ATTACHMENT 1

NINE MILE POINT NUCLEAR STATION

REACTOR ANALYST PROCEDURES

PROCEDURE NO. N1-RAP-6

POST REACTOR SCRAM ANALYSIS AND EVALUATION

APPROVALS	SIGNATURES	DATE AND INITIALS REVISION 2	REVISION 3	REVISION 4
Reactor Analyst Supervisor R. G. Smith		2/1/82		
Station Superintendent NMPNS T. W. Roman		2/3/82		
General Superintendent Nuclear Generation Chairman of S.O.R.C. T. J. Perkins		9/15/87		

Summary of Pages

Revision 2, dated November 1981, consists of pages 1-6, with changes on pages 1 and 4.

NIAGARA MOHAWK POWER CORPORATION

THIS PROCEDURE NOT TO BE
USED AFTER 2/84
SUBJECT TO PERIODIC REVIEW.

POST REACTOR SCRAM ANALYSIS AND EVALUATION

1.0 PURPOSE

The purpose of this procedure is to provide the review and evaluation of specific parameters associated with a Reactor Scram.

2.0 DESCRIPTION

Following a Reactor Scram various systems associated with maintaining Core Coolant Inventory and Reactor Containment Integrity must be directly monitored for proper sequential actuation and operation.

3.0 ACCEPTANCE CRITERIA

All parameters monitored must satisfy either Tech Spec or engineering design requirements.

4.0 RESPONSIBILITIES AND CONDUCT

4.1 The Reactor Analyst Department will be directly responsible for data gathering and process evaluation.

4.2 Following scram analysis and systems parameter evaluation a report will be provided by the Reactor Analyst Department for S.O.R.C. review and recommendations.

5.0 PREREQUISITES

5.1 Process computer and post mortem trip log is available.

5.2 Control rod scram recorder connected and armed for operation.

6.0 PROCEDURE

6.1 Following a Reactor Scram obtain the post mortem trip log from the I/O typer in the Aux. Control Room along with a copy of the alarm typer and periodic typer printouts for the transient period. Allow a minimum of 5 minutes lead time prior to the scram and after for a display of conditions leading up to the scram; and after the transient period has stabilized.

6.2 In addition, obtain copies of various trend recorder parameters, ie., recirc flow, feed flow, Rx pressure, etc. as required to perform and support transient analysis outlined on data sheet sections I - VII.

6.3 Complete the data sheet as specified and include comments in the appropriate locations as required.

6.4 Include all supporting graphs, trends, alarm printouts and reference material with the complete data sheets and forward to the Reactor Analyst for his review. Following review, file RAP-6 with Scram Report.

SYSTEM

1.0 MAIN STEAM

		Open	Closed
1.1 Electromatic Valve	#111	_____	_____
	#112	_____	_____
	#113	_____	_____
	#121	_____	_____
	#122	_____	_____
	#123	_____	_____

Comments

1.2 Turbine Coast Down Time
(See attached graph) _____

Comments:

1.3 Peak Reactor Pressure
(See attached graph or strip chart) _____psig

Comments

1.4 Main Steam I.V.'s

	Open	Closed
01-01		
01-02		
01-03		
01-04		

Comments:

SYSTEM

1.5 Lowest Rector Water Level Indicated _____
(See attached graph or strip chart)

Comments:

		Yes	No
2.0	HPCI/Feedwater		
2.1	HPCI Actuation	_____	_____
2.2	#11 system max flow	_____	
	#12 system max flow	_____	
	#13 system max flow	_____	

Comments:

		Actuation	
3.0	Emergency Condenser		
		Yes	No
3.1	#11 System		
	#12 System		

Comments:

4.0 Control Rod Drive System

4.1 Vent valve closure time _____

4.2 Drain valve closure time _____

4.3 Air pressure indication received _____

4.4 Drain time (3 gal. cleared from reset) _____

Comments:

2

4.5 Scram Strip Chart
Times and Motion _____

5.0 Recirc Pumps

5.1 No. pumps in operation _____

5.2 Recirc run back auto/man _____

		Yes	No
5.3	Recirc pump trips	_____	_____

		Normal	Abnormal
6.0	Reactor Protection System		
6.1	System response	_____	_____

Comments:

7.0 Containment System

7.1 Max Drywell pressure attained _____psi

7.2 Max Torus pressure attained _____psi

7.3 Max Torus temperature attained _____°F

		Yes	No
7.4	Containment spray actuation	_____	_____

Comments:

8.0 Core Spray System

		Yes	No
8.1	Core spray actuation	_____	_____

Comments:

9.0 Transient Analysis Evaluation

Reviewed by Reactor Analyst_____ Date_____

Reviewed by Operations Supervisor_____ Date_____

FORM VI

SCRAM REPORT

To: 1. Operations Supervisor
2. Station Superintendent

Date: _____
Time: _____
Operator: _____
Operator: _____

From: _____ S.S.S.

I. TECH. SPEC. 2.1.1c

1. Process Computer In Service /___/ Not in Service /___/
2. Neutron flux did not exceed scram setting by more than 1.5 seconds per process computer prior to scram. /___/
3. Expected scram signal did /___/ did not /___/ initiate scram.
4. Safety limit violation Yes /___/ Reportable. No /___/ Not Reportable

II. CAUSE OF SCRAM

1. Operator Error /___/
2. Safety System /___/
3. Equipment Failure /___/
4. See Description /___/

_____
_____
_____

III. MODE SWITCH

1. Run /___/
2. Start /___/

REACTOR

1. Critical /___/
2. Subcritical /___/

IV. PLANT EVOLUTION

1. Starting up /___/
2. Shutting Down /___/
3. Steady Operation /___/
4. Power Change /___/
5. System Test /___/
6. See Description /___/

_____
_____
_____

V. PLANT CONDIUTIONS PRIOR TO SCRAM

1. Thermal Power _____ MW
2. Reactor Pressure _____ psi
3. Vessel Level _____ inches
4. Core Flow _____ x 10^6 lb/hr
5. Steam Flow _____ x 10^6 lb/hr
6. Feed Flow _____ x 10^6 lb/hr

VI. EQUIPMENT FAILURE DESCRIPTION

WR # _____ Date _____

_____
_____
_____

FORM VI
(Continued)
SCRAM REPORT

VII. SCRAM INSERTION TIMES

1. OK in accordance with Tech. Spec. 4.1.1c /___/
2. Evaluation required in accordance with 4.1.1c /___/

VIII. COPIES OF LOGS ATTACHED

1. Alarm Typer /___/
2. Event Typer /___/
3. Post Mortom Log /___/
4. _____ /___/

Reviewed By_____ Operations Supvr. Date_____

Reviewed By_____ Station Supt. Date_____

FORM I

NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

SHORT PRE-START-UP CHECK-OFF-SYSTEMS

	Checked By	Date
1. List any systems which were worked on during shutdown and complete a check list, valve list and/or functional test for each System that was worked on as per Master Systems Check-off List.		
a) _____	_____	_____
b) _____	_____	_____
c) _____	_____	_____
d) _____	_____	_____
e) _____	_____	_____
2. Diesel generators operable	_____	_____
3. Emergency Ventilation System operable	_____	_____
4. R.P.S. in service	_____	_____
5.* SRM channels in service, front panel test completed	_____	_____
6.* IRM channels in service, front panel test completed	_____	_____
7. a) Primary and secondary containment integrity established	_____	_____
b) Primary containment check-off list (Form V) completed if required	_____	_____
8. Liquid Poison System operable	_____	_____
9. Core Spray System operable	_____	_____

* To be completed if weekly functional test not already completed.

FORM I
(Continued)

NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

SHORT PRE-START-UP CHECK-OFF-SYSTEMS

	Checked By	Date
10. Stack Gas Monitor System in service & on trend	_____	_____
11. Off-Gas Monitor System in service	_____	_____
12. Area and Process Monitors in service	_____	_____
13. Emergency Cooling System operable	_____	_____
14. Containment Spray System operable	_____	_____
15. Emergency Service Water System operable	_____	_____
16. Technical Specification surveillance test schedule up to date	_____	_____
17. Main steam lines drained	_____	_____
18. Scram timing test of control rods completed per N1-ST-R1 and data sheets attached	_____	_____
19. Post Scram Analysis completed per N1-RAP-6 if startup follows a scram	_____	_____

_____
Station Shift Supervisor

_____
Date

FORM II

NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

MODIFIED FORM START-UP CHECK-OFF SHEET

	Checked By	Date
1. List any systems which were worked on during shutdown and complete a check list, valve list and/or functional test for each System that was worked on as per Master Systems Check-off List.		
a) _____	_____	_____
b) _____	_____	_____
c) _____	_____	_____
d) _____	_____	_____
e) _____	_____	_____
2. Diesel generators operable	_____	_____
3. Emergency Ventilation System operable	_____	_____
4. Neutron Monitoring Drives, operable	_____	_____
5.* SRM channels in service, front panel test completed	_____	_____
6.* IRM channels in service, front panel test completed	_____	_____
7.*APRM channels in service, front panel test completed.	_____	_____
8. a) Primary and secondary containment integrity established	_____	_____
b) Primary containment check-off list completed.	_____	_____
9. Liquid Poison System operable	_____	_____
10. Core Spray System operable	_____	_____
11. Stack Gas Monitor System in service and on trend recorder	_____	_____

* To be completed if weekly functional test not already completed.

FORM II
(Continued)

NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

SHORT PRE-START-UP CHECK-OFF-SYSTEMS

	Checked By	Date
12. Off-Gas Monitor System in service	_____	_____
13. Area and Process Monitors in service	_____	_____
14. Emergency Cooling System operable	_____	_____
15. Containment Spray System operable	_____	_____
16. Emergency Service Water System operable	_____	_____
17. Technical Specification surveillance test schedule up to date.	_____	_____
18. Review mark-ups for no deviations from Technical Specification Requirements	_____	_____
19. Surveillance check - Control Room and Auxiliary Control Room		
No jumpers installed	_____	_____
No RPS relays blocked	_____	_____
All fuses installed properly	_____	_____
20. Main steam lines drained	_____	_____
21. Recirculation pumps in service	_____	_____
22. Condensate pump(s) in service to supply water to reactor vessel	_____	_____
23. Shutdown cooling system out of service and isolated	_____	_____
24. Reactor vessel vented	_____	_____

FORM II
(Continued)

NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

SHORT PRE-START-UP CHECK-OFF-SYSTEMS

	Checked By	Date
25. Turbine auxiliary oil pumps in service and turning gear oil pump shutdown	_____	_____
26. Scram timing test of control rods completed per N1-ST-R1 and data sheets attached	_____	_____
27. Post Scram Analysis completed per N1-RAP-6 if startup follows a scram	_____	_____

_____
Station Shift Supervisor

_____
Date

_____
Date

FORM III

NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

MASTER STARTUP CHECK-OFF SHEET

	Nuclear Steam Supply Steam and Auxiliaries	Initials/Date
1.0		
1.1	Reactor vessel head in place and bolts torqued.	/
1.2	CRC System in operation and charging, drive and cooling water pressure adjusted.	/
1.3	All control rods inserted.	/
1.4	Reactor vessel water level normal for startup.	/
1.5	Head spray system shutdown.	/
1.6	Main steam lines drained.	/
1.7	Emergency condensers operable.	/
1.8	Core Spray system operable.	/
1.9	Auto depressurization system operable.	/
1.10	Containment spray system operable.	/
1.11	Liquid poison system operable and poison tank level, concentration and temperature within prescribed limits.	/
1.12	Fuel pool cooling system in service.	/
1.13	Control rod drive system in service and accumulators charged.	/
1.14	Cleanup system in service.	/
1.15	Rod worth minimizer in service.	/
1.16	Recirculation pumps in service or ready for service.	/
1.17	Shutdown cooling system in service or isolated.	/

FORM III
(Continued)
NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

MASTER STARTUP CHECK-OFF SHEET

		Initials/Date
2.0	Primary and Secondary Containment Systems	
2.1	Primary containment pre-startup check sheet completed. (Form V)	/
2.2	Emergency ventilation system operable.	/
2.3	Reactor building integrity in effect.	/
3.0	Circulating Water and Condenser System	
3.1	Hotwells at normal level.	/
3.2	Condensate storage tank levels half full.	/
3.3	Condensate makeup and reject station in service.	/
3.4	Vacuum breakers closed.	/
3.5	Vacuum priming in service.	/
3.6	Circulating water system in service.	/
3.7	Gland exhauster ready for service.	/
3.8	Mechanical vacuum pump in service.	/
3.9	S.J.A.E.'s and drain tanks ready for service.	/
3.10	Screen wash system on "auto".	/
3.11	Trash rake available.	/
3.12	Off-Gas system in service.	/

FORM III
(Continued)
NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

MASTER STARTUP CHECK-OFF SHEET

		Initials/Date
4.0	Condensate and Feedwater Systems	
4.1	Condensate demineralizers ready for service.	/
4.2	Condensate and feedwater pumps ready for service.	/
4.3	Heater extraction drains open.	/
4.4	Heater vents open.	/
4.5	Reheater and moisture separator drain tanks in service.	/
4.6	Condensate and feedwater lines filled and vented.	/
4.7	Demineralizer resin regeneration system ready for service.	/
5.0	Electrical System	
5.1	115KV lines lines in service.	/
5.2	Bk's R925 and R915 and 345KV buses operable.	/
5.3	345 KV lines in service.	/
5.4	Startup transformer 101N and 101S in service.	/
5.5	4160 V buses in service.	/
5.6	600V unit substation and MCC's in service.	/
5.7	Control and instrument for systems in service from normal supplies.	/
5.8	125 V DC system in service.	/
5.9	24 V DC system in service.	/
5.10	Diesel generators operable.	/

FORM III
(Continued)
NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

MASTER STARTUP CHECK-OFF SHEET

		Initials/Date
6.0	Turbine Generator and Auxiliaries	
6.1	Generator seal oil system in service.	/
6.2	Generator stator cooling system in service.	/
6.3	Generator filled with H2 and purity and pressure normal.	/
6.4	Shaft driven exciter ready for service.	/
6.5	Turbine lube oil tank level normal.	/
6.6	Turbine lube oil filter system in service.	/
6.7	Turning gear oil pump and bearing lift pumps on and turbine on turning gear.	/
6.8	Turbine supervisory instruments in service.	/
6.9	Control valves closed.	/
6.10	Stop valves, reheat and intercept stop valves closed.	/
6.11	Bypass valves closed.	/
6.12	Load limit setting "0%"	/
6.13	Governor run back at low speed stop.	/
6.14	Bypass opening jack at "0%".	/
6.15	Oil trip in reset position.	/
6.16	DC oil pump ready for service.	/
6.17	Steam sealing system ready for service.	/

FORM III
(Continued)
NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

MASTER STARTUP CHECK-OFF SHEET

		Initials/Date
7.0	Station Auxiliary Systems	
7.1	TCLC system in service.	/
7.2	RCLC system in service.	/
7.3	Service water system in service.	/
7.4	Instrument and control air system in service.	/
7.5	Radwaste ready to receive water.	/
7.6	Makeup water system available.	/
7.7	Fire protection system in service.	/
7.8	Heating boiler in service or available for service.	/
7.9	T.B. ventilation system in service.	/
7.10	R.B. ventilation system in service.	/
7.11	Radwaste ventilation system in service.	/
8.0	Instrumentation System	
8.1	Neutron monitoring systems in service.	/
8.2	Reactor protection systems checked out and in service.	/
8.3	Off-gas monitoring system in service.	/
8.4	Stack gas monitoring system in service.	/
8.5	Process radiation monitoring system in service.	/
8.6	Area radiation monitoring system in service.	/
8.7	All other required instrument checks completed.	/

FORM III
(Continued)
NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

MASTER STARTUP CHECK-OFF SHEET

		Initials/Date
9.0	Preparations for Approach to Critical	
9.1	Master systems pre-startup check-off sheet completed.	/
9.2	Master startup check-off sheet completed through 8.0.	/
9.3	Recirculation pumps in service.	/
9.4	Condensate pump(s) in service to supply water to reactor vessel.	/
9.5	Shutdown coolng system out of service and isolated.	/
9.6	Reactor vessel vented.	/
9.7	Turbine auxiliary oil pumps in service and turning gear oil pump shutdown.	/
9.8	Record of alarms indicating	

_____

_____

_____

_____

9.9	Scram timing test of control rods completed per N1-ST-R1 and data sheets attached.	
10.0	Post Scram Analysis Completed Per N1-RAP-6 if startup follows a scram	
11.0	N1-MST-V - Visual inspection of snubbers complete and satisfactory.	/

_____
Station Shift Supervisor

_____
Date

_____
Time

FORM IV

NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

MASTER SYSTEMS PRE-START-UP CHECK-OFDF LIST

The following system check-off lists must be completed or the system in operation prior to reactor startup.

	Checked by (or)	System Operating	Date
1. Make Up Demineralizer			
2. Condensate and Transfer			
3. Codensate Demineralizers			
4. Feedwater System			
5. Condenser			
6. Circulating Water			
7. S.J.A.E. and Vacuum Pumps			
8. Off-Gas System			
9. Reactor Building Ventilation System			
10. Reactor Bldg. Emergency Vent System			
11. Waste Building Ventilation System			
12. Drywell Ventilation System			
13. Liquid Poison System			
14. Reactor Clean-Up System			
15. Reactor Shutdown Cooling System			
16. City Water System			
17. Core Spray System			
18. Containment Spray System			

FORM IV
(Continued)
NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

MASTER SYSTEMS PRE-START-UP CHECK-OFDF LIST

	Checked by (or)	System Operating	Date
19. Fire Protection System			
20. Instrument and Breathing Air System			
21. Service Air System			
22. Control Rod Drive System			
23. Process Radiation Monitoring System			
24. Area Radiation Monitoring System			
25. Continuous Leak Rate Monitoring System			
26. Stack and Off-Gas Radiation Monitoring System			
27. Reactor Protection System			
28. Recirculation System			
29. TIP System Available			
30. Radioactive Waste System in Service to Receive Water			
31. Reactor Bldg. Closed Loop Cooling Sys.			
32. Turbine Bldg. Closed Loop Cooling Sys.			
33. Service Water System			
34. Emergency Cooling System			

FORM IV
(Continued)
NINE MILE POINT NUCLEAR STATION

UNIT NO. 1

MASTER SYSTEMS PRE-START-UP CHECK-OFDF LIST

	Checked by (or)	System Operating	Date
35. Turbine Generator	_____	_____	____
36. Control Room Ventilation System	_____	_____	____
37. Main Steam System	_____	_____	____
38. Rx. Vessel Hydro Test	_____	_____	____

ATTACHMENT 6

Manufacturer	Model No.	No. of Pens	Function
GE	50-531112CCKLIEKL	Two	Scram discharge holding tank. Scram solenoid air header pressure
GE	50-531112AAKDISGM	Two	Total recirculation flow Core differential pressure
GE	50-531233ACKLIP22	Two	Turbine steam flow Reactor pressure
GE	50-531110AAKALEKN	Two	Total steam flow Reactor pressure
GE	50-521110AAKLIPYL	Two	Steam conductivity
GE	50-5311233CAKLIPZX	Two	Rx vessel level Total Feedwater flow
GE	50-531112BBKLZEKL	Two	Condenser Vacuum Intake/discharge tunnel Differential temperature
GE	50-21110AAKAIPWA	Two	Condensate dissolved O_2 Feedwater dissolved O_2
GE	50-521110AAKALPWC	Two	Condensate demineralizer conductivity in. Condensate demineralizer conductivity out
Tracor Westronics	DD11E	Four	Plant intake water temperature Plant discharge water temperature Condenser inlet water temperature Plant water temperature differential
GE	50-31110BBKLIPMY	Two	Off-gas system flow Off-gas sample flow
GE	50-521112BBKALPKN	Two	Feedwater into reactor conductivity Reactor water into cleanup system
GE	50-521112BBKALPJP	Two	Cleanup Deminerlizer 11 conductivity out Cleanup Demineralizer 12 conductivity out
GE	50-531113BBKN1PLZ	Two	Cleanup system flow Cleanup pump suction press.

ATTACHMENT 6

Manufacturer	Model No.	No. of Pens	Function
Texas Inst.	Tl-Graph 100	Multichannel	Windspeed & direction (Fitzpatrick)
Baily Babcock & Wilcox	50-732110AAAA1	Two	Cooling water pump discharge 11 & 12
Baily	50-772331AAAA1	Two	Circulating water intake pH Circulating water discharge pH
Leeds & Northrup	Ser. C-80-65094-1-1	Two	Drywell radiation monitors
Texas Inst.	TI-GRAPH-100	Multichannel	Wind Speed & Direction
Texas Inst.	TI-GRAPH-100	Multichannel	Wind Speed & Direction
Texas Inst.	TI-GRAPH-100	Multichannel	Meteorological Tower Temperatures
GE	50-521122BBEC1EEC	Two	Shutdown cooling system temperature in Shutdown cooling system temperature out
Leeds & Northrup	C 80-34263-1-1	Two	Containment pressure channel 12 Torus H_2O level channel 12
Leeds & Northrup	C 80-34263-1-2	Two	Containment pressure channel 11 Torus H_2O level channel 11
GE	50-531112CCKL3TYK	Two	#11 Drywell Equipment Drain Tank Level #12 Drywell Equipment Drain Tank Level
GE	50-531112BBKL3EKL	Two	#11 Drywell Floor Drain Tank Level #11 Drywell Floor Drain Tank Leak Rate
GE	50-531112CCKL3TYK	Two	#12 Drywell Floor Drain Tank Level #12 Drywell Floor Drain Tank Leak Rate
Taylor	825400	Two	System 12 Containment O_2 Containment H_2

ATTACHMENT 6

Manufacturer	Model No.	No. of Pens	Function
Taylor	825400	Two	System 11 Containment O_2 Containment H_2
GE	50-521113BBKL	Two	Selectable IRM/APRM 11/12 Power
GE	50-521113BBKL	Two	Selectable IRM/APRM 13/14 Power
GE	50-521113BBKL	Two	Selectable IRM/APRM 15/16 Power
GE	50-521113BBKL	Two	Selectable IRM/APRM 17/18 Power
GE	50-521112AAKL	Two	(Selectable) SRM counts per second
Texas Instrument	T1 Graph 100	Three	Accurex Channel A Fuel zone water level Drywell reference column temp. Instrument room reference column temperature
Tractor Westronics	D5E	Two	Inlet and discharge tunnel temperature Cond. inlet and discharge temperature
GE	Cat. #50-521110 ABJE1PKA	Two	Stack Gas Radiation Monitor channel 11 Air ejector off-gas radiation monitor channel 11
GE	Cat. #50-521110 ABJE1PKA	Two	Stack Gas Radiation Monitor channel 12 Air ejector off-gas radiation monitor channel 12
GE	Cat. #50-521113 BBJEPKD	Two	Stack Gas Rad Monitor Channel 11 Stack Gas Rad Monitor Channel 12
GE	Cat. #50-531112 BBKLIEKL	Two	Drywell pressure Dew Point Temperature
GE	Cat. #50-520110 CZKLIRCF	One	345 kV line frequency recorder
GE	Cat. #50-521233B3	One	345 kV line voltage
Leeds & Northrup	Cat. # 251-15-006-30-69-4999-69-4999-69 499-6-EK000-058-056-360-016	Multichannel	Turbine Vibration

ATTACHMENT 6

Manufacturer	Model No.	No. of Pens	Function
Leeds & Northrup	Cat. Number 251-20-000-20-69-4999-01-0999 6-EK000-057-360-056-553-016	Multichannel	Turbine movement
Westinghouse	Type KM45	One	Power Board 11 Voltage
Westinghouse	Type KM45	One	Power Board 101 Voltage
Westinghouse	Type KM45	One	115 kV Bus Voltage
Leeds & Northrup	821-49	One	Generator core monitor
GE	1A020662	Multichannel	Generator stator temperatures
GE	1A0900059	One	Turbine rotor temperature
GE	1A080139	Multichannel	Generator hydrogen coolers and transformer temperatures
GE	1A020697	Multichannel	Turbine temperatures
GE	1A070016	Multichannel	Stator water cooling parameters
GE	Cat. #50-520140 AZKLIRGD	One	Turbine Revolutions Per Minute
GE	Cat. #50-521110 AAKLIPRG	Two	Control valve position Bypass valve position
GE	50-521233BBJ	Two	Torus - Atmos. Differential Pressure Drywell - Torus Differential Pressure
GE	50-531112AAL	Two	Off-gas temperature Air-ejector condensate flow
GE	50-531112AAKL	Two	(Selectable) 11-12-13 off-gas chillers discharge temperature
GE	50-531140AAKL	Two	Turbine oil pressure; spare
GE	50-531140AAKL	Two	Off-gas radiation; spare
GE	50-531140AAKL	Two	Stack gas radiation monitor 112-07 Stack gas radiation monitor 112-08

ATTACHMENT 7

W000	APRM BIAS11 COMPAR RDBLK
W001	APRM BIAS12 COMPAR RDBLK
W002	APRM BIAS11 UPSCALE INOP
W003	APRM BIAS12 UPSCALE INOP
W004	***RPS C11/1 RX HI PRS A
W005	***RPS C11/12 RX HI PRS C
W006	***RPS C11/1 RX LO LVL A
W007	***RPS C11/2 RX LO LVL C
W008	***RPS C11/1 SCRDP LVL A
W009	***RPS C11/2 SCRDP LVL C
W010	***RPS C11/1 DW PRS A
W011	***RPS C11/2 DW PRS C
W012	***RPS C11/1 COND LO VAC
W013	***RPS C11/2 COND LO VAC
W014	***RPS C11/1 MSL RAD 111
W015	***RPS C11/2 MSL RAD 121
W016	***RPS C11/1 MSL BRK 11
W017	***RPS C11/2 MSL BRK 12
W018	***RPS C11/1 MSL VLV 11
W019	***RPS C11/2 MSL VLV 12
W020	***RPS C11/1 RX LOLO LVL
W021	***RPS C11/2 RX LOLO LVL
W022	***RPS C11 MAN RX TRIP
W023	***RPS C11/1 RX NUMON 11
W024	***RPS C11/1 RX NUMON 12
W025	***RPS C11/2 RX NUMON 13
W026	***RPS C11/2 RX NUMON 14
W027	345KV BKR R915 BKUP OPER
W028	345KV BKR R925 BKUP OPER
W029	BKR R025 and R915 OPER
W030	11KV RESERV SYS VOLTAGE
W031	GEN LOCKOUT TRIP RELAY 1
W032	GEN LOCKOUT TRIP RELAY 2
W033	GEN LOCKOUT TRIP RELAY 3

ATTACHMENT 7

W034	TURB GROUP TRIP RELAY
W035	GEN FIELD AUTO TRIP
W036	DSL GEN 102 STARTED
W037	DSL GEN 103 STARTED
W038	***RPS C11/1 RX LO PRS A
W039	***RPS C11/2 RX LO PRS C
W040	***C11 TURB TRIP
W041	EMERG GOVERNOR ELEC TRIP
W042	***MOIST SEP TANK 111 LVL
W043	***MOIST SEP TANK 112 LVL
W044	VALUUM 1 TRIP
W045	EMERG GOVERNOR TRIP
W046	***RPS C12/2 RX HI PRS B
W047	***RPS C12/1 RX HI PRS D
W048	***RPS C12/2 RX LO LVL B
W049	***RPS C12/1 RX LO LVL D
W050	***RPS C12/2 SCRDP LVL B
W051	***RPS C12/1 SCRDP LVL D
W052	***RPS C12/2 DW HI PRS B
W053	***RPS C12/1 DW HI PRS D
W054	***RPS C12/1 COND LO VAC
W055	***RPS C12/2 COND LO VAC
W056	***RPS C12/1 MSL RAD 112
W057	***RPS C12/2 MSL RAD 122
W058	***RPS C12/1 MSL BRK 11
W059	***RPS C12/2 MSL BRK
W060	***RPS C12/1 MSL VLV 11
W061	***RPS C12/1 MSL VLV 12
W062	***RPS C12/1 RX NUMON 15
W063	***RPS C12/1 RX NUMON 16
W064	***RPS C12/2 RX NUMON 17
W065	***RPS C12/2 RX NUMON 18
W066	***RPS C12/2 RX LOLO LVL
W067	***RPS C12/1 RX LOLO LVL

ATTACHMENT 7

W068	***RPS C12 MAN RX TRIP
W069	TURB STOP VALVE 11
W070	TURB STOP VALVE 12
W071	TURB STOP VALVE 13
W072	TURB STOP VALVE 13
W073	E.C. RETURN V 11
W074	E.C. RETURN V 12
W075	M.S. RELIEF VALVE 111
W076	M.S. RELIEF VALVE 112
W077	M.S. RELIEF VALVE 113
W078	M.S. RELIEF VALVE 121
W079	M.S. RELIEF VALVE 122
W080	M.S. RELIEF VALVE 123
W081	***RPS C12/1 RX LO PRS D
W082	***RPS C12/2 RX LO PRS B
W083	*** C12 TURB TRIP
W084	***MOIST SEP TANK 122 LVL
W085	***MOIST SEP TANK 121 LVL
W086	MOIST SEP TANK 122 PRELVL
W087	HPCI
W088	MOISTURE
W089	SPARE
W090	SPARE
W091	SPARE
W092	***MAIN GEN OVRVOLT 118%
W093	IA #13 MOTOR BRKR
W094	IA #13 RCVR
W095	IA #13 FILTER DELTA P
W096	LIQUID POISON
W097	SCRAM - FROM SCRAM READER
W098	LIQUID POISON
W099	SCRAM - FROM SCRAM READER
W100	MSIV #111

ATTACHMENT 7

W101	TEST SWTCH MS VALVE #111
W102	MSIV #121
W103	TEST SWTCH MS VALVE #121
W104	MSIV #112
W105	TEST SWTCH MS VALVE #112
W106	MSIV #122
W107	TEST SWTCH MS VALVE #122

ATTACHMENT 8

110828 POST TRIP LOG - DEMAND

BOP ROW 1

E337	APRM 12 NUT FLX LVL	%
E338	APRM 13 NUT FLX LVL	%
E339	APRM 14 NUT FLX LVL	%
E340	APRM 15 NUT FLX LVL	%
E341	APRM 16 NUT FLX LVL	%
E343	APRM 18 NUT FLX LVL	%
A427	RRECIRC P11 SUC TEMP	F
A430	RRECIRC PMP 11 FLOW	K#/H
A438	RRECIRC P13 FLOW	K#/H
A446	RRCIRC P15 FLOW	K#/H
C685	CIRC WTR TEMP RISE	F
H496	AVERAGE TORUS TEMP-B	F

BOP ROW 2

A387	FW PMP11 DISCH FLOW	K#/H
A388	FW PMP12 DISCH FLOW	K#/H
A389	FW PMP13 DISCH FLOW	K#/H
A390	FW ENTERG REAC TEMP W	F
A434	RRCIRC PMP 12 FLOW	K#/H
A442	RRCIRC PMP 14 FLOW	K#/H
A327	GEMAC COLUMN TEMP	F
H478	AVERAGE TORUS TEMP-A	F
A363	#12 ARW REF COLUMN TOP	F
A448	#12YARW VAR COLUMN TOP	F
B470	TURB. SPEED	RPM
B451	TURB BRGOIL HDRPRES	PSIG

BOP ROW 3

B487	TURB BYPAS VALVS OPENG	%
C865	CONDENSER TEMP DIFFERENC	
D324	TORUS PRES	PSIG
D374	MN STM INSTANT E	K#/H
D369	MN STM REL V 121 LEAK	F
D370	MN STM REL V 122 LEAK	F
D371	MN STM REL V 123 LEAK	F
D367	MN STM REL V 112 LEAK	F
D368	MN STM REL V 113 LEAK	F
D366	MN STM REL V 111 LEAK	F
C311	HT WELL CHRG LVL''	F
B473	CONDSR VAC LP SECT	''HGA

NSS

F372	EMERG COND SHELL111TMP	F
F374	EMERG COND SHELL121TMP	F
D377	RX WATER LVL COL-11	FT
D378	RX WATER LVL COL-12	FT
A445	RRCIRC TOTL FL CH11	K#/H
A391	FW TOTAL INST FLOW	K#/H
D320	DRYW PRES	PSIG
D372	REAC PRES COL 11	PSI
D373	REAC PRES COL 12	PSI
D375	MN STM INSTANT W	K#/H

BOP	E337	E338	E339	E340	E341	E343	A427	A430	A438	A446	C685	H496
	A387	A388	A389	A390	A434	A442	A327	H478	A363	A448	B470	B451
	B487	C865	D324	D374	D369	D370	D371	D367	D368	D366	C311	B473
105845	99.	99.	98.	99.	99.	97.	527.	11715.	13279.	13842.	31.3	
	-15.	1419.	5647.	355.	14190.	13155.	120.	71.	249.	396.	1798.	63.9
	0.	35.29	0.353	3626.	140.4	146.7	136.2	216.7	136.6	142.1	64.7	28.1
105915	99.	99.	98.	99.	99.	97.	527.	11715.	13279.	13842.	31.3	
	-15.	1419.	5647.	355.	14190.	13155.	120.	71.	249.	396.	1798.	63.9
	0.	35.29	0.353	3626.	140.4	146.7	136.2	216.7	136.6	142.1	64.7	28.1
105945	99.	99.	98.	99.	99.	97.	527.	11715.	13279.	13842.	31.3	
	-15.	1419.	5647.	355.	14190.	13155.	120.	71.	249.	396.	1798.	63.9
	0.	35.29	0.353	3626.	140.4	146.7	136.2	216.7	136.6	142.1	64.7	28.1
110015	99.	99.	98.	99.	99.	97.	527.	11715.	13279.	13842.	31.3	
	-15.	1419.	5647.	355.	14190.	13155.	120.	71.	249.	396.	1798.	63.9
	0.	35.29	0.353	3626.	140.4	146.7	136.2	216.7	136.6	142.1	64.7	28.1
110045	99.	99.	98.	99.	99.	97.	527.	11715.	13279.	13842.	31.3	
	-15.	1419.	5647.	355.	14190.	13155.	120.	71.	249.	396.	1798.	63.9
	0.	35.29	0.353	3626.	140.4	146.7	136.2	216.7	136.6	142.1	64.7	28.1
110115	99.	99.	98.	99.	99.	97.	527.	11715.	13279.	13842.	31.3	
	-15.	1419.	5647.	355.	14190.	13155.	120.	71.	249.	396.	1798.	63.9
	0.	35.29	0.353	3626.	140.4	146.7	136.2	216.7	136.6	142.1	64.7	28.1

NSS	E336	F372	D377	D378	A445	A391	D320	D372	D373	D375	F374
110330	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110335	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110340	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110345	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110350	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110355	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110400	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110405	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110410	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110415	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110420	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110425	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110430	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110435	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110440	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110445	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110450	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110455	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110500	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110505	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110510	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110515	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110520	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110525	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110530	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110535	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.
110540	98.	210.	74.71	70.08	66168.	7272.	1.578	1021.	1034.	3701.	200.