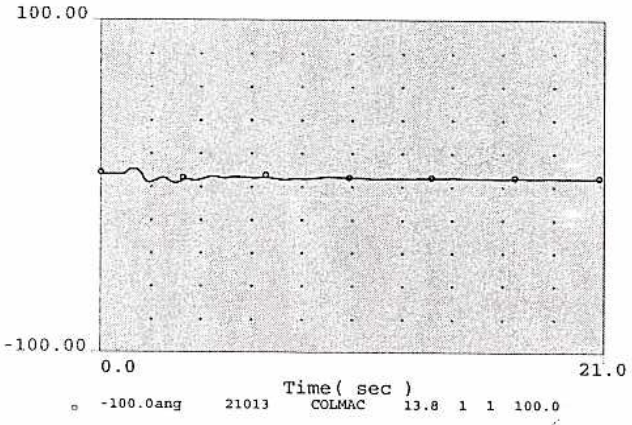
Fault bus at Sycamore

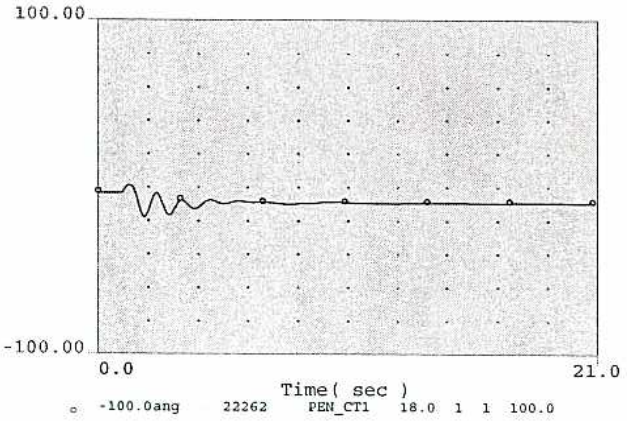
Trip Sycamore - Sxcc #1 230 kV line

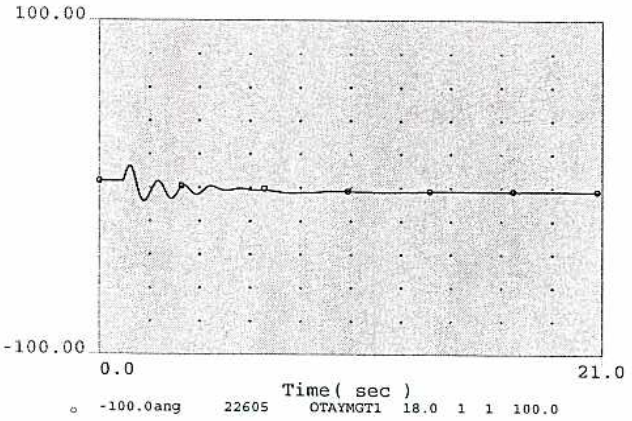




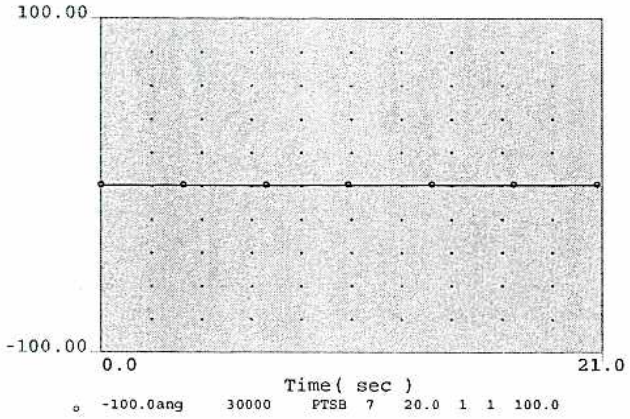




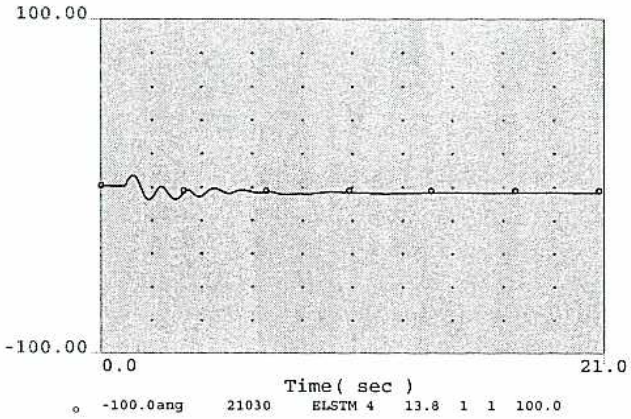




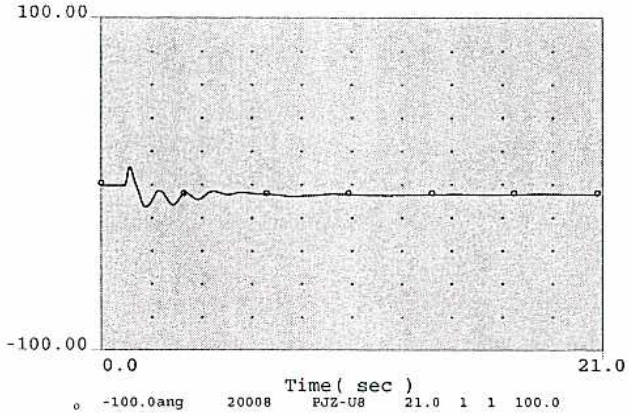
Fault bus at SXCC
Trip SXCC UNITS 2/3



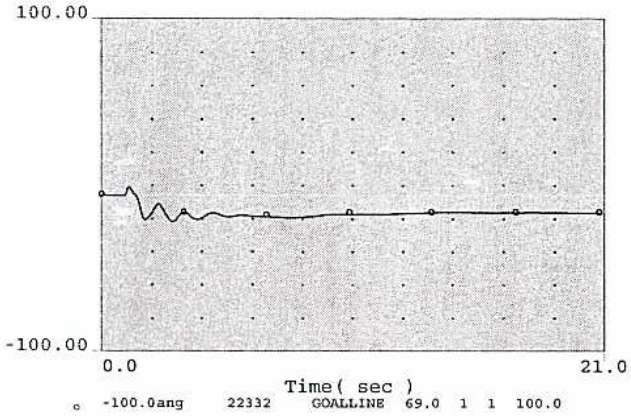
-100.0ang 30000 PTSB 7 20.0 1 1 100.0



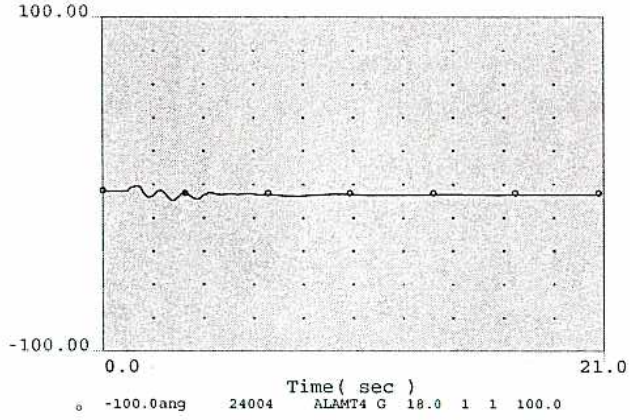
-100.0ang 21030 ELSTM 4 13.8 1 1 100.0



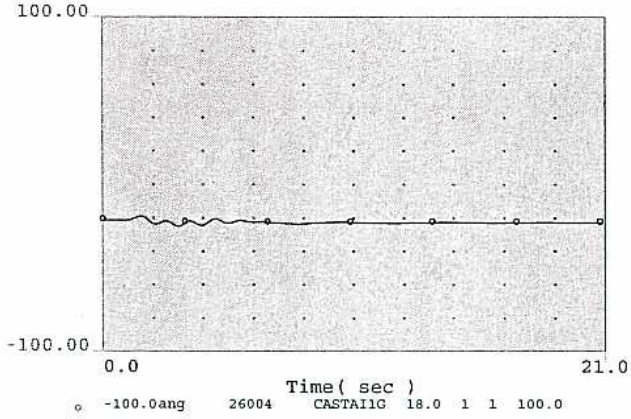
-100.0ang 20008 PJZ-U8 21.0 1 1 100.0



-100.0ang 22332 GOALLINE 69.0 1 1 100.0

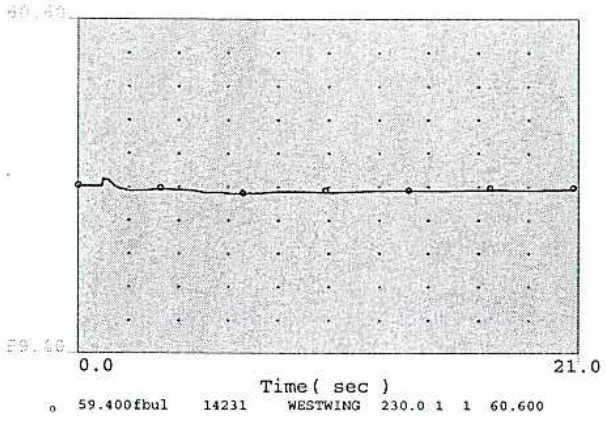


-100.0ang 24004 ALAMT4 G 18.0 1 1 100.0

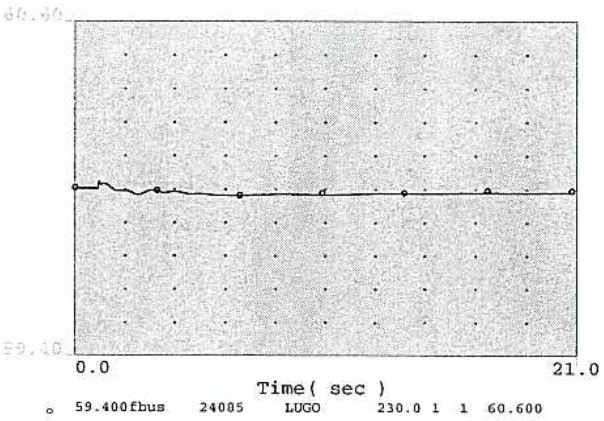


-100.0ang 26004 CASTAI1G 18.0 1 1 100.0

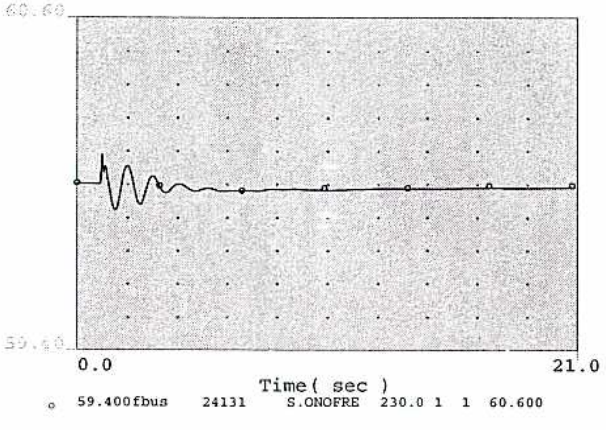
Fault bus at SXCC
Trip SXCC UNITS 2/3



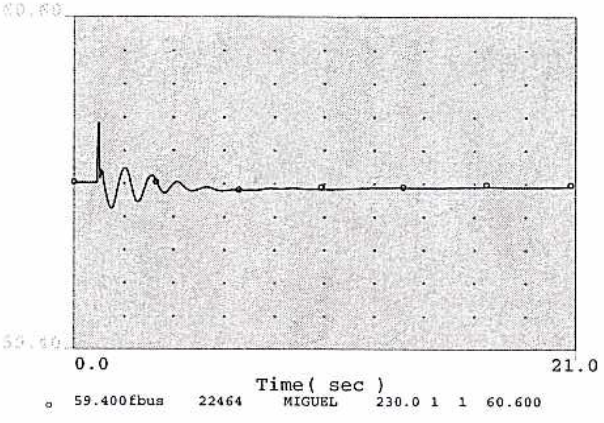
o 59.400fbul 14231 WESTWING 230.0 1 1 60.600



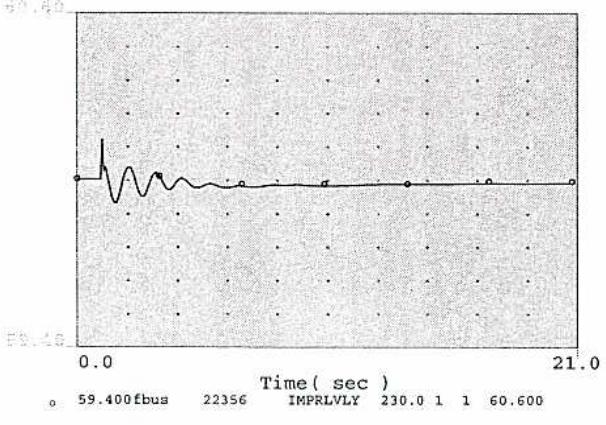
o 59.400fbus 24005 LUGO 230.0 1 1 60.600



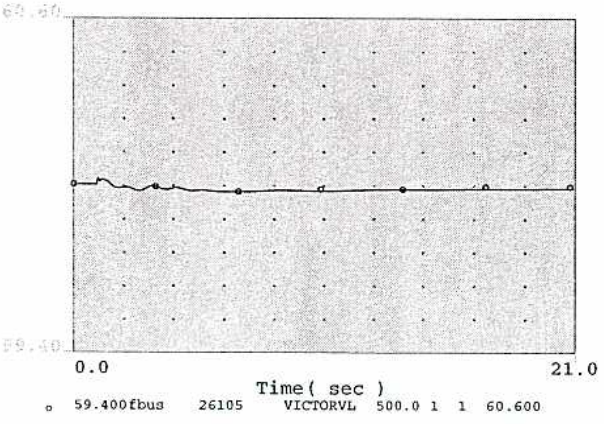
o 59.400fbus 24131 S.ONOFRE 230.0 1 1 60.600



o 59.400fbus 22464 MIGUEL 230.0 1 1 60.600

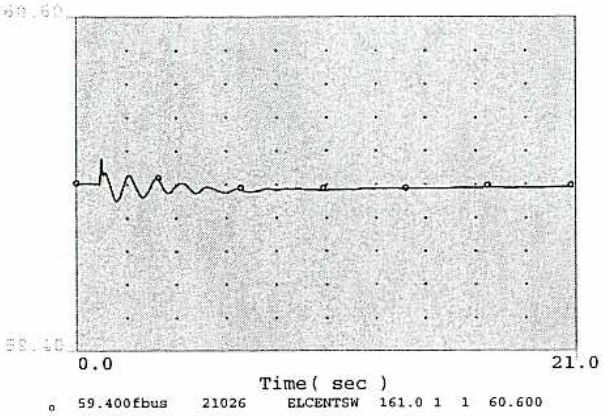


o 59.400fbus 22356 IMPRLVLY 230.0 1 1 60.600



o 59.400fbus 26105 VICTORVL 500.0 1 1 60.600

Fault bus at SXCC
Trip SXCC UNITS 2/3



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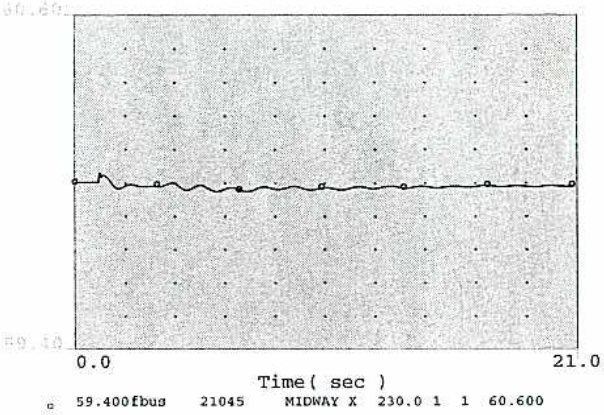

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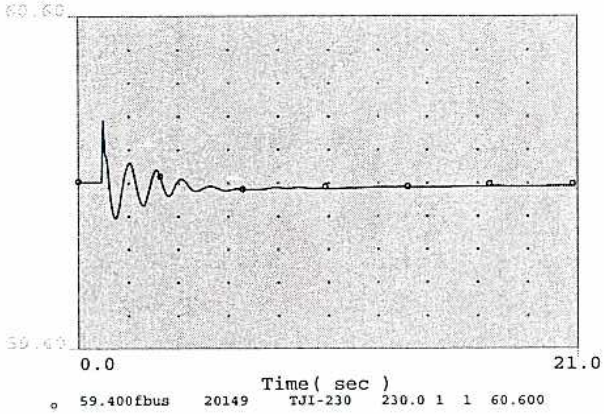

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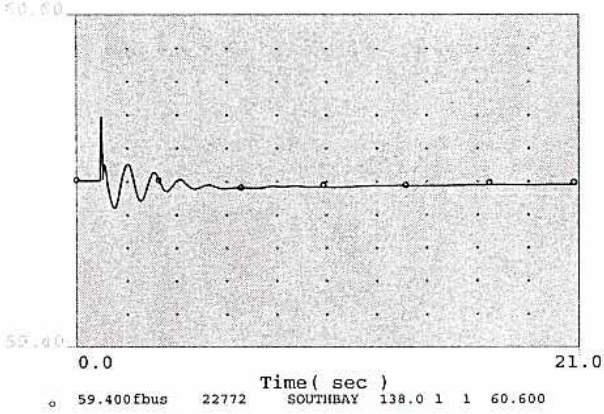

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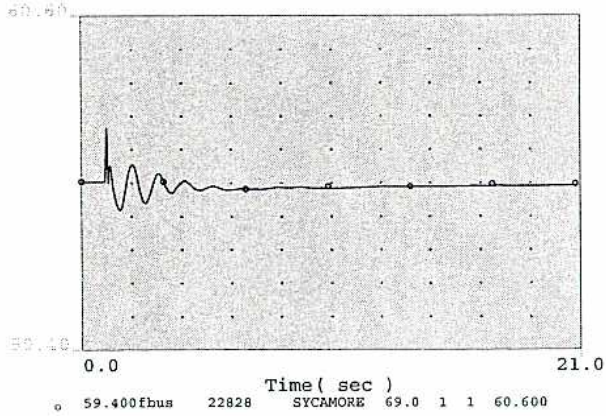

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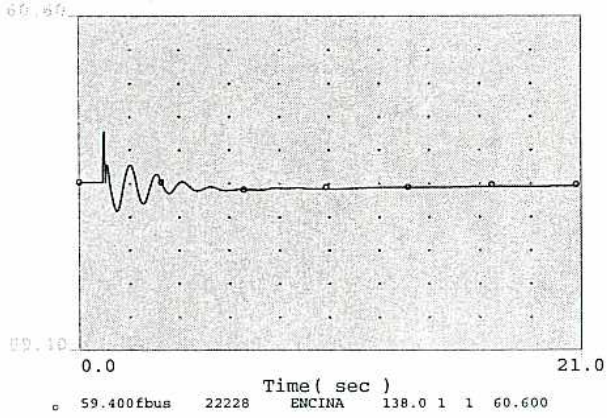

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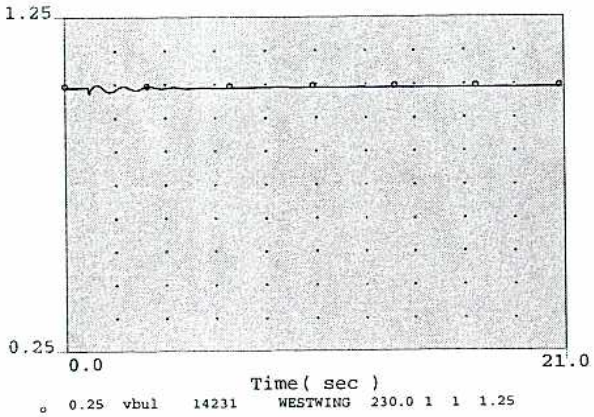
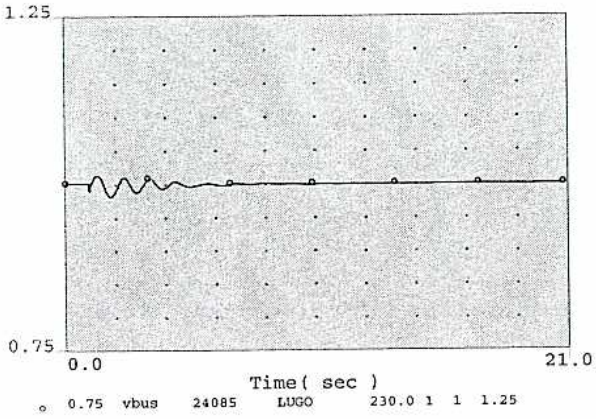
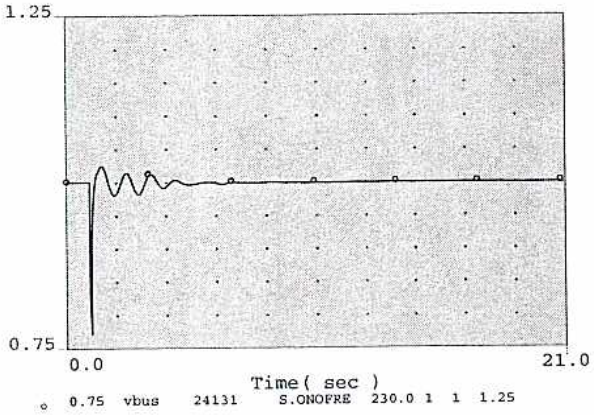
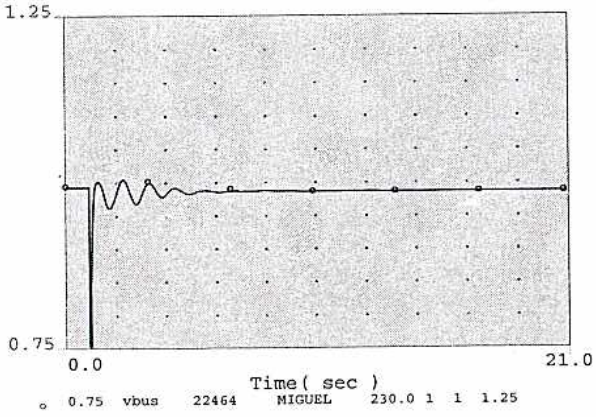
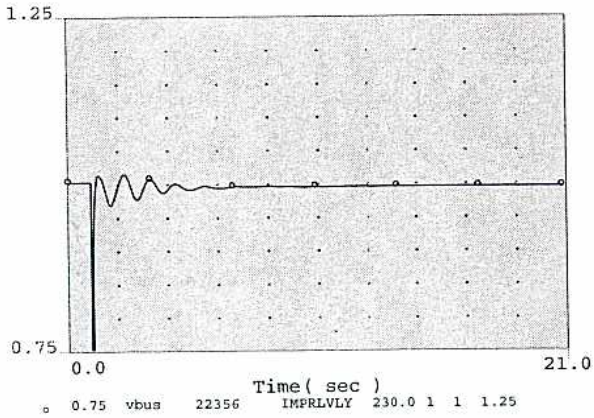
Fault bus at SXCC
Trip SXCC UNITS 2/3

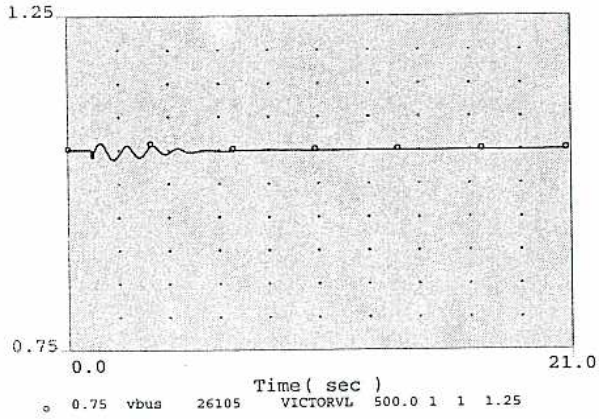




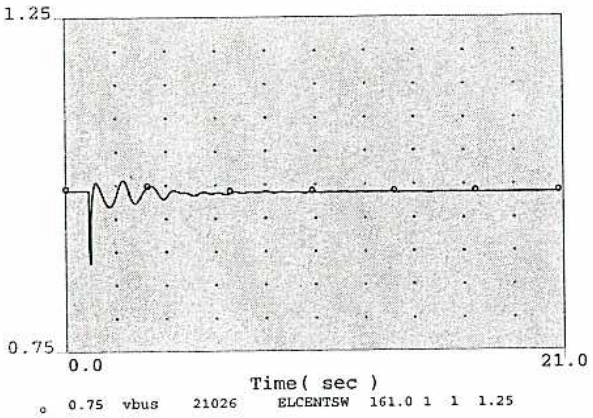


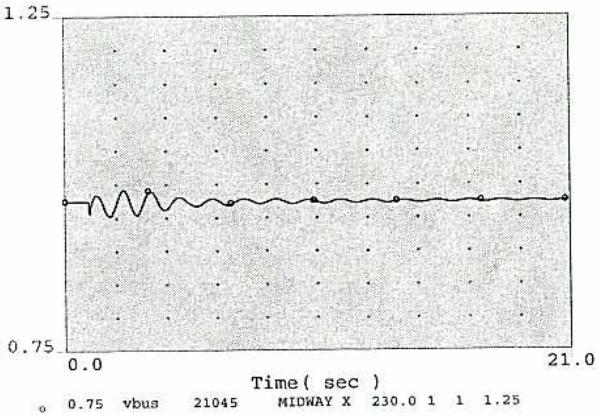


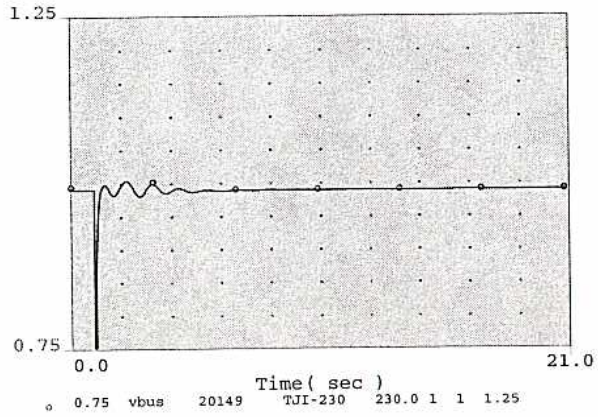


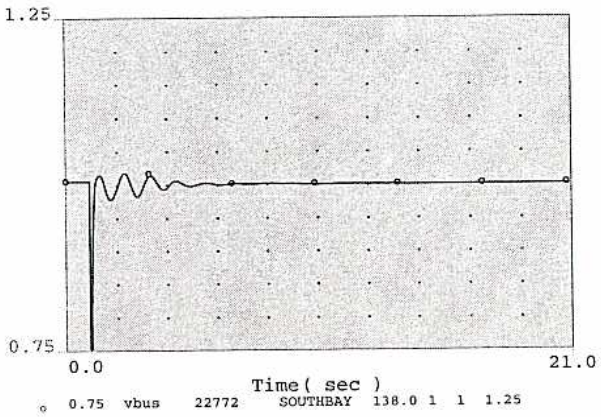


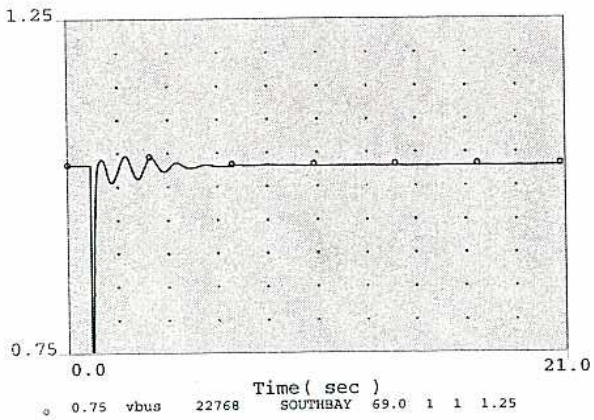
Fault bus at SXCC
Trip SXCC UNITS 2/3

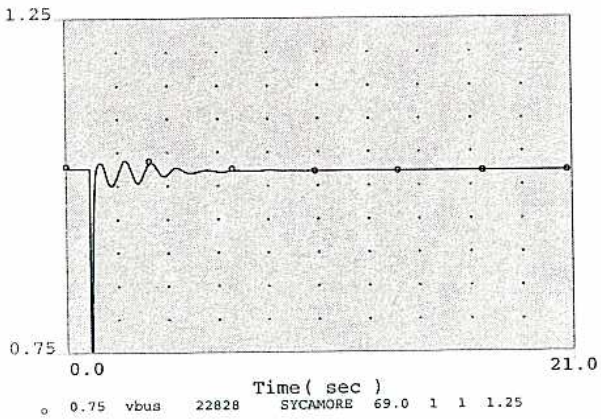












Fault bus at SXCC
Trip SXCC UNITS 2/3