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November 2, 1984

NUCLEAR LICENSING & SAFETY DEPARTMENT

U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D. C. 20555

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:

SUBJECT: Grand Gulf Nuclear Station
Units 1 and 2
Docket Nos. 50-416 and 50-417
License No. NPF-29
File: 0025/L-860.0
Response to Generic Letter 83-28,
Items 1.1 and 1.2
AECM-84/0465

Generic Letter 83-28 requested conformance to several NRC positions derived from an evaluation of the Salem ATWS events. Attached is the MP&L response to items 1.1 and 1.2 of the generic letter. These items deal with the post trip review program description and procedure (Item 1.1) and data and information capability (Item 1.2). Responses to other items of the generic letter will be provided per the schedule discussed in MP&L letter AECM-83/0723 dated November 4, 1983.

Should you have any questions please feel free to contact us.

Yours truly,

FOR
L. F. Dale
Director

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PDR ADOCK 05000416
P PDR

AGR/SHH:rg
Attachments

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Action 1.1 Response

Post-Trip Review (Program Description and Procedure)

The program for review and analysis of unscheduled reactor trips at Grand Gulf Nuclear Station (GGNS) is described in an administrative procedure 01-S-06-26, Post Trip Analysis. The Post Trip Analysis procedure is a comprehensive procedure whose purpose is to provide guidance for the evaluation of unscheduled reactor trips to verify that the plant safety-related trip systems functioned as intended and that the plant may be restarted safely. It covers responsibilities of the plant staff and describes the various analyses required to determine the cause of the trip and ability to restart. The Post Trip Analysis procedure references other procedures including a scram recovery procedure, 03-1-01-4, which are to be used in recovering from a scram.

Item 1.1.1

The basic restart criteria for GGNS is defined in the On-Shift Analysis portion of procedure 01-S-06-26. The On-Shift Analysis is performed by the Shift Technical Advisor (STA) with assistance from the Shift Supervisor as needed with the purpose of assessing the plant response, determining the cause of the trip and verifying that safety-related systems respond as expected. Upon achieving controlled plant conditions, the STA will begin the On-Shift Analysis utilizing available data to determine the following:

- (1) If all major safety-related and other important equipment involved in the trip operated as expected.
- (2) If the transient caused any detrimental effects on plant equipment.
- (3) If a Technical Specification Safety Limit was exceeded.
- (4) If it is acceptable to restart the reactor.

Upon completion of the On-Shift Analysis, the STA and Shift Supervisor must classify the event into one of four categories in order to determine the process for restart. These four categories are:

- Class I - The cause of the trip is positively known and has been corrected; all safety-related and other important equipment functioned properly during the trip.
- Class II - The cause of the trip is positively known and has been corrected; some safety-related equipment did not function properly; however, the malfunction has been corrected or a Technical Specification constraint does not prohibit a startup.
- Class III - The cause of the trip is not positively known.
- Class IV - Some safety-related and/or other important equipment functioned in an abnormal or degraded manner during the trip and the malfunction has not been corrected or prevents startup due to Technical Specification constraints.

The On-Shift Analysis determination is then reviewed by the on-call Operations Superintendent and the on-call Technical Support Superintendent to determine the thoroughness, accuracy and consistency of the trip analysis. Also, the

Shift Superintendent must notify the Duty Manager of the results of the analysis.

The process used to determine when to restart the reactor is linked to the On-Shift Analysis classification of the event. For Class I or Class II events the decision to restart is made by the GGNS General or Duty Manager. The decision to restart after a Class IV event is made by the General Manager after necessary corrective actions have been taken. Class III events require determination of a course of action leading to plant restart which will be made by the Plant Safety Review Committee (PSRC) or the Safety Review Committee (SRC). The recommended course of action for Class III events should include:

- (1) The actual or most probable cause of the trip.
- (2) The maintenance and testing necessary before reactor restart including additional measures to verify the most probable cause.
- (3) Additional monitoring or trending required during and/or after reactor restart.
- (4) Necessary briefings to Operations and/or Maintenance personnel concerning specific equipment indications or possible malfunctions.
- (5) Conditions necessary for reactor restart.

The decision to restart after a Class III event is made by the General Manager after the PSRC recommended actions have been addressed.

Item 1.1.2

The review and analysis of the unscheduled reactor trip will be performed by the STA with assistance from the Shift Supervisor. Input to the review process comes from individuals involved in the event including operators and maintenance personnel. The responsibilities and authorities of all persons involved in the post trip analysis and their role in making the decision to restart the reactor are defined in the Post Trip Analysis procedure. These responsibilities are summarized as follows:

GGNS General Manager - The General Manager or Duty Manager is responsible for ensuring that an adequate analysis of unscheduled reactor trips is conducted and for authorizing plant restart after an unscheduled reactor trip.

Manager, Plant Operations - The Manager, Plant Operations is responsible for reviewing the results of analyses of the transient events.

Technical Superintendent - The Technical Superintendent is responsible for designating personnel under his supervision to perform the in-depth analysis of transient events and for evaluating the results of analyses of transient events.

Operations Superintendent - The Operations Superintendent is responsible for providing in-depth support to the Technical Section as required to complete the analyses.

Shift Superintendent - The Shift Superintendent is responsible for:

Ensuring that the On-Shift Analysis required by the procedure is performed.

Reporting the results of the On-Shift Analyses to the GGNS General Manager/Duty Manager prior to obtaining permission to restart the reactor.

Shift Supervisor - The Shift Supervisor is responsible for assisting the Shift Technical Advisor in the performance of the On-Shift Analysis.

Shift Technical Advisor - The Shift Technical Advisor (STA) is responsible for:

Collecting the data required to perform the Post Trip Analyses.

Performing the On-Shift Analysis.

Reporting the results of the Post Trip Analysis to the Shift Superintendent.

Transmitting the Post Trip Analyses and available data to the Technical Superintendent for the followup analysis.

Ensuring that the GETARS is operating in "SENTINEL MODE" whenever the reactor is in Operational Condition 1 or 2 and startup testing requiring use of GETARS is not in progress.

Additional responsibilities of the STA and Shift Supervisor are defined in GGNS FSAR Section 13.1.

Item 1.1.3

The qualifications and training for responsible personnel are described in the GGNS FSAR sections 13.1 and 13.2. Job requirements and training for these positions are in accordance with the requirements of ANSI Standard N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel."

The Shift Supervisor's qualification requirements are discussed in FSAR Section 13.1.2.2.3.2 and include the requirement that he hold an SRO license. The STA's position is to contribute to maximizing plant safety during transient or accident situations by independently assessing plant conditions and by providing the technical assistance necessary to mitigate the incident and minimize the effect on personnel, the environment, and plant equipment. STA qualifications and training are described in FSAR Section 13.2.1.2.10 and includes training on plant systems, administrative controls and general operating procedures, transient and accident analysis and emergency procedures, and simulator training. The STA also attends an instructional period devoted to accessing and interpreting information supplied from the process computer.

Item 1.1.4

The sources of plant information necessary to conduct the post trip review and analysis are discussed in Attachment I, Item 1, of procedure 01-S-06-26 (see Attachment 3 to this letter) and include data from the BOP, NSSS, and GETARS

Sentinel Computer Systems, plant recorders and strip charts, statements from personnel involved in the transient, and copies of shift logs and turnover sheets. Specific information related to parameters monitored and information recorded by this equipment is provided in our response to section 1.2 of Generic Letter 83-28. Also, General Electric (GE) has conducted a study (at the request of the Salem ATWS Generic Issues Committee of the BWROG) on the adequacy of typical BWR control room instrumentation and has concluded that control room instrumentation is adequate to determine initiation of a safety system at the required setpoint. There is sufficient on/off indication to verify proper system flow path and that initiation has gone to completion. GE also studied eight typical BWR transients to determine if available control room instrumentation (i.e., Panel Alarms, Recorders, Computer Systems) could be used to determine the cause of the scram. The results of their review showed that in general the cause could be determined with available instrumentation, augmented by operator and technician investigation when necessary.

Item 1.1.5

Procedure 01-S-06-26 requires the STA to use the available plant data to determine if all major safety-related and other important equipment involved in the trip operated as expected and if any Technical Specification Safety Limit was exceeded. The On-Shift Analysis portion of the procedure specifically requires the STA to verify:

- (1) That the RPS operated properly by verifying that the first tripped parameter in each RPS channel caused the RPS channel to trip prior to manual scram.
- (2) That the limiting safety system settings in the RPS Evaluation Data Table (see Attachment 3) were not exceeded without an RPS trip signal.
- (3) If any of the ECCS or RCIC systems initiated.
- (4) If SRV's opened, a turbine trip occurred or a Recirc Flow Control Valve runback occurred.
- (5) If a Recirc pump trip or Recirc pump transfer to LFMC set occurred.

Additionally, the STA will determine if there was any abnormal radiological response or a malfunction or trip of any other components or systems.

It is the position of MP&L, that if it is determined that a particular system should have initiated for a particular event then it need only be established that the system did indeed initiate and that initiation was in the proper sequence. A detailed analysis of the actual performance of that system following an unscheduled shutdown is not a criterion for restart. Such an analysis is accomplished through the normal surveillance testing procedure done at regular intervals to verify system operability. This step is consistent with the philosophy espoused in Caution No. 1 of the NRC approved BWR EPGs. Confidence in the accuracy of control room readout is provided both by the routine maintenance and surveillance activities performed on plant systems, and by normally scheduled and performed calibration activities. Adherence to these efforts precludes the need to enter into a complete recalibration (i.e., pressure, flow, operating times, etc.) or performance reevaluation of the adequacy of system operation prior to restart from an unscheduled trip.

Item 1.1.6

As discussed in Item 1.1.1, procedure 01-S-06-26 requires the STA and Shift Supervisor to classify the transient into one of four categories in order to determine the process for restart. For a Class III event (cause of trip not positively known) a determination of a course of action leading to plant restart must be made by the PSRC or SRC using any or all expertise available. The PSRC must provide a recommended course of action for Class III events to the General Manager which includes:

- (1) The actual or most probable cause of the trip.
- (2) The maintenance and testing necessary before reactor restart including additional measures to verify the most probable cause.
- (3) Additional monitoring or trending required during and/or after reactor restart.
- (4) Necessary briefings to Operations and/or Maintenance personnel concerning specific equipment indications or possible malfunctions.
- (5) The conditions necessary for reactor restart.

The decision to restart the plant after a Class III event is made by the General Manager after PSRC recommended actions have been addressed.

In addition to these requirements, the procedure requires an Off-Shift Analysis to be performed by one or more persons in the Technical Section. Persons performing the Off-Shift Analysis will have an SRO license or be a Certified STA or have equivalent experience. The purpose of the Off-Shift Analysis is to verify the method and results of the On-Shift Analysis, summarize investigative and corrective actions, initiate further corrective actions as required, formulate recommendations to prevent reoccurrence and develop a report on the event.

Guidelines for preservation of physical evidence to support an independent analysis of the transient are provided in the Post Trip Analysis procedure. The guidelines call for the STA to

- (1) Mark chart recordings with date, time, recorder number, parameter, and time scale/chart speed to aid in interpretation of data.
- (2) Transfer the GETARS Sentinel Program data from disc to magnetic tape in order to obtain hard copy plots and allow retention of data.
- (3) Collect handwritten statements from individuals involved in the event (to include plant conditions, individual actions, plant response, noted equipment malfunctions and procedural deficiencies).
- (4) Collect data to complete Attachment I of 01-S-06-26 (see Attachment 3 of this letter) which includes pre-trip plant conditions, the Sequence of Events Log from the BOP and NSSS Alarm Typer, the Post Trip Log from the BOP and NSSS Alarm Typer, plots of several GETARS parameters and copies of shift logs and turnover sheets.

Item 1.1.7

As stated in the introduction to Item 1.1, the program for review and analysis of unscheduled reactor shutdowns is contained in GGNS administrative procedure 01-S-06-26, Post Trip Analysis. This comprehensive procedure references several other procedures including Scram Recovery, 03-1-01-4, and Cold Shutdown to Generator Carrying Minimum Load, 03-1-01-1, which are to be utilized in recovery from an unscheduled reactor trip. Copies of these GGNS procedures are maintained on-site and are available for NRC staff review as required.

Action 1.2 Response

Post-Trip Review (Data and Information Capability)

The Shift Technical Advisor is responsible for collecting the data required to perform the post trip analysis. The information collected should be sufficient to reconstruct the transient. Attachment 3 to this letter lists the information to be collected by the STA for use in determining the cause of an unscheduled reactor trip. The sources of this information include the NSSS Post Trip Log and Sequence of Events Log, the BOP Post Trip Log and Sequence of Events Log, the GETARS Sentinel Program, control room panel instrumentation, shift logs and turnover sheets, recorder and strip chart output, and written statements from individuals involved in the event. The objective of the STA's On-Shift Analysis is to determine the condition of the unit prior to the event, if all major safety-related and other important equipment involved in the trip operated as expected and if the transient caused any detrimental effects on plant equipment. The STA is to be alert for abnormal indications or degraded trends in equipment performance, events occurring out of the normal or expected sequence, and unexpected alarms. The following information is provided in response to Generic Letter 83-28 Section 1.2 action request.

NSSS Computer

The NSSS Computer for GGNS is a Honeywell HS-4000 computer with a Printronix printer. This computer monitors sequence of events as well as time history variables related to NSSS functions. The Sequence of Events (SOE) Log provides digital on/off indication. Points are scanned on the order of milliseconds and a printout of all SOE points that alarm (in the sequence it alarms) is given when any SOE point alarms. The Post Trip Log provides analog indication. Points are scanned once every five seconds and are printed out every thirty seconds. Data is recorded and printed for the four minute period prior and four minute period after a trip signal is generated. A hard copy of the SOE and Post Trip Logs is printed out on the alarm printer in the Control Room. The NSSS Computer and multiplexers are powered by the Class IE, uninterruptible power source.

The parameters that are monitored by the NSSS computer SOE Log are:

- *Reactor High Pressure (CH A-D)
- *Vessel Low Water Level (CH A-D)
- *Drywell High Pressure (CH A-D)
- *Manual Scram Div 1 or 3, 2 or 4
- *Reactor Scram Div 1 or 3, 2 or 4
- RHR/ADS DW Pressure (CH B, F)
- RHR/ADS Water Level (CH B, F)
- LPCS/RHR/ADS DW Pressure (CH A, E)
- LPCS/RHR/ADS Water Level (CH A, E)
- *TSV Closure (CH A-D)
- *TCV Fast Closure (CH A-D)
- HPCS Drywell Pressure (CH C, L, G, R)
- HPCS Low Water Level (CH C, L, G, R)
- Recirc Pump Trip (CH A, B)
- Turbine Bypass Valve
- RHR Pump Breaker (Loop A, B, C)

Relief Valve Pilot Solenoid (No 1-20)
 *Main Steam Line High Radiation (CH A-D)
 RHR Pressure (Loop A, B, C)
 LPCS Pump Breaker
 RHR Injection Flow (Loop A, B, C)
 LPCS System Pressure
 LPCS Low Flow Bypass Valve
 HPCS Pump Breaker No. 2
 HPCS Pressure
 HPCS Low Flow Bypass Valve
 IRM Upscale Level (CH A-H)
 *Main Steam Line Isolation (CH A-D)
 Vessel High Water Level (CH A-D)
 APRM Neutron Flux (CH A-H)
 *Discharge Volume Water Level High (CH A-D)
 *Neutron Monitoring System (CH A-D)
 APRM Thermal Power (CH A-H)

The format for displaying these parameters gives the computer point number, the parameter name and the status of the alarm (i.e. on, off, reset).

The Reactor Protection System alarm points are marked with an asterisk on the SOE Log listed. An optical isolator and one or more relays is associated with each point. In order for the point to be printed on the alarm printer, two sources of power must be available. These sources are the plant batteries (125 VDC) and the Motor Generator sets (MG, 125 VAC).

The parameters monitored by the NSSS Post Trip Log are:

APRM Flux Level (CH A)
 Reactor (RTR) Feedwater Flow (Loop A, B)
 Steam Dome Pressure
 Reactor Water Level
 Total Steam Flow
 RTR Feedwater Inlet Temp (CH A)
 RTR Core Pressure Drop
 RTR Total Core Flow
 Main Turbine Steam Flow

The format for this log prints out the computer point number and the value of the parameter every 30 seconds.

BOP Computer

The BOP Computer for GGNS is a SEL-32/55 computer. This computer monitors sequence of events as well as time history variables related to BOP functions. The SOE Log provides digital on/off indication and points are scanned on the order of milliseconds. A printout of all SOE points that alarm (in the sequence it alarms) is given when any SOE point alarms. The Post Trip Log provides analog indication. Points are scanned once every five seconds and are printed every thirty seconds. Data is recorded and printed for the four minute period before and four minute period after a trip signal is generated. A hardcopy of the SOE and Post Trip Logs is printed out on the alarm printer in the Control Room backed up by an on demand BOP printer in the Control Room. The BOP Computer and multiplexers are powered by a Class IE, uninterruptible power source.

The parameters displayed for the SOE Log include information and status on the following major components/systems:

- Recirc Pump Motor
- Reactor (water level)
- Offgas Post Treatment (radiation)
- Suppression Pool Makeup Valves (and Water Level)
- Division 1 or 2 Drywell Purge
- Drywell/Containment Differential Pressure
- Division 1 or 2 LOCA Trip
- Vent Isolation
- Containment Isolation or Auxiliary Isolation
- Condensate Pumps
- Reactor Feed Pump Turbine (RFPT)
- Heater Drain Pumps
- Feedwater Heaters
- Heater Drain Tank
- Turbine
- Condenser Vacuum
- Main Generator
- Transformers
- Diesel Generators
- Loss of Offsite Power Sources
- SGTS Division 1 or 2

The format for printing these variables gives the computer point number, a description of the parameter, and a set (status) message. A complete listing of all parameters monitored is given in Table I.

The parameters monitored by the Post Trip Log include information for the following systems/variables:

- Recirculation System
- Reactor Water Level
- APRM FLUX
- Turbine/Condenser
- Drywell Pressure
- Reactor Feed Pump Turbine/Reactor Feed Pump
- Condensate Pumps & Booster Pumps & Demineralizers
- Feedwater Heaters
- Moisture Separator & Reheaters
- Main Generator

The format for this log gives computer point number, parameter description, high/low sensor values and a status message. A complete listing of all parameters monitored is given in Table II.

GETARS Sentinel Program

The hardware for the GETARS Sentinel Program is a Hewlett Packard model 2117-F computer with strip chart recorder output. In the Sentinel mode, 234 channels are monitored. The maximum sample speed is 100 samples per second per channel. When one of the selected (50 channels maximum) channel signals is determined to be outside of its prescribed limit, the limit checking mode is terminated and the Sentinel mode begins. Records are maintained from thirty seconds

preceding the trip to approximately ten minutes afterwards. All data is recorded on hard disc and is then transcribed onto a magnetic tape for permanent storage. In addition, all data may be output to a time-distance strip-chart. The power source for this computer and multiplexers is class IE, uninterruptible power. The pertinent parameters monitored in the Sentinel mode as a minimum include the following:

- Recirc Loop A Temperature
- Recirc Loop B Temperature
- Narrow Range Level
- Narrow Range Dome Pressure
- Wide Range Dome Pressure
- Total Steamline Flow
- Condenser Vacuum
- APRM B
- Total Core Flow
- APRM A
- APRM C
- Wide Range Level
- APRM D
- RCIC Pump Flow
- HPCS Flow
- "A" RHR System Flow
- LPCS Flow
- "A" HP Control Valve Position

Control Room Panel Instrumentation

Table III lists some of the Control Room instrumentation which is available to monitor operation during and following a transient. The first column gives the system name and parameter to be monitored, the second column states whether the parameter is recorded on a strip chart or recorder, and the third column indicates if the parameter is recorded on the operations round sheets. The systems listed were selected in the GE study as important systems to monitor. Additional recorder and strip chart information which is available and of interest in the post trip review is listed in Table 1 of Attachment 3 to this letter.

Summary

In addition to the specific information discussed above, other sources of information for assessing the cause of a Reactor trip exist including written statements from persons involved in the event (operators, maintenance personnel) and shift logs and turnover sheets. As to the adequacy of available equipment, MP&L believes that the results of the GE study are valid for GGNS and, therefore, GGNS Control Room instrumentation is adequate to verify safety system operation as needed for the post trip analysis.

Table I

POINT ID	COMPUTER DESCRIPTION	TYPE	FREQ	LOSENSOR	HISENSR	LOENG	HIENG	EUNITS	SET/LLIM	RST/HLIM	MESSAGE	TIEVAR
B33L616	FLUX CONTROLLER OUTPUT SIG	SOE	0015							ABNORMAL	NORMAL	ALARM-S
B33L617	MASTER CONTROL OUTPUT SIGNAL	SOE	0015							ABNORMAL	NORMAL	ALARM-S
B33L622A	RECIRC PUMP MTR A BREAKER	SOE	0015							TRIPPED	RESET	ALARM-S
B33L622B	RECIRC PUMP MTR B BREAKER	SOE	0015							TRIPPED	RESET	ALARM-S
B33L623A	RECIRC PUMP MOTOR A LOCKOUT	SOE	0015							TRIPPED	RESET	ALARM-S
B33L623B	RECIRC PUMP MOTOR B LOCKOUT	SOE	0015							TRIPPED	RESET	ALARM-S
B33L624A	RECIRC MOTOR A L/O BUS VOLTS	SOE	0015							LOW	NOT LOW	ALARM-S
B33L624B	RECIRC MOTOR B L/O BUS VOLTS	SOE	0015							LOW	NOT LOW	ALARM-S
C34L602	RFPT CONTROL SIGNAL	SUE	0015							FAILURE	NORMAL	ALARM-S
C34L603	REACTOR WATER LEVEL ERROR	SOE	0015							FAILURE	NORMAL	ALARM-S
C34L604	REACTOR HIGH WATER LEVEL	SOE	0015							TRIPPED	NO TRIP	ALARM-S
D17L618	OFFGAS POST-TREAT RADIATION	SOE	0015							EXTREME	NOT EXTR	ALARM-S
E30W001A	SUPPRESSION POOL MAKEUP VLV	SOEL	0015							OPEN	NOT OPEN	ALARM-S
E30W001B	SUPPRESSION POOL MAKEUP VLV	SOEL	0015							OPEN	NOT OPEN	ALARM-S
E30W002A	SUPPRESSION POOL MAKEUP VLV	SOEL	0015							OPEN	NOT OPEN	ALARM-S
E30W002B	SUPPRESSION POOL MAKEUP VLV	SOEL	0015							OPEN	NOT OPEN	ALARM-S
E30W600A	SUPPRESSION POOL WATER LEVEL	SOE	0015							LOW-LOW	NOT LOLO	ALARM-S
E30W600B	SUPPRESSION POOL WATER LEVEL	SOE	0015							LOW-LOW	NOT LOLO	ALARM-S
E61L606A	DIVISION 1 DRYWELL PURGE	SOEL	0015							IN OPER	NOT OPER	ALARM-S
E61L606B	DIVISION 2 DRYWELL PURGE	SOEL	0015							IN OPER	NOT OPER	ALARM-S
E61W600A	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600B	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600C	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600D	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600E	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600F	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600G	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600H	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600I	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600J	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600K	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600L	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600M	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600N	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600O	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600P	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600Q	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600R	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600S	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600T	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600U	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600V	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600W	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600X	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600Y	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
E61W600Z	DRYWELL/CTMT DIFF PRESSURE	SOE	0015							LOW	NOT LOW	ALARM-S
M71J600A	DIVISION 1 LOCA TRIP	SOE	0015							ALARM	RESET	ALARM-S
M71J600B	DIVISION 2 LOCA TRIP	SOE	0015							ALARM	RESET	ALARM-S
M71L603A	DIVISION 1 VENT ISOLATION	SOE	0015							IN OPER	NOT OPER	ALARM-S
M71L603B	DIVISION 2 VENT ISOLATION	SOE	0015							IN OPER	NOT OPER	ALARM-S
M71L604A	DIVISION 1 CTMT ISOLATION	SOE	0015							IN OPER	NOT OPER	ALARM-S
M71L604B	DIVISION 2 CTMT ISOLATION	SOE	0015							IN OPER	NOT OPER	ALARM-S
M71L606A	DIVISION 1 AUX ISOLATION	SOE	0015							IN OPER	NOT OPER	ALARM-S
M71L606B	DIVISION 2 AUX ISOLATION	SOE	0015							IN OPER	NOT OPER	ALARM-S
M19K018	CNDS PMS PIN RECIRC FLOW	SOE	0015							LOW	NOT LOW	ALARM-S
M19K028	CNDS BSTR PMP RECIRC FLOW	SOE	0015							LOW	NOT LOW	ALARM-S
M19W001A	CNDS BSTR PMP A MTR PROT DEV	SOE	0015							OPERATE	RESET	ALARM-S
M19W001B	CNDS BSTR PMP B MTR PROT DEV	SOE	0015							OPERATE	RESET	ALARM-S
M19W001C	CNDS BSTR PMP C MTR PROT DEV	SOE	0015							OPERATE	RESET	ALARM-S
M19W002A	CONDENSATE BOOSTER PUMP A	SOE	0015							TRIPPED	NO TRIP	ALARM-S

POINT ID	COMPUTER DESCRIPTION	TYPE	FREQ	LOSEN/R	HISENSR	LOENG	HIENG EUNITS	SET/LLIM	RST/HLIM	MESSGE	TIEVAR	
N19M002B	CONDENSATE BOOSTER PUMP B	SOE	001S							TRIPPED	NO TRIP	ALARM-S
N19M002C	CONDENSATE BOOSTER PUMP C	SOE	001S							TRIPPED	NO TRIP	ALARM-S
N19M003A	CNDS PMP A MTR PROT DEVICE	SOE	001S							OPERATE	RESET	ALARM-S
N19M003B	CNDS PMP B MTR PROT DEVICE	SOE	001S							OPERATE	RESET	ALARM-S
N19M003C	CNDS PMP C MTR PROT DEVICE	SOE	001S							OPERATE	RESET	ALARM-S
N19M004A	CONDENSATE PUMP A	SOE	001S							TRIPPED	NO TRIP	ALARM-S
N19M004B	CONDENSATE PUMP B	SOE	001S							TRIPPED	NO TRIP	ALARM-S
N19M004C	CONDENSATE PUMP C	SOE	001S							TRIPPED	NO TRIP	ALARM-S
N19N003A	CNDS PMP A SUCT PRESSURE	SOE	001S							LOW	NOT LOW	ALARM-S
N19N003B	CNDS PMP B SUCT PRESSURE	SOE	001S							LOW	NOT LOW	ALARM-S
N19N003C	CNDS PMP C SUCT PRESSURE	SOE	001S							LOW	NOT LOW	ALARM-S
N19N053A	CBP A SUCT PRESS	SOE	001S							LOW	NOT LOW	ALARM-S
N19N053B	CBP B SUCT PRESS	SOE	001S							LOW	NOT LOW	ALARM-S
N19N053C	CBP C SUCT PRESS	SOE	001S							LOW	NOT LOW	ALARM-S
N19N105	CNDS PMPS HOTWELL WTR LEVEL	SOE	001S							LOW-LOW	NOT LOW	ALARM-S
N21J612A	RFPT A TRIP VLV	SOE	001S							OPERATE	RESET	ALARM-S
N21J612B	RFPT B TRIP VLV	SOE	001S							OPERATE	RESET	ALARM-S
N21K005A	RFPT A RECIRC FLOW	SOE	001S							LOW	NOT LOW	ALARM-S
N21K005B	RFPT B RECIRC FLOW	SOE	001S							LOW	NOT LOW	ALARM-S
N21N079A	RFP A SUCT PRESS	SOE	001S							LOW	NOT LOW	ALARM-S
N21N079B	RFP B SUCT PRESS	SOE	001S							LOW	NOT LOW	ALARM-S
N21N105	RFP COMMON DISCH PRESSURE	SOE	001S							HI-HI	NOT HIHI	ALARM-S
N21N208A	RFPT A BRG PRESSURE SW PS8	SOE	001S							LOW	NOT LOW	ALARM-S
N21N208B	RFPT B BRG PRESSURE SW PS8	SOE	001S							LOW	NOT LOW	ALARM-S
N21N209A	RFP A BRG PRESSURE SW PS9	SOE	001S							LOW	NOT LOW	ALARM-S
N21N209B	RFP B BRG PRESSURE SW PS9	SOE	001S							LOW	NOT LOW	ALARM-S
N21N212A	RFPT A INACT THR BRG WR PS12	SOE	001S							HIGH	NOT HIGH	ALARM-S
N21N212B	RFPT B INACT THR BRG WR PS12	SOE	001S							HIGH	NOT HIGH	ALARM-S
N21N216A	RFPT A TRIP FLUID PRESS PS16	SOE	001S							TRIPPED	RESET	ALARM-S
N21N216B	RFPT B TRIP FLUID PRESS PS16	SOE	001S							TRIPPED	RESET	ALARM-S
N23K046A	HEATER DRAIN PUMP A FLOW	SOE	001S							LOW	NOT LOW	ALARM-S
N23K046B	HEATER DRAIN PUMP B FLOW	SOE	001S							LOW	NOT LOW	ALARM-S
N23M001A	HTR DR PMP A MOTOR PROT	SOE	001S							TROUBLE	NORMAL	ALARM-S
N23M001B	HTR DR PMP B MOTOR PROT	SOE	001S							TROUBLE	NORMAL	ALARM-S
N23M002A	HTR DR PMP A EMERG TRIP	SOE	001S							ALARM	RESET	ALARM-S
N23M002B	HTR DR PMP B EMERG TRIP	SOE	001S							ALARM	RESET	ALARM-S
N23N001A	FDW HTR 4A LVL	SOE	001S							HI-HI	NOT HIHI	ALARM-S
N23N001B	FDW HTR 4B LVL	SOE	001S							HI-HI	NOT HIHI	ALARM-S
N23N001C	FDW HTR 4C LVL	SOE	001S							HI-HI	NOT HIHI	ALARM-S
N23N011A	FDW HTR 4A DUMP VALVE POSN	SOE	001S							OPEN	NOT OPEN	ALARM-S
N23N011B	FDW HTR 4B DUMP VALVE POSN	SOE	001S							OPEN	NOT OPEN	ALARM-S
N23N011C	FDW HTR 4C DUMP VALVE POSN	SOE	001S							OPEN	NOT OPEN	ALARM-S
N23N017A	FDW HTR 3A LVL	SOE	001S							HI-HI	NOT HIHI	ALARM-S
N23N017B	FDW HTR 3B LVL	SOE	001S							HI-HI	NOT HIHI	ALARM-S
N23N017C	FDW HTR 3C LVL	SOE	001S							HI-HI	NOT HIHI	ALARM-S
N23N025A	FDW HTR 3A DUMP VALVE POSN	SOE	001S							OPEN	NOT OPEN	ALARM-S
N23N025B	FDW HTR 3B DUMP VALVE POSN	SOE	001S							OPEN	NOT OPEN	ALARM-S
N23N025C	FDW HTR 3C DUMP VALVE POSN	SOE	001S							OPEN	NOT OPEN	ALARM-S
N23N032A	FDW HTR 2A LVL	SOE	001S							HI-HI	NOT HIHI	ALARM-S
N23N032B	FDW HTR 2B LVL	SOE	001S							HI-HI	NOT HIHI	ALARM-S

Table I

POINT ID	COMPUTER DESCRIPTION	TYPE	FREQ	LOSENSR	HISENSR	LOENG	RIENG	EUNITS	SET/LIM	RST/HLIM	MESSAGE	TIEVAR
N23N032C	FDW HTR 2C LVL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N23N039A	FDW HTR 2A DUMP VLV POSN	SOE	0015						OPEN	NOT OPEN	ALARM-S	
N23N039B	FDW HTR 2B DUMP VLV POSN	SOE	0015						OPEN	NOT OPEN	ALARM-S	
N23N039C	FDW HTR 2C DUMP VLV POSN	SOE	0015						OPEN	NOT OPEN	ALARM-S	
N23N045A	FDW HTR 1A LVL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N23N045B	FDW HTR 1B LVL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N23N045C	FDW HTR 1C LVL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N23N062A	FDW HTR 6A LVL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N23N062B	FDW HTR 6B LVL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N23N069A	FDW HTR 6A DUMP VALVE POSN	SOE	0015						OPEN	NOT OPEN	ALARM-S	
N23N069B	FDW HTR 6B DUMP VALVE POSN	SOE	0015						OPEN	NOT OPEN	ALARM-S	
N23N074A	FDW HTR 5A LVL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N23N074B	FDW HTR 5B LVL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N23N081	HTR DR TK LEVEL	SOE	0015						LOW-LOW	NOT LOL/L	ALARM-S	
N31K206	TURB OVERSPEED TRIP 2	SOE	0015						ALARM	RESET	ALARM-S	
N31K207	TURBINE THRUST BEARING	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N31K214	CONDENSOR VACUUM (ELEC)	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N31K217	TURBINE ELECTRICAL	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N31K218	TURBINE MANUAL	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N31K228	TURBINE TRIPPED	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N31K234	CONDENSOR VACUUM (HYD)	SOE	0015						ALARM	RESET	ALARM-S	
N32K202	ENC FAILURE	SOE	0015						OPERATE	RESET	ALARM-S	
N32K207	LOAD REJECTION RELAY	SOE	0015						ALARM	RESET	ALARM-S	
N32K217	IPC FAILURE	SOE	0015						ALARM	RESET	ALARM-S	
N32K218	BCU FAILURE	SOE	0015						ALARM	RESET	ALARM-S	
N32K238	TURBINE TRIPPED HYDR	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N32N220	COND FEED PUMP A	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N32N221	COND FEED PUMP B	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N32N222	COND FEED PUMP C	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N34N200	AUXILIARY OIL PUMP A	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N34N201	AUXILIARY OIL PUMP B	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N34N202	AUXILIARY OIL PUMP C	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N34N213	LOW LUBE OIL PRESSURE	SOE	0015						TRIPPED	NO TRIP	ALARM-S	
N35N007A	SEP SHL DR TK A DUMP VLV	SOE	0015						OPEN	NOT OPEN	ALARM-S	
N35N007B	SEP SHL DR TK B DUMP VLV	SOE	0015						OPEN	NOT OPEN	ALARM-S	
N35N014A	1 STG RHTR DR TK A LEVEL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N35N014B	1 STG RHTR DR TK B LEVEL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N35N018A	1ST STG RHTR DR TK A DUMP V	SOE	0015						OPEN	NOT OPEN	ALARM-S	
N35N018B	1ST STG RHTR DR TK B DUMP V	SOE	0015						OPEN	NOT OPEN	ALARM-S	
N35N039A	SEP SHL DR TK A DUMP VLVD	SOE	0015						OPEN	NOT OPEN	ALARM-S	
N35N039B	SEP SHL DR TK B DUMP VLVD	SOE	0015						OPEN	NOT OPEN	ALARM-S	
N35N048A	MSIRE SEP LEVEL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N35N048B	MSIRE SEP LEVEL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N35N049A	MSIRE A DRAIN LEVEL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N35N049B	MSIRE B DRAIN LEVEL	SOE	0015						HI-HI	NOT HIHI	ALARM-S	
N41K201	ROTOR GROUND DETECTED	SOE	0015						TRIPPED	RESET	ALARM-S	
N41S700	MAIN GEN LOSS FLD TRIP	SOE	0015						ALARM	RESET	ALARM-S	
N41S703	MAIN GEN UNDER FREQ TRIP	SOE	0015						ALARM	RESET	ALARM-S	
N41S705	MAIN GEN EXCESS V/HZ TRIP	SOE	0015						ALARM	RESET	ALARM-S	
N41S705	MAIN GEN NEUT DIVV TRIP	SOE	0015						ALARM	RESET	ALARM-S	

POINT ID	COMPUTER DESCRIPTION	TYPE	FREQ	LOSENSR	HISENSR	LOENG	HIENG	EUNITS	SET/LLI	RST/HLIM	MESSGE	TIEVAR
N41S707	LOW FREQ GND FAULT TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N41S708	MAIN GEN DIFF RLY TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N41S709	UNIT DIFF RLY TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N41S710	MAIN GEN NEG PH SEQ TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N41S711	MAIN GEN DISTANCE RLY TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N41S712	MAIN GEN REV PWR RLY G12 TR	SOE	001S						ALARM	RESET	ALARM-S	
N41S713	UNIT ON LINE	SOE	001S						IN OPER	NOT OPER	ALARM-S	
N41S714	PT 11 FAILURE	SOE	001S						RESET	ALARM	ALARM-R	
N41S715	MAIN GEN LO RLY G11 TRIP	SOE	001S						RESET	ALARM	ALARM-R	
N41S716	MAIN GEN LO RLY G12 TRIP	SOE	001S						RESET	ALARM	ALARM-R	
N41S717	MAIN GEN GND OC RLY TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N41S718	MAIN GEN LO RLY G13 TRIP	SOE	001S						RESET	ALARM	ALARM-R	
N41S719	MAIN GEN LO RLY G14 TRIP	SOE	001S						RESET	ALARM	ALARM-R	
N41S720	MAIN GEN REV PWR RLY UT11 TR	SOE	001S						ALARM	RESET	ALARM-S	
N41S722	MAIN GEN LO RLY UT11 TRIP	SOE	001S						RESET	ALARM	ALARM-R	
N41S724	PT 12 FAILURE	SOE	001S						RESET	ALARM	ALARM-R	
N41S725	PT 13 FAILURE	SOE	001S						RESET	ALARM	ALARM-R	
N41S726	MAIN XFMR DIFF RLY TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N41S727	MAIN XFMR NEU GROUND RELAY	SOE	001S						TRIPPED	RESET	ALARM-S	
N41S728	MAIN XFMR A SUDDEN PRESSURE	SOE	001S						TRIPPED	RESET	ALARM-S	
N41S729	MAIN XFMR B SUDDEN PRESSURE	SOE	001S						TRIPPED	RESET	ALARM-S	
N41S730	MAIN XFMR C SUDDEN PRESSURE	SOE	001S						TRIPPED	RESET	ALARM-S	
N41S731	BRKR J5228 FAILURE TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N41S732	BRKR J5232 FAILURE TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N41S733	GEN FIELD BRKR OPEN TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N41S739	MAIN GEN BKR AUTO TRIP J5228	SOE	001S						ALARM	RESET	ALARM-S	
N41S740	MAIN GEN BKR AUTO TRIP J5232	SOE	001S						ALARM	RESET	ALARM-S	
N41S741	MAIN GEN PILOT EXTR SH CKT	SOE	001S						ALARM	RESET	ALARM-S	
N41S742	MAIN GEN ROTOR GND TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N43K201	PW LEAKAGE TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N43K224	PW STAT CIRCUIT LOW FLOW	SOE	001S						LOW	NOT LOW	ALARM-S	
N43K225	PW ROT CIRCUIT LOW FLOW	SOE	001S						LOW	NOT LOW	ALARM-S	
N43K226	PW PH A CIRCUIT LOW FLOW	SOE	001S						LOW	NOT LOW	ALARM-S	
N43K227	PW PH B CIRCUIT LOW FLOW	SOE	001S						LOW	NOT LOW	ALARM-S	
N43K228	PW PH C CIRCUIT LOW FLOW	SOE	001S						LOW	NOT LOW	ALARM-S	
N43K229	PW TANK LEVEL	SOE	001S						TRIPPED	RESET	ALARM-S	
N43K230	GEN TERM BOX LEVEL	SOE	001S						TRIPPED	RESET	ALARM-S	
N43K238	PW TEMPERATURE	SOE	001S						HIGH	NOT HIGH	ALARM-S	
N43K239	WTR CONN HEAD VIB	SOE	001S						HIGH	NOT HIGH	ALARM-S	
N62K013A	SJAE A STEAM FLOW	SOE	001S						LOW	NOT LOW	ALARM-S	
N62K013B	SJAE B STEAM FLOW	SOE	001S						LOW	NOT LOW	ALARM-S	
N64N113	OFF-GAS DISCH TO VENT VALVE	SOE	001S						CLOSED	NOT CLSD	ALARM-S	
N71M001A	CIRC WTR PMP A MOTOR PROT	SOE	001S						TROUBLE	NORMAL	ALARM-S	
N71M001B	CIRC WTR PMP B MOTOR PROT	SOE	001S						TROUBLE	NORMAL	ALARM-S	
N71M002A	CIRC WTR PMP A EMERG TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N71M002B	CIRC WTR PMP B EMERG TRIP	SOE	001S						ALARM	RESET	ALARM-S	
N71N041A	CWP A LUBE WTR FLOW	SOE	001S						LOW	NOT LOW	ALARM-S	
N71N041B	CWP B LUBE WTR FLOW	SOE	001S						LOW	NOT LOW	ALARM-S	
P41L611A	DIV 1 STANDBY SERV WATER SYS	SOE	001S						IN OPER	NOT OPER	ALARM-S	
P41L611B	DIV 2 STANDBY SERV WATER SYS	SOE	001S						IN OPER	NOT OPER	ALARM-S	

POINT ID	COMPUTER DESCRIPTION	TYPE	FREQ	LOSEMSR	HISENSR	LOENG	KIENG EUNITS	SET/LLIM	RS/HLIM	MESSGE	TIEVAR
P750E01A	DIESEL GENERATOR A	SOEL	001S					RUNNING	STOPPED	ALARM-S	
P750E01B	DIESEL GENERATOR B	SOEL	001S					RUNNING	STOPPED	ALARM-S	
Q0046SOE	SPARE SEQ EVENT CONTACT CHAN	SOE	001S					SET	RESET	NONE	
Q0047SOE	SPARE SEQ EVENT CONTACT CHAN	SOE	001S					SET	RESET	NONE	
Q0252SEL	SPARE SEQ EVENT LOGIC INPUT	SOEL	001S					SET	RESET	NONE	
Q0253SEL	SPARE SEQ EVENT LOGIC INPUT	SOEL	001S					SET	RESET	NONE	
Q0254SEL	SPARE SEQ EVENT LOGIC INPUT	SOEL	001S					SET	RESET	NONE	
Q0255SEL	SPARE SEQ EVENT LOGIC INPUT	SOEL	001S					SET	RESET	NONE	
R15S701	SERV XFMR 11 PRIMARY LO RLY	SOE	001S					OPERATE	RESET	ALARM-S	
R15S702	SERV XFMR 11 BU LO RLY	SOE	001S					OPERATE	RESET	ALARM-S	
R15S711	SERV XFMR 11 SUDDEN PRESS RY	SOE	001S					OPERATE	RESET	ALARM-S	
R15S725	SERV XFMR 11 PRI DIFF RELAY	SOE	001S					OPERATE	RESET	ALARM-S	
R15S726	SERV XFMR 11 OVERCURRENT RLY	SOE	001S					OPERATE	RESET	ALARM-S	
R15S727	SERV XFMR 11 NEUTRAL O/C RLY	SOE	001S					OPERATE	RESET	ALARM-S	
R15S728	SERV XFMR 11 BU DIFF RELAY	SOE	001S					OPERATE	RESET	ALARM-S	
R15S730	GRNDG XFMR 11 O/C TRIP RELAY	SOE	001S					OPERATE	RESET	ALARM-S	
R15S731	GRND XFMR 11 NEU O/C TRIP	SOE	001S					OPERATE	RESET	ALARM-S	
R15S732	GRNDG XFMR 11 OV TRIP RELAY	SOE	001S					OPERATE	RESET	ALARM-S	
R15S733	GRNDG XFMR 21 O/C TRIP RELAY	SOE	001S					OPERATE	RESET	ALARM-S	
R15S734	GRNDG XFMR 21 NEU O/C TRIP	SOE	001S					OPERATE	RESET	ALARM-S	
R15S735	GRNDG XFMR 21 OV TRIP	SOE	001S					OPERATE	RESET	ALARM-S	
R15S737	SERV XFMR 21 PRI L/O TRIP	SOE	001S					OPERATE	RESET	ALARM-S	
R15S738	SERV XFMR 21 SEC L/O TRIP	SOE	001S					OPERATE	RESET	ALARM-S	
R15S746	SERV XFMR 21 SUD PRESS TRIP	SOE	001S					OPERATE	RESET	ALARM-S	
R15S753	SERV XFMR 21 PRI DIFF TRIP	SOE	001S					OPERATE	RESET	ALARM-S	
R15S754	SERV XFMR 21 O/C RELAY TRIP	SOE	001S					OPERATE	RESET	ALARM-S	
R15S755	SERV XFMR 21 NEUTRAL O/C RLY	SOE	001S					OPERATE	RESET	ALARM-S	
R15S756	SERV XFMR 21 BU DIFF RELAY	SOE	001S					OPERATE	RESET	ALARM-S	
R218736	BUS 15AA UNDERVOLTAGE RELAY	SOEL	001S					TRIPPED	RESET	ALARM-S	
R218738	BUS 16AB UNDERVOLTAGE	SOEL	001S					ALARM	RESET	ALARM-S	
R218755	LOSS OF OFFSITE PWR SOURCES	SOEL	001S					ALARM	RESET	ALARM-S	
R218761	LOSS OF OFFSITE PWR SOURCES	SOEL	001S					ALARM	RESET	ALARM-S	
T48L614A	SGTS DIVISION 1	SOE	001S					IN OPER	NOT OPER	ALARM-S	
T48L614B	SGTS DIVISION 2	SOE	001S					IN OPER	NOT OPER	ALARM-S	

234 RECORDS PRINTED

Table II

Attachment 2

POINT ID	COMPUTER DESCRIPTION	TYPE	FREQ	LOSENSR	HISENSR	LOENG	HIENG	EUNITS	SET/LLIM	RST/HLIM	MESSGE	TIEVAR
B33N014A	RECIRC LP A1 DR FL M#H	NSSSA						M#H				
B33N014D	RECIRC LP A2 DR FL M#H	NSSSA						M#H				
B33N024A	RECIRC LP B1 DR FL M#H	NSSSA						M#H				
B33N024D	RECIRC LP B2 DR FL M#H	NSSSA						M#H				
C34N004A	REACTOR WATER LEVEL A	LSA	005S	32MV	160MV	0	60	IN	33.7		39.7	MNYY
C34N004B	REACTOR WATER LEVEL B	LSA	005S	32MV	160MV	0	60	IN	33.7		39.7	MNYY
C34N004C	REACTOR WATER LEVEL C	LSA	005S	32MV	160MV	0	60	IN	33.7		39.7	MNYY
C34N005	REACTOR PRESSURE	NSSSA						PSI				
C34R601	FDW BIAS XFER STATION OUT	LSA	005S	32MV	160MV	0	100	%		20	80	MNYY
C34R613	FDW XFER STATION OUT	LSA	005S	32MV	160MV	0	100	%		20	80	MNYY
C51J807A	APRM A FLUX LEVEL	NSSSA						%PWR				
C51J807B	APRM B FLUX LEVEL	NSSSA						%PWR				
C51J807C	APRM C FLUX LEVEL	NSSSA						%PWR				
C51J807D	APRM D FLUX LEVEL	NSSSA						%PWR				
C51J807E	APRM E FLUX LEVEL	NSSSA						%PWR				
C51J807F	APRM F FLUX LEVEL	NSSSA						%PWR				
C51J807G	APRM G FLUX LEVEL	NSSSA						%PWR				
C51J807H	APRM H FLUX LEVEL	NSSSA						%PWR				
C71N005A	TURB CONT VALVE SEC FLUID	LSA	005S	1V	5V	0	100	PSIG		41		MNYY
C71N005B	TURB CONT VALVE SEC FLUID	LSA	005S	1V	5V	0	100	PSIG		41		MNYY
C71N005C	TURB CONT VALVE SEC FLUID	LSA	005S	1V	5V	0	100	PSIG		41		MNYY
C71N005D	TURB CONT VALVE SEC FLUID	LSA	005S	1V	5V	0	100	PSIG		41		MNYY
C71N006A	TURB STOP VALVE TRIP FLUID	LSA	005S	1V	5V	0	200	PSIG		45		MNYY
C71N006B	TURB STOP VALVE TRIP FLUID	LSA	005S	1V	5V	0	200	PSIG		45		MNYY
C71N006C	TURB STOP VALVE TRIP FLUID	LSA	005S	1V	5V	0	200	PSIG		45		MNYY
C71N006D	TURB STOP VALVE TRIP FLUID	LSA	005S	1V	5V	0	200	PSIG		45		MNYY
C71N006E	TURB STOP VALVE TRIP FLUID	LSA	005S	1V	5V	0	200	PSIG		45		MNYY
C71N006F	TURB STOP VALVE TRIP FLUID	LSA	005S	1V	5V	0	200	PSIG		45		MNYY
C71N006G	TURB STOP VALVE TRIP FLUID	LSA	005S	1V	5V	0	200	PSIG		45		MNYY
C71N006H	TURB STOP VALVE TRIP FLUID	LSA	005S	1V	5V	0	200	PSIG		45		MNYY
M71N001A	DRYWELL PRESSURE	LSA	005S	1V	5V	-10	40	PSID		-.15	.45	MNYY
M71N001B	DRYWELL PRESSURE	LSA	005S	1V	5V	-10	40	PSID		-.15	.45	MNYY
N11N038A	HP TURBINE 1ST STG PRESS	LSA	010S	1V	5V	0	1250	PSIG		250	1000	MNYY
N11N038B	HP TURBINE 1ST STG PRESS	LSA	010S	1V	5V	0	1250	PSIG		250	1000	MNYY
N11N049A	RFPT A RHT STM SPLY PRESS	LSA	010S	1V	5V	0	125	PSIG		20	95	MNYY
N11N049B	RFPT B RHT STM SPLY PRESS	LSA	010S	1V	5V	0	125	PSIG		20	95	MNYY
N11N057A	RFPT A EXH PRESS	LSA	010S	1V	5V	0	30	IN HG			24	MNYY
N11N057B	RFPT B EXH PRESS	LSA	010S	1V	5V	0	30	IN HG			24	MNYY
N19N004A	TURB/COND A EXP JT VLV POSN	LSA	010S	2V	10V	0	100	%		0	100	MNYY
N19N004B	TURB/COND B EXP JT VLV POSN	LSA	010S	2V	10V	0	100	%		0	100	MNYY
N19N004C	TURB/COND C EXP JT VLV POSN	LSA	010S	2V	10V	0	100	%		0	100	MNYY
N19N005A	HP COND SHL A PRESS	LSA	005S	1V	5V	0.5	5.5	PSIA		0.5	2.0	MNYY
N19N005B	IP COND SHL B PRESS	LSA	005S	1V	5V	0.5	5.5	PSIA		0.5	1.7	MNYY
N19N005C	LP COND SHL C PRESS	LSA	005S	1V	5V	0.5	5.5	PSIA		0.5	1.4	MNYY
N19N009A	HP COND HWL LEVEL	LSA	010S	1V	5V	0	30	IN		9	21	MNYY
N19N009B	IP COND HWL LEVEL	LSA	010S	1V	5V	0	30	IN		9	21	MNYY
N19N009C	LP COND HWL LEVEL	LSA	010S	1V	5V	0	30	IN		9	21	MNYY
N19N015	CNDS PNPS DISCH HDR PRESS	LSA	001S	1V	5V	0	300	PSIG		150	240	MNYY
N19N021	CNDS PNPS RECIR FLOW	LSA	001S	1V	5V	0	6	MLB/HR			5.5	MNYY
N19N023	CNDS PNPS RECIR VLV POSN	LSA	001S	2V	10V	0	100	%		0	100	MNYY

Table II

POINT ID	COMPUTER DESCRIPTION	TYPE	FREQ	LOSENSR	HISENSR	LOENG	HIENG	EUNITS	SET/LLIM	RST/HLIM	MESSAGE	TIEVAR
M19051	CBP SUCT HDR PRESS	LSA	0015	1V	5V	0	160	PSIG	55		150	MNYI
M19059	CBP RECIRC FLOW	LSA	0015	1V	5V	0	5	MLB/HR	0		4.2	MNYI
M19061	CBP RECIRC FL CONTR VLV POSM	LSA	0015	2V	10V	0	100	%	0		100	MNYI
M19062	CBP DISCH HDR PRESS	LSA	0015	1V	5V	0	600	PSIG	360		570	MNYI
M19066	LP HTR COM OUTL FLOW	LSA	0058	1V	5V	0	15	MLB/HR	0			MNNM
M19120	COND HVL MKUP VLV POSM	LSA	0058	2V	10V	0	100	%	0		100	MNYI
M19122	COND HVL REJ VLV POSM	LSA	0058	2V	10V	0	100	%	0		100	MNYI
M19166	LP HTR OUTL FLOW	LSA	0058	1V	5V	0	8	MLB	0			MNNM
M19R001	CNDS PMPs RECIRC CONT OUT	LSA	0015	1V	5V	0	100	%	0		100	MNYI
M19R004	HOWELL LEVEL CONT OUT	LSA	0058	1V	5V	0	100	%	0		100	MNYI
M19R030	CBP RECIRC FLOW CONT OUT	LSA	0015	1V	5V	0	100	%	0		100	MNYI
M21N037A	RFP A DISCH PRESS	LSA	0105	1V	5V	0	1500	PSIG	1000		1350	MNYI
M21N037B	RFP B DISCH PRESS	LSA	0105	1V	5V	0	1500	PSIG	1000		1350	MNYI
M21N076A	RFP A SUCT PRESS	LSA	0015	1V	5V	0	500	PSIG	135		500	MNYI
M21N078B	RFP B SUCT PRESS	LSA	0015	1V	5V	0	500	PSIG	135		500	MNYI
M21N084A	RFP A RECIRC VLV POSM	LSA	0015	2V	10V	0	100	%	0		100	MNYI
M21N084B	RFP B RECIRC VLV POSM	LSA	0015	2V	10V	0	100	%	0		100	MNYI
M21N087A	RFP A SUCTION FLOW	LSA	0015	1V	5V	0	14	MLB/HR	0			MNNM
M21N087B	RFP B SUCTION FLOW	LSA	0015	1V	5V	0	14	MLB/HR	0			MNNM
M21N088A	RFP A SUCTION FLOW	LSA	0015	1V	5V	0	4	MLB/HR	0			MNNM
M21N088B	RFP B SUCTION FLOW	LSA	0015	1V	5V	0	4	MLB/HR	0			MNNM
M21N114A	RFP A LPSY POSM	LSA	0105	1V	5V	0	100	%	0		100	MNYI
M21N114B	RFP B LPSY POSM	LSA	0105	1V	5V	0	100	%	0		100	MNYI
M21N115A	RFP A LPCV POSM	LSA	0105	1V	5V	0	100	%	0		100	MNYI
M21N115B	RFP B LPCV POSM	LSA	0105	1V	5V	0	100	%	0		100	MNYI
M21N464A	REACTOR FEED PUMP A SPEED	LSA	0055	1V	5V	0	6000	RPM	1200		5000	MNYI
M21N464B	REACTOR FEED PUMP B SPEED	LSA	0055	1V	5V	0	6000	RPM	1200		5000	MNYI
M21R003A	RFP A RECIRC CONT	LSA	0015	1V	5V	0	100	%	0		100	MNYI
M21R003B	RFP B RECIRC CONT	LSA	0015	1V	5V	0	100	%	0		100	MNYI
M22N100	CNDS DEMIN BYPASS VALVE POS	LSA	0058	2V	10V	0	100	%	0		100	MNYI
M22N151	CNDS DEMIN DIFF PRESS	LSA	0058	1V	5V	0	100	PSID	0		4R	MNYM
M22R603	CNDS DEMIN DIFF CONT	LSA	0058	1V	5V	0	100	%	0		100	MNYI
M23N003A	FDW HTR 4A LEVEL	LSA	0055	1V	5V	0	15	IN WC	1.25		4	MNYI
M23N003B	FDW HTR 4B LEVEL	LSA	0055	1V	5V	0	15	IN WC	1.25		4	MNYI
M23N003C	FDW HTR 4C LEVEL	LSA	0055	1V	5V	0	15	IN WC	1.25		4	MNYI
M23N013A	FDW HTR 4A DR VLV POSM	LSA	0058	2V	10V	0	100	%	0		100	MNYI
M23N013B	FDW HTR 4B DR VLV POSM	LSA	0058	2V	10V	0	100	%	0		100	MNYI
M23N013C	FDW HTR 4C DR VLV POSM	LSA	0058	2V	10V	0	100	%	0		100	MNYI
M23N018A	FDW HTR 3A LEVEL	LSA	0055	1V	5V	0	15	IN WC	2.25		4	MNYI
M23N018B	FDW HTR 3B LEVEL	LSA	0055	1V	5V	0	15	IN WC	2.25		4	MNYI
M23N018C	FDW HTR 3C LEVEL	LSA	0058	1V	5V	0	15	IN WC	2.25		4	MNYI
M23N027A	FDW HTR 3A DR VALVE POSITION	LSA	0058	2V	10V	0	100	%	0		100	MNYI
M23N027B	FDW HTR 3B DR VALVE POSITION	LSA	0058	2V	10V	0	100	%	0		100	MNYI
M23N027C	FDW HTR 3C DR VALVE POSITION	LSA	0058	2V	10V	0	100	%	0		100	MNYI
M23N030A	FDW HTR 2A LEVEL	LSA	0055	1V	5V	0	15	IN WC	2.125		6	MNYI
M23N030B	FDW HTR 2B LEVEL	LSA	0055	1V	5V	0	15	IN WC	2.125		6	MNYI
M23N030C	FDW HTR 2C LEVEL	LSA	0058	1V	5V	0	15	IN WC	2.125		6	MNYI
M23N036A	FDW HTR 2A DRAIN FLOW	LSA	0105	1V	5V	0	600	KL8/HR	50		575	MNYI
M23N036B	FDW HTR 2B DRAIN FLOW	LSA	0105	1V	5V	0	600	KL8/HR	50		575	MNYI
M23N036C	FDW HTR 2C DRAIN FLOW	LSA	0105	1V	5V	0	600	KL8/HR	50		575	MNYI

POINT ID	COMPUTER DESCRIPTION	TYPE	FREQ	LOSEMSR	HISEMSR	LOENG	HIENG	EUNITS	SET/LLIM	RST/HLIM	MESSAGE	TIEVAR
N23N041A	FDW HTR 2A DR VALVE POSITION	LSA	0055	2V	10V	0	100 %	0	0	0	100	NNYY
N23N041B	FDW HTR 2B DR VALVE POSITION	LSA	0055	2V	10V	0	100 %	0	0	0	100	NNYY
N23N041C	FDW HTR 2C DR VALVE POSITION	LSR	0055	2V	10V	0	100 %	0	0	0	100	NNYY
N23N050A	FDW HTR 1A DRAIN FLOW	LSA	0105	1V	5V	0	120 KLB/HR	5	5	5	110	NNYY
N23N050B	FDW HTR 1B DRAIN FLOW	LSA	0105	1V	5V	0	120 KLB/HR	5	5	5	110	NNYY
N23N050C	FDW HTR 1C DRAIN FLOW	LSA	0105	1V	5V	0	120 KLB/HR	5	5	5	110	NNYY
N23N061A	FDW HTR 6A LEVEL	LSA	0055	1V	5V	0	15 IN WC	0	0	0	6	NNYY
N23N061B	FDW HTR 6B LEVEL	LSA	0055	1V	5V	0	15 IN WC	0	0	0	6	NNYY
N23N064A	FDW HTR 6A DRAIN FLOW	LSA	0105	1V	5V	0	2.5 MLB/HR	0.3	0.3	0.3	2.4	NNYY
N23N064B	FDW HTR 6B DRAIN FLOW	LSA	0105	1V	5V	0	2.5 MLB/HR	0.3	0.3	0.3	2.4	NNYY
N23N066A	FDW HTR 6A DRAIN VALVE POSN	LSA	0055	2V	10V	0	100 %	0	0	0	100	NNYY
N23N066B	FDW HTR 6B DRAIN VALVE POSN	LSA	0055	2V	10V	0	100 %	0	0	0	100	NNYY
N23N082	HTR DR TK LEVEL	LSA	0055	1V	5V	0	50 IN WC	6	6	6	18	NNYY
N23N090A	HTR DR PMP A DISCH FLOW	LSA	0105	1V	5V	0	4 MLB/HR	0.6	0.6	0.6	3.2	NNYY
N23N090B	HTR DR PMP B DISCH FLOW	LSA	0105	1V	5V	0	4 MLB/HR	1.4	1.4	1.4	3.4	NNYY
N23N091A	HTR DR TK CONT VLV POSN	LSA	0055	2V	10V	0	100 %	0	0	0	100	NNYY
N23N091B	HTR DR TK CONT VLV POSN	LSA	0055	2V	10V	0	100 %	0	0	0	100	NNYY
N23N105	HTR DR PUMP DISCH HDR PRESS	LSA	0105	1V	5V	0	800 PSIG	250	250	250	570	NNYY
N23R046A	HTR 4A NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N23R046B	HTR 4B NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N23R046C	HTR 4C NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N23R048A	HTR 3A NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N23R048B	HTR 3B NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N23R048C	HTR 3C NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N23R050A	HTR 2A NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N23R050B	HTR 2B NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N23R050C	HTR 2C NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N23R052A	HTR 6A NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N23R052B	HTR 6B NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N23R053	HTR DR TK NORM VLV CONT OUT	LSA	0055	1V	5V	0	100 %	0	0	0	100	NNYY
N30N020	THRUST BEARING REAR LEFT TEM	LSA	0105	1V	5V	0	300 F	0	0	0	190	NNYM
N30N023A	MAIN CONT VALVE 4 POSN	LSA	0015	4MA	20MA	0	100 %	0	0	0	100	NNYY
N30N023B	MAIN CONT VALVE 3 POSN	LSA	0015	4MA	20MA	0	100 %	0	0	0	100	NNYY
N30N023C	MAIN CONT VALVE 2 POSN	LSA	0015	4MA	20MA	0	100 %	0	0	0	100	NNYY
N30N023D	MAIN CONT VALVE 1 POSN	LSA	0015	4MA	20MA	0	100 %	0	0	0	100	NNYY
N30N034	THRUST BRG FRONT LEFT TEMP	LSA	0105	1V	5V	0	300 F	0	0	0	190	NNYM
N30N035A	LP TURB A LS CV POSN	LSA	0055	4MA	20MA	0	100 %	0	0	0	100	NNYY
N30N035B	LP TURB B LS CV POSN	LSA	0055	4MA	20MA	0	100 %	0	0	0	100	NNYY
N30N035C	LP TURB C LS CV POSN	LSA	0105	4MA	20MA	0	100 %	0	0	0	100	NNYY
N30N036A	LP TURB A RS CV POSN	LSA	0055	4MA	20MA	0	100 %	0	0	0	100	NNYY
N30N036B	LP TURB B RS CV POSN	LSA	0055	4MA	20MA	0	100 %	0	0	0	100	NNYY
N30N036C	LP TURB C RS CV POSN	LSA	0105	4MA	20MA	0	100 %	0	0	0	100	NNYY
N30N056	LP2 TURB FR BRG BOT R TEMP	LSA	0105	1V	5V	0	300 F	0	0	0	190	NNYM
N30N057	LPI TURB RE BRG BOT L TEMP	LSA	0105	1V	5V	0	300 F	0	0	0	190	NNYM
N31K601	TURB SPEED	LSA	0015	4MA	20MA	0	2100 RPM	1710	1710	1710	1850	NNYY
N33N074A	SEAL STM GEM OUTL VLV POSN	LSA	0105	4MA	20MA	0	100 %	0	0	0	100	NNYY
N33N074B	SEAL STM CV B POSN	LSA	0105	4MA	20MA	0	100 %	0	0	0	100	NNYY
N33N081	SSC HTG STM VLV POSN	LSA	0105	1V	5V	0	100 %	0	0	0	100	NNYY
N33R617	SSC OUTL PRESS CONT	LSA	0105	0V	10V	0	100 %	0	0	0	100	NNYY
N34N015	OIL DOWNSTREAM PUMPS PRESS	LSA	0105	1V	5V	0	200 PSIG	40	40	40	160	NNYY

POINT ID	COMPUTER DESCRIPTION	TYPE	FREQ	LOSENSR	HISENSR	LOENG	HIENG	EUNITS	SET/LLIM	RSI/HLIM	MESSGE	TIEVAR
N35N002A	MSTRE SEP DR TK A LEVEL	LSA	005S	1V	5V	0	25	IN WC			17.5	NNYY
N35N002B	MSTRE SEP DR TK B LEVEL	LSA	005S	1V	5V	0	25	IN WC			17.5	NNYY
N35N006A	MSTRE SEP SHL DR TK A LVL	LSA	005S	1V	5V	0	25	IN WC	5		15.5	NNYY
N35N006B	MSTRE SEP SHL DR TK B LVL	LSA	005S	1V	5V	0	25	IN WC	5		15.5	NNYY
N35N009A	MSTRE SEP DR TK A DR FLOW	LSA	010S	1V	5V	0	1.4	MLB/HR			1.4	NNYN
N35N009B	MSTRE SEP DR TK B DR FLOW	LSA	010S	1V	5V	0	1.4	MLB/HR			1.4	NNYN
N35N010A	MSTRE SEP DR TK A	LSA	005S	2V	10V	0	100	%		0	100	NNYY
N35N010B	MSTRE SEP DR TK B	LSA	005S	2V	10V	0	100	%		0	100	NNYY
N35N012A	1 STG RHTR DR TK A LEVEL	LSA	005S	1V	5V	0	25	IN WC			15.5	NNYN
N35N012B	1 STG RHTR DR TK B LEVEL	LSA	005S	1V	5V	0	25	IN WC			15.5	NNYN
N35N020A	1 STG RHR DR TK A DR FLOW	LSA	010S	1V	5V	0	500	KLB/HR			350	NNYN
N35N020B	1 STG RHR DR TK B DR FLOW	LSA	010S	1V	5V	0	500	KLB/HR			350	NNYN
N35N021A	1 STG RHR DR TK A DR VLV	LSA	005S	2V	10V	0	100	%		0	100	NNYY
N35N021B	1 STG RHR DR TK B DR VLV	LSA	005S	2V	10V	0	100	%		0	100	NNYY
N35N024A	2 STG RHR DR TK A LEVEL	LSA	005S	1V	5V	0	25	IN WCV			5.5	NNYY
N35N024B	2 STG RHR DR TK B LEVEL	LSA	005S	1V	5V	0	25	IN WCV			5.5	NNYY
N35N031A	2STG RHR DR TK A DR FLOW	LSA	010S	1V	5V	0	900	KLB/HR			470	NNYN
N35N031B	2STG RHR DR TK B DR FLOW	LSA	010S	1V	5V	0	900	KLB/HR			470	NNYN
N35N032A	2STG RHR DR TK A DR VLV POSN	LSA	005S	2V	10V	0	100	%		0	100	NNYY
N35N032B	2STG RHR DR TK B DR VLV POSN	LSA	005S	2V	10V	0	100	%		0	100	NNYY
N35N038A	SEP SHL DR TK A DR VLV POSN	LSA	005S	2V	10V	0	100	%		0	100	NNYY
N35N038B	SEP SHL DR TK B DR VLV POSN	LSA	005S	2V	10V	0	100	%		0	100	NNYY
N35N041A	MSTRE SEP SHELL DR TK FLOW	LSA	005S	1V	5V	0	750	KLB/HR			450	NNYN
N35N041B	MSTRE SEP SHELL DR TK FLOW	LSA	005S	1V	5V	0	750	KLB/HR			450	NNYN
N35R041A	MSR DR TK NORM VLV CONT OUT	LSA	005S	1V	5V	0	100	%		0	100	NNYY
N35R041B	MSR DR TK NORM VLV CONT OUT	LSA	005S	1V	5V	0	100	%		0	100	NNYY
N35R043A	1STG DR TK NORM VLV CONT OUT	LSA	005S	1V	5V	0	100	%		0	100	NNYY
N35R043B	1STG DR TK NORM VLV CONT OUT	LSA	005S	1V	5V	0	100	%		0	100	NNYY
N35R043A	2STG DR TK NORM VLV CONT OUT	LSA	005S	1V	5V	0	100	%		0	100	NNYY
N35R043B	2STG DR TK NORM VLV CONT OUT	LSA	005S	1V	5V	0	100	%		0	100	NNYY
N35R045A	2STG DR TK NORM VLV CONT OUT	LSA	005S	1V	5V	0	100	%		0	100	NNYY
N35R045B	2STG DR TK NORM VLV CONT OUT	LSA	005S	1V	5V	0	100	%		0	100	NNYY
N35R056A	SEP SHL DR TK A NORM CONT	LSA	005S	1V	5V	0	100	%		0	100	NNYY
N35R056B	SEP SHL DR TK B NORM CONT	LSA	005S	1V	5V	0	100	%		0	100	NNYY
N41K601	GEN LOAD DEMAND LIMITED MW	LSA	001S	4MA	20MA	0	1400	MW			1372.5	NNYN
N41N203	WTR CONN HDR VIB RESULTANT 2	LSA	005S	4MA	20MA	0	30	MILS			24	NNYN
N41N784	NAIN GEN VARS	LSA	010S	1V	5V	-1000	1000	MVAR	-330		670	NNYY
N41N785	NAIN GEN WATTS	LSA	001S	0V	4.5V	0	1400	MW	280		1372.5	NNYN
N43N240	PW STATOR CIRCUIT LOW FLOW	LSA	010S	4MA	20MA	0	725	GPM	55		700	NNYY
N43N241	PW ROTOR CIRCUIT LOW FLOW	LSA	010S	4MA	20MA	0	725	GPM	614		700	NNYY
N43N242	PW PHASE A CIRCUIT LOW FLOW	LSA	010S	4MA	20MA	0	30	GPM	24		28	NNYY
N43N243	PW PHASE B CIRCUIT LOW FLOW	LSA	010S	4MA	20MA	0	30	GPM	24		28	NNYY
N43N244	PW PHASE C CIRCUIT LOW FLOW	LSA	010S	4MA	20MA	0	30	GPM	24		28	NNYY
N62N013A	SJAE A STEAM FLOW	LSA	010S	1V	5V	0	13.5	KLB/HR	3		11	NNYY
N62N013B	SJAE B STEAM FLOW	LSA	010S	1V	5V	0	13.5	KLB/HR	3		11	NNYY
N62N015A	2 STG SJAE A SUCTION FLOW	LSA	010S	1V	5V	0	994	LB/HR	200		800	NNYY
N62N015B	2 STG SJAE B SUCTION FLOW	LSA	010S	1V	5V	0	994	LB/HR	200		800	NNYY
P47N005	RADIAL WELL PMP COM DISCH	LSAS	002S	1V	5V	0	150	PSIG	60		115	NNYY
P53N007	SUPPLY HEADER PRESSURE	LSAS	010S	1V	5V	0	125	PSI	95		125	NNYY
P53N008	INSTR. AIR DISCH HDR PRESS	LSA	010S	1V	5V	0	150	PSIG	95		130	NNYY

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Table III

CONTROL ROOM PANEL METER INDICATIONS AVAILABLE

<u>System/Parameter</u>	<u>Control Room Indication</u>	<u>Recorded on Round Sheet</u>
RCIC System		
Flow	Yes	No
Main Steam Pressure to the Turbine	Yes	No
Turbine Speed	Yes	No
Turbine Exhaust Pressure	Yes	No
Pump Suction Pressure	Yes	No
Pump Discharge Pressure	Yes	No
RCIC Controller	Yes	No
HPCS System		
Pump Discharge Pressure	Yes	No
Pump Flow	Yes	No
Selected Valve Positions	Yes	No
Recirc System		
A/B Recirc Pump Differential Pressure	Yes	Yes
A/B Loop Flow	Yes	Yes
A/B Pump Speed	Yes	Yes
A/B Pump Motor Amperage	Yes	Yes
Recirc Flow Controllers	Yes	Yes
Feedwater System		
RFP Suction	Yes	No
RFP Discharge Pressure	Yes	Yes
Turbine Control Valve Position	Yes	No

Table III

<u>System/Parameter</u>	<u>Control Room Indication</u>	<u>Recorded on Round Sheet</u>
RFP Turbine Speed	Yes	No
Feedwater System Controllers	Yes	No
RHR/LPCS System		
RHR Pump A, B and C Amps	Yes	No
Service Water Flow to RHR Heat Exchangers	Yes	No
RHR Pump A, B, and C Flow	Yes	No
RHR Hx A, B Level	Yes	No
RHR Hx's to RCIC Pressure	Yes	No
RHR Hx's A, B Pressure	Yes	No
RHR A Head Spray Flow	Yes	No
Selected Valve Positions	Yes	No
Hx A, B Outlet Conductivity	Yes	No
RHR Controllers	Yes	No
LPCS System		
LPCS Pump Amps	Yes	No
LPCS System Flow	Yes	No
ADS		
SRV Tailpipe Temperature Recorder	Yes	No
DG (1, 2 and 3)		
Fuel Day Tank Level	Yes	Yes
Fuel Storage Tank Level	Yes	Yes
DG Field Amps	Yes	No
DG Field Volts	Yes	No
DG Vars	Yes	No

Table III

<u>System/Parameter</u>	<u>Control Room Indication</u>	<u>Recorded on Round Sheet</u>
DG Watts	Yes	No
DG rpm	Yes	No
DG ϕ Amps	Yes	No
DG A-B ϕ Volts	Yes	No
Div Battery Volts	Yes	Yes
Emergency Bus Volts	Yes	Yes
Incoming Bus Volts	Yes	No
Running Bus Volts	Yes	No
Synchroscope	Yes	No

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GGNS UNIT
 POST TRIP ANALYSIS
 *-SCRAM NO. _____

TIME/DATE OF INITIATING EVENT _____
 SIGNIFICANT PRE-TRIP _____
 ACTIVITIES POTENTIALLY _____
 CONTRIBUTING TO TRANSIENT _____
 (i.e. Surveillance Testing, _____
 Instrument Calibrations, _____
 Routine Maintenance, Power _____
 Changes, System Lineups, _____
 etc.) _____

*Obtain scram number from Reference 3.7.

PLANT CONDITIONS PRIOR TO INITIATING EVENT

		DATA SOURCE
Reactor Thermal Power	_____ %	_____
Total Core Flow	_____ %	_____
RPV Water Level	_____ inches	_____
RPV Pressure	_____ psig/psia	_____
Generator Output	_____ MWe	_____
Steam Flow	_____ LB/HR	_____
FW Flow	_____ LB/HR	_____
Offgas & Radwaste BLDG. Vent Activity	_____ MR/HR	_____
Mode Switch Position	_____	
Flow Control Mode	_____	

Neutron-Flux Monitored by: APRM IRM SRM
 Specify IRM Ranges if Known

A _____	B _____
C _____	D _____
E _____	F _____
G _____	H _____

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ON-SHIFT ANALYSIS

1. Obtain the data listed below. If unavailable, explain. Attach to this data package.

Attached (Yes/No)

- a) Sequence of Events log from BOP Alarm Typer _____
- b) BOP Post Trip Log from BOP on-demand Typer _____
- c) Sequence of events log from NSSS Alarm Typer _____
- d) NSSS Post Trip Log from NSSS Alarm Typer _____
- e) Recent copies of OD-3, OD-7 and P1 (OD-17) _____
- f) Plots of the following parameters as needed from Getars Sentinel Program:

<u>Channel</u>	<u>Parameter</u>	<u>Included yes/no</u>
15	A Recirc Loop Temperature	_____
16	B Recirc Loop Temperature	_____
66	Narrow Range Level	_____
67	Narrow Range Dome Pressure	_____
68	Wide Range Dome Pressure	_____
73	Total Steamline Flow	_____
107	Condenser Vacuum	_____
112	APRM B	_____
166	Total Core Flow	_____
170	Vessel Bottom Head Drain Temp	_____
174	APRM A	_____
215	APRM C	_____
223	Wide Range Level	_____
384	APRM D	_____
197	RCIC Pump Flow	_____
219	HPCS Flow	_____
248	"A" RHR System Flow	_____
256	LPCS Flow	_____
287	"A" HP Control Valve Position	_____
---	_____	_____
---	_____	_____
---	_____	_____
---	_____	_____

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ON-SHIFT ANALYSIS
(CON'T)

- g) Copies of shift logs, turnover sheets, and appropriate chart recordings (See Attachment 3, Table 1 for a list of recorders of possible interest.) _____
 - h) Written statements from individuals involved in the event. (Reactor operator, technician, Shift Supervisor, etc.) _____
 - i) A copy of the Incident Report generated _____
 - j) A Copy of the NSSS I/O typer output _____
 - k) Any other information considered important (specify) _____
2. From the NSSS sequence of events log, fill in the following information:
- RPS Channel A trip time _____
- Parameter causing trip _____ time _____
- RPS Channel B trip time _____
- Parameter causing trip _____ time _____
- Time of manual scram _____
3. Verify that RPS operated properly by verifying that the first tripped parameter in each RPS channel caused the RPS channel to trip prior to manual scram. (N/A if manual scram was initiating event). Verified: STA OR SS initials.
4. Attempt to verify using the GETARS PLOTS and installed recorder charts that the limiting safety system settings listed in Attachment III, Table 2 were not exceeded without an RPS trip signal. Verified: STA or SS initials.

If unable to verify, explain why.

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ON-SHIFT ANALYSIS
(CON'T)

5. Ensure that the GETARS Sentinel program data, if obtained, is transferred from disc to mag tape. Label the tape with date, time and scram number.

6. Did an isolation occur: Yes/No If yes, then list type, cause, and time:

7. Did any of the following ECCS systems initiate: Yes/No

Actuation signal Time Operation sat?

HPCS
LPCS
LPCI A
LPCI B
LPCI C
ADS

8. Did RCIC initiate: Yes/No If yes, then list cause and time and steady state flow rate.

9. Did one or more SRV's open? Yes/No If yes, list valve number(s) and time of opening. List data sources used for determination.

10. Did a turbine trip occur: Yes/No
Cause Time

11. Did a Recirc FCV runback occur? Yes/No
Cause Time

12. Did a Recirc pump trip occur: Yes/No
Cause Time

13. Did an automatic Recirc Pump transfer to the LFMG occur? Yes/No
Cause Time

14. Was there any abnormal radiological response?
List any abnormal change in area radiation monitoring, process radiation monitoring, and environmental radiation monitoring indications.

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ON-SHIFT ANALYSIS
(CON'T)

15. What is the probable cause of the Reactor trip?

16. List any components or systems for which a malfunction or trip was observed and the time if known.

17. Fill in the indicated data for the transient:

	MAX	MIN	DATA SOURCE
a) Steam Dome Pressure	_____	_____	_____
b) Reactor Vessel Water Level	_____	_____	_____
c) Average APRM Reading	_____	N/A	_____
d) Recirculation loop flow A	_____	_____	_____
B	_____	_____	_____

Verify that the Technical Specifications Safety Limits were not exceeded.

STA or SS

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ON-SHIFT ANALYSIS
(CON'T)

18. Classify the event into one of the following categories:

Class I - The cause of the trip is positively known and has been corrected; all Safety-Related and other important equipment functioned properly during the trip.

Class II - The cause of the trip is positively known and has been corrected; some Safety-Related equipment did not function properly; however, the malfunction has been corrected or a Technical Specification constraint does not prohibit a startup.

Class III - The cause of the trip is not positively known.

Class IV - Some Safety-Related and/or other important equipment functioned in an abnormal or degraded manner during the trip and the malfunction has not been corrected or prevents startup due to Technical Specification constraints.

EVENT CLASSIFICATION _____

Performed by _____
SRO or STA / Date / Time

Concurrence _____
Shift Superintendent / Date / Time

19. Duty manager notified _____
Name / Date / Time Notifier

Comments _____

XREF: LCO _____
IR _____
MNCR _____
TWR _____
PQDR _____
MWO _____

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ON-SHIFT ANALYSIS
(CON'T)

POST TRIP SUMMARY (Describe the sequence of significant events leading to the transient up to achieving post-transient control of the plant. Discuss any equipment operating problems or anomalies, as well as any unusual operator action taken to mitigate the consequences of the transient.)

NOTE

It is permissible to attach copies of the appropriate Shift Log Book entries or additional sheets as necessary.)

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SAMPLE FORMAT

Post Trip Analysis Report

Scram Number _____ Date/Time ____/____

I. SUMMARY

- A. Narrative of the Event
- B. Statement of the cause of the reactor scram (automatic or manual)
- C. Statement of adequate safety system performance
- D. Chronological tabulation of events

II. Verification of On-Shift Analysis

- A. Statement of Concurrence
- B. Discrepancies noted in On-Shift Analysis method and results

III. Summary of Corrective Action

- A. Results of investigative action
- B. Results of corrective action

IV. Observations/Recommendations

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Table 1

RECORDERS AND STRIP CHARTS
OF INTEREST

<u>PARAMETER</u>	<u>PANEL</u>	<u>INSTRUMENT NO.</u>
IRM/APRM	1H13-P680-5B	1C51-NR-R603A (CH E-RED PEN) (CH A-BLUE PEN)
IRM/APRM	1H13-P680-5B	1C51-NR-R603C (CH G-RED PEN) (CH C-BLUE PEN)
IRM/APRM	1H13-P680-7B	1C51-NR-R603B (CH F-RED PEN) (CH B-BLUE PEN)
IRM/APRM	1H13-P680-7D	1C51-NR-R603D (CH H-RED PEN) (CH D-BLUE PEN)
RECIRC LOOP SUCTION TEMP	1H13-P614	B33-R604
VESSEL, HEAD FLANGE & DRAIN LINE TEMPS	1H13-P614	B21-TR-R643
RADWASTE VENT. EXH. RAD. LEVEL	1H13-P600	D17-R600 (RED PEN -CPM)
OFFGAS PRETREATMENT RAD MONITOR	1H13-P600	U17-R604(CPM)
OFFGAS POST-TREATMENT RAD MONITOR	1H13-P600	D17-R601 BLACK-TRAIN A (MR/HR) RED-TRAIN B (MR/HR)
DRYWELL PRESS	1H13-P870-3B	1M71-PDR-R601A (RED PEN)
DRYWELL PRESS	1H13-P870-9B	1M71-PDR-R601B (RED PEN)
DOME PRESS (WIDE RANGE)	1H13-P601-20B	B21-UR-R623A (BLUE PEN)

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Table 1 (Continued)RECORDERS AND STRIP CHARTSOF INTEREST

<u>PARAMETER</u>	<u>PANEL</u>	<u>INSTRUMENT NO.</u>
VESSEL LEVEL (WIDE RANGE)	1H13-P601-17B	B21-UR-R623B (RED PEN)
DOME PRESS (NARROW RANGE)	1H13-P680-9B	C34-R609
VESSEL LEVEL (UPSET RANGE)	1H13-P680-2B	C34-UR-R615 (GREEN PEN)
VESSEL LEVEL (WIDE RANGE)	1H13-P680-2B	C34-UR-R615 (BLUE PEN)

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Table 2

RPS EVALUATION DATA

COMPUTER POINT	PARAMETER	TRIP STPT.	ALLOWABLE VALUE
C51NC031 thru C51NC038	IRM, High	\leq 120/125	\leq 122/125
C51NC061 thru C51NC068	APRM Neutron Flux High	\leq 15% RTP	\leq 20% RTP
C51NC061 thru C51NC068	APRM Neutron Flux High	\leq 118% RTP	\leq 120% RTP
C51NC071 thru C51NC078	FLOW BIASED APRM Thermal Flux High	\leq .66 w + 48%. Max \leq 111% RTP	\leq .66 w + 51 Max 113% RTP
B21NC001 thru B21NC004	RPV Pressure, High	\leq 1064.7 psig	\leq 1079.7 psig
B21NC051 thru B21NC054	RPV Level, High	\leq 53.5 in	\leq 54.1 in
B21NC005 thru B21NC008	RPV Level, Low	\geq 11.4 in	\geq 10.8 in
B21NC047 thru B21NC050	MSIV-Closure	\leq 6% Closed	\leq 7% Closed
D17NC001 thru D17NC004	MS Line Radiation, High	\leq 3.0 x FPB	\leq 3.6 x FPB
C71NC001 thru C71NC004	Drywell Press High	\leq 1.23 psig	\leq 1.43 psig
C11NC033 thru C11NC036	SDV Level, High	\leq 60%	\leq 63%
C71NC013 thru C71NC016	TSV-Closure (Low Oil Press)	\geq 40 psig	\geq 37 psig
C71NC017 thru C71NC020	ICVFC- (Low Oil Press)	\geq 44.3 psig	\geq 42 psig
G-237 C71L610#	Reactor Mode Switch - Shutdown	N/A	N/A
C71M600A, C71M600B	Man SCRAM CHA & C CHB & D	N/A	N/A

Unless otherwise denoted by a "#" all points are also available from NSSS Computer under an equivalent NSSS Computer Point Number.

*SOE Point

Table 3
NSSS ISOLATION DATA

BOP COMPUTER POINT	PARAMETER	NOMINAL TRIP STPT.	ALLOWABLE TRIP STPT.
<u>PRIMARY CONTAINMENT ISOLATION</u>			
** M71L604A/B - DIV 1 & 2 ISOLATION			
N/A	RPV Level, Low	≥ -41.6 in	≥ -43.8 in
N/A	Drywell Press., High	≥ 1.23 psig	≤ 1.43 psig
D17L642A,B #	Cont & D/W Vent Exh. Rad., High	≤ 2.0 mr/hr	≤ 4.0 mr/hr
B21L606 #	MANUAL	N/A	N/A
<u>SECONDARY CONTAINMENT ISOLATION</u>			
** M71L606A/B - DIV 1 & 2 AUX ISOLATION			
N/A	RPV LEVEL, Low	≥ -41.6 in	≥ -43.8 in
N/A	Drywell Press., High	≤ 1.23 psig	≤ 1.43 psig
D17L611 #	Fuel Handling Exh. Rad., Area Vent High - High	≤ 2.0 mR/Hr	≤ 4.0 mR/Hr
D17L646A,B	Fuel Handling Area Pool Sweep Rad., High - High	≤ 18 mR/Hr	≤ 35 mR/Hr
B21L606 #	MANUAL	N/A	N/A

Unless otherwise denoted by a "**" all points are also available from the NSSS Computer under an equivalent NSSS Computer Point Number.

*SOE Point

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Table 3 (Continued)

NSSS ISOLATION RESPONSE EVALUATION

BOP COMPUTER POINT	PARAMETER	NOMINAL TRIP STPT.	ALLOWABLE TRIP STPT.
<u>MAIN STEAM LINE ISOLATION</u>			
*# B21J100A-D-	MSL ISOLATION CHA THRU D		
N/A	RPV Level 1 Low	≥ -150.3 in	≥ -152.5 in
D17L633A,B #	MS Line Radiation High	$\leq 3.0 \times$ FPB	$\leq 3.6 \times$ FPB
B21L603 #	MS Line Pressure, Low	≤ 849 psig	≤ 837 psig
E31N686A thru E31N686D	MS Line Flow, High	≤ 169 psid	≤ 176.5 psid
N/A	Condenser Vacuum	≥ 9 in. Hg Vac	≥ 8.9 in. Hg Vac
E31L619A #	MS Line Tunnel Temp, High	$\leq 185^\circ$ F	$\leq 191^\circ$ F
E31L620A	MS Line Tunnel DT, High	$\leq 101^\circ$ F	$\leq 104^\circ$ F
B21L606 #	MANUAL	N/A	N/A

Unless otherwise denoted by a "#" all points are also available from the NSSS Computer under an equivalent NSSS Computer Point Number.

*SOE Point

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Table 3 (Continued)

NSSS ISOLATION RESPONSE EVALUATION

BOP COMPUTER POINT	PARAMETER	NOMINAL TRIP STPT.	ALLOWABLE TRIP STPT.
<u>RWCU ISOLATION</u>			
E31L614 #	Differential Flow, High	≥ 79 gpm	≤ 89 gpm
E31L634 #	Differential Flow, Timer	≤ 45 Sec	≤ 57 sec
E31L616A #	Hx Room Temp, High	$\leq 120^\circ\text{F}$	$\leq 126^\circ\text{F}$
E31L616B,C #	Pump Room Temp, High	$\leq 170^\circ\text{F}$	$\leq 176^\circ\text{F}$
E31L616D #	Vlv Nest Room Temp, High	$\leq 135^\circ\text{F}$	$\leq 141^\circ\text{F}$
E31L616E,F #	RWCU Demin Room Temp, High	$\leq 139^\circ\text{F}$	$\leq 141^\circ\text{F}$
E31L616H	RWCU Tank Room. Temp, High	$\leq 139^\circ\text{F}$	$\leq 145^\circ\text{F}$
E31L620B	Equipment Area DT High	Var.	Var.
E31L616G	RWCU Demin Valve Room, Temp, High	$\leq 135^\circ\text{F}$	$\leq 141^\circ\text{F}$
N/A	RPV Level, Low	≥ -41.6 in	≥ -43.8 in
E31L619A #	MS Line Tunnel Temp, High	$\geq 185^\circ\text{F}$	$\leq 191^\circ\text{F}$
E31L620A #	MSL Tunnel DT, High	$\leq 101^\circ\text{F}$	$\leq 104^\circ\text{F}$
N/A	SLCS Initiation	N/A	N/A
B21L606	MANUAL	N/A	N/A

Unless otherwise denoted by a "#" all points are also available from the NSSS Computer under an equivalent NSSS Computer Point Number.

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Table 3 (Continued)

RCIC ISOLATION DATA

BOP COMPUTER POINT	PARAMETER	NOMINAL TRIP STPT.	ALLOWABLE TRIP STPT.
E31L601A,B #	RCIC Steam Line DP, High	$\leq 363'' \text{ H}_2\text{O}$	$\leq 371'' \text{ H}_2\text{O}$
E31L600A,B #	RCIC Steam Supply Press, Low	$\geq 60 \text{ psig}$	$\geq 53 \text{ psig}$
E51L610A,B #	RCIC Turbine Exh. Diaph. Press, High	$\leq 10 \text{ psig}$	$\leq 20 \text{ psig}$
N/A	RCIC Equip Room Temp, ° High	$\leq 185^\circ\text{F}$	$\leq 191^\circ\text{F}$
N/A	RCIC Equip Room DT, High	$\leq 125^\circ\text{F}$	$\leq 128^\circ\text{F}$
E31L619A #	MSL Tunnel Temp, High	$\leq 185^\circ\text{F}$	$\leq 191^\circ\text{F}$
E31L620A #	MSL Tunnel DT, High	$\leq 101^\circ\text{F}$	$\leq 104^\circ\text{F}$
N/A	MSL Tunnel Temp, Timer	$\leq 30 \text{ min}$	$\leq 30 \text{ min}$
E31L619C #	RHR Equip Room Temp, High	$\leq 165^\circ\text{F}$	$\leq 171^\circ\text{F}$
E31L620C #	RHR Equip Room DT, High	$\leq 99^\circ\text{F}$	$\leq 102^\circ\text{F}$
N/A	RHR/RCIC Steam Flow, High	$\leq 145'' \text{ H}_2\text{O}$	$\leq 160'' \text{ H}_2\text{O}$
N/A	MANUAL	N/A	N/A
B21N69 A,C,R,T,	Drywell Press., High	$\leq 1.39 \text{ psig}$	$\leq 1.44 \text{ psig}$

Unless otherwise denoted by a "#" all points are also available from the NSSS Computer under an equivalent NSSS Computer Point Number.

Table 3 (Continued)

ECCS ACTUATIONS & INTERLOCKS DATA

BOP COMPUTER POINT	PARAMETER	NOMINAL TRIP STPT.	ALLOWABLE TRIP STPT.
<u>LPCI/LPCS INITIATION</u>			
E12L611A#	RHR SYSTEM 1 ACTIVATED		
E12L611B#	RHR SYSTEM 2 ACTIVATED		
E12L605#	RHR HT EXCH CLG WATER IN TEMP		
B21N691 A,E,B,F	RPV Level, Low	≥ -150.3 in.	≥ -152.5 in.
B21N694 A,E,B,F	Drywell Press., High	≤ 1.39 psig	≤ 1.44 psig
N/A	LPCI A/B Start Time Delay	≤ 5 sec	≤ 5.25 sec
N/A	MANUAL	N/A	N/A
<u>HPCS INITIATION</u>			
B21N673 C,L,G,R	RPV Level, Low	≥ -41.6 in.	≥ -43.8 in.
B21N667 C,L,G,R	Drywell Press, High	≤ 1.39 psig	≤ 1.44 psig
E22L509 #	MANUAL Initiation	N/A	N/A
C34L604*# B21-N683A thru B21N683B	RPV Level, High	≤ 53.5 in.	≤ 55.7 in.
E22L600 #	CST Level, Low	≥ 0 inches	≥ -3 inches
E22L603 #	Suppression Pool Level, High	≤ 5.9 in.	≤ 6.5 in.

Unless otherwise denoted by a "#" all points are also available from the NSSS Computer under an equivalent NSSS Computer Point Number.

* SOE Point

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Table 3 (Continued)

ADS INITIATION

BOP COMPUTER POINT	PARAMETER	NOMINAL TRIP STPT.	ALLOWABLE TRIP STPT.
B21L610 A,E,B,F #	- ADS LOGIC A,E,B,F		
B21N680A thru B21N680D	RPV Level, Low (Permissive)	\geq 11.4 in.	\geq 10.8 in.
B21N691 A,E,B,F	RPV Level, Low	\geq 150.3 in.	\geq 152.5 in.
B21N694 A,E,B,F	Drywell Pressure, High	\leq 1.39 psig	\leq 1.44 psig
N/A	ADS Timer	\leq 105 sec	\leq 117 sec
E21N653	LPCS Discharge Press, High (Permissive)	145 psig (Increasing)	125-165 psig (Increasing)
E12N656A thru E12N6456C	LPCI Disch. Press High (Permissive)	125 psig (Increasing)	(A) 115-135 (B/C) 115 psig (Increasing)
B21L615A,B #	MANUAL	N/A	N/A

Unless otherwise denoted by a "#" all points are also available from the NSSS Computer under an equivalent NSSS Computer Point Number.

* SOE Point

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Table 3 (Continued)

ATWS TRIPS

BOP COMPUTER POINT	PARAMETER	NOMINAL TRIP STPT.	ALLOWABLE TRIP STPT.
B33L609A B33L609B	RPT A RPT B	N/A	N/A
N/A	RPV Level, Low	≥ -41.6 in.	≥ -43.8 in.
N/A	RPV Pressure High	≤ 1125 psia	≤ 1140 psig
<u>END-OF-CYCLE RPT (TO LFMC)</u>			
C71N605A thru C71N605D	TCV-Closure (Low Oil Pressure)	≥ 40 psig	≥ 37 psig
C71N606A thru C71N606D	TSV-Closure (Low Oil Pressure)	≥ 44.3 psig	≥ 42 psig

Unless otherwise denoted by a "#" all points are also available from the NSSS Computer under an equivalent NSSS Computer Point Number.

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Table 3 (Continued)

RCIC ACTUATIONS AND INTERLOCKS

BCP COMPUTER POINT	PARAMETER	NOMINAL TRIP STPT.	ALLOWABLE TRIP STPT.
N/A	RPV Level, Low	≥ -41.6 in.	≥ -43.8 in.
E51L618 #	MANUAL INITIATION	N/A	N/A
B21N683A thru B21N683D #*C34L604	RPV Level, High	≤ 53.5 in.	≤ 55.7 in.
E22L600#	CST Level, Low	≥ 0 in.	≥ -3 in.
E22L603 #	Suppression Pool Level, High	≤ 5.9 in.	≤ 6.5 in.

Unless otherwise denoted by a "#" all points are also available from the NSSS Computer under an equivalent NSSS Computer Point Number.

* SOE Point

Table 3 (Continued)

SAFETY RELIEF VALVE DATA

RELIEF FUNCTION

BOP COMPUTER POINT	VALVE #	NOMINAL SETPOINT (psig)	ALLOWABLE RANGE (psig)
B21F051D	F051D	1103	1091/1115
B21F047A	F047A	1113	1101/1125
B21F047C	F047C	1113	1101/1125
B21F047D	F047D	1113	1101/1125
B21F047G	F047G	1113	1101/1125
B21F047H	F047H	1113	1101/1125
B21F047L	F047L	1113	1101/1125
B21F051A	F051A	1113	1101/1125
B21F051B	F051B	1113	1101/1125
B21F051F	F051F	1113	1101/1125
B21F051K	F051K	1113	1101/1125
B21F041A	F041A	1123	1111/1135
B21F041B	F041B	1123	1111/1135
B21F041C	F041C	1123	1111/1135
B21F041D	F041D	1123	1111/1135
B21F041E	F041E	1123	1111/1135
B21F041F	F041F	1123	1111/1135
B21F041G	F041G	1123	1111/1135
B21F041K	F041K	1123	1111/1135
B21F051C	F051C	1123	1111/1135

Unless otherwise denoted by a "#" all points are also available from the NSSS Computer under an equivalent NSSS Computer Point Number.

SAFETY FUNCTION

VALVE #	NOMINAL SETPOINT (psig)	ALLOWABLE RANGE (psig)
F041A, 41B, 41C, 41D, 41E, 41F, 41G, 41K	1165	1153/1177
F047A, 47C, 47D, 47G, 47H, 47L	1180	1168/1192
F051A, 51B, 51C, 51D, 51F, 51K	1190	1178/1202

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Table 3 (Continued)SAFETY RELIEF VALVE RESPONSE EVALUATIONLOW-LOW SET FUNCTION

BOP COMPUTER POINT	VALVE #	NOMINAL OPEN STPT. (psig)	ALLOWABLE OPENING RANGE	NOMINAL CLOSED STPT. (psig)	ALLOWABLE CLOSING RANGE
B21F051D	F051D	1033	1021/1045	926	913/939
B21F051B	F051B	1073	1061/1085	936	923/949
B21F047D	F047D	1113	1101/1125	946	933/959
B21F047G	F047G	1113	1101/1125	946	933/959
B21F051A	F051A	1113	1101/1125	946	933/959
B21F051F	F051F	1113	1101/1125	946	933/959

Unless otherwise denoted by a "#" all points are also available from the NSSS Computer under an equivalent NSSS Computer Point Number.