Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

May 19, 1981

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U.S. NUCLEAR REGULATORY COMMISSION

Mr. T. A. Ippolito, Chief
Operating Reactors - Branch 2
Division of Operating Reactors
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Dresden Station Units 2 and 3
Fire Protection Systems Safe
Shutdown Capability
NRC Docket Nos. 50-237/249

References (a): D. G. Eisenhut letter to All Power Reactor Licensees with Plants Licensed Prior to January 1, 1979 dated February 20, 1981

(b): T. A. Ippolito letter to J. S. Abel dated March 24, 1981

Dear Mr. Ippolito:

Reference (a) requested information related to Fire Protection concerning 1) associated circuits and 2) high-to-low pressure interfaces. Reference (b) provided the NRC interim report on safe shutdown capability following a fire for Dresden 2 and 3 and requested information concerning our ability to meet the requirements of Sections IIIG and L of Appendix R to 10 CFR Part 50.

Enclosure 1 to this letter contains the requested information identified in Reference (b). Items L and M of Enclosure 1 also address the requests of Reference (a). As stated in Item L, our evaluation is not yet complete concerning associated circuits and the information will be provided by August 1, 1981.

Please address any questions concerning this matter to this office.

One (1) signed original and thirty-nine (39) copies of this transmittal are provided for your use.

Very truly yours,

Robert F. Janecek

Robert F. Janecek
Nuclear Licensing Administrator
Boiling Water Reactors

Enclosure
cc: RIII Inspector, Dresden
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NRC Recommendation A

The alternative shutdown capability should be modified to meet the requirements of Section III L of Appendix R to 10 CFR Part 50, taking into consideration the above findings.

Response

The Dresden 2/3 Safe Shutdown Analysis identifies a preferred method to use when shutting the plant down in the event of fire. This method is the Isolation Condenser method.

Equipment necessary to implement the Isolation Condenser method of shutdown has been identified and located in the plant. Support equipment has also been identified and located in the plant. The presence of and routing of electrical cable used to power and control this equipment was identified.

Fire areas were identified which contained equipment or cable necessary for shutdown. It was next assumed that all of the equipment in a fire area containing shutdown equipment was not available (lost as a result of the fire). In these cases, an alternate means of accomplishing safe shutdown was identified. Since the alternate equipment was outside of the fire area, it was separated from equipment in the fire area by three-hour barriers. In certain very large fire areas, the fire area is divided in two. In this case, the separation is obtained by distance.

This process was repeated for each fire area containing equipment or cable for the Isolation Condenser method of shutdown. This process assures that either the Isolation Condenser method of shutdown is available or that an alternate method exists if part of the Isolation Condenser method has been damaged by fire in a particular fire area.

Fire areas that did not contain equipment or cable necessary for the Isolation Condenser method were not analyzed in detail since in these cases, the Isolation Condenser method of shutdown was always available.

We believe that this line of reasoning and analysis meets the intent of Appendix R where safe shutdown is required.

NRC Recommendation 8

The licensee should demonstrate that adequate acceptance tests are being performed to provide local control as a replacement for the components lost in the fire. These tests should verify that: The equipment operates from the local control station when the transfer or isolation switch is placed in the "local" position and that the equipment cannot be operated from the control room, and that equipment operates from the control room but cannot be operated at the local control station when the transfer or isolation switch is in the "remote" position as per NRC Staff Position. The response to question 8(i) of the January 23, 1980 submittal does not fully answer this question. If the CECo. Quality Assurance Program Procedures for fire protection cover these types of tests, the resubmittal should so state explicitly.

Response

Preoperational tests are peformed and documented as part of each modification procedure. These tests are designed to verify the functional operation of the control circuitry including that the equipment operates from the local control station when the isolation method is in the "local" mode and that equipment cannot be operated from the control room.

There is not a sound technical basis for disallowing operation from the "local" control position when the isolation method allows control from the control room. The CECo. Quality Assurance Program for Fire Protection requires that preoperational tests be performed before equipment is placed into service.

NRC Recommendation C

The licensee should demonstrate that procedure(s) have been developed which describe the tasks to be performed to affect the shutdown method. Also, the licensee should demonstrate that the manpower required to perform the shutdown functions using these procedures, as well as to provide fire brigade members to fight the fire is available as required by the fire brigade technical specifications. The answers to items 8(h) and 8(f) in the January 23, 1980 submittal are incomplete.

Response

The station has developed a procedure EPIP 200-20, "Control Room Evacuation/Safe Shutdown" which has been reviewed with all operating shifts. Based upon the training sessions and practice drills, it has been demonstrated that the plant can be safely shut down and the fire brigade utilized at the same time. There is normally a total of 20 people on each shift; 5 will be utilized on the fire brigade, while a maximum of 6 would be required for safe plant shutdown outside the control room. Based upon the shift manning, there are more than adequate number to accomplish the unit shutdown and fire fighting requirements.

NRC Recommendation D

The licensee should demonstrate how valves located in the affected fire zone/area are going to be manually operated.

Response

Valves M02-1301-3 and M03-1301-3 are considered to be in fire zone 1.1.2.3A and 1.1.1.3A respectively. These valves are located in a concrete enclosure as stated in the Fire Protection Safe Shutdown Analysis.

A postulated fire in zone 1.1.2.3A or 1.1.1.3A does not affect access to manual operation of these valves.

A postulated fire that would affect the valves would not jeorpardize operation of other systems that are available for shutdown.

NRC Recommendation E

The licensee should address all items identified in the SER as requiring further analysis, namely, items 5.1.2, 5.1.3, 5.1.4, 5.3, 5.4, 5.9.3, 5.9.4, and 5.9.5.

Response

The Dresden 2 and 3 Fire Protection SER, item 5.1.2, addresses the Reactor Building ground floor, elevation 517 ft. Item 5.1.3 addresses the Reactor Building mezzanine floor, elevation 545 ft. Item 5.1.4 addresses the Reactor Building main floor, elevation 570 ft. Item 5.3 addresses the Control Room. Item 5.4 addresses the Auxiliary Electrical Equipment Room. Item 5.9.3 addresses the Unit 3 Cable Tunnel. Item 5.9.4 addresses the Turbine Building ground floor, elevation 517 ft. Item 5.9.5 addresses the Turbine Building mezzanine floor, elevation 538 ft. Each of these areas was discussed in the Dresden 2 and 3 Safe Shutdown Analysis and Cold Shutdown Supplement. A consolidated list of the hot and cold shutdown methods for each of these areas was included in the February 10, 1981 submittal to the NRC.

NRC Recommendation F

The licensee should demonstrate that process monitoring instrumentation is available to completely monitor the plant to assure a safe shutdown is being reached. This should include flow indication for each system used to safely shut down the plant such as the RBCCW System and the Service Water System. Additional process monitoring capability should include reactor coolant temperature, suppression pool temperature and level, and radiation levels.

Response

Reactor Building Component Cooling Water (RBCCW) Flow and Service Water (SW) Flow

The RBCCW Flow indication and SW Flow indication are not required for safe shutdown. These indicators are not provided (nor are they required) for normal operation and shutdown or accident shutdown. A plant man can easily and quickly verify that RBCCW and SW pumps are running and that their corresponding valves are properly aligned (no SW valve realignment is required from normal operating modes for hot shutdown) to insure that RBCCW and SW flows are established. As a backup, existing local pressure indicators, located on the RBCCW pumps and SW pumps discharge lines, and existing local temperature indicators, located on the RBCCW outlet from the RBCCW Heat Exchanger and on the outlet of the Shutdown Heat Exchanger, could also provide indication of flow.

Reactor Coolant Temperature

Reactor Coolant Temperature indication is not a critical process variable that is required to be monitored by the operator during shutdown procedure. If needed, it can be obtained from existing Reactor Coolant Pressure indication available locally on Instrument Racks 2203-5 and 2203-6 (using steam enthalpy tables or curves, assuming saturation conditions).

Suppression Pool (Torus) Water Level

A local water level indicator is provided on the torus. Prior to the fire, the torus water level is monitored per Dresden Technical Specification (Tech. Spec.) requirements. Since only a fire is assumed in the Safe Shutdown Analysis (i.e., no design basis accident), the water volume stored in the torus should never be less than the initial volume. Therefore, Suppression Pool water level need not be monitored continuously.

Suppression Pool Temperature

The Suppression Pool Temperature is not required by the operator during a fire since the heat added to the 112,203 cubic feet of water in the suppression pool will not cause the water temperature to increase to an unacceptable level during or after a fire. Heat would be added by infrequent HPCI use for makeup for a fire in Zone 8.2.2, 8.2.5, or 8.2.6C. Heat would also be added by use of LPCI for cold shutdown for a fire in Zone 1.1.2.2 (1.1.1.2 for Unit 3). In this case, the containment cooling mode of LPCI will limit the water temperature to an acceptable level. Heat will be added from the safety/relief valves in the first five minutes following reactor scram, until the Isolation Condenser can handle the entire heat load. This heat addition will not cause an unacceptable rise in pool temperature.

Radiation Levels

The plant can be shut down safely in the event of a fire whether or not radiation monitoring is available.

Obviously, if it is assumed, as we have in our analysis, that complete fire zones are not available, this would include the radiation monitors for that fire zone. It does not appear necessary or productive to include radiation monitors as part of the required process monitoring since the methods for achieving safe shutdown do not require it.

The fire brigade consists of five men; at least one or more is a Radiation Protection Man. Fire training includes drill and training in fire fighting techniques in the radiation area to minimize radiation release and fire damage.

Safe shutdown at Dresden will be accomplished using the following procedures:

DGP 2-1	Unit 2/3 Normal Unit Shutdown
DGP 2-3	Unit 2/3 Reactor Scram
DGP 2-4	Unit 2/3 Shutdown from Power Operation to Hot Standby
DGA-18	Anticipated Transient with Incomplete Scram
EPIP 200-20	Control Room Evacuation/Safe Shutdown

Sufficient instrumentation is available to perform normal shutdown procedures. Attachment A (Unit 2) and Attachment B (Unit 3) list instrumentation required and available to perform EPIP 200-20. Attachment C (additional local parameters available on Units 2 and 3) lists local indications on other systems which are available but which are not required to perform EPIP 200-20.

NRC Recommendation G

The licensee should demonstrate that the supporting functions are capable of providing the process cooling, lubrication, etc. necessary to permit the operation of the equipment used for safe shutdown by the systems identified in items 3.1 thru 3.4 in the NRC's "Staff Position Safe Shutdown Capability" dated June 19, 1979.

Response

The necessary cooling and lubrication functions were considered as part of the safe shutdown analysis. All large pumps, diesels, and heat exchangers are either cooled by systems shown to be available (e.g., Service Water, Diesel Generator Cooling Water, Reactor Building Closed Cooling Water) or by another means which requires no further equipment (e.g., pump flow). Lubrication is also available by self-oiling or shaft-driven lube pumps.

NRC Recommendation H

The licensee should provide the technical basis which supports the fact that when HPCI is used for reactor water makeup, there can be a two-hour delay in adding water to the vessel.

Response

The statement in question on Page 3-33 of the Safe Shutdown Analysis states, "The isolation condenser is available to remove decay heat. Therefore, up to two hours are available before reactor water makeup is necessary." The basis for this statement is an analysis contained in the response to Question B.5 of Amendment 13/14 to the Dresden 2 and 3 Safety Analysis Report. The relevant portion of this response states, "Either the HPCI or the Isolation Condenser alone can remove the decay heat from the reactor and maintain water level above the top of the core for the postulated loss of auxiliary power accident. Eventually, some makeup for shrinkage and leakage will be required for the isolation condenser alone case, but not for about two hours beyond the start of the accident, and then, since the emergency diesel is available, the control rod drive pumps could be used to provide the makeup required."

The point to be noted is that the isolation condenser provides a closed cooling system for the reactor, which minimizes inventory losses. Therefore, ample time is available to establish makeup water regardless of whether HPCI or a control rod drive pump is used. The statement in question is not meant to imply that the operator will wait the entire two hours before adding any makeup water to the reactor vessel.

NRC Recommendation I

The licensee should provide an isolation system, similar to the response for question 8(c) #2 in the January 23, 1980 submittal, utilizing perhaps an isolation switch to achieve local control rather than through fuse disconnects which is not acceptable.

Response

An analysis of the control circuit for the Condensate Transfer Pumps shown on Dresden Unit 2 drawing 12E-2370 Revision J dated November 6, 1979 will show that with the fuse removed, the Condensate Transfer Pump cannot be operated from the control room. Further, any kind of fault, occurring in the control or cable spreading room, open, short or ground will not prevent the local control circuitry from controlling the pump. This fulfills the need for a local control circuit to be immune to failures from the remote control location.

The fuse is meant to be used in the same way that an "isolation switch" is to separate remote control circuitry from the local control. Any repairs made to control circuitry are functionally tested before being placed into service. In any case, if circuit repairs are going to be made to the external circuitry using a fuse or an isolation switch, wiring errors that occur will not be different if isolation is by fuse or isolation switch.

NRC Recommendation J

The licensee should demonstrate that safe shutdown can be achieved upon the loss of off-site power.

Response

All of the equipment necessary for safe shutdown can be powered with on-site power. The availability of the diesel generators and associated auxiliaries was analyzed in the Safe Shutdown Analysis and further discussed in the February 6, 1981 submittal. On-site power will remain available for safe shutdown in case of a postulated fire.

In areas where credit is taken for control rod drive pump(s) or feed-water pumps, the control rod drive pump(s) alone can provide the makeup water on loss of off-site power. The control rod drive pump(s) can be powered from on-site power for a fire in these areas.

NRC Recommendation K

The licensee should demonstate that the equipment and systems used to achieve and maintain hot shutdown conditions are capable of maintaining such conditions for an extended period of time longer than 72 hours.

Response

The isolation condenser can be used to maintain hot shutdown longer than 72 hours, since long-term makeup is available from the Condensate Transfer Pumps, which can be powered by the diesel generator and the Diesel Fire Pump. In the zones where credit is not taken for the isolation condenser (Fire Areas 1.1.1.5, 1.1.2.5), long-term hot shutdown can be maintained using HPCI, the electromatic relief valves, and the torus cooling mode of the LPCI System. All of this equipment can be powered from the diesel generator, if necessary.

NRC Recommendation L

Section III.G of Appendix R to CFR Part 50 requires cabling for or associated with redundant safe shutdown systems necessary to achieve and maintain hot shutdown conditions be separated by fire barriers having a three-hour fire rating or equivalent protection (see Section III.G.2 of Appendix R). Therefore, if option III.G.3 is chosen for the protection of shutdown capability, cabling required for or associated with the alternative method of hot shutdown for each fire area must be physically separated by the equivalent of a three-hour rated fire barrier from the fire area.

In evaluating an alternative shutdown method, associated circuits are circuits that could prevent operation or cause malfunction of the alternative train which is used to achieve and maintain hot shutdown conditions due to fire induced hot shorts, open circuits, or shorts to ground.

Safety related and nonsafety related cables that are associated with the equipment and cables of the alternative or dedicated method of shutdown are those that have a separation from the fire area less than that required by Section III.G.2 of Appendix R to 10 CFR 50 and have either (1) a common power source with the alternative shutdown equipment and the power source is not electrically protected from the post fire shutdown circuit of concern by coordinated circuit breakers, fuses, or similar devices, (2) a connection to circuits of equipment whose spurious operation will adversely affect the shutdown capability, e.g., RHR/RCS isolation valves or (3) a common enclosure, e.g., raceway, panel, junction box with alternative shutdown cables and are not electrically protected from the post fire shutdown circuits of concern by circuit breakers, fuses, or similar devices.

For each fire area where an alternative or dedicated shutdown method, in accordance with Section III.G.3 of Appendix R 10 CFR Part 50 is provided by proposed modifications, the following information is required to demonstrate that associated circuits will not prevent operation or cause malfunction of the alternative or dedicated shutdown method.

1. Provide a table that lists all equipment including instrumentation and support system equipment that are required by the alternative or dedicated method of achieving and maintaining hot shutdown.

2. For each alternative shutdown equipment listed in (1) above, provide a table that lists the essential cable (instrumentation, control and power) that are located in the fire area.

3. Provide a table that lists safety related and nonsafety related cables associated with the equipment in cables constituting the alternative or dedicated method of shutdown that are located in the fire area.

4. Show that fire-induced failures of the cables listed in (2) and (3) above will not prevent operation or cause malfunction of the alternative or dedicated shutdown method.

5. For each cable listed in (2) above, provide a detailed electrical schematic drawing that shows how each cable is isolated from the fire area.

Response

The detailed work effort necessary to provide the information requested in items L.(1) through (5) is very large and has not been completed as yet. The information will be provided by August 1, 1981.

NRC Recommendation M

The residual heat removal system is generally a low pressure system that interfaces with the high pressure primary coolant system. To preclude a LOCA through this interface, we require compliance with the recommendations of Branch Technical Position RSB 5-1. Thus, this interface most likely consists of two redundant and independent motor-operated valves. These two motor-operated valves and their associated cable may be subject to a single fire hazard. It is our concern that this single fire could cause the two valves to open, resulting in a fire-initiated LOCA through the subject high-low pressure system interface. To assure that this interface and other high-low pressure interfaces are adequately protected from the effects of a single fire, we require the following information:

Identify each high-low pressure interface that uses redundant electrically controlled devices (such as two series motor-operated valves) to isolate or preclude rupture of any primary coolant boundary.

Identify the device's essential cabling (power and control) and describe the cable routing (by fire area) from source to termination.

Identify each location where the identified cables are separated by less than a wall having a three-hour fire rating from cables for the redundant device.

For the areas identified in the above paragraph, provide the bases and justification as to the acceptability of the existing design or any proposed modifications.

Response

There are no high-to-low pressure interfaces at Dresden 2 and 3 which utilize only motor operated valves for isolation.

539' Elevation Reactor Building

Isolation Condenser Level - Sightglass

545' Elevation Reactor Building

East Side - Instrument Rack 2202-5

Reactor Level - LITS 2-263-59A
LIS 2-263-57A
LIS 2-263-72A
LIS 2-263-72C
LIS 2-263-57B

Reactor Pressure - PI 2-263-60A

Reactor Temperature - Use Attachment 1 of EPIP 200-20, Cooldown Table of Saturation Pressure Versus Saturation Temperature

West Side - Instrument Rack 2202-6

Reactor Level - LIS 2-263-58A
LIS 2-263-72B
LIS 2-263-72D
LIS 2-263-58B
LITS 2-263-59B

Reactor Pressure - PI 2-263-60B
PI 2-263-52B

Reactor Temperature - Use Attachment 1 of EPIP 200-20, Cooldown Table of Saturation Pressure Versus Saturation Temperature

517' Elevation Reactor Building

Instrument Rack 2202-28

Isolation Condenser Flow - dPIS 2-1349A
dPIS 2-1349B
dPIS 2-1350A
dPIS 2-1350B

517' Elevation Turbine Building

Condensate Transfer Pump Discharge Pressures - PI 2-3341-39A
PI 2-3341-39B

Unit 2 Diesel Generator Indications

Panel 2252-10 - AC Volts, Cycles, Kilowatts, AC Amps and DC Amps

517' Elevation Turbine Building (Continued)

Local Indications - Lube Oil Pressure, Fuel Oil Pressure, Cooling Water Temperature, Starting Air Pressure, and Diesel Oil Day Tank Level

504' Elevation Reactor Building

Unit 2/3 Diesel Generator Indications

Panel 2223-33 - AC Volts, Cycles, Kilowatts, AC Amps and DC Amps

Local Indications - Lube Oil Pressure, Fuel Oil Pressure, Cooling Water Temperature, Starting Air Pressure, and Diesel Oil Day Tank Level

495' Elevation Turbine Building

Panel 2252-76 - Control Rod Drive Pump 2A Amps
Control Rod Drive Pump 2B Amps

509' Elevation Unit 2/3 Cribhouse

Fire Pump Discharge Pressure - PI 2/3-4141-2

589' Elevation Reactor Building

Isolation Condenser Level - Sightglass

545' Elevation Reactor Building

East Side - Instrument Rack 2203-5

Reactor Level - LITS 3-263-59A
LIS 3-263-57A
LIS 3-263-72A
LIS 3-263-72C
LIS 3-263-57B

Reactor Pressure - PI 3-263-60A

Reactor Temperature - Use Attachment 1 of EPIP 200-20, Cooldown Table of Saturation Pressure Versus Saturation Temperature

West Side - Instrument Rack 2203-6

Reactor Level - LITS 3-263-59B
LIS 3-263-58A
LIS 3-263-72B
LIS 3-263-72D
LIS 3-263-58B

Reactor Pressure - PI 3-263-60B
PI 3-263-52B

Reactor Temperature - Use Attachment 1 of EPIP 200-20, Cooldown Table of Saturation Pressure Versus Saturation Temperature

517' Elevation Reactor Building

Instrument Rack 2203-28

Isolation Condenser Flow - dPIS 3-1349A
dPIS 3-1349B
dPIS 3-1350A
dPIS 3-1350B

517' Elevation Turbine Building

Condensate Transfer Pump Discharge Pressure - PI 3-3341-39A
PI 3-3341-39B

Unit 3 Diesel Generator Indications

Panel 2253-10 - AC Volts, Cycles, Kilowatts, AC Amps and DC Amps

517' Elevation Turbine Building (Continued)

Local Indications - Lube Oil Pressure, Fuel Oil Pressure, Cooling Water Temperatures, Starting Air Pressure, and Diesel Oil Day Tank Level

504' Elevation Reactor Building

Unit 2/3 Diesel Generator Indications

Panel 2223-33 - AC Volts, Cycles, Kilowatts, AC Amps and DC Amps

Local Indications - Lube Oil Pressure, Fuel Oil Pressure, Cooling Water Temperature, Starting Air Pressure, and Diesel Oil Day Tank Level

495' Elevation Turbine Building

Panel 3252-76 - Control Rod Drive Pump 3A Amps
Control Rod Drive Pump 3B Amps

509' Elevation Unit 2/3 Cribhouse

Fire Pump Discharge Pressure - PI 2/3-4141-2

ATTACHMENT C

ADDITIONAL LOCAL PARAMETERS AVAILABLE ON UNITS 2 AND 3

545' Elevation Reactor Building

Unit 2 East Side

RBCCW Pump 2A

Suction Pressure PI 2-3741-23A
Discharge Pressure PI 2-3741-24A

RBCCW Heat Exchanger 2A

Temperature Indication TI 2-3741-11A
TIC 2-3941-21A

RBCCW Pump 2B

Suction Pressure PI 2-3741-23B
Discharge Pressure PI 2-3741-24B

RBCCW Heat Exchanger 2B

Temperature Indication TI 2-3741-11B
TIC 2-3941-21B

RBCCW Pump 2/3

Suction Pressure PI 2/3-3741-23C
Discharge Pressure PI 2/3-3741-24C

RBCCW Heat Exchanger 2C

Temperature Indication TI 2/3-3741-11C
TIC 2-3941-21C

Service Water Out of RBCCW

TI 2-3941-13A
TI 2-3941-13B
TI 2-3941-13C

Unit 3 West Side

RBCCW Pump 3A

Suction Pressure PI 3-3741-23A
Discharge Pressure PI 3-3741-24A

RBCCW Heat Exchanger 3A

Temperature Indication TI 3-3741-11A
TIC 3-3941-21A

545' Elevation Reactor Building (Continued)

RBCCW Pump 3B

Suction Pressure PI 3-3741-23B
Discharge Pressure PI 3-3741-24B

RBCCW Heat Exchanger 3B

Temperature Indication TI 3-3741-11B
TIC 3-3941-21B

Service Water (Out of RBCCW) TI 3-3941-13A
TI 3-3941-13B

534' Elevation Turbine Building

Unit 2

TBCCW Pump 2A

Suction Pressure PI 2-3841-2A
Discharge Pressure PI 2-3841-1A

TBCCW Heat Exchanger 2A

Temperature Indication TI 2-3841-6
TI 2-3841-26
TIC 2-3941-20

TBCCW Pump 2B

Suction Pressure PI 2-3841-2B
Discharge Pressure PI 2-3841-1B

TBCCW Heat Exchanger 2B

Temperature Indication TI 2-3841-7
TI 2-3841-26
TI 2-3941-20

Unit 3

TBCCW Pump 3A

Suction Pressure PI 3-3841-2A
Discharge Pressure PI 3-3841-1A

TBCCW Heat Exchanger 3A

Temperature Indication TI 3-3841-6
TI 3-3841-26
TIC 3-3941-20

TBCCW Pump 3B

Suction Pressure PI 3-3841-2B
Discharge Pressure PI 3-3841-1B

534' Elevation Turbine Building (Continued)

TBCCW Heat Exchanger 3B

Temperature Indication TI 3-3841-7
TI 3-3841-26
TIC 3-3941-20

509' Elevation Cribhouse

Service Water Pump 2A

Discharge Pressure PI 2-3941-8A

Service Water Pump 2B

Discharge Pressure PI 2-3941-8B

Service Water Pump 2/3

Discharge Pressure PI 2/3-3941-8C

Service Water Pump 3A

Discharge Pressure PI 3-3941-8A

Service Water Pump 3B

Discharge Pressure PI 3-3941-8B