TECHNICAL REPORT

SAFE SHUTDOWN EQUIPMENT SELECTION AND RELAY\CONTACT EVALUATIONS FOR THE SEISMIC VERIFICATION OF EQUIPMENT IN RESPONSE TO UNRESOLVED SAFETY ISSUE (USI) A-46

FOR THE

INDIAN POINT NUCLEAR GENERATING STATION
UNIT NO. 3

Prepared For The

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ATOMETRICS

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ATOMETRICS

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EXECUTIVE SUMMARY

In December 1980, the Nuclear Regulatory Commission (NRC) Staff initiated an unresolved safety issue (USI) related to the seismic adequacy of mechanical and electrical equipment in older nuclear plants, USI A-46, "Seismic Qualification of Equipment in Operating Plants." The NRC Staff published, in February, 1987, Generic Letter 87-02, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, Unresolved Safety Issue (USI) A-46." This Generic Letter along with its attachment provided a detail approach for resolving USI A-46 along with implementation guidance for generic and plant-specific resolution.

In response to USI A-46, Generic Letter 87-02, the New York Power Authority (NYPA) has undertaken an effort to review the Indian Point Nuclear Generating Station Unit No. 3 (IP-3) design against a postulated Safe Shutdown Earthquake (SSE) along with a possible loss of offsite power and determine the adequacy of the plant to be able to shutdown under these conditions. NYPA responded to the NRC via NYPA letter number IPN-92-043, dated September 22, 1992, Reference 1, and provided their commitments and other information for the resolution of USI A-46. The NRC's response dated November 18, 1992, Reference 2, provides acceptance of NYPA's commitments.

The scope of this evaluation report is to document the identification of the active mechanical and electrical equipment needed to achieve and maintain a safe shutdown condition during and following a postulated SSE at IP-3 and the evaluation of relay functionality on safe shutdown system operation. The methodology for performing these evaluations is provided in the Generic Implementation Procedure (GIP), Reference 3, and associated Safety Evaluation Reports from the NRC.

The methodology provided by the GIP involves the performance of five (5) steps and preparing the documentation supporting the findings of each step. These steps are :

1. Selection of the systems required to bring the plant to a safe shutdown condition and maintain at that condition for a minimum of 72 hours following an SSE with or without the loss of offsite power.

2. Selection of the active equipment within those systems required to support and monitor operation of the selected systems.

3. Identify the equipment requiring seismic verification (walkdown) and the equipment requiring a Relay Seismic Functionality Review (relay review) of their control and power circuits in order to determine the impact of relay/contact chatter, caused by the SSE, on system operation.

4. Perform circuit analyses to determine the effects relay malfunction due to an SSE on equipment and system operation.

5. Perform seismic verification walkdown.

These activities are documented in two (2) separate reports. This report, which documents steps one (1) through four (4), and the Seismic Verification Report (SER), which documents the results of step five (5). Together, these reports provide the information required to be submitted to the NRC for the resolution of USI A-46.

STEP 1, SAFE SHUTDOWN SYSTEM SELECTION

The first step of the process is to select the systems required to accomplish each of the four (4) required safe shutdown functions listed below:

Function 1 - Reactor Reactivity Control

Function 2 - Reactor Coolant Pressure Control

Function 3 - Reactor Coolant Inventory Control

Function 4 - Decay Heat Removal

Table 2-1, Safe Shutdown Systems of Choice, lists the systems ultimately selected.

STEP 2, IDENTIFICATION OF SAFE SHUTDOWN EQUIPMENT

The identification of the safe shutdown equipment, as guided by the GIP, involves two (2) major steps. The first step is to identify the various alternate methods or paths which could be used to accomplish the four (4) safe shutdown functions and select the preferred safe shutdown path.

The selected paths for the four (4) safe shutdown functions along with a fifth function showing the required support systems have been color coded and are presented on flow diagrams provided in Appendix L as follows:

Function 1 - Reactor Reactivity Control - Violet

Function 2 - Reactor Coolant Pressure Control - Blue

Function 3 - Reactor Coolant Inventory Control - Green

Function 4 - Decay Heat Removal - Pink

Function 5 - Support Systems - Orange

The second step is to identify the individual items of equipment contained in these paths as well as any support equipment required such as electrical and HVAC components. This equipment was then compiled into the Safe Shutdown Equipment List (SSEL).

The preparation of the SSEL for IP-3 followed these steps to establish the core list. As the project progressed, additional equipment was added or deleted as the Relay Reviews and Walkdowns were completed. The IP-3 Operations Group participated in the development of the SSEL and provided their formal review and approval (See Appendix J).

The preparation of the SSEL resulted in the listing of 933 components.

STEP 3, IDENTIFICATION OF THE EQUIPMENT REQUIRING SEISMIC VERIFICATION AND THOSE REQUIRING RELAY REVIEW

The SSEL developed under Step 2 provided the basis for preparing for and scheduling walkdowns and performing the relay reviews. All components ultimately listed on the SSEL require seismic verification as discussed below in Step 5. Components that require electrical support systems for control and power to perform their intended function were identified as requiring a relay review. This evaluation resulted in:

- 603 Components to be Seismically Verified (walked down)
- 624 Components Requiring Relay Review

The number of components requiring walkdown is less than the number of components listed on the SSEL based on the definition of "The Rule of the Box" provided by the GIP.

STEP 4, RELAY SEISMIC FUNCTIONALITY REVIEWS

The first step in performing the relay reviews is the identification of the relays/contacts associated with each piece of equipment listed on the SSEL as requiring a relay review. The results of this effort are summarized on the Relay List, Appendix B. Preparation of the Relay List resulted in the listing of 2,373 relays/contacts.

The relay reviews determine if the plant safe shutdown systems and equipment are adversely affected by relay (defined in the GIP as relays, contacts, and switches) chatter in the event of an SSE and to evaluate the seismic adequacy of those relays for which malfunction is unacceptable. The relay reviews are documented on the Relay Screening And Evaluation Forms (RSEFs) provided in Appendix C, Volumes 1 and 2.

Those relays not passing this criteria were then screened by crediting operator action. Those that could not be resolved by crediting operator actions would require Corrective Action and would be identified as "outliers." These reviews resulted in identifying thirty-four (34) operator actions and twelve (12) outliers. The operator actions are identified in the Relay List provided in Appendix F. The outliers are described on Outlier Seismic Verification Sheets (OSVSs) provided in Appendix H.

The relay reviews resulted in the identification of 553 essential relays, those relays/contacts for which contact chatter was not acceptable. The dispositioning of the essential relays was performed using the seismic demand versus seismic capacity screening methods provided by the GIP. This evaluation was performed in accordance with Reference 4 and is provided in Appendix D.

STEP 5, SEISMIC VERIFICATION WALKDOWN

A preliminary walkdown was performed in May, 1994 and the final walkdown from August through November, 1994. The results of the walkdown are included in the Seismic Verification Report (SER) submitted under separate cover.

The final walkdown was reviewed by a Peer Review Team from Yankee Atomic Electric Company during the week of August 15, 1994. The results of this Peer Review are included in the SER.

SECTION 1
INTRODUCTION

1.1 BACKGROUND

In December 1980, the Nuclear Regulatory Commission (NRC) Staff initiated an unresolved safety issue related to the seismic adequacy of mechanical and electrical equipment in older nuclear plants, USI A-46, "Seismic Qualification of Equipment in Operating Plants." After substantial technical research by both the Seismic Qualification Utility Group (SQUG) and the NRC regarding this issue, the Staff published, on February 19, 1987, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, Unresolved Safety Issue (USI) A-46." This provided a detailed approach for resolving USI A-46. Implementation guidance for generic and plant-specific resolution of USI A-46 was provided in an enclosure to the Generic Letter, entitled "Seismic Adequacy Verification Procedure" (the Generic Letter Procedure).

The resolution methodology for USI A-46 is based, in part, on the belief that there is adequate margin in the seismic capacity of equipment in older operating plants. It should be noted that trial plant walkdowns conducted to date support this conclusion. The purpose of USI A-46 is to verify this conclusion on a plant specific basis.

The Generic Letter Procedure sets forth an approach for verifying seismic adequacy of equipment using earthquake experience data supplemented by test results, as necessary.

In response to USI A-46, Generic Letter 87-02, "Verification of Seismic Adequacy of Mechanical & Electrical Equipment in Operating Reactors", NYPA has undertaken an effort to review the IP-3 design and determine the seismic adequacy of the active mechanical and electrical equipment needed to achieve a safe shutdown condition (cold shutdown) during and following an SSE and to maintain it there for a minimum of 72 hours.

NYPA's response to the NRC via letter number IPN-92-043, dated September 22, 1992 (Reference 1), provided their commitments and other information for the resolution of USI A-46. The NRC's response dated November 18, 1992 (Reference 2), provides acceptance of these commitments.

1.2 PURPOSE

The purpose of this report is to document the selection of the safe shutdown equipment and the relay/contact screening/evaluations associated with the equipment listed on the SSEL for IP-3 in response to USI A-46.

1.3 SCOPE

The resolution of USI A-46 requires documenting the results of performing the following five (5) steps:

1. Selection of the systems required to bring the plant to a safe shutdown condition and maintain at that condition for a minimum of 72 hours following an SSE with or without the loss of offsite power.

2. Selection of the equipment within those systems required to support and monitor operation of the selected systems.

3. Identify the equipment requiring seismic verification and the equipment requiring a review of their control and power circuits in order to determine the impact of relay/contact chatter, caused by an SSE on system operation.

4. Perform circuit analyses to determine the effects of an SSE on equipment and system operation.

5. Perform walkdowns to verify:

   - the seismic adequacy of the equipment selected, including anchorage;

   - the seismic adequacy of the mounting of a representative sample of relays and other contacts to ensure they are in accordance with manufacturer's requirements; and,

   - that no seismic interactions exist that could cause any of the selected equipment to fail to function during and after an SSE.

These activities are documented in two (2) separate reports. This report documents steps one (1) through four (4), and the Seismic Verification Report (SVR) documents the results of step five (5). Together, these reports provide the information required to be submitted to the NRC for the resolution of USI A-46.

SECTION 2
SAFE SHUTDOWN EQUIPMENT LIST (SSEL) DEVELOPMENT

2.1 INTRODUCTION

The selection of the safe shutdown systems and the identification of the associated equipment was performed in accordance with the methodology and criteria provided in Section 3 and Appendix A of the SQUG Generic Implementation Procedure (GIP), Reference 3. IP-3 drawings, UFSAR, system descriptions, and plant operating procedures were used in the development of the shutdown paths and the identification of the equipment.

The safe shutdown systems which could accomplish the following four (4) safe shutdown functions were selected:

Function 1 - Reactor Reactivity Control

Function 2 - Reactor Coolant Pressure Control

Function 3 - Reactor Coolant Inventory Control

Function 4 - Decay Heat Removal

Preferred and redundant trains for safe shutdown of the plant have been selected for each of the four (4) safe shutdown functions. A preferred safe shutdown path was selected based on such considerations as previous systems analysis, ease of use by operators, and compatibility with plant procedures.

The individual items of active equipment contained in these preferred and redundant safe shutdown paths were identified and listed on the SSEL, Appendix A. Many of the equipment are common to both the trains since they provide different critical functions under each train depending on the shutdown function evaluated. The discussion of the preferred and redundant shutdown path selection and selection of equipment is provided in the following sections.

2.2 METHODOLOGY AND ASSUMPTIONS

The methodology for performing the system and equipment selections are provided in the GIP, Reference 3, Part 2, Section 3,

"Identification of Safe Shutdown Equipment," and Appendix A of the GIP, "Procedure For Identification of Safe Shutdown Equipment."

2.2.1 Generic Assumptions

Selection of the safe shutdown paths and equipment was based upon the following assumptions:

1. Offsite power is assumed to be unavailable for up to 72 hours following an SSE.

2. No other extraordinary events or accidents (e.g., LOCAs, HELBs, fires, floods, extreme winds, sabotage) are postulated to occur other than the earthquake itself and loss of offsite power.

3. If a single component's failure to perform its active function could jeopardize achieving and maintaining safe shutdown, an alternative path to safe shutdown by use of a different train or a different component in the same train was identified for seismic evaluation.

4. Where operator actions are relied upon to achieve and maintain safe shutdown, acceptable times for operator action are 10 minutes for control room items and 20 minutes for items outside the control room.

5. The equipment identified for seismic evaluation includes:

   - Active mechanical and electrical equipment which operates or changes state to accomplish a safe shutdown function.

   - Active equipment in systems which support the operation of identified safe shutdown equipment; e.g., power supplies, control systems, cooling systems, lubrication systems.

   - Equipment in a supporting system which is dependent upon some other system's active equipment.

   - Instrumentation needed to confirm that the four (4) safe shutdown functions have been achieved and are being maintained.

   - Instrumentation needed to operate safe shutdown equipment, including support equipment.

- Tanks and heat exchangers used by or in the identified safe shutdown path.

- Cable and Conduit Raceways.

6. The following equipment types are not required for seismic evaluation and, therefore, not identified:

   - Active equipment which is not needed to operate and which, upon loss of power, will fail in the desired position or state.

   - Passive equipment such as piping, manual valves, filters, and electrical penetration assemblies.

   - Self-actuated check valves.

   - Major items of equipment in the nuclear steam supply system (NSSS) such as the reactor pressure vessel, reactor internals, control rods and their drive mechanisms, reactor coolant pumps, steam generators, pressurizer, reactor coolant piping, and supports for all of the above.

7. The following types of equipment have been identified for use in the relay evaluation procedure:

   - Active, electrically-powered or controlled equipment identified as needed for safe shutdown.

   - Electrically-powered or controlled equipment considered passive but whose inadvertent operation due to relay chatter could adversely affect the accomplishment of a safe shutdown function.

8. For equipment included in the seismic experience data base, all the components mounted on or in this equipment (except relays) was considered to be part of that equipment and was not evaluated separately for seismic adequacy (Rule of the Box).

9. Electrical equipment (i.e. without moving parts) such as batteries, battery chargers, transformers, and inverters was included in the seismic evaluation.

10. If the non-safety-grade equipment was needed for accomplishing safe shutdown functions, it was included in the equipment list for seismic evaluation.

11. Prior to the occurrence of an SSE, the unit was assumed to be at the normal operating conditions. That is, the reactor coolant system will be at or near normal operating pressure (2,235 psig) and temperature (555°F)(Reference 3, GIP, paragraphs 3.2.1 and 3.2.2, pages 3-5 and 3-6 respectively).

12. If an item of equipment can be taken out of service for maintenance during plant operation, then that item of equipment will be considered the single equipment failure.

2.2.2 Plant Specific Assumptions

In addition to the general assumptions listed above, the following plant specific assumptions apply:

1. In order to comply with GIP requirements, IP-3 will be brought to a cold shutdown condition and will be maintained at cold shutdown during the 72 hour period following the postulated earthquake. Limited makeup water inventory prevents the Unit from being maintained at hot shutdown conditions beyond 24 hours. In accordance with the Technical Specifications for IP-3, cold shutdown is achieved when the reactor is subcritical and the coolant temperature (Tavg) is less than 200°F.

2. Self actuated check valves are considered passive devices in accordance with the IP-3 licensing basis. Therefore, as applicable, system boundaries are provided by a single self-actuated check valve.

2.3 SYSTEM SELECTION

The following are the four (4) safe shutdown functions that are required to be accomplished during and following a Safe Shutdown Earthquake (SSE):

Function 1 - Reactor Reactivity Control

Function 2 - Reactor Coolant Pressure Control

Function 3 - Reactor Coolant Inventory Control

Function 4 - Decay Heat Removal

A basic description of the safe shutdown options available to IP-3, the preferred shutdown methodology, and accompanying instrumentation needed to monitor the safe shutdown activity for each of these four (4) functions is provided in this section of the report.

2.3.1 Function 1 - Reactor Reactivity Control

2.3.1.1. Available Safe Shutdown Options

Two (2) independent reactivity control systems are provided at IP-3, one involving control rods and the other involving emergency boration. Figure 2.1 depicts a block diagram of reactivity control systems, both for initial shutdown as well as long term reactivity control.

The initial reactor shutdown is achieved by rapid insertion of control rods into the core which fall due to gravity following a trip signal which de-energizes the drive latch mechanism. The control rods provide sufficient reactivity control to terminate any credible power transient prior to reaching the design minimum Departure from the Nuclear Boiling Ratio (DNBR). This primary safeguard means has been qualified against the single failure criterion. Assuming the highest reactivity worth rod stuck out, the design basis minimum shutdown margin is met. That is, a minimum end-of-cycle hot shutdown margin of 1.95 percent, and a minimum beginning-of-cycle hot shutdown margin of 1.0 percent is available, assuming a 10 percent uncertainty in the control rod calculations. The single failure criterion is met in that the control rod with the highest worth is assumed to be stuck in the fully withdrawn position.

A follow-up method to maintain the core sub-critical for extended durations is by direct addition of boron to the Reactor Coolant System (RCS). However, control rod insertion is the preferred method for initial reactor shutdown following an SSE, either through an automatic trip due to loss of off-site power or by operator action.

The long term reactivity control during cooldown is achieved by manually controlling boric acid addition to maintain the required shutdown margin and compensate for xenon decay and reactor coolant temperature reduction. Redundant equipment, flow paths and safeguards provisions are provided to ensure the capability for boric acid solution addition to the reactor coolant.

One method involves addition of concentrated boric acid from the boric acid storage tanks. The quantity of boric acid contained in the boric acid tanks is always maintained in excess of the quantity required for the normal cooldown. Also, this quantity is sufficient to bring the IP-3 unit to a

cold shutdown condition in 72 hours and to compensate for subsequent xenon decay. To inject boric acid, either boric acid transfer pump can be used in conjunction with any one of the three (3) charging pumps. All these pumps are supplied with emergency diesel generator power upon loss of offsite power. Redundant flow paths are available between discharge of the boric acid transfer pump and the suction of the charging pumps, including the emergency boration path.

For additional reliability, all boric acid piping is heat traced and insulated to protect against boron crystallization. Similarly the boric acid storage tank is equipped with immersion heaters to prevent precipitation. Power is provided from redundant sources to assure that the safeguard protection is always maintained and available. The quantity of boric acid in storage is sufficient to borate the reactor coolant in order to reach cold shutdown at any time following the postulated SSE event.

Similarly, on the discharge side of the charging pumps, at least two (2) separate and independent flow paths are available, i.e., either the direct charging line to the RCS or via the reactor coolant pump seals (an alternate seal injection path through a backup seal water injection filter is also provided which can be valved in manually, if required). Therefore, the malfunction or failure of a single active component will not result in the inability to borate the reactor coolant system.

It would be desirable to have letdown paths available such as normal letdown and excess letdown, as well as seal water return depending upon the charging path in operation. However, should a letdown line be out of service during boration, sufficient volume exists in the pressurizer to accommodate the amount of boric acid necessary to achieve cold shutdown (Reference UFSAR Section 9.2.2.2.). Therefore, unavailability of letdown path is not expected to have an impact on the boration capability.

2.3.1.2 <u>Preferred Safe Shutdown Alternative</u>

For initial reactor shutdown and continued reactivity control, control rods are typically used. The single failure criterion is satisfied by the assumption in the reactivity analysis that the highest worth control rod is stuck out in the fully withdrawn position. The reactor shutdown will be actuated

either through an automatic trip following a loss of offsite power, or by operator action.

For 72 hour cooldown to cold shutdown, and to compensate for xenon decay, the RCS can be borated using the Volume Control Tank (VCT) and one (1) charging pump. Sufficient redundancy is available in the charging and letdown flow paths that a single active component failure will not result in the loss of boration capability.

2.3.1.3 Instrumentation Needed to Monitor the Safe Shutdown Function

1. Source range detectors to monitor core neutron flux.

2. Control rod position indication system to monitor the position of all control rods.

3. Primary sampling system to monitor the boron concentration in the reactor coolant.

4. Reactor coolant temperature indication system to monitor cold leg temperature.

2.3.2 Function 2 - Reactor Coolant Pressure Control

Adherence to prescribed pressure temperature limits is necessary to protect the RCS and should not be exceeded during normal operations or shutdown transient conditions. These operating boundaries are illustrated by Figure 2.2 and include:

- RCS Design Pressure Limitation
- Reactor Vessel Brittle Fracture Limits
- Sub-Cooling Temperature Margins
- Steam Generator Tube Differential Pressure Limits

In addition, when the Residual Heat Removal (RHR) System is employed to remove the decay heat, the reactor coolant system operating pressure must not exceed the RHR system design pressure. To avoid exceeding the pressure and temperature limits specified in the IP-3 Technical Specifications, the RCS pressure and temperature can be controlled within the allowable operating region using different system or equipment alternatives. A brief description of

these pressure control alternatives for high and low pressure is provided below.

2.3.1.1 High Pressure Operation

RCS high pressure operation occurs following the initial reactor trip event when the loss of offsite power removes the reactor coolant pumps from service. The interruption of coolant flow results in increased pressure until relieved by the resumption of controlled cooldown via natural circulation between the reactor vessel and steam generators. Makeup water requirements on the secondary side will be provided by the Auxiliary Feedwater System. The duration of this cooldown phase is limited, however, by the Condensate Storage Tank (CST) capacity which allows maintenance of hot standby condition for a maximum of 24 hours. For this reason, IP-3 must be brought to a cold shutdown to comply with the GIP requirements.

1. Available Safe Shutdown Options

A block diagram illustrating the reactor coolant pressure control alternatives for high pressure operation is shown in Figure 2.3. The primary means of controlling the RCS pressure are by the use of pressurizer heaters and the auxiliary spray (assuming loss of offsite power). A portion of the heater groups are proportional heaters which are used for small pressure variation control or to compensate for heat losses. The remaining "back-up" heaters are activated when either the control signal is below a pre-set value or the pressurizer level exceeds the programmed level set-point by a preset amount. Auxiliary spray flow is provided by the three (3) available charging pump(s) (powered by emergency diesel generators) via the Regenerative Heat Exchanger. A single failure could disable auxiliary spray flow and, therefore, an alternate means of pressure reduction is provided via the Power Operated Relief Valves (PORVs).

An alternate method of controlling the RCS pressure is by manually regulating the charging and letdown flow rates. An increase in the charging flow over and above the letdown flow rate will result in a RCS pressure increase; and, conversely the system pressure can be reduced by setting the letdown flow rate greater than the charging value. One or more of the operating charging pumps can be used to inject borated water from the VCT or, if necessary, the Refueling Water Storage

Tank (RWST). The normal letdown path can be controlled to vary the letdown from the RCS.

Two (2) PORVs and three (3) code safety valves are provided to protect against pressure transients that may exceed RCS limits previously discussed. The PORVs will limit the system operating pressure to 2,335 psig. The spring loaded safety valves are designed to limit the pressure to within 110% of system design pressure (actual set pressure is 2,485 psig.), but the pressurizer relief or safety valves are not expected to be challenged. Steam relief will be achieved through the atmospheric dump valves and the secondary side safety valves. Safety analysis has shown that the Auxiliary Feedwater System is capable of removing the stored and residual heat, thus avoiding water relief from the pressurizer safety or relief valves.

2. Preferred Safe Shutdown Alternatives

During cooldown, reactor coolant pressure control fluctuations will be minimized through the use of the pressurizer heaters and auxiliary spray. Should a single failure disable the auxiliary spray supply, pressure control will be maintained by the PORVs. Any pressure transient which could result in reaching the setpoint of the PORVs or code safety valves would be mitigated by these overpressure protection devices.

2.3.2.2 Low Pressure Operation

The low pressure operation corresponds to the secondary cooldown phase when decay heat removal is transferred to the Residual Heat Removal (RHR) System.

1. Available Safe Shutdown Options

A block diagram illustrating the reactor coolant pressure control alternatives for low pressure operation is shown in Figure 2.4.

During this second phase of cooldown, the RHR System is used to reduce the coolant temperature and remove the decay heat. The letdown flow taken downstream of the RHR heat exchangers (HCV-133) is returned to the RCS system by a charging pump, after being routed through the VCT. At reactor coolant temperatures below 295^0 F, the PORVs are armed to open automatically to provide overpressure protection against brittle fracture. This low temperature overpressure

protection system is backed up by the safety relief valve in the RHR system which will open at the set-pressure to mitigate the pressure transients and thus avoid exceeding the RHR design pressure.

Control of the purification letdown flow and charging flow may provide manual pressure control capability to the operators, particularly for any significant pressure reductions. The borated water can be supplied by either the VCT or the RWST.

2. Preferred Safe Shutdown Options

During low pressure operation with the RHR system removing the decay heat, the RCS pressure will be limited to the specified low temperature limits by the two (2) PORVs. Either PORV is capable of maintaining the pressure within limits, with the second PORV providing redundancy. A single failure is not expected to affect the operation of this low temperature overpressure protection system. The safety relief valve in the RHR system would provide backup overpressure protection.

2.3.2.3 Instrumentation Needed to Monitor the Safe Shutdown Function

The following instrumentation is needed to monitor the safe shutdown functions:

1. Pressurizer pressure control system to monitor the RCS pressure.

2. Reactor coolant temperature indication system to monitor the cold leg temperature (or subcooling margin).

2.3.3 Function 3 - Reactor Coolant Inventory Control

In order to control the volume of reactor coolant in the RCS, systems capable of supplying borated water at the operating conditions as well as letdown control should be available. Also, the operators should be able to prevent or minimize the uncontrolled leakage or letdown from the RCS. A block diagram showing safe shutdown alternatives for inventory control is shown in Figure 2.5.

2.3.3.1 Available Safe Shutdown Options

Normally, the Chemical and Volume Control System (CVCS) will be used to control the coolant inventory along with the

operating charging pump supplying the charging flow and the letdown control valves maintaining control of the letdown flow rate in response to a signal from the pressurizer level control system. The speed of the charging pump is controlled by the programmed pressurizer level setpoint in accordance with the Tavg. The speed of the charging pump can also be regulated manually, thus providing manual control of the charging and letdown flow rates.

In the "automatic makeup" mode of the reactor makeup control system, boric acid solution preset to match the boron concentration in the RCS is supplied, with the primary water and the boric acid being provided to the blender in the required proportions. Manual control of boration is available to the operators which allows a preset quantity of borated water (at the pre-selected concentration) to be injected into the RCS. Separate 480V service for the independent power supply to the boric acid transfer pumps and boric acid lines heat tracing circuits provide sufficient redundancy to ensure an uninterrupted supply of borated water to the RCS.

Compliance with the single failure criteria could be provided again by using the RWST as a source of borated water providing suction to the charging pumps as described under the Reactivity Control Function.

To minimize discharge from the RCS, letdown path (normal and excess) control should be maintained as well as other probable leakage paths such as reactor coolant pump seals, various vents and drains, and pressurizer PORV discharge to the Pressurizer Relief Tank (PRT). The reactor coolant pump seal integrity would be maintained by the thermal barrier cooling provided by component cooling water in the event of seal injection flow being lost from the charging pumps. Any leakage from the PORVs, either during normal operation or failure of a PORV to re-close following a pressure transient, can be stopped by closing the associated upstream block valve.

With the RHR System in operation, the purification flow taken downstream of the RHR heat exchangers is returned to the RCS by the operating charging pump. To prevent loss of inventory, any leakage from this path should be controlled in addition to the other paths discussed above.

2.3.3.2 Preferred Safe Shutdown Alternatives

The CVCS feed and letdown control will normally be used to maintain the desired water level in the pressurizer. The makeup water will be typically supplied by the VCT, or if necessary, the RWST which can be manually aligned to the suction of the charging pumps.

2.3.3.3 Instrumentation Needed to Monitor the Safe Shutdown Function

The following instrumentation is needed to monitor the safe shutdown functions:

1. Pressurizer level indication system to monitor the pressurizer operating level.

2. Reactor water level indicating (RVLIS) to monitor full range of operating levels.

2.3.4 Function 4 - Decay Heat Removal

The Safe Shutdown alternatives for accomplishing decay heat removal function are illustrated in the block diagram in Figure 2.6. Following reactor shutdown, the initial phase of decay heat and sensible heat removal is achieved by using the steam generators with makeup feedwater supplied by the auxiliary feedwater system. The second phase of cooldown is the RHR System with the decay heat transferred to service water via the Component Cooling Water System (CCWS).

2.3.4.1 Available/Preferred Safe Shutdown Alternatives

1. High Pressure Operation (First Phase of Cooldown)

Assuming loss of offsite power following the SSE, natural circulation will be established between the reactor vessel and the steam generators. By controlling RCS pressure conditions, minimum subcooling temperature margins are maintained to avoid formation of a steam void in the vessel. Primary coolant flow to the steam generators produces steam on the secondary side which is released to the atmosphere through the atmospheric relief valves or atmospheric steam dump valves. These valves are automatically controlled by the steam generator pressure control system. The main steam dump path to the condenser is not possible due to the unavailability to the circulators which are driven by offsite power.

A six (6) inch PORV is located on each main steam line upstream of the isolation valve. These valves are sized to release the sensible and core decay heat to the atmosphere (10 percent of the equivalent rated steam flow). In the event of a failure of a PORV, steam will be discharged to the atmosphere through one (1) or more code safety valves. There are five (5) safety valves provided on each main steam line, with staggered setpoints (1,065, 1,080, 1,095, 1,110, and 1,120 psig).

Makeup feedwater to the secondary side of the steam generators to remove decay heat will be supplied by AFW. The AFW pumps are supplied by the CST which is maintained to provide a dedicated inventory of 24 hours of makeup water supply at the hot shutdown conditions. Additional water supply to the AFW pumps is available from a 1.5×10^6 gallon city water storage tank. However, this source is not a dedicated or seismically-qualified system and, therefore, cannot be considered a viable source. The duration of this decay heat removal phase is, therefore, limited by the Condensate Storage Tank (CST) capacity which is 24 hours maximum at hot standby conditions. For this reason, IP-3 must be brought to a cold shutdown to comply with the GIP requirements.

The design of AFW incorporates sufficient redundancy to meet the single failure criteria. For loss of normal feedwater events, the single failure criterion can be satisfied by the two motor driven AFW pumps (i.e., without the turbine driven pump). Under limiting conditions, one motor-driven pump supplying feedwater to two steam generators will be capable of removing the decay heat generated without the pressurizer relief/safety valves lifting. The distribution piping is designed to ensure that a single fault will not impair the system function.

The steam generator blowdown isolation valves (two (2) valves provided in series in each line) close automatically on auto-starting of motor driven auxiliary feed pumps.

As described under the Reactor Coolant Pressure Control function, the RCS can be depressurized and cooled down, after borating to the required boron concentration. Cooldown of the RCS will be accomplished using the AFW system, steam generators, and the atmospheric dump valves to the point where transfer to the RHR System can occur to complete the cold shutdown process.

2. Low Pressure Operation (second phase of cooldown)

For IP-3, the RHR System is needed to remove decay heat and maintain cold shutdown conditions for the required 72 hour period. The system is designed with interlocks to assure operation only with the RCS at or below approximately 350^{0}F and 400 psig. It consists of two (2) independent and redundant trains. Except for the dual motor operated isolation valves, the design of the RHR system is such that the failure of a single active component during or following an SSE will not affect the decay heat removal process. Initially, when the RCS temperature is relatively high, reliance on one (1) RHR train will only extend the time required to lower the system temperature further. Operator manual action may be required to open the "failed" RHR pump suction valve, if necessary. This scenario was included by Indian Point Nuclear Generation Station Unit 3 Operations Group during their review of the selected SSEL equipment and determined that the plant could be brought to a cold shutdown condition and placed on RHR using the systems included in the SSEL (Appendix J).

The decay heat is transferred to the component cooling water at the RHR heat exchangers, which, in turn, is cooled by the service water system. The component cooling water also provides cooling supplies to the RHR pumps.

2.3.4.2 Instrumentation Needed to Monitor the Safe Shutdown Function

The following instrumentation is needed to monitor the safe shutdown functions:

1. Reactor coolant temperature measurement system to monitor cold leg and hot leg temperatures.

2. Pressurizer pressure measurement system to monitor reactor coolant pressure.

3. Steam generator level and pressure indication system.

2.3.5 Function 5 - Support Systems

Based on a review of the essential components selected to satisfy the required four (4) functions, the following support systems, identified as "Function 5," were determined to be required for a safe shutdown of IP-3 after an SSE.

- Auxiliary Cooling
- Instrument Air
- Emergency Diesel Generators and support systems
- Heating Ventilation and Air Conditioning
- Service Water
- 480V AC
- 118V AC
- 125V DC
- RVLIS
- Hydrogen and CO_2
- Nitrogen
- Main Steam

Each of these systems supports numerous components needed for safe shutdown by providing power, control or cooling. The discussions provided below explain why each of these systems is considered essential in achieving and maintaining a safe shutdown after an SSE.

The **Auxiliary Cooling System (ACS)** is designed to remove heat from heat exchangers, pump and waste disposal systems. Component cooling water flows through such units and transfers the heat from various components to the Service Water System (SWS) where it is ultimately rejected to the river. The component cooling loop hence establishes a protective barrier between the RCS and the SWS, and it provides an essential heat removal path.

The ACS supports many plant components. After an SSE, it is relied upon to achieve and maintain safe shutdown because it cools the following major heat sources:

- Reactor Coolant Pumps
- Charging Pumps
- Non-regenerative Heat Exchanger
- Residual Heat Removal Pumps
- Residual Heat Removal Heat Exchangers

- Seal Water Heat Exchanger

The **Instrument Air System (IA)** is needed after an SSE to continue providing clean, oil free and moisture free compressed air to many instruments, controls and components needed to achieve and maintain safe shutdown.

Essential portions of the IA at IP-3 have been designed to sustain a seismic event such that after an accident, the air system can be reestablished. The system includes duplicate compressors, with duplicate dryers and filters, all located on the ground floor of the control building, which is a seismic Class I structure. Many essential components using Instrument Air also have nitrogen back-up.

The system supplies air requirements to the nuclear plant and other services located in the Auxiliary Feedwater Pump Building, the Intake Structure, the Diesel Generator Building, the Primary Auxiliary Building and the Control Building.

Emergency Diesel Generators (EDG) are needed to provide the backup electrical power to the essential equipment supplied from the 480 volt buses. There are three (3) emergency diesel generators installed for use at IP-3, any two (2) of these units are capable of supplying sufficient power to allow the plant to be controlled after an SSE. The emergency generator engines are supported by a lube oil system, engine driven fuel oil pumps, jacket cooling water system and a starting air support system. Most components of the diesel engine support systems are skid mounted and therefore the "rule of the box" as defined in the GIP, was applied in identifying EDG components to be included in the SSEL.

Ventilation Systems at IP-3 serve to remove heat generated by equipment and piping located in the Control Room, Containment, Primary Auxiliary Building (PAB), Diesel Generator Building and other buildings during normal operation, and to reduce the containment pressure and provide for a discharge path through the plant vents.

Under abnormal conditions, the ventilation systems will be relied upon to remove heat losses from equipment and piping used to mitigate the abnormal conditions, and to limit and reduce the containment pressure.

The piping and instrumentation diagrams defining the ventilation system for the Containment, EDG, and PAB have been utilized to determine essential components needed to support safe shutdown.

- Central Control Room Ventilation
- Electrical Penetration Tunnel Exhaust Fans
- Diesel Generator Building Fans
- Electrical Switchgear Room Fans
- Auxiliary Feed Pump Building Fans

The **Service Water System (SWS)** is designed to provide river water as a cooling medium to those systems and components requiring heat removal for proper functioning during normal plant operation and to continue providing river water during and following an abnormal plant condition. It is relied upon to provide an essential heat removal function to the following major heat sources following an SSE:

- Containment Recirculation Fan Cooling Coils
- Containment Recirculation Fan Motor Cooler Coils
- Instrument Air Compressors Closed Cooling System
- Diesel Generator Cooling Services
- Component Cooling Heat Exchangers

2.4 RESULTS

The systems of choice selected to perform the five (5) functions are summarized in TABLE 2-1, Safe Shutdown Systems Of Choice. The paths are shown on the System Flow Diagrams which are provided in Appendix L. The flow diagrams have been color coded to show the shutdown paths and equipment selected for each of the functions. The color codes used are as follows:

Function 1 - Reactor Reactivity Control - Violet

Function 2 - Reactor Coolant Pressure Control - Blue

Function 3 - Reactor Coolant Inventory Control - Green

Function 4 - Decay Heat Removal - Pink

Function 5 - Support Systems - Orange

Following the identification of the shutdown paths, the safe shutdown equipment was identified and listed in the Safe Shutdown Equipment List (SSEL). The SSEL was developed using the dBASE III data base program. The Composite SSEL, Seismic Verification SSEL, and Relay SSEL are provided in Appendix A of this report. The SSELs include the information summarized in Table 2-2. The equipment classes, as defined by the GIP, are included in Table 2-3 and are provided here for convenience.

TABLE 2-1
SAFE SHUTDOWN SYSTEMS OF CHOICE

Item	Systems	Indian Point 3 Drawing Number	Function 1 Reactor Reactivity Control	Function 2 RCS Pressure Control	Function 3 RCS Inventory Control	Function 4 Decay Heat Removal
		Color Code	Violet	Blue	Green	Pink
1.	Chemical & Volume Control System	9321-F-27363/R37	X	X	X	
2.	Reactor Coolant System - Sheet No. 1	9321-F-27383/R25	X	X	X	X
3.	Reactor Coolant System - Sheet No. 2	9321-F-27473/R29	X	X	X	X
4.	Safety Injection System - Sheet No. 2	9321-F-27503/R29	X		X	X
5.	Sampling System	9321-F-27453/R22	X	X	X	
6.	Auxiliary Coolant System PA/FS - Sheet No. 1	9321-F-27513/R17				X
7.	Safety Injection System - Sheet No. 1	9321-F-27353/R29				X
8.	Condensate & BFP Suction - Sheet No. 1	9321-F-20183/R44				X
9.	Boiler Feedwater	9321-F-20193/R42				X
10.	Main Steam	9321-F-20173/R48				X
11.	Reactor Vessel Level Instrumentation System	9321-F-72043/R4			X	

TABLE 2-1
SAFE SHUTDOWN SYSTEMS OF CHOICE

Item	Systems	Indian Point 3 Drawing Number	Function 5 Support Systems
		Color Code	Orange
1.	Auxiliary Coolant System PA/FS - Sheet No. 1	9321-F-27513/R17	X
2.	Auxiliary Coolant System CTMT	9321-F-27203/R20	X
3.	Main Steam	9321-F-20173/R48	X
4.	Instrument Air	9321-F-20363/R41	X
5.	Instrument Air Sheet - No. 2	9321-F-70093/R12	X
6.	Instrument Piping Schematics Sheet No. 3	9321-F-70123/R14	X
7.	Instrument Piping Schematics Sheet No. 7	9321-F-70483/R5	X
8.	Nitrogen to Nuclear Equipment	9321-F-27233/R29	X
9.	Service Water System - Sheet No. 1	9321-F-20333/R33	X
10.	Service Water System Nuclear	9321-F-27223/R19	X
11.	Closed Cooling Water System	9321-F-23913/R13	X
12.	Hydrogen and CO2	9321-F-20403/R25	X
13.	Jacket Water to Diesel Generators	9321-H-20283/R18	X
14.	Starting Air to Diesel Generators	9321-H-20293/R15	X
15.	Fuel Oil to Diesel Generators	9321-F-20303/R20	X

TABLE 2-1
SAFE SHUTDOWN SYSTEMS OF CHOICE

Item	Systems	Indian Point 3 Drawing Number	Function 5 Support Systems
		Color Code	Orange
16.	Lube Oil to Diesel Generators	9321-F-21193/R3	X
17.	Ventilation System - DG/CB	9321-F-41023/R7	X
18.	Ventilation System - Misc Areas (AFPB)	9321-F-40433/R3	X
19.	Ventilation System - VC and PA Areas	9321-F-40223/R22	X
20.	125 VDC Distribution Panels	9321-F-30083/R38	X
21.	125 VDC Power Panels	9321-F-30083/R38	X
22.	118V AC Instrument Buses	9321-F-39893/R16	X
23.	480 VAC Switchgear	617F644/R20	X
24.	480 VAC MCC No. 31, 33 & 34	9321-F-30043/R33 Sheet 1	X
	480 VAC MCC No. 32 & 35	9321-F-30043/R4 Sheet 2	X
	480 VAC MCC No. 37, 38, 39 & 311	9321-F-30053/R39	X
	480 VAC MCC No. 36A, 36B & 36C	9321-F-30063/R48	X
25.	Emergency Diesel Generators	617F644/R20	X

TABLE 2-2
SSEL COLUMN DESCRIPTIONS

Column	Description
LINE NO.	Table Line Number (presently not used).
EQUIP CLASS	Equipment Class from Table 3-1 of the GIP and reproduced below.
EQUIPMENT ID NO.	IP-3 equipment identification number.
SYSTEM	IP-3 system the equipment is associated with.
F1 thru F5	Safe Shutdown Function(s) associated with the equipment. See Section 2.3 of this report for further definition.
EQUIPMENT DESCRIPTION	Brief description and identification of the equipment.
DRAWING NO	The schematic drawing used in identifying the equipment.
S	An "S" in this column indicates the component requires seismic verification. A "B" in this column indicates the component is covered by the "Rule of the Box." An "R" indicates the component is inherently rugged and is included on the list for completeness only. If the column is left blank, seismic verification is not required.
R	An "R" in this column indicates that a Relay Review is required for this component. If the column is left blank, a Relay Review is not required.
LOC	Building in which the equipment is located.
ELEV	Floor elevation of the building the equipment can be seen.

TABLE 2-2
SSEL COLUMN DESCRIPTIONS
(Continued)

Column	Description
NORMAL STATE	The normal operating state of the equipment as follows: • OPEN — Equipment is normally open • CLOSED — Equipment is normally closed • OP/CL — Equipment normally changes state from open to closed or from closed to open • RUNNING — Equipment is on and normally running • OFF — Equipment is off and not normally operating • N/A — Not applicable
DESIRED STATE	The desired operating state of the equipment as follows: • OPEN — Equipment should be open • CLOSED — Equipment should be closed • OP/CL — Equipment should change state from open to closed or from closed to open • ON or ENERG — Equipment should be on and operating • OFF or DE-ENERG — Equipment should be off and not operating • N/A — Not applicable
POWER REQD?	Identifies any required external source of power (i.e. hydraulic, pneumatic, electric) to operate the equipment or if power is required to control its operation so that it can accomplish its safe shutdown function.
POWER SOURCE	Identifies the power source including SWGR, MCCs, distribution panels, instrument air, etc.
SUPPORTING SYS DWG	Identifies drawing for the supporting system needed by the equipment to operate (i.e.

	power, control, cooling, lubrication, HVAC, etc.)
NOTES	Clarifications or additional information.

TABLE 2-3
EQUIPMENT CLASSES
(As defined in the GIP, Reference 3)

0 OTHER

1 MOTOR CONTROL CENTERS
- Motor control center
- Wall- or rack-mounted controllers

2 LOW VOLTAGE SWITCHGEAR
- Low voltage draw-out switchgear (typically 600 Volt)
- Low voltage disconnect switches (typically 600 Volt)
- Unit substations

3 MEDIUM VOLTAGE SWITCHGEAR
- Medium voltage draw-out switchgear (typically 4160 Volt)
- Medium voltage disconnect switches (typically 4160 Volt)
- Unit substations

4 TRANSFORMERS
- Liquid-filled medium/low transformers (typically 4160/480 Volt)
- Dry-type medium/low voltage transformers (typically 4160/480 Volt)
- Distribution transformers (typically 480/120 Volt)

5 HORIZONTAL PUMPS
- Motor-driven horizontal centrifugal pumps
- Engine-driven horizontal centrifugal pumps
- Turbine-driven horizontal centrifugal pumps
- Motor-driven reciprocating pumps

6 VERTICAL PUMPS
- Vertical single-stage centrifugal pumps
- Vertical multi-stage deep-well pumps

7 FLUID-OPERATED VALVES
- Diaphragm-operated pneumatic valves
- Piston-operated pneumatic valves
- Spring-operated pressure relief valves

8 MOTOR-OPERATED AND SOLENOID-OPERATED VALVES
- 8A Motor-operated valves
- 8B Solenoid-Operated Valves

TABLE 2-3
EQUIPMENT CLASSES
(As defined in the GIP, Reference 3)
(Continued)

9 FANS
- Blowers
- Axial fans
- Centrifugal fans

10 AIR HANDLERS
- Cooling coils
- Water-cooled air handlers
- Refrigerant-cooled air handlers (including enclosed chiller)
- Heaters

11 CHILLERS
- Water chillers
- Refrigerant chillers

12 AIR COMPRESSORS
- Reciprocating-piston compressors
- Centrifugal compressors

13 MOTOR-GENERATORS
- Motor-generators

14 DISTRIBUTION PANELS
- Distribution panelboards (120-480 Volt, AC & DC)
- Distribution switchboards (120-480 Volt, AC & DC)

15 BATTERIES ON RACKS
- Lead-cadmium flat plate batteries
- Lead-calcium flat plate batteries
- Plant (Manchex) batteries
- Battery racks (2 tiers or less)

16 BATTERY CHARGERS & INVERTERS
- Solid state battery chargers
- Solid state static inverters

17 ENGINE-GENERATORS
- Piston engine-generators

TABLE 2-3
EQUIPMENT CLASSES
(As defined in the GIP, Reference 3)
(Continued)

18 INSTRUMENTS ON RACKS
- Transmitters (Pressure, temperature, level, flow)
- Wall-mounted sensors/transmitters
- Rack-mounted sensors/transmitters
- Supporting racks

19 TEMPERATURE SENSORS
- Thermocouples
- RTDs

20 INSTRUMENTATION AND CONTROL PANELS AND CABINETS
- Wall-mounted & rack-mounted instrumentation and control panels
- Wall-mounted & rack-mounted instrumentation and control cabinets
- Dual switchboard instrumentation and control cabinets
- Duplex switchboard & benchboard (walk-in) instrumentation and control boards

21 TANKS AND HEAT EXCHANGERS

22 CABLE AND CONDUIT RACEWAYS

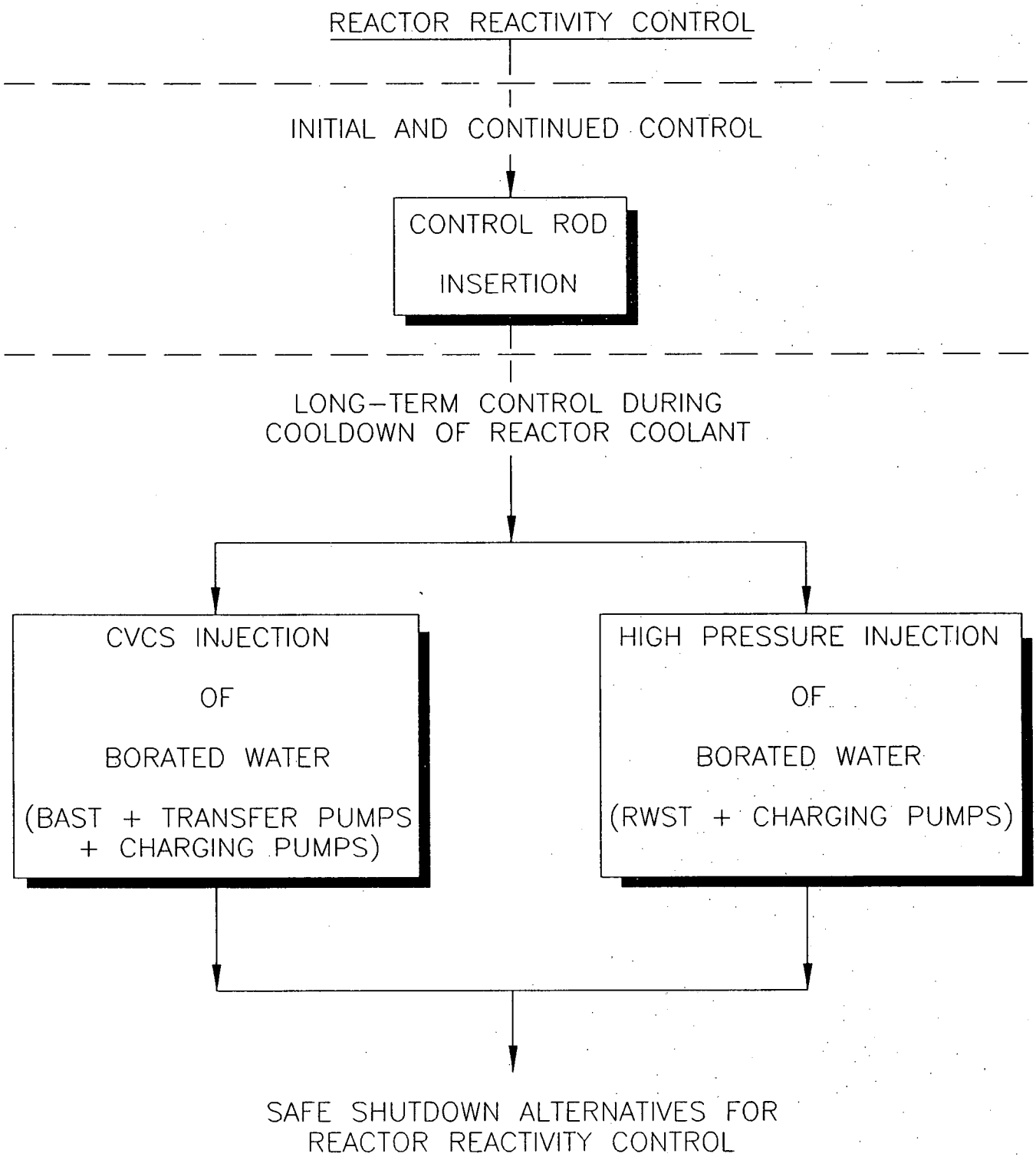
REACTOR REACTIVITY CONTROL
INITIAL AND CONTINUED CONTROL
CONTROL ROD INSERTION
LONG-TERM CONTROL DURING COOLDOWN OF REACTOR COOLANT
CVCS INJECTION OF BORATED WATER (BAST + TRANSFER PUMPS + CHARGING PUMPS)
HIGH PRESSURE INJECTION OF BORATED WATER (RWST + CHARGING PUMPS)
SAFE SHUTDOWN ALTERNATIVES FOR REACTOR REACTIVITY CONTROL

FIGURE 2.1

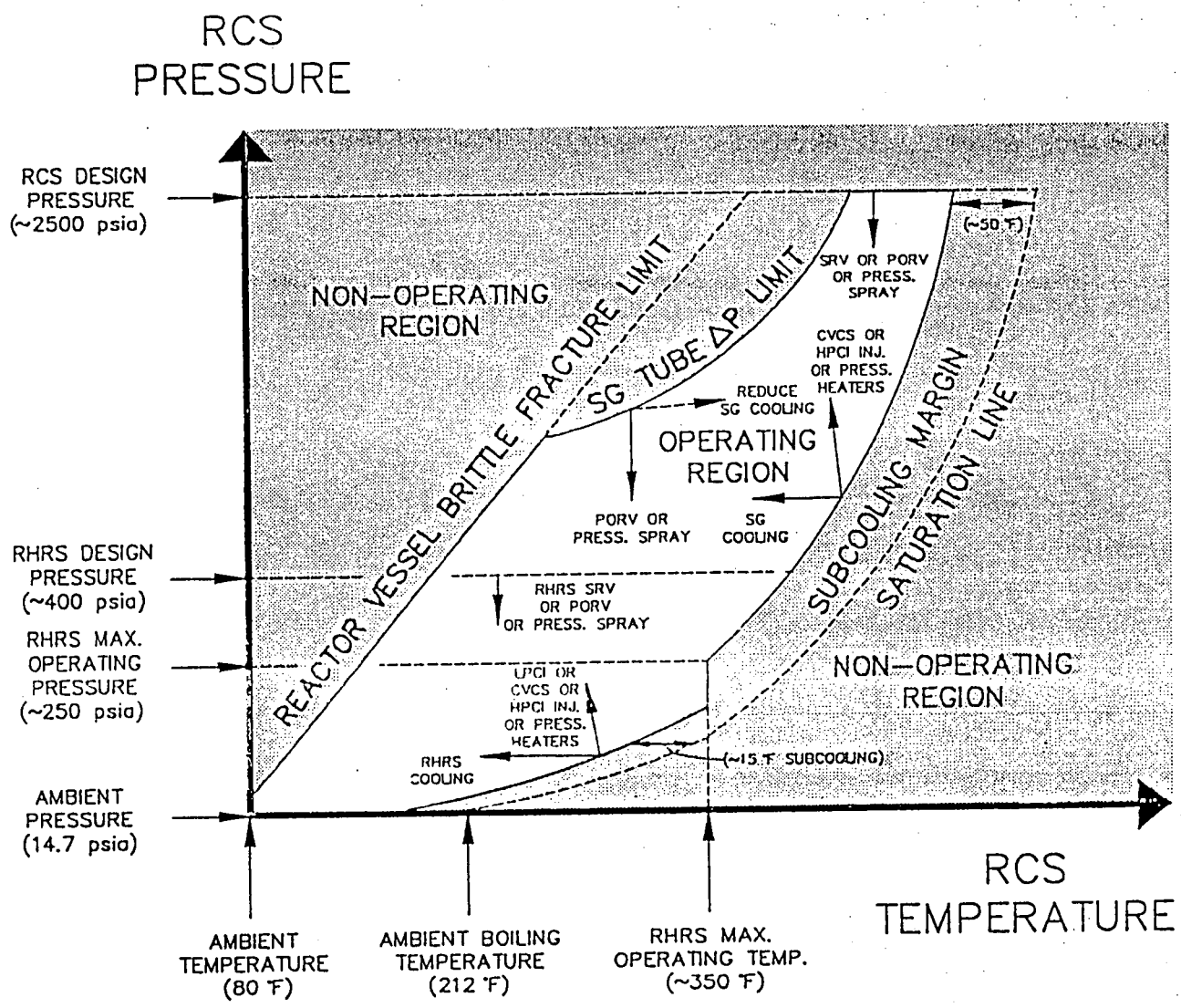

Figure 2.2

Pressure-Temperature Limits For Typical PWR Reactor Coolant System Without Reactor Coolant Pumps Operating.

(REF: GIP Figure A-3)

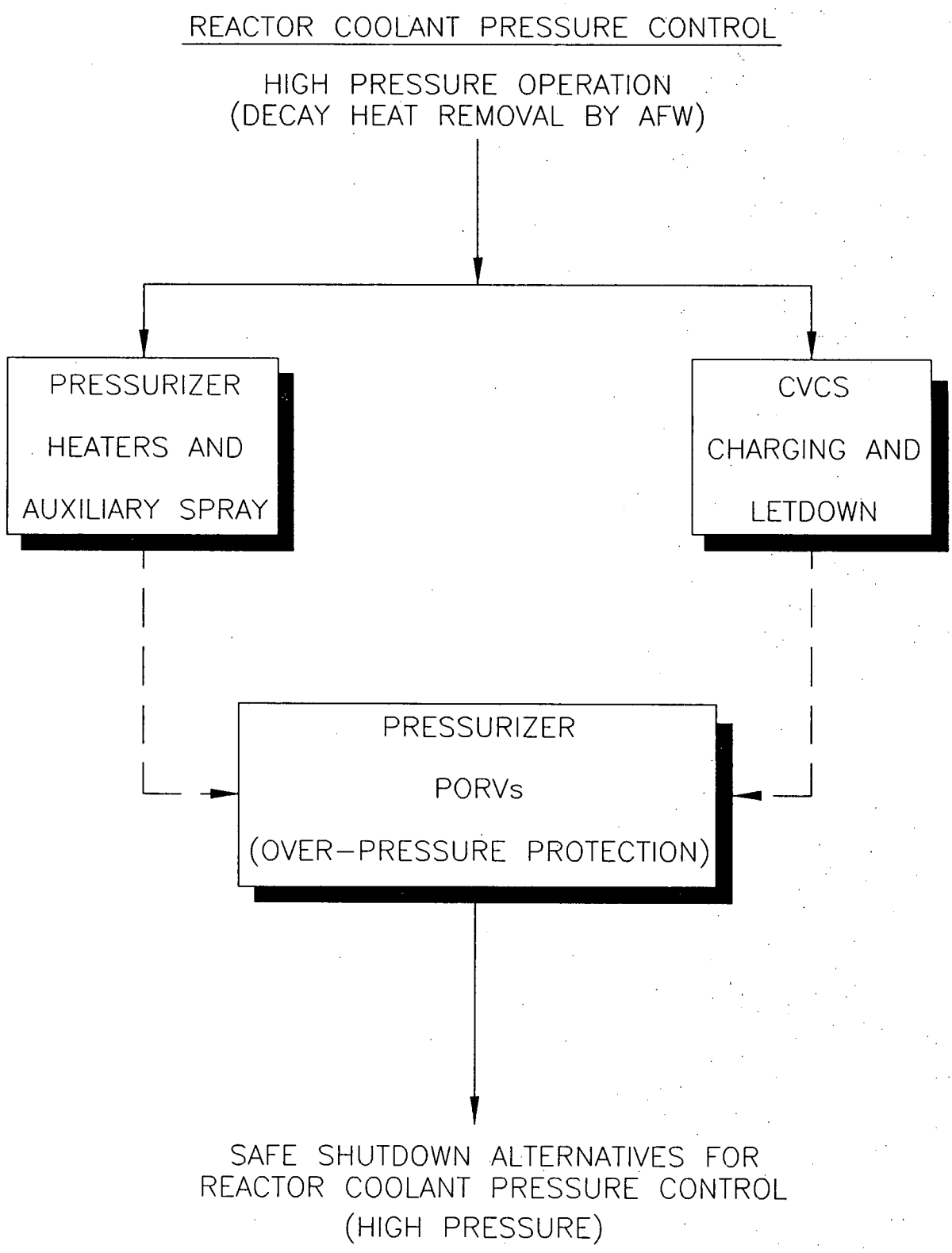
REACTOR COOLANT PRESSURE CONTROL
HIGH PRESSURE OPERATION
(DECAY HEAT REMOVAL BY AFW)
PRESSURIZER
HEATERS AND
AUXILIARY SPRAY
CVCS
CHARGING AND
LETDOWN
PRESSURIZER
PORVs
(OVER-PRESSURE PROTECTION)
SAFE SHUTDOWN ALTERNATIVES FOR
REACTOR COOLANT PRESSURE CONTROL
(HIGH PRESSURE)

FIGURE 2.3

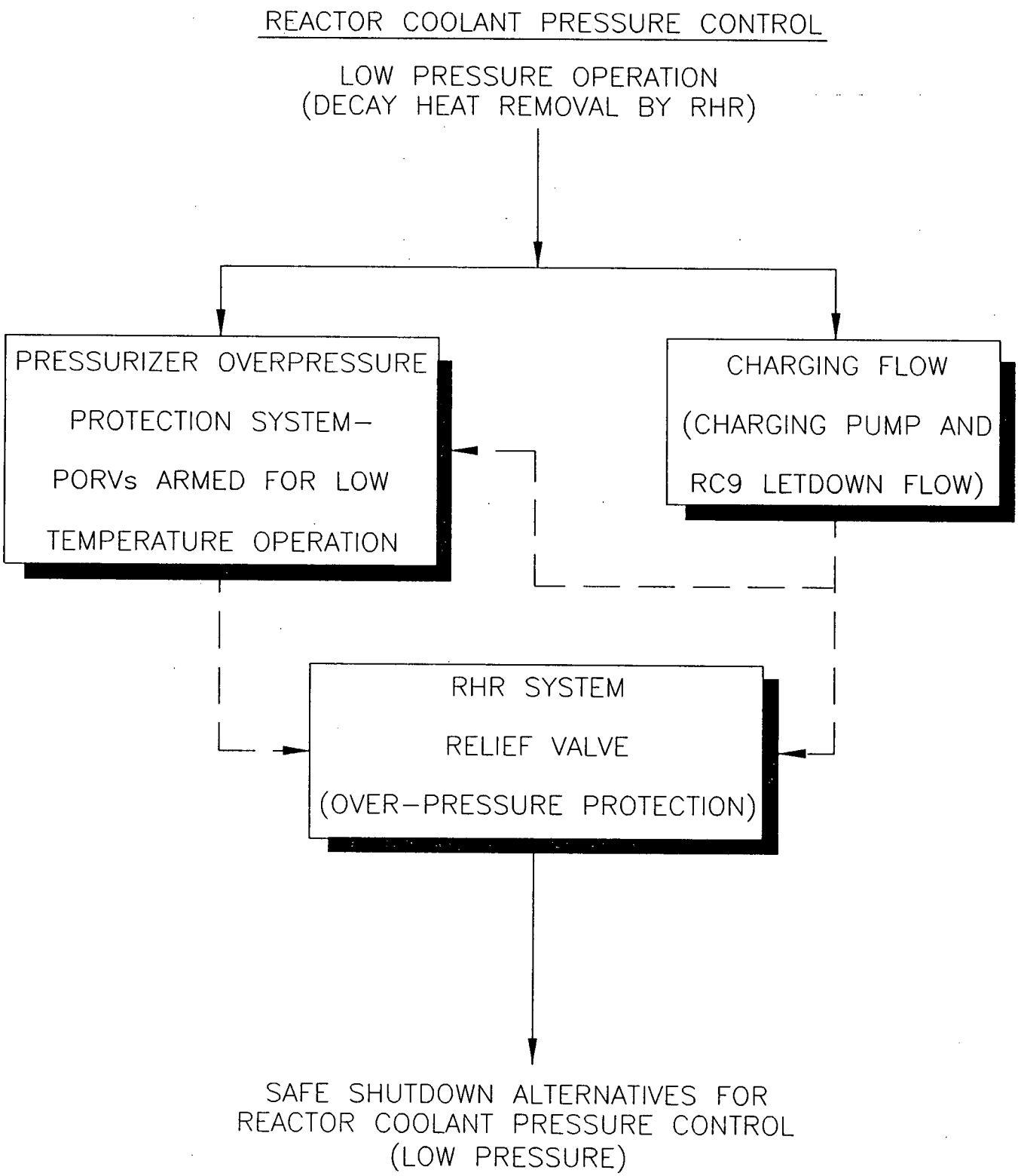
REACTOR COOLANT PRESSURE CONTROL
LOW PRESSURE OPERATION
(DECAY HEAT REMOVAL BY RHR)
PRESSURIZER OVERPRESSURE PROTECTION SYSTEM– PORVs ARMED FOR LOW TEMPERATURE OPERATION
CHARGING FLOW (CHARGING PUMP AND RC9 LETDOWN FLOW)
RHR SYSTEM RELIEF VALVE (OVER–PRESSURE PROTECTION)
SAFE SHUTDOWN ALTERNATIVES FOR REACTOR COOLANT PRESSURE CONTROL (LOW PRESSURE)

FIGURE 2.4

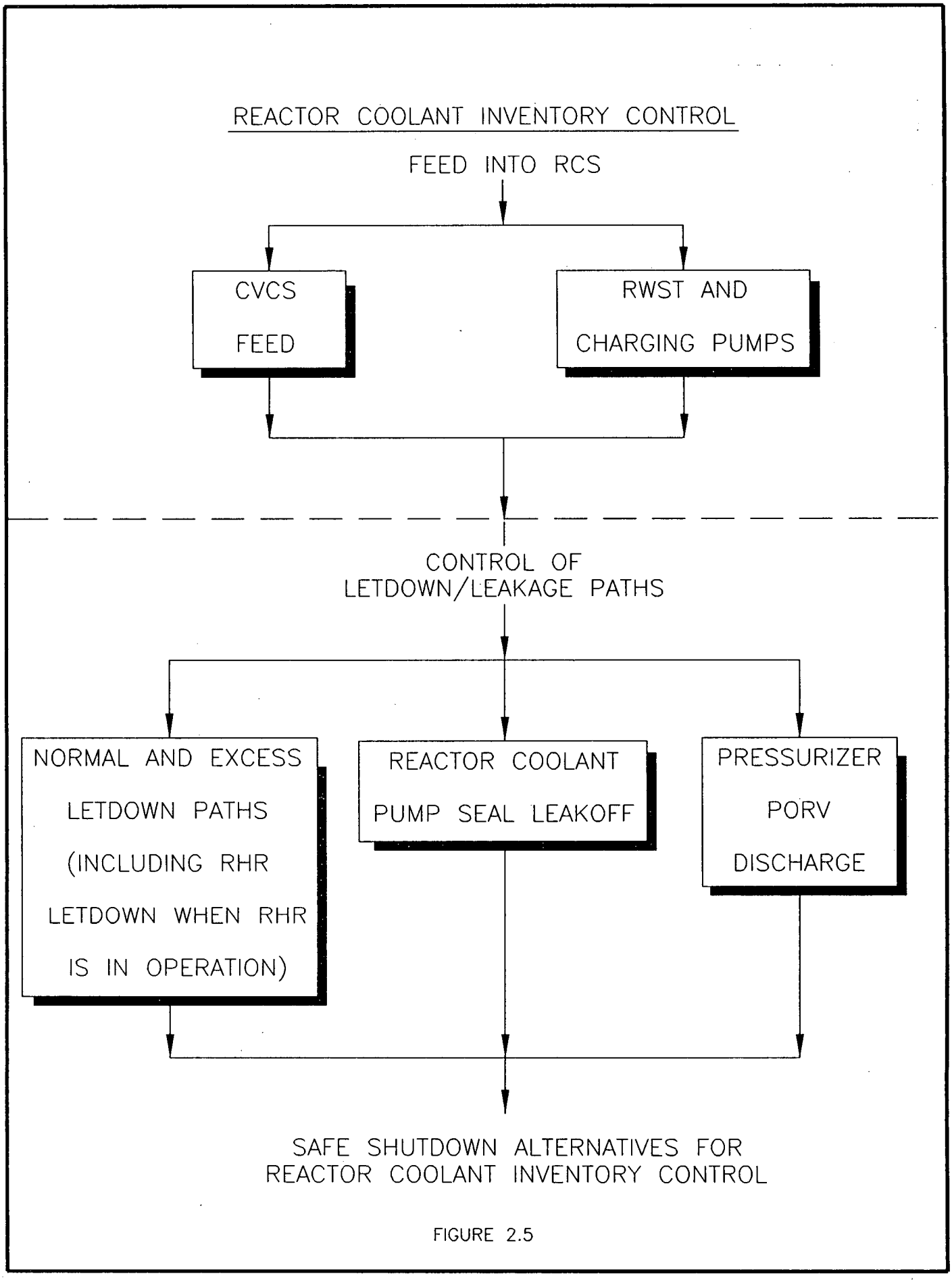
REACTOR COOLANT INVENTORY CONTROL
FEED INTO RCS
CVCS FEED
RWST AND CHARGING PUMPS
CONTROL OF LETDOWN/LEAKAGE PATHS
NORMAL AND EXCESS LETDOWN PATHS (INCLUDING RHR LETDOWN WHEN RHR IS IN OPERATION)
REACTOR COOLANT PUMP SEAL LEAKOFF
PRESSURIZER PORV DISCHARGE
SAFE SHUTDOWN ALTERNATIVES FOR REACTOR COOLANT INVENTORY CONTROL

FIGURE 2.5

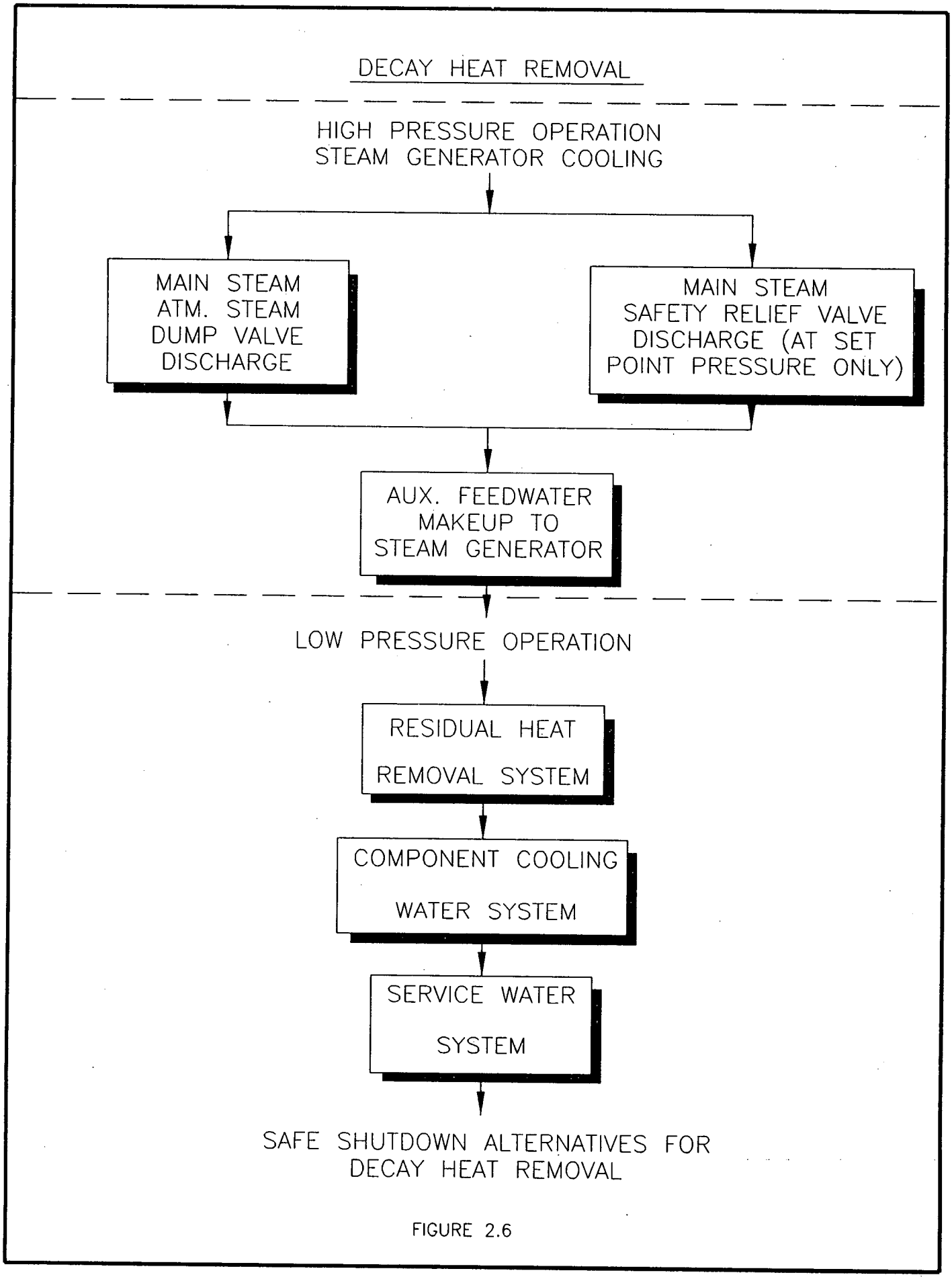
DECAY HEAT REMOVAL
HIGH PRESSURE OPERATION
STEAM GENERATOR COOLING
MAIN STEAM
ATM. STEAM
DUMP VALVE
DISCHARGE
MAIN STEAM
SAFETY RELIEF VALVE
DISCHARGE (AT SET
POINT PRESSURE ONLY)
AUX. FEEDWATER
MAKEUP TO
STEAM GENERATOR
LOW PRESSURE OPERATION
RESIDUAL HEAT
REMOVAL SYSTEM
COMPONENT COOLING
WATER SYSTEM
SERVICE WATER
SYSTEM
SAFE SHUTDOWN ALTERNATIVES FOR
DECAY HEAT REMOVAL

FIGURE 2.6

SECTION 3
RELAY/CONTACT EVALUATION

3.1 INTRODUCTION

A relay functionality review was performed to determine the effects of a SSE on relay/contact function and to determine the seismic adequacy of those relays/contacts for which the effects are unacceptable. This review was performed in accordance with the GIP, Section 6.

The electrically powered and/or controlled equipment required to perform an active function during plant shutdown following an SSE, and inactive equipment for which relay/contact malfunction could cause an undesired spurious operation, require a relay review. This equipment was identified during the preparation of the SSEL as described in Section 2 of this report.

The relay types reviewed included auxiliary relays, protective relays, contactors, control switches, and other similar contact devices occurring in circuits controlling the equipment identified. For purposes of clarity, the word "relay" is used in this report to refer to all types of relays and contacts.

The relay screening/evaluation results are documented on the "Relay Screening and Evaluation Form Relay Tabulation" (Relay Tabulation) forms provided in Appendix C, Volumes 1, 2, and 3 and are summarized on the Relay List, Appendix B.

3.2 APPROACH

Based on the SSEL prepared as described in Section 2 of this report, the process for selecting and evaluating relays was as follows:

1. Identify all relays which must operate in order for the systems to perform their functional requirements or whose malfunction could interfere with the systems' ability to perform its functional requirements.

2. Perform a functional assessment of the relays/circuits identified above. This step will screen out those relays whose function will not prevent a system or component from

performing its' functional requirements nor cause any other unacceptable condition.

3. Those relays which cannot be screened as above are designated as "Essential" and their seismic adequacy must be evaluated.

3.3 ASSUMPTIONS

All relays are initially assumed to malfunction during the period of strong motion (approximately 30 seconds) during an earthquake. Relays whose malfunction is found to be acceptable need not be seismically rugged. Relays whose malfunction is unacceptable are considered to be "Essential" to safe shutdown and their seismic adequacy must be assessed.

Both normal power availability and the impact of a loss of offsite power must be reviewed along with the seismic event in order to determine the worst possible malfunction of the circuits being reviewed.

Earthquake experience and test data indicate that in general relays are not structurally damaged during an earthquake and, therefore, with the exception of certain particularly fragile relays, will continue to function after the period of strong motion. Those relays found to be particularly fragile are identified in Appendix E of Reference 4.

Solid state relays and mechanically-actuated switches are considered to be seismically rugged and need not be evaluated for contact chatter.

If lockout relays or relays wired for seal-in are present, chatter of the relay contact will cause a permanent change of state.

Relay malfunction is defined as contact chatter in the relay itself due to earthquake motion or any other spurious signals from other devices which control the operation of the relay. Relay contact chatter is considered to be the inadvertent opening and closing of a contact with sustained output of two milliseconds or more.

3.4 RELAY REVIEWS

IP-3 diagrams, drawings, procedures and other documents, (Reference 13) were reviewed in order to identify all relays associated with the equipment requiring a relay review and to determine their function within the control and/or power circuits of the piece of equipment being screened/evaluated. The results of the relay

identification is summarized in the Relay List provided in Appendix B.

Components encountered during the screening/evaluations whose failure to function as designed could effect safe shutdown equipment operation or whose seismic adequacy must be determined, were added to the SSEL. This equipment included equipment such as individually mounted electrical equipment (transformers, transfer switches, etc.), instrumentation, and relay and instrumentation mounting structures (panels, cabinets, racks, control boards, etc.).

The process for performing the relay screening/evaluations, provided in Reference 4 results in classifying relays as:

1. Chatter Acceptable (CA)

2 Not Applicable (NA) (component not affected by relays)

3. Not Vulnerable (NV) (mechanically actuated contacts or solid state device)

4. Operator Action Required (OA)

5 Seismically Adequate (GERS)

6. Corrective Action Required (CR)

Relays that can be classified as Items 1 through 4 above need not be seismically adequate. Further evaluation of these contacts is not required. Those relays that cannot be classified as Items 1 through 4 are considered "Essential" for safe shutdown and must be shown to be seismically adequate based on the Generic Equipment Response Spectra (GERS) or specific test data. Essential relays that cannot be shown to be seismically adequate are designated as "outliers" and a corrective action (CR) must be determined.

Circuit evaluation and relay classification was practical for relatively simple circuits, however, more complicated circuits involving numerous relays were initially evaluated for seismic adequacy in order to identify the vulnerable portions of the circuits. These portions were then evaluated for relay malfunction and the associated relays classified accordingly.

Essential relays were then evaluated for seismic adequacy by comparing their seismic capacity, based on GERS, to their seismic demand, IP-3 SSE response spectra.

3.5 ESSENTIAL RELAY SEISMIC DEMAND VERSUS CAPACITY

The purpose of this section is to document the relationship between the actual seismic demand at IP-3 and the seismic capacity of essential relays. Seismic capacity versus demand comparisons were performed in accordance with Section 6 of the GIP.

The results of the comparison of the seismic demands to seismic capacities is documented in the evaluation provided in Appendix D, and summarized on the Relay List, Appendix B and the Relay Review Forms, Appendix C, Volumes 1, 2, and 3.

Reference to the comparison results on the Relay List and Relay Review Forms are indicated by the word "GERS" in the "SAT*" column indicating seismic adequacy or "CR" indicating that the relay is an outlier and corrective action is required.

3.5.1 IP-3 Response Spectra (Demand)

The seismic response spectra provided by NYPA, References 7, 8, and 9, are summarized in Appendix I. Curve 1 shows the comparison of the Seismic Capacity Bounding Spectra provided in the GIP, Section 4, Figure 4.2 page 4-12 to the site specific SSE ground response spectra (5% damping). Curves 2 through 9 are the combination of site specific instructure response spectra (IRS) into curves to show the maximum horizontal acceleration, regardless of direction (E-W or N-S), in a single curve for each specified building and elevation.

In accordance with Reference 2, the IP-3 SSE response spectra has been accepted by the NRC as a "conservative design" spectra for the purpose of comparing seismic capacity to seismic demand at IP-3.

The approach to determining the seismic adequacy of the essential relays is discussed below.

3.5.2 Seismic Capacity Versus Demand

When comparing seismic capacity to demand, there are four (4) screening levels. These levels are defined in the GIP, Reference 1, Section 6, pages 6-16 through 6-21. These levels are:

Level 1 - High capacity relays

Level 2 - Use of in-cabinet amplification factors

Level 3 - Use of in-cabinet response spectra

Level 4 - Use of current qualification methods

3.5.2.1 Level 1 - High Capacity Relays

In order to use this screening level the following caveats must be met:

1. the Seismic Capacity Bounding Spectra provided in the GIP, Section 4, Figure 4.2 page 4-12 must envelope the SSE ground response spectra (5% damping) at the site,

2. the mounting structure for the essential relay is at or below 40 feet above the effective grade of the plant, and

3. none of the essential relays are of the low ruggedness types identified in Reference 4, Appendix E.

In accordance with Curve 1, Appendix I, the IP-3 SSE ground response spectra is enveloped by the Seismic Capacity Bounding Spectra. Therefore, this screening caveat is met.

Low rugged relays were not found in any of the essential relay applications. An extended review was performed to ensure that all potential applications had been reviewed and that no "bad actor" relays exist in circuits that are required for safe shutdown of the plant in accordance with the GIP. This review is discussed below.

Once the above caveats have been met, the essential relays must meet the following criteria:

1. When an essential relay is mounted in a cabinet similar to a conventional MCC, the relay should have a defined spectral acceleration capacity of 5g or higher.

2. When an essential relay is mounted on an unsupported panel or in a typical conventional switchgear cabinet, or it is mounted on a control room panel or benchboard, the relay should have a defined spectral acceleration capacity of 8g or higher.

Many relays reviewed for the IP-3 plant were screened using level 1.

3.5.2.2 Use of In-cabinet Amplification Factors

For this screening method, the seismic capacity of relays is compared to an amplified floor response spectra which simulates the in-cabinet seismic demands. The seismic capacity (CAP) of the relays is based on GERS or test data. The amplified floor response spectra is the peak IRS at the base of the mounting structure multiplied by both an appropriate factor of safety (FS) and an in-cabinet amplification factor (AF). Summarizing (see Reference 1, Section 6, page 6-17):

$$CAP = IRS \times FS \times AF$$

For conservative design horizontal instructure SSE response spectra the FS = 1.0. The AF is determined by the type of mounting structure that the relay is mounted in and is summarized below:

Type of Mounting Structure	Amplification Factor
MCC's	3.0
SWGR or similar large unsupported type panels	7.0
Conventional control panels and benchboards	4.5

Relays that did not pass the Level 1 screening were then screened using this method.

3.5.2.3 Use of In-cabinet Response Spectra

The calculated in-cabinet response spectra for specified cabinets developed using actual cabinet design and relay mounting configurations is required. This calculated in-cabinet seismic demand is then compared to the seismic capacity data which is based on GERS or actual test data.

This method was not used at IP-3.

3.5.2.4 Use of Current Qualification Methods

This method was not used at IP-3.

3.5.2.5 Use of Equipment GERS

Section 6 of the GIP provides direction to use Reference 6 during the relay functionality reviews. Reference 6 provides the guidance for the use of equipment GERS.

Reference 5, Section 5, Relay Screening and Evaluation Procedure, "Step 7" provides the guidance in screening out relays and/or a group of relays using the MCC, SWGR, and Battery Charger GERS presented in Reference 6.

Some relays installed in IP-3 were screened using this method. These relays have been identified on the Relay List by the notation "GERS" in the "Evaluation" column. The relay capacities were obtained from the appropriate GERS package provided in Reference 6 and compared to the floor response spectra for the location of the equipment. In accordance with Reference 5, Section 5, Step 7, mounting structure base acceleration demand can be determined using conservative floor response spectra with no additional amplification.

Additional documentation of this review is provided in Appendix D.

3.5.2.6 Relay Mountings Spot Check

Relay mountings for relays identified as "essential" were spot checked during the seismic verification walkdown to determine that the mounting of the relays was, in general, in accordance with manufacturers recommendations and that no loose conditions or other interaction conditions may exist. The relays were identified and included with the Seismic Evaluation Worksheets (SEWS) for verification during the walkdown. The results of this check found no adverse conditions with the exception of a few loose relay mountings. These loose mountings were identified as seismic verification "outliers" and are included in the Seismic Evaluation Report (SER), Reference 14.

3.6 LOW RUGGED AND "BAD ACTOR" RELAY IDENTIFICATION

In accordance with the GIP, a review was performed to determine if low rugged relays or "Bad Actor" relays (relays that have been shown to be inoperative following an SSE), as identified in Appendix E of Reference 4, were used in any relay applications. Low rugged relays cannot be used in essential relay applications

and "Bad Actor" relays should not be used in **any** relay application required for safe shutdown.

The review consisted of a review of those documents identified as associated with the equipment listed on the SSEL, and other documents which provided listings of the types of relays used throughout the plant. NYPA personnel, both in engineering and at the IP-3 site were consulted in order to further substantiate the findings.

The results of the review determined that no essential relays within the control and power supply circuits associated with SSEL equipment are of the low rugged type listed in Appendix E of Reference 4.

The review also determined that neither "Bad Actor" relays listed in Appendix E of Reference 4, English Electric YCG or GE IJD (non 1E), were used in any control or power supply circuits associated with SSEL listed equipment.

3.7 DESCRIPTION OF RELAY OUTLIERS

Three (3) relay models were found that did not have experience or test data available to establish their seismic capability. These relays are Westinghouse Model M101, M110, and Z. Discussions with Westinghouse revealed that these relays were not designed as seismic relays and have not been tested by Westinghouse. These relays are used in the Emergency Diesel Generator shutdown circuits and are not, therefore, chatter acceptable. These relays will require corrective action and are described on Outlier Seismic Verification Sheets (OSVSs) provided in Appendix H.

SECTION 4 REFERENCES

The following references were used in the performance of these evaluations:

1. NYPA letter No. IPN-92-043, Indian Point 3 Nuclear Power Plant, Docket No. 50-286, Response to Supplement No. 1 to Generic Letter 87-02, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating reactors, Unresolved Safety Issue (USI) A-46," dated September 22, 1992.

2. NRC letter, Docket No. 50-286, Response to Supplement No. 1 to Generic Letter (GL) 87-02 That Transmits Supplemental Safety Evaluation Report No. 2 (SSER No. 2) on Seismic Qualification Utility Group (SQUG) Generic Implementation Procedure, Revision 2, as Corrected February 14, 1992, (GIP-2) - Indian Point Nuclear Generating Unit No. 3 (TAC No. M69454), dated November 18, 1992, NYPA Records Management Services No. 268583.

3. Generic Implementation Procedure (GIP) For Seismic Verification of Nuclear Plant Equipment, Revision 2, Dated June 1991 as approved and commented on by the NRC in their Supplemental Safety Evaluation Report (SSER) No. 2, dated May 22, 1992.

4. EPRI Report Number NP-7148-SL, Procedure for Evaluating Nuclear Power Plant Relay Seismic Functionality, Final Report, Dated December 1990.

5. EPRI Report Number NP-7147-SL, Seismic Ruggedness of Relays, Final Report, Dated August 1991.

6. EPRI Report Number NP-5223-SL, Generic Seismic Ruggedness of Power Plant Equipment (Revision 1), Final Report, Dated August 1991.

7. NYPA Technical Report TR-7366-3, Rev. 0, Digitized Data By Period Design Response Spectra Database for Indian Point Unit No. 3 Nuclear Power Plant, Teledyne Engineering Services, March 22, 1991.

8. Indian Point Unit No. 3 Summary of Seismic Response Spectra Characteristics, Westinghouse Electric Corporation, Nuclear and Advanced Technology Division, Engineering Technology Department, Structural Engineering & Piping Technology, not dated.

9. Seismic Response Curves for Class 1 Buildings for Indian Point Generating Station Unit No. 3, Westinghouse Electric Corporation, PWR Systems Division, June 10, 1971.

10. IP-3 Updated Final Safety Analysis Report (UFSAR).

11. IP-3 Plant Systems Procedures.

12. IP-3 Fluid Flow Path, Electrical Elementary, and Electrical One-line Diagrams, and General Arrangement Drawings.

13. IP-3 Emergency Operating Procedures.

14. Report No. 18904-01, Rev. 0, Seismic Verification Report, Verification of the Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors in Response to NRC Generic Letter 87-02/Unresolved Safety Issue (USI) A-46, for the Indian Point Nuclear Generating Station Unit 3.

APPENDIX A

IP-3 SAFE SHUTDOWN EQUIPMENT LISTS (SSEL)

This Appendix Includes:

1. Composite SSEL
2. Seismic Verification SSEL
3. Relay SSEL

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
00310AL A	00	HVAC					X	OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00310AL B	00	HVAC					X	OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00310AL C	00	HVAC					X	OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00320AL A	00	HVAC					X	OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00320AL B	00	HVAC					X	OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00320AL C	00	HVAC					X	OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00330AL A	00	HVAC					X	OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00330AL B	00	HVAC					X	OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00330AL C	00	HVAC					X	OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
FM-111A	00	CVCS	X					ELECTRO PNEUMATIC CONVERTER	9321-H-39923	B	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.5		RACK C10/1B31-II
T1	00	HVAC					X	A/C UNIT 31/32 THERMOSTAT	9321-LL-31263 SHT.9,10	S		CB	53'-0"	ON	ON	NO			N/A
MCC-32	01	480 VAC					X	480 VAC MCC	9321-F-30043 SHT. 2	S	R	TB	15'-0"	ON	ON	YES	617F644		BUS 3A
MCC-33	01	480 VAC					X	480 VAC MCC	9321-F-30043	S	R	TB	15'-0"	ON	ON	YES	617F644		BUS 2A
MCC-34	01	480 VAC					X	480 VAC MCC	9321-F-30043	S	R	TB	15'-0"	ON	ON	YES	617F644		BUS 2A
MCC-36A	01	480 VAC					X	480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644		BUS 5A
MCC-36A EXTENSION	01	480 VAC					X	480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644		BUS 5A
MCC-36B	01	480 VAC					X	480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644		BUS 6A
MCC-36B EXTENSION	01	480 VAC					X	480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644		BUS 6A
MCC-36C	01	480 VAC					X	480 VAC MCC	9321-F-30063	S	R	CB	15'-0"	ON	ON	YES	617F644		BUS 2A
MCC-37	01	480 VAC					X	480 VAC MCC	9321-F-30053	S	R	PA	55'-0"	ON	ON	YES	617F644		BUS 6A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
MCC-38	01	480 VAC					X	480 VAC MCC	9321-F-30053	S	R	VC	68'-0"	ON	ON	YES	617F644		BUS 5A
MCC-39	01	480 VAC					X	480 VAC MCC	9321-F-30053	S	R	CB	33'-0"	ON	ON	YES	617F644		BUS 5A
SWGR31	02	480 VAC					X	480VAC SWGR 31 (BUS 2A AND BUS 5A)	617F644	S	R	CB	15'-0"	ON	ON	YES	617F645		EDG31 & EDG33
SWGR32	02	480 VAC					X	480VAC SWGR 32 (BUS 3A & BUS 6A)	617F644	S	R	CB	15'-0"	ON	ON	YES	617F645		EDG31 & EDG32
31 BK-UP HTR XFMR	04	RCS					X	PRZR HTR BK UP GROUP 31 TRANSFORMER	WHSE 501B386 SHT. 3	S		CB	33'-0"	DE-ENERG	ENERG	YES	9321-F-31643		480V BUS 3A
32 BK-UP HTR XFMR	04	RCS					X	PRZR HTR BK UP GROUP 32 TRANSFORMER	WHSE 501B386 SHT. 3	S		CB	33'-0"	DE-ENERG	ENERG	YES	9321-F-31723		480V BUS 2A
33 BK-UP HTR XFMR	04	RCS					X	PRZR HTR BK UP GROUP 33 TRANSFORMER	WHSE 501B386 SHT. 3	S		CB	33'-0"	DE-ENERG	ENERG	YES	9321-F-31693		480V BUS 5A
B1G	04	480 VAC					X	480/120 VAC ELGAR TRANSFORMER (FOR IB-33,33A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30053		MCC-39
BC2	04	480 VAC					X	480/120 VAC TRANSFORMER #32 (FOR IB-34,34A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30063		MCC-36B
BF8	04	120 VAC					X	120/120 VAC SOLATRON TRANSFORMER #32	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-39893		BC2
BG1	04	NIS					X	1KVA SOLATRON TRANSFORMER 120V/120V	9321-F-30893	S		CB	33'-0"	ON	ON	YES	9321-F-32003	CKT.5	118VAC IB34
BG2	04	NIS					X	1KVA SOLATRON TRANSFORMER 120V/120V	9321-F-30893	S		CB	33'-0"	ON	ON	YES	9321-F-31993	CKT.5	118VAC IB32
BG3	04	NIS					X	1KVA SOLATRON TRANSFORMER 120V/120V	9321-F-30893	S		CB	33'-0"	ON	ON	YES	9321-F-31993	CKT.5	118VAC IB31
BG4	04	NIS					X	1KVA SOLATRON TRANSFORMER 120V/120V	9321-F-30893	S		CB	33'-0"	ON	ON	YES	9321-F-32003	CKT.5	118VAC IB33
BI3	04	480 VAC					X	480/120 VAC SOLA XFMR (FOR IB-31,31A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30043 SHT. 1		MCC-34

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
BI4	04	480 VAC					X	480/120 VAC SOLA XFMR (FOR IB-32,32A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30043 SHT. 1		MCC-33
BJ1	04	480 VAC					X	480/120 VAC SOLA XFMR (ALT FOR IB-34,34A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30063		MCC-36C
0031CLWP	05	IA					X	31 I/A CMPR COOLING WTR PMP	9321-F-70483	B	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-LL-31293 SHT. 5	COMPT. 4K	MCC 39
0032CLWP	05	IA					X	32 I/A CMPR CL COOLING WTR PMP	9321-F-70483	B	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-LL-31243 SHT. 11	COMPT. 3M	MCC 34
31PWMUP	05	PW			X			31 PRIMARY WATER MAKEUP PUMP	9321-F-27243	S	R	PA	41'-0"	ON	ON	YES	500B971 SHT 83		MCC 37 - 6RK
32PWMUP	05	PW			X			32 PRIMARY WATER MAKEUP PUMP	9321-F-27243	S	R	PA	41'-0"	OFF	OFF	NO			N/A
ABFP-31	05	AFW				X		MOTOR DRIVEN AUX. FEEDWATER PUMP NO. 31	9321-F-20183 SHT 1	S	R	AB	18'-6"	OFF	ON	YES	617F644	SG-32-6D	BUS 3A
ABFP-32	05	AFW				X		TURBINE DRIVEN AUX. FEEDWATER PUMP NO. 32	9321-F-20183 SHT 1	S	R	AB	18'-6"	OFF	ON	YES			MS
ABFP-33	05	AFW				X		MOTOR DRIVEN AUX. FEEDWATER PUMP NO. 33	9321-F-20183 SHT 1	S	R	AB	18'-6"	OFF	ON	YES	617F644	SG-32-11 D	BUS 6A
ACAPCC1	05	CCW					X	CCW PUMP NO 31	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-21 B	BUS 5A
ACAPCC2	05	CCW					X	CCW PUMP NO. 32	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-30 D	BUS 2A
ACAPCC3	05	CCW					X	CCW PUMP NO 33	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-15 D	BUS 6A
CSAPBA1	05	CVCS	X	X	X			BORIC ACID TRANSFER PUMP 31	9321-F-27363	S	R	PA	73'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7RH	MCC-36A
CSAPBA2	05	CVCS	X	X	X			BORIC ACID TRANSFER PUMP 32	9321-F-27363	S	R	PA	73'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7RH	MCC-36B
CSAPCH1	05	CVCS	X	X	X			NO. 31 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-22 C	BUS 5A
CSAPCH2	05	CVCS	X	X	X			NO. 32 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-5C	BUS 3A
CSAPCH3	05	CVCS	X	X	X			NO. 33 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-13 C	BUS 6A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
EDG-31-LO-P	05	EDG					X	DG 31 ENGINE DRIVEN LUBE OIL PUMP	9321-F-21193	B		DG	15'-0"	OFF	ON	YES	9321-LL-31333 SHT.2		MCC 34
EDG-32-LO-P	05	EDG					X	DG 32 ENGINE DRIVEN LUBE OIL PUMP	9321-F-21193	B		DG	15'-0"	OFF	ON	YES	9321-LL-31333 SHT.3		MCC 37
EDG-33-LO-P	05	EDG					X	DG 33 ENGINE DRIVEN LUBE OIL PUMP	9321-F-21193	B		DG	15'-0"	OFF	ON	YES	9321-LL-31333 SHT.4		MCC 39
31 DG FUEL XFER PUMP	06	EDG					X	F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-6"	OFF	ON	YES	9321-F-30063	CMP-1FL	MCC-36C
31 SW PUMP (M)	06	SWN					X	31 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-23 D	BUS 5A
32 DG FUEL XFER PUMP	06	EDG					X	F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-0"	OFF	ON	YES	9321-F-30063	CMP-5RM	MCC-36B
32 SW PUMP (M)	06	SWN					X	32 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-30 B	BUS 2A
33 DG FUEL XFER PUMP	06	EDG					X	F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-0"	OFF	ON	YES	9321-F-30063	CMP-5RM	MCC-36A
33 SW PUMP (M)	06	SWN					X	33 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-10 D	BUS 6A
34 SW PUMP (M)	06	SWN					X	34 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-23 C	BUS 5A
35 SW PUMP (M)	06	SWN					X	35 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-3D	BUS 3A
36 SW PUMP (M)	06	SWN					X	36 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-10 C	BUS 6A
ACAPRH1	06	RHR				X		31 RHR PUMP	9321-F-27513 SHT1	S	R	PA	15'-0"	OFF	ON	YES	617F644		BUS 3A
ACAPRH2	06	RHR				X		32 RHR PUMP	9321-F-27513 SHT1	S	R	PA	15'-0"	OFF	ON	YES	617F644		BUS 6A
953	07	SP	X					PZR LIQ SPC SAMPLE LINE	9321-F-27453	S	R	VC	73'-6"	CLOSED	CLOSED	YES	500B971 SHT.95	CKT.12	125VDC DIST PNL 33
955A	07	SP	X					31 HL SAMPLE LINE	9321-F-27453	S	R	VC	62'-0"	CLOSED	CLOSED	NO			N/A
955B	07	SP	X					33 HL SAMPLE LINE	9321-F-27453	S	R	VC	62'-0"	CLOSED	CLOSED	NO			N/A
956C	07	SP	X					PZR LIQ SPACE SAMPLE LINE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.95	CKT.3	125VDC DIST PNL 31
956D	07	SP	X					PZR LIQ SPACE SAMPLE LINE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.96	CKT.6	125VDC DIST PNL 32

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
956E	07	SP	X					RCS HL SAMPLE LINE ISO VALVE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.96	CKT.3	125VDC DIST PNL 31
956F	07	SP	X					RCS HL SAMPLE LINE ISO VALVE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.96	CKT.6	125VDC DIST PNL 32
958	07	SP	X					RHR SAMPLE LINE VALVE	9321-F-27453	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.96	CKT.12	125VDC DIST PNL 33
959	07	SP	X					RHR SAMPLE LINE VALVE	9321-F-27453	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.96	CKT.12	125VDC DIST PNL 33
AC-791	07	CCW					X	CCW TO EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	CLOSED	CLOSED	NO			N/A
AC-793	07	CCW					X	CCW RETRN FR EXC L/D ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	YES	500B971 SHT. 91	CKT. 3	125VDC DIST PNL 31
AC-796	07	CCW					X	CCW RETRN FR EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0'	CLOSED	CLOSED	YES	500B971 SHT. 92	CKT. 6	125VDC DIST PNL 32
AC-798	07	CCW					X	CCW TO EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	CLOSED	CLOSED	NO			N/A
BFD-FCV-1121	07	AFW				X		31AFP RECIRC LINE CTRL VALVE	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LL-31313 SHT 10	CKT. 5	125VDC DIST PNL 33
BFD-FCV-1123	07	AFW				X		33AFP RECIRC LINE CTRL VALVE	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LL-31313 SHT 11	CKT. 13	125VDC DIST PNL 32
BFD-FCV-405A	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 31 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A
BFD-FCV-405B	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 32 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A
BFD-FCV-405C	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 33 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A
BFD-FCV-405D	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 34 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A
BFD-FCV-406A	07	AFW				X		NO.31 AFWP MAN FLOW CTRL TO 31 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
BFD-FCV-406B	07	AFW				X		NO.31 AFWP MAN FLOW CTRL TO 32 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
BFD-FCV-406C	07	AFW				X		NO.33 AFWP MAN FLOW CTRL TO 33 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
BFD-FCV-406D	07	AFW				X		NO.33 AFWP MAN FLOW CTRL TO 34 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
CH-201	07	CVCS	X	X	X			LETDN LINE ISO VLV	9321-F-27363	S	R	PP	51'-0"	OPEN	OPEN	YES	500B971 SHT.90	CKT.3	125VDC DIST PNL 31
CH-202	07	CVCS	X	X	X			LETDN LINE ISO VLV	9321-F-27363	S	R	PP	51'-0"	OPEN	OPEN	YES	500B971 SHT.90	CKT.6	125VDC DIST PNL 32
CH-310	07	CVCS	X	X	X			DEBORATING DEMIN DIVERSION	9321-F-27363	S	R	PA	42'-0"	OPEN	CLOSED	YES	500B971 SHT.91	CKT.15	125VDC DIST PNL 32

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
CH-AOV-200A	07	CVCS	X	X	X			LETDOWN ORIFICE ISO VALVE	9321-F-27363	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
CH-AOV-200B	07	CVCS	X	X	X			LETDOWN ORIFICE ISO VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.3	125VDC DIST PNL 31
CH-AOV-200C	07	CVCS	X	X	X			LETDOWN ORIFICE ISO VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.3	125VDC DIST PNL 31
CH-AOV-204A	07	CVCS	X	X	X			ALT CHG FLOW NO 32 HOT LEG CTRL VLV	9321-F-27363	S	R	VC	58'-0"	CLOSED	CLOSED	YES	5008971 SHT.90	CKT.15	125VDC DIST PNL 32
CH-AOV-204B	07	CVCS	X	X	X			CHG FLOW NO 31 COLD LEG CTRL VLV	9321-F-27363	S	R	VC	46'-0"	OPEN	OPEN	NO			N/A
CH-AOV-212	07	CVCS	X	X	X			AUX SPRAY CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OP/CLOSED	YES	5008971 SHT.90	CKT.5	125VDC DIST PNL 31
CH-AOV-213A	07	CVCS	X	X	X			EXCESS LETDOWN CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.15	125VDC DIST PNL 32
CH-AOV-213B	07	CVCS	X	X	X			EXCESS LETDOWN CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.5	125VDC DIST PNL 31
CH-AOV-215	07	CVCS	X		X			EXC LETDN LINE DIVERSION CTRL VLV	9321-F-27363	S	R	VC	46'-0"	OPEN	OPEN	YES	5008971 SHT.90	CKT.5	125VDC DIST PNL 31
CH-AOV-246	07	CVCS	X		X			RCP SEAL NO. 1 BYPASS VLV TO VCT	9321-F-27363	S	R	VC	53'-0"	CLOSED	CLOSED	NO			N/A
CH-AOV-261A	07	CVCS			X			31 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-AOV-261B	07	CVCS			X			32 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-AOV-261C	07	CVCS			X			33 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0'	OPEN	OPEN	NO			N/A
CH-AOV-261D	07	CVCS			X			34 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-FCV-110A	07	CVCS	X		X			BORIC ACID FLOW CTRL	9321-F-27363	S	R	PA	80'-0"	CLOSED	OPEN	NO			N/A
CH-FCV-110B	07	CVCS	X		X			BORIC ACID BLNDR OUTLET	9321-F-27363	S	R	PA	73'-0"	CLOSED	OPEN	YES	5008971 SHT. 105	CKT. 5	125VDC DIST PNL 31
CH-FCV-111A	07	CVCS	X		X			PRIMARY WTR MAKEUP VLV	9321-F-27363	S	R	PA	78'-0"	CLOSED	CLOSED	NO			N/A
CH-FCV-111B	07	CVCS	X		X			BLENDER FLOW TO VCT CTRL VALVE	9321-F-27363	S	R	PA	78'-0"	CLOSED	CLOSED	NO			N/A
CH-HCV-123	07	CVCS			X			EXCESS LETDOWN HX OUTFLOW CTRL VALVE	9321-F-27363	S	R	VC	46-0"	CLOSED	CLOSED	NO			N/A
CH-HCV-133	07	CVCS				X		RHR HTX OUTLET TO CVCS	9321-F-27363	S	R	VC	55'-3"	CLOSED	CLOSED	NO			N/A
CH-HCV-142	07	CVCS	X	X	X			REGEN HX FLOW CTRL	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	YES	9321-F-39893	PNL SF	118VAC IB31-II
CH-LCV-112A	07	CVCS			X			MAKE-UP TO VCT 3-WAY VALVE	9321-F-27363	S	R	PA	80'-0"	OPEN	OPEN	YES	5008971 SHT. 105	CKT. 5	125VDC DIST PNL 31
CH-LCV-459	07	CVCS	X	X	X			LETDOWN CTRL VALVE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	YES	5008971 SHT. 106	CKT. 15	125VDC DIST PNL 32
CH-LCV-460	07	CVCS	X	X	X			LETDOWN CTRL VALVE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	YES	5008971 SHT.106	CKT.3	125VDC DIST PNL 31
CH-PCV-113A	07	CVCS	X	X	X			VCT H2 REGULATOR	9321-F-27363	S		PA	75'-0"	OPEN	OPEN	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
CH-PCV-114	07	CVCS	X	X	X			VCT N2 REGULATOR	9321-F-27363	S		PA	74'-0"	CLOSED	OPEN	NO			N/A
CH-PCV-135	07	CVCS	X	X	X			LETDOWN BP CONTROL	9321-F-27363	S	R	PA	75'-0"	OPEN	OPEN	NO			N/A
CH-TCV-149	07	CVCS	X	X	X			DEMIN BYPASS VLV	9321-F-27363	S	R	PA	80'-0"	CLOSED TO VCT	OPEN	YES	500B971 SHT. 106	CKT. 15	125VDC DIST PNL 32
DF-LCV-1207A	07	EDG					X	31 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36C
DF-LCV-1207B	07	EDG					X	31 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36C
DF-LCV-1208A	07	EDG					X	32 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36B
DF-LCV-1208B	07	EDG					X	32 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36B
DF-LCV-1209A	07	EDG					X	33 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36A
DF-LCV-1209B	07	EDG					X	33 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36A
FCV-1176	07	EDG					X	EDG JW/LO CLRS RET HDR FLOW CONT. VLV.	9321-F-27223	S	R	DG	15'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 15	CKT. 5	125VDC DIST PNL 31
FCV-1176A	07	EDG					X	EDG JW/LO CLRS RET HDR FLOW CONT. VLV	9321-F-27223	S	R	DG	15'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 15A	CKT. 5	125VDC DIST PNL 32
HCV-1118	07	AFW				X		32 AFWP TURB GOVRNER	9321-F-20193	S		AB	18'-6"	CLOSED	OPEN	YES	9321-F-39893		RACK 4A/IB31-2
LCV-1158-1	07	COND				X		CST LO LVL CONTROL VALVE	9321-F-20183	S	R	AB	18'-6"	OPEN	CLOSED	YES	9321-LL-31313 SHT 9		I/A
LCV-1158-2	07	COND				X		CST LO LVL CONTROL VALVE	9321-F-20183	S	R	AB	18'-6"	OPEN	CLOSED	YES	9321-LL-31313 SHT 9		I/A
MS-1-31	07	MS				X		31 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	77'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34
MS-1-32	07	MS				X		32 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	65'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34
MS-1-33	07	MS				X		33 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	77'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34
MS-1-34	07	MS				X		34 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	65'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34
MS-45-1	07	MS				X		STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-45-2	07	MS				X		STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-45-3	07	MS				X		STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
MS-45-4	07	MS			X			STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-1	07	MS			X			STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-2	07	MS			X			STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-3	07	MS			X			STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-4	07	MS			X			STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-47-1	07	MS			X			STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-47-2	07	MS			X			STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-47-3	07	MS			X			STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-47-4	07	MS			X			STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-48-1	07	MS			X			STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-48-2	07	MS			X			STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-48-3	07	MS			X			STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-48-4	07	MS			X			STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-49-1	07	MS			X			STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-49-2	07	MS			X			STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
MS-49-3	07	MS				X		STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-49-4	07	MS				X		STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
PCV-1042	07	GAS					X	HYDROGEN SUPPLY PRESSURE CONTROL VALVE	9321-F-20403	S		PA	55'-0"	OPEN	OPEN	NO			N/A
PCV-1043	07	GAS					X	N2 SUPPLY TO VCT PRESS CTRL VALVE	9321-F-27233	B		PA	55'-0"	OPEN	OPEN	NO			N/A
PCV-1044	07	GAS					X	N2 SUPPLY TO VCT PRESS CTRL VALVE	9321-F-27233	B		PA	55'-0"	CLOSED	OPEN	NO			N/A
PCV-1134	07	MS				X		ATM STM RELIEF VALVE 31 SG	9321-F-20173	B	R	AB	74'-0"	CLOSED	OP/CL	YES	9321-F-70123	PNL FBF	I/A
PCV-1135	07	MS				X		ATM STM RELIEF VALVE 32 SG	9321-F-20173	B	R	AB	61'-0"	CLOSED	OP/CL	YES	9321-F-70123	PNL FCR	I/A
PCV-1136	07	MS				X		ATM STM RELIEF VALVE 33 SG	9321-F-20173	B	R	AB	74'-0"	CLOSED	OP/CL	YES	9321-F-70123	PNL FCR	I/A
PCV-1137	07	MS				X		ATM STM RELIEF VALVE 34 SG	9321-F-20173	B	R	AB	61'-0"	CLOSED	OP/CL	YES	9321-F-70123	PNL FBF	I/A
PCV-1139	07	MS				X		AUX FWP TURB STM SUPP PRESS REDUCING VALVE	9321-F-20173	S	R	AB	15'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 19	CKT. 4	125VDC DIST PNL 31
PCV-1142	07	IA					X	INSTRUMENT AIR EMERGENCY MAKEUP VALVE	9321-F-70483	S	R	CB	15'-0"	CLOSED	CLOSED	NO			N/A
PCV-1187	07	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
PCV-1188	07	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
PCV-1189	07	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
PCV-1213	07	AFW				X		PRESSURE CONTROL VALVE	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1228	07	IA					X	I/A SPPLY CONT BLDG INSTR AIR HDR	9321-F-20363,9321-F-70093	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
PCV-1273	07	GAS					X	N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1274	07	GAS					X	N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1275	07	GAS					X	N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1276	07	GAS					X	N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1296	07	SWN					X	31 A/C UNIT CONDENSER	9321-F-27223	S		CB	15'-0"	CLOSED	OPEN	YES			I/A
PCV-1297	07	SWN					X	32 A/C UNIT CONDENSER	9321-F-27223	S		CB	15'-0"	OPEN	OPEN	YES			I/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PCV-1310A	07	MS				X		AUX FWP TURB STM SUPP SHUT-OFF VALVE	9321-F-20173	S	R	AB	30'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 29	CKT. 19	125VDC DIST PNL 33
PCV-1310B	07	MS				X		AUX FWP TURB STM SUPP SHUT-OFF VALVE	9321-F-20173	S	R	AB	36'-0"	CLOSED	OPEN	YES	9312-LL-31313 SHT 29	CKT. 13	125VDC DIST PNL 32
PCV-455A	07	RCS		X				PZR SPRAY CONTROL VALVE	9321-F-27473	S	R	VC	68'-0"	CLOSED	CLOSED	NO			N/A
PCV-455B	07	RCS		X				PZR SPRAY CONTROL VALVE	9321-F-27473	S	R	VC	68'-0"	CLOSED	CLOSED	NO			N/A
PCV-455C	07	RCS		X				PRESSURIZER PORV	9321-F-27473	S	R	VC	124'-0	CLOSED	CLOSED	NO			N/A
PCV-456	07	RCS		X				PRESSURIZER PORV	9321-F-27473	S	R	VC	124'-0	CLOSED	CLOSED	NO			N/A
PCV-473	07	RCS		X				N2 SUPPLY TO PRT	9321-F-27473	S		PA	41'-0"	OPEN	OPEN	NO			N/A
PRV-6300	07	GAS					X	N2 TO PORV 456 REG VALVE	9321-F-27203	S		VC	68'-0"	OPEN	OPEN	NO			N/A
PRV-6301	07	GAS					X	N2 TO PORV 455C REG VALVE	9321-F-27203	S		VC	68'-0"	OPEN	OPEN	NO			N/A
RC-519	07	RCS		X				PRIMARY WATER MAKE-UP TO PRT VALVE	9321-F-27473	S	R	PP	41'-0"	CLOSED	CLOSED	NO			N/A
RC-523	07	RCS		X				PRT DRAIN VALVE	9321-F-27473	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
RC-544	07	RCS		X	X			REACTOR VESSEL FLANGE LEAK-OFF CTRL VLV	9321-F-27383	S	R	VC	60'-0"	OPEN	CLOSED	YES	500B971 SHT.91	CKT.5	125VDC DIST PNL 31
RC-549	07	RCS		X				PRESS RELIEF GAS ANALYZER CTRL VALVE	9321-F-27473	S	R	PA	54'-0"	CLOSED	CLOSED	NO			N/A
RC-552	07	RCS		X				PRIMARY WATER MAKE-UP TO PRT VALVE	9321-F-27473	S	R	PP	41'-0"	CLOSED	CLOSED	NO			N/A
RC-560	07	RCS		X				PRT SPRAY ISO STOP VALVE	9321-F-27473	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
SWN-TCV-1103	07	SWN					X	CFCU OUTLET CONTROL VLV	9321-F-27223	S	R	PP	35'-0"	OPEN	OPEN	YES	9321-F-39893		118VAC 1B32-I
SWN-TCV-1104	07	SWN					X	CFCU OUTLET BYPASS VLV	9321-F-27223	S	R	PP	35'-0"	CLOSED	CLOSED	NO		PANEL SB2	N/A
SWN-TCV-1105	07	SWN					X	CFCU OUTLET BYPASS VLV	9321-F-27223	S	R	PP	35'-0"	CLOSED	CLOSED	NO			N/A
SWN-TCV-1113	07	SWN					X	INST AIR CC HX SW OUTLET TCV	9321-F-27223	S	R	CB	15'-0"	OPEN	OPEN	YES	9321-LD-72543 SHT.8		I/A
TCV-130	07	CCW					X	NON REGEN HX OUTLET TCV	9321-F-27513 SHT1	S	R	PA	73'-0"	OPEN	OPEN	NO			N/A
AC-FCV-625	08	CCW					X	CCW RET FR RCP MTR COOLERS	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0730	08	ACS				X		RHR SUCT LN ISO VLV	9321-F-27203	S	R	VC	56'-6"	CLOSED	OPEN	YES	500B971 SHT. 110	COMPT. 2FM	MCC-36A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
AC-MOV-0731	08	ACS				X		RHR SUCT LN ISO VLV	9321-F-27203	S	R	VC	59'-6"	CLOSED	OPEN	YES	500B971 SHT. 110	COMPT. 2FM	MCC-36B
AC-MOV-0743	08	ACS				X		RHR PUMP MINI FLOW TEST LINE	9321-F-27513 SHT. 1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0744	08	ACS				X		RHR PUMP DISCH ISO VLV	9321-F-27513 SHT. 1	S	R	PA	15'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0745A	08	ACS				X		RHR HEAT EXCHANGER 32 INLET ISOLATION VLV	9321-F-27203	S	R	VC	66'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0745B	08	ACS				X		RHR HEAT EXCHANGER 32 INLET ISOLATION VLV	9321-F-27203	S	R	VC	66'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0746	08	ACS				X		#32 RHR HX OUTLT ISO STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0747	08	ACS				X		#31 RHR HX OUTLT ISO STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
AC-MOV-1870	08	ACS				X		RHR PUMP MINI FLOW TEST LINE VALVE	9321-F-27513 SHT. 1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-769	08	CCW					X	CCW SUPP-RCP ISO	9321-F-27513 SHT1	S	R	PA	55'-7"	OPEN	OPEN	NO			N/A
AC-MOV-784	08	CCW					X	CCW RET FR RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-786	08	CCW					X	CCW RET FR RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-789	08	CCW					X	CCW RET FR RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-797	08	CCW					X	CCW SUPP-RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-822A	08	CCW					X	RHR HTX ISO. VLV	9321-F-27513	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.111		MCC 36A
AC-MOV-822B	08	CCW					X	RHR HTX ISO. VLV	9321-F-27513	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.111		MCC 36B
CH-LCV-112B	08	CVCS	X		X			RWST TO CHARGING PUMP SUCTION VALVE	9321-F-27363	S	R	PA	65'-0"	CLOSED	CLOSED	YES	500B971 SHT. 110	COMPT. 1RH	MCC-36B
CH-LCV-112C	08	CVCS			X			VCT OUTLET ISO VLV	9321-F-27363	S	R	PA	73'-0"	OPEN	OPEN	NO			N/A
CH-MOV-205	08	CVCS	X	X	X			CHARGING FLOW TO RCS ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-222	08	CVCS	X		X			RCP SEAL WTR RETURN ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-226	08	CVCS	X	X	X			CHARGING LINE CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250A	08	CVCS			X			31 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250B	08	CVCS			X			32 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250C	08	CVCS			X			33 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250D	08	CVCS			X			34 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-333	08	CVCS	X		X			BORIC ACID FEED TO CHG PUMPS VALVE	9321-F-27363	S	R	PA	73'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
CH-MOV-441	08	CVCS			X			31 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-442	08	CVCS			X			32 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-443	08	CVCS			X			33 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-444	08	CVCS			X			34 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-SOV-265	08	CVCS	X	X				VCT GAS ANALYZER SAMPLE VALVE	9321-F-27363	S	R	PA	73'-0"	CLOSED	CLOSED	NO			N/A
CH-SOV-268	08	CVCS	X	X	X			VCT VENT ISO VALVE	9321-F-27363	S	R	PA	73'-0"	CLOSED	CLOSED	NO			N/A
RC-MOV-535	08	RCS		X	X			PORV BLK VLV 455C	9321-F-27473	S	R	VC	124'-0	OPEN	OPEN	YES	9321-F-30063	COMPT. 1FH	MCC-36B
RC-MOV-536	08	RCS		X	X			PORV BLK VLV 456	9321-F-27473	S	R	VC	124'-0	OPEN	OPEN	YES	9321-F-30063	COMPT. 1FH	MCC-36A
SI-HCV-638	08	SIS				X		RHR HTX 31 DISCH. THROTTLE VLV.	9321-F-27353 SHT. 1	S	R	VC	66'-0"	OPEN	OPEN	YES	500B971 SHT.137		MCC-36B
SI-HCV-640	08	SIS				X		RHR HTX 32 DISCH. THROTTLE VLV.	9321-F-27353 SHT. 1	S	R	VC	66'-0"	OPEN	OPEN	YES	500B971 SHT.137		MCC-36A
SI-MOV-0882	08	SIS	X			X		RWST SUPPLY TO RHR PUMPS	9321-F-27503 SHT. 2	S	R	PA	15'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 4FD	MCC-36B
SI-MOV-0885A	08	SIS				X		RHR PUMPS SUCTION FROM CONTAINMENT SUMP	9321-F-27503 SHT2	S	R	PA	34'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-0885B	08	SIS				X		RHR PUMPS SUCTION FROM CONTAINMENT SUMP	9321-F-27503 SHT. 2	S	R	PA	34'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-0888A	08	SIS				X		HIGH HEAD INJECTION RECIRC STOP	9321-F-27503	S	R	PA	51'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-0888B	08	SIS				X		HIGH HEAD INJECTION RECIRC STOP	9321-F-27503	S	R	PA	51'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-0889A	08	SIS				X		CTMT SPRAY HEADER ISO VALVE	9321-F-27353 SHT. 1	S	R	VC	72'-6"	CLOSED	CLOSED	NO			N/A
SI-MOV-0889B	08	SIS				X		CTMT SPRAY HEADER ISO VALVE	9321-F-27353 SHT. 1	S	R	VC	72'-6"	CLOSED	CLOSED	NO			N/A
SI-MOV-0894A	08	SIS		X	X	X		NO. 31 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 3RM	MCC-36A
SI-MOV-0894B	08	SIS		X	X	X		NO. 32 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 3RM	MCC-36B

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
SI-MOV-0894C	08	SIS		X	X	X		NO. 33 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 2RD	MCC-36A
SI-MOV-0894D	08	SIS		X	X	X		NO. 34 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 2RD	MCC-36B
SI-MOV-0899A	08	ACS				X		RHR HTX 32 OUTLET STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
SI-MOV-0899B	08	ACS				X		RHR HTX 31 OUTLET STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
SI-MOV-1802A	08	SIS				X		SIS RECIRC PUMP DISCHARGE VALVE	9321-F-27353	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-1802B	08	SIS				X		SIS RECIRC PUMP DISCHARGE VALVE	9321-F-27353	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-1810	08	SIS	X					MOV RWST TO SI PUMP ISO VALVE	9321-F-27503	S	R	PA	15'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 8FD	MCC-36A
SI-MOV-1869A	08	SIS				X		RHR HX 32 TO RHR MINI FLOW VALVES	9321-F-27353	S	R	VC	55'-0"	OPEN	OPEN	YES	500B971 SHT.116	COMPT. 7FH	MCC-36A
SI-MOV-1869B	08	SIS				X		RHR HX 31 TO RHR MINI FLOW VALVES	9321-F-27353	S	R	VC	55'-0"	OPEN	OPEN	YES	500B971 SHT.116	COMPT. 7FH	MCC-36B
SOV-110A-1	08	CVCS	X		X			CH-FCV-110A SOLENOID VALVE	9321-F-27363	B		PA	80'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-110B-1	08	CVCS	X		X			CH-FCV-110B SOLENOID VALVE	9321-F-27363	S		PA	73'-0"	DE-ENERG	ENERG	YES	500B971 SHT.105	CKT.5	125VDC DIST PNL 31
SOV-111A-1	08	CVCS	X		X			CH-FCV-111A SOLENOID VALVE	9321-F-27363	S	R	PA	78'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-111B-1	08	CVCS	X		X			CH-FCV-111B SOLENOID VALVE	9321-F-27363	B		PA	78'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-112A-1	08	CVCS			X			CH-LCV-112A SOLENOID VALVE	9321-F-27363	S	R	PA	80'-0"	ENERG	ENERG	YES	500B971 SHT.105	CKT.5	125VDC DIST PNL 31
SOV-1139-1	08	MS				X		PCV-1139 SOLENOID VALVE	9321-F-20173	S		AB	15'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.19	CKT.4	125VDC DIST PNL 31
SOV-1139-2	08	MS				X		PCV-1139 SOLENOID VALVE	9321-F-20173	S		AB	15'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.19	CKT.4	125VDC DIST PNL 31
SOV-1142-1	08	IA					X	PCV-1142 SOLENOID VALVE	9321-F-20363	B		CB	15'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-1170	08	SWN					X	SWN-TCV-1104 SOLENOID VALVE	9321-F-27223	B		PP	35'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-1171	08	SWN					X	SWN-TCV-1105 SOLENOID VALVE	9321-F-27223	B		PP	35'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-1177	08	IA					X	31 IAC AC CNTRL VALVE	9321-F-23913	B	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31293 SHT.2	COMPT. 3M	MCC 39
SOV-1178	08	IA					X	32 IAC AC CNTRL VALVE	9321-F-23913	B	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31243 SHT.10	COMPT. 1G	MCC 34

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
SOV-1198	08	IA				X	31	AFTERCOOLER INLET SOLENOID	9321-F-20363	B	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31193 SHT 2	COMPT. 3M	MCC 39
SOV-1199	08	IA				X	32	AFTERCOOLER INLET SOLENOID	9321-LL-31243	B	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31243 SHT 10	COMPT. 1G	MCC 34
SOV-1230	08	IA				X	SG 31	MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1231	08	IA				X	SG 31	MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1232	08	IA				X	SG 31	MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1233	08	IA				X	SG 31	MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1234	08	IA				X	SG 32	MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1235	08	IA				X	SG 32	MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1236	08	IA				X	SG 32	MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1237	08	IA				X	SG 32	MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1238	08	IA				X	SG 33	MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1239	08	IA				X	SG 33	MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1240	08	IA				X	SG 33	MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1241	08	IA				X	SG 33	MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1242	08	IA				X	SG 34	MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1243	08	IA				X	SG 34	MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1244	08	IA				X	SG 34	MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1245	08	IA				X	SG 34	MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1258-1	08	COND		X				LCV-1158-1 SOLENOID VALVE	9321-F-20183	B		AB	18'-6"	ENERG	DE-ENERG	YES	9321-LL-31313 SHT.9		I/A
SOV-1258-2	08	COND		X				LCV-1158-2 SOLENOID VALVE	9321-F-20183	B		AB	18'-6"	ENERG	DE-ENERG	YES	9321-LL-31313 SHT.9		I/A
SOV-1274	08	EDG				X		FCV-1176 SOLENOID VALVE	9321-F-27223	B		DG	15'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.15	CKT.5	125VDC DIST PNL 31
SOV-1275	08	EDG				X		FCV-1176A SOLENOID VALVE	9321-F-27223	B		DG	15'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.15A	CKT.5	125VDC DIST PNL 32
SOV-1276	08	EDG				X		FCV-1176 SOLENOID VALVE	9321-F-27223	B		DG	15'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.15	CKT.5	125VDC DIST PNL 31
SOV-1276A	08	EDG				X		FCV-1176A SOLENOID VALVE	9321-F-27223	B		DG	15'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.15A	CKT.5	125VDC DIST PNL 32
SOV-1287	08	COND		X				PCV-1187 SOLENOID VALVE	9321-F-20183	B		AB	18'-6"	DE-ENERG	DE-ENERG	NO			N/A
SOV-1288	08	COND		X				PCV-1188 SOLENOID VALVE	9321-F-20183	B		AB	18'-6"	DE-ENERG	DE-ENERG	NO			N/A
SOV-1289	08	COND		X				PCV-1189 SOLENOID VALVE	9321-F-20183	B		AB	18'-6"	DE-ENERG	DE-ENERG	NO			N/A
SOV-1310	08	MS		X				PCV-1310A SOLENOID VALVE	9321-F-20173	B		AB	36'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.29	CKT.19	125VDC DIST PNL 33

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
SOV-1311	08	MS				X		PCV-1310B SOLENOID VALVE	9321-F-20173	B		AB	36'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.29	CKT.13	125VDC DIST PNL 32
SOV-1321	08	AFW				X		BFD-FCV-1121 SOLENOID VALVE	9321-F-20193	B		AB	18'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.10	CKT. 5	125VDC DIST PNL 33
SOV-1323	08	AFW				X		BFD-FCV-1123 SOLENOID VALVE	9321-F-20193	B		AB	18'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.11	CKT. 13	125VDC DIST PNL 32
SOV-133-1	08	CVCS				X		CH-HCV-133 SOLENOID VALVE	9321-F-27363	B		VC	55'-3"	DE-ENERG	DE-ENERG	NO			N/A
SOV-1428	08	IA					X	SOLENOID VALVE FOR PCV-1228	9321-F-20363	B		PP	41'-0"	ENERG	ENERG	YES	9321-LL-31313 SHT. 19	CKT. 3	125VDC DIST PNL 31
SOV-149-1	08	CVCS	X	X	X			CH-TCV-149 SOLENOID VALVE	9321-F-27363	S		PA	80'-0"	ENERG	ENERG	YES	500B971 SHT.106	CKT.15	125VDC DIST PNL 32
SOV-200A-1	08	CVCS	X	X	X			CH-AOV-200A SOLENOID VALVE	9321-F-27363	S		VC	46'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-200B-1	08	CVCS	X	X	X			CH-AOV-200B SOLENOID VALVE	9321-F-27363	S		VC	46'-0"	DE-ENERG	ENERG	YES	500B971 SHT.90	CKT.3	125VDC DIST PNL 31
SOV-200C-1	08	CVCS	X	X	X			CH-AOV-200C SOLENOID VALVE	9321-F-27363	S		VC	46'-0"	DE-ENERG	ENERG	YES	500B971 SHT.90	CKT.	125VDC DIST PNL 31
SOV-201-1	08	CVCS	X	X	X			CH-201 SOLENOID VALVE	9321-F-27363	B		PP	51'-0"	ENERG	ENERG	YES	500B971 SHT.90	CKT.3	125VDC DIST PNL 31
SOV-202-1	08	CVCS	X	X	X			CH-202 SOLENOID VALVE	9321-F-27363	B		PP	51'-0"	ENERG	ENERG	YES	500B971 SHT.90	CKT.6	125VDC DIST PNL 32
SOV-204A-1	08	CVCS	X	X	X			CH-AOV-204A SOLENOID VALVE	9321-F-27363	B		VC	58'-0"	ENERG	DE-ENERG	YES	500B971 SHT.90	CKT.15	125VDC DIST PNL 32
SOV-204B-1	08	CVCS	X	X	X			CH-AOV-204B SOLENOID VALVE	9321-F-27363	B		VC	46'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-212-1	08	CVCS	X	X	X			CH-AOV-212 SOLENOID VALVE	9321-F-27362	S		VC	46'-0"	DE-ENERG	ENERG	YES	500B971 SHT.90	CKT.5	125VDC DIST PNL 31
SOV-213A-1	08	CVCS	X	X	X			CH-213A SOLENOID VALVE	9321-F-27363	B		VC	46'-0"	DE-ENERG	ENERG	YES	500B971 SHT.90	CKT.15	125VDC DIST PNL 32
SOV-213B-1	08	CVCS	X	X	X			CH-213B SOLENOID VALVE	9321-F-27363	B		VC	46'-0"	DE-ENERG	ENERG	YES	500B971 SHT.90	CKT.5	125VDC DIST-PNL 31
SOV-215-1	08	CVCS	X	X	X			CH-AOV-215 SOLENOID VALVE	9321-F-27363	S		VC	46'-0"	ENERG	ENERG	YES	500B971 SHT.90	CKT.5	125VDC DIST PNL 31
SOV-246-1	08	CVCS	X		X			CH-AOV-246 SOLENOID VALVE	9321-F-27262	B		VC	53'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-261A-1	08	CVCS			X			CH-AOV-261A SOLENOID VALVE	9321-F-27363	B		VC	79'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-261B-1	08	CVCS			X			CH-AOV-261B SOLENOID VALVE	9321-F-27363	B		VC	79'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-261C-1	08	CVCS			X			CH-AOV-261C SOLENOID VALVE	9321-F-27363	B		VC	79'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-261D-1	08	CVCS			X			CH-AOV-261D SOLENOID VALVE	9321-F-27363	B		VC	79'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-310-1	08	CVCS	X	X	X			CH-310 SOLENOID VALVE	9321-F-27363	S		PA	42'-0"	ENERG	ENERG	YES	500B971 SHT.91	CKT.15	125VDC DIST PNL 32
SOV-455A-1	08	RCS		X				PCV-455A SOLENOID VALVE	9321-F-27473	B		VC	68'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-455B-1	08	RCS		X				PCV-455B SOLENOID VALVE	9321-F-27473	B		VC	68'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-455C-1	08	RCS		X				PCV-455C SOLENOID VALVE	9321-F-27473	B		VC	124'-0	DE-ENERG	DE-ENERG	NO			N/A
SOV-456-1	08	RCS		X				PCV-456 SOLENOID VALVE	9321-F-27473	B		VC	124'-0	DE-ENERG	DE-ENERG	NO			N/A
SOV-459-1	08	CVCS	X	X	X			LETDOWN STOP VALVE	9321-F-27363	S		VC	79'-0"	ENERG	ENERG	YES	500B971 SHT.106	CKT.15	125VDC DIST PNL 32
SOV-460-1	08	CVCS	X	X	X			CH-LCV-460 SOLENOID VALVE	9321-F-27363	S	R	VC	79'-0"	ENERG	ENERG	YES	500B971 SHT. 106	CKT.3	125VDC DIST PNL 31
SOV-519-1	08	RCS		X				RC-519 SOLENOID VALVE	9321-F-27473	B		PP	41'-0"	DE-ENERG	DE-ENERG	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
SOV-523-1	08	RCS	X					RC-523 SOLENOID VALVE	9321-F-27473	B		VC	46'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-544-1	08	RCS	X					RC-544 SOLENOID VALVE	9321-F-27473	S		VC	60'-0"	ENERG	DE-ENERG	YES	500B971 SHT.91	CKT. 5	125VDC DIST PNL 31
SOV-549-1	08	RCS	X					RC-549 SOLENOID VALVE	9321-F-27473	S		PA	54'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-552-1	08	RCS	X					RC-552 SOLENOID VALVE	9321-F-27473	S		PP	41'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-560-1	08	RCS	X					RC-560 SOLENOID VALVE	9321-F-27473	S		VC	46'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-791-1	08	CCW				X		AC-791 SOLENOID VALVE	9321-F-27513 SHT.1	B		PP	51'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-793-1	08	CCW				X		AC-793 SOLENOID VALVE	9321-F-27513 SHT.1	S	R	PP	51'-0"	DE-ENERG	DE-ENERG	YES	500B971 SHT.91	CKT.3	125VDC DIST PNL 31
SOV-796-1	08	CCW				X		AC-796 SOLENOID VALVE	9321-F-27513 SHT.1	B		PP	51'-0"	ENERG	ENERG	YES	500B971 SHT.92	CKT.6	125VDC DIST PNL 32
SOV-798-1	08	CCW				X		AC-798 SOLENOID VALVE	9321-F-27513 SHT.1	B		PP	51'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-953-1	08	SP	X					953 SOLENOID VALVE	9321-F-27453	B		VC	73'-0"	DE-ENERG	DE-ENERG	YES	500B971 SHT.95		125VDC DIST PNL 33
SOV-955A-1	08	SP	X					955A SOLENOID VALVE	9321-F-27453	B		VC	62'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-955B-1	08	SP	X					955B SOLENOID VALVE	9321-F-27453	B		VC	62'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-956C-1	08	SP	X					956C SOLENOID VALVE	9321-F-27453	S		PP	41'-0"	ENERG	ENERG	YES	500B971 SHT.95		125VDC DIST PNL 31
SOV-956D-1	08	SP	X					956D SOLENOID VALVE	9321-F-27453	S		PP	41'-0"	EMERG	ENERG	YES	500B971 SHT.96		125VDC DIST PNL 32
SOV-956E-1	08	SP	X					956E SOLENOID VALVE	9321-F-27453	S		PP	41'-0"	ENERG	ENERG	YES	500B971 SHT.96		125VDC DIST PNL 31
SOV-956F-1	08	SP	X					956F SOLENOID VALVE	9321-F-27453	S		PP	41'-0"	ENERG	ENERG	YES	500B971 SHT.96		125VDC DIST PNL 32
SOV-958-1	08	SP	X					958 SOLENOID VALVE	9321-F-27453	B		PP	41'-0"	DE-ENERG	ENERG	YES	500B971 SHT.96		125VDC DIST PNL 33
SOV-959-1	08	SP	X					959 SOLENOID VALVE	9321-F-27453	B		PP	41'-0"	DE-ENERG	ENERG	YES	500B971 SHT.96		125VDC DIST PNL 33
0031ETEF	09	HVAC				X		EL TNL EXHAUST FAN 31 (LOWER)	9321-F-41023	S	R	ET	34'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 1FB	MCC-36A
0032ETEF	09	HVAC				X		EL TNL EXHAUST FAN 32 (LOWER)	9321-F-41023	S	R	ET	34'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 1FB	MCC-36B
0033ETEF	09	HVAC				X		EL TNL EXHAUST FAN 33 (UPPER)	9321-F-41023	S	R	ET	46'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7FB	MCC-36A
0034ETEF	09	HVAC				X		EL TNL EXHAUST FAN 34 (UPPER)	9321-F-41023	S	R	ET	46'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7FB	MCC-36B
31 PABEF	09	HVAC				X		PRIMARY AUX BUILDING EXHAUST FAN	9321-F-40223	S	R	FR	72'-0"	ON	ON	YES	617F644		480V BUS 3A
31CRDF	09	HVAC				X		CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2D	MCC-38

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
32 PABEF	09	HVAC					X	PRIMARY AUX BUILDING EXHAUST FAN	9321-F-40223	S	R	FR	72'-0"	ON	ON	YES	617F6444		480V BUS 6A
32CRDF	09	HVAC					X	CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2F	MCC-38
33CRDF	09	HVAC					X	CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2H	MCC-38
34CRDF	09	HVAC					X	CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2K	MCC-38
F-311	09	HVAC					X	AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	18'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-312	09	HVAC					X	AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	18'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-313	09	HVAC					X	AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	32'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-314	09	HVAC					X	EDG 31 CMPT EF 314	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-315	09	HVAC					X	EDG 31 CMPT EF 315	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
F-316	09	HVAC					X	EDG 32 CMPT EF 316	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-317	09	HVAC					X	EDG 32 CMPT EF 317	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
F-318	09	HVAC					X	EDG 33 CMPT EF 318	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-319	09	HVAC					X	EDG 33 CMPT EF 319	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
PABSF	09	HVAC					X	PRIMARY AUX BUILDING SUPPLY FAN	9321-F-40223	S	R	PA	41'-0"	ON	ON	YES	9321-F-31893		MCC 37
0031CRFU	10	HVAC					X	31 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 5A
0032CRFU	10	HVAC					X	32 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 2A
0033CRFU	10	HVAC					X	33 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 5A
0034CRFU	10	HVAC					X	34 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 3A
0035CRFU	10	HVAC					X	35 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 6A
ACU31	10	HVAC					X	CONTROL ROOM A/C UNIT 31	9321-F-41023	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063	COMPT. 6FB	MCC-36A
ACU32	10	HVAC					X	CONTROL ROOM A/C UNIT 32	9321-F-41023	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063	COMPT. 6FB	MCC-36B
0031 IAC	12	IA					X	INST AIR COMP 31	9321-F-20363	S	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-F-30053	COMPT. 3M	MCC-39

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
0032 IAC	12	IA					X	INST AIR COMP 32	9321-F-20363	S	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-F-30043	COMPT. 1G	MCC-34
BK-UP GRP 31 DIST PNL	14	RCS					X	PRZR HTR BK UP GROUP 31 DIST PNL	WHSE 501B386 SHT. 1	S		ET	46'-0"	DE-ENERG	ENERG	YES	WHSE 501B386 SHT. 3		480V BUS 3A
BK-UP GRP 32 DIST PNL	14	RCS					X	PRZR HTR BK UP GROUP 32 DIST PNL	WHSE 501B386 SHT. 1	S		ET	46'-0"	DE-ENERG	ENERG	YES	WHSE 501B386 SHT. 3		480V BUS 2A
BK-UP GRP 33 DIST PNL	14	RCS					X	PRZR HTR BK UP GROUP 33 DIST PNL	WHSE 501B386 SHT. 1	S		ET	46'-0"	DE-ENERG	ENERG	YES	WHSE 501B386 SHT. 3		480V BUS 5A
CBBATT31	14	DC					X	800A BATTERY 31 CIRCUIT BREAKER	9321-F-30083	B	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY31
CBBATT32	14	DC					X	800A BATTERY 32 CIRCUIT BREAKER	9321-F-30083	B	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY32
CBBATT33	14	DC					X	400A BATTERY 33 CIRCUIT BREAKER	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY33
CBBATT34	14	DC					X	600A BATTERY 34 CIRCUIT BREAKER	9321-F-30083	B	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY34
K50	14	118 VAC					X	118 VAC INST BUS 31A	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 31
K51	14	118 VAC					X	118 VAC INST BUS 32A	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 32
PE6	14	118 VAC					X	118 VAC INSTR BUS 34	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 34
PE7	14	118 VAC					X	118 VAC INSTR BUS 33	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 33
PE8	14	118 VAC					X	118 VAC INST BUS 31	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 31
PE9	14	118 VAC					X	118 VAC INST BUS 32	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 32
PNL K48	14	DC					X	125 VDC DISTRIBUTION PNL 31A	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL K49	14	DC					X	125 VDC DISTRIBUTION PNL 32A	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PNL PC1	14	DC					X	125 VDC POWER PANEL #31	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 31
PNL PC2	14	DC					X	125 VDC POWER PANEL #32	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 32
PNL PC3	14	DC					X	125 VDC DISTRIBUTION PNL 31	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL PC4	14	DC					X	125 VDC DISTRIBUTION PNL 32	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
PNL PC8	14	DC					X	125 VDC DISTRIBUTION PNL 33	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL PC9	14	DC					X	125 VDC POWER PANEL #33	9321-F-30083	S	R	CB	15'-0"	ON	ON	YES	9321-F-30083		BATTERY 33
PNL PD9	14	DC					X	125 VDC DISTRIBUTION PNL 34	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
PNL PF7	14	DC					X	125 VDC POWER PANEL #34	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 34
BATTERY 31	15	DC					X	BATTERY BANK 31	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		31CHGR
BATTERY 32	15	DC					X	BATTERY BANK 32	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		32CHGR
BATTERY 33	15	DC					X	BATTERY BANK 33	9321-F-30523	S	R	DG	15'-0"	ON	ON	YES	9321-F-30083		33CHGR
BATTERY 34	15	DC					X	BATTERY BANK 34	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		34CHGR
31CHGR (GE3)	16	DC					X	BATTERY CHARGER 31	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30053		MCC39
32CHGR (GE4)	16	DC					X	BATTERY CHARGER 32	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30053		MCC37
33CHGR (GE8)	16	DC					X	BATTERY CHARGER 33	9321-F-30523	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063		MCC36C
34CHGR (GF3)	16	DC					X	BATTERY CHARGER 34	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30043 SHT. 2		MCC32
B1G	16	118 VAC					X	INST BUS 33,33A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
B13	16	118 VAC					X	STATIC INVERTER #31 FUSE BOX	9321-F-39893	S		CB	33'-0"	ENERG	ENERG	NO			N/A
B14	16	118 VAC					X	STATIC INVERTER #32 FUSE BOX	9321-F-39893	S		CB	33'-0"	ENERG	ENERG	NO			N/A
EGA1	16	118 VAC					X	25 KVA STATIC INVERTER #31	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
EGA2	16	118 VAC					X	25 KVA STATIC INVERTER #32	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
GC9	16	118 VAC					X	25 KVA STATIC INVERTER #33	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 33
GF2	16	118 VAC					X	25 KVA STATIC INVERTER #34	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 34

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
K4C	16	118 VAC					X	STATIC INVERTER #33 FUSE BOX	9321-F-39893	S		CB	33'-0"	ENERG	ENERG	NO			N/A
K4F	16	118 VAC					X	INST BUS 31,31A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
K4G	16	118 VAC					X	INST BUS 32,32A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
KG7	16	118 VAC					X	MANUAL TRANSFER SWITCH #34	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
DG-31	17	EDG					X	DIESEL GEN NO. 31	9321-F-20303	S	R	DG	15'-0"	OFF	ON	NO			N/A
DG-32	17	EDG					X	DIESEL GEN NO. 32	9321-F-20303	S	R	DG	15'-0"	OFF	ON	NO			N/A
DG-33	17	EDG					X	DIESEL GEN NO. 33	9321-F-20303	S	R	DG	15'-0"	OFF	OFF	NO			N/A
BUS 2A-VM	18	480 VAC					X	VOLTAGE MONITOR	113E700 SHT 9	B	R	CB	53'-0"	ON	ON	YES	617F644		BUS 2A
BUS 3A-VM	18	480 VAC					X	VOLTAGE MONITOR	113E700 SHT 9	B	R	CB	53'-0"	ON	ON	YES	617F644		BUS 3A
BUS 5A-VM	18	480 VAC					X	VOLTAGE MONITOR	113E700 SHT 9	B	R	CB	53'-0"	ON	ON	YES	617F644		BUS 5A
BUS 6A-VM	18	480 VAC					X	VOLTAGE MONITOR	113E700 SHT 9	B	R	CB	53'-0"	ON	ON	YES	617F644		BUS 6A
DG-31-VM	18	EDG					X	DG 31 VOLTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
DG-31-WM	18	EDG					X	DG 31 WATTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
DG-32-VM	18	EDG					X	DG 32 VOLTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
DG-32-WM	18	EDG					X	DG 32 WATTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
DG-33-VM	18	EDG					X	DG 33 VOLTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
DG-33-WM	18	EDG					X	DG 33 WATTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FE1	18	NIS					X	PREAMPLIFIER FOR NE-31	9321-F-33133	S		VC	68'-0"	ON	ON	YES	9321-F-39893	RACK C-5	118VAC IB32-I
FE2	18	NIS					X	PREAMPLIFIER FOR NE-32	9321-F-33133	S		VC	68'-0"	ON	ON	YES	9321-F-39893	RACK C-6	118VAC IB31-II
FI-601A	18	CCW					X	CCW HEADER FLOW INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
FI-601B	18	CCW					X	CCW HEADER FLOW INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
FIC-111	18	CVCS	X		X			PRIMARY WATER FLOW CONTROL	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK C10/IB31-II

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
FIT-111	18	CVCS	X		X			PRM WTR FLOW INOZ XMTR	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.5		RACK C10/IB31-II
FIT-156A	18	CVCS			X			RCP 34 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.34		RACK C9/IB31-II
FIT-156B	18	CVCS			X			RCP 34 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.34		RACK C9/IB31-II
FIT-157A	18	CVCS			X			RCP 33 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.35		RACK C9/IB31-II
FIT-157B	18	CVCS			X			RCP 33 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.35		RACK C9/IB31-II
FIT-158A	18	CVCS			X			RCP 32 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.36		RACK C10/IB31-II
FIT-158B	18	CVCS			X			RCP 32 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.36		RACK C10/IB31-II
FIT-159A	18	CVCS			X			RCP 31 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.37		RACK C10/IB31-II
FIT-159B	18	CVCS			X			RCP 31 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.37		RACK C10/IB31-II
FT-115A	18	CVCS				X		SEAL INJ. FLOW TRANSMITTER	9321-F-27363	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK A-6	118VAC IB32-I
FT-116A	18	CVCS				X		SEAL INJ. FLOW TRANSMITTER	9321-F-27363	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK A-6	118VAC IB32-I
FT-1200	18	AFW			X			AFW TO SG 31 FLOW TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.9		RACK D9/IB33-IV
FT-1201	18	AFW			X			AFW TO SG 32 FLOW TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.10		RACK D9/IB33-IV
FT-1202	18	AFW			X			AFW TO SG 33 FLOW TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.11		RACK D9/IB33-IV
FT-1203	18	AFW			X			AFW TO SG 34 FLOW TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.12		RACK D9/IB33-IV
FT-128	18	CVCS	X					CHG FLOW TO REG HX TRANSMITTER	9321-F-27363	S	R	PP	41'-0"	ON	ON	YES	9321-F-39893	PNL SFF	RACK C10/IB31-II
FT-134	18	CVCS	X					LETDWN FLOW TRANSMITTER	9321-F-27363	S	R	PA	75'-0"	ON	ON	YES	9321-LD-72203 SHT.17	PNL SFF	RACK C10/IB31-II
FT-143A	18	CVCS				X		SEAL INJ. FLOW TRANSMITTER	9321-F-27363	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK A-6	118VAC IB32-I
FT-144A	18	CVCS				X		SEAL INJ. FLOW TRANSMITTER	9321-F-27363	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK A-6	118VAC IB32-I
FT-414	18	RCS			X			RX COOLANT LOOP 1 FLOW TRANSMITTER CH I	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FT-415	18	RCS			X			RX COOLANT LOOP 1 FLOW TRANSMITTER CH II	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
FT-419A	18	MS	X			X		SG 31 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC IB32-I
FT-419B	18	MS	X	X		X		SG 31 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC IB32-I
FT-424	18	RCS				X		RX COOLANT LOOP 2 FLOW TRANSMITTER CH I	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FT-425	18	RCS				X		RX COOLANT LOOP 2 FLOW TRANSMITTER CH II	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
FT-429A	18	MS	X	X		X		SG 32 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC IB32-I
FT-429B	18	MS	X	X		X		SG 32 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC IB32-I
FT-434	18	RCS				X		RX COOLANT LOOP 3 FLOW TRANSMITTER CH I	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FT-435	18	RCS				X		RX COOLANT LOOP 3 FLOW TRANSMITTER CH II	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
FT-439A	18	MS	X	X		X		SG 33 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC IB32-I
FT-439B	18	MS	X	X		X		SG 33 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC IB32-I
FT-444	18	RCS				X		RX COOLANT LOOP 4 FLOW TRANSMITTER CH I	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FT-445	18	RCS				X		RX COOLANT LOOP 4 FLOW TRANSMITTER CH II	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
FT-449A	18	MS	X	X		X		SG 34 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC IB32-I
FT-449B	18	MS	X	X		X		SG 34 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC IB32-I
FT-601A	18	CCW					X	CCW HTX OUTLET FLOW	9321-F-27513 SHT1	S	R	PA	41'-0"	ON	ON	YES	9321-LD-72113 SHT.2		RACK A5/IB 32-1
FT-601B	18	CCW					X	CCW HTX OUTLET FLOW	9321-F-27513 SHT1	S	R	PA	41'-0"	ON	ON	YES	9321-LD-72113 SHT.2		RACK A6/IB 32-1
FT-638	18	RHR				X		RHR FLOW TRANSMITTER	9321-F-27353 SHT. 1	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A6	118VAC IB32-I
FT-640	18	RHR				X		RHR FLOW TRANSMITTER	9321-F-27353 SHT. 1	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC IB32-I
FT-946A	18	RCS				X		RHR TO RCS 34 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK E1	118VAC IB32-I
FT-946B	18	RCS				X		RHR TO RCS 33 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F1	118VAC IB34-III
FT-946C	18	RCS				X		RHR TO RCS 32 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK E1	118VAC IB32-I

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
FT-946D	18	RCS				X		RHR TO RCS 31 COLD LEG FLOW TRANSMITTER	9321-F-27535 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F1	118VAC IB34-III
HC-1118A	18	AFW				X		SIGNAL CONVERTER	9321-F-20193	S	R	AB	18'-0"	ON	ON	YES	9321-F-39893		RACK 4A/IB31-II
LI-417D	18	FW				X		SG 31 LEVEL INDICATOR	9321-F-70533 SHT 1	B	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		118VAC IB33, CKT.3
LI-427D	18	FW				X		SG 32 LEVEL INDICATOR	9321-F-70533 SHT 1	B	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		118VAC IB33, CKT.3
LI-437D	18	FW				X		SG 33 LEVEL INDICATOR	9321-F-70533 SHT 1	B	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		118VAC IB33, CKT.3
LI-447D	18	FW				X		SG 34 LEVEL INDICATOR	9321-F-70533 SHT 1	B	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		118VAC IB33, CKT.2
LT-102	18	CVCS	X	X				BORIC ACID STORAGE TANK #32 LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-10	118VAC IB31-II
LT-106	18	CVCS	X	X				BORIC ACID STORAGE TANK #31 LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-10	118VAC IB31-II
LT-112	18	CVCS	X	X				VCT LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
LT-1128	18	COND				X		COND STG TANK LEVEL TRANSMITTER	9321-F-20183 SHT 1	S	R	YD	82'-0"	ON	ON	YES	9321-F-32003		118VAC IB33
LT-1128A	18	COND				X		COND STG TANK LEVEL TRANSMITTER	9321-F-20183 SHT 1	S	R	YD	82'-0"	ON	ON	YES	9321-F-32003		118VAC IB33
LT-1253	18	NIS	X					CMT LEVEL TRANSMITTER	9321-F-70273,9321-F-70283	S	R	VC	46'-0"	ON	ON	YES	9321-F-31343		RACK A-5/IB32-I
LT-1254	18	NIS	X					CMT LEVEL TRANSMITTER	9321-F-70273,9321-F-70283	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893		RACK A-6/IB32-I
LT-1311	18	RCS			X			RX VESSEL LEVEL TRANSMITTER NARROW RANGE	9321-F-72043	B	R	VC	68'-0"	ON	ON	YES	9321-F-39883	CKT.12	118VAC IB31A
LT-1312	18	RCS			X			RX VESSEL LEVEL TRANSMITTER WIDE RANGE	9321-F-72043	B	R	VC	68'-0"	ON	ON	YES	9321-F-39883	CKT.12	118VAC IB31A
LT-1321	18	RCS			X			RX VESSEL LVL TRNSMTR NARROW RANGE (RVLIS-B)	9321-F-72043	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LT-1322	18	RCS			X			RX VESSEL LEVEL TRNSMTR WIDE RANGE (RVLIS-B)	9321-F-72043	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LT-417A	18	FW				X		SG 31 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.2
LT-417D	18	FW				X		SG 31 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.3

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
LT-427A	18	FW				X		SG 32 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.2
LT-427D	18	FW				X		SG 32 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.3
LT-437A	18	FW				X		SG 33 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.2
LT-437D	18	FW				X		SG 33 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.3
LT-447A	18	FW				X		SG 34 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.2
LT-447D	18	FW				X		SG 34 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.2
LT-459	18	RCS			X			PRESSURIZER LEVEL TRANSMITTER CH I	9321-F-27473	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK B-6	118VAC IB33 CHIV
LT-460	18	RCS			X			PRESSURIZER LEVEL TRANSMITTER CH II	9321-F-27473	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK B-6	118VAC IB33 CHIV
LT-461	18	RCS			X			PRESSURIZER LEVEL TRANSMITTER CH III	9321-F-27473	B	R	VC	68'-0"	ON	ON	YES	9321-H-39923 SH. 26	RACK B-3	118VAC IB34
LT-462	18	RCS					X	PRESSURIZER LEVEL TRANSMITTER CH IV	9321-F-27473	S	R	VC	68'-0"	ON	ON	YES	9321-H-39923 SHT 35	RACK B-10	118VAC IB33-IV
LT-470	18	RCS		X				PRT LEVEL TRANSMITTER	9321-F-27473	S	R	VC	65'-0"	ON	ON	YES	9321-LD-72453 SHT 17	RACK A-5	118VAC IB32-I
LT-628	18	CCW					X	CCW SURGE TANK # 31 LEVEL TRANSMITTER	9321-LD-72113 SHT.6	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
LT-629	18	CCW					X	CCW SURGE TANK # 32 LEVEL TRANSMITTER	9321-LD-72113 SHT.7	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
LT-920	18	SIS	X					RWST LEVEL TRANSMITTER	9321-F-27503 SHT. 2	S	R	YD	79'-0"	ON	ON	YES	9321-F-39893	RACK E-1	118VAC IB32-I
PI-1260	18	AFW				X		AFW 31 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.19		RACK D9/IB33-IV
PI-1261	18	AFW				X		AFW 32 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.20		RACK D9/IB33-IV
PI-1262	18	AFW				X		AFW 33 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.21		RACK D9/IB33-IV
PI-135	18	CVCS	X	X	X			NON REGEN HX OUTLET LETDOWN PRESS INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72203 SHT.18	PNL SFF	RACK C10/IB31-II
PM-405A	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK D9/IB33-IV
PM-405B	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK D9/IB33-IV
PM-405C	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK B5/IB33-IV

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PM-405D	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK B5/IB33-IV
PM-406E	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 31 AFWP	9321-LD-72123 SHT 3A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT3		RACK B5/IB33-IV
PM-406F	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 31 AFWP	9321-LD-72123 SHT 3A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT3		RACK B5/IB33-IV
PM-406G	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 33 AFWP	9321-LD-72123 SHT 4A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT4		RACK B5/IB33-IV
PM-406H	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 33 AFWP	9321-LD-72123 SHT 4A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT4		RACK B5/IB33-IV
PM-419I	18	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	B	R	AB	77'-4"	ON	ON	YES	9321-LD-72373 SHT 3	CCR AUX PNL B-9	118VAC IB33-IV
PM-429I	18	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	B	R	AB	64'-8"	ON	ON	YES	9321-F-32003	CCR AUX PNL B-9	118VAC IB34-III
PM-439I	18	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	B	R	AB	77'-7"	ON	ON	YES	9321-F-32003	CCR AUX PNL B-9	118VAC IB34-III
PM-449I	18	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	B	R	AB	64'-8"	ON	ON	YES	9321-LD-72373 SHT 6	CCR AUX PNL B-9	118VAC IB33-IV
PNL PL6	18	CVCS	X					CHARGING PUMPS SPEED CONTROL PANEL	9321-F-70403	S		PA	55'-0"	N/A	N/A	NO			N/A
PT-1144	18	IA					X	STATION AIR NUCL SERV PRESS TRANSMITTER	9321-F-20363	S	R	CB	15'-0"	ON	ON	YES	9321-LD-72343 SHT.2	PNL SJF	I/A
PT-1190	18	SWN					X	SVC WATER NUCL HDR PRESS TRANSMITTER	9321-F-20333	S	R	TB	15'-0"	ON	ON	YES	9321-LD-72543 SHT.9		RACK D9/IB33-IV
PT-1191	18	SWN					X	SVC WATER NUCL HDR PRESS TRANSMITTER	9321-F-20333	S	R	TB	15'-0"	ON	ON	YES	9321-LD-72543 SHT.10		RACK D9/IB33-IV
PT-1192	18	IA					X	IACC WATER PRESS TRANSMITTER	9321-F-23913	S	R	CB	15'-0"	ON	ON	YES	9321-LL-31293 SHT.5	COMPT. 4K	MCC 39
PT-1260	18	AFW				X		AFW 31 DISCHG PRESS TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.19		RACK D9/IB33-IV

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PT-1261	18	AFW				X		AFW 32 DISCHG PRESS TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.20		RACK D9/IB33-IV
PT-1262	18	AFW				X		AFW 33 DISCHG PRESS TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.21		RACK D9/IB33-IV
PT-135	18	CVCS	X	X	X			NON REGEN HX OUTLET LETDOWN PRESS TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.18	PNL SFF	RACK C10/IB31-II
PT-139	18	CVCS	X					VCT PRESSURE TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.19	PNL SFF	RACK C10/IB31-II
PT-142	18	CVCS	X					CHG PP DISCH PRESS TRANSMITTER	9321-F-27363	S	R	PA	55'-0"	ON	ON	YES	9321-LD-72203 SHT.23	PNL SFF	RACK C9/IB31-II
PT-402	18	RCS		X				LOOP 31 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-H-39923 SHT 80		118VAC IB31, CKT.3
PT-403	18	RCS		X				LOOP 34 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-H-39923 SHT 84		118VAC IB32, CKT.3
PT-406A	18	AFW				X		31 AFW PP DISCH PRESS TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.3		RACK D9/IB33-IV
PT-406B	18	AFW				X		33 AFW PP DISCH PRESS TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.4		RACK D9/IB33-IV
PT-413	18	RCS		X				LOOP 31 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK H1	118VAC IB32-I
PT-419A	18	MS				X		SG 31 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-3	118VAC IB32-I
PT-419B	18	MS				X		SG 31 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-9	118VAC IB31-II
PT-419C	18	MS				X		SG 31 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL B-9	118VAC IB33-IV
PT-429A	18	MS				X		SG 32 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-3	118VAC IB32-I
PT-429B	18	MS				X		SG 32 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-8	118VAC IB31-II
PT-429C	18	MS				X		SG 32 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL B-2	118VAC IB34-IV
PT-433	18	SP		X				LOOP 33 HOT LEG PRESSURE	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893		RACK H2/IB31-II
PT-439A	18	MS				X		SG 33 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-2	118VAC IB32-I
PT-439B	18	MS				X		SG 33 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-9	118VAC IB31-II
PT-439C	18	MS				X		SG 33 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL B-2	118VAC IB34-III
PT-443	18	RCS		X				LOOP 34 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK H3	118VAC IB33-IV

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PT-449A	18	MS				X		SG 34 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-2	118VAC IB32-I
PT-449B	18	MS				X		SG 34 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-8	118VAC IB31-II
PT-449C	18	MS				X		SG 34 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL B-9	118VAC IB33-IV
PT-455	18	RCS		X				PRESSURIZER PRESSURE CH I TRANSMITTER	9321-F-70513	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F19	118VAC IB-IV
PT-456	18	RCS		X				PRESSURIZER PRESSURE CH II TRANSMITTER	9321-F-70513	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F19	118VAC IB-IV
PT-457	18	RCS		X				PRESSURIZER PRESSURE CH III TRANSMITTER	9321-F-70513	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F19	118VAC IB33-IV
PT-472	18	RCS		X				PRT PRESSURE TRANSMITTER	9321-F-27473	S	R	VC	62'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC IB32-I
PT-474	18	RCS		X				PRESSURIZER PRESSURE CH IV TRANSMITTER	9321-F-27473	B	R	VC	53'-0"	ON	ON	YES	9321-F-39893	RACK B-10	118VAC IB33-IV
RACK 19	18						X	INSTRUMENT RACK	9321-F-70273	S		VC	68'-0"	N/A	N/A	NO			N/A
RACK 20	18						X	INSTRUMENT RACK	9321-F-30523	S		VC	68'-0"	N/A	N/A	NO			N/A
RACK 21	18						X	INSTRUMENT RACK	9321-F-30523	S		VC	68'-0"	N/A	N/A	NO			N/A
RACK 24A	18						X	INSTRUMENT RACK	9321-F-70433	S		PP	41'-0"	N/A	N/A	NO			N/A
RACK 26	18						X	INSTRUMENT RACK	9321-F-70533	S		AB	18'-6"	N/A	N/A	NO			N/A
RACK 4-A	18						X	INSTRUMENT RACK	9321-F-70283	S		VC	68'-0"	N/A	N/A	NO			N/A
RACK 4-B	18						X	INSTRUMENT RACK	9321-F-70273	S		VC	68'-0"	N/A	N/A	NO			N/A
RACK 6A	18						X	INSTRUMENT RACK	9321-F-70433	S		PP	41'-0"	N/A	N/A	NO			N/A
RACK 8	18						X	INSTRUMENT RACK	9321-F-70533	S		AB	18'-6"	N/A	N/A	NO			N/A
RACK 9	18						X	INSTRUMENT RACK	9321-F-70533	S		AB	18'-6"	N/A	N/A	NO			N/A
RVLIS RACK TRAIN A	18	RCS			X			RVLIS TRANSMITTER RACK TRAIN "A"	9321-F-72043	S		PP	41'-0"	N/A	N/A	NO			N/A
RVLIS RACK TRAIN B	18	RCS			X			RVLIS TRANSMITTER RACK TRAIN "A"	9321-F-72043	B		PP	41'-0"	N/A	N/A	NO			N/A
SWN-TC-1113	18	SWN					X	INST AIR CC HX SW OUTLET TC	9321-F-27223	S	R	CB	15'-0"	ON	ON	YES	9321-LD-72543 SHT.8		I/A
TE-122	19	CVCS	X					EXCESS LETDOWN TEMP ELEMENT	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-126	19	CVCS	X		X			REGEN HX CHG FLOW TEMP ELEMENT	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-127	19	CVCS	X					REGEN HX CHG FLOW TEMPERATURE ELEMENT	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
TE-130	19	CVCS	X					NON REGHX OUTLET LETDOWN TEMP ELEMENT	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-1313	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 5	S	R	VC	83'-9"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1314	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 5	S	R	VC	74'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1317	19	RCS			X			RVWL CONDUIT COMPENSATION TEMP ELEMENT	7407044 SHT. 7	S	R	VC	40'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1318	19	RCS			X			RVWL CONDUIT COMPENSATION	7407044 SHT. 7	S	R	VC	46'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1319	19	RCS			X			RVWL LOWER TAP CAPILLARY TEMP ELEMENT	7407044 SHT. 7	S	R	VC	60'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1323	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 14	S	R	VC	84'-6"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1324	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 14	S	R	VC	74'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1327	19	RCS			X			RVWL CONDUIT COMPENSATION TEMP ELEMENT	7407044 SHT. 16	S	R	VC	40'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1328	19	RCS			X			RVWL CONDUIT COMPENSATION TEMP ELEMENT	7407044 SHT. 16	S	R	VC	46'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1329	19	RCS			X			RVWL LOWER TAP CAPILLARY TEMP ELEMENT	7407044 SHT. 16	S	R	VC	60'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-411A1	19	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-411A2	19	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-411A3	19	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-411B	19	RCS	X	X		X		RCS LOOP 31 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-413A	19	RCS	X	X		X		RCS LOOP 31 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
TE-413B	19	RCS	X	X		X		RCS LOOP 31 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-421A1	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-421A2	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-421A3	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-421B	19	RCS	X	X		X		RCS LOOP 32 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-423A3	19	RCS	X	X		X		RCS LOOP 32 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-423B	19	RCS	X	X		X		RCS LOOP 32 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-431A1	19	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-431A2	19	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-431A3	19	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-431B	19	RCS	X	X		X		RCS LOOP 33 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-433A	19	RCS	X	X		X		RCS LOOP 33 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-433B	19	RCS	X	X		X		RCS LOOP 33 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-441A1	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-441A2	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
TE-441A3	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-441B	19	RCS	X	X		X		RCS LOOP 34 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-443A	19	RCS	X	X		X		RCS LOOP 34 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-443B	19	RCS	X	X		X		RCS LOOP 34 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-453	19	RCS		X				PRESSURIZER LIQUID SPACE TEMP ELEMENT	9321-F-27473	S	R	VC	73'-0"	ON	ON	YES	9321-F-39893	RACK A6	118VAC IB32-I
TE-454	19	RCS	X					PRESSURIZER STEAM SPACE TEMP ELEMENT	9321-F-27473	S	R	VC	117'-0	ON	ON	YES	9321-F-39893	RACK A6	118VAC IB32-I
TE-471	19	RCS		X				PRT TEMP ELEMENT	9321-F-27473	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC IB32-I
TE-636	19	RHR				X		RHR HX TEMP INLET TEMP ELEMENT	9321-F-27513	S	R	PA	15'-0"	ON	ON	YES	9321-LD-72113 SHT 9	PNL SGF	RACK A5/IB32-I
TE-639	19	RHR				X		RHR HX 31 OUTLET TEMP ELEMENT	9321-F-27353	S	R	VC	68'-0"	ON	ON	YES	9321-LD-72513 SHT 2	PNL SGF	RACK A5/IB32-I
TE-641	19	RHR				X		RHR HX 32 OUTLET TEMP ELEMENT	9321-F-27353	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72513 SHT 3	PNL SGF	RACK A6/IB32-I
TI-126	19	CVCS	X		X			REGEN HX CHG FLOW TEMP INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SFF	118VAC IB32-I
TI-130	19	CVCS	X					NON REGHX OUTLET LETDOWN TEMP INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SFF	118VAC IB32-I
BF4	20	EDG					X	CURRENT TRANSFORMER ENCLOSURE D.G. 31	9321-F-30073	S		DG	10'-0"	N/A	N/A	N/A			N/A
BF5	20	EDG					X	CURRENT TRANSFORMER ENCLOSURE D.G. 32	9321-F-30073	S		DG	10'-0"	N/A	N/A	N/A			N/A
BF6	20	EDG					X	CURRENT TRANSFORMER ENCLOSURE D.G. 33	9321-F-30073	S		DG	10'-0"	N/A	N/A	N/A			N/A
CAB JO1	20	NIS			X			CONTAINMENT MONITORING CABINET CHANNEL I	9321-F-30513	S		CB	53'-0"	N/A	N/A	NO			N/A
CAB JO2	20	NIS			X			CONTAINMENT MONITORING CABINET CHANNEL II	9321-F-30513	S		CB	53'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
CAB JR9	20	RCS			X			RVLIS CABINET	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
CRPI	20	CRD	X					CONTROL ROD CLUSTER POSITIVE INDICATOR	9321-F-30503,-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-30053		MCC-39
FI-115A	20	CVCS				X		SEAL INJ. FLOW INDICATOR	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB32, CKT.3
FI-116A	20	CVCS				X		SEAL INJ. FLOW INDICATOR	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB32, CKT.3
FI-1200	20	AFW			X			AFW TO SG 31 FLOW INDICATOR	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.9	PNL SCF	RACK D9/IB33-IV
FI-1201	20	AFW			X			AFW TO SG 32 FLOW INDICATOR	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.10	PNL SCF	RACK D9/IB33-IV
FI-1202	20	AFW			X			AFW TO SG 33 FLOW INDICATOR	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.11	PNL SCF	RACK D9/IB33-IV
FI-1203	20	AFW			X			AFW TO SG 34 FLOW INDICATOR	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.12	PNL SCF	RACK D9/IB33-IV
FI-128B	20	CVCS	X	X				CHG FLOW TO REG HX INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72203 SHT.17		RACK C10/IB31-II
FI-134	20	CVCS	X	X				LETDOWN FLOW INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72203 SHT.17	PNL SFF	RACK C10/IB31-II
FI-143A	20	CVCS				X		SEAL INJ. FLOW INDICATOR	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB32, CKT.3
FI-144A	20	CVCS				X		SEAL INJ. FLOW INDICATOR	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB32, CKT.3
FI-414	20	RCS			X			RX COOLANT LOOP 1 FLOW INDICATOR CH I	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.2
FI-415	20	RCS			X			RX COOLANT LOOP 1 FLOW INDICATOR CH II	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.2
FI-419A	20	MS			X			SG 31 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.8
FI-419B	20	MS			X			SG 31 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.8
FI-424	20	RCS			X			RX COOLANT LOOP 2 FLOW INDICATOR CH I	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.2
FI-425	20	RCS			X			RX COOLANT LOOP 2 FLOW INDICATOR CH II	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.2
FI-429A	20	MS			X			SG 32 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.8
FI-429B	20	MS			X			SG 32 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.8
FI-434	20	RCS			X			RX COOLANT LOOP 3 FLOW INDICATOR CH I	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.2
FI-435	20	RCS			X			RX COOLANT LOOP 3 FLOW INDICATOR CH II	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.2
FI-439A	20	MS			X			SG 33 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.8

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
FI-439B	20	MS				X		SG 33 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.8
FI-444	20	RCS				X		RX COOLANT LOOP 4 FLOW INDICATOR CH I	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.2
FI-445	20	RCS				X		RX COOLANT LOOP 4 FLOW INDICATOR CH II	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.2
FI-449A	20	MS				X		SG 34 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.8
FI-449B	20	MS				X		SG 34 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.8
FI-638	20	RHR				X		RHR HEAT EXCHANGER 31 OUTLET FLOW INDICATOR	9321-F-27353,-32313	B	R	CB	53'-0'	ON	ON	YES	9321-F-39893		118VAC IB32-I
FI-640	20	RHR				X		RHR HEAT EXCHANGER 32 OUTLET FLOW INDICATOR	9321-F-37353,-32313	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FI-946A	20	RCS			X			RHR TO RCS 34 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 65	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.30
FI-946B	20	RCS			X			RHR TO RCS 33 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 71	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.30
FI-946C	20	RCS			X			RHR TO RCS 32 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 65	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.30
FI-946D	20	RCS			X			RHR TO RCS 31 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 71	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB34, CKT.4
FLIGHT PANEL	20					X		FLIGHT PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
FR-156	20	CVCS			X			34 RCP SEAL LEAKOFF FLOW	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.34	PNL FDF	RACK C9/IB31-II
FR-157	20	CVCS			X			33 RCP SEAL LEAKOFF FLOW	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.35	PNL FDF	RACK C9/IB31-II
FR-158	20	CVCS			X			32 RCP SEAL LEAKOFF FLOW	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.36	PNL FDF	RACK C10/IB31-II
FR-159	20	CVCS			X			31 RCP SEAL LEAKOFF FLOW	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.37	PNL FDF	RACK C10/IB31-II
HJ8	20	HVAC					X	33/34 ETEF LOCAL CTRL STATION	9321-LL-31313 SHT.22B	S		CB	33'-0"	N/A	N/A	N/A			N/A
HJ9	20	HVAC					X	31/32 ETEF LOCAL CTRL STATION	9321-LL-31313 SHT.22B	S		CB	33'-0"	N/A	N/A	N/A			N/A
LI-102	20	CVCS	X		X			BORIC ACID STORAGE TANK #32 LEVEL INDICATOR	113E700 SHT 11	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
LI-106	20	CVCS	X		X			BORIC ACID STORAGE TANK #31 LEVEL INDICATOR	113E700 SHT 11	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
LI-112	20	CVCS	X		X			VCT LEVEL INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
LI-1128	20	COND				X		COND STG TANK LEVEL INDICATOR	9321-F-20183 SHT 1	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003	PNL SCF	118VAC IB33
LI-1128A	20	COND				X		COND STG TANK LEVEL INDICATOR	9321-F-20183 SHT 1	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003	PNL SCF	118VAC IB33
LI-1311	20	RCS			X			RVWL NARROW RANGE INDICATOR	9321-F-30523	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB31A-II (TRAIN A
LI-1312	20	RCS			X			RVWL WIDE RANGE INDICATOR	9321-F-30523	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB31A-II (TRAIN A)
LI-1321	20	RCS			X			RVWL NARROW RANGE INDICATOR	9321-F-30523	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LI-1322	20	RCS			X			RVWL WIDE RANGE INDICATOR	9321-F-30523	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LI-417A	20	FW				X		SG 31 LEVEL INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB33, CKT.2
LI-427A	20	FW				X		SG 32 LEVEL INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB33, CKT.2
LI-437A	20	FW				X		SG 33 LEVEL INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB33, CKT.2
LI-447A	20	FW				X		SG 34 LEVEL INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB33, CKT.2
LI-459	20	RCS		X				PRESSURIZER INDICATOR CH I	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.2
LI-460	20	RCS		X				PRESSURIZER INDICATOR CH II	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	RACK A-10	118VAC IB31-II
LI-461	20	RCS		X				PRESSURIZER INDICATOR CH III	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB34, CKT.2
LI-462A	20	RCS					X	PRESSURIZER INDICATOR	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB33, CKT.2
LI-470	20	RCS		X				PRT LEVEL INDICATOR	9321-F-27373 SHT2	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.9
LI-628B	20	CCW					X	CCW SURGE TANK # 31 LEVEL INDICATOR	9321-LD-72113 SHT.6	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SGF	118VAC IB32-I
LI-629B	20	CCW					X	CCW SURGE TANK # 32 LEVEL INDICATOR	9321-LD-72113 SHT.7	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SGF	118VAC IB32-I
LI-920	20	SIS		X				RWST LEVEL INDICATOR	9321-H-39893 SHT 67	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-II
LR-1253	20	NIS	X					CONTAINMENT LEVEL RECORDER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB JO1	118VAC IB32A-I
LR-1254	20	NIS	X					CONTAINMENT LEVEL RECORDER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB JO1	118VAC IB32A-I
LR-417-1	20	FW				X		SG 31 LEVEL RECORDER	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.26
LR-417-2	20	FW				X		SG 32 LEVEL RECORDER	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.26

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
LR-437-1	20	FW				X		SG 33 LEVEL RECORDER	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.10
LR-437-2	20	FW				X		SG 34 LEVEL RECORDER	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.10
NI 31B	20	NIS	X					SOURCE RANGE COUNT RATE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FCF	118VAC IB32
NI 31D	20	NIS	X					SOURCE RANGE COUNT RATE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FCF	118VAC IB32
NI 32B	20	NIS	X					SOURCE RANGE COUNT RATE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31
NI 32D	20	NIS	X					SOURCE RANGE COUNT RATE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31
NI 35B	20	NIS	X					INTERMEDIATE RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FCF	118VAC IB32
NI 35D	20	NIS	X					INTERMEDIATE RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FCF	118VAC IB32
NI 36B	20	NIS	X					INTERMEDIATE RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31
NI 36D	20	NIS	X					INTERMEDIATE RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31
NI 41B	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FDF	118VAC IB32
NI 41C	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FDF	118VAC IB32
NI 42B	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FDF	118VAC IB31
NI 42C	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FDF	118VAC IB31
NI 43B	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-31353	PNL FDF	118VAC IB34
NI 43C	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-31353	PNL FDF	118VAC IB34
NI 44B	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-31363	PNL FDF	118VAC IB33
NI 44C	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-31363	PNL FDF	118VAC IB33
PC-419	20	MS				X		SG #31 STEAM PRESS CONTROLLER	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	118VAC IB33-IV
PC-429	20	MS				X		SG #32 STEAM PRESS CONTROLLER	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	118VAC IB34-III
PC-439	20	MS				X		SG #33 STEAM PRESS CONTROLLER	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	118VAC IB34-III
PC-449	20	MS				X		SG #34 STEAM PRESS CONTROLLER	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	118VAC IB33-IV
PI-1144	20	IA					X	STATION AIR NUCL SERV PRESS INDICATOR	9321-F-20363	B	R	CB	15'-0"	ON	ON	YES	9321-LD-72343 SHT.2	PNL SJF	INST. AIR
PI-1190	20	SWN					X	SVC WATER NUCL HDR PRESS INDICATOR	9321-F-20333	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72543 SHT.9		RACK D9/IB34-IV
PI-1191	20	SWN					X	SVC WATER NUCL HDR PRESS INDICATOR	9321-F-20333	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72543 SHT.10		RACK D9/IB33-IV
PI-1192	20	IA					X	IACC WATER PRESS INDICATOR	9321-F-23913	B	R	CB	15'-0"	ON	ON	YES	9321-F-31993		118VAC IB32-I
PI-139	20	CVCS	X		X			VCT PRESSURE INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-LS-72203 SHT.19	PNL SFF	RACK C10/IB31-II

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PI-142B	20	CVCS	X					CHG PP DISCH PRESS INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72203 SHT.23		RACK C9/IB31-II
PI-402	20	RCS		X				LOOP 31 HOT LEG PRESSURE INDICATOR	9321-H-39923 SHT 80	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
PI-403	20	RCS		X				LOOP 34 HOT LEG PRESSURE INDICATOR	9321-H-39923 SHT 84	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB33-IV
PI-413K	20	RCS		X				LOOP 31 HOT LEG PRESSURE INDICATOR	9321-LD-72453 SHT21A	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
PI-419A	20	MS				X		SG 31 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV
PI-419B	20	MS				X		SG 31 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV
PI-419C	20	MS				X		SG 31 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV
PI-429A	20	MS				X		SG 32 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-429B	20	MS				X		SG 32 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-429C	20	MS				X		SG 32 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-439A	20	MS				X		SG 33 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-439B	20	MS				X		SG 33 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-439C	20	MS				X		SG 33 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-443K	20	RCS		X				LOOP 34 HOT LEG PRESSURE INDICATOR	9321-LD-72453 SHT23E	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
PI-449A	20	MS				X		SG 34 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV
PI-449B	20	MS				X		SG 34 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV
PI-449C	20	MS				X		SG 34 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV
PI-455	20	RCS		X				PRT PRESSURE INDICATOR	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB33, CKT.4
PI-456	20	RCS		X				PRT PRESSURE INDICATOR	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.2
PI-457	20	RCS		X				PRT PRESSURE INDICATOR	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB34, CKT.2
PI-472	20	RCS		X				PRT PRESSURE INDICATOR	9321-F-27473	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72453 SHT 19	PNL SAF	RACK A-5/IB 32-I
PM-406A	20	AFW				X		HIGH SIGNAL SELECTOR RELAY	9321-LD-72123 SHT 3	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.3		RACK B5/IB33-IV
PM-406B	20	AFW				X		HIGH SIGNAL SELECTOR RELAY	9321-LD-72123 SHT 3	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.3		RACK B5/IB33-IV
PM-406C	20	AFW				X		HIGH SIGNAL SELECTOR RELAY	9321-LD-72123 SHT 4	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.4		RACK B5/IB33-IV
PM-406D	20	AFW				X		HIGH SIGNAL SELECTOR RELAY	9321-LD-72123 SHT 4	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.4		RACK B5/IB33-IV
PNL #1	20	MS				X		ATM STEAM DUMP PANEL #1	9321-F-70313	S		AB	43'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PNL #2	20	MS				X		ATM STEAM DUMP PANEL #2	9321-F-70313	S		AB	43'-0"	N/A	N/A	NO			N/A
PNL #3	20	SP				X		SAMPLING SYS CONTROL PANEL #3	9321-F-70403	S		PA	55'-0"	N/A	N/A	NO			N/A
PNL #4	20	SP				X		SAMPLING SYS CONTROL PANEL #4	9321-F-70403	S		PA	55'-0"	N/A	N/A	NO			N/A
PNL 1-31	20	MS					X	31 SG MSIV SOV PANEL	9321-F-70313	S		AB	77'-4"	N/A	N/A	NO			N/A
PNL 1-32	20	MS					X	32 SG MSIV SOV PANEL	9321-F-70313	S		AB	64'-8"	N/A	N/A	NO			N/A
PNL 1-33	20	MS					X	33 SG MSIV SOV PANEL	9321-F-70313	S		AB	77'-4"	N/A	N/A	NO			N/A
PNL 1-34	20	MS					X	34 SG MSIV SOV PANEL	9321-F-70313	S		AB	64'-8"	N/A	N/A	NO			N/A
PNL 31EDGA	20	EDG				X		31 EDG AUX STARTERS & CONTROL PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL 324	20	HVAC				X		LIGHTING PANEL 324	9321-F-30283	S		AB	18'-6"	N/A	N/A	NO			N/A
PNL 32EDGA	20	EDG				X		32 EDG AUX STARTERS & CONTROL PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL 33EDGA	20	EDG				X		33 EDG AUX STARTERS & CONTROL PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL HA7	20	IA					X	00321AC CONTROL STATION	9321-F-30523	B		CB	15'-0"	N/A	N/A	NO			N/A
PNL HF1	20	IA					X	00311AC CONTROL STATION	9321-F-30523	B		CB	15'-0"	N/A	N/A	NO			N/A
PNL JC1	20	HVAC					X	FAN ROOM CONTROL PANEL	9321-LL-31273 SHT. 4A	S		FR	72'-0"	N/A	N/A	NO			N/A
PNL N2	20	GAS				X		N2 BOTTLE SUPPLY PCV PANEL	9321-F-70403	S		PA	55'-0"	N/A	N/A	NO			N/A
PNL PF6	20	CVCS				X		GAS ANALYZING PANEL	113E303 SHT 6	S		PA	55'-0"	N/A	N/A	NO			N/A
PNL PI1	20	HVAC				X		31 EDG PNEU CONTROL PANEL	9321-F-32173	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL PI2	20	HVAC				X		32 EDG PNEU CONTROL PANEL	9321-F-32173	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL PI3	20	HVAC				X		33 EDG PNEU CONTROL PANEL	9321-F-32173	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL PI7	20					X		LOCAL CCR AC CNTRL PANEL	9321-LL-31263	S		CB	15'-0"	N/A	N/A	NO			N/A
PNL PP9	20	EDG				X		31 EDG CONTROL PANEL	9321-05-3343,6	S		DG	15'-0"	ON	ON	YES	9321-F-30083	CKT. 4	125VDC DIST PNL 33
PNL PQ1	20	EDG				X		32 EDG CONTROL PANEL	9321-05-3343,6	S		DG	15'-0"	ON	ON	YES	9321-F-30083	CKT. 10	125VDC DIST PNL 31
PNL PQ2	20	EDG				X		33 EDG CONTROL PANEL	9321-05-3343,6	S		DG	15'-0"	ON	ON	YES	9321-F-30083	CKT. 14	125VDC DIST PNL 32
PNL PS6	20	SW					X	SERVICE WATER PUMP CONTROL STATION	9321-F-30893	S		CB	15'-0"	N/A	N/A	NO			N/A
PNL PT2	20	AFW				X		AUX BOILER FEED PMP CONTROL STATION	9321-F-31673	S		AB	18'-6"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PNL PY3	20	HVAC				X		DELUGE SYS CONTROL PANEL PY3	9321-LL-31313 SHT22B	S		PP	34'-0"	N/A	N/A	NO			N/A
PNL PY4	20	HVAC				X		DELUGE SYS CONTROL PANEL PY4	9321-LL-31313 SHT22B	S		PP	34'-0"	N/A	N/A	NO			N/A
PNL PY5	20	HVAC				X		DELUGE SYS CONTROL PANEL PY5	9321-LL-31313 SHT22B	S		PP	34'-0"	N/A	N/A	NO			N/A
PNL PY6	20	HVAC				X		DELUGE SYS CONTROL PANEL PY6	9321-LL-31313 SHT22B	S		PP	34'-0"	N/A	N/A	NO			N/A
PNL VRP 31	20						X	31 EDG VOLTAGE REG PANEL	9321-F-22503	B		DG	15'-0"	N/A	N/A	NO			N/A
PNL VRP 32	20						X	32 EDG VOLTAGR REG PANEL	9321-F-22503	B		DG	15'-0"	N/A	N/A	NO			N/A
PNL VRP 33	20						X	33 EDG VOLTAGE REG PANEL	9321-F-22503	B		DG	15'-0"	N/A	N/A	NO			N/A
PR-1421	20	NIS	X					CONTAINMENT PRESSUE RECORDER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB JO2	118VAC IB32A-II
PR-1422	20	NIS	X					CONTAINMENT PRESSUE RECORDER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB JO2	118VAC IB32A-II
PT-1421	20	NIS	X					CTMT PRESSURE TRANSMITTER	9321-F-27503	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK 24A	118VAC IB
PT-1422	20	NIS	X					CTMT PRESSURE TRANSMITTER	9321-F-27503	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK 24A	118VAC IB
RACK A-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-10	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-8	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-9	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-10	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-11	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
RACK B-8	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-9	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-10	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-11	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-8	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-9	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-10	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-11	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-8	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-9	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
RACK E-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK G-1	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-2	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-3	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-4	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-5	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-6	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK H-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK H-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK H-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK H-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK H-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
SC-141A	20	CVCS	X					31 CHRG PP SPEED CONTROL	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	5008971 SHT.27	PNL FBF	118VAC IB34
SC-141B	20	CVCS	X					32 CHRG PP SPEED CONTROL	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	5008971 SHT.72	PNL FBF	118VAC IB34
SC-141C	20	CVCS	X					33 CHRG PP SPEED CONTROL	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	5008971 SHT.73	PNL FBF	118VAC IB34
SUPERVISORY PANEL	20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
TB X32	20	AFW				X		RELAY TERMINAL BOX	9321-LL-31403 SHT 7	S		AB	18'-6"	N/A	N/A	NO			N/A
TB Y21	20	AFW				X		RELAY TERMINAL BOX	9321-LL-31313 SHT 10	S		ET	34'-0"	N/A	N/A	NO			N/A
TI-122	20	CVCS	X					EXCESS LETDOWN TEMPERATURE INDICATOR	9321-H-39923 SHT 81	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.3
TI-127	20	CVCS	X					REGEN HX CHG FLOW TEMPERATURE INDICATOR	9321-F-72203 SHT 13A	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
TI-453	20	RCS		X				PRESSURIZER LIQUID SPACE TEMP INDICATOR	9321-H-39923 SHT 83	B	R	CB	53'-0"	ON	ON	YES	9321-F-30093	PNL SAF	118VAC IB32, CKT.3
TI-454	20	RCS		X				PRESSURIZER STEAM TEMP INDICATOR	9321-H-39923 SHT 83	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB32, CKT.3
TI-471	20	RCS		X				PRT TEMP INDICATOR	9321-F-27473	B	R	CB	53'-0"	ON	ON	YES	9321-F-30063	PNL SAF	118VAC IB32, CKT.3
TR-413	20	RCS	X	X		X		RCS 31 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/IB32-I
TR-423	20	RCS	X	X		X		RCS 32 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/IB32-I
TR-433	20	RCS	X	X		X		RCS 33 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/IB32-I
TR-443	20	RCS	X	X		X		RCS 34 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/IB32-I
TR-636	20	RHR				X		RHR HX 31 & 32 OUTLET TEMP. RECORDER	9321-LD-72513 SHT.2,3	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SGF	118VA IB32-I
0031ART	21	HVAC					X	AIR RECEIVER 30 GAL. TANK # 31	9321-F-41023	S		DG	15'-0"	N/A	N/A	NO			N/A
0031ARTMSIV	21	IA					X	MSIV AIR RECEIVER TANK (MS-1-31)	9321-F-70093	S		AB	80'-0"	N/A	N/A	NO			N/A
0031CHPS	21	CVCS	X	X	X			31 CHARG PMP SUCT STABILIZER SEPARATOR	9321-F-27363	S		PA	55'-0"	N/A	N/A	NO			N/A
0031CWHX	21	IA					X	31 I/A CMPR COOLING WTR HX	9321-F-27223	S		CB	15'-0"	N/A	N/A	NO			N/A
0031EDJET	21	EDG					X	JKT WTR EXP TANK 31 DG	9321-H-20283	S		DG	26'-0"	N/A	N/A	NO			N/A
0031EDSAT	21	EDG					X	START AIR TANK 31 DG	9321-H-20283	S		DG	15'-0"	N/A	N/A	NO			N/A
0031IACJC	21	IA					X	INST AIR COMP 31 JACKET COOLER	9321-F-23913	B		CB	15'-0"	N/A	N/A	NO			N/A
0031RHRSHX	21	CCW					X	31 RHRP SEAL WAT HX	9321-F-27513 SHT1	B		PA	15'-0"	N/A	N/A	NO			N/A
0032ART	21	HVAC					X	AIR RECEIVER 30 GAL. TANK # 32	9321-F-41023	S		DG	15'-0"	N/A	N/A	NO			N/A
0032ARTMSIV	21	IA					X	MSIV AIR RECIEVER TANK (MS-1-32)	9321-F-70093	S		AB	74'-0"	N/A	N/A	NO			N/A
0032CHPS	21	CVCS	X	X	X			32 CHARG PMP SUCT STABILIZER SEPARATOR	9321-F-27363	S		PA	55'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
0032CWHX	21	IA					X	32 I/A CMPR CL COOLING WTR HX	9321-F-27223	S		CB	15'-0"	N/A	N/A	NO			N/A
0032EDJET	21	EDG					X	JKT WTR EXP TANK 32 DG	9321-H-20283	S		DG	26'-0"	N/A	N/A	NO			N/A
0032EDSAT	21	EDG					X	START AIR TANK 32 DG	9321-H-20283	S		DG	15'-0"	N/A	N/A	NO			N/A
0032IACJC	21	IA					X	INST AIR COMP 32 JACKET COOLER	9321-F-23913	B		CB	15'-0"	N/A	N/A	NO			N/A
0032RHRSHX	21	CCW					X	32 RHRP SEAL WAT HX	9321-F-27513 SHT1	B		PA	15'-0"	N/A	N/A	NO			N/A
0033ART	21	HVAC					X	AIR RECEIVER 30 GAL. TANK # 33	9321-F-41023	S		DG	15'-0"	N/A	N/A	NO			N/A
0033ARTMSIV	21	IA					X	MSIV AIR RECIEVER TANK (MS-1-33)	9321-F-70093	S		AB	80'-0"	N/A	N/A	NO			N/A
0033CHPD	21	CVCS	X	X	X			33 CHP PULSATION DAMPENER	9321-F-27363	B		PA	55'-0"	N/A	N/A	NO			N/A
0033CHPS	21	CVCS	X	X	X			33 CHARG PMP SUCT STABILIZER SEPARATOR	9321-F-27363	S		PA	55'-0"	N/A	N/A	NO			N/A
0033EDJET	21	EDG					X	JKT WTR EXP TANK 33 DG	9321-H-20283	S		DG	26'-0"	N/A	N/A	NO			N/A
0033EDSAT	21	EDG					X	START AIR TANK 33 DG	9321-H-20283	S		DG	15'-0"	N/A	N/A	NO			N/A
0034ARTMSIV	21	IA					X	MSIV AIR RECIEVER TANK (MA-1-34)	9321-F-70093	S		AB	74'-0"	N/A	N/A	NO			N/A
31 PLSSHTX	21	SP	X					31 PZR LIQ SPACE SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
31 RCSSHTX	21	SP	X					31 RCS SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
32 PLSSHTX	21	SP	X					32 PZR LIQ SPACE SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
32 RCSSHTX	21	SP	X					32 RCS SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
ACAHCC1	21	CCW					X	CCW HEAT EXCH NO 31	9321-F-27513 SHT1	S		PA	55'-0"	N/A	N/A	NO			N/A
ACAHCC2	21	CCW					X	CCW HEAT EXCH NO.32	9321-F-27513 SHT1	S		PA	55'-0"	N/A	N/A	NO			N/A
ACAHRS1	21	RHR				X		RHR HTEXCH # 31	9321-F-27203	S		VC	66'-0"	N/A	N/A	NO			N/A
ACAHRS2	21	RHR				X		RHR HTEXCH # 32	9321-F-27203	S		VC	66'-0"	N/A	N/A	NO			N/A
ACATCC1	21	CCW					X	CC SURGE TANK #31	9321-F-27513 SHT1	S		PA	73'-0"	N/A	N/A	NO			N/A
ACATCC2	21	CCW					X	CC SURGE TANK #32	9321-F-27513 SHT1	S		PA	73'-0"	N/A	N/A	NO			N/A
CHRG PP31 CASING HTX	21	CVCS					X	CHARGING PP31 FLUID DRIVE CASING OIL COOLER	9321-F-27513	B		PA	55'-0"	N/A	N/A	NO			N/A
CHRG PP31 CRANK HTX	21	CVCS					X	CHARGING PP31 PUMP CRANKCASE OIL COOLER	9321-F-27513	B		PA	55'-0"	N/A	N/A	NO			N/A
CHRG PP32 CASING HTX	21	CVCS					X	CHARGING PP32 FLUID DRIVE CASING OIL COOLER	9321-F-27513	B		PA	55'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
CHRG PP32 CRANK HTX	21	CVCS					X	CHARGING PP32 PUMP CRANKCASE OIL COOLER	9321-F-27513	B		PA	55'-0"	N/A	N/A	NO			N/A
CHRG PP33 CASING HTX	21	CVCS					X	CHARGING PP33 FLUID DRIVE CASING OIL COOLER	9321-F-27513	B		PA	55'-0"	N/A	N/A	NO			N/A
CHRG PP33 CRANK HTX	21	CVCS					X	CHARGING PP33 PUMP CRANKCASE OIL COOLER	9321-F-27513	B		PA	55'-0"	N/A	N/A	NO			N/A
CSAHEL1	21	CVCS			X	X		31 EXCS LETDWN HTX	9321-F-27363	S		VC	68'-0"	N/A	N/A	NO			N/A
CSAHNRT	21	CVCS	X	X	X			NON REGEN HEAT EXCH NO 31	9321-F-27363,9321-F-27513	S		PA	73'-0	N/A	N/A	NO			N/A
CSAHRG1	21	CVCS	X	X	X			31 REGEN HTX	9321-F-27363	S		VC	68'-0"	N/A	N/A	NO			N/A
CSAHSW1	21	CVCS	X		X			SEAL WTR HEAT EXCH NO. 31	9321-F-27363	S		PA	73'-0"	N/A	N/A	NO			N/A
CSATBA1	21	CVCS	X		X			BORIC ACID STG TANK 31	9321-F-27363	S		PA	73'-0	N/A	N/A	NO			N/A
CSATBA2	21	CVCS	X		X			BORIC ACID STG TANK 32	9321-F-27363	S		PA	73'-0"	N/A	N/A	NO			N/A
CSATVC1	21	CVCS	X	X	X			VOLUME CONTROL TANK NO. 31	9321-F-27363	S		PA	73'-0"	N/A	N/A	NO			N/A
CST	21	COND				X		CONDENSATE STOR TANK	9321-F-20183 SHT 1	S		YD	69'-0"	N/A	N/A	NO			N/A
DRYER SET 31	21	IA					X	HEATLESS DESSICANT DRYER SET #31	9321-F-20263 SHT. 1	S		CB	15'-0"	ON	ON	YES	9321-F-30053	COMPT. 3BR	MCC-39
DRYER SET 32	21	IA					X	HEATLESS DESSICANT DRYER SET #32	9321-F-20263 SHT. 1	S		CB	15'-0"	ON	ON	YES	9321-F-30043	COMPT. 2DL	MCC-34
EDG-31-FO-DTNK	21	EDG					X	F.O. DAY TANK NO. 31	9321-F-20303	S		DG	26'-0"	N/A	N/A	NO			N/A
EDG-31-FO-STNK	21	EDG					X	F.O. STORAGE TANK 31	9321-F-20303	S		YD	27'-0"	N/A	N/A	NO			N/A
EDG-31-JW HTX	21	EDG					X	DG 31 JACKET WATER COOLER	9321-H-20283	B		DG	15'-0"	ON	ON	NO			N/A
EDG-31-LO HTX	21	EDG					X	DG 31 LUBE OIL COOLER	9321-H-20283	B		DG	15'-0"	ON	ON	NO			N/A
EDG-32-FO-DTNK	21	EDG					X	F.O. DAY TANK NO. 32	9321-F-20303	S		DG	26'-0"	N/A	N/A	NO			N/A
EDG-32-FO-STNK	21	EDG					X	F.O. STORAGE TANK 32	9321-F-20303	S		YD	27'-0"	N/A	N/A	NO			N/A
EDG-32-JW HTX	21	EDG					X	DG 32 JACKET WATER COOLER	9321-H-20283	B		DG	15'-0"	ON	ON	NO			N/A
EDG-32-LO HTX	21	EDG					X	DG 32 LUBE OIL COOLER	9321-H-20283	B		DG	15'-0"	ON	ON	NO			N/A
EDG-33-FO-DTNK	21	EDG					X	F.O. DAY TANK NO. 33	9321-F-20303	S		DG	26'-0"	N/A	N/A	NO			N/A
EDG-33-FO-STNK	21	EDG					X	F.O. STORAGE TANK 33	9321-F-20303	S		YD	27'-0"	N/A	N/A	NO			N/A
EDG-33-JW HTX	21	EDG					X	DG 33 JACKET WATER COOLER	9321-H-20283	B		DG	15'-0"	ON	ON	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
COMPOSITE
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
EDG-33-LO HTX	21	EDG					X	DG 33 LUBE OIL COOLER	9321-H-20283	B		DG	15'-0"	ON	ON	NO			N/A
IA-31-TK	21	IA					X	INST AIR RECEIVER	9321-F-20363	S		CB	15'-0"	N/A	N/A	NO			N/A
IACCHT	21	IA					X	INST. AIR COMP CLG HEAD TANK	9321-F-23913	S		CB	33'-0"	N/A	N/A	NO			N/A
PWST 21	21	PW			X			PRIMARY WATER STORAGE TANK	9321-F-27243	S		YD	54'-0"	N/A	N/A	NO			N/A
RWST-31	21	SIS	X		X			REFUEL WTR STORAGE TANK	9321-F-27503 SHT. 2	S		YD	80'-0"	N/A	N/A	NO			N/A
PBU1	R	RCS		X				PRESSURIZER HEATER BACKUP GROUP 31	500B971 SHT. 39		R	VC	68'-0"	OFF	ON	YES			480V BUS 3A
PBU2	R	RCS		X				PRESSURIZER HEATER BACKUP GROUP 32	500B971 SHT. 49		R	VC	68'-0"	OFF	ON	YES			480V BUS 2A
PBU3	R	RCS		X				PRESSURIZER HEATER BACKUP GROUP 33	500B971 SHT. 88		R	VC	68'-0"	OFF	ON	YES			480V BUS 5A
SWN-04	R	SWN					X	DISCH HDR X-TIE VALVE	9321-F-20333			IS	15'-0"	OPEN	OPEN	NO			MANUAL
SWN-05	R	SWN					X	DISCH HDR X-TIE VALVE	9321-F-20333			IS	15'-0"	CLOSED	CLOSED	NO			MANUAL
SWN-06	R	SWN					X	ISO VALVE-CONV COOLERS	9321-F-20333			IS	15'-0"	OPEN	OPEN	NO			MANUAL
SWN-07	R	SWN					X	ISO VALVE-CONV COOLERS	9321-F-20333			IS	15'-0"	CLOSED	CLOSED	NO			MANUAL
SWN-FCV-1111	R	SWN					X	ISO VALVE-CONV PLANT SERVICES	9321-F-20333			IS	15'-0"	CLOSED	CLOSED	NO			MANUAL
SWN-FCV-1112	R	SWN					X	ISO VALVE-CONV PLANT SERVICES	9321-F-20333			IS	15'-0"	OPEN	CLOSED	NO			MANUAL

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
00310AL A	00	HVAC					X	OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00310AL B	00	HVAC					X	OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00310AL C	00	HVAC					X	OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00320AL A	00	HVAC					X	OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00320AL B	00	HVAC					X	OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00320AL C	00	HVAC					X	OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00330AL A	00	HVAC					X	OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00330AL B	00	HVAC					X	OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00330AL C	00	HVAC					X	OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			I/A
T1	00	HVAC					X	A/C UNIT 31/32 THERMOSTAT	9321-LL-31263 SHT.9,10	S		CB	53'-0"	ON	ON	NO			N/A
MCC-32	01	480 VAC					X	480 VAC MCC	9321-F-30043 SHT. 2	S	R	TB	15'-0"	ON	ON	YES	617F644		BUS 3A
MCC-33	01	480 VAC					X	480 VAC MCC	9321-F-30043	S	R	TB	15'-0"	ON	ON	YES	617F644		BUS 2A
MCC-34	01	480 VAC					X	480 VAC MCC	9321-F-30043	S	R	TB	15'-0"	ON	ON	YES	617F644		BUS 2A
MCC-36A	01	480 VAC					X	480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644		BUS 5A
MCC-36A EXTENSION	01	480 VAC					X	480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644		BUS 5A
MCC-36B	01	480 VAC					X	480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644		BUS 6A
MCC-36B EXTENSION	01	480 VAC					X	480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644		BUS 6A
MCC-36C	01	480 VAC					X	480 VAC MCC	9321-F-30063	S	R	CB	15'-0"	ON	ON	YES	617F644		BUS 2A
MCC-37	01	480 VAC					X	480 VAC MCC	9321-F-30053	S	R	PA	55'-0"	ON	ON	YES	617F644		BUS 6A
MCC-38	01	480 VAC					X	480 VAC MCC	9321-F-30053	S	R	VC	68'-0"	ON	ON	YES	617F644		BUS 5A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
MCC-39	01	480 VAC					X	480 VAC MCC	9321-F-30053	S	R	CB	33'-0"	ON	ON	YES	617F644		BUS 5A
SWGR31	02	480 VAC					X	480VAC SWGR 31 (BUS 2A AND BUS 5A)	617F644	S	R	CB	15'-0"	ON	ON	YES	617F645		EDG31 & EDG33
SWGR32	02	480 VAC					X	480VAC SWGR 32 (BUS 3A & BUS 6A)	617F644	S	R	CB	15'-0"	ON	ON	YES	617F645		EDG31 & EDG32
31 BK-UP HTR XFMR	04	RCS					X	PRZR HTR BK UP GROUP 31 TRANSFORMER	WHSE 501B386 SHT. 3	S		CB	33'-0"	DE-ENERG	ENERG	YES	9321-F-31643		480V BUS 3A
32 BK-UP HTR XFMR	04	RCS					X	PRZR HTR BK UP GROUP 32 TRANSFORMER	WHSE 501B386 SHT. 3	S		CB	33'-0"	DE-ENERG	ENERG	YES	9321-F-31723		480V BUS 2A
33 BK-UP HTR XFMR	04	RCS					X	PRZR HTR BK UP GROUP 33 TRANSFORMER	WHSE 501B386 SHT. 3	S		CB	33'-0"	DE-ENERG	ENERG	YES	9321-F-31693		480V BUS 5A
B1G	04	480 VAC					X	480/120 VAC ELGAR TRANSFORMER (FOR IB-33,33A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30053		MCC-39
BC2	04	480 VAC					X	480/120 VAC TRANSFORMER #32 (FOR IB-34,34A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30063		MCC-36B
BF8	04	120 VAC					X	120/120 VAC SOLATRON TRANSFORMER #32	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-39893		BC2
BG1	04	NIS					X	1KVA SOLATRON TRANSFORMER 120V/120V	9321-F-30893	S		CB	33'-0"	ON	ON	YES	9321-F-32003	CKT.5	118VAC IB34
BG2	04	NIS					X	1KVA SOLATRON TRANSFORMER 120V/120V	9321-F-30893	S		CB	33'-0"	ON	ON	YES	9321-F-31993	CKT.5	118VAC IB32
BG3	04	NIS					X	1KVA SOLATRON TRANSFORMER 120V/120V	9321-F-30893	S		CB	33'-0"	ON	ON	YES	9321-F-31993	CKT.5	118VAC IB31
BG4	04	NIS					X	1KVA SOLATRON TRANSFORMER 120V/120V	9321-F-30893	S		CB	33'-0"	ON	ON	YES	9321-F-32003	CKT.5	118VAC IB33
BI3	04	480 VAC					X	480/120 VAC SOLA XFMR (FOR IB-31,31A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30043 SHT. 1		MCC-34
BI4	04	480 VAC					X	480/120 VAC SOLA XFMR (FOR IB-32,32A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30043 SHT. 1		MCC-33

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
BJ1	04	480 VAC					X	480/120 VAC SOLA XFMR (ALT FOR IB-34,34A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30063		MCC-36C
31PWMUP	05	PW		X				31 PRIMARY WATER MAKEUP PUMP	9321-F-27243	S	R	PA	41'-0"	ON	ON	YES	500B971 SHT 83		MCC 37 - 6RK
32PWMUP	05	PW		X				32 PRIMARY WATER MAKEUP PUMP	9321-F-27243	S	R	PA	41'-0"	OFF	OFF	NO			N/A
ABFP-31	05	AFW				X		MOTOR DRIVEN AUX. FEEDWATER PUMP NO. 31	9321-F-20183 SHT 1	S	R	AB	18'-6"	OFF	ON	YES	617F644	SG-32-6D	BUS 3A
ABFP-32	05	AFW				X		TURBINE DRIVEN AUX. FEEDWATER PUMP NO. 32	9321-F-20183 SHT 1	S	R	AB	18'-6"	OFF	ON	YES			MS
ABFP-33	05	AFW				X		MOTOR DRIVEN AUX. FEEDWATER PUMP NO. 33	9321-F-20183 SHT 1	S	R	AB	18'-6"	OFF	ON	YES	617F644	SG-32-11 D	BUS 6A
ACAPCC1	05	CCW					X	CCW PUMP NO 31	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-21 B	BUS 5A
ACAPCC2	05	CCW					X	CCW PUMP NO. 32	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-30 D	BUS 2A
ACAPCC3	05	CCW					X	CCW PUMP NO 33	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-15 D	BUS 6A
CSAPBA1	05	CVCS	X	X	X			BORIC ACID TRANSFER PUMP 31	9321-F-27363	S	R	PA	73'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7RH	MCC-36A
CSAPBA2	05	CVCS	X	X	X			BORIC ACID TRANSFER PUMP 32	9321-F-27363	S	R	PA	73'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7RH	MCC-36B
CSAPCH1	05	CVCS	X	X	X			NO. 31 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-22 C	BUS 5A
CSAPCH2	05	CVCS	X	X	X			NO. 32 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-5C	BUS 3A
CSAPCH3	05	CVCS	X	X	X			NO. 33 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-13 C	BUS 6A
31 DG FUEL XFER PUMP	06	EDG					X	F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-6"	OFF	ON	YES	9321-F-30063	CMP-1FL	MCC-36C
31 SW PUMP (M)	06	SWN					X	31 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-23 D	BUS 5A
32 DG FUEL XFER PUMP	06	EDG					X	F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-0"	OFF	ON	YES	9321-F-30063	CMP-5RM	MCC-36B

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
32 SW PUMP (M)	06	SWN					X	32 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-30 B	BUS 2A
33 DG FUEL XFER PUMP	06	EDG					X	F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-0"	OFF	ON	YES	9321-F-30063	CMP-5RM	MCC-36A
33 SW PUMP (M)	06	SWN					X	33 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-10 D	BUS 6A
34 SW PUMP (M)	06	SWN					X	34 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-23 C	BUS 5A
35 SW PUMP (M)	06	SWN					X	35 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-3D	BUS 3A
36 SW PUMP (M)	06	SWN					X	36 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-10 C	BUS 6A
ACAPRH1	06	RHR				X		31 RHR PUMP	9321-F-27513 SHT1	S	R	PA	15'-0"	OFF	ON	YES	617F644		BUS 3A
ACAPRH2	06	RHR				X		32 RHR PUMP	9321-F-27513 SHT1	S	R	PA	15'-0"	OFF	ON	YES	617F644		BUS 6A
953	07	SP	X					PZR LIQ SPC SAMPLE LINE	9321-F-27453	S	R	VC	73'-6"	CLOSED	CLOSED	YES	500B971 SHT.95	CKT.12	125VDC DIST PNL 33
955A	07	SP	X					31 HL SAMPLE LINE	9321-F-27453	S	R	VC	62'-0"	CLOSED	CLOSED	NO			N/A
955B	07	SP	X					33 HL SAMPLE LINE	9321-F-27453	S	R	VC	62'-0"	CLOSED	CLOSED	NO			N/A
956C	07	SP	X					PZR LIQ SPACE SAMPLE LINE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.95	CKT.3	125VDC DIST PNL 31
956D	07	SP	X					PZR LIQ SPACE SAMPLE LINE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.96	CKT.6	125VDC DIST PNL 32
956E	07	SP	X					RCS HL SAMPLE LINE ISO VALVE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.96	CKT.3	125VDC DIST PNL 31
956F	07	SP	X					RCS HL SAMPLE LINE ISO VALVE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.96	CKT.6	125VDC DIST PNL 32
958	07	SP	X					RHR SAMPLE LINE VALVE	9321-F-27453	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.96	CKT.12	125VDC DIST PNL 33
959	07	SP	X					RHR SAMPLE LINE VALVE	9321-F-27453	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.96	CKT.12	125VDC DIST PNL 33
AC-791	07	CCW					X	CCW TO EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	CLOSED	CLOSED	NO			N/A
AC-793	07	CCW					X	CCW RETRN FR EXC L/D ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	YES	500B971 SHT. 91	CKT. 3	125VDC DIST PNL 31
AC-796	07	CCW					X	CCW RETRN FR EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0'	CLOSED	CLOSED	YES	500B971 SHT. 92	CKT. 6	125VDC DIST PNL 32
AC-798	07	CCW					X	CCW TO EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	CLOSED	CLOSED	NO			N/A
BFD-FCV-1121	07	AFW				X		31AFP RECIRC LINE CTRL VALVE	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LL-31313 SHT 10	CKT. 5	125VDC DIST PNL 33
BFD-FCV-1123	07	AFW				X		33AFP RECIRC LINE CTRL VALVE	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LL-31313 SHT 11	CKT. 13	125VDC DIST PNL 32
BFD-FCV-405A	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 31 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
BFD-FCV-405B	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 32 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A
BFD-FCV-405C	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 33 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A
BFD-FCV-405D	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 34 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A
BFD-FCV-406A	07	AFW				X		NO.31 AFWP MAN FLOW CTRL TO 31 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
BFD-FCV-406B	07	AFW				X		NO.31 AFWP MAN FLOW CTRL TO 32 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
BFD-FCV-406C	07	AFW				X		NO.33 AFWP MAN FLOW CTRL TO 33 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
BFD-FCV-406D	07	AFW				X		NO.33 AFWP MAN FLOW CTRL TO 34 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
CH-201	07	CVCS	X	X	X			LETDN LINE ISO VLV	9321-F-27363	S	R	PP	51'-0"	OPEN	OPEN	YES	5008971 SHT.90	CKT.3	125VDC DIST PNL 31
CH-202	07	CVCS	X	X	X			LETDN LINE ISO VLV	9321-F-27363	S	R	PP	51'-0"	OPEN	OPEN	YES	5008971 SHT.90	CKT.6	125VDC DIST PNL 32
CH-310	07	CVCS	X	X	X			DEBORATING DEMIN DIVERSION	9321-F-27363	S	R	PA	42'-0"	OPEN	CLOSED	YES	5008971 SHT.91	CKT.15	125VDC DIST PNL 32
CH-AOV-200A	07	CVCS	X	X	X			LETDOWN ORIFICE ISO VALVE	9321-F-27363	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
CH-AOV-200B	07	CVCS	X	X	X			LETDOWN ORIFICE ISO VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.3	125VDC DIST PNL 31
CH-AOV-200C	07	CVCS	X	X	X			LETDOWN ORIFICE ISO VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.3	125VDC DIST PNL 31
CH-AOV-204A	07	CVCS	X	X	X			ALT CHG FLOW NO 32 HOT LEG CTRL VLV	9321-F-27363	S	R	VC	58'-0"	CLOSED	CLOSED	YES	5008971 SHT.90	CKT.15	125VDC DIST PNL 32
CH-AOV-204B	07	CVCS	X	X	X			CHG FLOW NO 31 COLD LEG CTRL VLV	9321-F-27363	S	R	VC	46'-0"	OPEN	OPEN	NO			N/A
CH-AOV-212	07	CVCS	X	X	X			AUX SPRAY CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OP/CLOSED	YES	5008971 SHT.90	CKT.5	125VDC DIST PNL 31
CH-AOV-213A	07	CVCS	X	X	X			EXCESS LETDOWN CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.15	125VDC DIST PNL 32
CH-AOV-213B	07	CVCS	X	X	X			EXCESS LETDOWN CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.5	125VDC DIST PNL 31
CH-AOV-215	07	CVCS	X		X			EXC LETDN LINE DIVERSION CTRL VLV	9321-F-27363	S	R	VC	46'-0"	OPEN	OPEN	YES	5008971 SHT.90	CKT.5	125VDC DIST PNL 31
CH-AOV-246	07	CVCS	X		X			RCP SEAL NO. 1 BYPASS VLV TO VCT	9321-F-27363	S	R	VC	53'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
CH-AOV-261A	07	CVCS			X			31 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-AOV-261B	07	CVCS			X			32 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-AOV-261C	07	CVCS			X			33 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0'	OPEN	OPEN	NO			N/A
CH-AOV-261D	07	CVCS			X			34 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-FCV-110A	07	CVCS	X		X			BORIC ACID FLOW CTRL	9321-F-27363	S	R	PA	80'-0"	CLOSED	OPEN	NO			N/A
CH-FCV-110B	07	CVCS	X		X			BORIC ACID BLNDR OUTLET	9321-F-27363	S	R	PA	73'-0"	CLOSED	OPEN	YES	500B971 SHT. 105	CKT. 5	125VDC DIST PNL 31
CH-FCV-111A	07	CVCS	X		X			PRIMARY WTR MAKEUP VLV	9321-F-27363	S	R	PA	78'-0"	CLOSED	CLOSED	NO			N/A
CH-FCV-111B	07	CVCS	X		X			BLENDER FLOW TO VCT CTRL VALVE	9321-F-27363	S	R	PA	78'-0"	CLOSED	CLOSED	NO			N/A
CH-HCV-123	07	CVCS			X			EXCESS LETDOWN HX OUTFLOW CTRL VALVE	9321-F-27363	S	R	VC	46-0"	CLOSED	CLOSED	NO			N/A
CH-HCV-133	07	CVCS				X		RHR HTX OUTLET TO CVCS	9321-F-27363	S	R	VC	55'-3"	CLOSED	CLOSED	NO			N/A
CH-HCV-142	07	CVCS	X	X	X			REGEN HX FLOW CTRL	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	YES	9321-F-39893	PNL SF	118VAC IB31-II
CH-LCV-112A	07	CVCS			X			MAKE-UP TO VCT 3-WAY VALVE	9321-F-27363	S	R	PA	80'-0"	OPEN	OPEN	YES	500B971 SHT. 105	CKT. 5	125VDC DIST PNL 31
CH-LCV-459	07	CVCS	X	X	X			LETDOWN CTRL VALVE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	YES	500B971 SHT. 106	CKT. 15	125VDC DIST PNL 32
CH-LCV-460	07	CVCS	X	X	X			LETDOWN CTRL VALVE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	YES	500B971 SHT.106	CKT.3	125VDC DIST PNL 31
CH-PCV-113A	07	CVCS	X	X	X			VCT H2 REGULATOR	9321-F-27363	S		PA	75'-0"	OPEN	OPEN	NO			N/A
CH-PCV-114	07	CVCS	X	X	X			VCT N2 REGULATOR	9321-F-27363	S		PA	74'-0"	CLOSED	OPEN	NO			N/A
CH-PCV-135	07	CVCS	X	X	X			LETDOWN BP CONTROL	9321-F-27363	S	R	PA	75'-0"	OPEN	OPEN	NO			N/A
CH-TCV-149	07	CVCS	X	X	X			DEMIN BYPASS VLV	9321-F-27363	S	R	PA	80'-0"	CLOSED TO VCT	OPEN	YES	500B971 SHT. 106	CKT. 15	125VDC DIST PNL 32
DF-LCV-1207A	07	EDG					X	31 EDG FOOT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36C
DF-LCV-1207B	07	EDG					X	31 EDG FOOT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36C
DF-LCV-1208A	07	EDG					X	32 EDG FOOT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36B
DF-LCV-1208B	07	EDG					X	32 EDG FOOT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36B
DF-LCV-1209A	07	EDG					X	33 EDG FOOT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36A
DF-LCV-1209B	07	EDG					X	33 EDG FOOT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36A
FCV-1176	07	EDG					X	EDG JW/LO CLRS RET HDR FLOW CONT. VLV.	9321-F-27223	S	R	DG	15'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 15	CKT. 5	125VDC DIST PNL 31
FCV-1176A	07	EDG					X	EDG JW/LO CLRS RET HDR FLOW CONT. VLV	9321-F-27223	S	R	DG	15'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 15A	CKT. 5	125VDC DIST PNL 32

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
HCV-1118	07	AFW			X			32 AFWP TURB GOVRNER	9321-F-20193	S		AB	18'-6"	CLOSED	OPEN	YES	9321-F-39893		RACK 4A/IB31-2
LCV-1158-1	07	COND			X			CST LO LVL CONTROL VALVE	9321-F-20183	S	R	AB	18'-6"	OPEN	CLOSED	YES	9321-LL-31313 SHT 9		I/A
LCV-1158-2	07	COND			X			CST LO LVL CONTROL VALVE	9321-F-20183	S	R	AB	18'-6"	OPEN	CLOSED	YES	9321-LL-31313 SHT 9		I/A
MS-1-31	07	MS			X			31 SG MSIV	9321-F-20173,9321-F-7 0093	S	R	AB	77'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34
MS-1-32	07	MS			X			32 SG MSIV	9321-F-20173,9321-F-7 0093	S	R	AB	65'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34
MS-1-33	07	MS			X			33 SG MSIV	9321-F-20173,9321-F-7 0093	S	R	AB	77'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34
MS-1-34	07	MS			X			34 SG MSIV	9321-F-20173,9321-F-7 0093	S	R	AB	65'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34
MS-45-1	07	MS			X			STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-45-2	07	MS			X			STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-45-3	07	MS			X			STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-45-4	07	MS			X			STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-1	07	MS			X			STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-2	07	MS			X			STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-3	07	MS			X			STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-4	07	MS			X			STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-47-1	07	MS			X			STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-47-2	07	MS			X			STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
MS-47-3	07	MS				X		STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-47-4	07	MS				X		STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-48-1	07	MS				X		STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-48-2	07	MS				X		STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-48-3	07	MS				X		STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-48-4	07	MS				X		STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-49-1	07	MS				X		STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-49-2	07	MS				X		STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-49-3	07	MS				X		STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-49-4	07	MS				X		STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
PCV-1042	07	GAS					X	HYDROGEN SUPPLY PRESSURE CONTROL VALVE	9321-F-20403	S		PA	55'-0"	OPEN	OPEN	NO			N/A
PCV-1139	07	MS				X		AUX FWP TURB STM SUPP PRESS REDUCING VALVE	9321-F-20173	S	R	AB	15'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 19	CKT. 4	125VDC DIST PNL 31
PCV-1142	07	IA					X	INSTRUMENT AIR EMERGENCY MAKEUP VALVE	9321-F-70483	S	R	CB	15'-0"	CLOSED	CLOSED	NO			N/A
PCV-1187	07	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
PCV-1188	07	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
PCV-1189	07	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
PCV-1213	07	AFW				X		PRESSURE CONTROL VALVE	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PCV-1228	07	IA					X	I/A SPPLY CONT BLDG INSTR AIR HDR	9321-F-20363,9321-F-70093	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
PCV-1273	07	GAS					X	N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1274	07	GAS					X	N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1275	07	GAS					X	N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1276	07	GAS					X	N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1296	07	SWN					X	31 A/C UNIT CONDENSER	9321-F-27223	S		CB	15'-0"	CLOSED	OPEN	YES			I/A
PCV-1297	07	SWN					X	32 A/C UNIT CONDENSER	9321-F-27223	S		CB	15'-0"	OPEN	OPEN	YES			I/A
PCV-1310A	07	MS				X		AUX FWP TURB STM SUPP SHUT-OFF VALVE	9321-F-20173	S	R	AB	30'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 29	CKT. 19	125VDC DIST PNL 33
PCV-1310B	07	MS				X		AUX FWP TURB STM SUPP SHUT-OFF VALVE	9321-F-20173	S	R	AB	36'-0"	CLOSED	OPEN	YES	9312-LL-31313 SHT 29	CKT. 13	125VDC DIST PNL 32
PCV-455A	07	RCS	X					PZR SPRAY CONTROL VALVE	9321-F-27473	S	R	VC	68'-0"	CLOSED	CLOSED	NO			N/A
PCV-455B	07	RCS	X					PZR SPRAY CONTROL VALVE	9321-F-27473	S	R	VC	68'-0"	CLOSED	CLOSED	NO			N/A
PCV-455C	07	RCS	X					PRESSURIZER PORV	9321-F-27473	S	R	VC	124'-0	CLOSED	CLOSED	NO			N/A
PCV-456	07	RCS	X					PRESSURIZER PORV	9321-F-27473	S	R	VC	124'-0	CLOSED	CLOSED	NO			N/A
PCV-473	07	RCS	X					N2 SUPPLY TO PRT	9321-F-27473	S		PA	41'-0"	OPEN	OPEN	NO			N/A
PRV-6300	07	GAS					X	N2 TO PORV 456 REG VALVE	9321-F-27203	S		VC	68'-0"	OPEN	OPEN	NO			N/A
PRV-6301	07	GAS					X	N2 TO PORV 455C REG VALVE	9321-F-27203	S		VC	68'-0"	OPEN	OPEN	NO			N/A
RC-519	07	RCS	X					PRIMARY WATER MAKE-UP TO PRT VALVE	9321-F-27473	S	R	PP	41'-0"	CLOSED	CLOSED	NO			N/A
RC-523	07	RCS	X					PRT DRAIN VALVE	9321-F-27473	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
RC-544	07	RCS	X	X				REACTOR VESSEL FLANGE LEAK-OFF CTRL VLV	9321-F-27383	S	R	VC	60'-0"	OPEN	CLOSED	YES	500B971 SHT.91	CKT.5	125VDC DIST PNL 31
RC-549	07	RCS	X					PRESS RELIEF GAS ANALYZER CTRL VALVE	9321-F-27473	S	R	PA	54'-0"	CLOSED	CLOSED	NO			N/A
RC-552	07	RCS	X					PRIMARY WATER MAKE-UP TO PRT VALVE	9321-F-27473	S	R	PP	41'-0"	CLOSED	CLOSED	NO			N/A
RC-560	07	RCS	X					PRT SPRAY ISO STOP VALVE	9321-F-27473	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
SWN-TCV-1103	07	SWN					X	CFCU OUTLET CONTROL VLV	9321-F-27223	S	R	PP	35'-0"	OPEN	OPEN	YES	9321-F-39893		118VAC IB32-I

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
SWN-TCV-1104	07	SWN					X	CFCU OUTLET BYPASS VLV	9321-F-27223	S	R	PP	35'-0"	CLOSED	CLOSED	NO		PANEL SB2	N/A
SWN-TCV-1105	07	SWN					X	CFCU OUTLET BYPASS VLV	9321-F-27223	S	R	PP	35'-0"	CLOSED	CLOSED	NO			N/A
SWN-TCV-1113	07	SWN					X	INST AIR CC HX SW OUTLET TCV	9321-F-27223	S	R	CB	15'-0"	OPEN	OPEN	YES	9321-LD-72543 SHT.8		I/A
TCV-130	07	CCW					X	NON REGEN HX OUTLET TCV	9321-F-27513 SHT1	S	R	PA	73'-0"	OPEN	OPEN	NO			N/A
AC-FCV-625	08	CCW					X	CCW RET FR RCP MTR COOLERS	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0730	08	ACS				X		RHR SUCT LN ISO VLV	9321-F-27203	S	R	VC	56'-6"	CLOSED	OPEN	YES	500B971 SHT. 110	COMPT. 2FM	MCC-36A
AC-MOV-0731	08	ACS				X		RHR SUCT LN ISO VLV	9321-F-27203	S	R	VC	59'-6"	CLOSED	OPEN	YES	500B971 SHT. 110	COMPT. 2FM	MCC-36B
AC-MOV-0743	08	ACS				X		RHR PUMP MINI FLOW TEST LINE	9321-F-27513 SHT. 1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0744	08	ACS				X		RHR PUMP DISCH ISO VLV	9321-F-27513 SHT. 1	S	R	PA	15'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0745A	08	ACS				X		RHR HEAT EXCHANGER 32 INLET ISOLATION VLV	9321-F-27203	S	R	VC	66'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0745B	08	ACS				X		RHR HEAT EXCHANGER 32 INLET ISOLATION VLV	9321-F-27203	S	R	VC	66'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0746	08	ACS				X		#32 RHR HX OUTLT ISO STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0747	08	ACS				X		#31 RHR HX OUTLT ISO STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
AC-MOV-1870	08	ACS				X		RHR PUMP MINI FLOW TEST LINE VALVE	9321-F-27513 SHT. 1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-769	08	CCW					X	CCW SUPP-RCP ISO	9321-F-27513 SHT1	S	R	PA	55'-7"	OPEN	OPEN	NO			N/A
AC-MOV-784	08	CCW					X	CCW RET FR RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-786	08	CCW					X	CCW RET FR RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-789	08	CCW					X	CCW RET FR RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-797	08	CCW					X	CCW SUPP-RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-822A	08	CCW					X	RHR HTX ISO. VLV	9321-F-27513	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.111		MCC 36A
AC-MOV-822B	08	CCW					X	RHR HTX ISO. VLV	9321-F-27513	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.111		MCC 36B
CH-LCV-112B	08	CVCS	X		X			RWST TO CHARGING PUMP SUCTION VALVE	9321-F-27363	S	R	PA	65'-0"	CLOSED	CLOSED	YES	500B971 SHT. 110	COMPT. 1RH	MCC-36B
CH-LCV-112C	08	CVCS			X			VCT OUTLET ISO VLV	9321-F-27363	S	R	PA	73'-0"	OPEN	OPEN	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
CH-MOV-205	08	CVCS	X	X	X			CHARGING FLOW TO RCS ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-222	08	CVCS	X		X			RCP SEAL WTR RETURN ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-226	08	CVCS	X	X	X			CHARGING LINE CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250A	08	CVCS			X			31 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250B	08	CVCS			X			32 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250C	08	CVCS			X			33 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250D	08	CVCS			X			34 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-333	08	CVCS	X		X			BORIC ACID FEED TO CHG PUMPS VALVE	9321-F-27363	S	R	PA	73'-0"	CLOSED	CLOSED	NO			N/A
CH-MOV-441	08	CVCS			X			31 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-442	08	CVCS			X			32 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-443	08	CVCS			X			33 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-444	08	CVCS			X			34 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-SOV-265	08	CVCS	X	X				VCT GAS ANALYZER SAMPLE VALVE	9321-F-27363	S	R	PA	73'-0"	CLOSED	CLOSED	NO			N/A
CH-SOV-268	08	CVCS	X	X	X			VCT VENT ISO VALVE	9321-F-27363	S	R	PA	73'-0"	CLOSED	CLOSED	NO			N/A
RC-MOV-535	08	RCS		X	X			PORV BLK VLV 455C	9321-F-27473	S	R	VC	124'-0	OPEN	OPEN	YES	9321-F-30063	COMPT. 1FH	MCC-36B
RC-MOV-536	08	RCS		X	X			PORV BLK VLV 456	9321-F-27473	S	R	VC	124'-0	OPEN	OPEN	YES	9321-F-30063	COMPT. 1FH	MCC-36A
SI-HCV-638	08	SIS				X		RHR HTX 31 DISCH. THROTTLE VLV.	9321-F-27353 SHT. 1	S	R	VC	66'-0"	OPEN	OPEN	YES	500B971 SHT.137		MCC-36B
SI-HCV-640	08	SIS				X		RHR HTX 32 DISCH. THROTTLE VLV.	9321-F-27353 SHT. 1	S	R	VC	66'-0"	OPEN	OPEN	YES	500B971 SHT.137		MCC-36A
SI-MOV-0882	08	SIS	X			X		RWST SUPPLY TO RHR PUMPS	9321-F-27503 SHT. 2	S	R	PA	15'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 4FD	MCC-36B
SI-MOV-0885A	08	SIS				X		RHR PUMPS SUCTION FROM CONTAINMENT SUMP	9321-F-27503 SHT2	S	R	PA	34'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-0885B	08	SIS				X		RHR PUMPS SUCTION FROM CONTAINMENT SUMP	9321-F-27503 SHT. 2	S	R	PA	34'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-0888A	08	SIS				X		HIGH HEAD INJECTION RECIRC STOP	9321-F-27503	S	R	PA	51'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
SI-MOV-0888B	08	SIS				X		HIGH HEAD INJECTION RECIRC STOP	9321-F-27503	S	R	PA	51'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-0889A	08	SIS				X		CTMT SPRAY HEADER ISO VALVE	9321-F-27353 SHT. 1	S	R	VC	72'-6"	CLOSED	CLOSED	NO			N/A
SI-MOV-0889B	08	SIS				X		CTMT SPRAY HEADER ISO VALVE	9321-F-27353 SHT. 1	S	R	VC	72'-6"	CLOSED	CLOSED	NO			N/A
SI-MOV-0894A	08	SIS		X	X	X		NO. 31 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 3RM	MCC-36A
SI-MOV-0894B	08	SIS		X	X	X		NO. 32 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 3RM	MCC-36B
SI-MOV-0894C	08	SIS		X	X	X		NO. 33 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 2RD	MCC-36A
SI-MOV-0894D	08	SIS		X	X	X		NO. 34 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 2RD	MCC-36B
SI-MOV-0899A	08	ACS				X		RHR HTX 32 OUTLET STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
SI-MOV-0899B	08	ACS				X		RHR HTX 31 OUTLET STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
SI-MOV-1802A	08	SIS				X		SIS RECIRC PUMP DISCHARGE VALVE	9321-F-27353	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-1802B	08	SIS				X		SIS RECIRC PUMP DISCHARGE VALVE	9321-F-27353	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-1810	08	SIS	X					MOV RWST TO SI PUMP ISO VALVE	9321-F-27503	S	R	PA	15'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 8FD	MCC-36A
SI-MOV-1869A	08	SIS				X		RHR HX 32 TO RHR MINI FLOW VALVES	9321-F-27353	S	R	VC	55'-0"	OPEN	OPEN	YES	500B971 SHT.116	COMPT. 7FH	MCC-36A
SI-MOV-1869B	08	SIS				X		RHR HX 31 TO RHR MINI FLOW VALVES	9321-F-27353	S	R	VC	55'-0"	OPEN	OPEN	YES	500B971 SHT.116	COMPT. 7FH	MCC-36B
SOV-110B-1	08	CVCS	X		X			CH-FCV-110B SOLENOID VALVE	9321-F-27363	S		PA	73'-0"	DE-ENERG	ENERG	YES	500B971 SHT.105	CKT.5	125VDC DIST PNL 31
SOV-111A-1	08	CVCS	X		X			CH-FCV-111A SOLENOID VALVE	9321-F-27363	S	R	PA	78'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-112A-1	08	CVCS			X			CH-LCV-112A SOLENOID VALVE	9321-F-27363	S	R	PA	80'-0"	ENERG	ENERG	YES	500B971 SHT.105	CKT.5	125VDC DIST PNL 31
SOV-1139-1	08	MS				X		PCV-1139 SOLENOID VALVE	9321-F-20173	S		AB	15'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.19	CKT.4	125VDC DIST PNL 31
SOV-1139-2	08	MS				X		PCV-1139 SOLENOID VALVE	9321-F-20173	S		AB	15'-0"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT.19	CKT.4	125VDC DIST PNL 31
SOV-149-1	08	CVCS	X	X	X			CH-TCV-149 SOLENOID VALVE	9321-F-27363	S		PA	80'-0"	ENERG	ENERG	YES	500B971 SHT.106	CKT.15	125VDC DIST PNL 32

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
SOV-200A-1	08	CVCS	X	X	X			CH-AOV-200A SOLENOID VALVE	9321-F-27363	S		VC	46'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-200B-1	08	CVCS	X	X	X			CH-AOV-200B SOLENOID VALVE	9321-F-27363	S		VC	46'-0"	DE-ENERG	ENERG	YES	500B971 SHT.90	CKT.3	125VDC DIST PNL 31
SOV-200C-1	08	CVCS	X	X	X			CH-AOV-200C SOLENOID VALVE	9321-F-27363	S		VC	46'-0"	DE-ENERG	ENERG	YES	500B971 SHT.90	CKT.	125VDC DIST PNL 31
SOV-212-1	08	CVCS	X	X	X			CH-AOV-212 SOLENOID VALVE	9321-F-27362	S		VC	46'-0"	DE-ENERG	ENERG	YES	500B971 SHT.90	CKT.5	125VDC DIST PNL 31
SOV-215-1	08	CVCS	X	X	X			CH-AOV-215 SOLENOID VALVE	9321-F-27363	S		VC	46'-0"	ENERG	ENERG	YES	500B971 SHT.90	CKT.5	125VDC DIST PNL 31
SOV-310-1	08	CVCS	X	X	X			CH-310 SOLENOID VALVE	9321-F-27363	S		PA	42'-0"	ENERG	ENERG	YES	500B971 SHT.91	CKT.15	125VDC DIST PNL 32
SOV-459-1	08	CVCS	X	X	X			LETDOWN STOP VALVE	9321-F-27363	S		VC	79'-0"	ENERG	ENERG	YES	500B971 SHT.106	CKT.15	125VDC DIST PNL 32
SOV-460-1	08	CVCS	X	X	X			CH-LCV-460 SOLENOID VALVE	9321-F-27363	S	R	VC	79'-0"	ENERG	ENERG	YES	500B971 SHT. 106	CKT.3	125VDC DIST PNL 31
SOV-544-1	08	RCS		X				RC-544 SOLENOID VALVE	9321-F-27473	S		VC	60'-0"	ENERG	DE-ENERG	YES	500B971 SHT.91	CKT. 5	125VDC DIST PNL 31
SOV-549-1	08	RCS		X				RC-549 SOLENOID VALVE	9321-F-27473	S		PA	54'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-552-1	08	RCS		X				RC-552 SOLENOID VALVE	9321-F-27473	S		PP	41'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-560-1	08	RCS		X				RC-560 SOLENOID VALVE	9321-F-27473	S		VC	46'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-793-1	08	CCW					X	AC-793 SOLENOID VALVE	9321-F-27513 SHT.1	S	R	PP	51'-0"	DE-ENERG	DE-ENERG	YES	500B971 SHT.91	CKT.3	125VDC DIST PNL 31
SOV-956C-1	08	SP		X				956C SOLENOID VALVE	9321-F-27453	S		PP	41'-0"	ENERG	ENERG	YES	500B971 SHT.95		125VDC DIST PNL 31
SOV-956D-1	08	SP		X				956D SOLENOID VALVE	9321-F-27453	S		PP	41'-0"	EMERG	ENERG	YES	500B971 SHT.96		125VDC DIST PNL 32
SOV-956E-1	08	SP		X				956E SOLENOID VALVE	9321-F-27453	S		PP	41'-0"	ENERG	ENERG	YES	500B971 SHT.96		125VDC DIST PNL 31
SOV-956F-1	08	SP		X				956F SOLENOID VALVE	9321-F-27453	S		PP	41'-0"	ENERG	ENERG	YES	500B971 SHT.96		125VDC DIST PNL 32
0031ETEF	09	HVAC					X	EL TNL EXHAUST FAN 31 (LOWER)	9321-F-41023	S	R	ET	34'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 1FB	MCC-36A
0032ETEF	09	HVAC					X	EL TNL EXHAUST FAN 32 (LOWER)	9321-F-41023	S	R	ET	34'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 1FB	MCC-36B
0033ETEF	09	HVAC					X	EL TNL EXHAUST FAN 33 (UPPER)	9321-F-41023	S	R	ET	46'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7FB	MCC-36A
0034ETEF	09	HVAC					X	EL TNL EXHAUST FAN 34 (UPPER)	9321-F-41023	S	R	ET	46'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7FB	MCC-36B
31 PABEF	09	HVAC					X	PRIMARY AUX BUILDING EXHAUST FAN	9321-F-40223	S	R	FR	72'-0"	ON	ON	YES	617F644		480V BUS 3A
31CRDF	09	HVAC					X	CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2D	MCC-38
32 PABEF	09	HVAC					X	PRIMARY AUX BUILDING EXHAUST FAN	9321-F-40223	S	R	FR	72'-0"	ON	ON	YES	617F6444		480V BUS 6A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
32CRDF	09	HVAC					X	CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2F	MCC-38
33CRDF	09	HVAC					X	CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2H	MCC-38
34CRDF	09	HVAC					X	CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2K	MCC-38
F-311	09	HVAC					X	AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	18'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-312	09	HVAC					X	AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	18'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-313	09	HVAC					X	AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	32'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-314	09	HVAC					X	EDG 31 CMPT EF 314	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-315	09	HVAC					X	EDG 31 CMPT EF 315	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
F-316	09	HVAC					X	EDG 32 CMPT EF 316	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-317	09	HVAC					X	EDG 32 CMPT EF 317	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
F-318	09	HVAC					X	EDG 33 CMPT EF 318	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-319	09	HVAC					X	EDG 33 CMPT EF 319	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
PABSF	09	HVAC					X	PRIMARY AUX BUILDING SUPPLY FAN	9321-F-40223	S	R	PA	41'-0"	ON	ON	YES	9321-F-31893		MCC 37
0031CRFU	10	HVAC					X	31 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 5A
0032CRFU	10	HVAC					X	32 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 2A
0033CRFU	10	HVAC					X	33 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 5A
0034CRFU	10	HVAC					X	34 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 3A
0035CRFU	10	HVAC					X	35 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 6A
ACU31	10	HVAC					X	CONTROL ROOM A/C UNIT 31	9321-F-41023	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063	COMPT. 6FB	MCC-36A
ACU32	10	HVAC					X	CONTROL ROOM A/C UNIT 32	9321-F-41023	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063	COMPT. 6FB	MCC-36B
0031 IAC	12	IA					X	INST AIR COMP 31	9321-F-20363	S	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-F-30053	COMPT. 3M	MCC-39
0032 IAC	12	IA					X	INST AIR COMP 32	9321-F-20363	S	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-F-30043	COMPT. 1G	MCC-34

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
BK-UP GRP 31 DIST PNL	14	RCS					X	PRZR HTR BK UP GROUP 31 DIST PNL	WHSE 501B386 SHT. 1	S		ET	46'-0"	DE-ENERG	ENERG	YES	WHSE 501B386 SHT. 3		480V BUS 3A
BK-UP GRP 32 DIST PNL	14	RCS					X	PRZR HTR BK UP GROUP 32 DIST PNL	WHSE 501B386 SHT. 1	S		ET	46'-0"	DE-ENERG	ENERG	YES	WHSE 501B386 SHT. 3		480V BUS 2A
BK-UP GRP 33 DIST PNL	14	RCS					X	PRZR HTR BK UP GROUP 33 DIST PNL	WHSE 501B386 SHT. 1	S		ET	46'-0"	DE-ENERG	ENERG	YES	WHSE 501B386 SHT. 3		480V BUS 5A
CBBATT33	14	DC					X	400A BATTERY 33 CIRCUIT BREAKER	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY33
K50	14	118 VAC					X	118 VAC INST BUS 31A	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 31
K51	14	118 VAC					X	118 VAC INST BUS 32A	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 32
PE6	14	118 VAC					X	118 VAC INSTR BUS 34	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 34
PE7	14	118 VAC					X	118 VAC INSTR BUS 33	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 33
PE8	14	118 VAC					X	118 VAC INST BUS 31	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 31
PE9	14	118 VAC					X	118 VAC INST BUS 32	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 32
PNL K48	14	DC					X	125 VDC DISTRIBUTION PNL 31A	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL K49	14	DC					X	125 VDC DISTRIBUTION PNL 32A	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
PNL PC1	14	DC					X	125 VDC POWER PANEL #31	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 31
PNL PC2	14	DC					X	125 VDC POWER PANEL #32	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 32
PNL PC3	14	DC					X	125 VDC DISTRIBUTION PNL 31	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL PC4	14	DC					X	125 VDC DISTRIBUTION PNL 32	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
PNL PC8	14	DC					X	125 VDC DISTRIBUTION PNL 33	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL PC9	14	DC					X	125 VDC POWER PANEL #33	9321-F-30083	S	R	CB	15'-0"	ON	ON	YES	9321-F-30083		BATTERY 33
PNL PD9	14	DC					X	125 VDC DISTRIBUTION PNL 34	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
PNL PF7	14	DC					X	125 VDC POWER PANEL #34	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 34

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
BATTERY 31	15	DC					X	BATTERY BANK 31	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		31CHGR
BATTERY 32	15	DC					X	BATTERY BANK 32	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		32CHGR
BATTERY 33	15	DC					X	BATTERY BANK 33	9321-F-30523	S	R	DG	15'-0"	ON	ON	YES	9321-F-30083		33CHGR
BATTERY 34	15	DC					X	BATTERY BANK 34	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		34CHGR
31CHGR (GE3)	16	DC					X	BATTERY CHARGER 31	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30053		MCC39
32CHGR (GE4)	16	DC					X	BATTERY CHARGER 32	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30053		MCC37
33CHGR (GE8)	16	DC					X	BATTERY CHARGER 33	9321-F-30523	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063		MCC36C
34CHGR (GF3)	16	DC					X	BATTERY CHARGER 34	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30043 SHT. 2		MCC32
B1G	16	118 VAC					X	INST BUS 33,33A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
BI3	16	118 VAC					X	STATIC INVERTER #31 FUSE BOX	9321-F-39893	S		CB	33'-0"	ENERG	ENERG	NO			N/A
BI4	16	118 VAC					X	STATIC INVERTER #32 FUSE BOX	9321-F-39893	S		CB	33'-0"	ENERG	ENERG	NO			N/A
EGA1	16	118 VAC					X	25 KVA STATIC INVERTER #31	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
EGA2	16	118 VAC					X	25 KVA STATIC INVERTER #32	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
GC9	16	118 VAC					X	25 KVA STATIC INVERTER #33	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 33
GF2	16	118 VAC					X	25 KVA STATIC INVERTER #34	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 34
K4C	16	118 VAC					X	STATIC INVERTER #33 FUSE BOX	9321-F-39893	S		CB	33'-0"	ENERG	ENERG	NO			N/A
K4F	16	118 VAC					X	INST BUS 31,31A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
K4G	16	118 VAC					X	INST BUS 32,32A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
KG7	16	118 VAC					X	MANUAL TRANSFER SWITCH #34	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
DG-31	17	EDG					X	DIESEL GEN NO. 31	9321-F-20303	S	R	DG	15'-0"	OFF	ON	NO			N/A
DG-32	17	EDG					X	DIESEL GEN NO. 32	9321-F-20303	S	R	DG	15'-0"	OFF	ON	NO			N/A
DG-33	17	EDG					X	DIESEL GEN NO. 33	9321-F-20303	S	R	DG	15'-0"	OFF	OFF	NO			N/A
FE1	18	NIS					X	PREAMPLIFIER FOR NE-31	9321-F-33133	S		VC	68'-0"	ON	ON	YES	9321-F-39893	RACK C-5	118VAC IB32-I
FE2	18	NIS					X	PREAMPLIFIER FOR NE-32	9321-F-33133	S		VC	68'-0"	ON	ON	YES	9321-F-39893	RACK C-6	118VAC IB31-II
FIT-111	18	CVCS	X		X			PRM WTR FLOW INOZ XMTR	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.5		RACK C10/IB31-II
FIT-156A	18	CVCS			X			RCP 34 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.34		RACK C9/IB31-II
FIT-156B	18	CVCS			X			RCP 34 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.34		RACK C9/IB31-II
FIT-157A	18	CVCS			X			RCP 33 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.35		RACK C9/IB31-II
FIT-157B	18	CVCS			X			RCP 33 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.35		RACK C9/IB31-II
FIT-158A	18	CVCS			X			RCP 32 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.36		RACK C10/IB31-II
FIT-158B	18	CVCS			X			RCP 32 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.36		RACK C10/IB31-II
FIT-159A	18	CVCS			X			RCP 31 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.37		RACK C10/IB31-II
FIT-159B	18	CVCS			X			RCP 31 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.37		RACK C10/IB31-II
FT-128	18	CVCS	X					CHG FLOW TO REG HX TRANSMITTER	9321-F-27363	S	R	PP	41'-0"	ON	ON	YES	9321-F-39893	PNL SFF	RACK C10/IB31-II
FT-134	18	CVCS	X					LETDWN FLOW TRANSMITTER	9321-F-27363	S	R	PA	75'-0"	ON	ON	YES	9321-LD-72203 SHT.17	PNL SFF	RACK C10/IB31-II
FT-601A	18	CCW					X	CCW HTX OUTLET FLOW	9321-F-27513 SHT1	S	R	PA	41'-0"	ON	ON	YES	9321-LD-72113 SHT.2		RACK A5/IB 32-1
FT-601B	18	CCW					X	CCW HTX OUTLET FLOW	9321-F-27513 SHT1	S	R	PA	41'-0"	ON	ON	YES	9321-LD-72113 SHT.2		RACK A6/IB 32-1
FT-638	18	RHR				X		RHR FLOW TRANSMITTER	9321-F-27353 SHT. 1	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A6	118VAC IB32-I
FT-640	18	RHR				X		RHR FLOW TRANSMITTER	9321-F-27353 SHT. 1	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC IB32-I
FT-946A	18	RCS				X		RHR TO RCS 34 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK E1	118VAC IB32-I

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
FT-946B	18	RCS				X		RHR TO RCS 33 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F1	118VAC IB34-III
FT-946C	18	RCS				X		RHR TO RCS 32 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK E1	118VAC IB32-I
FT-946D	18	RCS				X		RHR TO RCS 31 COLD LEG FLOW TRANSMITTER	9321-F-27535 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F1	118VAC IB34-III
HC-1118A	18	AFW				X		SIGNAL CONVERTER	9321-F-20193	S	R	AB	18'-0"	ON	ON	YES	9321-F-39893		RACK 4A/IB31-II
LT-102	18	CVCS	X		X			BORIC ACID STORAGE TANK #32 LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-10	118VAC IB31-II
LT-106	18	CVCS	X		X			BORIC ACID STORAGE TANK #31 LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-10	118VAC IB31-II
LT-112	18	CVCS	X		X			VCT LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
LT-1128	18	COND				X		COND STG TANK LEVEL TRANSMITTER	9321-F-20183 SHT 1	S	R	YD	82'-0"	ON	ON	YES	9321-F-32003		118VAC IB33
LT-1128A	18	COND				X		COND STG TANK LEVEL TRANSMITTER	9321-F-20183 SHT 1	S	R	YD	82'-0"	ON	ON	YES	9321-F-32003		118VAC IB33
LT-1253	18	NIS	X					CMT LEVEL TRANSMITTER	9321-F-70273,9321-F-70283	S	R	VC	46'-0"	ON	ON	YES	9321-F-31343		RACK A-5/IB32-I
LT-1254	18	NIS	X					CMT LEVEL TRANSMITTER	9321-F-70273,9321-F-70283	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893		RACK A-6/IB32-I
LT-462	18	RCS					X	PRESSURIZER LEVEL TRANSMITTER CH IV	9321-F-27473	S	R	VC	68'-0"	ON	ON	YES	9321-H-39923 SHT 35	RACK B-10	118VAC IB33-IV
LT-470	18	RCS		X				PRT LEVEL TRANSMITTER	9321-F-27473	S	R	VC	65'-0"	ON	ON	YES	9321-LD-72453 SHT 17	RACK A-5	118VAC IB32-I
LT-628	18	CCW					X	CCW SURGE TANK # 31 LEVEL TRANSMITTER	9321-LD-72113 SHT.6	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
LT-629	18	CCW					X	CCW SURGE TANK # 32 LEVEL TRANSMITTER	9321-LD-72113 SHT.7	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
LT-920	18	SIS	X					RWST LEVEL TRANSMITTER	9321-F-27503 SHT. 2	S	R	YD	79'-0"	ON	ON	YES	9321-F-39893	RACK E-1	118VAC IB32-I
PI-1260	18	AFW				X		AFW 31 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.19		RACK D9/IB33-IV
PI-1261	18	AFW				X		AFW 32 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.20		RACK D9/IB33-IV

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PI-1262	18	AFW				X		AFW 33 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.21		RACK D9/IB33-IV
PM-405A	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK D9/IB33-IV
PM-405B	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK D9/IB33-IV
PM-405C	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK B5/IB33-IV
PM-405D	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK B5/IB33-IV
PM-406E	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 31 AFWP	9321-LD-72123 SHT 3A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT3		RACK B5/IB33-IV
PM-406F	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 31 AFWP	9321-LD-72123 SHT 3A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT3		RACK B5/IB33-IV
PM-406G	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 33 AFWP	9321-LD-72123 SHT 4A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT4		RACK B5/IB33-IV
PM-406H	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 33 AFWP	9321-LD-72123 SHT 4A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT4		RACK B5/IB33-IV
PNL PL6	18	CVCS	X					CHARGING PUMPS SPEED CONTROL PANEL	9321-F-70403	S		PA	55'-0"	N/A	N/A	NO			N/A
PT-1144	18	IA					X	STATION AIR NUCL SERV PRESS TRANSMITTER	9321-F-20363	S	R	CB	15'-0"	ON	ON	YES	9321-LD-72343 SHT.2	PNL SJF	I/A
PT-1190	18	SWN					X	SVC WATER NUCL HDR PRESS TRANSMITTER	9321-F-20333	S	R	TB	15'-0"	ON	ON	YES	9321-LD-72543 SHT.9		RACK D9/IB33-IV
PT-1191	18	SWN					X	SVC WATER NUCL HDR PRESS TRANSMITTER	9321-F-20333	S	R	TB	15'-0"	ON	ON	YES	9321-LD-72543 SHT.10		RACK D9/IB33-IV
PT-1192	18	IA					X	IACC WATER PRESS TRANSMITTER	9321-F-23913	S	R	CB	15'-0"	ON	ON	YES	9321-LL-31293 SHT.5	COMPT. 4K	MCC 39
PT-135	18	CVCS	X	X	X			NON REGEN HX OUTLET LETDOWN PRESS TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.18	PNL SFF	RACK C10/IB31-II
PT-139	18	CVCS	X					VCT PRESSURE TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.19	PNL SFF	RACK C10/IB31-II

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PT-142	18	CVCS	X					CHG PP DISCH PRESS TRANSMITTER	9321-F-27363	S	R	PA	55'-0"	ON	ON	YES	9321-LD-72203 SHT.23	PNL SFF	RACK C9/IB31-II
PT-402	18	RCS		X				LOOP 31 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-H-39923 SHT 80		118VAC IB31, CKT.3
PT-403	18	RCS		X				LOOP 34 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-H-39923 SHT 84		118VAC IB32, CKT.3
PT-413	18	RCS		X				LOOP 31 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK H1	118VAC IB32-I
PT-433	18	SP		X				LOOP 33 HOT LEG PRESSURE	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893		RACK H2/IB31-II
PT-443	18	RCS		X				LOOP 34 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK H3	118VAC IB33-IV
PT-472	18	RCS		X				PRT PRESSURE TRANSMITTER	9321-F-27473	S	R	VC	62'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC IB32-I
RACK 19	18					X		INSTRUMENT RACK	9321-F-70273	S		VC	68'-0"	N/A	N/A	NO			N/A
RACK 20	18					X		INSTRUMENT RACK	9321-F-30523	S		VC	68'-0"	N/A	N/A	NO			N/A
RACK 21	18					X		INSTRUMENT RACK	9321-F-30523	S		VC	68'-0"	N/A	N/A	NO			N/A
RACK 24A	18					X		INSTRUMENT RACK	9321-F-70433	S		PP	41'-0"	N/A	N/A	NO			N/A
RACK 26	18					X		INSTRUMENT RACK	9321-F-70533	S		AB	18'-6"	N/A	N/A	NO			N/A
RACK 4-A	18					X		INSTRUMENT RACK	9321-F-70283	S		VC	68'-0"	N/A	N/A	NO			N/A
RACK 4-B	18					X		INSTRUMENT RACK	9321-F-70273	S		VC	68'-0"	N/A	N/A	NO			N/A
RACK 6A	18					X		INSTRUMENT RACK	9321-F-70433	S		PP	41'-0"	N/A	N/A	NO			N/A
RACK 8	18					X		INSTRUMENT RACK	9321-F-70533	S		AB	18'-6"	N/A	N/A	NO			N/A
RACK 9	18					X		INSTRUMENT RACK	9321-F-70533	S		AB	18'-6"	N/A	N/A	NO			N/A
RVLIS RACK TRAIN A	18	RCS			X			RVLIS TRANSMITTER RACK TRAIN "A"	9321-F-72043	S		PP	41'-0"	N/A	N/A	NO			N/A
SWN-TC-1113	18	SWN				X		INST AIR CC HX SW OUTLET TC	9321-F-27223	S	R	CB	15'-0"	ON	ON	YES	9321-LD-72543 SHT.8		I/A
TE-122	19	CVCS	X					EXCESS LETDOWN TEMP ELEMENT	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-126	19	CVCS	X		X			REGEN HX CHG FLOW TEMP ELEMENT	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-127	19	CVCS	X					REGEN HX CHG FLOW TEMPERATURE ELEMENT	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-130	19	CVCS	X					NON REGHX OUTLET LETDOWN TEMP ELEMENT	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
TE-1313	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 5	S	R	VC	83'-9"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1314	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 5	S	R	VC	74'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1317	19	RCS			X			RVWL CONDUIT COMPENSATION TEMP ELEMENT	7407044 SHT. 7	S	R	VC	40'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1318	19	RCS			X			RVWL CONDUIT COMPENSATION	7407044 SHT. 7	S	R	VC	46'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1319	19	RCS			X			RVWL LOWER TAP CAPILLARY TEMP ELEMENT	7407044 SHT. 7	S	R	VC	60'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1323	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 14	S	R	VC	84'-6"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1324	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 14	S	R	VC	74'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1327	19	RCS			X			RVWL CONDUIT COMPENSATION TEMP ELEMENT	7407044 SHT. 16	S	R	VC	40'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1328	19	RCS			X			RVWL CONDUIT COMPENSATION TEMP ELEMENT	7407044 SHT. 16	S	R	VC	46'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1329	19	RCS			X			RVWL LOWER TAP CAPILLARY TEMP ELEMENT	7407044 SHT. 16	S	R	VC	60'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-411A1	19	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-411A2	19	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-411A3	19	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-411B	19	RCS	X	X		X		RCS LOOP 31 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-413A	19	RCS	X	X		X		RCS LOOP 31 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-413B	19	RCS	X	X		X		RCS LOOP 31 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
TE-421A1	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-421A2	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-421A3	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-421B	19	RCS	X	X		X		RCS LOOP 32 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-423A3	19	RCS	X	X		X		RCS LOOP 32 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-423B	19	RCS	X	X		X		RCS LOOP 32 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-431A1	19	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-431A2	19	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-431A3	19	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-431B	19	RCS	X	X		X		RCS LOOP 33 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-433A	19	RCS	X	X		X		RCS LOOP 33 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-433B	19	RCS	X	X		X		RCS LOOP 33 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-441A1	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-441A2	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-441A3	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
TE-441B	19	RCS	X	X		X		RCS LOOP 34 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-443A	19	RCS	X	X		X		RCS LOOP 34 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-443B	19	RCS	X	X		X		RCS LOOP 34 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-453	19	RCS		X				PRESSURIZER LIQUID SPACE TEMP ELEMENT	9321-F-27473	S	R	VC	73'-0"	ON	ON	YES	9321-F-39893	RACK A6	118VAC IB32-I
TE-454	19	RCS	X					PRESSURIZER STEAM SPACE TEMP ELEMENT	9321-F-27473	S	R	VC	117'-0	ON	ON	YES	9321-F-39893	RACK A6	118VAC IB32-I
TE-471	19	RCS		X				PRT TEMP ELEMENT	9321-F-27473	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC IB32-I
TE-636	19	RHR				X		RHR HX TEMP INLET TEMP ELEMENT	9321-F-27513	S	R	PA	15'-0"	ON	ON	YES	9321-LD-72113 SHT 9	PNL SGF	RACK A5/IB32-I
TE-639	19	RHR				X		RHR HX 31 OUTLET TEMP ELEMENT	9321-F-27353	S	R	VC	68'-0"	ON	ON	YES	9321-LD-72513 SHT 2	PNL SGF	RACK A5/IB32-I
TE-641	19	RHR				X		RHR HX 32 OUTLET TEMP ELEMENT	9321-F-27353	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72513 SHT 3	PNL SGF	RACK A6/IB32-I
BF4	20	EDG					X	CURRENT TRANSFORMER ENCLOSURE D.G. 31	9321-F-30073	S		DG	10'-0"	N/A	N/A	N/A			N/A
BF5	20	EDG					X	CURRENT TRANSFORMER ENCLOSURE D.G. 32	9321-F-30073	S		DG	10'-0"	N/A	N/A	N/A			N/A
BF6	20	EDG					X	CURRENT TRANSFORMER ENCLOSURE D.G. 33	9321-F-30073	S		DG	10'-0"	N/A	N/A	N/A			N/A
CAB JO1	20	NIS			X			CONTAINMENT MONITORING CABINET CHANNEL I	9321-F-30513	S		CB	53'-0"	N/A	N/A	NO			N/A
CAB JO2	20	NIS			X			CONTAINMENT MONITORING CABINET CHANNEL II	9321-F-30513	S		CB	53'-0"	N/A	N/A	NO			N/A
CAB JR9	20	RCS			X			RVLIS CABINET	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
FLIGHT PANEL	20					X		FLIGHT PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
HJ8	20	HVAC					X	33/34 ETEF LOCAL CTRL STATION	9321-LL-31313 SHT.22B	S		CB	33'-0"	N/A	N/A	N/A			N/A
HJ9	20	HVAC					X	31/32 ETEF LOCAL CTRL STATION	9321-LL-31313 SHT.22B	S		CB	33'-0"	N/A	N/A	N/A			N/A
PNL #1	20	MS				X		ATM STEAM DUMP PANEL #1	9321-F-70313	S		AB	43'-0"	N/A	N/A	NO			N/A
PNL #2	20	MS				X		ATM STEAM DUMP PANEL #2	9321-F-70313	S		AB	43'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PNL #3	20	SP				X		SAMPLING SYS CONTROL PANEL #3	9321-F-70403	S		PA	55'-0"	N/A	N/A	NO			N/A
PNL #4	20	SP				X		SAMPLING SYS CONTROL PANEL #4	9321-F-70403	S		PA	55'-0"	N/A	N/A	NO			N/A
PNL 1-31	20	MS					X	31 SG MSIV SOV PANEL	9321-F-70313	S		AB	77'-4"	N/A	N/A	NO			N/A
PNL 1-32	20	MS					X	32 SG MSIV SOV PANEL	9321-F-70313	S		AB	64'-8"	N/A	N/A	NO			N/A
PNL 1-33	20	MS					X	33 SG MSIV SOV PANEL	9321-F-70313	S		AB	77'-4"	N/A	N/A	NO			N/A
PNL 1-34	20	MS					X	34 SG MSIV SOV PANEL	9321-F-70313	S		AB	64'-8"	N/A	N/A	NO			N/A
PNL 31EDGA	20	EDG				X		31 EDG AUX STARTERS & CONTROL PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL 324	20	HVAC				X		LIGHTING PANEL 324	9321-F-30283	S		AB	18'-6"	N/A	N/A	NO			N/A
PNL 32EDGA	20	EDG				X		32 EDG AUX STARTERS & CONTROL PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL 33EDGA	20	EDG				X		33 EDG AUX STARTERS & CONTROL PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL JC1	20	HVAC					X	FAN ROOM CONTROL PANEL	9321-LL-31273 SHT. 4A	S		FR	72'-0"	N/A	N/A	NO			N/A
PNL N2	20	GAS				X		N2 BOTTLE SUPPLY PCV PANEL	9321-F-70403	S		PA	55'-0"	N/A	N/A	NO			N/A
PNL PF6	20	CVCS				X		GAS ANALYZING PANEL	113E303 SHT 6	S		PA	55'-0"	N/A	N/A	NO			N/A
PNL PI1	20	HVAC				X		31 EDG PNEU CONTROL PANEL	9321-F-32173	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL PI2	20	HVAC				X		32 EDG PNEU CONTROL PANEL	9321-F-32173	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL PI3	20	HVAC				X		33 EDG PNEU CONTROL PANEL	9321-F-32173	S		DG	15'-0"	N/A	N/A	NO			N/A
PNL PI7	20					X		LOCAL CCR AC CNTRL PANEL	9321-LL-31263	S		CB	15'-0"	N/A	N/A	NO			N/A
PNL PP9	20	EDG				X		31 EDG CONTROL PANEL	9321-05-3343,6	S		DG	15'-0"	ON	ON	YES	9321-F-30083	CKT. 4	125VDC DIST PNL 33
PNL PQ1	20	EDG				X		32 EDG CONTROL PANEL	9321-05-3343,6	S		DG	15'-0"	ON	ON	YES	9321-F-30083	CKT. 10	125VDC DIST PNL 31
PNL PQ2	20	EDG				X		33 EDG CONTROL PANEL	9321-05-3343,6	S		DG	15'-0"	ON	ON	YES	9321-F-30083	CKT. 14	125VDC DIST PNL 32
PNL PS6	20	SW					X	SERVICE WATER PUMP CONTROL STATION	9321-F-30893	S		CB	15'-0"	N/A	N/A	NO			N/A
PNL PT2	20	AFW				X		AUX BOILER FEED PMP CONTROL STATION	9321-F-31673	S		AB	18'-6"	N/A	N/A	NO			N/A
PNL PY3	20	HVAC				X		DELUGE SYS CONTROL PANEL PY3	9321-LL-31313 SHT22B	S		PP	34'-0"	N/A	N/A	NO			N/A
PNL PY4	20	HVAC				X		DELUGE SYS CONTROL PANEL PY4	9321-LL-31313 SHT22B	S		PP	34'-0"	N/A	N/A	NO			N/A
PNL PY5	20	HVAC				X		DELUGE SYS CONTROL PANEL PY5	9321-LL-31313 SHT22B	S		PP	34'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PNL PY6	20	HVAC				X		DELUGE SYS CONTROL PANEL PY6	9321-LL-31313 SHT22B	S		PP	34'-0"	N/A	N/A	NO			N/A
RACK A-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-10	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-8	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK A-9	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-10	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-11	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-8	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK B-9	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-10	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-11	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
RACK C-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-8	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK C-9	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-10	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-11	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-8	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK D-9	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK E-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-6	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK F-7	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK G-1	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-2	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
RACK G-3	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-4	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-5	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-6	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK H-1	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK H-2	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK H-3	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK H-4	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
RACK H-5	20						X	CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
SUPERVISORY PANEL	20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A	NO			N/A
TB X32	20	AFW				X		RELAY TERMINAL BOX	9321-LL-31403 SHT 7	S		AB	18'-6"	N/A	N/A	NO			N/A
TB Y2I	20	AFW				X		RELAY TERMINAL BOX	9321-LL-31313 SHT 10	S		ET	34'-0"	N/A	N/A	NO			N/A
0031ART	21	HVAC					X	AIR RECEIVER 30 GAL. TANK # 31	9321-F-41023	S		DG	15'-0"	N/A	N/A	NO			N/A
0031ARTMSIV	21	IA					X	MSIV AIR RECEIVER TANK (MS-1-31)	9321-F-70093	S		AB	80'-0"	N/A	N/A	NO			N/A
0031CHPS	21	CVCS	X	X	X			31 CHARG PMP SUCT STABILIZER SEPARATOR	9321-F-27363	S		PA	55'-0"	N/A	N/A	NO			N/A
0031CWHX	21	IA					X	31 I/A CMPR COOLING WTR HX	9321-F-27223	S		CB	15'-0"	N/A	N/A	NO			N/A
0031EDJET	21	EDG					X	JKT WTR EXP TANK 31 DG	9321-H-20283	S		DG	26'-0"	N/A	N/A	NO			N/A
0031EDSAT	21	EDG					X	START AIR TANK 31 DG	9321-H-20283	S		DG	15'-0"	N/A	N/A	NO			N/A
0032ART	21	HVAC					X	AIR RECEIVER 30 GAL. TANK # 32	9321-F-41023	S		DG	15'-0"	N/A	N/A	NO			N/A
0032ARTMSIV	21	IA					X	MSIV AIR RECIEVER TANK (MS-1-32)	9321-F-70093	S		AB	74'-0"	N/A	N/A	NO			N/A
0032CHPS	21	CVCS	X	X	X			32 CHARG PMP SUCT STABILIZER SEPARATOR	9321-F-27363	S		PA	55'-0"	N/A	N/A	NO			N/A
0032CWHX	21	IA					X	32 I/A CMPR CL COOLING WTR HX	9321-F-27223	S		CB	15'-0"	N/A	N/A	NO			N/A
0032EDJET	21	EDG					X	JKT WTR EXP TANK 32 DG	9321-H-20283	S		DG	26'-0"	N/A	N/A	NO			N/A
0032EDSAT	21	EDG					X	START AIR TANK 32 DG	9321-H-20283	S		DG	15'-0"	N/A	N/A	NO			N/A
0033ART	21	HVAC					X	AIR RECEIVER 30 GAL. TANK # 33	9321-F-41023	S		DG	15'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
0033ARTMSIV	21	IA					X	MSIV AIR RECIEVER TANK (MS-1-33)	9321-F-70093	S		AB	80'-0"	N/A	N/A	NO			N/A
0033CHPS	21	CVCS	X	X	X			33 CHARG PMP SUCT STABILIZER SEPARATOR	9321-F-27363	S		PA	55'-0"	N/A	N/A	NO			N/A
0033EDJET	21	EDG					X	JKT WTR EXP TANK 33 DG	9321-H-20283	S		DG	26'-0"	N/A	N/A	NO			N/A
0033EDSAT	21	EDG					X	START AIR TANK 33 DG	9321-H-20283	S		DG	15'-0"	N/A	N/A	NO			N/A
0034ARTMSIV	21	IA					X	MSIV AIR RECIEVER TANK (MA-1-34)	9321-F-70093	S		AB	74'-0"	N/A	N/A	NO			N/A
31 PLSSHTX	21	SP	X					31 PZR LIQ SPACE SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
31 RCSSHTX	21	SP	X					31 RCS SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
32 PLSSHTX	21	SP	X					32 PZR LIQ SPACE SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
32 RCSSHTX	21	SP	X					32 RCS SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
ACAHCC1	21	CCW					X	CCW HEAT EXCH NO 31	9321-F-27513 SHT1	S		PA	55'-0"	N/A	N/A	NO			N/A
ACAHCC2	21	CCW					X	CCW HEAT EXCH NO.32	9321-F-27513 SHT1	S		PA	55'-0"	N/A	N/A	NO			N/A
ACAHRS1	21	RHR				X		RHR HTEXCH # 31	9321-F-27203	S		VC	66'-0"	N/A	N/A	NO			N/A
ACAHRS2	21	RHR				X		RHR HTEXCH # 32	9321-F-27203	S		VC	66'-0"	N/A	N/A	NO			N/A
ACATCC1	21	CCW					X	CC SURGE TANK #31	9321-F-27513 SHT1	S		PA	73'-0"	N/A	N/A	NO			N/A
ACATCC2	21	CCW					X	CC SURGE TANK #32	9321-F-27513 SHT1	S		PA	73'-0"	N/A	N/A	NO			N/A
CSAHEL1	21	CVCS			X	X		31 EXCS LETDWN HTX	9321-F-27363	S		VC	68'-0"	N/A	N/A	NO			N/A
CSAHNRT	21	CVCS	X	X	X			NON REGEN HEAT EXCH NO 31	9321-F-27363,9321-F-27513	S		PA	73'-0	N/A	N/A	NO			N/A
CSAHRG1	21	CVCS	X	X	X			31 REGEN HTX	9321-F-27363	S		VC	68'-0"	N/A	N/A	NO			N/A
CSAHSW1	21	CVCS	X		X			SEAL WTR HEAT EXCH NO. 31	9321-F-27363	S		PA	73'-0"	N/A	N/A	NO			N/A
CSATBA1	21	CVCS	X		X			BORIC ACID STG TANK 31	9321-F-27363	S		PA	73'-0	N/A	N/A	NO			N/A
CSATBA2	21	CVCS	X		X			BORIC ACID STG TANK 32	9321-F-27363	S		PA	73'-0"	N/A	N/A	NO			N/A
CSATVC1	21	CVCS	X	X	X			VOLUME CONTROL TANK NO. 31	9321-F-27363	S		PA	73'-0"	N/A	N/A	NO			N/A
CST	21	COND				X		CONDENSATE STOR TANK	9321-F-20183 SHT 1	S		YD	69'-0"	N/A	N/A	NO			N/A
DRYER SET 31	21	IA					X	HEATLESS DESSICANT DRYER SET #31	9321-F-20263 SHT. 1	S		CB	15'-0"	ON	ON	YES	9321-F-30053	COMPT. 3BR	MCC-39
DRYER SET 32	21	IA					X	HEATLESS DESSICANT DRYER SET #32	9321-F-20263 SHT. 1	S		CB	15'-0"	ON	ON	YES	9321-F-30043	COMPT. 2DL	MCC-34

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
SEISMIC VERIFICATION
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
EDG-31-FO-DTNK	21	EDG					X	F.O. DAY TANK NO. 31	9321-F-20303	S		DG	26'-0"	N/A	N/A	NO			N/A
EDG-31-FO-STNK	21	EDG					X	F.O. STORAGE TANK 31	9321-F-20303	S		YD	27'-0"	N/A	N/A	NO			N/A
EDG-32-FO-DTNK	21	EDG					X	F.O. DAY TANK NO. 32	9321-F-20303	S		DG	26'-0"	N/A	N/A	NO			N/A
EDG-32-FO-STNK	21	EDG					X	F.O. STORAGE TANK 32	9321-F-20303	S		YD	27'-0"	N/A	N/A	NO			N/A
EDG-33-FO-DTNK	21	EDG					X	F.O. DAY TANK NO. 33	9321-F-20303	S		DG	26'-0"	N/A	N/A	NO			N/A
EDG-33-FO-STNK	21	EDG					X	F.O. STORAGE TANK 33	9321-F-20303	S		YD	27'-0"	N/A	N/A	NO			N/A
IA-31-TK	21	IA					X	INST AIR RECEIVER	9321-F-20363	S		CB	15'-0"	N/A	N/A	NO			N/A
IACCHT	21	IA					X	INST. AIR COMP CLG HEAD TANK	9321-F-23913	S		CB	33'-0"	N/A	N/A	NO			N/A
PWST 21	21	PW			X			PRIMARY WATER STORAGE TANK	9321-F-27243	S		YD	54'-0"	N/A	N/A	NO			N/A
RWST-31	21	SIS	X		X			REFUEL WTR STORAGE TANK	9321-F-27503 SHT. 2	S		YD	80'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID	EQUIP NO	CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
00310AL A	00	HVAC					X		OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00310AL B	00	HVAC					X		OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00310AL C	00	HVAC					X		OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00320AL A	00	HVAC					X		OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00320AL B	00	HVAC					X		OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00320AL C	00	HVAC					X		OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00330AL A	00	HVAC					X		OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00330AL B	00	HVAC					X		OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S R	DG	44'-0"	CLOSED	OPEN	NO			I/A
00330AL C	00	HVAC					X		OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S R	DG	44'-0"	CLOSED	OPEN	NO			I/A
FM-111A	00	CVCS		X					ELECTRO PNEUMATIC CONVERTER	9321-H-39923	B R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.5		RACK C10/IB31-II
MCC-32	01	480 VAC					X		480 VAC MCC	9321-F-30043 SHT. 2	S R	TB	15'-0"	ON	ON	YES	617F644		BUS 3A
MCC-33	01	480 VAC					X		480 VAC MCC	9321-F-30043	S R	TB	15'-0"	ON	ON	YES	617F644		BUS 2A
MCC-34	01	480 VAC					X		480 VAC MCC	9321-F-30043	S R	TB	15'-0"	ON	ON	YES	617F644		BUS 2A
MCC-36A	01	480 VAC					X		480 VAC MCC	9321-F-30063	S R	PA	55'-0"	ON	ON	YES	617F644		BUS 5A
MCC-36A EXTENSION	01	480 VAC					X		480 VAC MCC	9321-F-30063	S R	PA	55'-0"	ON	ON	YES	617F644		BUS 5A
MCC-36B	01	480 VAC					X		480 VAC MCC	9321-F-30063	S R	PA	55'-0"	ON	ON	YES	617F644		BUS 6A
MCC-36B EXTENSION	01	480 VAC					X		480 VAC MCC	9321-F-30063	S R	PA	55'-0"	ON	ON	YES	617F644		BUS 6A
MCC-36C	01	480 VAC					X		480 VAC MCC	9321-F-30063	S R	CB	15'-0"	ON	ON	YES	617F644		BUS 2A
MCC-37	01	480 VAC					X		480 VAC MCC	9321-F-30053	S R	PA	55'-0"	ON	ON	YES	617F644		BUS 6A
MCC-38	01	480 VAC					X		480 VAC MCC	9321-F-30053	S R	VC	68'-0"	ON	ON	YES	617F644		BUS 5A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
MCC-39	01	480 VAC					X	480 VAC MCC	9321-F-30053	S R	CB	33'-0"	ON	ON	YES	617F644		BUS 5A
SWGR31	02	480 VAC					X	480VAC SWGR 31 (BUS 2A AND BUS 5A)	617F644	S R	CB	15'-0"	ON	ON	YES	617F645		EDG31 & EDG33
SWGR32	02	480 VAC					X	480VAC SWGR 32 (BUS 3A & BUS 6A)	617F644	S R	CB	15'-0"	ON	ON	YES	617F645		EDG31 & EDG32
B1G	04	480 VAC					X	480/120 VAC ELGAR TRANSFORMER (FOR IB-33,33A)	9321-F-39893	S R	CB	33'-0"	ON	ON	YES	9321-F-30053		MCC-39
BC2	04	480 VAC					X	480/120 VAC TRANSFORMER #32 (FOR IB-34,34A)	9321-F-39893	S R	CB	33'-0"	ON	ON	YES	9321-F-30063		MCC-36B
BF8	04	120 VAC					X	120/120 VAC SOLATRON TRANSFORMER #32	9321-F-39893	S R	CB	33'-0"	ON	ON	YES	9321-F-39893		BC2
BI3	04	480 VAC					X	480/120 VAC SOLA XFMR (FOR IB-31,31A)	9321-F-39893	S R	CB	33'-0"	ON	ON	YES	9321-F-30043 SHT. 1		MCC-34
BI4	04	480 VAC					X	480/120 VAC SOLA XFMR (FOR IB-32,32A)	9321-F-39893	S R	CB	33'-0"	ON	ON	YES	9321-F-30043 SHT. 1		MCC-33
BJ1	04	480 VAC					X	480/120 VAC SOLA XFMR (ALT FOR IB-34,34A)	9321-F-39893	S R	CB	33'-0"	ON	ON	YES	9321-F-30063		MCC-36C
0031CLWP	05	IA					X	31 I/A CMPR COOLING WTR PMP	9321-F-70483	B R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-LL-31293 SHT. 5	COMPT. 4K	MCC 39
0032CLWP	05	IA					X	32 I/A CMPR CL COOLING WTR PMP	9321-F-70483	B R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-LL-31243 SHT. 11	COMPT. 3M	MCC 34
31PWMUP	05	PW		X				31 PRIMARY WATER MAKEUP PUMP	9321-F-27243	S R	PA	41'-0"	ON	ON	YES	500B971 SHT 83		MCC 37 - 6RK
32PWMUP	05	PW		X				32 PRIMARY WATER MAKEUP PUMP	9321-F-27243	S R	PA	41'-0"	OFF	OFF	NO			N/A
ABFP-31	05	AFW				X		MOTOR DRIVEN AUX. FEEDWATER PUMP NO. 31	9321-F-20183 SHT 1	S R	AB	18'-6"	OFF	ON	YES	617F644	SG-32-6D	BUS 3A
ABFP-32	05	AFW				X		TURBINE DRIVEN AUX. FEEDWATER PUMP NO. 32	9321-F-20183 SHT 1	S R	AB	18'-6"	OFF	ON	YES			MS
ABFP-33	05	AFW				X		MOTOR DRIVEN AUX. FEEDWATER PUMP NO. 33	9321-F-20183 SHT 1	S R	AB	18'-6"	OFF	ON	YES	617F644	SG-32-11 D	BUS 6A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
ACAPCC1	05	CCW					X	CCW PUMP NO 31	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-21 B	BUS 5A
ACAPCC2	05	CCW					X	CCW PUMP NO. 32	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-30 D	BUS 2A
ACAPCC3	05	CCW					X	CCW PUMP NO 33	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-15 D	BUS 6A
CSAPBA1	05	CVCS	X	X	X			BORIC ACID TRANSFER PUMP 31	9321-F-27363	S	R	PA	73'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7RH	MCC-36A
CSAPBA2	05	CVCS	X	X	X			BORIC ACID TRANSFER PUMP 32	9321-F-27363	S	R	PA	73'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7RH	MCC-36B
CSAPCH1	05	CVCS	X	X	X			NO. 31 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-22 C	BUS 5A
CSAPCH2	05	CVCS	X	X	X			NO. 32 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-5C	BUS 3A
CSAPCH3	05	CVCS	X	X	X			NO. 33 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-13 C	BUS 6A
31 DG FUEL XFER PUMP	06	EDG					X	F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-6"	OFF	ON	YES	9321-F-30063	CMP-1FL	MCC-36C
31 SW PUMP (M)	06	SWN					X	31 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-23 D	BUS 5A
32 DG FUEL XFER PUMP	06	EDG					X	F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-0"	OFF	ON	YES	9321-F-30063	CMP-5RM	MCC-36B
32 SW PUMP (M)	06	SWN					X	32 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-30 B	BUS 2A
33 DG FUEL XFER PUMP	06	EDG					X	F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-0"	OFF	ON	YES	9321-F-30063	CMP-5RM	MCC-36A
33 SW PUMP (M)	06	SWN					X	33 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-10 D	BUS 6A
34 SW PUMP (M)	06	SWN					X	34 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-23 C	BUS 5A
35 SW PUMP (M)	06	SWN					X	35 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-3D	BUS 3A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
36 SW PUMP (M)	06	SWN					X	36 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-10 C	BUS 6A
ACAPRH1	06	RHR				X		31 RHR PUMP	9321-F-27513 SHT1	S	R	PA	15'-0"	OFF	ON	YES	617F644		BUS 3A
ACAPRH2	06	RHR				X		32 RHR PUMP	9321-F-27513 SHT1	S	R	PA	15'-0"	OFF	ON	YES	617F644		BUS 6A
953	07	SP	X					PZR LIQ SPC SAMPLE LINE	9321-F-27453	S	R	VC	73'-6"	CLOSED	CLOSED	YES	500B971 SHT.95	CKT.12	125VDC DIST PNL 33
955A	07	SP	X					31 HL SAMPLE LINE	9321-F-27453	S	R	VC	62'-0"	CLOSED	CLOSED	NO			N/A
955B	07	SP	X					33 HL SAMPLE LINE	9321-F-27453	S	R	VC	62'-0"	CLOSED	CLOSED	NO			N/A
956C	07	SP	X					PZR LIQ SPACE SAMPLE LINE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.95	CKT.3	125VDC DIST PNL 31
956D	07	SP	X					PZR LIQ SPACE SAMPLE LINE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.96	CKT.6	125VDC DIST PNL 32
956E	07	SP	X					RCS HL SAMPLE LINE ISO VALVE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.96	CKT.3	125VDC DIST PNL 31
956F	07	SP	X					RCS HL SAMPLE LINE ISO VALVE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	500B971 SHT.96	CKT.6	125VDC DIST PNL 32
958	07	SP	X					RHR SAMPLE LINE VALVE	9321-F-27453	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.96	CKT.12	125VDC DIST PNL 33
959	07	SP	X					RHR SAMPLE LINE VALVE	9321-F-27453	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.96	CKT.12	125VDC DIST PNL 33
AC-791	07	CCW					X	CCW TO EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	CLOSED	CLOSED	NO			N/A
AC-793	07	CCW					X	CCW RETRN FR EXC L/D ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	YES	500B971 SHT. 91	CKT. 3	125VDC DIST PNL 31
AC-796	07	CCW					X	CCW RETRN FR EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0'	CLOSED	CLOSED	YES	500B971 SHT. 92	CKT. 6	125VDC DIST PNL 32
AC-798	07	CCW					X	CCW TO EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	CLOSED	CLOSED	NO			N/A
BFD-FCV-1121	07	AFW				X		31AFP RECIRC LINE CTRL VALVE	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LL-31313 SHT 10	CKT. 5	125VDC DIST PNL 33
BFD-FCV-1123	07	AFW				X		33AFP RECIRC LINE CTRL VALVE	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LL-31313 SHT 11	CKT. 13	125VDC DIST PNL 32
BFD-FCV-405A	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 31 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A
BFD-FCV-405B	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 32 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A
BFD-FCV-405C	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 33 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A
BFD-FCV-405D	07	AFW				X		NO.32 AFWP MAN FLOW CTRL TO 34 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-LD-72123 SHT 2		I/A
BFD-FCV-406A	07	AFW				X		NO.31 AFWP MAN FLOW CTRL TO 31 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
BFD-FCV-406B	07	AFW				X		NO.31 AFWP MAN FLOW CTRL TO 32 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
BFD-FCV-406C	07	AFW				X		NO.33 AFWP MAN FLOW CTRL TO 33 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
BFD-FCV-406D	07	AFW				X		NO.33 AFWP MAN FLOW CTRL TO 34 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
CH-201	07	CVCS	X	X	X			LETDN LINE ISO VLV	9321-F-27363	S	R	PP	51'-0"	OPEN	OPEN	YES	500B971 SHT.90	CKT.3	125VDC DIST PNL 31
CH-202	07	CVCS	X	X	X			LETDN LINE ISO VLV	9321-F-27363	S	R	PP	51'-0"	OPEN	OPEN	YES	500B971 SHT.90	CKT.6	125VDC DIST PNL 32
CH-310	07	CVCS	X	X	X			DEBORATING DEMIN DIVERSION	9321-F-27363	S	R	PA	42'-0"	OPEN	CLOSED	YES	500B971 SHT.91	CKT.15	125VDC DIST PNL 32
CH-AOV-200A	07	CVCS	X	X	X			LETDOWN ORIFICE ISO VALVE	9321-F-27363	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
CH-AOV-200B	07	CVCS	X	X	X			LETDOWN ORIFICE ISO VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	500B971 SHT.90	CKT.3	125VDC DIST PNL 31
CH-AOV-200C	07	CVCS	X	X	X			LETDOWN ORIFICE ISO VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	500B971 SHT.90	CKT.3	125VDC DIST PNL 31
CH-AOV-204A	07	CVCS	X	X	X			ALT CHG FLOW NO 32 HOT LEG CTRL VLV	9321-F-27363	S	R	VC	58'-0"	CLOSED	CLOSED	YES	500B971 SHT.90	CKT.15	125VDC DIST PNL 32
CH-AOV-204B	07	CVCS	X	X	X			CHG FLOW NO 31 COLD LEG CTRL VLV	9321-F-27363	S	R	VC	46'-0"	OPEN	OPEN	NO			N/A
CH-AOV-212	07	CVCS	X	X	X			AUX SPRAY CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OP/CLOSED	YES	500B971 SHT.90	CKT.5	125VDC DIST PNL 31
CH-AOV-213A	07	CVCS	X	X	X			EXCESS LETDOWN CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	500B971 SHT.90	CKT.15	125VDC DIST PNL 32
CH-AOV-213B	07	CVCS	X	X	X			EXCESS LETDOWN CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	500B971 SHT.90	CKT.5	125VDC DIST PNL 31
CH-AOV-215	07	CVCS	X		X			EXC LETDN LINE DIVERSION CTRL VLV	9321-F-27363	S	R	VC	46'-0"	OPEN	OPEN	YES	500B971 SHT.90	CKT.5	125VDC DIST PNL 31
CH-AOV-246	07	CVCS	X		X			RCP SEAL NO. 1 BYPASS VLV TO VCT	9321-F-27363	S	R	VC	53'-0"	CLOSED	CLOSED	NO			N/A
CH-AOV-261A	07	CVCS			X			31 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-AOV-261B	07	CVCS			X			32 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-AOV-261C	07	CVCS			X			33 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0'	OPEN	OPEN	NO			N/A
CH-AOV-261D	07	CVCS			X			34 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-FCV-110A	07	CVCS	X		X			BORIC ACID FLOW CTRL	9321-F-27363	S	R	PA	80'-0"	CLOSED	OPEN	NO			N/A
CH-FCV-110B	07	CVCS	X		X			BORIC ACID BLNDR OUTLET	9321-F-27363	S	R	PA	73'-0"	CLOSED	OPEN	YES	500B971 SHT. 105	CKT. 5	125VDC DIST PNL 31
CH-FCV-111A	07	CVCS	X		X			PRIMARY WTR MAKEUP VLV	9321-F-27363	S	R	PA	78'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
CH-FCV-111B	07	CVCS	X		X			BLENDER FLOW TO VCT CTRL VALVE	9321-F-27363	S	R	PA	78'-0"	CLOSED	CLOSED	NO			N/A
CH-HCV-123	07	CVCS			X			EXCESS LETDOWN HX OUTFLOW CTRL VALVE	9321-F-27363	S	R	VC	46-0"	CLOSED	CLOSED	NO			N/A
CH-HCV-133	07	CVCS				X		RHR HTX OUTLET TO CVCS	9321-F-27363	S	R	VC	55'-3"	CLOSED	CLOSED	NO			N/A
CH-HCV-142	07	CVCS	X	X	X			REGEN HX FLOW CTRL	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	YES	9321-F-39893	PNL SF	118VAC IB31-II
CH-LCV-112A	07	CVCS			X			MAKE-UP TO VCT 3-WAY VALVE	9321-F-27363	S	R	PA	80'-0"	OPEN	OPEN	YES	500B971 SHT. 105	CKT. 5	125VDC DIST PNL 31
CH-LCV-459	07	CVCS	X	X	X			LETDOWN CTRL VALVE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	YES	500B971 SHT. 106	CKT. 15	125VDC DIST PNL 32
CH-LCV-460	07	CVCS	X	X	X			LETDOWN CTRL VALVE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	YES	500B971 SHT.106	CKT.3	125VDC DIST PNL 31
CH-PCV-135	07	CVCS	X	X	X			LETDOWN BP CONTROL	9321-F-27363	S	R	PA	75'-0"	OPEN	OPEN	NO			N/A
CH-TCV-149	07	CVCS	X	X	X			DEMIN BYPASS VLV	9321-F-27363	S	R	PA	80'-0"	CLOSED TO VCT	OPEN	YES	500B971 SHT. 106	CKT. 15	125VDC DIST PNL 32
DF-LCV-1207A	07	EDG					X	31 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36C
DF-LCV-1207B	07	EDG					X	31 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36C
DF-LCV-1208A	07	EDG					X	32 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36B
DF-LCV-1208B	07	EDG					X	32 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36B
DF-LCV-1209A	07	EDG					X	33 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36A
DF-LCV-1209B	07	EDG					X	33 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36A
FCV-1176	07	EDG					X	EDG JW/LO CLRS RET HDR FLOW CONT. VLV.	9321-F-27223	S	R	DG	15'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 15	CKT. 5	125VDC DIST PNL 31
FCV-1176A	07	EDG					X	EDG JW/LO CLRS RET HDR FLOW CONT. VLV	9321-F-27223	S	R	DG	15'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 15A	CKT. 5	125VDC DIST PNL 32
LCV-1158-1	07	COND				X		CST LO LVL CONTROL VALVE	9321-F-20183	S	R	AB	18'-6"	OPEN	CLOSED	YES	9321-LL-31313 SHT 9		I/A
LCV-1158-2	07	COND				X		CST LO LVL CONTROL VALVE	9321-F-20183	S	R	AB	18'-6"	OPEN	CLOSED	YES	9321-LL-31313 SHT 9		I/A
MS-1-31	07	MS				X		31 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	77'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34
MS-1-32	07	MS				X		32 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	65'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34
MS-1-33	07	MS				X		33 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	77'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34
MS-1-34	07	MS				X		34 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	65'-0"	OPEN	CLOSED	YES	9321-LL-31313 SHT 21		125VDC DIST PNL 33/34

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PCV-1134	07	MS				X		ATM STM RELIEF VALVE 31 SG	9321-F-20173	B	R	AB	74'-0"	CLOSED	OP/CL	YES	9321-F-70123	PNL FBF	I/A
PCV-1135	07	MS				X		ATM STM RELIEF VALVE 32 SG	9321-F-20173	B	R	AB	61'-0"	CLOSED	OP/CL	YES	9321-F-70123	PNL FCR	I/A
PCV-1136	07	MS				X		ATM STM RELIEF VALVE 33 SG	9321-F-20173	B	R	AB	74'-0"	CLOSED	OP/CL	YES	9321-F-70123	PNL FCR	I/A
PCV-1137	07	MS				X		ATM STM RELIEF VALVE 34 SG	9321-F-20173	B	R	AB	61'-0"	CLOSED	OP/CL	YES	9321-F-70123	PNL FBF	I/A
PCV-1139	07	MS				X		AUX FWP TURB STM SUPP PRESS REDUCING VALVE	9321-F-20173	S	R	AB	15'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 19	CKT. 4	125VDC DIST PNL 31
PCV-1142	07	IA					X	INSTRUMENT AIR EMERGENCY MAKEUP VALVE	9321-F-70483	S	R	CB	15'-0"	CLOSED	CLOSED	NO			N/A
PCV-1187	07	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
PCV-1188	07	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
PCV-1189	07	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
PCV-1213	07	AFW				X		PRESSURE CONTROL VALVE	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1228	07	IA					X	I/A SPPLY CONT BLDG INSTR AIR HDR	9321-F-20363,9321-F-70093	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
PCV-1310A	07	MS				X		AUX FWP TURB STM SUPP SHUT-OFF VALVE	9321-F-20173	S	R	AB	30'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 29	CKT. 19	125VDC DIST PNL 33
PCV-1310B	07	MS				X		AUX FWP TURB STM SUPP SHUT-OFF VALVE	9321-F-20173	S	R	AB	36'-0"	CLOSED	OPEN	YES	9312-LL-31313 SHT 29	CKT. 13	125VDC DIST PNL 32
PCV-455A	07	RCS	X					PZR SPRAY CONTROL VALVE	9321-F-27473	S	R	VC	68'-0"	CLOSED	CLOSED	NO			N/A
PCV-455B	07	RCS	X					PZR SPRAY CONTROL VALVE	9321-F-27473	S	R	VC	68'-0"	CLOSED	CLOSED	NO			N/A
PCV-455C	07	RCS	X					PRESSURIZER PORV	9321-F-27473	S	R	VC	124'-0	CLOSED	CLOSED	NO			N/A
PCV-456	07	RCS	X					PRESSURIZER PORV	9321-F-27473	S	R	VC	124'-0	CLOSED	CLOSED	NO			N/A
RC-519	07	RCS	X					PRIMARY WATER MAKE-UP TO PRT VALVE	9321-F-27473	S	R	PP	41'-0"	CLOSED	CLOSED	NO			N/A
RC-523	07	RCS	X					PRT DRAIN VALVE	9321-F-27473	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
RC-544	07	RCS	X	X				REACTOR VESSEL FLANGE LEAK-OFF CTRL VLV	9321-F-27383	S	R	VC	60'-0"	OPEN	CLOSED	YES	500B971 SHT.91	CKT.5	125VDC DIST PNL 31
RC-549	07	RCS	X					PRESS RELIEF GAS ANALYZER CTRL VALVE	9321-F-27473	S	R	PA	54'-0"	CLOSED	CLOSED	NO			N/A
RC-552	07	RCS	X					PRIMARY WATER MAKE-UP TO PRT VALVE	9321-F-27473	S	R	PP	41'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
RC-560	07	RCS		X				PRT SPRAY ISO STOP VALVE	9321-F-27473	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
SWN-TCV-1103	07	SWN					X	CFCU OUTLET CONTROL VLV	9321-F-27223	S	R	PP	35'-0"	OPEN	OPEN	YES	9321-F-39893		118VAC IB32-I
SWN-TCV-1104	07	SWN					X	CFCU OUTLET BYPASS VLV	9321-F-27223	S	R	PP	35'-0"	CLOSED	CLOSED	NO		PANEL SB2	N/A
SWN-TCV-1105	07	SWN					X	CFCU OUTLET BYPASS VLV	9321-F-27223	S	R	PP	35'-0"	CLOSED	CLOSED	NO			N/A
SWN-TCV-1113	07	SWN					X	INST AIR CC HX SW OUTLET TCV	9321-F-27223	S	R	CB	15'-0"	OPEN	OPEN	YES	9321-LD-72543 SHT.8		I/A
TCV-130	07	CCW					X	NON REGEN HX OUTLET TCV	9321-F-27513 SHT1	S	R	PA	73'-0"	OPEN	OPEN	NO			N/A
AC-FCV-625	08	CCW					X	CCW RET FR RCP MTR COOLERS	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0730	08	ACS			X			RHR SUCT LN ISO VLV	9321-F-27203	S	R	VC	56'-6"	CLOSED	OPEN	YES	500B971 SHT. 110	COMPT. 2FM	MCC-36A
AC-MOV-0731	08	ACS			X			RHR SUCT LN ISO VLV	9321-F-27203	S	R	VC	59'-6"	CLOSED	OPEN	YES	500B971 SHT. 110	COMPT. 2FM	MCC-36B
AC-MOV-0743	08	ACS			X			RHR PUMP MINI FLOW TEST LINE	9321-F-27513 SHT. 1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0744	08	ACS			X			RHR PUMP DISCH ISO VLV	9321-F-27513 SHT. 1	S	R	PA	15'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0745A	08	ACS			X			RHR HEAT EXCHANGER 32 INLET ISOLATION VLV	9321-F-27203	S	R	VC	66'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0745B	08	ACS			X			RHR HEAT EXCHANGER 32 INLET ISOLATION VLV	9321-F-27203	S	R	VC	66'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0746	08	ACS			X			#32 RHR HX OUTLT ISO STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
AC-MOV-0747	08	ACS			X			#31 RHR HX OUTLT ISO STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
AC-MOV-1870	08	ACS			X			RHR PUMP MINI FLOW TEST LINE VALVE	9321-F-27513 SHT. 1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-769	08	CCW					X	CCW SUPP-RCP ISO	9321-F-27513 SHT1	S	R	PA	55'-7"	OPEN	OPEN	NO			N/A
AC-MOV-784	08	CCW					X	CCW RET FR RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-786	08	CCW					X	CCW RET FR RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-789	08	CCW					X	CCW RET FR RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-797	08	CCW					X	CCW SUPP-RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-MOV-822A	08	CCW					X	RHR HTX ISO. VLV	9321-F-27513	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.111		MCC 36A
AC-MOV-822B	08	CCW					X	RHR HTX ISO. VLV	9321-F-27513	S	R	PP	41'-0"	CLOSED	OPEN	YES	500B971 SHT.111		MCC 36B
CH-LCV-112B	08	CVCS	X		X			RWST TO CHARGING PUMP SUCTION VALVE	9321-F-27363	S	R	PA	65'-0"	CLOSED	CLOSED	YES	500B971 SHT. 110	COMPT. 1RH	MCC-36B

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
CH-LCV-112C	08	CVCS			X			VCT OUTLET ISO VLV	9321-F-27363	S R	PA	73'-0"	OPEN	OPEN	NO			N/A
CH-MOV-205	08	CVCS	X	X	X			CHARGING FLOW TO RCS ISO VLV	9321-F-27363	S R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-222	08	CVCS	X		X			RCP SEAL WTR RETURN ISO VLV	9321-F-27363	S R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-226	08	CVCS	X	X	X			CHARGING LINE CTMT ISO VLV	9321-F-27363	S R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250A	08	CVCS			X			31 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250B	08	CVCS			X			32 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250C	08	CVCS			X			33 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250D	08	CVCS			X			34 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-333	08	CVCS	X		X			BORIC ACID FEED TO CHG PUMPS VALVE	9321-F-27363	S R	PA	73'-0"	CLOSED	CLOSED	NO			N/A
CH-MOV-441	08	CVCS			X			31 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-442	08	CVCS			X			32 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-443	08	CVCS			X			33 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-444	08	CVCS			X			34 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-SOV-265	08	CVCS	X	X				VCT GAS ANALYZER SAMPLE VALVE	9321-F-27363	S R	PA	73'-0"	CLOSED	CLOSED	NO			N/A
CH-SOV-268	08	CVCS	X	X	X			VCT VENT ISO VALVE	9321-F-27363	S R	PA	73'-0"	CLOSED	CLOSED	NO			N/A
RC-MOV-535	08	RCS		X	X			PORV BLK VLV 455C	9321-F-27473	S R	VC	124'-0	OPEN	OPEN	YES	9321-F-30063	COMPT. 1FH	MCC-36B
RC-MOV-536	08	RCS		X	X			PORV BLK VLV 456	9321-F-27473	S R	VC	124'-0	OPEN	OPEN	YES	9321-F-30063	COMPT. 1FH	MCC-36A
SI-HCV-638	08	SIS				X		RHR HTX 31 DISCH. THROTTLE VLV.	9321-F-27353 SHT. 1	S R	VC	66'-0"	OPEN	OPEN	YES	500B971 SHT.137		MCC-36B
SI-HCV-640	08	SIS				X		RHR HTX 32 DISCH. THROTTLE VLV.	9321-F-27353 SHT. 1	S R	VC	66'-0"	OPEN	OPEN	YES	500B971 SHT.137		MCC-36A
SI-MOV-0882	08	SIS	X			X		RWST SUPPLY TO RHR PUMPS	9321-F-27503 SHT. 2	S R	PA	15'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 4FD	MCC-36B
SI-MOV-0885A	08	SIS				X		RHR PUMPS SUCTION FROM CONTAINMENT SUMP	9321-F-27503 SHT2	S R	PA	34'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-0885B	08	SIS				X		RHR PUMPS SUCTION FROM CONTAINMENT SUMP	9321-F-27503 SHT. 2	S R	PA	34'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
SI-MOV-0888A	08	SIS				X		HIGH HEAD INJECTION RECIRC STOP	9321-F-27503	S	R	PA	51'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-0888B	08	SIS				X		HIGH HEAD INJECTION RECIRC STOP	9321-F-27503	S	R	PA	51'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-0889A	08	SIS				X		CTMT SPRAY HEADER ISO VALVE	9321-F-27353 SHT. 1	S	R	VC	72'-6"	CLOSED	CLOSED	NO			N/A
SI-MOV-0889B	08	SIS				X		CTMT SPRAY HEADER ISO VALVE	9321-F-27353 SHT. 1	S	R	VC	72'-6"	CLOSED	CLOSED	NO			N/A
SI-MOV-0894A	08	SIS		X	X	X		NO. 31 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 3RM	MCC-36A
SI-MOV-0894B	08	SIS		X	X	X		NO. 32 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 3RM	MCC-36B
SI-MOV-0894C	08	SIS		X	X	X		NO. 33 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 2RD	MCC-36A
SI-MOV-0894D	08	SIS		X	X	X		NO. 34 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 2RD	MCC-36B
SI-MOV-0899A	08	ACS				X		RHR HTX 32 OUTLET STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
SI-MOV-0899B	08	ACS				X		RHR HTX 31 OUTLET STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
SI-MOV-1802A	08	SIS				X		SIS RECIRC PUMP DISCHARGE VALVE	9321-F-27353	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-1802B	08	SIS				X		SIS RECIRC PUMP DISCHARGE VALVE	9321-F-27353	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
SI-MOV-1810	08	SIS	X					MOV RWST TO SI PUMP ISO VALVE	9321-F-27503	S	R	PA	15'-0"	OPEN	CLOSED	YES	9321-F-30063	COMPT. 8FD	MCC-36A
SI-MOV-1869A	08	SIS				X		RHR HX 32 TO RHR MINI FLOW VALVES	9321-F-27353	S	R	VC	55'-0"	OPEN	OPEN	YES	5008971 SHT.116	COMPT. 7FH	MCC-36A
SI-MOV-1869B	08	SIS				X		RHR HX 31 TO RHR MINI FLOW VALVES	9321-F-27353	S	R	VC	55'-0"	OPEN	OPEN	YES	5008971 SHT.116	COMPT. 7FH	MCC-36B
SOV-111A-1	08	CVCS	X		X			CH-FCV-111A SOLENOID VALVE	9321-F-27363	S	R	PA	78'-0"	DE-ENERG	DE-ENERG	NO			N/A
SOV-112A-1	08	CVCS			X			CH-LCV-112A SOLENOID VALVE	9321-F-27363	S	R	PA	80'-0"	ENERG	ENERG	YES	5008971 SHT.105	CKT.5	125VDC DIST PNL 31
SOV-1177	08	IA					X	31 IAC AC CNTRL VALVE	9321-F-23913	B	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31293 SHT.2	COMPT. 3M	MCC 39

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
SOV-1178	08	IA					X	32 IAC AC CNTRL VALVE	9321-F-23913	B	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31243 SHT.10	COMPT. 1G	MCC 34
SOV-1198	08	IA					X	31 AFTERCOOLER INLET SOLENOID	9321-F-20363	B	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31193 SHT 2	COMPT. 3M	MCC 39
SOV-1199	08	IA					X	32 AFTERCOOLER INLET SOLENOID	9321-LL-31243	B	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31243 SHT 10	COMPT. 1G	MCC 34
SOV-1230	08	IA					X	SG 31 MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1231	08	IA					X	SG 31 MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1232	08	IA					X	SG 31 MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1233	08	IA					X	SG 31 MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1234	08	IA					X	SG 32 MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1235	08	IA					X	SG 32 MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1236	08	IA					X	SG 32 MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1237	08	IA					X	SG 32 MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1238	08	IA					X	SG 33 MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1239	08	IA					X	SG 33 MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1240	08	IA					X	SG 33 MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1241	08	IA					X	SG 33 MSIV SOV	9321-F-70093	B	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1242	08	IA					X	SG 34 MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1243	08	IA					X	SG 34 MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-1244	08	IA					X	SG 34 MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125VDC DIST PNL 33
SOV-1245	08	IA					X	SG 34 MSIV SOV	9321-F-70093	B	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125VDC DIST PNL 34
SOV-460-1	08	CVCS	X	X	X			CH-LCV-460 SOLENOID VALVE	9321-F-27363	S	R	VC	79'-0"	ENERG	ENERG	YES	500B971 SHT. 106	CKT.3	125VDC DIST PNL 31
SOV-793-1	08	CCW					X	AC-793 SOLENOID VALVE	9321-F-27513 SHT.1	S	R	PP	51'-0"	DE-ENERG	DE-ENERG	YES	500B971 SHT.91	CKT.3	125VDC DIST PNL 31
0031ETEF	09	HVAC					X	EL TNL EXHAUST FAN 31 (LOWER)	9321-F-41023	S	R	ET	34'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 1FB	MCC-36A
0032ETEF	09	HVAC					X	EL TNL EXHAUST FAN 32 (LOWER)	9321-F-41023	S	R	ET	34'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 1FB	MCC-36B
0033ETEF	09	HVAC					X	EL TNL EXHAUST FAN 33 (UPPER)	9321-F-41023	S	R	ET	46'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7FB	MCC-36A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
0034ETEF	09	HVAC					X	EL TNL EXHAUST FAN 34 (UPPER)	9321-F-41023	S	R	ET	46'-0"	RUN'G/OFF	ON	YES	9321-F-30063	COMPT. 7FB	MCC-36B
31 PABEF	09	HVAC					X	PRIMARY AUX BUILDING EXHAUST FAN	9321-F-40223	S	R	FR	72'-0"	ON	ON	YES	617F644		480V BUS 3A
31CRDF	09	HVAC					X	CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2D	MCC-38
32 PABEF	09	HVAC					X	PRIMARY AUX BUILDING EXHAUST FAN	9321-F-40223	S	R	FR	72'-0"	ON	ON	YES	617F6444		480V BUS 6A
32CRDF	09	HVAC					X	CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2F	MCC-38
33CRDF	09	HVAC					X	CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2H	MCC-38
34CRDF	09	HVAC					X	CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	COMPT. 2K	MCC-38
F-311	09	HVAC					X	AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	18'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-312	09	HVAC					X	AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	18'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-313	09	HVAC					X	AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	32'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-314	09	HVAC					X	EDG 31 CMPT EF 314	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-315	09	HVAC					X	EDG 31 CMPT EF 315	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
F-316	09	HVAC					X	EDG 32 CMPT EF 316	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-317	09	HVAC					X	EDG 32 CMPT EF 317	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
F-318	09	HVAC					X	EDG 33 CMPT EF 318	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-319	09	HVAC					X	EDG 33 CMPT EF 319	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
PABSF	09	HVAC					X	PRIMARY AUX BUILDING SUPPLY FAN	9321-F-40223	S	R	PA	41'-0"	ON	ON	YES	9321-F-31893		MCC 37
0031CRFU	10	HVAC					X	31 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 5A
0032CRFU	10	HVAC					X	32 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 2A
0033CRFU	10	HVAC					X	33 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 5A
0034CRFU	10	HVAC					X	34 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 3A
0035CRFU	10	HVAC					X	35 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480V BUS 6A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
ACU31	10	HVAC					X	CONTROL ROOM A/C UNIT 31	9321-F-41023	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063	COMPT. 6FB	MCC-36A
ACU32	10	HVAC					X	CONTROL ROOM A/C UNIT 32	9321-F-41023	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063	COMPT. 6FB	MCC-36B
0031 IAC	12	IA					X	INST AIR COMP 31	9321-F-20363	S	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-F-30053	COMPT. 3M	MCC-39
0032 IAC	12	IA					X	INST AIR COMP 32	9321-F-20363	S	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-F-30043	COMPT. 1G	MCC-34
CBBATT31	14	DC					X	800A BATTERY 31 CIRCUIT BREAKER	9321-F-30083	B	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY31
CBBATT32	14	DC					X	800A BATTERY 32 CIRCUIT BREAKER	9321-F-30083	B	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY32
CBBATT33	14	DC					X	400A BATTERY 33 CIRCUIT BREAKER	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY33
CBBATT34	14	DC					X	600A BATTERY 34 CIRCUIT BREAKER	9321-F-30083	B	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY34
K50	14	118 VAC					X	118 VAC INST BUS 31A	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 31
K51	14	118 VAC					X	118 VAC INST BUS 32A	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 32
PE6	14	118 VAC					X	118 VAC INSTR BUS 34	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 34
PE7	14	118 VAC					X	118 VAC INSTR BUS 33	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 33
PE8	14	118 VAC					X	118 VAC INST BUS 31	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 31
PE9	14	118 VAC					X	118 VAC INST BUS 32	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 32
PNL K48	14	DC					X	125 VDC DISTRIBUTION PNL 31A	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL K49	14	DC					X	125 VDC DISTRIBUTION PNL 32A	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PNL PC1	14	DC					X	125 VDC POWER PANEL #31	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 31
PNL PC2	14	DC					X	125 VDC POWER PANEL #32	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 32
PNL PC3	14	DC					X	125 VDC DISTRIBUTION PNL 31	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL PC4	14	DC					X	125 VDC DISTRIBUTION PNL 32	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
PNL PC8	14	DC					X	125 VDC DISTRIBUTION PNL 33	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL PC9	14	DC					X	125 VDC POWER PANEL #33	9321-F-30083	S	R	CB	15'-0"	ON	ON	YES	9321-F-30083		BATTERY 33
PNL PD9	14	DC					X	125 VDC DISTRIBUTION PNL 34	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
PNL PF7	14	DC					X	125 VDC POWER PANEL #34	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 34
BATTERY 31	15	DC					X	BATTERY BANK 31	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		31CHGR
BATTERY 32	15	DC					X	BATTERY BANK 32	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		32CHGR
BATTERY 33	15	DC					X	BATTERY BANK 33	9321-F-30523	S	R	DG	15'-0"	ON	ON	YES	9321-F-30083		33CHGR
BATTERY 34	15	DC					X	BATTERY BANK 34	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		34CHGR
31CHGR (GE3)	16	DC					X	BATTERY CHARGER 31	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30053		MCC39
32CHGR (GE4)	16	DC					X	BATTERY CHARGER 32	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30053		MCC37
33CHGR (GE8)	16	DC					X	BATTERY CHARGER 33	9321-F-30523	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063		MCC36C
34CHGR (GF3)	16	DC					X	BATTERY CHARGER 34	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30043 SHT. 2		MCC32
B1G	16	118 VAC					X	INST BUS 33,33A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
EGA1	16	118 VAC					X	25 KVA STATIC INVERTER #31	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
EGA2	16	118 VAC					X	25 KVA STATIC INVERTER #32	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
GC9	16	118 VAC					X	25 KVA STATIC INVERTER #33	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 33
GF2	16	118 VAC					X	25 KVA STATIC INVERTER #34	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 34
K4F	16	118 VAC					X	INST BUS 31,31A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
K4G	16	118 VAC					X	INST BUS 32,32A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
KG7	16	118 VAC					X	MANUAL TRANSFER SWITCH #34	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
DG-31	17	EDG					X	DIESEL GEN NO. 31	9321-F-20303	S	R	DG	15'-0"	OFF	ON	NO			N/A
DG-32	17	EDG					X	DIESEL GEN NO. 32	9321-F-20303	S	R	DG	15'-0"	OFF	ON	NO			N/A
DG-33	17	EDG					X	DIESEL GEN NO. 33	9321-F-20303	S	R	DG	15'-0"	OFF	OFF	NO			N/A
BUS 2A-VM	18	480 VAC					X	VOLTAGE MONITOR	113E700 SHT 9	B	R	CB	53'-0"	ON	ON	YES	617F644		BUS 2A
BUS 3A-VM	18	480 VAC					X	VOLTAGE MONITOR	113E700 SHT 9	B	R	CB	53'-0"	ON	ON	YES	617F644		BUS 3A
BUS 5A-VM	18	480 VAC					X	VOLTAGE MONITOR	113E700 SHT 9	B	R	CB	53'-0"	ON	ON	YES	617F644		BUS 5A
BUS 6A-VM	18	480 VAC					X	VOLTAGE MONITOR	113E700 SHT 9	B	R	CB	53'-0"	ON	ON	YES	617F644		BUS 6A
DG-31-VM	18	EDG					X	DG 31 VOLTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
DG-31-WM	18	EDG					X	DG 31 WATTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
DG-32-VM	18	EDG					X	DG 32 VOLTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
DG-32-WM	18	EDG					X	DG 32 WATTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
DG-33-VM	18	EDG					X	DG 33 VOLTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
DG-33-WM	18	EDG					X	DG 33 WATTMETER	9321-F-33603	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FI-601A	18	CCW					X	CCW HEADER FLOW INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
FI-601B	18	CCW					X	CCW HEADER FLOW INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
FIC-111	18	CVCS	X		X			PRIMARY WATER FLOW CONTROL	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK C10/IB31-II
FIT-111	18	CVCS	X		X			PRM WTR FLOW INOZ XMTR	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.5		RACK C10/IB31-II
FIT-156A	18	CVCS			X			RCP 34 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.34		RACK C9/IB31-II
FIT-156B	18	CVCS			X			RCP 34 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.34		RACK C9/IB31-II
FIT-157A	18	CVCS			X			RCP 33 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.35		RACK C9/IB31-II
FIT-157B	18	CVCS			X			RCP 33 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.35		RACK C9/IB31-II

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
FIT-158A	18	CVCS			X			RCP 32 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.36		RACK C10/IB31-II
FIT-158B	18	CVCS			X			RCP 32 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.36		RACK C10/IB31-II
FIT-159A	18	CVCS			X			RCP 31 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.37		RACK C10/IB31-II
FIT-159B	18	CVCS			X			RCP 31 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72203 SHT.37		RACK C10/IB31-II
FT-115A	18	CVCS					X	SEAL INJ. FLOW TRANSMITTER	9321-F-27363	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK A-6	118VAC IB32-I
FT-116A	18	CVCS					X	SEAL INJ. FLOW TRANSMITTER	9321-F-27363	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK A-6	118VAC IB32-I
FT-1200	18	AFW				X		AFW TO SG 31 FLOW TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.9		RACK D9/IB33-IV
FT-1201	18	AFW				X		AFW TO SG 32 FLOW TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.10		RACK D9/IB33-IV
FT-1202	18	AFW				X		AFW TO SG 33 FLOW TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.11		RACK D9/IB33-IV
FT-1203	18	AFW				X		AFW TO SG 34 FLOW TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.12		RACK D9/IB33-IV
FT-128	18	CVCS	X					CHG FLOW TO REG HX TRANSMITTER	9321-F-27363	S	R	PP	41'-0"	ON	ON	YES	9321-F-39893	PNL SFF	RACK C10/IB31-II
FT-134	18	CVCS	X					LETDWN FLOW TRANSMITTER	9321-F-27363	S	R	PA	75'-0"	ON	ON	YES	9321-LD-72203 SHT.17	PNL SFF	RACK C10/IB31-II
FT-143A	18	CVCS					X	SEAL INJ. FLOW TRANSMITTER	9321-F-27363	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK A-6	118VAC IB32-I
FT-144A	18	CVCS					X	SEAL INJ. FLOW TRANSMITTER	9321-F-27363	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK A-6	118VAC IB32-I
FT-414	18	RCS				X		RX COOLANT LOOP 1 FLOW TRANSMITTER CH I	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FT-415	18	RCS				X		RX COOLANT LOOP 1 FLOW TRANSMITTER CH II	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
FT-419A	18	MS	X			X		SG 31 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC IB32-I
FT-419B	18	MS	X	X		X		SG 31 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC IB32-I
FT-424	18	RCS				X		RX COOLANT LOOP 2 FLOW TRANSMITTER CH I	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FT-425	18	RCS				X		RX COOLANT LOOP 2 FLOW TRANSMITTER CH II	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
FT-429A	18	MS	X	X		X		SG 32 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC IB32-I
FT-429B	18	MS	X	X		X		SG 32 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC IB32-I

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
FT-434	18	RCS				X		RX COOLANT LOOP 3 FLOW TRANSMITTER CH I	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FT-435	18	RCS				X		RX COOLANT LOOP 3 FLOW TRANSMITTER CH II	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
FT-439A	18	MS	X	X		X		SG 33 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC IB32-I
FT-439B	18	MS	X	X		X		SG 33 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC IB32-I
FT-444	18	RCS				X		RX COOLANT LOOP 4 FLOW TRANSMITTER CH I	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FT-445	18	RCS				X		RX COOLANT LOOP 4 FLOW TRANSMITTER CH II	9321-F-27383	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
FT-449A	18	MS	X	X		X		SG 34 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC IB32-I
FT-449B	18	MS	X	X		X		SG 34 STEAM FLOW TRANSMITTER	9321-F-20173	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC IB32-I
FT-601A	18	CCW					X	CCW HTX OUTLET FLOW	9321-F-27513 SHT1	S	R	PA	41'-0"	ON	ON	YES	9321-LD-72113 SHT.2		RACK A5/IB 32-1
FT-601B	18	CCW					X	CCW HTX OUTLET FLOW	9321-F-27513 SHT1	S	R	PA	41'-0"	ON	ON	YES	9321-LD-72113 SHT.2		RACK A6/IB 32-1
FT-638	18	RHR				X		RHR FLOW TRANSMITTER	9321-F-27353 SHT. 1	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A6	118VAC IB32-I
FT-640	18	RHR				X		RHR FLOW TRANSMITTER	9321-F-27353 SHT. 1	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC IB32-I
FT-946A	18	RCS				X		RHR TO RCS 34 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK E1	118VAC IB32-I
FT-946B	18	RCS				X		RHR TO RCS 33 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F1	118VAC IB34-III
FT-946C	18	RCS				X		RHR TO RCS 32 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK E1	118VAC IB32-I
FT-946D	18	RCS				X		RHR TO RCS 31 COLD LEG FLOW TRANSMITTER	9321-F-27535 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F1	118VAC IB34-III
HC-1118A	18	AFW				X		SIGNAL CONVERTER	9321-F-20193	S	R	AB	18'-0"	ON	ON	YES	9321-F-39893		RACK 4A/IB31-II
LI-417D	18	FW				X		SG 31 LEVEL INDICATOR	9321-F-70533 SHT 1	B	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		118VAC IB33, CKT.3
LI-427D	18	FW				X		SG 32 LEVEL INDICATOR	9321-F-70533 SHT 1	B	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		118VAC IB33, CKT.3
LI-437D	18	FW				X		SG 33 LEVEL INDICATOR	9321-F-70533 SHT 1	B	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		118VAC IB33, CKT.3
LI-447D	18	FW				X		SG 34 LEVEL INDICATOR	9321-F-70533 SHT 1	B	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		118VAC IB33, CKT.2
LT-102	18	CVCS	X		X			BORIC ACID STORAGE TANK #32 LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-10	118VAC IB31-II

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
LT-106	18	CVCS	X	X				BORIC ACID STORAGE TANK #31 LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-10	118VAC IB31-II
LT-112	18	CVCS	X	X				VCT LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
LT-1128	18	COND				X		COND STG TANK LEVEL TRANSMITTER	9321-F-20183 SHT 1	S	R	YD	82'-0"	ON	ON	YES	9321-F-32003		118VAC IB33
LT-1128A	18	COND				X		COND STG TANK LEVEL TRANSMITTER	9321-F-20183 SHT 1	S	R	YD	82'-0"	ON	ON	YES	9321-F-32003		118VAC IB33
LT-1253	18	NIS	X					CMT LEVEL TRANSMITTER	9321-F-70273,9321-F-70283	S	R	VC	46'-0"	ON	ON	YES	9321-F-31343		RACK A-5/IB32-I
LT-1254	18	NIS	X					CMT LEVEL TRANSMITTER	9321-F-70273,9321-F-70283	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893		RACK A-6/IB32-I
LT-1311	18	RCS		X				RX VESSEL LEVEL TRANSMITTER NARROW RANGE	9321-F-72043	B	R	VC	68'-0"	ON	ON	YES	9321-F-39883	CKT.12	118VAC IB31A
LT-1312	18	RCS		X				RX VESSEL LEVEL TRANSMITTER WIDE RANGE	9321-F-72043	B	R	VC	68'-0"	ON	ON	YES	9321-F-39883	CKT.12	118VAC IB31A
LT-1321	18	RCS		X				RX VESSEL LVL TRNSMTR NARROW RANGE (RVLIS-B)	9321-F-72043	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LT-1322	18	RCS		X				RX VESSEL LEVEL TRNSMTR WIDE RANGE (RVLIS-B)	9321-F-72043	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LT-417A	18	FW				X		SG 31 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.2
LT-417D	18	FW				X		SG 31 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.3
LT-427A	18	FW				X		SG 32 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.2
LT-427D	18	FW				X		SG 32 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.3
LT-437A	18	FW				X		SG 33 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.2
LT-437D	18	FW				X		SG 33 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.3
LT-447A	18	FW				X		SG 34 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.2
LT-447D	18	FW				X		SG 34 LEVEL TRANSMITTER	9321-F-20193	B	R	VC	68'-0"	ON	ON	YES	9321-F-30083	RACK F21	118VAC IB33, CKT.2
LT-459	18	RCS		X				PRESSURIZER LEVEL TRANSMITTER CH I	9321-F-27473	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK B-6	118VAC IB33 CHIV
LT-460	18	RCS		X				PRESSURIZER LEVEL TRANSMITTER CH II	9321-F-27473	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK B-6	118VAC IB33 CHIV

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
LT-461	18	RCS			X			PRESSURIZER LEVEL TRANSMITTER CH III	9321-F-27473	B	R	VC	68'-0"	ON	ON	YES	9321-H-39923 SH. 26	RACK B-3	118VAC IB34
LT-462	18	RCS					X	PRESSURIZER LEVEL TRANSMITTER CH IV	9321-F-27473	S	R	VC	68'-0"	ON	ON	YES	9321-H-39923 SHT 35	RACK B-10	118VAC IB33-IV
LT-470	18	RCS		X				PRT LEVEL TRANSMITTER	9321-F-27473	S	R	VC	65'-0"	ON	ON	YES	9321-LD-72453 SHT 17	RACK A-5	118VAC IB32-I
LT-628	18	CCW					X	CCW SURGE TANK # 31 LEVEL TRANSMITTER	9321-LD-72113 SHT.6	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
LT-629	18	CCW					X	CCW SURGE TANK # 32 LEVEL TRANSMITTER	9321-LD-72113 SHT.7	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
LT-920	18	SIS	X					RWST LEVEL TRANSMITTER	9321-F-27503 SHT. 2	S	R	YD	79'-0"	ON	ON	YES	9321-F-39893	RACK E-1	118VAC IB32-I
PI-1260	18	AFW				X		AFW 31 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.19		RACK D9/IB33-IV
PI-1261	18	AFW				X		AFW 32 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.20		RACK D9/IB33-IV
PI-1262	18	AFW				X		AFW 33 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.21		RACK D9/IB33-IV
PI-135	18	CVCS	X	X	X			NON REGEN HX OUTLET LETDOWN PRESS INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72203 SHT.18	PNL SFF	RACK C10/IB31-II
PM-405A	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK D9/IB33-IV
PM-405B	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK D9/IB33-IV
PM-405C	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK B5/IB33-IV
PM-405D	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK B5/IB33-IV
PM-406E	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 31 AFWP	9321-LD-72123 SHT 3A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT3		RACK B5/IB33-IV
PM-406F	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 31 AFWP	9321-LD-72123 SHT 3A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT3		RACK B5/IB33-IV
PM-406G	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 33 AFWP	9321-LD-72123 SHT 4A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT4		RACK B5/IB33-IV
PM-406H	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 33 AFWP	9321-LD-72123 SHT 4A	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT4		RACK B5/IB33-IV

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PM-419I	18	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	B	R	AB	77'-4"	ON	ON	YES	9321-LD-72373 SHT 3	CCR AUX PNL B-9	118VAC IB33-IV
PM-429I	18	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	B	R	AB	64'-8"	ON	ON	YES	9321-F-32003	CCR AUX PNL B-9	118VAC IB34-III
PM-439I	18	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	B	R	AB	77'-7"	ON	ON	YES	9321-F-32003	CCR AUX PNL B-9	118VAC IB34-III
PM-449I	18	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	B	R	AB	64'-8"	ON	ON	YES	9321-LD-72373 SHT 6	CCR AUX PNL B-9	118VAC IB33-IV
PT-1144	18	IA					X	STATION AIR NUCL SERV PRESS TRANSMITTER	9321-F-20363	S	R	CB	15'-0"	ON	ON	YES	9321-LD-72343 SHT.2	PNL SJF	I/A
PT-1190	18	SWN					X	SVC WATER NUCL HDR PRESS TRANSMITTER	9321-F-20333	S	R	TB	15'-0"	ON	ON	YES	9321-LD-72543 SHT.9		RACK D9/IB33-IV
PT-1191	18	SWN					X	SVC WATER NUCL HDR PRESS TRANSMITTER	9321-F-20333	S	R	TB	15'-0"	ON	ON	YES	9321-LD-72543 SHT.10		RACK D9/IB33-IV
PT-1192	18	IA					X	IACC WATER PRESS TRANSMITTER	9321-F-23913	S	R	CB	15'-0"	ON	ON	YES	9321-LL-31293 SHT.5	COMPT. 4K	MCC 39
PT-1260	18	AFW				X		AFW 31 DISCHG PRESS TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.19		RACK D9/IB33-IV
PT-1261	18	AFW				X		AFW 32 DISCHG PRESS TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.20		RACK D9/IB33-IV
PT-1262	18	AFW				X		AFW 33 DISCHG PRESS TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.21		RACK D9/IB33-IV
PT-135	18	CVCS	X	X	X			NON REGEN HX OUTLET LETDOWN PRESS TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.18	PNL SFF	RACK C10/IB31-II
PT-139	18	CVCS	X					VCT PRESSURE TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.19	PNL SFF	RACK C10/IB31-II
PT-142	18	CVCS	X					CHG PP DISCH PRESS TRANSMITTER	9321-F-27363	S	R	PA	55'-0"	ON	ON	YES	9321-LD-72203 SHT.23	PNL SFF	RACK C9/IB31-II
PT-402	18	RCS		X				LOOP 31 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-H-39923 SHT 80		118VAC IB31, CKT.3
PT-403	18	RCS		X				LOOP 34 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-H-39923 SHT 84		118VAC IB32, CKT.3

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PT-406A	18	AFW				X		31 AFW PP DISCH PRESS TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.3		RACK D9/IB33-IV
PT-406B	18	AFW				X		33 AFW PP DISCH PRESS TRANSMITTER	9321-F-20193	B	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.4		RACK D9/IB33-IV
PT-413	18	RCS		X				LOOP 31 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK H1	118VAC IB32-I
PT-419A	18	MS				X		SG 31 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-3	118VAC IB32-I
PT-419B	18	MS				X		SG 31 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-9	118VAC IB31-II
PT-419C	18	MS				X		SG 31 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL B-9	118VAC IB33-IV
PT-429A	18	MS				X		SG 32 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-3	118VAC IB32-I
PT-429B	18	MS				X		SG 32 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-8	118VAC IB31-II
PT-429C	18	MS				X		SG 32 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL B-2	118VAC IB34-IV
PT-433	18	SP		X				LOOP 33 HOT LEG PRESSURE	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893		RACK H2/IB31-II
PT-439A	18	MS				X		SG 33 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-2	118VAC IB32-I
PT-439B	18	MS				X		SG 33 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-9	118VAC IB31-II
PT-439C	18	MS				X		SG 33 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL B-2	118VAC IB34-III
PT-443	18	RCS		X				LOOP 34 HOT LEG PRESSURE TRANSMITTER	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK H3	118VAC IB33-IV
PT-449A	18	MS				X		SG 34 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-2	118VAC IB32-I
PT-449B	18	MS				X		SG 34 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL A-8	118VAC IB31-II
PT-449C	18	MS				X		SG 34 STEAM PRESS TRANSMITTER	9321-F-20173	B	R	AB	18'-6"	ON	ON	YES	9321-F-39893	PNL B-9	118VAC IB33-IV
PT-455	18	RCS		X				PRESSURIZER PRESSURE CH I TRANSMITTER	9321-F-70513	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F19	118VAC IB-IV
PT-456	18	RCS		X				PRESSURIZER PRESSURE CH II TRANSMITTER	9321-F-70513	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F19	118VAC IB-IV
PT-457	18	RCS		X				PRESSURIZER PRESSURE CH III TRANSMITTER	9321-F-70513	B	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F19	118VAC IB33-IV
PT-472	18	RCS		X				PRT PRESSURE TRANSMITTER	9321-F-27473	S	R	VC	62'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC IB32-I
PT-474	18	RCS		X				PRESSURIZER PRESSURE CH IV TRANSMITTER	9321-F-27473	B	R	VC	53'-0"	ON	ON	YES	9321-F-39893	RACK B-10	118VAC IB33-IV

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
SWN-TC-1113	18	SWN					X	INST AIR CC HX SW OUTLET TC	9321-F-27223	S	R	CB	15'-0"	ON	ON	YES	9321-LD-72543 SHT.8		I/A
TE-122	19	CVCS	X					EXCESS LETDOWN TEMP ELEMENT	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-126	19	CVCS	X		X			REGEN HX CHG FLOW TEMP ELEMENT	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-127	19	CVCS	X					REGEN HX CHG FLOW TEMPERATURE ELEMENT	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-130	19	CVCS	X					NON REGHX OUTLET LETDOWN TEMP ELEMENT	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-1313	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 5	S	R	VC	83'-9"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1314	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 5	S	R	VC	74'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1317	19	RCS			X			RVWL CONDUIT COMPENSATION TEMP ELEMENT	7407044 SHT. 7	S	R	VC	40'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1318	19	RCS			X			RVWL CONDUIT COMPENSATION	7407044 SHT. 7	S	R	VC	46'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1319	19	RCS			X			RVWL LOWER TAP CAPILLARY TEMP ELEMENT	7407044 SHT. 7	S	R	VC	60'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB31A-II
TE-1323	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 14	S	R	VC	84'-6"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1324	19	RCS			X			UPPER TAP COMPENSATION TEMP ELEMENT	7407044 SHT. 14	S	R	VC	74'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1327	19	RCS			X			RVWL CONDUIT COMPENSATION TEMP ELEMENT	7407044 SHT. 16	S	R	VC	40'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1328	19	RCS			X			RVWL CONDUIT COMPENSATION TEMP ELEMENT	7407044 SHT. 16	S	R	VC	46'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-1329	19	RCS			X			RVWL LOWER TAP CAPILLARY TEMP ELEMENT	7407044 SHT. 16	S	R	VC	60'-0"	ON	ON	YES	9321-F-39883	CKT 12	118VAC IB32A-I
TE-411A1	19	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-411A2	19	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
TE-411A3	19	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-411B	19	RCS	X	X		X		RCS LOOP 31 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-413A	19	RCS	X	X		X		RCS LOOP 31 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-413B	19	RCS	X	X		X		RCS LOOP 31 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A4	118VAC IB32-I
TE-421A1	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-421A2	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-421A3	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-421B	19	RCS	X	X		X		RCS LOOP 32 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-423A3	19	RCS	X	X		X		RCS LOOP 32 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-423B	19	RCS	X	X		X		RCS LOOP 32 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A10	118VAC IB31-II
TE-431A1	19	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-431A2	19	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-431A3	19	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-431B	19	RCS	X	X		X		RCS LOOP 33 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-433A	19	RCS	X	X		X		RCS LOOP 33 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S R LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
TE-433B	19	RCS	X	X		X		RCS LOOP 33 COLD LEG TEMP ELEMENT	9321-F-27383	S R VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC IB34-III
TE-441A1	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S R VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-441A2	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S R VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-441A3	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S R VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-441B	19	RCS	X	X		X		RCS LOOP 34 COLD LEG TEMP ELEMENT	9321-F-27383	S R VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-443A	19	RCS	X	X		X		RCS LOOP 34 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S R VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-443B	19	RCS	X	X		X		RCS LOOP 34 COLD LEG TEMP ELEMENT	9321-F-27383	S R VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC IB33-IV
TE-453	19	RCS		X				PRESSURIZER LIQUID SPACE TEMP ELEMENT	9321-F-27473	S R VC	73'-0"	ON	ON	YES	9321-F-39893	RACK A6	118VAC IB32-I
TE-454	19	RCS	X					PRESSURIZER STEAM SPACE TEMP ELEMENT	9321-F-27473	S R VC	117'-0	ON	ON	YES	9321-F-39893	RACK A6	118VAC IB32-I
TE-471	19	RCS		X				PRT TEMP ELEMENT	9321-F-27473	S R VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC IB32-I
TE-636	19	RHR				X		RHR HX TEMP INLET TEMP ELEMENT	9321-F-27513	S R PA	15'-0"	ON	ON	YES	9321-LD-72113 SHT 9	PNL SGF	RACK A5/IB32-I
TE-639	19	RHR				X		RHR HX 31 OUTLET TEMP ELEMENT	9321-F-27353	S R VC	68'-0"	ON	ON	YES	9321-LD-72513 SHT 2	PNL SGF	RACK A5/IB32-I
TE-641	19	RHR				X		RHR HX 32 OUTLET TEMP ELEMENT	9321-F-27353	S R VC	46'-0"	ON	ON	YES	9321-LD-72513 SHT 3	PNL SGF	RACK A6/IB32-I
TI-126	19	CVCS	X		X			REGEN HX CHG FLOW TEMP INDICATOR	9321-F-27363	B R CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SFF	118VAC IB32-I
TI-130	19	CVCS	X					NON REGHX OUTLET LETDOWN TEMP INDICATOR	9321-F-27363	B R CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SFF	118VAC IB32-I
CRPI	20	CRD	X					CONTROL ROD CLUSTER POSITIVE INDICATOR	9321-F-30503,-30523	B R CB	53'-0"	ON	ON	YES	9321-F-30053		MCC-39
FI-115A	20	CVCS					X	SEAL INJ. FLOW INDICATOR	113E700 SHT 21	B R CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB32, CKT.3
FI-116A	20	CVCS					X	SEAL INJ. FLOW INDICATOR	113E700 SHT 21	B R CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB32, CKT.3

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
FI-1200	20	AFW				X		AFW TO SG 31 FLOW INDICATOR	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.9	PNL SCF	RACK D9/IB33-IV
FI-1201	20	AFW				X		AFW TO SG 32 FLOW INDICATOR	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.10	PNL SCF	RACK D9/IB33-IV
FI-1202	20	AFW				X		AFW TO SG 33 FLOW INDICATOR	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.11	PNL SCF	RACK D9/IB33-IV
FI-1203	20	AFW				X		AFW TO SG 34 FLOW INDICATOR	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.12	PNL SCF	RACK D9/IB33-IV
FI-128B	20	CVCS	X		X			CHG FLOW TO REG HX INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72203 SHT.17		RACK C10/IB31-II
FI-134	20	CVCS	X		X			LETDOWN FLOW INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72203 SHT.17	PNL SFF	RACK C10/IB31-II
FI-143A	20	CVCS					X	SEAL INJ. FLOW INDICATOR	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB32, CKT.3
FI-144A	20	CVCS					X	SEAL INJ. FLOW INDICATOR	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB32, CKT.3
FI-414	20	RCS				X		RX COOLANT LOOP 1 FLOW INDICATOR CH I	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.2
FI-415	20	RCS				X		RX COOLANT LOOP 1 FLOW INDICATOR CH II	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.2
FI-419A	20	MS				X		SG 31 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.8
FI-419B	20	MS				X		SG 31 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.8
FI-424	20	RCS				X		RX COOLANT LOOP 2 FLOW INDICATOR CH I	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.2
FI-425	20	RCS				X		RX COOLANT LOOP 2 FLOW INDICATOR CH II	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.2
FI-429A	20	MS				X		SG 32 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.8
FI-429B	20	MS				X		SG 32 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.8
FI-434	20	RCS				X		RX COOLANT LOOP 3 FLOW INDICATOR CH I	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.2
FI-435	20	RCS				X		RX COOLANT LOOP 3 FLOW INDICATOR CH II	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.2
FI-439A	20	MS				X		SG 33 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.8
FI-439B	20	MS				X		SG 33 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.8
FI-444	20	RCS				X		RX COOLANT LOOP 4 FLOW INDICATOR CH I	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.2
FI-445	20	RCS				X		RX COOLANT LOOP 4 FLOW INDICATOR CH II	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.2

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
FI-449A	20	MS				X		SG 34 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.8
FI-449B	20	MS				X		SG 34 STEAM FLOW INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.8
FI-638	20	RHR				X		RHR HEAT EXCHANGER 31 OUTLET FLOW INDICATOR	9321-F-27353,-32313	B	R	CB	53'-0'	ON	ON	YES	9321-F-39893		118VAC IB32-I
FI-640	20	RHR				X		RHR HEAT EXCHANGER 32 OUTLET FLOW INDICATOR	9321-F-37353,-32313	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-I
FI-946A	20	RCS			X			RHR TO RCS 34 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 65	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.30
FI-946B	20	RCS			X			RHR TO RCS 33 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 71	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.30
FI-946C	20	RCS			X			RHR TO RCS 32 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 65	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.30
FI-946D	20	RCS			X			RHR TO RCS 31 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 71	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB34, CKT.4
FR-156	20	CVCS			X			34 RCP SEAL LEAKOFF FLOW	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.34	PNL FDF	RACK C9/IB31-II
FR-157	20	CVCS			X			33 RCP SEAL LEAKOFF FLOW	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.35	PNL FDF	RACK C9/IB31-II
FR-158	20	CVCS			X			32 RCP SEAL LEAKOFF FLOW	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.36	PNL FDF	RACK C10/IB31-II
FR-159	20	CVCS			X			31 RCP SEAL LEAKOFF FLOW	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.37	PNL FDF	RACK C10/IB31-II
LI-102	20	CVCS	X		X			BORIC ACID STORAGE TANK #32 LEVEL INDICATOR	113E700 SHT 11	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
LI-106	20	CVCS	X		X			BORIC ACID STORAGE TANK #31 LEVEL INDICATOR	113E700 SHT 11	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
LI-112	20	CVCS	X		X			VCT LEVEL INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
LI-1128	20	COND				X		COND STG TANK LEVEL INDICATOR	9321-F-20183 SHT 1	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003	PNL SCF	118VAC IB33
LI-1128A	20	COND				X		COND STG TANK LEVEL INDICATOR	9321-F-20183 SHT 1	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003	PNL SCF	118VAC IB33
LI-1311	20	RCS			X			RVWL NARROW RANGE INDICATOR	9321-F-30523	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB31A-II (TRAIN A
LI-1312	20	RCS			X			RVWL WIDE RANGE INDICATOR	9321-F-30523	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB31A-II (TRAIN A)
LI-1321	20	RCS			X			RVWL NARROW RANGE INDICATOR	9321-F-30523	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
LI-1322	20	RCS			X			RVWL WIDE RANGE INDICATOR	9321-F-30523	B	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LI-417A	20	FW				X		SG 31 LEVEL INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB33, CKT.2
LI-427A	20	FW				X		SG 32 LEVEL INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB33, CKT.2
LI-437A	20	FW				X		SG 33 LEVEL INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB33, CKT.2
LI-447A	20	FW				X		SG 34 LEVEL INDICATOR	113E700 SHT 26A	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB33, CKT.2
LI-459	20	RCS		X				PRESSURIZER INDICATOR CH I	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.2
LI-460	20	RCS		X				PRESSURIZER INDICATOR CH II	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	RACK A-10	118VAC IB31-II
LI-461	20	RCS		X				PRESSURIZER INDICATOR CH III	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB34, CKT.2
LI-462A	20	RCS					X	PRESSURIZER INDICATOR	113E700 SHT 21	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB33, CKT.2
LI-470	20	RCS		X				PRT LEVEL INDICATOR	9321-F-27373 SHT2	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.9
LI-628B	20	CCW					X	CCW SURGE TANK # 31 LEVEL INDICATOR	9321-LD-72113 SHT.6	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SGF	118VAC IB32-I
LI-629B	20	CCW					X	CCW SURGE TANK # 32 LEVEL INDICATOR	9321-LD-72113 SHT.7	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SGF	118VAC IB32-I
LI-920	20	SIS		X				RWST LEVEL INDICATOR	9321-H-39893 SHT 67	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB32-II
LR-1253	20	NIS	X					CONTAINMENT LEVEL RECORDER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB JO1	118VAC IB32A-I
LR-1254	20	NIS	X					CONTAINMENT LEVEL RECORDER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB JO1	118VAC IB32A-I
LR-417-1	20	FW				X		SG 31 LEVEL RECORDER	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.26
LR-417-2	20	FW				X		SG 32 LEVEL RECORDER	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.26
LR-437-1	20	FW				X		SG 33 LEVEL RECORDER	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.10
LR-437-2	20	FW				X		SG 34 LEVEL RECORDER	9321-F-20193	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB32, CKT.10
NI 31B	20	NIS	X					SOURCE RANGE COUNT RATE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FCF	118VAC IB32
NI 31D	20	NIS	X					SOURCE RANGE COUNT RATE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FCF	118VAC IB32
NI 32B	20	NIS	X					SOURCE RANGE COUNT RATE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31
NI 32D	20	NIS	X					SOURCE RANGE COUNT RATE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31
NI 35B	20	NIS	X					INTERMEDIATE RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FCF	118VAC IB32
NI 35D	20	NIS	X					INTERMEDIATE RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FCF	118VAC IB32
NI 36B	20	NIS	X					INTERMEDIATE RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
NI 36D	20	NIS	X					INTERMEDIATE RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31
NI 41B	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FDF	118VAC IB32
NI 41C	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FDF	118VAC IB32
NI 42B	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FDF	118VAC IB31
NI 42C	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FDF	118VAC IB31
NI 43B	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-31353	PNL FDF	118VAC IB34
NI 43C	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-31353	PNL FDF	118VAC IB34
NI 44B	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-31363	PNL FDF	118VAC IB33
NI 44C	20	NIS	X					POWER RANGE METER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-31363	PNL FDF	118VAC IB33
PC-419	20	MS				X		SG #31 STEAM PRESS CONTROLLER	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	118VAC IB33-IV
PC-429	20	MS				X		SG #32 STEAM PRESS CONTROLLER	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	118VAC IB34-III
PC-439	20	MS				X		SG #33 STEAM PRESS CONTROLLER	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	118VAC IB34-III
PC-449	20	MS				X		SG #34 STEAM PRESS CONTROLLER	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	118VAC IB33-IV
PI-1144	20	IA					X	STATION AIR NUCL SERV PRESS INDICATOR	9321-F-20363	B	R	CB	15'-0"	ON	ON	YES	9321-LD-72343 SHT.2	PNL SJF	INST. AIR
PI-1190	20	SWN					X	SVC WATER NUCL HDR PRESS INDICATOR	9321-F-20333	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72543 SHT.9		RACK D9/IB34-IV
PI-1191	20	SWN					X	SVC WATER NUCL HDR PRESS INDICATOR	9321-F-20333	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72543 SHT.10		RACK D9/IB33-IV
PI-1192	20	IA					X	IACC WATER PRESS INDICATOR	9321-F-23913	B	R	CB	15'-0"	ON	ON	YES	9321-F-31993		118VAC IB32-I
PI-139	20	CVCS	X		X			VCT PRESSURE INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-LS-72203 SHT.19	PNL SFF	RACK C10/IB31-II
PI-142B	20	CVCS	X					CHG PP DISCH PRESS INDICATOR	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72203 SHT.23		RACK C9/IB31-II
PI-402	20	RCS		X				LOOP 31 HOT LEG PRESSURE INDICATOR	9321-H-39923 SHT 80	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
PI-403	20	RCS		X				LOOP 34 HOT LEG PRESSURE INDICATOR	9321-H-39923 SHT 84	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB33-IV
PI-413K	20	RCS		X				LOOP 31 HOT LEG PRESSURE INDICATOR	9321-LD-72453 SHT21A	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
PI-419A	20	MS				X		SG 31 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV
PI-419B	20	MS				X		SG 31 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
PI-419C	20	MS				X		SG 31 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV
PI-429A	20	MS				X		SG 32 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-429B	20	MS				X		SG 32 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-429C	20	MS				X		SG 32 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-439A	20	MS				X		SG 33 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-439B	20	MS				X		SG 33 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-439C	20	MS				X		SG 33 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FCF	RACK B-5/IB33-IV
PI-443K	20	RCS		X				LOOP 34 HOT LEG PRESSURE INDICATOR	9321-LD-72453 SHT23E	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
PI-449A	20	MS				X		SG 34 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV
PI-449B	20	MS				X		SG 34 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV
PI-449C	20	MS				X		SG 34 STEAM PRESS INDICATOR	9321-F-20173	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK B-5/IB33-IV
PI-455	20	RCS		X				PRT PRESSURE INDICATOR	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB33, CKT.4
PI-456	20	RCS		X				PRT PRESSURE INDICATOR	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.2
PI-457	20	RCS		X				PRT PRESSURE INDICATOR	113E700 SHT 29	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB34, CKT.2
PI-472	20	RCS		X				PRT PRESSURE INDICATOR	9321-F-27473	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72453 SHT 19	PNL SAF	RACK A-5/IB 32-I
PM-406A	20	AFW				X		HIGH SIGNAL SELECTOR RELAY	9321-LD-72123 SHT 3	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.3		RACK B5/IB33-IV
PM-406B	20	AFW				X		HIGH SIGNAL SELECTOR RELAY	9321-LD-72123 SHT 3	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.3		RACK B5/IB33-IV
PM-406C	20	AFW				X		HIGH SIGNAL SELECTOR RELAY	9321-LD-72123 SHT 4	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.4		RACK B5/IB33-IV
PM-406D	20	AFW				X		HIGH SIGNAL SELECTOR RELAY	9321-LD-72123 SHT 4	B	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.4		RACK B5/IB33-IV
PR-1421	20	NIS	X					CONTAINMENT PRESSUE RECORDER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB J02	118VAC IB32A-II
PR-1422	20	NIS	X					CONTAINMENT PRESSUE RECORDER	9321-F-30523	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB J02	118VAC IB32A-II
PT-1421	20	NIS	X					CTMT PRESSURE TRANSMITTER	9321-F-27503	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK 24A	118VAC IB
PT-1422	20	NIS	X					CTMT PRESSURE TRANSMITTER	9321-F-27503	B	R	PP	41'-0"	ON	ON	YES	9321-F-39893	RACK 24A	118VAC IB
RACK G-1	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-2	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-3	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-4	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-5	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A
RACK G-6	20						X	CCR RACK	9321-F-30523	S	R	CB	53'-0"	N/A	N/A	NO			N/A

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
USI A-46 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
RELAY
SORTED BY: EQUIPMENT CLASS

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOCATION	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS	NOTES	POWER SOURCE
SC-141A	20	CVCS	X					31 CHRG PP SPEED CONTROL	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	500B971 SHT.27	PNL FBF	118VAC IB34
SC-141B	20	CVCS	X					32 CHRG PP SPEED CONTROL	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	500B971 SHT.72	PNL FBF	118VAC IB34
SC-141C	20	CVCS	X					33 CHRG PP SPEED CONTROL	9321-F-27363	B	R	CB	53'-0"	ON	ON	YES	500B971 SHT.73	PNL FBF	118VAC IB34
TI-122	20	CVCS	X					EXCESS LETDOWN TEMPERATURE INDICATOR	9321-H-39923 SHT 81	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083		118VAC IB31, CKT.3
TI-127	20	CVCS	X					REGEN HX CHG FLOW TEMPERATURE INDICATOR	9321-F-72203 SHT 13A	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
TI-453	20	RCS		X				PRESSURIZER LIQUID SPACE TEMP INDICATOR	9321-H-39923 SHT 83	B	R	CB	53'-0"	ON	ON	YES	9321-F-30093	PNL SAF	118VAC IB32, CKT.3
TI-454	20	RCS		X				PRESSURIZER STEAM TEMP INDICATOR	9321-H-39923 SHT 83	B	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	118VAC IB32, CKT.3
TI-471	20	RCS		X				PRT TEMP INDICATOR	9321-F-27473	B	R	CB	53'-0"	ON	ON	YES	9321-F-30063	PNL SAF	118VAC IB32, CKT.3
TR-413	20	RCS	X	X		X		RCS 31 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/IB32-I
TR-423	20	RCS	X	X		X		RCS 32 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/IB32-I
TR-433	20	RCS	X	X		X		RCS 33 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/IB32-I
TR-443	20	RCS	X	X		X		RCS 34 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	B	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/IB32-I
TR-636	20	RHR				X		RHR HX 31 & 32 OUTLET TEMP. RECORDER	9321-LD-72513 SHT.2,3	B	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SGF	118VA IB32-I
PBU1	R	RCS		X				PRESSURIZER HEATER BACKUP GROUP 31	500B971 SHT. 39		R	VC	68'-0"	OFF	ON	YES			480V BUS 3A
PBU2	R	RCS		X				PRESSURIZER HEATER BACKUP GROUP 32	500B971 SHT. 49		R	VC	68'-0"	OFF	ON	YES			480V BUS 2A
PBU3	R	RCS		X				PRESSURIZER HEATER BACKUP GROUP 33	500B971 SHT. 88		R	VC	68'-0"	OFF	ON	YES			480V BUS 5A

APPENDIX B

IP-3 RELAY LIST

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** B1G										
	118VAC	5	16	9321-F-39893,-95073 9321-F-30513	MANUAL BYPASS SW B1G	B,W	CB	33'-0"	SWITCH CONTACTS	NV
** EGA1										
	118VAC	5	16	9321-F-39893,	INVERTER CAB.	PB1	CB	33'-0"	PRE-CHARGE PUSHBUTTON	NV
				9321-F-39993	INVERTER CAB.	PB2	CB	33'-0"	LAMP TEST/ALARM RESET PUSHBUTTON	NV
					INVERTER CAB.	CB1	CB	33'-0"	BATTERY INPUT CKT. BREAKER CONTACTS	NV
					INVERTER CAB.	CB2	CB	33'-0"	INVERTER OUTPUT CKT. BREAKER CONTACTS	NV
					INVERTER CAB.	CB3	CB	33'-0"	ALTERN. SOURCE INPUT CKT. BREAKER CONTACTS	NV
** EGA2										
	118VAC	5	16	9321-F-39893,	INVERTER CAB.	PB1	CB	33'-0"	PRE-CHARGE PUSHBUTTON	NV
				9321-F-39993	INVERTER CAB.	PB2	CB	33'-0"	LAMP TEST/ALARM RESET PUSHBUTTON	NV
					INVERTER CAB.	CB1	CB	33'-0"	BATTERY INPUT CKT. BREAKER CONTACTS	NV
					INVERTER CAB.	CB2	CB	33'-0"	INVERTER OUTPUT CKT. BREAKER CONTACTS	NV
					INVERTER CAB.	CB3	CB	33'-0"	ALTERN. SOURCE INPUT CKT. BREAKER CONTACTS	NV
** GC9										
	118VAC	5	16	9321-F-39893,	INVERTER CAB.	PB1	CB	33'-0"	PRE-CHARGE PUSHBUTTON	NV
					INVERTER CAB.	CB1	CB	33'-0"	BATTERY INPUT CKT. BREAKER CONTACTS	NV
					INVERTER CAB.	CB2	CB	33'-0"	INVERTER OUTPUT CKT. BREAKER CONTACTS	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					INVERTER CAB.	CB3	CB	33'-0"	ALTERN. SOURCE INPUT CKT. BREAKER CONTACTS	NV
** GF2										
	118VAC	5	16	9321-F-39893,	INVERTER CAB.	PB1	CB	33'-0"	PRE-CHARGE PUSHBUTTON	NV
				9321-F-32043	INVERTER CAB.	CB1	CB	33'-0"	RECT. A.C. INPUT BREAKER CONTACTS (NOT USED)	NV
					INVERTER CAB.	CB2	CB	33'-0"	BATTERY INPUT BREAKER CONTACTS	NV
					INVERTER CAB.	CB3	CB	33'-0"	INV. D.C. INPUT BREAKER CONTACTS	NV
					INVERTER CAB.	CB4	CB	33'-0"	INV. A.C. OUTPUT BREAKER CONTACTS	NV
** K4F										
	118VAC	5	16	9321-F-39893,-39993 9321-F-30513	MANUAL BYPASS SW (K4F)	B,W	CB	33'-0"	SWITCH CONTACTS	NV
** K4G										
	118VAC	5	16	9321-F-39893,-39993 9321-F-30513	MANUAL BYPASS SW (K4G)	B,W	CB	33'-0"	SWITCH CONTACTS	NV
** KG7										
	118VAC	5	16	9321-F-39893,-33833 9321-F-32003	MANUAL TRANSFER SW (KG7)	B,W	CB	33'-0"	SWITCH CONTACTS	NV
** 480V SWGR 31										
	480VAC	5	02	9321-LL-31173 SH 2,	SWGR ISOLATION CAB CH IV	4/ISO	CB	15'-0"	DIESEL GENERATOR ISOLATION SWITCH	NV
				3,5,6,6B,7,12,13,	CCR PANEL SH	1-1/2A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	NV
				14,18	DIESEL ISOLATION CABINET	8/ISO			DIESEL GENERATOR ISOLATION SWITCH (MAINTAINED CONTACTS)	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
				IP3V-0013-0003	31 EDG CONTROL PANEL PP9	1-2/2A	DG	15'-0"	BREAKER CONTROL SWITCH	NV
				9321-F-33533	31 EDG CONTROL PANEL PP9	SS/2A	DG	15'-0"	KEY SYNCHRONIZING SWITCH	NV
				9321-LL-31183 SH 12	480V SWGR 31, COMPT. 28H	27-2A/X3	CB	15'-0"	RELAY WHSE NBFD84S	GERS
				113E303 SH 4	CCR PANEL SH	1/2A	CB	53'-0"	CONTROL SWITCH	NV
					480V SWGR 31, COMPT. 28H	27-2A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 28H	TS/DGV/2A	CB	15'-0"	KEY OPERATED TEST SWITCH 1-POSITION MAINTAINED	NV
					480V SWGR 31, COMPT. 28H	62-1/2A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 40 SEC.	GERS
					480V SWGR 31, COMPT. 28H	62-2/2A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 2 SEC.	GERS
					480V SWGR 31, COMPT. 28H	TS/UV/2A	CB	15'-0"	KEY OPERATED TEST SWITCH 3-POSITION MAINTAINED	NV
					480V SWGR 31, COMPT. 28H	27-2A/X1	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 28H	27-2A/X4	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 28H	27-1/2A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 31, COMPT. 28H	27-2/2A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 31, COMPT. 28H	27-3/2A & 27-3X/2A	CB	15'-0"	RELAY GOULD J16SV12	CA
					480V SWGR 31, COMPT. 28H	27-4/2A & 27-4X/2A	CB	15'-0"	RELAY GOULD J16SV12	CA
					480V SWGR 31, COMPT. 28H	SI/2A1	CB	15'-0"	RELAY WHSE BFD48S	GERS
					CCR RACK G-5	SI-21X/TRAIN 2	CB	53'-0"	RELAY WHSE BFD120S	GERS
					CCR RACK G-3	SI-11X/TRAIN 1	CB	53'-0"	RELAY WHSE BFD120S	GERS
					SWGR ISOLATION CAB CH IV	1/ISO	CB	15'-0"	ISOLATION SWITCH	NV
					CCR PANEL SH	1-1/2AT3A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	NV
					31 EDG CONTROL PANEL PP9	SS/2AT3A	DG	15'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	NV
					480V SWGR 31, COMPT. 28H	27-3A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 28H	86/2A	CB	15'-0"	RELAY WHSE WL	GERS
					480V SWGR 31, COMPT. 28H	86/3A	CB	15'-0"	RELAY WHSE WL	GERS
					31 EDG CONTROL PANEL PP9	1-2/2AT3A	DG	15'-0"	BREAKER CONTROL SWITCH	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR PANEL SH	1/2AT5A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	NV
					480V SWGR 31, COMPT. 25H	27-5A/X3	CB	15'-0"	AUX RELAY BFD120S	GERS
					480V SWGR 31, COMPT. 25H	86/5A	CB	15'-0"	RELAY WHSE WL	GERS
					480V SWGR 31, COMPT. 28H	S1/2A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 25H	S1/5A	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31, COMPT. 25H	27-5A/X2	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31, COMPT. 25H	TS/UV/5A	CB	15'-0"	KEY OPERATED TEST SWITCH 3-POSITION MAINTAINED	NV
					480V SWGR 31, COMPT. 25H	27-5A/X4	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 25H	27-5A/X1	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 25H	27-1/5A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 31, COMPT. 25H	27-2/5A	CB	15'-0"	RELAY WHSE CV-7	GERS
					CCR PANEL SH	1-1/5A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	NV
					33 EDG CONTROL PANEL PQ2	1-2/5A	DG	15'-0"	BREAKER CONTROL SWITCH	NV
					33 EDG CONTROL PANEL PQ2	SS/5A	DG	15'-0"	SYNCHRONIZING SWITCH	NV
					480V SWGR 31, COMPT. 25H	TS/DGV/5A	CB	15'-0"	KEY OPERATED TEST SWITCH 1-POSITION MAINTAINED	NV
					480V SWGR 31, COMPT. 25H	62-1/5A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 40 SEC.	GERS
					480V SWGR 31, COMPT. 25H	62-2/5A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 2 SEC.	GERS
					480V SWGR 31, COMPT. 25H	27-3/5A & 27-3X/5A	CB	15'-0"	RELAY GOULD J16SV12	CA
					480V SWGR 31, COMPT. 25H	27-4/5A & 27-4X/5A	CB	15'-0"	RELAY GOULD J16SV12	CA
					480V SWGR 31, COMPT. 25H	S1/5A1	CB	15'-0"	RELAY WHSE BFD48S	GERS
					480V SWGR 31, COMPT. 28H	TS/DGV/3A	CB	15'-0"	KEY OPERATED TEST SWITCH 1-POSITION MAINTAINED	NV
					480V SWGR 31, COMPT. 28H	62-1/3A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 40 SEC.	GERS
					480V SWGR 31, COMPT. 28H	62-2/3A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 2 SEC.	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31, COMPT. 28H	27-3A/X3	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31, COMPT. 28H	TS/UV/3A	CB	15'-0"	KEY OPERATED TEST SWITCH 3-POSITION MAINTAINED	NV
					480V SWGR 31, COMPT. 28H	27-3A/X1	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 28H	27-3A/X4	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 28H	27-1/3A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 31, COMPT. 28H	27-2/3A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 31, COMPT. 28H	27-3/3A & 27-3X/3A	CB	15'-0"	RELAY GOULD J16SV12	CA
					480V SWGR 31, COMPT. 28H	27-4/3A & 27-4X/3A	CB	15'-0"	RELAY GOULD J16SV12	CA
					480V SWGR 31, COMPT. 28H	S1/2A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 25H	BFP/L	CB	15'-0"	RELAY WHSE BFD22S	GERS
					480V SWGR 31, COMPT. 25H	33H	CB	15'-0"	SWITCHGEAR BREAKER CELL SWITCHES (MECHANICALLY ACTIVATED)	NV
					480V SWGR 31, COMPT. 25H	52a, 52b	CB	15'-0"	SWITCHGEAR BREAKER AUX CONTACTS (MECHANICALLY ACTIVATED)	NV
					480V SWGR 31, COMPT. 25H	OTS	CB	15'-0"	SOLID STATE (AMPTECTOR) SERIES OVERCURRENT	NV
					480V SWGR 31, COMPT. 25H	OTS/A	CB	15'-0"	OVERCURRENT TRIP ALARM CONTACTS	GERS
	480VAC	5	02		480V SWGR 31, COMPT. 28H	74/2A	CB	15'-0"	RELAY WHSE BFD22S	GERS
					480V SWGR 31, COMPT. 28H	3-1/2A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 28H	3-1/3A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 28H	3-2/2A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 28H	3-2/3A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 28H	3-5/2A	CB	15'-0"	RELAY WHSE BFD44S	GERS
					480V SWGR 31, COMPT. 28H	74-1/2A	CB	15'-0"	RELAY UV/DGV IN TEST ANNUCIATOR	CA
					480V SWGR 31, COMPT. 28H	27-3A/X5	CB	15'-0"	RELAY WHSE BFD24S	GERS
					480V SWGR 31, COMPT. 28H	74-1/3A	CB	15'-0"	RELAY UV/DGV IN TEST ANNUCIATOR	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31, COMPT. 28H	3-3/2A1	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 31, COMPT. 28H	3-3/2A2	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 31, COMPT. 28H	3-3/3A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 28H	27-3A/X1	CB	15'-0"	RELAY SG12V	GERS
					480V SWGR 31, COMPT. 25H	74/5A	CB	15'-0"	RELAY WHSE BFD22S	GERS
					480V SWGR 31, COMPT. 25H	3-1/5A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 25H	3-2/5A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 25H	3-5/5A	CB	15'-0"	RELAY WHSE BFD22S	GERS
					480V SWGR 31, COMPT. 25H	3-3/5A1	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 31, COMPT. 25H	3-3/5A2	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 31, COMPT. 25H	74-1/5A	CB	15'-0"	RELAY UV/DGV IN TEST ANNUCIATOR	CA
					480V SWGR 31, COMPT. 25H	BFP/K	CB	15'-0"	RELAY WHSE BFD44S	GERS
					31EDG CONTROL PANEL PP9	SS/EG1	DG	15'-0"	SYNCHRONIZING SWITCH	NV
					31EGD CONTROL PANEL PP9	86/EG1	DG	15'-0"	RELAY WHSE WL	GERS
					31EDG CONTROL PANEL PP9	27X1/EG1	DG	15'-0"	RELAY MG-6	GERS
					31EDG CONRTOL PANEL PP9	1-2/EG1	DG	15'-0"	BREAKER CONTROL SWITCH	NV
					31EDG CONTROL PANEL PP9	RSTR/EG1	DG	15'-0"	PUSHBUTTON	NV
					31EDG CONTROL PANEL PP9	K1X/EG1	DG	15'-0"	RELAY WHSE CR120A	GERS
** 480V SWGR 32										
	480VAC	5	02	9321-LL-31183 SH	CCR PANEL SH	1-1/6A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	NV
				2,4,7,12,18	32 EDG CONTROL PANEL PQ1	1-2/6A	DG	15'-0"	BREAKER CONTROL SWITCH	NV
				9321-LL-31173 SH	32 EDG CONTROL PANEL PQ1	SS/6A	DG	15'-0"	SYNCHRONIZING SWITCH	NV
				2,3,6,6B	480V SWGR 32, COMPT. 8H	27-6A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
				IP3V-0013-0003	480V SWGR 32, COMPT. 8H	TS/DGV/6A	CB	15'-0"	KEY OPERATED TEST SWITCH 1-POSITION MAINTAINED	NV
				113E303 SH 4	480V SWGR 32, COMPT. 8H	62-1/6A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 40 SEC.	GERS
					480V SWGR 32, COMPT. 8H	62-2/6A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 2 SEC.	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 32, COMPT. 8H	27-6A/X3	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 32, COMPT. 8H	TS/UV/6A	CB	15'-0"	KEY OPERATED TEST SWITCH 3-POSITION MAINTAINED	NV
					480V SWGR 32, COMPT. 8H	27-6A/X4	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 32, COMPT. 8H	27-6A/X1	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 32, COMPT. 8H	27-1/6A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 32, COMPT. 8H	27-2/6A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 32, COMPT. 8H	27-3/6A & 27-3X/6A	CB	15'-0"	RELAY GOULD J16SV12	CA
					480V SWGR 32, COMPT. 8H	27-4/6A & 27-4X/6A	CB	15'-0"	RELAY GOULD J16SV12	CA
					480V SWGR 32, COMPT. 8H	SI/6A1	CB	15'-0"	RELAY WHSE BFD48S	GERS
					CCR RACK G-5	SI-21X/TRAIN 2	CB	53'-0"	RELAY WHSE BFD120S	GERS
					SWGR ISOLATION CAB CH III	5/ISO	CB	15'-0"	DIESEL GENERATOR ISOLATION SWITCH	NV
					CCR PANEL SH	1-1/3A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	NV
					DIESEL ISOLATION CABINET	7/ISO			DIESEL GENERATOR ISOLATION SWITCH	NV
					31 EDG CONTROL PANEL PP9	1-2/3A	DG	15'-0"	BREAKER CONTROL SWITCH	NV
					31 EDG CONTROL PANEL PP9	SS/3A	DG	15'-0"	SYNCHRONIZING SWITCH	NV
					CCR PANEL SH	1/3A	CB	53'-0"	CONTROL SWITCH	NV
					CCR RACK G-3	SI-11X/TRAIN 1	CB	53'-0"	RELAY WHSE BFD120S	GERS
					CCR PANEL SH	1/3AT6A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	NV
					480V SWGR 32, COMPT. 8H	86/6A	CB	15'-0"	RELAY WHSE WL	GERS
					480V SWGR 32, COMPT. 8H	SI/6A	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 32, COMPT. 8H	74/6A	CB	15'-0"	RELAY WHSE BFD22S	GERS
					480V SWGR 32, COMPT. 8H	3-1/6A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 32, COMPT. 8H	3-2/6A	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 32, COMPT. 8H	3-5/6A	CB	15'-0"	RELAY WHSE BFD22S	GERS
					CCR PANEL SBF-1	RESET PB	CB	53'-0"	RESET PUSHBUTTON TEST 1, BUS 6A	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 32, COMPT. 8H	3-3/6A1	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 32, COMPT. 8H	3-3/6A2	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 32, COMPT. 8H	74-1/6A	CB	15'-0"	RELAY UV/DGV IN TEST ANNUNICATOR	CA
					480V SWGR 32, COMPT. 8H	3-4/6A	CB	15'-0"	RELAY WHSE BFD22S	GERS
					480V SWGR 32, COMPT. 8H	1X/BFPT1	CB	15'-0"	RELAY WHSE BFD22S	GERS
					480V SWGR 32, COMPT. 8H	BFP	CB	15'-0"	RELAY WHSE BFD44S	GERS
					480V SWGR 32, COMPT. 8H	1X/BFPT2	CB	15'-0"	RELAY WHSE BFD22S	GERS
					480V SWGR 32, COMPT. 8H	33H	CB	15'-0"	SWITCHGEAR BREAKER CELL SWITCHES (MECHANICALLY ACTIVATED)	NV
					480V SWGR 32, COMPT. 8H	52a, 52b	CB	15'-0"	SWITCHGEAR BREAKER AUX CONTACTS (MECHANICALLY ACTIVATED)	GERS
					480V SWGR 32, COMPT. 8H	OTS	CB	15'-0"	SOLID STATE (AMPTECTOR) SERIES OVERCURRENT TRIP	NV
					480V SWGR 32, COMPT. 8H	OTS/A	CB	15'-0"	OVERCURRENT TRIP ALARM CONTACTS	NV
** BUS 2A-VM										
	480VAC	5	18	9321-LL-31173 SHT. 2	480V SWGR 31	3/ISO	CB	15'-0"	ISOLATION SWITCH	NV
** BUS 3A-VM										
	480VAC	5	18	9321-LL-31173 SHT. 2	480V SWGR 31	3/ISO	CB	15'-0"	ISOLATION SWITCH	NV
** MCC-32										
	480VAC	5	01	9321-LL-31183 SHT.9	480V SWGR 32, COMPT. 3C	CLOSE	CB	15'-0"	PUSHBUTTON	NV
				9321-LL-31173 SHT.6	480V SWGR 32, COMPT. 3C	TRIP	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 28H	3-3/3A	CB	15'-0"	RELAY WHSE BFD120S	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** MCC-33										
	480VAC	5	01	9321-LL-31173 SHT.17,6	480V SWGR 31, COMPT. 31C	CLOSE	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 31C	TRIP	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 28H	3-3/3A1	CB	15'-0"	RELAY WHSE BFD80S	GERS
** MCC-34										
	480VAC	5	01	9321-LL-31173 SHT 15,	480V SWGR 31, COMPT. 30C	CLOSE	CB	15'-0"	PUSHBUTTON	NV
				REC 5 9321-LL-31173	480V SWGR 31, COMPT. 30C	TRIP	CB	15'-0"	PUSHBUTTON	NV
				SHT 6, REC 15	480V SWGR 31, COMPT. 28M	27-2A/2X	CB	15'-0"	RELAY WHSE BFD120S	GERS
** MCC-36A										
	480VAC	5	01	9321-LL-31173 SHT.10,5,3	480V SWGR 31, COMPT. 21C	CLOSE	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 21C	TRIP	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 25H	SI/5A	CB	15'-0"	RELAY WHSE BFD84S	GERS
					CCR PANEL SBF-2	1/MCC6A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	NV
** MCC-36B										
	480VAC	5	01	9321-LL-31183 SHT.15,4,	480V SWGR 32, COMPT. 11C	CLOSE	CB	15'-0"	PUSHBUTTON	NV
				9321-LL-31173 SHT.3	480V SWGR 32, COMPT. 11C	TRIP	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 8H	SI/6A	CB	15'-0"	RELAY WHSE BFD84S	GERS
					CCR PANEL SBF-2	1/MCC6B	CB	53'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	NV
** MCC-36C										
	480VAC	5	01	9321-LL-31173	480V SWGR 31, COMPT. 26D	CLOSE	CB	15'-0"	PUSHBUTTON	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
				SHT 20, REC 2	480V SWGR 31, COMPT. 26D	TRIP	CB	15'-0"	PUSHBUTTON	NV
				SHT 3, REC 13	CCR PANEL SBF-1	1/MCC6C	CB	53'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	GERS
				SHT 6, REC 15	480V SWGR 31, COMPT. 28H	SI/2A	CB	15'-0"	RELAY WHSE BFD48S	NV
** MCC-37										
	480VAC	5	01	9321-LL-31183 SHT.14,4	480V SWGR 32, COMPT. 12C	CLOSE	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 32, COMPT. 12C	TRIP	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 32, COMPT. 8H	3-3/6A2	CB	15'-0"	RELAY WHSE BFD80S	GERS
** MCC-38										
	480VAC	5	01	9321-LL-31173 SHT.9,5	480V SWGR 31, COMPT. 20C	CLOSE	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 20C	TRIP	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 25H	3-3/5A2	CB	15'-0"	RELAY WHSE BFD80S	GERS
** MCC-39										
	480VAC	5	01	9321-LL-31173 SHT.9, 5	480V SWGR 31, COMPT. 20C	CLOSE	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 20C	TRIP	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 25H	3-3/5A2	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 17B	52b/52/5A	CB	15'-0"	AUX CONTACT BREAKER 52/5A	NV
					480V SWGR 31, COMPT. 17B	33/b/52/5A	CB	15'-0"	POSITION SWITCH BREAKER 52/5A	NV
					480V SWGR 31, COMPT. 18B	33b/52/EG3	CB	15'-0"	POSITION SWITCH BREAKER 52/EG3	NV
					480V SWGR 31, COMPT. 18B	52a/52/EG3	CB	15'-0"	AUX CONTACT BREAKER 52/EG3	GERS
** AC-0730										
	ACS	4	08	5008971 SH 134	CCR RACK G-2	PC-402AX	CB	53'-0"	RELAY WHSE BF66F	CA
				9321-F-27203	CCR RACK G-2	PC-402BX	CB	53'-0"	RELAY WHSE BF66F	CA
				113E302 SH 1,2	MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					CCR RACK G-2	730/33acX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR PANEL SGF	1/730	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	VC	56'-0"	VLV AUX CONTACTS	NV
					VALVE MOUNTED	49	VC	56'-0"	THERMAL OVERLOAD DEVICE	NV
** AC-0731										
	ACS	4	08	500B971 SH 134	CCR RACK G-1	PC-403AX	CB	53'-0"	RELAY WHSE BF66F	CA
				9321-F-27203	CCR RACK G-1	PC-403BX	CB	53'-0"	RELAY WHSE BF66F	CA
				113E302 SH 3,4	MCC 36B	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36B	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					CCR RACK G-2	731/33acX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR PANEL SGF	1/731	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	VC	59'-0"	VLV AUX CONTACTS	NV
					VALVE MOUNTED	49	VC	59'-0"	THERMAL OVERLOAD DEVICE	NV
** AC-0743										
	ACS	4	08	500B971 SH 132	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PP	51'-0"	MOV AUX CONTACTS	NV
				9321-LL-31403 SH 22	MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
				9321-F-27513	MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					CCR PANEL SBF-1	1/743	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					CCR PANEL SBF-1	43/RS-5	CB	53'-0"	SELECTOR SWITCH	NV
** AC-0744										
	ACS	4	08	500B971 SH 141	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PP	51'-0"	MOV AUX CONTACTS	NV
				9321-LL-31403 SH 22	MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
				9321-F-27513	MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					CCR PANEL SBF-1	1/744	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					CCR PANEL SBF-1	43/RS-3	CB	53'-0"	SELECTOR SWITCH	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** AC-0745A										
	ACS	4	08	500B971 SH 135	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	VC	66'-0"	MOV AUX CONTACTS	NV
				9321-F-27203	MCC 36B	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36B	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					CCR PANEL SBF-1	1/745A	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** AC-0745B										
	ACS	4	08	500B971 SH 135	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	VC	66'-0"	MOV AUX CONTACTS	NV
				9321-F-27203	MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					CCR PANEL SBF-1	1/745B	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** AC-0746										
	ACS	4	08	500B971 SH 132	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	VC	68'-0"	MOV AUX CONTACTS	NV
				9321-F-27353 SH 1	MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					CCR PANEL SGF	1/746	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SGF	43/RS-5	CB	53'-0"	SELECTOR SWITCH	NV
					480V SWGR 31, COMPT. 25H	SI/5A1	CB	15'-0"	RELAY WHSE BFD48S	GERS
** AC-0747										
	ACS	4	08	500B971 SH 132	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	VC	68'-0"	MOV AUX CONTACTS	NV
				9321-F-27353 SH 1	MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					CCR PANEL SGF	1/747	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SGF	43/RS-5	CB	53'-0"	SELECTOR SWITCH	NV
					480 SWGR31, COMPT. 25H	SI/5A1	CB	15'-0"	RELAY WHSE BFD48S	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** AC-0899A										
	ACS	4	08	9321-F-27353 SHT. 1	MCC 36B, COMPT. 2FH	42/C	PA	55'-0"	CLOSE CONTACTOR	GERS
				500B971 SHT 132, 111	MCC 36B, COMPT. 2FH	42/O	PA	55'-0"	OPEN CONTACTOR	GERS
					480V SWGR 32, COMPT. 8H	SI/6A1	CB	15'-0"	AUX RLY WHSE #BFD48S	GERS
					CCR PANEL SGF	1/899A	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SGF	43/RS-5	CB	53'-0"	SELECTOR SWITCH	NV
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	VC	68'-0"	MOV AUX CONTACTS	NV
** AC-0899B										
	ACS	4	08	500B971 SHT. 117, 132	MCC 36A, COMPT. 6RM	42/C	PA	55'-0"	CLOSE CONTACTOR	GERS
				9321-F-27353	MCC 36A, COMPT. 6RM	42/O	PA	55'-0	OPEN CONTACTOR	GERS
					480V SWGR 32, COMPT. 8H	SI/6A1	CB	15'-0"	AUX RLY WHSE #BFD48S	GERS
					CCR PANEL SGF	1/899B	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SGF	43/RS-5	CB	53'-0"	SELECTOR SWITCH	NV
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	CB	68'-0"	MOV AUX CONTACTS	NV
** AC-1870										
	ACS	4	08	500B971 SH 132	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PP	51'-0"	MOV AUX CONTACTS	NV
				9321-F-27513 SH 1	MCC 36B	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36B	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					CCR PANEL SBF-1	1/1870	CB	53'-0"	CONTROL SWTICH (CLOSE/OPEN)	NV
					CCR PANEL SNF	43/RS5	CB	53'-0"	SELECTOR SWITCH	NV
** ABFP-31										
	AFW	4	05	9321-F-20183, 9321-F-20193,113E302	LOCAL	43/AF1	AB	18'-6"	SELECTOR SWITCH (REMOTE/LOCAL)	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
				9321-LL-31403 SHT. 7, 113E303	LOCAL	START	AB	18'-6"	PUSHBUTTON	NV
				9321-LL-31183 SHTS. 11, 5	LOCAL	STOP	AB	18'-6"	PUSHBUTTON	NV
				9321-LL-31173 SHTS.3, 6, 6B	480V SWGR 32, BUS 6A	2-1/TDC	CB	15'-0"	TIME DELAY RELAY AGA 2412PC	GERS
					CCR PANEL SC	1/AF1	CB	53'-0"	CONTROL SWITCH (TRIP/OFF/CLOSE)	NV
					CCR PANEL SC	TDC/AFPR1	CB	53'-0"	TIME DELAY RELAY AGA 2412	GERS
					RACK F-7 (AMSAC CABINET)	AMSAC	CB	53'-0"	RELAY	GERS
					480V SWGR 31, COMPT. 28H	3-1/3A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 28H	27-3A/X3	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31, COMPT. 28H	3-2/3A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 28H	BFP-K	CB	15'-0"	RELAY WHSE BFD44S	GERS
					480V SWGR 32, COMPT. 8H	BFP	CB	15'-0"	RELAY WHSE BFD44S	GERS
** ABFP-33										
	AFW	4	05	9321-F-20183, 9321-F-20193,113E302	LOCAL	43/AF3	AB	18'-6"	SELECTOR SWITCH (REMOTE/LOCAL)	NV
				9321-LL-31403 SHT. 7, 113E303	LOCAL	START	AB	18'-6"	PUSHBUTTON	NV
				9321-LL-31183 SHTS. 11, 5	LOCAL	STOP	AB	18'-6"	PUSHBUTTON	NV
				9321-LL-31172 SHTS.3, 6, 6B	480V SWGR 32, COMPT. 11D	2-1/TDC	CB	15'-0"	TIME DELAY RELAY AGA 7014PD	GERS
					CCR PANEL SC	1/AF3	CB	53'-0"	CONTROL SWITCH (TRIP/OFF/CLOSE)	NV
					CCR PANEL SC	TDC/AFPR3	CB	53'-0"	TIME DELAY RELAY AGA 2412	GERS
					RACK F-7 (AMSAC CABINET)	AMSAC	CB	53'-0"	RELAY	GERS
					480V SWGR 31	3-1/6A	CB	15'-0"	RELAY WHSE BFD40S	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31	27-6A/X3	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31	3-2/6A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31	BFP-K	CB	15'-0"	RELAY WHSE BFD44S	GERS
** BFD-FCV-1121										
	AFW	4	07	9321-LL-31313 SHT. 10	LOCAL	80-1/AFPR1	AB	18'-6"	FLOW SWITCH	CA
				9321-LL-31313 SHT. 10A	LOCAL	80/AFPR1	AB	18'-6"	FLOW SWITCH	CA
				9321-F-32263	CCR PANEL SC	1X/AF1	CB	53'-0"	RELAY WHSE NBFD66S	GERS:
					CCR PANEL SC	1/AFPR1	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SC	1/AF1	CB	53'-0"	CONTROL SWITCH	NV
					TERM. BOX Y2I	80X1/AFPR1	ET	34'-0"	RELAY MAGNECRAFT ELEC. CO. 188RX-4	CA
					TERM. BOX Y2I	80X1-1/AFPR1	ET	34'-0"	RELAY MAGNECRAFT ELEC. CO. 188RX-4	CA
					480V SWGR 32	52a/AF1	CB	15'-0"	AUX CONTACT CIRCUIT BREAKER 52a/AF1	CA
** BFD-FCV-1123										
	AFW	4	07	9321-LL-31313	LOCAL	80-1/AFPR3	AB	18'-6"	FLOW SWITCH	CA
				SHTS 11, 11A	LOCAL	80/AFPR3	AB	18'-6"	FLOW SWITCH	CA
				9321-F-32263	CCR PANEL SC	1X/AF3	CB	53'-0"	RELAY WHSE NBFD66S	GERS
					CCR PANEL SC	1/AFPR3	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SC	1/AF3	CB	53'-0"	CONTROL SWITCH	NV
					TERM. BOX Y2J	80X1/AFPR3	ET	34'-0"	RELAY MAGNACRAFT ELEC. CO. 188RX-4	CA
					TERM. BOX Y2J	80X1-1/AFPR3	ET	34'-0"	RELAY MAGNACRAFT ELEC. CO. 188RX-4	CA

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 32	52a/AF3	CB	15'-0"	AUX CONTACT CIRCUIT BREAKER 52a/AF3	CA
** AC-769										
	CCW	5	08	500B971 SHT.111, 500B971 SHT. 130	MCC 36B, COMPT. 3FD	42/O	PA	55'-0"	OPEN CONTACTOR	CA
				113E303 SHT. 6	MCC 36B, COMPT. 3FD	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					CCR RACK G-6	C-B21X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR PANEL SNF	1/769	CB	53'-0"	SELECTOR SWITCH (CLOSE/AUTO/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PA	55'-7"	MOV AUX CONTACTS	NV
** AC-784										
	CCW	5	08	500B971 SHT. 111, 500B971 SHT.130	MCC 36A, COMPT. 3FH	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36A, COMPT. 3FH	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					CCR RACK G-6	C-B11X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR PANEL SNF	1/784	CB	53'-0"	SELECTOR SWITCH (CLOSE/AUTO/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PP	51'-0"	MOV AUX CONTACTS	NV
** AC-786										
	CCW	5	08	500B971 SHT. 111, 130	MCC 36B, COMPT. 3FM	42/O	PA	55'-0"	OPEN CONTACTOR	CA
				113E303 SHT. 6	MCC 36B, COMPT. 3FM	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					CCR RACK G-6	C-B21X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR PANEL SNF	1/786	CB	53'-0"	SELECTOR SWITCH (CLOSE/AUTO/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PP	51'-0"	MOV AUX CONTACTS	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** AC-789										
	CCW	5	08	500B971 SHT.111, 130	MCC 36B, COMPT. 3FM	42/O	PA	55'-0"	OPEN CONTACTOR	CA
				113E303 SHT.6	MCC 36B, COMPT. 3FM	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					CCR RACK G-6	C-B21X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR PANEL SNF	1/789	CB	53'-0"	SELECTOR SWITCH (CLOSE/AUTO/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PA	57'-9"	MOV AUX CONTACTS	NV
** AC-791										
	CCW	5	07	500B971 SHT.91, 124A, 10	CCR RACK G-4	C-A11X	CB	53'-0"	RELAY WHSE BFD48S	CA
				113E303 SHT. 6, 8	CCR PANEL SNF	1/791	CB	53'-0"	CONTROL SWITCH (CLOSE OPEN)	NV
					CCR PANEL SNF	PB4	CB	53'-0"	PUSHBUTTON	NV
					CCR PANEL SHR	IR4	CB	53'-0"	RELAY GOULD J13	CA
					VALVE MOUNTED	33(ac,bc,bo)	PP	51'-0"	VLV AUX CONTACTS	NV
** AC-793										
	CCW	5	07	500B971 SHT.91, 124A, 10	CCR RACK G-4	C-A11X	CB	53'-0"	RELAY WHSE BFD48S	GERS
				113E303 SHT. 6,8	CCR PANEL SNF	1/793	CB	53'-0"	CONTROL SWITCH (CLOSE OPEN)	NV
					CCR PANEL SNF	PB6	CB	53'-0"	PUSHBUTTON	NV
	CCW				CCR PANEL SHR	IR6	CB	53'-0"	RELAY GOULD J13	OA
					VALVE MOUNTED	33(ac,bc,bo)	PP	51'-0"	VLV AUX CONTACTS	NV
** AC-796										
	CCW	5	07	500B971 SHT. 92, 10, 124A	CCR RACK G-6	C-A21X	CB	53'-0"	RELAY WHSE BFD48S	CA
				113E303 SHT. 6, 8	CCR PANEL SGF	1/796	CB	53'-0"	CONTROL SWITCH (CLOSE OPEN)	NV
					CCR PANEL SNF	PB3	CB	53'-0"	PUSHBUTTON	NV
					CCR PANEL SHR	IR3	CB	53'-0"	RELAY GOULD J13	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					VALVE MOUNTED	33(ac,bc,bo)	PP	51'-0"	VLV AUX CONTACTS	NV
** AC-797										
	CCW	5	08	500B971 SHT. 111, 130	MCC 36A, COMPT. 3FD	42/O	PA	55'-0"	OPEN CONTACTOR	CA
				113E303 SHT. 6	MCC 36, COMPT. 3FD	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					CCR RACK G-6	C-B11X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR PANEL SNF	1/797	CB	53'-0"	SELECTOR SWITCH (CLOSE/AUTO/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PP	51'-0"	MOV AUX CONTACTS	NV
** AC-798										
	CCW	5	07	500B971 SHT. 92, 124A, 10	CCR RACK G-6	C-A21X	CB	53'-0"	RELAY WHSE BFD48S	CA
				113E303 SHT. 6,8	CCR PANEL SNF	1/798	CB	53'-0"	CONTROL SWITCH (CLOSE OPEN)	NV
					CCR PANEL SNF	PB5	CB	53'-0"	PUSHBUTTON	NV
					CCR PANEL SHR	IR5	CB	53'-0"	RELAY GOULD J13	CA
					VALVE MOUNTED	33(ac,bc,bo)	PP	51'-0"	VLV AUX CONTACTS	NV
** AC-822A										
	CCW	5	08	500B971 SHT. 111, 129	MCC 36A, COMPT. 1FM	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36A, COMPT. 1FM	42/C	PA	55'-0"	CLSOE CONTACTOR	CA
					CCR RACK G-3	SI-10X	CB	53'-0"	RELAY WHSE BFD120	CA
					CCR PANEL SGF	1/822A	CB	53'-0"	SELECTOR SWITCH (CLOSE/AUTO/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
** AC-822B										
	CCW	5	08	500B971 SHT. 111, 129	MCC 36B, COMPT. 1FM	42/O	PA	55'-0"	OPEN CONTACTOR	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					MCC 36B, COMPT. 1FM	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					CCR RACK G-5	SI-20X	CB	53'-0"	RELAY WHSE BFD120	CA
					CCR PANEL SGF	1/822B	CB	53'-0"	SELECTOR SWITCH (CLOSE/AUTO/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
** AC-FCV-625										
	CCW	5	08	500B971 SHT. 110, 130	MCC 36A, COMPT. 3FM	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36, COMPT. 3FM	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					CCR RACK G-4	C-B11X	CB	53'-0"	RELAY WHSE BFD66S	GERS
					CCR PANEL SNF	1/625	CB	53'-0"	SELECTOR SWITCH (CLOSE/AUTO/OPEN)	NV
	CCW				CCR PANEL SGF	FIC-625	CB	53'-0"	FLOW SWITCH	OA
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PP	51'-0"	MOV AUX CONTACTS	NV
** ACAPCC1										
	CCW	5	05	9321-F-27513 SHT.1	480V SWGR 31, COMPT. 21A	2CC1-2	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
				500B971 SHT. 9, 27, 143, 148	480V SWGR 31, COMPT. 21A	2CC1-1	CB	15'-0"	TIME DELAY RELAY AGA 2412PC	GERS
				9321-LL-31173 SHT. 3, 5, 8	480V SWGR 31, COMPT. 21A	86	CB	15'-0"	RELAY WHSE BFD22S	GERS
				113E302 SHT. 2	480V SWGR 31, COMPT. 21A	2CC1	CB	15'-0"	TIME DELAY RELAY AGA 2412PC	GERS
				113E303 SHT. 6	480V SWGR 31, COMPT. 25H	3-1/5A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 25H	27-5A/X3	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 25H	3-2/5A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 25H	SI/5A1	CB	15'-0"	RELAY WHSE BFD48S	GERS
					480V SWGR 31, COMPT. 25H	3-3/5A2	CB	15'-0"	RELAY WHSE BFD80S	GERS
					CCR RACK G-2	PC-600AX	CB	53'-0"	RELAY WHSE BFD66F	GERS
					CCR RACK G-2	PC-600BX	CB	53'-0"	RELAY WHSE BFD66F	GERS
					480V SWGR 31	52a/EG3, 52b/EG3	CB	15'-0"	AUX BKR CONTACTS	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31	33H, 33a/EG3, 33/EG3	CB	15'-0"	AUX BKR CONTACTS	NV
					CCR PANEL SGF	1/CC1	CB	53'-0"	CONTROL SWITCH	NV
					480V SWGR 31, COMPT. 25H	52 CC2X	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31, COMPT. 25H	52 CC3X	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31, COMPT. 25H	52 SWX	CB	15'-0"	RELAY WHSE BFD66S	GERS
					480V SWGR 31, COMPT. 32D	33 CC2	CB	15'-0"	BKR AUX SWITCH	NV
					480V SWGR 31, COMPT. 32D	52a/CC2	CB	15'-0"	BKR AUX SWITCH	NV
					480V SWGR 32, COMPT. 15D	33 CC3	CB	15'-0"	BKR AUX SWITCH	NV
					480V SWGR 32, COMPT. 15D	52a/CC3	CB	15'-0"	BKR AUX SWITCH	NV
** ACAPCC2										
	CCW	5	05	500B971 SHT. 45, 9	480V SWGR 31, COMPT. 30A	2CC2-2	CB	15'-0"	TIME DELAY RELAY AGA 2412S	GERS
					480V SWGR 31, COMPT. 30A	86	CB	15'-0"	RELAY WHSE BFD22S	GERS
					480V SWGR 31, COMPT. 25H	52 SWX	CB	15'-0"	RELAY WHSE BFD66S	GERS
					480V SWGR 31, COMPT. 25H	52 CC3X	CB	15'-0"	RELAY WHSE BFD84S	GERS
					CCR RACK G-2	PC 600AX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	PC 600BX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR PANEL SGF	1/CC2	CB	53'-0"	CONTROL SWITCH	NV
					480V SWGR 31, COMPT. 28	27-2A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 28	3-2/2A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 28	3-1/2A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 28	3-3/2A1	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 31, COMPT. 28	S1/2A1	CB	15'-0"	RELAY WHSE BFD48S	GERS
					480V SWGR 31	52aEG1, 52bEG1	CB	15'-0"	AUX BKR CONTACTS	NV
					480V SWGR 31	33a, 33EG1	CB	15'-0"	AUX BKR CONTACTS	NV
					480V SWGR31, COMPT. 30A	2CC2	CB	15'-0"	TIME DELAY RELAY AGA 2412	GERS
** ACAPCC3										
	CCW	5	05	500B971 SHT. 46	480V SWGR 32, COMPT. 15A	2CC3-2	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
				9321-LL-31183 SHT.4	480V SWGR 32, COMPT. 15A	86	CB	15'-0"	RELAY WHSE BFD32S	GERS
					480V SWGR 32, COMPT. 8H	27-6A/X3	CB	15'-0"	RELAY WHSE BFD84S	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 32, COMPT. 8H	S1/6A1	CB	53'-0"	RELAY WHSE BFD48S	GERS
					480V SWGR 32, COMPT. 8H	3-2/6A	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 32, COMPT. 8H	3-1/6A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 32, COMPT. 8H	3-3/6A2	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 32	52aEG2, 52bEG2	CB	15'-0"	AUX BKR CONTACTS	NV
					480V SWGR 32	33aEG2, 33EG2	CB	15'-0"	AUX BKR CONTACTS	NV
					CCR PANEL SBF-1	43/RS-2	CB	53'-0"	SELECTOR SWITCH	NV
					CCR PANEL SGF	1/CC3	CB	53'-0"	CONTROL SWITCH	NV
					CCR RACK G-2	PC600 AX	CB	53'-0"	RELAY WHSE BFD66F	CA
					CCR RACK G-2	PC600 BX	CB	53'-0"	RELAY WHSE BFD66F	CA
** LCV-1158-1										
	COND	4	07	9321-F-20183, 9321-LL-31313 SHT 9	LOCAL	71/CST-1 (LIC-1120S)	AB	18'-6"	LEVEL SWITCH	CA
** LCV-1158-2										
	COND	4	07	9321-F-20183, 9321-LL-31313 SHT 9	LOCAL	71/CST-2 (LIC-1455S)	AB	18'-6"	LEVEL SWITCH	CA
** PCV-1187										
	COND	4	07	9321-LL-31313 SHT.8	CCR PANEL SCF	1/CWMU1	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					LOCAL	33(ao,bo)/CUMU1	AB	18'-6"	LIMIT SWITCH	CA
** PCV-1188										
	COND	4	07	9321-LL-31313 SHT.8	CCR PANEL SCF	1/CWMU2	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					LOCAL	33(ao,bo)/CUMU2	AB	18'-6"	LIMIT SWITCH	CA
** PCV-1189										
	COND	4	07	9321-LL-31313 SHT.8	CCR PANEL SCF	1/CWMU3	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					LOCAL	33(ao,bo)/CUMU3	AB	18'-6"	LIMIT SWITCH	CA

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** CH-201										
	CVCS	1,2,3	07	500B971 SHT.124A, 90, 10	VALVE MOUNTED	33(ac,bc,bo)	PP	51'-0"	VLV AUX CONTACTS	NV
				113E303 SHT. 4, 6	CCR RACK G-4	C-A11X	CB	53'-0"	RELAY WHSE BFD48S	GERS
					CCR PANEL SNF	1/201	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					CCR PANEL SNF	PB12	CB	53'-0"	PUSHBUTTON	NV
					CCR PANEL SHR	IR12	CB	53'-0"	RELAY GOULD J13	CA
** CH-202										
	CVCS	1,2,3	07	500B971 SHT. 124A, 90, 9	VALVE MOUNTED	33(ac,bc,bo)	PP	51'-0"	VLV AUX CONTACTS	NV
				113E303 SHT. 4, 6	CCR RACK G-6	C-A21X	CB	53'-0"	RELAY WHSE BFD48S	GERS
					CCR PANEL SNF	1/202	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					CCR PANEL SNF	PB11	CB	53'-0"	PUSHBUTTON	NV
					CCR PANEL SHR	IR11	CB	53'-0"	RELAY GOULD J13	CA
** CH-265										
	CVCS	1,2	08	500B971 SHT. 11, 97, 123	GAS ANALYZER PANEL PF6	1/265	PA	55'-0"	SELECTOR SWITCH	NV
** CH-268										
	CVCS	1,2,3	08	500B971 SHT. 122, 91	CCR PANEL SFF	1/268	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-310										
	CVCS	1,2,3	07	500B971 SHT.120, 91	VALVE MOUNTED	33(bo,ac)	PA	42'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SFF	1/310	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-AOV-200A										
	CVCS	1,2,3	07	500B971 SHT. 91, 122, 10	VALVE MOUNTED	33(ac,bc,bo)	VC	46'-0"	VLV AUX CONTACTS	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
				113E303 SHT. 6, 8	LOCAL	43	VC	46'-0"	CONTROL SWITCH (CLOSE/REMOTE)	NV
					CCR PANEL SFF	1/200A	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					CCR RACK G-4	C-A11X	CB	53'-0"	RELAY WHSE BFD48S	GERS
** CH-AOV-200B										
	CVCS	1,2,3	07	500B971 SHT.91, 122, 10	VALVE MOUNTED	33(ac,bc,bo)	VC	46'-0"	VLV AUX CONTACTS	NV
				113E303 SHT. 6, 8	LOCAL	43	VC	46'-0"	CONTROL SWITCH (CLOSE/REMOTE)	NV
					CCR PANEL SFF	1/200B	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					CCR RACK G-4	C-A11X	CB	53'-0"	RELAY WHSE BFD48S	GERS
** CH-AOV-200C										
	CVCS	1,2,3	07	500B971 SHT. 91, 122,10	VALVE MOUNTED	33(ac,bc,bo)	VC	46'-0"	VLV AUX CONTACTS	NV
				113E303 SHT. 6, 8	LOCAL	43	VC	46'-0"	CONTROL SWITCH (CLOSE/REMOTE)	NV
					CCR RACK G-4	C-A11X	CB	53'-0"	RELAY WHSE BFD48S	GERS
					CCR PANEL SFF	1/200C	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-AOV-204A										
	CVCS	1,2,3	07	500B971 SHT. 90, 120, 10	VALVE MOUNTED	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SFF	1/204A	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-AOV-204B										
	CVCS	1,2,3	07	500B971 SHT. 90,120, 10	VALVE MOUNTED	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SFF	1/204B	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-AOV-212										
	CVCS	1,2,3	07	500B971 SHT. 90, 120, 10	VALVE MOUNTED	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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					CCR PANEL SFF	1/212	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-AOV-213A										
	CVCS	1,2,3	07	500B971 SHT.90, 120, 10	VALVE MOUNTED	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SFF	1/213A	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-AOV-213B										
	CVCS	1,2,3	07	500B971 SHT. 90, 120, 10	VALVE MOUNTED	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SFF	1/213B	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-AOV-215										
	CVCS	1,3	07	500B971 SHT. 90, 120, 10	VALVE MOUNTED	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SFF	1/215	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-AOV-246										
	CVCS	1,3	07	500B971 SHT. 120, 90	VALVE MOUNTED	33(ac,bo)	VC	53'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SFF	1/246	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-AOV-261A										
	CVCS	3	07	500B971 SHT. 120, 90	VALVE MOUNTED	33(ac,bo)	VC	79'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SAF	1/261A	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-AOV-261B										
	CVCS	3	07	500B971 SHT. 120, 90	VALVE MOUNTED	33(ac,bo)	VC	79'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SAF	1/261B	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV

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** CH-AOV-261C										
	CVCS	3	07	500B971 SHT. 120, 90	VALVE MOUNTED	33(ac,bo)	VC	79'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SAF	1/261C	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-AOV-261D										
	CVCS	3	07	500B971 SHT. 120, 91	VALVE MOUNTED	33(ac,bo)	VC	79'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SAF	1/261D	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-FCV-110A										
	CVCS	1,3	07	500B971 SHT. 105, 122, 201	CCR RACK G-2	LC-112BX	CB	53'-0"	AUX RELAY BF22F	GERS
				113E302 SHT. 2	CCR RACK G-2	BSX-1	CB	53'-0"	RELAY WHSE BFD66	GERS
					CCR RACK G-2	BSX-2	CB	53'-0"	RELAY WHSE BFD66	GERS
					CCR RACK G-2	BSX-3	CB	53'-0"	RELAY WHSE BFD66	GERS
					CCR RACK G-2	BSX-4	CB	53'-0"	RELAY WHSE BFD84	GERS
					CCR PANEL FCF	1/BCR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START)	NV
					CCR PANEL FCF	43/BAB	CB	53'-0"	MODE SWITCH (DILUTE/BORATE/AUTO/MANUAL)	NV
					CCR PANEL FBF	YIC-111	CB	53'-0"	PRIMARY WATER COUNTER	CA
					CCR PANEL FBF	YIC-110	CB	53'-0"	BORIC AIC COUNTER	CA
** CH-FCV-110B										
	CVCS	1,3	07	500B971 SHT. 105, 122, 201	VALVE MOUNTED	33(ac)	PA	73'-0"	VLV AUX CONTACTS	NV
				113E302 SHT.2	CCR RACK G-2	BSX-2	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-4X1	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-1	CB	53'-0"	RELAY WHSE BF66	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-2	BSX-3	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR PANEL FBF	1/BCR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START)	NV
					CCR PANEL FBF	43/BAB	CB	53'-0"	MODE SWITCH (DILUTE/BORATER/AUTO/MANUAL)	NV
					CCR PANEL FBF	YIC-111	CB	53'-0"	PRIMARY WATER COUNTER	CA
					CCR PANEL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	OA
					CCR RACK G-2	LC-112BX	CB	53'-0"	RELAY WHSE BF22	CA
** CH-FCV-111A										
	CVCS	1,3	07	500B971 SHT.105, 122, 201	CCR RACK G-2	LC-112BX	CB	53'-0"	RELAY WHSE BF22	CA
				113E302 SHT. 2	CCR RACK G-2	BSX-1	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-2	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-3	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-4	CB	53'-0"	RELAY WHSE BF84	GERS
					CCR PANEL FCF	1/BCR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START)	NV
					CCR PANEL FCF	43/BAB	CB	53'-0"	MODE SWITCH (DILUTE/BORATE/AUTO/MANUAL)	NV
					CCR PANEL FBF	YIC-111	CB	53'-0"	PRIMARY WATER COUNTER	CA
					CCR PANEL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	CA
** CH-FCV-111B										
	CVCS	1,3	07	500B971 SHT.105, 122, 201	VALVE MOUNTED	33(ac)	PA	78'-0"	VLV AUX CONTACT	NV
				113E302 SHT. 2	CCR RACK G-2	BSX-1	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-3	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-2	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR PANEL FCF	1/BCR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START)	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR PANEL FCF	43/BAB	CB	53'-0"	MODE SWITCH (BORATE/AUTO/MANUAL/DILUTE)	NV
					CCR PANEL FBF	YIC-111	CB	53'-0"	PRIMARY WATER COUNTER	CA
					CCR PANEL FBF	YIC-110	CB	53'-0"	BORIC AICD COUNTER	CA
** CH-LCV-112A										
	CVCS	1,2,3	07	500B971 SHT.105, 120	CCR RACK G-2	LC-112A/X	CB	53'-0"	AUX RELAY BF22F	CA
				113E302 SHT. 2	VALVE MOUNTED	33(ac,bo)	PA	80'-0"	VLV AUX CONTACTS	NV
					CCR PANEL SFF	1/112A	CB	53'-0"	SELECTOR SWITCH (DIRECT/AUTO/NORMAL)	NV
** CH-LCV-112B										
	CVCS	1,2,3	08	500B971 SHT. 110, 133, 10	VALVE MOUNTED	33(ac,bo,tc,ao,to,bc)	PA	65'-0"	VLV AUX CONTACTS	NV
				113E302 SHT.2	CCR PANEL SFF	1/112B	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
				9321-F-27363	CCR RACK G-2	LC-112C/X	CB	53'-0"	RELAY WHSE BF66F	GERS
					MCC 36B, COMPT. 1RH	42/O	PA	55'-0"	OPEN CONTACT	CA
					MCC 36B, COMPT. 1RH	42/C	PA	55'-0"	CLOSE CONTACT	CA
					MCC 36B, COMPT. 1RH	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** CH-LCV-112C										
	CVCS	1,2,3	08	500b971 SHT.114, 133, 10	VALVE MOUNTED	33(ao)	PA	65'-0"	VLV AUX CONTACTS	NV
				9321-F-27363, 113E302 SHT.2	VALVE MOUNTED	33(ac,ao,bc,bo,tc,to)	PA	73'-0"	VLV AUX CONTACTS	NV
					MCC 36A, COMPT. 1RH	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36A, COMPT. 1RH	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36A, COMPT. 1RH	42a/C	PA	55'-0"	CONTACTOR AUX CONTACT	CA
					MCC 36A, COMPT. 1RH	42a/O	PA	55'-0"	CONTACTOR AUX CONTACT	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					MCC 36A, COMPT. 1RH	42b/O	PA	55'-0"	CONTACTOR AUX CONTACT	CA
					MCC 36A, COMPT. 1RH	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					CCR PANEL SFF	LCV-112C	CB	53'-0"	SELECTOR SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR RACK G-2	LC-112C/X	CB	53'-0"	RELAY WHSE BF66F	GERS
** CH-MOV-205										
	CVCS	1,2,3	08	500B971 SHT. 109, 211	MCC 36BEX, COMPT. 9FJ	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36BEX, COMPT. 9FJ	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36BEX, COMPT. 9FJ	1/205	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
** CH-MOV-222										
	CVCS	1,3	08	500B971 SHT. 114, 130	MCC 36A, COMPT. 1RM	42/C	PA	55'-0"	OPEN CONTACTOR	GERS
				113E303 SHT. 6, 8	MCC 36A, COMPT. 1RM	42/O	PA	55'-0"	CLOSE CONTACTOR	GERS
					CCR RACK G-4	C-B11X	CB	53'-0"	RELAY WHSE BFD66S	GERS
					CCR RACK G-6	C-B21X	CB	53'-0"	RELAY WHSE BFD66S	GERS
					CCR PANEL SNF	1/222	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
** CH-MOV-226										
	CVCS	1,2,3	08	500B971 SHT. 109, 211	MCC 36B, COMPT. 9FJ	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36B, COMPT. 9FJ	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36B, COMPT. 9FJ	1/226	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
** CH-MOV-250A										
	CVCS	3	08	500B971 SHT. 109, 211	MCC 36BEX, COMPT. 11FC	42/C	PA	55'-0"	CLOSE CONTACTOR	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					MCC 36BEX, COMPT. 11FC	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36BEX, COMPT. 11FC	1/250A	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
** CH-MOV-250B										
	CVCS	3	08	500B971 SHT.109, 211	VALVE MOUNTED	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
					MCC 36BEX, COMPT. 10FJ	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36BEX, COMPT. 10FJ	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36BEX, COMPT. 10FJ	1/250B	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-MOV-250C										
	CVCS	3	08	500B971 SHT. 109, 211	MCC 36BEX, COMPT. 9FM	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36BEX, COMPT. 9FM	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36BEX, COMPT. 9FM	1/250C	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
** CH-MOV-250D										
	CVCS	3	08	500B971 SHT. 109, 211	MCC 36BEX, COMPT. 11FF	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36BEX, COMPT. 11FF	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36BEX, COMPT. 11FF	1/250D	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
** CH-MOV-333										
	CVCS	1,3	08	500B971 SHT.114, 125, 10	MCC 36B, COMPT. 1RM	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
				9321-F-27363 SHT. 1	MCC 36B, COMPT. 1RM	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36B, COMPT. 1RM	42a/O	PA	55'-0"	CONTACTOR AUX CONTACT	GERS
					MCC 36B, COMPT. 1RM	42a/C	PA	55'-0"	CONTACTOR AUX CONTACT	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
					CCR PANEL SFF	1/333	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** CH-MOV-441										
	CVCS	3	08	500B971 SHT 117A,211	MCC 36A, COMPT. 10FC	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36A, COMPT. 10FC	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36A, COMPT. 10FC	1/441	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
** CH-MOV-442										
	CVCS	3	08	500B971 SHT 117A,211	MCC 36A, COMPT. 10FF	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36A, COMPT. 10FF	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36A, COMPT. 10FF	1/442	PA	55'-0"	CONTROL SWTICH (CLOSE/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
** CH-MOV-443										
	CVCS	3	08	500B971 SHT 117A,211	MCC 36A, COMPT. 10FJ	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36A, COMPT. 10FJ	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36A, COMPT. 10FJ	1/443	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV
** CH-MOV-444										
	CVCS	3	08	500B971 SHT 227A,211	MCC 36A, COMPT. 11FF	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36A, COMPT. 11FF	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36A, COMPT. 11FF	1/444	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** CH-PCV-135										
	CVCS	1,2,3	07	9321-LD-72203 SHT. 18A,18	CCR RACK C-10	T/135	CB	53'-0"	AUX RELAY	CA
** CH-TCV-149										
	CVCS	1,2,3	07	500B971 SHT. 106, 120	LOCAL	LIC-149	PA	80'-0"	TEMP CONTROLLER	CA
					CCR PANEL SFF	1/149	CB	53'-0"	SELECTOR SWITCH (DIVERT/AUTO)	NV
					VALVE MOUNTED	33(ac,bo)	PA	80'-0"	VLV AUX CONTACTS	NV
** CSAPBA1										
	CVCS	1,2,3	05	500B971 SHT. 53, 201, 9, 11, 13, 14	CCR RACK G-2	BSX-1	CB	53'-0"	RELAY WHSE BF66	GERS
				9321-F-27363, 113E302 SHT. 2	CCR RACK G-2	BSX-2	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-3	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-4	CB	53'-0"	RELAY WHSE BF84	GERS
					CCR RACK G-2	LC-112BX	CB	53'-0"	RELAY WHSE BF22	GERS
					CCR PANEL FBF	1/BATP31	CB	53'-0"	SPRING RTN TO AUTO SWITCH (START/AUTO/STOP/PULL)	NV
					CCR PANEL FBF	1/BCR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START) SPRING RTN TO NORM AFTER S	NV
					CCR PANEL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	OA
					CCR PANEL FBF	YIC-111	CB	53'-0"	DEMIN. WATER COUNTER	GERS
					LOCAL CTRL STATION	43-1/BATP31			SELECTOR SWITCH (LOCAL/REMOTE)	NV
					LOCAL CTRL STATION	1-2/BATP31			SELECTOR SWITCH (SLOW/STOP/FAST)	NV
					CCR PANEL FBF	43/BAB	CB	53'-0"	MODE SWITCH (DILUTE/BORATE/AUTO/MANUAL)	NV
					CCR PANEL FBF	43A/BATP31	CB	53'-0"	SELECTOR SWITCH (SLOW/FAST)	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					MCC 36A, COMPT. 7RH	42(S),42(F),42b(S),42b(F) ,42a(F)	PA	55'-0"	MOTOR STARTER CONTACTS	GERS
					MCC 36A, COMPT. 7RH	49(F),49 (S)	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** CSAPBA2										
	CVCS	1,2,3	05	500B971 SHT. 53, 201, 9, 11, 13, 14 9321-F-27363, 113E302 SHT. 2	CCR RACK G-2	BSX-1	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-2	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-3	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-4	CB	53'-0"	RELAY WHSE BF84	GERS
					CCR RACK G-2	LC-112BX	CB	53'-0"	RELAY WHSE BF22	GERS
					CCR PANEL FBF	1/BATP32	CB	53'-0"	SPRING RTN TO AUTO SWITCH (START/AUTO/STOP/PULL)	NV
					CCR PANEL FBF	1/BCR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START) SPRING RTN TO NORM AFTER S	NV
					CCR PANEL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	OA
					CCR PANEL FBF	YIC-111	CB	53'-0"	DEMIN. WATER COUNTER	GERS
					LOCAL CTRL STATION	43-1/BATP32			SELECTOR SWITCH (LOCAL/REMOTE)	NV
					LOCAL CTRL STATION	1-2/BATP32			SELECTOR SWITCH (SLOW/STOP/FAST)	NV
					CCR PANEL FBF	43/BAB	CB	53'-0"	MODE SWITCH (DILUTE/BORATE/AUTO/MANUAL)	NV
					CCR PANEL FBF	43A/BATP32	CB	53'-0"	SELECTOR SWITCH (SLOW/FAST)	NV
					MCC 36B, COMPT. 7RH	42(S),42(F),42b(S),42b(F) ,42a(F)	PA	55'-0"	MOTOR STARTER CONTACTS	GERS
					MCC 36B, COMPT. 7RH	49(F),49 (S)	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** CSAPCH1										
	CVCS	1,2,3	05	500B971 SHT.9,13,26	CCR PANEL FBF	1/C1	CB	53'-0"	CONTROL SWITCH SPRING RETURN TO OFF	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
				9321-LL-31173 SHT. 2,3,5,6B	LOCAL	62/C1	PA	55'-0"	TIME DELAY RLY AGA E7012PD	CA
				9321-F-27363	LOCAL	43	PA	55'-0"	SELECTOR SWITCH (REMOTE/LOCAL)	NV
					LOCAL	START	PA	55'-0"	PUSHBUTTON	NV
					LOCAL	STOP	PA	55'-0"	PUSHBUTTON	NV
					LOCAL	2C1	PA	55'-0"	TIME DELAY RELAY AGA 2412	GERS
					LOCAL	63-1	PA	55'-0"	BEARING OIL PRESSURE SWITCH A.B. BULLETION 836-T	GERS
					CCR RACK G-3	SI-11X	CB	53'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 25H	SI-5A	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31, COMPT. 25H	27-5A/X2	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31, COMPT. 25H	27-5A/X3	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 25H	3-3/5A1	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 31, COMPT. 25H	TS/UV/5A	CB	15'-0"	TEST SWITCH	NV
					480V SWGR 31, COMPT. 25H	27-5A/X1	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 25H	27-5A/X4	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 25H	27-1/5A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 31, COMPT. 25H	27-2/5A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 31	33	CB	15'-0"	POSITION SWITCH	NV
** CSAPCH2										
	CVCS	1,2,3	05	500B971 SHT.72	CCR PANEL FBF	1/C2	CB	53'-0"	CONTROL SWITCH SPRING RETURN TO OFF	NV
				9321-LL-31173 SHT.6,6B	LOCAL	43	PA	55'-0"	SELECTOR SWITCH (REMOTE/LOCAL)	NV
					LOCAL	START	PA	55'-0"	PUSHBUTTON	NV
					LOCAL	STOP	PA	55'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 28H	3-3/3A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 28H	62/C2	CB	15'-0"	TIME DELAY RLY AGA E7012PD	CA
					480V SWGR 31, COMPT. 28H	27-3A/X5	CB	15'-0"	RELAY WHSE NBFD24S	GERS
					480V SWGR 31, COMPT. 28H	27-3A/X3	CB	15'-0"	RELAY WHSE BFD84S	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31, COMPT. 28H	27-3A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 28H	TS/UV/3A	CB	15'-0"	TEST SWITCH 3-POSITION MAINAINED	NV
					480V SWGR 31, COMPT. 28H	27-3A/X1	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 28H	27-3A/X4	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 28H	27-1/3A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 31, COMPT. 28H	27-2/3A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 31, COMPT. 28H	SI/2A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 28H	52aC2	CB	15'-0"	MECHANICAL CONTACTS	NV
					480V SWGR 31, COMPT. 28H	33C2	CB	15'-0"	MECHANICAL SWITCH	NV
					480V SWGR 32, COMPT. 5A	2C2	CB	15'-0"	TIME DELAY RLY AGA 2412PD	GERS
					CCR RACK G-3	SI-11X	CB	53'-0"	RELAY WHSE BFD120S	GERS
					CCR RACK G-5	SI-21X	CB	53'-0"	RELAY WHSE BFD120S	GERS
					LOCAL	63	PA	55'-0"	BEARING OIL PRESSURE SWITCH A.B. BULLETION 836-T	GERS
** CSAPCH3										
	CVCS	1,2,3	05	500B971 SHT.73	CCR PANEL FBF	1/C3	CB	53'-0"	CONTROL SWITCH SPRING RETURN TO OFF	NV
				9321-LL-31183 SHT.4	LOCAL	43	PA	55'-0"	SELECTOR SWITCH (REMOTE/LOCAL)	NV
					LOCAL	START	PA	55'-0"	PUSHBUTTON	NV
					LOCAL	STOP	PA	55'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 28H	3-3/6A2	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 28H	62/C3	CB	15'-0"	TIME DELAY RELAY AGA E7012PD	CA
					480V SWGR 31, COMPT. 28H	27-6A/X3	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31, COMPT. 28H	27-6A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 28H	TS/UV/6A	CB	15'-0"	TEST SWITCH 3-POSITION MAINAINED	NV
					480V SWGR 31, COMPT. 28H	27-6A/X1	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 28H	27-6A/X4	CB	15'-0"	RELAY WHSE SG12V	GERS
					480V SWGR 31, COMPT. 28H	27-1/6A	CB	15'-0"	RELAY WHSE CV-7	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31, COMPT. 28H	27-2/6A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR 31, COMPT. 28H	S1/6A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 28H	52aC3	CB	15'-0"	MECH. SWITCH	NV
					480V SWGR 31, COMPT. 28H	33C3	CB	15'-0"	MECH. SWITCH	NV
					480V SWGR 32, COMPT. 5A	2C3	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					CCR RACK G-5	S1-21X	CB	53'-0"	RELAY WHSE BFD120S	GERS
					LOCAL	63	PA	55'-0"	BEARING OIL PRESSURE SWITCH A.B. BULLETION 836-T	GERS
** SOV-459-1										
	CVCS	1,2,3	07	500B971, SHT 10,	VALVE MOUNTED	33(ao,ac,bo)	VC	79'-0"	LIMIT SWITCH CONTACT	NV
				SHT 106 & 120	CCR RACK G-2	LC-459C-X	CB	53'-0"	RELAY WHSE BF66F	CA
				113E302, SHT 1	CCR PANEL SFF	1/LCV-459	CB	53'-0"	CONTROL SWITCH 3-POSITION MAINTAINED	NV
** SOV-460-1										
	CVCS	1,2,3	08	500B971 SHT. 10, 106	VALVE MOUNTED	33(ac,ao,bo)	VC	79'-0"	LIMIT SWITCH CONTACT	NV
				120, 113E302 SHT. 1	CCR RACK G-2	LC-460C-X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR PANEL SFF	1/LCV-460	CB	53'-0"	CONTROL SWITCH 3 POSITION MAINTAINED	NV
** 31CHGR (GE3)										
	DC	5	16	9321-F-30083 REV.38	BATTERY CHRGR 31	DPR	CB	33'-0"	DIFF PRESS RELAY	OA
				9321-H-36073 REV.0	BATTERY CHRGR 31	TDR	CB	33'-0"	TIME DELAY RELAY	OA
				9321-F-36083 REV.0	BATTERY CHRGR 31	K2	CB	33'-0"	POSITIVE GROUND DETECT CONTROL RELAY	CA
				9321-F-36093 REV.1	BATTERY CHRGR 31	K3	CB	33'-0"	NEGATIVE GROUND DETECT CONTROL RELAY	CA
				9321-F-39993 REV.4	BATTERY CHRGR 31	K21	CB	33'-0"	HIGH D.C. VOLTAGE CONTROL RELAY	CA

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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					BATTERY CHRGR 31	SW1	CB	33'-0"	FLOAT EQUALIZER SWITCH	NV
					BATTERY CHRGR 31	SW3	CB	33'-0"	GROUND DETECT RELAY RESET SWITCH	NV
					BATTERY CHRGR 31	SW14	CB	33'-0"	HIGH VOLTAGE CONTROL RELAY RESET SWITCH	NV
					BATTERY CHRGR 31	K22	CB	33'-0"	LOW DC VOLTAGE CONTROL RELAY	CA
** 32CHGR (GE4)										
	DC	5	16	9321-F-30083 REV.38	BATTERY CHRGR 32	DPR	CB	33'-0"	DIFF PRESS RELAY	OA
				9321-H-36073 REV.0	BATTERY CHRGR 32	TDR	CB	33'-0"	TIME DELAY RELAY	OA
				9321-F-36083 REV.0	BATTERY CHRGR 32	K2	CB	33'-0"	POSITIVE GROUND DETECT CONTROL RELAY	CA
				9321-F-36093 REV.1	BATTERY CHRGR 32	K21	CB	33'-0"	HIGH D.C. VOLTAGE CONTROL RELAY	CA
				9321-F-39993 REV.4	BATTERY CHRGR 32	SW1	CB	33'-0"	FLOAT EQUALIZER SWITCH	NV
					BATTERY CHRGR 32	SW3	CB	33'-0"	GROUND DETECT RELAY RESET SWITCH	NV
					BATTERY CHRGR 32	SW14	CB	33'-0"	HIGH VOLTAGE CONTROL RELAY RESET SWITCH	NV
					BATTERY CHRGR 32	K3	CB	33'-0"	NEGATIVE GRD DETECT CONTROL RELAY	CA
					BATTERY CHRGR 32	K22	CB	33'-0"	LOW DC VOLTAGE CONTROL RELAY	CA
** 33CHGR (GE8)										
	DC	5	16	9321-F-30083	BATTERY CHRGR 33	S1	CB	15'-0"	CHARGE-DISCHARGE KEY SELECTOR SWITCH	NV
				IP3V-156-00016	BATTERY CHRGR 33	S2	CB	15'-0"	ALARM SILENCE SWITCH	NV
					BATTERY CHRGR 33	SW5	CB	15'-0"	FLOAT EQUALIZER CHARGE SELECTOR SWITCH	NV
					BATTERY CHRGR 33	GDR	CB	33'-0"	GROUND DETECTION RELAY	CA
					BATTERY CHRGR 33	LVR	CB	33'-0"	LOW VOLTAGE RELAY	CA

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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					BATTERY CHRGR 33	PLR	CB	33'-0"	AC FAILURE ALARM	CA
					BATTERY CHRGR 33	AR	CB	33'-0"	ALARM RELAY	CA
					CCR PANEL SHF	SW1	CB	53'-0"	AC FAILURE ALARM BYPASS SELECTOR SWITCH	NV
					CCR PANEL SHF	SW2	CB	53'-0"	DC LOW VOLTAGE ALARM BYPASS SELECTOR SWITCH	NV
					CCR PANEL SHF	SW3	CB	53'-0"	GROUND DETECTION ALARM BYPASS SELECTOR SWITCH	NV
					CCR PANEL SHF	PLRA	CB	53'-0"	AUX RELAY	CA
					CCR PANEL SHF	PVRA	CB	53'-0"	AUX RELAY	CA
					CCR PANEL SHF	GDRA	CB	53'-0"	AUX RELAY	CA
** 34CHGR (GF3)										
	DC	5	16	9321-F-30083	BATTERY CHRGR 34	S1	CB	33'-0"	CHARGE-DISCARGE KEY SELECTOR SWITCH	NV
				IP3V-156-00016	BATTERY CHRGR 34	S2	CB	33'-0"	ALARM SILENCE SWITCH	NV
					BATTERY CHRGR 34	SW5	CB	33'-0"	FLOAT EQUALIZER CHARGE SELECTOR SWITCH	NV
					BATTERY CHRGR 34	GDR	CB	33'-0"	GROUND DETECTION RELAY	CA
					BATTERY CHRGR 34	LVR	CB	33'-0"	LOW VOLTAGE RELAY	CA
					BATTERY CHRGR 34	PLR	CB	33'-0"	AC FAILURE ALARM	CA
					BATTERY CHRGR 34	AR	CB	33'-0"	ALARM RELAY	CA
					CCR PANEL SHF	SW1	CB	53'-0"	AC FAILURE ALARM BYPASS SELECTOR SWITCH	NV
					CCR PANEL SHF	SW2	CB	53'-0"	DC LOW VOLTAGE ALARM BYPASS SELECTOR SWITCH	NV
					CCR PANEL SHF	SW3	CB	53'-0"	GROUND DETECTION ALARM BYPASS SELECTOR SWITCH	NV
					CCR PANEL SHF	PLRA	CB	53'-0"	AUX RELAY	CA
					CCR PANEL SHF	PVRA	CB	53'-0"	AUX RELAY	CA
					CCR PANEL SHF	GDRA	CB	53'-0"	AUX RELAY	CA

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** 31 DG FUEL XFER PUMP										
	EDG	5	06	9321-F-20303	31EDG AUX START &CTRL PNL	42, 42a	DG	15'-0"	MOTOR STARTER CKTS	CA
					F.O. DAY TANK 31	71/DT1	DG	26'-0"	LC-1207S LEVEL SWITCH	CA
					VALVE MOUNTED	33-1/ac	DG	26'-0"	LIMIT SWITCH	NV
					31EDG AUX START &CTRL PNL	1/FP1	DG	15'-0"	STOP-AUTO-START TO AUTO	NV
					31EDG AUX START &CTRL PNL	49	DG	15'-0"	THERMAL OVERLOAD DEVICE	NV
					VALVE MOUNTED	33-11/ac	DG	26'-0"	LIMIT SWITCH	NV
					STORAGE TANK 31	71/FST1	DG	38'-0"	LC-1204S LEVEL SWITCH	CA
** 32 DG FUEL XFER PUMP										
	EDG	5	06	9321-F-20303	32EDG AUX START &CTRL PNL	42, 42a	DG	15'-0"	MOTOR STARTER AUX CONTACTS	CA
				9321-LL-31333 SHT.15, 6	VALVE MOUNTED	33-2/ac	DG	26'-0"	LIMIT SWITCH	NV
					VALVE MOUNTED	33-12/ac	DG	26'-0"	LIMIT SWITCH	NV
					F.O. DAY TANK 32	71/DT2	DG	26'-0"	LC-1208S LEVEL SWITCH	CA
					32EDG AUX START &CTRL PNL	1/FP2	DG	15'-0"	STOP-AUTO-START TO AUTO	NV
					32EDG AUX START &CTRL PNL	49	DG	15'-0"	THERMAL OVERLOAD DEVICE	NV
					STORAGE TANK 32	71/FST2	DG	38'-0"	LC-1205S LEVEL SWITCH	CA
** 33 DG FUEL XFER PUMP										
	EDG	5	06	9321-F-20303	33EDG AUX START &CTRL PNL	42, 42a	DG	15'-0"	MOTOR STARTER AUX CONTACTS	CA
				9321-LL31333 SHT. 15, 6	VALVE MOUNTED	33-13/ac	DG	26'-0"	LIMIT SWITCH	NV
					VALVE MOUNTED	33-3/ac	DG	26'-0"	LIMIT SWITCH	NV
					33EDG AUX START &CTRL PNL	1/FP3	DG	15'-0"	STOP-AUTO-START SEL SW	NV
					STORAGE TANK 33	71/FST3	DG	38'-0"	LC-1206S LEVEL SWITCH	CA
					F.O. DAY TANK 33	71/DT3	DG	26'-0"	LC-1209S LEVEL SWITCH	CA
					33EDG AUX START &CTRL PNL	49	DG	15'-0"	THERMAL OVERLOAD DEVICE	NV

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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** DF-LCV-1207A										
	EDG	5	07	9321-F-20303	F.O. DAY TANK 31	71/DT1	DG	26'-0"	LC-1207S LEVEL SWITCH	CA
** DF-LCV-1207B										
	EDG	5	07	9321-F-20303	F.O. DAY TANK 31	71/DT1	DG	26'-0"	LC-1207S LEVEL SWITCH	CA
** DF-LCV-1208A										
	EDG	5	07	9321-F-20303	F.O. DAY TANK 32	71/DT2	DG	26'-0"	LC-1208S LEVEL SWITCH	CA
** DF-LCV-1208B										
	EDG	5	07	9321-F-20303	F.O. DAY TANK 32	71/DT2	DG	26'-0"	LC-1208S LEVEL SWITCH	CA
** DF-LCV-1209A										
	EDG	5	07	9321-F-20303	F.O. DAY TANK 33	71/DT3	DG	26'-0"	LC-1209S LEVEL SWITCH	CA
** DF-LCV-1209B										
	EDG	5	07	9321-F-20303	F.O. DAY TANK 33	71/DT3	DG	26'-0"	LC-1209S LEVEL SWITCH	CA
** DG-31										
	EDG	5	17	9321-H-20283, 9321-H-20293	31 EDG CONTROL PANEL PP9	RR/EG1	DG	15'-0"	RELAY GE CR120A	GERS
				9321-F-20303, FP 9321-005-3445	31 EDG CONTROL PANEL PP9	ECS/EG1	DG	15'-0"	MAN/OFF/AUTO ENGN CTRL SWITCH	NV
				9321-LL-31173 SHT.3,6,6B,12,13,18	31 EDG CONTROL PANEL PP9	SPB/EG1	DG	15'-0"	START PUSHBUTTON	NV
				9321-LL-31183 SHT.7	31 EDG CONTROL PANEL PP9	NST/EG1	DG	15'-0"	TIME DELAY RELAY AGA 7022PF	GERS
					DG-31 SKID	OPS3/EG1	DG	10'-0"	OIL PRESSURE SWITCH	NV
					DG-31 SKID	OPS2/EG1	DG	10'-0"	OIL PRESSURE SWITCH	NV
					DG-31 SKID	OPS1/EG1	DG	10'-0"	OIL PRESSURE SWITCH	NV
					31 EDG CONTROL PANEL PP9	OPT2/EG1	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					31 EDG CONTROL PANEL PP9	OPT1/EG1	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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					31 EDG CONTROL PANEL PP9	OSR/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					31 EDG CONTROL PANEL PP9	BCS-2AT3A	DG	15'-0"	SWGR 31 BUS 2A-3A TIE BREAKER 52/2AT3A TRIP AND CLOSE SW	NV
					31 EDG CONTROL PANEL PP9	OPR1/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					31 EDG CONTROL PANEL PP9	86/EG1	DG	15'-0"	RELAY WHSE WL	GERS
					31 EDG CONTROL PANEL PP9	SS/2A	DG	15'-0"	KEY SYNCHRONIZER SWITCH	NV
					31 EDG CONTROL PANEL PP9	OCR/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					31 EDG CONTROL PANEL PP9	SDR/EG1	DG	15'-0"	RELAY GE CR120A	GERS
	EDG				31 EDG CONTROL PANEL PP9	32/EG1	DG	15'-0"	CURRENT SENSING RELAY WHSE CW 2892988A17A	TEST
					31 EDG CONTROL PANEL PP9	32X/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					31 EDG CONTROL PANEL PP9	51V-3/EG1	DG	15'-0"	OVERCURRENT RELAY WHSE COV-8	GERS
					31 EDG CONTROL PANEL PP9	SS/3A	DG	15'-0"	KEY SYNCHRONIZER SWITCH	NV
					31 EDG CONTROL PANEL PP9	51V-1/EG1	DG	15'-0"	OVERCURRENT RELAY WHSE COV-8	GERS
					31 EDG CONTROL PANEL PP9	ESR1/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					31 EDG CONTROL PANEL PP9	PDT	DG	15'-0"	TIME DELAY AGA 2412PF	GERS
					31 EDG CONTROL PANEL PP9	ESR2/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					31 EDG CONTROL PANEL PP9	RSIS	DG	15'-0"	RELAY GOULD J13P20	GERS
					31 EDG CONTROL PANEL PP9	ESR-11/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					31 EDG CONTROL PANEL PP9	SS-2AT3A	DG	15'-0"	KEY SYNCHRONIZER SWITCH	NV
					31 EDG CONTROL PANEL PP9	ESR21/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					31 EDG CONTROL PANEL PP9	BCS-2A	DG	15'-0"	PULOUT TO LOCKOUT BUS 2A - XFORM. BRKR. TRIP AND CLOSE SW	NV
					31 EDG CONTROL PANEL PP9	STP/EG1	DG	15'-0"	STOP PUSHBUTTON	NV
					31 EDG CONTROL PANEL PP9	BCS-3A	DG	15'-0"	PULOUT TO LOCKOUT BUS 3A - XFORM. BRKR. TRIP AND CLOSE SW	NV
					DG-31 SKID	JWPS1/EG1	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					31 EDG CONTROL PANEL PP9	*SHS/EG1	DG	15'-0"	OFF-AUTO SPACE HTR SWITCH	NV
					DG-31 SKID	JWPS2/EG1	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					CCR RACK G-5	SI-23X	CB	53'-0"	RELAY WHSE BFD48S	GERS
					31 EDG CONTROL PANEL PP9	CR1/EG1	DG	15'-0"	RELAY GE CR120A	GERS

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					31 EDG CONTROL PANEL PP9	51V-2/EG1	DG	15'-0"	OVERCURRENT RELAY WHSE COV-8	GERS
					31 EDG CONTROL PANEL PP9	CR2/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					CCR RACK G-5	SI-21X	CB	53'-0"	RELAY WHSE BFD120S	GERS
					31 EDG CONTROL PANEL PP9	BG1R/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					CCR RACK G-3	SI-11X	CB	53'-0"	RELAY WHSE BFD120S	GERS
					31 EDG CONTROL PANEL PP9	BG1S/EG1	DG	15'-0"	PERMISSIVE START SWITCH	NV
					CCR RACK G-3	SI-13X	CB	53'-0"	RELAY WHSE BFD48S	GERS
					31 EDG CONTROL PANEL PP9	51VX/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					480V SWGR 31, COMPT. 28H	27-2A/X1	CB	15'-0"	RELAY WHSE SG	GERS
					480V SWGR 31, COMPT. 28H	27-2A/X4	CB	15'-0"	RELAY WHSE SG	GERS
					480V SWGR 31, COMPT. 28H	27-2A/X3	CB	15'-0"	RELAY WHSE NBFD84S	GERS
					31 EDG CONTROL PANEL PP9	RESET/EG1	DG	15'-0"	PUSHBUTTON	NV
					31 EDG CONTROL PANEL PP9	ASP/EG1	DG	15'-0"	ALARM SILENCE PUSHBUTTON	NV
					31 EDG CONTROL PANEL PP9	OCT1/EG1	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					31 EDG CONTROL PANEL PP9	OCT2/EG1	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					31 EDG CONTROL PANEL PP9	ES/EG1	DG	15'-0"	EMERG FIELD SHUTDOWN PUSHBUTTON	NV
					31 EDG CONTROL PANEL PP9	86X/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					31 EDG CONTROL PANEL PP9	FODPR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					31 EDG CONTROL PANEL PP9	HLOTR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					EDG VOLT. REG RELAY PNL31	K1/EG1	DG	10'-0"	RELAY WHSE M101	CR
					31 EDG CONTROL PANEL PP9	HLOTR-1/EG1	DG	15'-0"	RELAY GE CR120A	CA
					EDG VOLT. REG RELAY PNL31	K4/EG1	DG	10'-0"	BREAKER CLOSURE RELAY WHSE Z	CR
					31 EDG CONTROL PANEL PP9	LAPR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					DG-31 SKID	JWPS4/EG1	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					31 EDG CONTROL PANEL PP9	LFLR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					DG-31 SKID	OSR/EG1	DG	10'-0"	OVERSPEED MICRO SWITCH	NV
					31 EDG CONTROL PANEL PP9	HWTR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					DG-31 SKID	JWPS3/EG1	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					31 EDG CONTROL PANEL PP9	HWTR-1/EG1	DG	15'-0"	RELAY GE CR120A	CA
					DG-31 SKID	JWPS5/EG1	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV

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					31 EDG CONTROL PANEL PP9	HHWTR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					480V SWGR 31, COMPT. 28H	86/2A	CB	15'-0"	RELAY WHSE WL	GERS
					31 EDG CONTROL PANEL PP9	R1/EG1	DG	15'-0"	RELAY WHSE BFD22S	GERS
					31 EDG CONTROL PANEL PP9	27X1/EG1	DG	15'-0"	UNDERVOLTAGE RELAY MG6	GERS
					31 EDG CONTROL PANEL PP9	R2/EG1	DG	15'-0"	RELAY WHSE BFD22S	GERS
					31 EDG CONTROL PANEL PP9	*VBR/EG1	DG	15'-0"	VOLTAGE BUILDUP RELAY WHSE CV-7	GERS
					31 EDG CONTROL PANEL PP9	ASR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					31 EDG CONTROL PANEL PP9	UPS/EG1	DG	15'-0"	UNIT PARALLEL SWITCH	NV
					31 EDG CONTROL PANEL PP9	HR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					31 EDG CONTROL PANEL PP9	K1X/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					31 EDG CONTROL PANEL PP9	FR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					31 EDG CONTROL PANEL PP9	LODFR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					480V SWGR 31, COMPT. 28H	3-3/2A	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 31, COMPT. 28H	TS/UV/2A	CB	15'-0"	TEST SWITCH	NV
					EDG VOLT. REG RELAY PNL31	K2/EG1	DG	10'-0"	RELAY WHSE M110	CR
					31 EDG CONTROL PANEL PP9	BATT-RE/EG1	DG	15'-0"	RESET PUSHBUTTON	CA
					480V SWGR 31, COMPT. 28H	SI-2A	CB	15'-0"	RELAY WHSE BFD120S	NV
					480V SWGR 31, COMPT. 28H	27-2A/X2	CB	15'-0"	RELAY WHSE BFD84S	GERS
					31 EDG CONTROL PANEL PP9	FODSR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					EDG VOLT. REG RELAY PNL31	K3/EG1	DG	10'-0"	RELAY WHSE Z	CR
					CCR PANEL SH	1-1/EG1	CB	53'-0"	CONTROL SWITCH	NV
					31 EDG CONTROL PANEL PP9	*CTS/EG1	DG	15'-0"	VOLT CONTROL SELECTOR SWITCH	NV
					31 EDG CONTROL PANEL PP9	*SSP/EG1	DG	15'-0"	GOVERNOR SPEED	NV
					31 EDG CONTROL PANEL PP9	VRE/EG1	DG	15'-0"	VOLT REG RESET PB	NV
					31 EDG CONTROL PANEL PP9	51GX/EG1	DG	15'-0"	RELAY GE CR120A	GERS
					31 EDG CONTROL PANEL PP9	LODSR/EG1	DG	15'-0"	RELAY GE CR120A	CA
					DIESEL ISOLATION CABINET	9/ISO			ISOLATION SWITCH	NV
					480V SWGR 31	52b/2A	CB	15'-0"	MECHANICAL CONTACTS	NV
					480V SWGR 31	52b/2AT5A	CB	15'-0"	MECHANICAL CONTACTS	NV
					480V SWGR 31	33H/2A	CB	15'-0"	SWITCHGEAR BREAKER CONTACTS	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31	33H/2AT5A	CB	15'-0"	SWITCHGEAR BREAKER CONTACTS	NV
					CCR PANEL SH	74/EG1	CB	53'-0"	RELAY WHSE BFD22S	NA
					SWGR ISOLATION CAB CH IV	2/ISO	CB	15'-0"	ISOLATION SWITCH	NV
					31 EDG CONTROL PANEL PP9	BCS/EG1	DG	15'-0"	PULL-OUT TO LOCK-OUT DG-31 BUS 2A BREAKER	NV
					31 EDG CONTROL PANEL PP9	SS/EG1	DG	15'-0"	KEY SYNCHRONIZER SWITCH	NV
	EDG	5	17		480V SWGR 31, COMPT. 28H	27-1/2A	CB	15'-0"	RELAY WHSE CV-7	GERS
					480V SWGR31, COMPT. 28H	27-2/2A	CB	15'-0"	RELAY WHSE CV-7	GERS
** DG-31-WM										
	EDG	5	18	9321-F-30073	31 EDG CONTROL PANEL PP9	10/ISO	DG	15'-0"	ISOLATION SWITCH	NV
** DG-32										
	EDG	5	17	9321-H-20283, 9321-H-20293	32 EDG CONTROL PANEL PQ1	RR/EG2	DG	15'-0"	RELAY GE CR120A	GERS
				9321-F-20303, FP 9321-005-3445	32 EDG CONTROL PANEL PQ1	ECS/EG2	DG	15'-0"	MAN/OFF/AUTO ENGN CONTROL SWITCH	NV
				9321-LL-31173 SHT.3,7	32 EDG CONTROL PANEL PQ1	SPB/EG2	DG	15'-0"	START PUSHBUTTON	NV
				9321-LL-31183 SHT.17,18,4,1	32 EDG CONTROL PANEL PQ1	NST/EG2	DG	15'-0"	TIME DELAY RELAY AGA 2422PF	GERS
					DG-32 SKID	OPS3/EG2	DG	10'-0"	OIL PRESSURE SW	NV
					DG-32 SKID	OPS2/EG2	DG	10'-0"	OIL PRESSURE SW	NV
					DG-32 SKID	OPS1/EG2	DG	10'-0"	OIL PRESSURE SW	NV
					32 EDG CONTROL PANEL PQ1	OPT2/EG2	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					32 EDG CONTROL PANEL PQ1	OPT1/EG2	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					32 EDG CONTROL PANEL PQ1	OSR/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	BCS-SS6A	DG	15'-0"	PUL-OUT TO LOCK OUT BUS 2A-XFORM. BRKR. TRIP AND CLOSE SW	NV
					32 EDG CONTROL PANEL PQ1	OPR1/EG2	DG	15'-0"	RELAY GE CR120A	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					32 EDG CONTROL PANEL PQ1	86/EG2	DG	15'-0"	RELAY WHSE WL	GERS
					32 EDG CONTROL PANEL PQ1	OCR/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	SDR/EG2	DG	15'-0"	RELAY GE CR120A	GERS
	EDG				32 EDG CONTROL PANEL PQ1	32/EG2	DG	15'-0"	CURRENT SENSING RELAY WHSE CW 2892988A17A	TEST
					32 EDG CONTROL PANEL PQ1	32X/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	51V-3/EG2	DG	15'-0"	OVERCURRENT RELAY WHSE COV-8	GERS
					32 EDG CONTROL PANEL PQ1	51V-1/EG2	DG	15'-0"	OVERCURRENT RELAY WHSE COV-8	GERS
					32 EDG CONTROL PANEL PQ1	ESR1/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	PDT/EG2	DG	15'-0"	TIME DELAY RELAY AGA 2412PF	GERS
					32 EDG CONTROL PANEL PQ1	ESR2/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	RS1S/EG2	DG	15'-0"	RELAY GOULD J13P20	GERS
					32 EDG CONTROL PANEL PQ1	ESR-11/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	ESR21/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	BCS-6A	DG	15'-0"	PULOUT TO LOCKOUT BUS 2A - XFORM. BRKR. TRIP AND CLOSE SW	NV
					32 EDG CONTROL PANEL PQ1	STP/EG2	DG	15'-0"	STOP PUSHBUTTON	NV
					DG-32 SKID	JWPS1/EG2	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					32 EDG CONTROL PANEL PQ1	*SHS/EG2	DG	15'-0"	OFF-AUTO SPACE HTR SWITCH	NV
					DG-32 SKID	JWPS2/EG2	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					CCR RACK G-5	SI-23X/EG2	CB	53'-0"	RELAY WHSE BFD48S	GERS
					32 EDG CONTROL PANEL PQ1	CR1/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	51V-2/EG2	DG	15'-0"	OVERCURRENT RELAY WHSE COV-8	GERS
					32 EDG CONTROL PANEL PQ1	CR2/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	BG1R/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	BG1S/EG2	DG	15'-0"	PERMISSIVE START SWITCH	NV
					32 EDG CONTROL PANEL PQ1	51VX/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					480V SWGR 32, COMPT. 8H	27-6A/X1	CB	15'-0"	RELAY WHSE SG	GERS
					480V SWGR 32, COMPT. 8H	27-6A/X4	CB	15'-0"	RELAY WHSE SG	GERS
					480V SWGR 32, COMPT. 8H	27-6A/X3	CB	15'-0"	RELAY WHSE BFD84S	GERS
					32 EDG CONTROL PANEL PQ1	RESET/EG2	DG	15'-0"	PUSHBUTTON	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					32 EDG CONTROL PANEL PQ1	ASP/EG2	DG	15'-0"	ALARM SILENCE PB	NV
					32 EDG CONTROL PANEL PQ1	OCT1/EG2	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					32 EDG CONTROL PANEL PQ1	OCT2/EG2	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					32 EDG CONTROL PANEL PQ1	ES/EG2	DG	15'-0"	EMERG FIELD SHTDWN PB	NV
					32 EDG CONTROL PANEL PQ1	86X/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	FODPR/EG2	DG	15'-0"	RELAY GE CR120A	CA
					32 EDG CONTROL PANEL PQ1	HLOTR/EG2	DG	15'-0"	RELAY GE CR120A	CA
					EDG VOLT. REG RELAY PNL32	K1/EG2	DG	10'-0"	RELAY WHSE M101	CR
					32 EDG CONTROL PANEL PQ1	HLOTR-1/EG2	DG	15'-0"	RELAY GE CR120A	CA
					EDG VOLT. REG RELAY PNL32	K4/EG2	DG	10'-0"	BREAKER CLOSURE RELAY WHSE Z	CR
					32 EDG CONTROL PANEL PQ1	LAPR/EG2	DG	15'-0"	LO START AIR PRESSURE RELAY GE CR120	CA
					DG-32 SKID	JWPS4/EG2	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					32 EDG CONTROL PANEL PQ1	LFLR/EG2	DG	15'-0"	RELAY GE CR120A	CA
					DG-32 SKID	OSR/EG2	DG	10'-0"	OVERSPEED MICRO SW	NV
					32 EDG CONTROL PANEL PQ1	HWTR/EG2	DG	15'-0"	RELAY GE CR120A	CA
					DG-32 SKID	JWPS3/EG2	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					32 EDG CONTROL PANEL PQ1	HWTR-1/EG2	DG	15'-0"	RELAY GE CR120A	CA
					DG-31 SKID	JWPS6/EG2	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					32 EDG CONTROL PANEL PQ1	HHWTR/EG2	DG	15'-0"	RELAY GE CR120A	CA
					480V SWGR 32, COMPT. 8H	86/6A	CB	15'-0"	RELAY WHSE WL	GERS
					32 EDG CONTROL PANEL PQ1	R1/EG2	DG	15'-0"	RELAY WHSE BFD22S	GERS
					32 EDG CONTROL PANEL PQ1	27X1/EG2	DG	15'-0"	UNDERVOLTAGE RELAY MG6	GERS
					32 EDG CONTROL PANEL PQ1	R2/EG2	DG	15'-0"	RELAY WHSE BFD22S	GERS
					32 EDG CONTROL PANEL PQ1	*VBR/EG2	DG	15'-0"	VOLTAGE BUILDUP RELAY WHSE CV-7	GERS
					32 EDG CONTROL PANEL PQ1	ASR/EG2	DG	15'-0"	RELAY GE CR120A	CA
					32 EDG CONTROL PANEL PQ1	UPS/EG2	DG	15'-0"	UNIT PARALLEL SWITCH	NV
					32 EDG CONTROL PANEL PQ1	HR/EG2	DG	15'-0"	RELAY GE CR120A	CA
					32 EDG CONTROL PANEL PQ1	K1X/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	FR/EG2	DG	15'-0"	RELAY GE CR120A	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					32 EDG CONTROL PANEL PQ1	LODFR/EG2	DG	15'-0"	RELAY GE CR120A	CA
					480V SWGR 32, COMPT. 8H	TS/UV/6A	CB	15'-0"	TEST SWITCH	NV
					EDG VOLT. REG RELAY PNL32	K2/EG2	DG	10'-0"	RELAY WHSE M110	CR
					32 EDG CONTROL PANEL PQ1	BATT-RE/EG2	DG	15'-0"	RESET PB	CA
					32 EDG CONTROL PANEL PQ1	SWLFX/EG2	CB	15'-0"	RELAY GE CR120A	NV
					480V SWGR 32, COMPT. 8H	27-6A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
					32 EDG CONTROL PANEL PQ1	FODSR/EG2	DG	15'-0"	RELAY GE CR120A	CA
					EDG VOLT. REG RELAY PNL32	K3/EG2	DG	10'-0"	RELAY WHSE Z	CR
					CCR PANEL SH	1-1/EG2	CB	53'-0"	CONTROL SWITCH	NV
					32 EDG CONTROL PANEL PQ1	CTS/EG2	DG	15'-0"	VOLT CTRL SEL SWITCH	NV
					32 EDG CONTROL PANEL PQ1	SSP/EG2	DG	15'-0"	GOVERNOR SPEED	NV
					32 EDG CONTROL PANEL PQ1	VRE/EG2	DG	15'-0"	VOLT REG RESET PB	NV
					32 EDG CONTROL PANEL PQ1	51GX/EG2	DG	15'-0"	RELAY GE CR120A	GERS
					32 EDG CONTROL PANEL PQ1	LODSR/EG2	DG	15'-0"	RELAY GE CR120A	CA
					480V SWGR 32, COMPT. 8H	27-2/6A	CB	15'-0"	ISOLATION SWITCH	NV
					480V SWGR 32	52b/6A	CB	15'-0"	MECHANICAL CONTACTS	NV
					480V SWGR 32	52b/3AT6A	CB	15'-0"	MECHANICAL CONTACTS	NV
					480V SWGR 32	33H/6A	CB	15'-0"	SWCHGR BREAKER CONTACTS	NV
					480V SWGR 32	33H/3AT6A	CB	15'-0"	SWCHGR BREAKER CONTACTS	NV
					CCR PANEL SH	74/EG2	CB	53'-0"	RELAY WHSE BFD22S	NA
					480V SWGR 32, COMPT. 8H	27-1/6A	CB	15'-0"	RELAY WHSE CV-7	GERS
					32 EDG CONTROL PANEL PQ1	BCS/EG2	DG	15'-0"	PULL-OUT TO LOCK-OUT DG-32 BUS 2A BREAKER	NV
					32 EDG CONTROL PANEL PQ1	SS/EG2	DG	15'-0"	KEY SYNCHRONIZER SWITCH	NV
** DG-33										
	EDG	5	17	9321-H-20283, 9321-H-20293,	33 EDG CONTROL PANEL PQ2	RR/EG3	DG	15'-0"	RELAY GE CR120A	GERS
				9321-F-20303, FP 9321-005-3445,	33 EDG CONTROL PANEL PQ2	ECS/EG3	DG	15'-0"	MAN/OFF/AUTO ENGN CONTROL SWITCH	NV
				9321-LL-31173 SHT.3,6,6B,12,13,18	33 EDG CONTROL PANEL PQ2	SPB/EG3	DG	15'-0"	START PUSHBUTTON	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					33 EDG CONTROL PANEL PQ2	NST/EG3	DG	15'-0"	TIME DELAY RELAY AGA 2422PF	GERS
					DG-33 SKID	OPS3/EG3	DG	10'-0"	OIL PRESSURE SWITCH	NV
					DG-33 SKID	OPS2/EG3	DG	10'-0"	OIL PRESSURE SWITCH	NV
					DG-33 SKID	OPS1/EG3	DG	10'-0"	OIL PRESSURE SWITCH	NV
					33 EDG CONTROL PANEL PQ2	OPT2/EG3	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					33 EDG CONTROL PANEL PQ2	OPT1/EG3	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					33 EDG CONTROL PANEL PQ2	OSR/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	SS/5A	DG	15'-0"	PUL-OUT TO LOCK OUT BUS 5A-XFORM. BRKR. TRIP AND CLOSE SW	NV
					33 EDG CONTROL PANEL PQ2	OPR1/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	86/EG3	DG	15'-0"	RELAY WHSE WL	GERS
					33 EDG CONTROL PANEL PQ2	OCR/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	SDR/EG3	DG	15'-0"	RELAY GE CR120A	GERS
	EDG				33 EDG CONTROL PANEL PQ2	32/EG3	DG	15'-0"	CURRENT SENSING RELAY WHSE CW 2892988A17A	TEST
					33 EDG CONTROL PANEL PQ2	32X/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	51V-3/EG3	DG	15'-0"	OVERCURRENT RELAY WHSE COV-8	GERS
					33 EDG CONTROL PANEL PQ2	51V-1/EG3	DG	15'-0"	OVERCURRENT RELAY WHSE COV-8	GERS
					33 EDG CONTROL PANEL PQ2	ESR1/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	PDT/EG3	DG	15'-0"	TIME DELAY RELAY AGA 2412PF	GERS
					33 EDG CONTROL PANEL PQ2	ESR2/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	RS1S/EG3	DG	15'-0"	RELAY GOULD J13P20	GERS
					33 EDG CONTROL PANEL PQ2	ESR-11/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	ESR-21/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	BCS-5A	DG	15'-0"	PULOUT TO LOCKOUT BUS 2A - XFORM. BRKR. TRIP AND CLOSE SW	GERS
					33 EDG CONTROL PANEL PQ2	STP/EG3	DG	15'-0"	STOP PUSHBUTTON	NV
					DG-33 SKID	JWPS1/EG3	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					33 EDG CONTROL PANEL PQ2	SHS/EG3	DG	15'-0"	OFF-AUTO SPACE HTR SWITCH	NV
					DG-33 SKID	JWPS2/EG3	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-3	SI-13X/EG2	CB	53'-0"	RELAY WHSE BFD84S	GERS
					33 EDG CONTROL PANEL PQ2	CR1/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	51V-2/EG3	DG	15'-0"	OVERCURRENT RELAY WHSE COV-8	GERS
					33 EDG CONTROL PANEL PQ2	CR2/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	BG1R/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	BGIS/EG3	DG	15'-0"	PERMISSIVE START SWITCH	NV
					33 EDG CONTROL PANEL PQ2	51VX/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					480V SWGR 31, COMPT. 25H	27-5A/X1	CB	15'-0"	RELAY WHSE SG	GERS
					480V SWGR 31, COMPT. 25H	27-5A/X4	CB	15'-0"	RELAY WHSE SG	GERS
					480V SWGR 31, COMPT. 25H	27-5A/X3	CB	15'-0"	RELAY WHSE BFD84S	GERS
					33 EDG CONTROL PANEL PQ2	RESET/EG3	DG	15'-0"	PUSHBUTTON	NV
					33 EDG CONTROL PANEL PQ2	ASP/EG3	DG	15'-0"	ALARM SILENCE PB	NV
					33 EDG CONTROL PANEL PQ2	OCT1/EG3	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					33 EDG CONTROL PANEL PQ2	OCT2/EG3	DG	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					33 EDG CONTROL PANEL PQ2	ES/EG3	DG	15'-0"	EMERG FIELD SHTDWN PB	NV
					33 EDG CONTROL PANEL PQ2	86X/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	FOOPR/EG3	DG	15'-0"	RELAY GE CR120A	CA
					33 EDG CONTROL PANEL PQ2	HLOTR/EG3	DG	15'-0"	RELAY GE CR120A	CA
					EDG VOLT. REG RELAY PNL33	K1/EG3	DG	10'-0"	RELAY WHSE M101	CR
					33 EDG CONTROL PANEL PQ2	HLOTR-1/EG3	DG	15'-0"	RELAY GE CR120A	CA
					EDG VOLT. REG RELAY PNL33	K4/EG3	DG	10'-0"	BREAKER CLOSURE RELAY WHSE Z	CR
					33 EDG CONTROL PANEL PQ2	LAPR/EG3	DG	15'-0"	LO START AIR PRESS RLY GE CR120	CA
					DG-33 SKID	JWPS4/EG3	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					33 EDG CONTROL PANEL PQ2	LFLR/EG3	DG	15'-0"	RELAY GE CR120A	CA
					DG-33 SKID	OSR/EG3	DG	10'-0"	OVERSPEED MICRO SWITCH	NV
					33 EDG CONTROL PANEL PQ2	HWTR/EG3	DG	15'-0"	RELAY GE CR120A	CA
					DG-33 SKID	JWPS3/EG3	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					33 EDG CONTROL PANEL PQ2	HWTR-1/EG3	DG	15'-0"	RELAY GE CR120A	CA
					DG-33 SKID	JWPS6/EG3	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV
					33 EDG CONTROL PANEL PQ2	HHWTR/EG3	DG	15'-0"	RELAY GE CR120A	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31, COMPT. 25H	86/5A	CB	15'-0"	RELAY WHSE WL	GERS
					33 EDG CONTROL PANEL PQ2	R1/EG3	DG	15'-0"	RELAY WHSE BFD22S	GERS
					33 EDG CONTROL PANEL PQ2	27X1/EG3	DG	15'-0"	UNDERVOLTAGE RELAY MG6	GERS
					33 EDG CONTROL PANEL PQ2	R2/EG3	DG	15'-0"	RELAY WHSE BFD22S	GERS
					33 EDG CONTROL PANEL PQ2	*VBR/EG3	DG	15'-0"	VOLTAGE BUILDUP RELAY WHSE CV-7	GERS
					33 EDG CONTROL PANEL PQ2	ASR/EG3	DG	15'-0"	RELAY GE CR120A	CA
					33 EDG CONTROL PANEL PQ2	UPS/EG3	DG	15'-0"	UNIT PARALLEL SWITCH	NV
					33 EDG CONTROL PANEL PQ2	HR/EG3	DG	15'-0"	RELAY GE CR120A	CA
					33 EDG CONTROL PANEL PQ2	K1X/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	FR/EG3	DG	15'-0"	RELAY GE CR120A	CA
					33 EDG CONTROL PANEL PQ2	LODFR/EG3	DG	15'-0"	RELAY GE CR120A	CA
					480V SWGR 31, COMPT. 25H	TS/UV/5A	CB	15'-0"	TEST SWITCH	NV
					EDG VOLT. REG RELAY PNL33	K2/EG3	DG	10'-0"	RELAY WHSE M110	CR
					33 EDG CONTROL PANEL PQ2	BATT-RE/EG3	DG	15'-0"	RESET PB	NA
					480V SWGR 31, COMPT. 25H	3-3/5A1	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 31, COMPT. 25H	27-5A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
					33 EDG CONTROL PANEL PQ2	FODSR/EG3	DG	15'-0"	RELAY GE CR120A	CA
					EDG VOLT. REG RELAY PNL33	K3/EG3	DG	10'-0"	RELAY WHSE Z	CR
					CCR PANEL SH	1-1/EG3	CB	53'-0"	CONTROL SWITCH	NV
					33 EDG CONTROL PANEL PQ2	*CTS/EG3	DG	15'-0"	VOLT CONTROL SELECTOR SWITCH	NV
					33 EDG CONTROL PANEL PQ2	*SSP/EG3	DG	15'-0"	GOVERNOR SPEED	NV
					33 EDG CONTROL PANEL PQ2	VRE/EG3	DG	15'-0"	VOLT REG RESET PB	NV
					33 EDG CONTROL PANEL PQ2	51GX/EG3	DG	15'-0"	RELAY GE CR120A	GERS
					33 EDG CONTROL PANEL PQ2	LODSR/EG3	DG	15'-0"	RELAY GE CR120A	CA
					480V SWGR 31, COMPT. 25H	27-2/5A	CB	15'-0"	ISOLATION SWITCH	NV
					480V SWGR 31	52b/5A	CB	15'-0"	MECHANICAL CONTACTS	NV
					480V SWGR 32	52b/2AT5A	CB	15'-0"	MECHANICAL CONTACTS	NV
					480V SWGR 31	33H/5A	CB	15'-0"	SWITCHGEAR BREAKER CONTACTS	NV
					480V SWGR 31	33H/2AT5A	CB	15'-0"	SWITCHEAGR BREAKER CONTACTS	NV
					CCR PANEL SH	74/EG3	CB	53'-0"	RELAY WHSE BFD84S	NA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31,COMPT. 25H	27-1/5A	CB	15'-0"	RELAY WHSE CV-7	GERS
					33 EDG CONTROL PANEL PQ2	BCS/EG3	DG	15'-0"	PULL-OUT TO LOCK-OUT DG-33 BUS 5A BREAKER	NV
					33 EDG CONTROL PANEL PQ2	SS/EG3	DG	15'-0"	KEY SYNCHRONIZER SWITCH	NV
	EDG	5	17		480V SWGR 31, COMPT. 25H	SI-5A	CB	15'-0"	RELAY WHSE BFD84S	GERS
** .0031CRFU										
	HVAC	5	10	9321-F-40223	LOCAL	43	VC	68'-0"	REMOTE-LOCAL SWITCH	NV
				617F644	LOCAL	START, STOP	VC	68'-0"	PUSHBUTTON	NV
				5008971 SH37	CCR PANEL SBF-2	1/CRF1	CB	53'-0"	STOP-AUTO-START SWITCH	NV
					CCR PANEL SBF-2	74	CB	53'-0"	RELAY WHSE BFD20S	NV
					480V SWGR 31	2/CRF1	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					480V SWGR 31	27-5A/X3	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31	3-1/5A	CB	15'-0"	RELAY WHSE BFD120S	GERS
** 0031ETEF										
	HVAC	5	09	9321-LL-31263 SH2	CCR PANEL SL	1/F31	CB	53'-0"	STOP/AUTO/START/SWITCH	NV
				9321-F-31313 SH22	DELUGE SYS CTRL PNL PY3	1X	ET	34'-0"	DELUGE SYSTEM CONTACT	CA
				9321-F-31403 SH19	CCR PANEL SL	74-1	CB	53'-0"	RELAY WHSE BF22F	NA
					DELUGE SYS CTRL PNL PY4	2X	ET	34'-0"	DELUGE SYSTEM CONTACT	CA
					CCR PANEL SL	43L/F31	CB	53'-0"	FAN21/FAN22 SELECTOR SWITCH	NV
					MCC 36A	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					DELUGE SYS CTRL PNL PY3	R1	ET	34'-0"	RELAY WHSE BFD22S	GERS
					MCC 36A	42a, 42b	PA	55'-0"	MOTOR STARTER AUX CONTACTS	GERS
					DELUGE SYS CTRL PNL PY4	R2	ET	34'-0"	RELAY WHSE BFD22S	GERS
					31/32 LOCAL CTRL STN(HJ9)	1/F31-2	CB	33'-0"	AUTO/RUN SWITCH	NV
					MCC 36A	42	PA	55'-0"	MOTOR STARTER CONTACTS	GERS
** 0031OAL A										
	HVAC	5	00	9321-LL-31333 SH14	31 EDG CONTROL PANEL PP9	CVX/EG1	DG	15'-0"	RELAY WHSE MG-6	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** 0031OAL B										
	HVAC	5	00	9321-F-41023	31 EDG CONTROL PANEL PP9	CVX/EG1	DG	15'-0"	RELAY WHSE MG-6	CA
** 0031OAL C										
	HVAC	5	00		31 EDG CONTROL PANEL PP9	CVX/EG1	DG	15'-0"	RELAY WHSE MG-6	CA
** 0032CRFU										
	HVAC	5	10	9321-F-40223	LOCAL	43	VC	68'-0"	REMOTE-LOCAL TRANS SWITCH	NV
				5008971 SH78	LOCAL	START, STOP	VC	68'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 12A	2/CRF2	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					480V SWGR 31, COMPT. 28H	27-2A/X2	CB	15'-0"	RELAY WHSE BFD44S	GERS
					CCR PANEL SBF-2	74	CB	53'-0"	RELAY WHSE BFD20S	NA
					480V SWGR 31	3-1/2A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					CCR PANEL SBF-2	1/CRF2	CB	53'-0"	STOP-AUTO-START SWITCH	NV
** 0032ETEF										
	HVAC	5	09	9321-LL-31263 SH1-3	CCR PANEL SL	1/F32	CB	53'-0"	STOP-AUTO-START 3-POSITION MAINTAINED	NV
				9321-F-31313 SH22	CCR PANEL SL	43L/F32	CB	53'-0"	FAN11/FAN12 SEL SWITCH	NV
				9321-F-31403 SH19	CCR PANEL SL	74-2	CB	53'-0"	RELAY WHSE BFDF31S	NA
					DELUGE SYS CTRL PNL PY4	R2	ET	34'-0"	RELAY WHSE BFD22S	GERS
					31/32 LOCAL CTRL STN(HJ9)	1/F32-2	CB	33'-0"	AUTO/RUN SWITCH	NV
					DELUGE SYS CTRL PNL PY3	1X	ET	34'-0"	DELUGE SYSTEM CONTACT	CA
					DELUGE SYS CTRL PNL PY3	R1	ET	34'-0"	RELAY WHSE BFD22S	GERS
					MCC 36B	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					MCC 36B	42	PA	55'-0"	MOTOR STARTER CONTACTS	GERS
					MCC 36B	42a, 42b	PA	55'-0"	MOTOR STARTER AUX CONTACTS	GERS
					DELUGE SYS CTRL PNL PY4	2X	ET	34'-0"	DELUGE SYSTEM CONTACT	CA
** 0032OAL A										
	HVAC	5	00	9321-LL-31333 SH14	31 EDG CONTROL PANEL PP9	CVX/EG2	DG	15'-0"	RELAY WHSE MG-6	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** 0032OAL B										
	HVAC	5	00	9321-F-41023	31 EDG CONTROL PANEL PP9	CVX/EG2	DG	15'-0"	RELAY WHSE MG-6	CA
** 0032OAL C										
	HVAC	5	00		31 EDG CONTROL PANEL PP9	CVX/EG2	DG	15'-0"	RELAY WHSE MG-6	CA
** 0033CRFU										
	HVAC	5	10	9321-F-40223	LOCAL	START, STOP	VC	68'-0"	PUSHBUTTON	NV
				500B971 SH47	LOCAL	43	VC	68'-0"	REMOTE-LOCAL TRANS SWITCH	NV
					480V SWGR 31, COMPT. 22A	2/CRF3	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					CCR PANEL SBF-2	1/CRF3	CB	53'-0"	STOP-AUTO-START SWITCH	NV
					480V SWGR 31	27-5A/X3	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31	3-1/5A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					CCR PANEL SBF-2	74	CB	53'-0"	RELAY WHSE BFD20S	NA
** 0033ETEF										
	HVAC	5	09	9321-LL-31263 SH6	CCR PANEL SL	1/F33	CB	53'-0"	STOP-AUTO-START SWITCH	NV
				9321-F-31313 SH22	CCR PANEL SL	74-1	CB	53'-0"	RELAY WHSE BFDF31S	NA
				9321-F-31403 SH19	DELUGE SYS CTRL PNL PY5	R3	ET	34'-0"	AUX RELAY BFD22S	GERS
					DELUGE SYS CTRL PNL PY6	R4	ET	34'-0"	AUX RELAY BFD22S	GERS
					DELUGE SYS CTRL PNL PY5	3X	ET	34'-0"	DELUGE SYSTEM CONTACT	CA
					DELUGE SYS CTRL PNL PY6	4X	ET	34'-0"	DELUGE SYSTEM CONTACT	CA
					CCR PANEL SL	43U/F33	CB	53'-0"	FAN 33/34 SEL SWITCH	NV
					MCC 36A	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					MCC 36A	42	PA	55'-0"	MOTOR STARTER CONTACTS	GERS
					MCC 36A	42a, 42b	PA	55'-0"	MOTOR STARTER AUX CONTACTS	GERS
					33/34 LOCAL CTRL STN(HJ8)	1/F33-2	CB	33'-0"	AUTO/RUN SWITCH	NV
** 0033OAL A										
	HVAC	5	00	9321-LL-31333 SH14	31 EDG CONTROL PANEL PP9	CVX/EG3	DG	15'-0"	RELAY WHSE MG-6	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** 0033OAL B										
	HVAC	5	00	9321-F-41023	31 EDG CONTROL PANEL PP9	CVX/EG3	DG	15'-0"	RELAY WHSE MG-6	CA
** 0033OAL C										
	HVAC	5	00		31 EDG CONTROL PANEL PP9	CVX/EG3	DG	15'-0"	RELAY WHSE MG-6	CA
** 0034CRFU										
	HVAC	5	10	9321-F-40223	LOCAL	43	VC	68'-0"	"REMOTE-LOCAL" MAN TRANS SWITCH	NV
				5008971 SH48	CCR PANEL SBF-2	1/CRF4	CB	53'-0"	"STOP-AUTO-START" MAN SWITCH	NV
					CCR PANEL SBF-2	74	CB	53'-0"	RELAY WHSE BFD20S	NA
					480V SWGR 31	27-3A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31	2/CRF4	CB	53'-0"	TIME DELAY RELAY AGA 2414PD	GERS
	HVAC	5	10		LOCAL	START, STOP	VC	68'-0"	PUSHBUTTON	NV
** 0034ETEF										
	HVAC	5	09	9321-LL-31263 SH7	CCR PANEL SL	1/F34	CB	53'-0"	STOP-AUTO-START SWITCH	NV
				9321-F-31313 SH22	CCR PANEL SL	74-2	CB	53'-0"	RELAY WHSE BFDF31S	NA
				9321-F-31403 SH19	DELUGE SYS CTRL PNL PY5	R3	ET	34'-0"	AUX RELAY BFD22S	GERS
					DELUGE SYS CTRL PNL PY6	R4	ET	34'-0"	AUX RELAY BFD22S	GERS
					DELUGE SYS CTRL PNL PY5	3X	ET	34'-0"	DELUGE SYSTEM CONTACT	CA
					DELUGE SYS CTRL PNL PY6	4X	ET	34'-0"	DELUGE SYSTEM CONTACT	CA
					CCR PANEL SL	43u/F34	CB	53'-0"	FAN 33/34 SEL SWITCH	NV
					MCC 36B	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					MCC 36B	42	PA	55'-0"	MOTOR STARTER CONTACTS	GERS
					MCC 36B	42a, 42b	PA	55'-0"	MOTOR STARTER AUX CONTACTS	GERS
					33/34 LOCAL CTRL STN(HJ8)	1/F34-2	CB	33'-0"	AUTO/RUN SWITCH	NV
** 0035CRFU										
	HVAC	5	10	9321-F-40223	LOCAL	START, STOP	VC	68'-0"	PUSHBUTTON	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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				500B971 SH79	LOCAL	43	VC	68'-0"	"REMOTE-LOCAL" TRANS SW	NV
					480V SWGR 32	3-1/6A	CB	15'-0"	RELAY WHSE CV-7	GERS
					CCR RACK G-2	2/CRF5	CB	53'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					480V SWGR 32	27-6A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
** 31 PABEF										
	HVAC	5	09	9321-LL-31183 SHT.3,6,10	FAN ROOM CONTROL PNL JC1	1/EXF	FR	80'-0"	TYPE W2 CONTROL SW 3-POSITION SPRING RETURN TO OFF	NV
				9321-LL-31273 SHT.6,7	FAN ROOM CONTROL PNL JC1	43/EXF	FR	80'-0"	SELECTOR SWITCH	NV
				9321-LL-31173 SHT.6	FAN ROOM CONTROL PNL JC1	BF444/CBP31	FR	80'-0"	WHSE RELAY	GERS
					480V MCC 37	42b/CBPF	PA	55'-0"	MOTOR STARTER CONTACT	GERS
					480V MCC 37	42b/PABSF	PA	55'-0"	MOTOR STARTER CONTACT	GERS
					480V SWGR 31, COMPT. 28H	3-3/3A	CB	15'-0"	RELAY WHSE BFD120S	GERA
** 31CRDF										
	HVAC	5	09	9321-F-40223	CCR PANEL SL	1/CRCF1 (o,sc,c)	CB	53'-0"	PULL-STOP-AUTO-START	NV
				9321-LL-31283 SH3	MCC 38, COMPT. 2D	42, 42a, 42b	VC	68'-0"	MOTOR STARTER CONTACTS	GERS
				9321-F-31933 SH3	MCC 38, COMPT. 2D	49	VC	68'-0"	THERMAL OVERLOAD DEVICE	NV
					LOCAL	START, STOP	VC	95'-0"	PUSHBUTTON	NV
** 32 PABEF										
	HVAC	5	09	9321-LL-31183 SHT. 3,4,6,13	FAN ROOM CONTROL PNL JC1	1/EXF	FR	80'-0"	TYPE "W2" CTRL SW 3-POSITION SPRING RETURN TO OFF	NV
				9321-LL-31273 SHT. 6,7	FAN ROOM CONTROL PNL JC1	43/EXF	FR	80'-0"	SELECTOR SWITCH	NV
					FAN ROOM CONTROL PNL JC1	BF44/CBP32	FR	80'-0"	WHSE RELAY	GERS
					480V MCC 37	42b/CBPF	PA	55'-0"	MOTOR STARTER CONTACT	GERS
					480V MCC 37	42b/PABSF	PA	55'-0"	MOTOR STARTER CONTACT	GERS
					480V SWGR 32, COMPT. 8H	3-3/6A1	CB	15'-0"	RELAY WHSE BFD80S	GERS

LIST OF RELAYS AFFECTING
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** 32CRDF										
	HVAC	9	09	9321-F-40223	CCR PANEL SL	1/CRCF2 (o,sc,o)	CB	53'-0"	"PULL-STOP-AUTO-START" TO "AUTO"	NV
				9321-LL-31283 SH3	MCC 38, COMPT. 2F	42, 42a, 42b	VC	68'-0"	MOTOR STARTER CONTACTS	GERS
				9321-F-31933 SH3	MCC 38, COMPT. 2F	49	VC	68'-0"	THERMAL OVERLOAD DEVICE	NV
					LOCAL	START, STOP	VC	95'-0"	PUSHBUTTONS	NV
** 33CRDF										
	HVAC	5	09	9321-F-40223	CCR PANEL SL	1/CRCF3 (o,sc,c)	CB	53'-0"	PULL-START-AUTO-STOP	NV
				9321-LL-31283 SH3	MCC 38, COMPT. 2H	42, 42a, 42b	VC	68'-0"	MOTOR STARTER CONTACTS	GERS
				9321-F-31933	LOCAL	START, STOP	VC	95'-0"	PUSHBUTTON	NV
					MCC 38, COMPT. 2H	49	VC	68'-0"	THERMAL OVERLOAD DEVICE	NV
** 34CRDF										
	HVAC	5	09	9321-F-40223	CCR PANEL SL	1/CRCF4 (o,sc,c)	CB	53'-0"	SELECTOR SWITCH	NV
				9321-LL-31283 SH1	MCC 38, COMP. 2K	42, 42a, 42b	CB	68'-0"	MOTOR STARTER CONTACTS	GERS
				9321-F-31935	LOCAL	START, STOP	CB	95'-0"	PUSHBUTTON	NV
					MCC 38, COMPT. 2K	49	CB	68'-0"	THERMAL OVERLOAD DEVICE	NV
** ACU31										
	HVAC	5	10	9321-LL-31263 SH9,16A,11	ACU31	1RR3	CB	15'-0"	RESET RELAY	OA
				9321-F-40593	ACU31	10L1	CB	15'-0"	THEMAL OVERLOAD CONTACTS	NV
				9321-F-41023	ACU31	1CT	CB	15'-0"	COMPRESSOR THERMOSTAT CONTACTS	OA
					ACU31	1HIP	CB	15'-0"	HIGH PRESSURE CUTOUT SWITCH	OA
					ACU31	1LOP	CB	15'-0"	LOW PRESSURE CUTOUT SWITCH	OA
					ACU31	10L2	CB	15'-0"	THERMAL OVERLOAD CONTACTS	NV
					ACU31	1RS	CB	15'-0"	RESET PUSHBUTTON	NV
					ACU31	2RR3	CB	15'-0"	RESET RELAY	OA
					ACU31	20L1	CB	15'-0"	THERMAL OVERLOAD CONTACTS	NV
					ACU31	2CT	CB	15'-0"	COMPRESSOR THERMOSTAT CONTACTS	OA

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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					ACU31	2HIP	CB	15'-0"	HIGH PRESSURE CUTOUT SWITCH	OA
					ACU31	2LOP	CB	15'-0"	LOW PRESSURE CUTOUT SWITCH	OA
					ACU31	20L2	CB	15'-0"	THERMAL OVERLOAD CONTACTS	NV
					ACU31	2RS	CB	15'-0"	RESET PUSHBUTTON	NV
					ACU31	1RR2	CB	15'-0"	RESET RELAY	OA
					ACU31	42/ACF31	CB	15'-0"	MOTOR STARTER RELAY	CA
					ACU31	2RR2	CB	15'-0"	RESET RELAY	OA
					LOCAL CCR AC CTRL PNL P17	43ACC31A	CB	15'-0"	TRANSFER DEVICE SWITCH	NV
					LOCAL CCR AC CTRL PNL P17	43ACC31B	CB	15'-0"	TRANSFER DEVICE SWITCH	NV
					ACU31	1CR	CB	15'-0"	TIME DELAY RELAY AGA 2412 ECLLM	CA
					ACU31	2CR	CB	15'-0"	TIME DELAY RELAY AGA 2412 ECLLM	CA
					ACU31	1st STG.COOL.	CB	15'-0"	MECHANICAL CONTACTS	NV
					ACU31	2nd STG.COOL.	CB	15'-0"	MECHANICAL CONTACTS	NV
					LOCAL CCR AC CTRL PNL P17	33-D1/OPEN	CB	15'-0"	POSITION SWITCH	NV
					ACU31	30L1	CB	15'-0"	THERMAL OVERLOAD CONTACTS	NV
					ACU31	30L2	CB	15'-0"	THERMAL OVERLOAD CONTACTS	NV
					ACU31	30L3	CB	15'-0"	THERMAL OVERLOAD CONTACTS	NV
					ACU31	43-ACF31/H-O-A	CB	15'-0"	3 POSITION MAINTAINED SWITCH	NV
					ACU31	2-ACF31/T-D-O	CB	15'-0"	TIME DELAY RELAY AGA 2412ACLLM	CA
					ACU31	42a,o	CB	15'-0"	MOTOR STARTER CONTACTS	CA
					ACU31	3/ACC31A	CB	15'-0"	RELAY WHSE BF22F	CA
					ACU31	3/ACC31B	CB	15'-0"	RELAY WHSE BF22F	CA
					ACU31	RF	CB	15'-0"	RELAY BF44F	CA
					ACU31	RF1	CB	15'-0"	RELAY WHSE BF22F	GERS
					ACU31	43C/L	CB	15'-0"	LOCAL SWITCH	NV
					ACU31	BYPASS IL	CB	15'-0"	LOCAL BYPASS SWITCH	NV
					AC CTRL PNL	BYPASS IR	CB	53'-0"	REMOTE BYPASS SWITCH	NV
					ACU31	43C/R	CB	15'-0"	REMOTE SWITCH	NV
					ACU31	42/ACC31A	CB	15'-0"	MOTOR STARTER RELAY	CA

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					ACU31	42/ACC31B	CB	15'-0"	MOTOR STARTER RELAY	CA
** ACU32										
	HVAC	5	10	9321-LL-31263 SH9,16A,13	ACU32	1RR3	CB	15'-0"	RESET RELAY	OA
				9321-F-40593	ACU32	10L1	CB	15'-0"	THERMAL OVERLOAD CONTACT	NV
				9321-F-41023	ACU32	1CT	CB	15'-0"	COMPRESSOR THERMOSTAT RELAY	OA
					ACU32	1HIP	CB	15'-0"	HIGH PRESSURE CUTOUT RELAY	OA
					ACU32	1LOP	CB	15'-0"	LOW PRESSURE CUTOUT RELAY	OA
					ACU32	10L2	CB	15'-0"	THERMAL OVERLOAD CONTACT	CA
					ACU32	1RS	CB	15'-0"	RESET PUSHBUTTON	NV
					ACU32	2RR3	CB	15'-0"	RESET RELAY	OA
					ACU32	20L1	CB	15'-0"	THERMAL OVERLOAD CONTACT	NV
					ACU32	2CT	CB	15'-0"	COMPRESSOR THERMOSTAT RELAY	OA
					ACU32	2HIP	CB	15'-0"	HIGH PRESSURE CUTOUT RELAY	OA
					ACU32	2LOP	CB	15'-0"	LOW PRESSURE CUTOUT RELAY	OA
					ACU32	20L2	CB	15'-0"	THERMAL OVERLOAD CONTACT	NV
					ACU32	2RS	CB	15'-0"	RESET PUSHBUTTON	NV
					ACU32	1RR2	CB	15'-0"	RESET RELAY	OA
					ACU32	42/ACF32A	CB	15'-0"	MOTOR STARTER RELAY	CA
					ACU32	2RR2	CB	15'-0"	RESET RELAY	OA
					ACU32	42/ACF32B	CB	15'-0"	MOTOR STARTER RELAY	CA
					LOCAL CCR AC CTRL PNL PI7	43ACC32A	CB	15'-0"	TRANSFER SWITCH	CA
					LOCAL CCR AC CTRL PNL PI7	43ACC32B	CB	15'-0"	TRANSFER SWITCH	CA
					ACU32	1CR	CB	15'-0"	TIME DELAY RELAY AGA 2412 ECLLM	CA
					ACU32	2CR	CB	15'-0"	TIME DELAY RELAY AGA 2412 ECLLM	CA
					ACU32	1st STG.COOL	CB	15'-0"	MECHANICAL CONTACTS	CA
					ACU32	2nd STG.COOL	CB	15'-0"	MECHANICAL CONTACTS	CA
				9321-LL-31263 SH13	LOCAL CCR AC CTRL PNL PI7	33-02/OPEN	CB	15'-0"	SELECTOR SWITCH	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					ACU32	42/ACF32	CB	15'-0"	MOTOR STARTER RELAY	CA
					ACU32	RF2	CB	15'-0"	RELAY WHSE BF22F	GERS
					ACU32	43-ACF32/H-O-A	CB	15'-0"	3 POSITION MAINTAINED SWITCH	NV
					ACU32	2-ACF32/T-D-O	CB	15'-0"	TIME DELAY RELAY AGA 2412ALARM	CA
					ACU32	42a,o	CB	15'-0"	MOTOR STARTER CONTACTS	CA
					ACU32	3/ACC32A	CB	15'-0"	RELAY WHSE BF22F	CA
					ACU32	3/ACC32B	CB	15'-0"	RELAY WHSE BF22F	CA
					ACU32	RF	CB	15'-0"	RELAY BF44F	CA
					ACU32	RF2	CB	15'-0"	RELAY WHSE BF22F	CA
					ACU32	432	CB	15'-0"	RELAY WHSE BF22F	GERS
					ACU32	43C/L	CB	15'-0"	LOCAL SWITCH	NV
					ACU32	BYPASS 2L	CB	15'-0"	LOCAL BYPASS SWITCH	NV
					AC CTRL PNL	BYPASS 2R	CB	53'-0"	REMOTE BYPASS SWITCH	NV
					ACU32	43C/R	CB	15'-0"	REMOTE SWITCH	NV
					ACU32	42/ACC32A	CB	15'-0"	MOTOR STARTER RELAY	CA
					ACU32	42/ACC32B	CB	15'-0"	MOTOR STARTER RELAY	CA
** F-311										
	HVAC	5	09	9321-F-40433	LOCAL	DISC SW	AB	18'-6"	DISC SWITCH	NV
				9321-LL-31373 SHT. 31	LOCAL	23/311	AB	18'-6"	THERMOSTAT	CA
** F-312										
	HVAC	5	09	9321-F-40433	LOCAL	DISC SW	AB	18'-6"	DISC SWITCH	NV
				9321-LL-31373 SHT. 31	LOCAL	23/312	AB	18'-6"	THERMOSTAT	CA
** F-313										
	HVAC	5	09	9321-F-40433	LOCAL	DISC SW	AB	18'-6"	DISC SWITCH	NV
				9321-LL-31373 SHT. 32	LOCAL	23/313	AB	18'-6"	THERMOSTAT	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** F-314										
	HVAC	5	09	9321-LL-31333 SH8,9A	LOCAL	23-4	DG	15'-0"	TEMP CONTROL	CA
					31EDG AUX START &CTRL PNL	42	PA	55'-0"	MOTOR STARTER CONTACTOR	CA
					31EDG AUX START &CTRL PNL	42a,42b	PA	55'-0"	MOTOR STARTER AUX CONTACTS	CA
					31EDG AUX START &CTRL PNL	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** F-315										
	HVAC	5	09	9321-LL-31333 SH10,11A	LOCAL	23-5	DG	15'-0"	TEMP CONTROL	CA
					31EDG AUX START &CTRL PNL	42	PA	55'-0"	MOTOR STARTER CONTACTOR	CA
					31EDG AUX START &CTRL PNL	42a,42b	PA	55'-0"	MOTOR STARTER AUX CONTACTS	CA
					31EDG AUX START &CTRL PNL	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** F-316										
	HVAC	5	09	9321-LL-31333 SH8,9A	LOCAL	23-6	DG	15'-0"	LOCAL THERMOSTAT	CA
					32EDG AUX START &CTRL PNL	42	PA	55'-0"	MOTOR STARTER CONTACTOR	CA
					32EDG AUX START &CTRL PNL	42(a,b)	PA	55'-0"	MOTOR STARTER AUX CONTACTS	CA
					32EDG AUX START &CTRL PNL	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** F-317										
	HVAC	5	09	9321-LL-31333 SH10,11A	LOCAL	23-7	DG	15'-0"	LOCAL THERMOSTAT	CA
					32EDG AUX START &CTRL PNL	42	PA	55'-0"	MOTOR STARTER CONTACTOR	CA
					32EDG AUX START &CTRL PNL	42a,42b	PA	55'-0"	MOTOR STARTER AUX CONTACTS	CA
					32EDG AUX START &CTRL PNL	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** F-318										
	HVAC	5	09	9321-LL-31333 SH8,9A	LOCAL	23-8	DG	15'-0"	LOCAL THERMOSTAT	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					33EDG AUX START &CTRL PNL	42	PA	55'-0"	MOTOR STARTER CONTACTOR	CA
					33EDG AUX START &CTRL PNL	42a,42b	PA	55'-0"	MOTOR STARTER AUX CONTACTS	CA
					33EDG AUX START &CTRL PNL	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** F-319	HVAC	5	09	9321-LL-31333 SH10,11A	LOCAL	23-9	DG	15'-0"	LOCAL THERMOSTAT	CA
					33EDG AUX START &CTRL PNL	42	PA	55'-0"	MOTOR STARTER CONTACTOR	CA
					33EDG AUX START &CTRL PNL	42a,42b	PA	55'-0"	MOTOR STARTER AUX CONTACTS	CA
					33EDG AUX START &CTRL PNL	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** PABSF	HVAC	5	09	9321-LL-31273 SHT. 6	FAN ROOM CTRL PNL JC1	1/EXF	FR		TYPE "W2" CTRL SW 3 POSITION, SPRING RETURN TO OFF SELECT SW	NV
				9321-LL-31183 SHT. 3, 6	FAN ROOM CTRL PNL JC1	43/EXF	FR		SELECTOR SWITCH	NV
					FAN ROOM CTRL PNL JC1	JOG	FR		PUSHBUTTON	NV
					MCC37, COMPT 1FE	42, 42b	PA	55'-0"	MOTOR STARTER CONTACTS	GERS
					MCC37, COMPT 1FE	49	PA	55'-0"	THERMAL OVERLOAD CONTACTS	NV
					480V SWGR 32	52a EXF1, 52a/EXF2	CB	15'-0"	SWGR BREAKER MECHANICAL CONTACTS	NV
					480V SWGR 32	H	CB	15'-0"	SWGR BREAKER CONTACTS	NV
** 0031 IAC	IA	5	12	9321-LL-31293 SHT 2	LOCAL COMPR CTRL PNL	1/IAC31	CB	15'-0"	"HAND-OFF-AUTO" MANUAL SWITCH	NV
					LOCAL COMPR CTRL PNL	63-2	CB	15'-0"	PRESSURE SWITCH PC-1164S	CA
					LOCAL COMPR CTRL PNL	63-1	CB	15'-0"	PRESSURE SWITCH PC-1162S	CA
					LOCAL COMPR CTRL PNL	TD	CB	15'-0"	TIME DELAY RELAY	CA
					LOCAL	23-1	CB	15'-0"	TC-1104S	CA
					LOCAL	23-2	CB	15'-0"	TC-1106S	CA
					MCC 39	42, 42a, 42b	CB	33'-0"	MOTOR STARTER CONTACTS	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					MCC 39	49	CB	33'-0"	THERMAL OVERLOAD DEVICE	NV
** 0031CLWP	IA	5	05	9321-LL-31293 SHT 5	IACC CIRC PMP CONT STA.	1/CSP31	CB	15'-0"	"ON-OFF-STANDBY" MANUAL SWITCH	NV
					IACC CIRC PMP CONT STA.	1/CSP32	CB	15'-0"	"ON-OFF-STANDBY" MANUAL SWITCH	NV
					MCC 39, COMPT. 4K	42, 42a, 42b	CB	33'-0"	MOTOR STARTER CONTACTS	GERS
					MCC 39, COMPT. 4K	49	CB	33'-0"	THERMAL OVERLOAD DEVICE	NV
					MCC 34	42b/CSP32	TB	15'-0"	MOTOR STARTER CONTACT	CA
					LOCAL	63/CSP32	CB	15'-0"	PRESS SWITCH PC-1174S	CA
					LOCAL	63/CSP	CB	15'-0"	PRESS SWITCH PC-1177S	NA
** 0032 IAC	IA	5	12	9321-LL-31243 SHT 10	LOCAL COMPR CTRL PNL	1/IAC32	CB	15'-0"	"HAND-OFF-AUTO" MANUAL SWITCH	NV
					LOCAL COMPR CTRL PNL	63-2	CB	15'-0"	PRESSURE SWITCH PC-1165S	CA
					LOCAL COMPR CTRL PNL	63-1	CB	15'-0"	PRESSURE SWITCH PC-1163S	CA
					LOCAL COMPR CTRL PNL	TD	CB	15'-0"	TIME DELAY RELAY	CA
					LOCAL	23-1	CB	15'-0"	TC-1105S	CA
					LOCAL	23-2	CB	15'-0"	TC-1107S	CA
					MCC 34	42, 42a, 42b	TB	33'-0"	MOTOR STARTER CONTACTS	GERS
					MCC 34	49	TB	33'-0"	THERMAL OVERLOAD DEVICE	NV
** 0032CLWP	IA	5	05	9321-LL-31243 SHT 11	IACC CIRC PMP CONT STA.	1/CSP31	CB	15'-0"	"ON-OFF-STANDBY" MANUAL SWTICH	NV
					IACC CIRC PMP CONT STA.	1/CSP32	CB	15'-0"	"ON-OFF-STANDBY" MANUAL SWITCH	NV
					MCC 34	42, 42a, 42b	TB	15'-0"	MOTOR STARTER CONTACTS	GERS
					MCC 34	49	TB	15'-0"	THERMAL OVERLOAD DEVICE	NV
					MCC 39	42b/CSP31	CB	33'-0"	MOTOR STARTER CONTACTS	CA
					LOCAL	63/CSP31	CB	15'-0"	PRESS SWITCH PC-1173S	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** PCV-1141										
	IA	5	07	9321-F-70483,-2036	CCR PANEL SJ	TD1X	CB	53'-0"	RELAY WHSE BF40F	CA
				9321-F-31313 SH5,	CCR PANEL SJ	TD1	CB	53'-0"	TIME DELAY RELAY AGA 2422	CA
				9321-F-31293 SH2,	VALVE MOUNTED	33-2/SA-ac	CB	15'-0"	VALVE LIMIT SWITCHES	NV
				9321-F-31173 SH11,	VALVE MOUNTED	33-2/SA-bo	CB	15'-0"	VALVE LIMIT SWITCHES	NV
				9321-F-31243 SH10,	LOCAL	63-2/SA (PC11685)	CB	15'-0"	PRESSURE SWITCH	CA
					480V SWGR 31	52b/SAC	CB	15'-0"	SRVC AIR COMPR BREAKER SWITCH	NV
					480V SWGR 31	33H/SAC	CB	15'-0"	SRVC AIR COMPR BREAKER CELL SWITCH	NV
					MCC 34	42b/IAC 32	TB	15'-0"	MCC STARTER AUX CONTACT	CA
					MCC 39	42b/IAC 31	CB	33'-0"	MCC STARTER AUX CONTACT	CA
** PCV-1142										
	IA	5	07	9321-F-70483,-20363	CCR PANEL SJ	TD1X	CB	53'-0"	RELAY WHSE BF40F	CA
				9321-LL-31313 SH5,	CCR PANEL SJ	TD1	CB	53'-0"	TIME DELAY RELAY AGA 2422	CA
				9321-LL-31293 SH2,	VALVE MOUNTED	33-1/IA-ac	CB	15'-0"	VALVE LIMIT SWITCHES	NV
				9321-LL-31173 SH11,	VALVE MOUNTED	33-1/IA-bo	CB	15'-0"	VALVE LIMIT SWITCHES	NV
				9321-LL-31243 SH10	LOCAL	63-1/IA (PC1169S)	CB	15'-0"	PRESSURE SWITCH	CA
					480V SWGR 31	52b/SAC	CB	15'-0"	SRVC AIR COMPR BREAKER SWITCH	NV
					480V SWGR 31	33H/SAC	CB	15'-0"	SRVC AIR COMPR BREALER CELL SWITCH	NV
					MCC 34	42b/IAC 32	TB	15'-0"	MCC STARTER AUX CONTACT	CA
					MCC 39	42b/IAC 31	CB	33'-0"	MCC STARTER AUX CONTACT	CA
** PCV-1143										
	IA	5	07	9321-F-70483,-20363	CCR PANEL SJ	TD1X	CB	53'-0"	RELAY WHSE BF40F	CA
				9321-LL-31313 SH5	CCR PANEL SJ	TD1	CB	53'-0"	TIME DELAY RELAY AGA 2422	CA
				9321-LL-31293 SH2	VALVE MOUNTED	33-2/IA-ac	CB	15'-0"	VALVE LIMIT SWITCHES	NV
				9321-LL-31173 SH11	VALVE MOUNTED	33-2/IA-bo	CB	15'-0"	VALVE LIMIT SWITCHES	NV
				9321-LL-31243 SH10	LOCAL	63-2/IA (PC1170S)	CB	15'-0"	PRESSURE SWITCH	CA
					480V SWGR 31	52b/SAC	CB	15'-0"	SRVC AIR COMPR BREAKER SWITCH	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31	33H/SAC	CB	15'-0"	SRVC AIR COMPR BREAKER CELL SWITCH	NV
					MCC 34	42b/IAC 32	TB	15'-0"	MCC STARTER AUX CONTACT	CA
					MCC 39	42b/IAC 31	CB	33'-0"	MCC STARTER AUX CONTACT	CA
** SOV-1177										
	IA		08	9321-LL-31793 SH2	LOCAL COMPT CTRL PNL	1/IAC21	CB	15'-0"	"HAND-OFF-AUTO" MANUAL SWITCH	NV
					LOCAL	23-1	CB	15'-0"	TC-1104S	CA
					LOCAL	23-2	CB	15'-0"	TC-1106S	CA
					MCC 39	42, 42a, 42b	CB	33'-0"	MOTOR STARTER CONTACTS	CA
					MCC 39	49	CB	33'-0"	THERMAL OVERLOAD DEVICE	NV
					LOCAL COMPT CTRL PNL	63-2	CB	15'-0"	PRESSURE SWITCH PC-1164S	CA
					LOCAL COMPT CTRL PNL	63-1	CB	15'-0"	PRESSURE SWITCH PC-1162S	CA
					LOCAL COMPT CTRL PNL	TD	CB	15'-0"	TIME DELAY RELAY	CA
** SOV-1178										
	IA		08	9321-LL-31243 SH10	LOCAL COMPT CTRL PNL	1/IAC22	CB	15'-0"	"HAND-OFF-AUTO" MANUAL SWITCH	NV
					LOCAL COMPT CTRL PNL	TD	CB	15'-0"	TIME DELAY RELAY	CA
					LOCAL COMPT CTRL PNL	63-2	CB	15'-0"	PRESSURE SWITCH PC-1165S	CA
					LOCAL COMPT CTRL PNL	63-1	CB	15'-0"	PRESSURE SWITCH PC-1163S	CA
					LOCAL	23-1	CB	15'-0"	TC-1105S	CA
					LOCAL	23-2	CB	15'-0"	TC-1107S	CA
					MCC 34	42, 42a, 42b	TB	15'-0"	MOTOR STARTER CONTACTS	CA
					MCC 34	49	TB	15'-0"	THERMAL OVERLOAD DEVICE	NV
** SOV-1198										
	IA		08	9321-LL-31293 SH2	LOCAL COMPT CTRL PNL	1/IAC21	CB	15'-0"	"HAND-OFF-AUTO" MANUAL SWITCH	NV
					LOCAL COMPT CTRL PNL	TD	CB	15'-0"	TIME DELAY RELAY	CA
					LOCAL COMPT CTRL PNL	63-2	CB	15'-0"	PRESSURE SWITCH PC-1164S	CA
					LOCAL COMPT CTRL PNL	63-1	CB	15'-0"	PRESSURE SWITCH PC-1162S	CA
					LOCAL	23-1	CB	15'-0"	TC-1104S	CA

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					LOCAL	23-2	CB	15'-0"	TC-1106S	CA
					MCC 39	42, 42a, 42b	CB	33'-0"	MOTOR STARTER CONTACTS	CA
					MCC 39	49	CB	33'-0"	THERMAL OVERLOAD DEVICE	NV
** SOV-1199	IA		08	9321-LL-31243 SH10	LOCAL COMPT CTRL PNL	1/IAC22	CB	15'-0"	"HAND-AOO-AUTO" MANUAL SWITCH	NV
					LOCAL COMPT CTRL PNL	TD	CB	15'-0"	TIME DELAY RELAY	CA
					LOCAL COMPT CTRL PNL	63-2	CB	15'-0"	PRESSURE SWITCH PC-1165S	CA
					LOCAL COMPT CTRL PNL	63-1	CB	15'-0"	PRESSURE SWTICH PC-1163S	CA
					LOCAL	23-1	CB	15'-0"	TC-1105S	CA
					LOCAL	23-2	CB	15'-0"	TC-1107S	CA
					MCC 34	42, 42a, 42b	TB	15'-0"	MOTOR STARTER CONTACTS	CA
					MCC 34	49	TB	15'-0"	THERMAL OVERLOAD DEVICE	NV
** SOV-1428	IA	5	08	113E303 SH6	CCR PANEL SHR	IR28	CB	53'-0"	RELAY GOULD J13P20	OA
				113E303 SH8	CCR PANEL SMF	PB28	CB	53'-0"	PUSHBUTTON	NV
				9321-LL-31313 SH19	CCR PANEL SNF	1/IAIV	CB	53'-0"	CLOSE-OPEN SWITCH	NV
					CCR RACK G-4	C-A13X	CB	53'-0"	RELAY WHSE BFD48S	GERS
					CCR RACK G-6	C-A23X	CB	53'-0"	RELAY WHSE BFD48S	GERS
					VALVE MOUNTED	33-7 (ac,bo,bc)	PP	41'-0"	VALVE POSITION SWITCHES	NV
** MS-1-31	MS	4	07	9321-F-20173,-70093	CCR RACK G-6	MS11	CB	53'-0"	RELAY WHSE BFD66S	CA
				9321-F-31313 SH.21	CCR RACK G-4	MS1	CB	53'-0"	RELAY WHSE BFD66S	CA
				113E303 SH.5,8	CCR PANEL SBF-1	SEL. SW. 1/MS-1-31	CB	53'-0"	"TRIP-AUTO-RESET" SPRING RETURN TO AUTO	NV
** MS-1-32	MS	4	07	9321-F-20173,-70093	CCR RACK G-6	MS12	CB	53'-0"	RELAY WHSE BFD66S	CA

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				9321-F-31313 SH.21	CCR RACK G-4	MS2	CB	53'-0"	RELAY WHSE BFD66S	CA
				113E303 SH.5,8	CCR PANEL SBF-1	SEL. SW. 1/MS-1-32	CB	53'-0"	"TRIP-AUTO-RESET" SPRING RETURN TO AUTO	NV
** MS-1-33										
	MS	4	07	9321-F-20173,-70093	CCR RACK G-6	MS13	CB	53'-0"	RELAY WHSE BFD66S	CA
				9321-F-31313 SH.21	CCR RACK G-4	MS3	CB	53'-0"	RELAY WHSE BFD66S	CA
				113E303 SH.5,8	CCR PANEL SBF-1	SEL. SW. 1/MS-1-33	CB	53'-0"	"TRIP-AUTO-RESET" SPRING RETURN TO AUTO	NV
** MS-1-34										
	MS	4	07	9321-F-20173,-70093	CCR RACK G-6	MS14	CB	53'-0"	RELAY WHSE BFD66S	CA
				9321-F-31313 SH.21	CCR RACK G-4	MS4	CB	53'-0"	RELAY WHSE BFD66S	CA
				113E303 SH.5,8	CCR PANEL SBF-1	SEL. SW. 1/MS-1-34	CB	53'-0"	"TRIP-AUTO-RESET" SPRING RETURN TO AUTO	NV
** PCV-1139										
	MS	4	07	9321-F-20173	LOCAL	1-2/ABFP2	AB	15'-0"	SELECTOR SWITCH (TRIP/AUTO/ON)	NV
				9321-LL-31183	LOCAL	33-3	AB	15'-0"	TRIP VALVE LIMIT SWITCH (ALSO OPERATES ON OVERSPEED TRIP)	NV
				SHT 5,5A,6	CCR PANEL SC	1-1/ABFP2	CB	53'-0"	SELECTOR SWITCH (TRIP/AUTO/ON)	NV
				113E302 SHT1	480V SWGR 31, COMPT. 25H	BFPL	CB	15'-0"	RELAY WHSE BFD22S	CA
					480V SWGR 31, COMPT. 8H	3-2/6A	CB	15'-0"	RELAY WHSE BFD80S	CA
					480V SWGR 31, COMPT. 28H	3-2/3A	CB	15-0"	RELAY WHSE BFD40S	CA
					RACK F-7 (AMSAC CABINET)	AMSAC	CB	15'-0"	RELAY	GERS
					CCR RACK G-2	71/SG1-X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	71/SG2-X	CB	15'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	71/SG3-X	CB	15'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	71/SG4-X	CB	15'-0"	RELAY WHSE BF66F	CA

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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** PCV-1310A										
	MS	4	07	9321-F-20173	CCR PANEL SC	1/AFPSS1	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
				9321-LL-31313 SH.29	CCR PANEL SC	TC-1112A/X	CB	53'-0"	AUX RELAY	CA
					LOCAL	TC-1112A	AB	30'-0"	TEMP CONTROLLER	CA
** PCV-1310B										
	MS	4	07	9321-F-20173	CCR PANEL SC	1/AFPSS2	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
				9321-LL-31313 SH.29	CCR PANEL SC	TC-1113A/X	CB	53'-0"	AUX RELAY	CA
					LOCAL	TC-1113A	AB	36'-0"	TEMP CONTROLLER	CA
** 31PWMUP										
	PW	3	05	5008971 SHTS. 83, 201	CCR PANEL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	OA
					CCR PANEL FBF	YIC-111	CB	53'-0"	DEMIN WATER COUNTER	OA
					CCR RACK G-2	BSX-1	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-2	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-3	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-4	CB	53'-0"	RELAY WHSE BF84	GERS
					CCR RACK G-2	LC-112BX	CB	53'-0"	RELAY WHSE BF22	GERS
					CCR PANEL FCF	1/BCR	CB	53'-0"	MAKEUP SWITCH "STOP/NORM/START"	NV
					CCR PANEL FCF	1/PWMP31	CB	53'-0"	CONTROL SWITCH 3-POSITION	NV
					CCR PANEL FCF	43/BAB	CB	53'-0"	MODE SWITCH "DILUTE/BORATE/AUTO/MANUAL"	NV
					MCC-37, COMPT. 6RK	42/PWMP31, 42a	PA	55'-0"	MOTOR STARTER CONTACTS	GERS
					MCC-37, COMPT. 6RK	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** 32PWMUP										
	PW	3	05	5008971 SHTS. 83, 201	CCR PANEL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	OA
					CCR PANEL FBF	YIC-111	CB	53'-0"	DEMIN WATER COUNTER	OA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-2	BSX-1	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-2	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-3	CB	53'-0"	RELAY WHSE BF66	GERS
					CCR RACK G-2	BSX-4	CB	53'-0"	RELAY WHSE BF84	GERS
					CCR RACK G-2	LC-112BX	CB	53'-0"	RELAY WHSE BF22	GERS
					CCR PANEL FCF	1/BCR	CB	53'-0"	MAKEUP SWITCH "STOP/NORM/START"	NV
					CCR PANEL FCF	1/PWMP32	CB	53'-0"	CONTROL SWITCH 3-POSITION	NV
					CCR PANEL FCF	43/BAB	CB	53'-0"	MODE SWITCH "DILUTE/BORATE/AUTO/MANUAL"	NV
					MCC-37, COMPT. 5RK	42/PWMP32, 42a	PA	55'-0"	MOTOR STARTER CONTACTS	GERS
					MCC-37, COMPT. 5RK	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** G-1										
	RCS	5	18	113E302 SH3,4	CCR RACK G-1	LC-920A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-920B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-931/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-934A/X	CB	13'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-934B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-934C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-934D/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-934E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-934F/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-934G/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-934H/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-935A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-935B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-935C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-935D/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-935E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-935F/X	CB	53'-0"	RELAY WHSE BF22F	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-1	LC-935G/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-935H/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-403A/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	PC-936A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-936B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-936C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-936D/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-936E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-936F/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-936G/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-936H/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-937A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-937B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-937C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-937D/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-937E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-937F/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-937G/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-937H/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	RTAL/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	LC-417I/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-427I/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-437I/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-447I/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-403B/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	LC-486/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-487/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-492/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-493/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	RCP-31HI/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	RCP-31LO/X	CB	53'-0"	RELAY WHSE BF22F	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-1	RCP-32HI/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	RCP-32LO/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	RCP-33HI/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	RCP-33LO/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	RCP-34HI/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	RCP-34LO/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-488/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-489/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-490/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	LC-491/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-418C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	FC-418E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	FC-428C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	FC-428E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	FC-438C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	FC-438E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	FC-448C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	FC-448E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	FC-417J/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	FC-427J/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	FC-437J/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	FC-447J/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	1/NC-31A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	1/NC-32A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	1/TC-412A/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/TC-422A/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/TC-432A/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/TC-442A/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	NC-32C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-31C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-32H/X	CB	53'-0"	RELAY WHSE BF22F	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-1	NC-31H/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-35K/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-36K/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-41T/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-42T/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-43T/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-44T/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-46B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NM-31D/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NM-32D/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NM-35C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NM-36C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NM-41E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NM-42E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NM-43E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NM-44E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NM-37E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-35M/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-36M/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-41L/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	NC-42L/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	NC-43L/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	NC-44L/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/NC-41L/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/NC-42L/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/NC-43L/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/NC-44L/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC-411/BX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC-421/BX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC-431/BX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC-441/BX	CB	53'-0"	RELAY WHSE BF66F	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-1	1/TC-411/BX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/TC-411/DX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/TC-421/BX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/TC-421/DX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/TC-431/BX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/TC-431/DX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/TC-441/BX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	1/TC-441/DX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC-411D/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC-421D/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC-431D/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC-441D/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC/D	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	TC/B	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	V731-33ac/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	S2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	NC-35E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	NC-36E/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	PC-412/AX	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	TC-412A/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC-422A/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC-432A/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TC-442A/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	TURB./B	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	RC-19/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	RS/1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-1	RSC/1	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-1	STD	CB	53'-0"	SYRACUSE ON-OFF TIMER	CA
** G-2										
	RCS	5	18	113E302 SH1,2	CCR RACK G-2	LC-459C/X	CB	53'-0"	RELAY WHSE BF66F	CA

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					CCR RACK G-2	LC-459E/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	LC-459F/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	LC-459G/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	LC-460C/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	LC-460D/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	LC-470A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	LC-470B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	LC-102A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	PC-402A/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	PC-455F/X	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	PC-455I/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-455J/X	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	PC-456F/X	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	PC-456G/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-457F/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-472/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-474B/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	71-SG1/X	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	71-SG2/X	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	71-SG3/X	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	71-SG4/X	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	TC-401/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-411F/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	YC-411A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	YC-411B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-412B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-421F/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	YC-421A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	YC-421B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-422B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-431F/X	CB	53'-0"	RELAY WHSE BF22F	CA

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					CCR RACK G-2	YC-431A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	YC-431B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-432B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-441F/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	YC-441A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-412/I-X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-412/K-X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-412/L-X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-412/L-X-2	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	YC-441B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	PC-SAT-1	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-442B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-450/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-451/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-452/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-453/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-454/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-463/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-465/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-467/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-469/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	TC-471/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	LC-106A/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-SAT-2	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-412/QX	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-412/RX	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	P5	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	FC-134/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-156A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-156B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-157A/X	CB	53'-0"	RELAY WHSE BF22F	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-2	FC-157B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-158A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-158B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-159A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-159B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-601A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-601B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	LC-102/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	LC-106/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	LC-112A/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	LC-112B/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	LC-112C/X	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	TC-103/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-107/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-122/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-127/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-129/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-140/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-602A/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-917A/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	TC-917B/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	LC-628A/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	LC-628B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	LC-629A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	LC-629B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	S1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	TURB.A	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-124/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-131/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-135B/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-139/X	CB	53'-0"	RELAY WHSE BF22F	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-2	PC-145/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-919/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-402B/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	PC-602B/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-600A/X	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	PC-600B/X	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	YC-110/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	YC-111/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-183/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-186/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-187/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	PC-188/X	CB	53'-0"	RELAY WHSE BF22F	GERS
					CCR RACK G-2	BSX/1	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	BSX/2	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	BSX/3	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	BSX/4	CB	53'-0"	RELAY WHSE BF84F	GERS
					CCR RACK G-2	BSX/4X1	CB	53'-0"	RELAY WHSE BF66F	GERS
					CCR RACK G-2	2-BSX/6	CB	53'-0"	TIME DELAY RELAY AGA 2414AD	GERS
					CCR RACK G-2	2-BSX/7	CB	53'-0"	TIME DELAY RELAY AGA 2414AD	GERS
					CCR RACK G-2	V-730-33ac/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	FC-946A/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-946B/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	PC-947/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-946C/X	CB	53'-0"	RELAY WHSE BF22F	CA
					CCR RACK G-2	FC-946D/X	CB	53'-0"	RELAY WHSE BF22F	CA
** G-3										
	RCS	5	18	113E303	CCR RACK G-3	LC-459B/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-455E/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-455C/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-419A/X1	CB	53'-0"	RELAY WHSE BF66F	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-3	PC-419D/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	FC-419A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	FC-429A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	FC-439A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	FC-449A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	TC-412D/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	LC-427C/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	LC-437C/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-439C/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-439D/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	TC-412M/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PB/SITR1	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-3	PB/VTR1	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-3	PB/RTT1	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-3	PB/CATR1	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-3	FC-419A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	FC-429A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	FC-439A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	FC-449A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	TC-412D/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-455C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	LC-459B/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-455E/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-419D/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-439C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-419A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-439D/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	LC-427C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	LC-437C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	TC-412M/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-429E/X1T	CB	53'-0"	TEST SWITCH	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-3	PC-439A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	TC-432D/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-457C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	LC-461B/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-457E/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-429G/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-429H/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	LC-427E/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	LC-437E/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	LC-417E/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	LC-447E/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-948B/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-949B/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	PC-948E/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-3	LC-461B/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-457E/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-457C/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-429G/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-429H/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	TC-432D/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-429E/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-433A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-948E/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-943B/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	PC-949B/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	LC-417E/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	LC-427E/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	LC-437E/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	LC-447E/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-3	SI1	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-3	SI11	CB	53'-0"	RELAY WHSE MG-6	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-3	2-SI-D1	CB	53'-0"	TIME DELAY RELAY AGA 2412-PE 120 SEC.	CA
					CCR RACK G-3	SIR1	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-3	SIB1	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-3	SI10X	CB	53'-0"	RELAY WHSE BFD75S	CA
					CCR RACK G-3	SI11X	CB	53'-0"	RELAY WHSE BFD120S	CA
					CCR RACK G-3	SI12X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-3	SI13X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-3	F1X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-3	F2X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-3	F3X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-3	F4X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-3	FWX-3T	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-3	RTX1	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-3	FWX1	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-3	FWX2	CB	53'-0"	RELAY WHSE BFD48S	CA
** G-4										
	RCS	5	18	113E303	CCR RACK G-4	LC-460B/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-456E/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-456C/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-429A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-429C/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	FC-419B/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	FC-429B/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	FC-439B/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	TC-422D/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-949C/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	LC-417C/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	LC-447C/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-419B/X1	CB	53'-0"	RELAY WHSE BF66F	CA

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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					CCR RACK G-4	PC-419E/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PB/STR1	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-4	PB/OBTR1	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-4	PB/T1	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-4	PB/TR1	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-4	1/FW1DA	CB	53'-0"	CONTROL SWITCH	NV
					CCR RACK G-4	FC-429B/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	FC-419B/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	FC-449B/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	FC-439B/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	TC-422D/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-456C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	LC-460B/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-456E/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-429A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-419E/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-419B/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-429C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	LC-417C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	LC-447C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-948C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-949C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-948F/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-419G/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-449A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	TC-442D/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-419C/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-419F/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	LC-427A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	LC-437A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	LC-417A/X1T	CB	53'-0"	TEST SWITCH	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-4	LC-447A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-948A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-949A/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-948D/X1T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-4	PC-419C/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-419F/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	TC-442D/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-419G/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-449A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-948D/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-948A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	PC-949A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	LC-417A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	LC-427A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	LC-437A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	LC-447A/X1	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-4	C-A1	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-4	C-A11	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-4	S1	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-4	C-B1	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-4	V1	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-4	V1-1X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	SL1	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	MS1	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	MS2	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	MS3	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	MS4	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	74X1	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	AS1	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	S1-1X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	CB-1R	CB	53'-0"	RELAY WHSE BFD66S	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-4	C-B11X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	CA-1R	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	C-A11X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-4	C-A12X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-4	C-A13X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-4	C-A14X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-4	CS-1R	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	74-X3	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-4	TR1-1	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-4	TR2-1	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-4	TR3-1	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-4	C-A15X	CB	53'-0"	RELAY GOULD J13P30	CA
					CCR RACK G-4	62	CB	53'-0"	TDPU 0.5 TO 5 SEC, SET @ 2 SEC.	CA
** G-5										
	RCS	5	18	113E303	CCR RACK G-5	LC-459B/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-455E/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-455C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-419A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-419D/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	FC-419A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	FC-429A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	FC-439A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	FC-449A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	TC-412D/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	LC-427C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	LC-437C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-439C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-439D/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	TC-412M/X2	CB	53'-0"	RELAY WHSE BF66F	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-5	PB/SITR2	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-5	PB/UTR2	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-5	PB/RTT2	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-5	PB/CATR2	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-5	FC-419A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	FC-429A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	FC-439A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	TC-412D/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-455C/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	LC-459B/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-455E/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-419D/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-439D/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-419A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-439A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	LC-427C/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	LC-437C/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	TC-412M/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-429E/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-439A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	TC-432D/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-457C/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	LC-461B/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-457E/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-429G/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-429H/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	LC-427E/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	LC-437E/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	LC-417E/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	LC-447E/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-948B/X2T	CB	53'-0"	TEST SWITCH	NV

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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-5	PC-949B/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	PC-948E/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-5	LC-461B/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-457E/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-457C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-429G/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-429H/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	TC-432D/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-429E/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-433A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-948E/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-943B/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	PC-949B/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	LC-417E/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	LC-427E/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	LC-437E/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	LC-447E/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-5	SI2	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-5	SI12	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-5	2-SI-D2	CB	53'-0"	TIME DELAY RELAY AGA 2412-PE 120 SEC.	CA
					CCR RACK G-5	SIR2	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-5	SIB2	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-5	SI20X	CB	53'-0"	RELAY WHSE BFD75S	CA
					CCR RACK G-5	SI21X	CB	53'-0"	RELAY WHSE BFD120S	CA
					CCR RACK G-5	SI22X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-5	SI23X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-5	F11X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-5	F12X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-5	F13X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-5	F14X	CB	53'-0"	RELAY WHSE BFD66S	CA

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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-5	FWX-13T	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-5	RTX11	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-5	FWX11	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-5	FWX12	CB	53'-0"	RELAY WHSE BFD48S	CA
** G-6										
	RCS	5	18	113E303	CCR RACK G-6	LC-460B/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-456E/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-456C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-429A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-429C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	FC-419B/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	FC-429B/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	FC-439B/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	FC-449B/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	TC-422D/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-948F/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-948C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-949C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	LC-417C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	LC-447C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-419B/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-419E/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PB/STR2	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-6	PB/CBTR2	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-6	PB/T2	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-6	PB/TR2	CB	53'-0"	PUSHBUTTON	NV
					CCR RACK G-6	1/FWIDB	CB	53'-0"	CONTROL SWITCH	NV
					CCR RACK G-6	FC-429B/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	FC-419B/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	FC-449B/X2T	CB	53'-0"	TEST SWITCH	NV

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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					CCR RACK G-6	FC-439B/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	TC-422D/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-456C/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	LC-460B/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-456E/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-429A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-419E/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-419B/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-429C/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	LC-417C/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	LC-447C/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-948C/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-949C/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-948F/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-419G/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-449A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	TC-442D/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-419C/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-419F/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	LC-427A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	LC-437A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	LC-417A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	LC-447A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-948A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-949A/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-948D/X2T	CB	53'-0"	TEST SWITCH	NV
					CCR RACK G-6	PC-419C/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-419F/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	TC-442D/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-419G/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-449A/X2	CB	53'-0"	RELAY WHSE BF66F	CA

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					CCR RACK G-6	PC-948D/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	PC-949A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	LC-417A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	LC-427A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	LC-437A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	LC-447A/X2	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-6	C-A2	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-6	C-A12	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-6	S1	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-6	C-B2	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-6	V2	CB	53'-0"	RELAY WHSE MG-6	CA
					CCR RACK G-6	V2-1X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	SL2	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	MS11	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	MS12	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	MS13	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	MS14	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	74X2	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	AS22	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	S2-1X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	CB-2R	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	C-B21X	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	CA-2R	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	C-A21X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-6	C-A22X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-6	C-A23X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-6	C-A24X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-6	CS-2R	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	74-X4	CB	53'-0"	RELAY WHSE BFD66S	CA
					CCR RACK G-6	TR1-2	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-6	TR2-2	CB	53'-0"	RELAY WHSE BFD48S	CA

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					CCR RACK G-6	TR3-2	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR RACK G-6	C-A25X	CB	53'-0"	RELAY GOULD J13P30	CA
					CCR RACK G-6	62-1	CB	53'-0"	TDPU 0.5 TO 5 SEC, SET @ 2 SEC.	CA
** PBU1										
	RCS	2	R	500B971 SHT. 39	CCR PANEL FBF	1/PBU1	CB	53'-0"	CONTROL SWITCH 3-POSITION	NV
					PANEL PL6	43	PA	55'-0"	TRANSFER SWITCH (REMOTE/LOCAL)	NV
					PANEL PL6	START	PA	55'-0"	PUSHBUTTON	NV
					PANEL PL6	STOP	PA	55'-0"	PUSHBUTTON	NV
					480V SWGR 31, COMPT. 28H	3-3/3A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 32, COMPT. 4A	86	CB	15'-0"	RELAY WHSE BFD22S	GERS
					CCR RACK G-2	LC-459/EX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	PC-455/JX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	LC-459/CX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	LC-460/CX	CB	53'-0"	RELAY WHSE BF66F	CA
** PBU2										
	RCS	2	R	500B971 SHT. 49	CCR PANEL FBF	1/PBU2	CB	53'-0"	CONTROL SWITCH 3-POSITION	NV
					480V SWGR 31, COMPT. 28H	3-3/2A2	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 31, COMPT. 30A	86	CB	15'-0"	RELAY WHSE BFD22S	GERS
					CCR RACK G-2	LC-459/EX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	PC-455/JX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	LC-459/CX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	LC-460/CX	CB	53'-0"	RELAY WHSE BF66F	CA
** PBU3										
	RCS	2	R	500B971 SHT. 88	CCR PANEL FBF	1/PBU3	CB	53'-0"	CONTROL SWITCH 3-POSITION	NV
					480V SWGR 31, COMPT. 25H	3-3/5A2	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 31, COMPT. 20A	86	CB	15'-0"	RELAY WHSE BFD22S	GERS
					CCR RACK G-2	LC-459/EX	CB	53'-0"	RELAY WHSE BF66F	CA

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SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR RACK G-2	PC-455/JX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	LC-459/CX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR RACK G-2	LC-460/CX	CB	53'-0"	RELAY WHSE BF66F	CA
** PCV-455C										
	RCS	2	07	500B971 SH 106,124E	CCR PANEL FCF	1/455C	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
				9321-LL-31373 SH 16,16A,17,18A	CCR PANEL FCF	PC-455F/X	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR PANEL FCF	PC-474B/X	CB	53'-0"	RELAY WHSE BF22F	CA
				113E302 SH 1	VALVE MOUNTED	33(ac,bo)	VC	124'-0"	CONTROL AUX CONTACTS	NV
				9321-LL-31403 SH 20	CCR RACK H-4	OPXB	CB	53'-0"	RELAY WHSE NBFD66S	CA
					CCR RACK H-4	OPXB2	CB	53'-0"	RELAY WHSE NBFD66S	CA
					CCR RACK H-4	PC-443XB	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-4	PC-413XB	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-4	TC-435XB	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-4	TC-433XB2	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-4	TC-443XB2	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-4	TC-413XB2	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-3	PC-443	CB	53'-0"	DIFF BI-STABLE ALARM UNIT	NV
					CCR RACK H-2	TC-433L	CB	53'-0"	ALARM BI-STABLE	NV
					CCR RACK H-1	TC-413L	CB	53'-0"	ALARM BI-STABLE ALARM UNIT	NV
	RCS	2	07		CCR RACK H-1	PC-413	CB	53'-0"	DIFF BISTABLE ALARM UNIT	NV
** PCV-456										
	RCS	2	07	500B971 SH106	CCR PANEL FCF	1/456	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
				500B971 SH129E	CCR PANEL FCF	PC-456 F/X	CB	53'-0"	RELAY WHSE BF66F	CA
				9321-LL-31403 SH21	CCR PANEL FCF	PC-457 F/X	CB	53'-0"	RELAY WHSE BF22F	CA
				9321-LL-31373	VALVE MOUNTED	33 (ac,bo)	VC	124'-0"	VALVE AUX CONTACTS	NV
				SH 16,16A,127,17A,18A	CCR RACK H-5	OPXA	CB	53'-0"	RELAY WHSE NBFD66S	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
				113E302 SH1	CCR RACK H-5	OPXA2	CB	53'-0"	RELAY WHSE NBFD66S	CA
					CCR RACK H-5	PC443XA	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-5	PC413XA	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-5	PC433XA	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-5	TC443XA2	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-5	TC413XA2	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-5	TC433XA2	CB	53'-0"	RELAY WHSE BF44V	CA
	RCS	2	07		CCR RACK H-5	TC033XA	CB	53'-0"	RELAY WHSE BF44V	CA
** RC-516										
	RCS	2	07	9321-F-27473	VALVE MOUNTED	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	NV
				500B971 SH91,120	CCR PANEL SAF	1/516	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** RC-519										
	RCS	2	07	500B971 SH10,91	CCR RACK G-4	C-A11X	CB	53'-0"	RELAY WHSE BFD84S	CA
				9321-F-27473	CCR PANEL SAF	1/V519	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
				500B971 SH124A	CCR PANEL SNF	PB8	CB	53'-0"	PUSHBUTTON	NV
				113E303 SH6,8	CCR PANEL SHR	IR8	CB	53'-0"	RELAY GOULD J13	CA
				113E700 SH33	VALVE MOUNTED	33(ac,bc,bo)	PP	41'-0"	VLV AUX CONTACTS	NV
** RC-523										
	RCS	2	07	500B971 SH91	CCR PANEL SAF	1/523	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
				500B971 SH120	VALVE MOUNTED	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	NV
** RC-544										
	RCS	2,3	07	500B971 SH91	VALVE MOUNTED	33(ac,bo)	VC	60'-0"	VLV AUX CONTACTS	NV
				500B971 SH120	CCR PANEL SAF	1/544	CB	53'-0"	CLOSE/OPEN SWITCH	NV
** RC-549										
	RCS	1,2,3	07	500B971 SH10,91,124A	CCR PANEL SNF	1/V459	CB	53'-0"	SELECTOR SWITCH (CLOSE/REMOTE)	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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				9321-F-27363,	CCR PANEL SNF	PB33	CB	53'-0"	PUSHBUTTON	NV
				113E303 SHT6						
				113E700 SH33	CCR RACK G-6	C-A21X	CB	53'-0"	RELAY WHSE BFD48S	CA
					GAS ANALYZER PANEL PF6	E3	PA	55'-0"	CONTROL SWITCH	NV
					CCR PANEL SHR	IR-33	CB	53'-0"	RELAY GOULD J33	CA
** RC-552										
	RCS	2	07	500B971 SH 91	CCR RACK G-6	C-A21X	CB	53'-0"	RELAY WHSE BFD84S	CA
				500B971 SH124A	CCR PANEL SAF	1/V552	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
				500B971 SH10	CCR PANEL SNF	PB31	CB	53'-0"	PUSHBUTTON	NV
				113E303 SH6,8	VALVE MOUNTED	33(ab,bc,bo)	PP	41'-0"	VLV AUX CONTACTS	NV
				113E700 SH33	CCR PANEL SHR	IR31	CB	53'-0"	RELAY GOULD J13	CA
** RC-560										
	RCS	2	07	500B971 SH93	CCR PANEL SAF	1/560	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
				500B971 SH10,120	VALVE MOUNTED	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	NV
** RC-MOV-535										
	RCS	2,3	08	500B971 SH110,125D	CCR PANEL FCF	CS	CB	53'-0"	MANUAL SWITCH	NV
				9321-LL-31403 SH21	CCR PANEL FCF	1/535	CB	53'-0"	CONTROL SWITCH	NV
					MCC 36B, COMPT. 1FH	42	PA	55'-0"	MOTOR STARTER CONTACTS	CA
					MCC 36B, COMPT. 1FH	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	CA
					CCR RACK H-4	OPXB1	CB	53'-0"	RELAY WHSE NBFD66S	CA
					CCR RACK H-4	TC413XB1	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-4	TC433XB1	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-4	TC443XB1	CB	53'-0"	RELAY WHSE BF44V	CA
					VALVE MOUNTED	33(ao,ac,bo,bc)	VC	124'-0"	VLV AUX LIMIT SWITCHES	NV
					VALVE MOUNTED	33(to,tc)	VC	124'-0"	VLV AUX TORQUE SWITCH	NV
** RC-MOV-536										
	RCS	2,3	08	500B971 SH110,125A	CCR PANEL FCF	CS	CB	53'-0"	MANUAL SWITCH	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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				9321-LL-31403 SH21	CCR PANEL FCF	1/536	CB	53'-0"	CONTROL SWITCH	NV
					MCC 36A, COMPT. 1FH	42 CONTACTS	PA	55'-0"	MOTOR STARTER CONTACTS	CA
					MCC 36A, COMPT. 1FH	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	CA
					CCR RACK H-5	OPXA1	CB	53'-0"	RELAY WHSE NBFD66S	CA
					CCR RACK H-5	TC413XA1	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-5	TC433XA1	CB	53'-0"	RELAY WHSE BF44V	CA
					CCR RACK H-5	TC443XA1	CB	53'-0"	RELAY WHSE BF44V	CA
					VALVE MOUNTED	33(to,tc)	VC	124'-0"	VLV AUX TORQUE SWITCH	NV
					VALVE MOUNTED	33(ao,ac,bo,bc)	VC	124'-0"	VLV AUX LIMIT SWITCH	NV
** ACAPRH1										
	RHR	4	06	500B971 SH 31	480V SWGR 31, COMPT.28H	SI/2A1	CB	53'-0"	RELAY WHSE BFD48S	CA
				9321-F-27513 SH 1	480V SWGR 31, COMPT. 28H	27-3A/X2	CB	53'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 32, COMPT. 5A	2/RHR1	CB	53'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					CCR RACK G-2	3-1/3A	CB	53'-0"	RELAY WHSE BFD120S	GERS
					CCR PANEL SGF	1/RHR1	CB	53'-0"	CONTROL SWITCH	NV
					CCR PANEL SBF-1	43/RS-3	CB	53'-0"	SELECTOR SWITCH	NV
					CCR PANEL SGF	74 (ALARM)	CB	53'-0"	RELAY WHSE BFD20S	NA
** ACAPRH2										
	RHR	4	06	500B971 SH 75	480V SWGR 32, COMPT. 8H	SI/6A1	CB	53'-0"	RELAY WHSE BFD48S	CA
				9321-F-27513 SH 1	480V SWGR 32, COMPT. 8H	27-6A/X2	CB	53'-0"	RELAY WHSE BFD120S	GERS
					CCR RACK G-2	2/RHR2	CB	53'-0"	TIME DELAY RELAY AGA 2412PD	GERS
					CCR RACK G-2	3-1/6A	CB	53'-0"	RELAY WHSE BFD120S	GERS
					CCR PANEL SGF	1/RHR2	CB	53'-0"	CONTROL SWITCH	NV
					CCR PANEL SBF-1	43/RS-3	CB	53'-0"	SELECTOR SWITCH	NV
					CCR PANEL SGF	74 (ALARM)	CB	53'-0"	RELAY WHSE BFD20S	NA
** SI-0882										
	SIS	1,4	08	500B971 SH 10,	VALVE MOUNTED	33(ao,ac,bo,bc)	PA	15'-0"	VLV AUX LIMIT SWITCHES	NV
				13,113,141	VALVE MOUNTED	33(tc,to)	PA	15'-0"	VLV AUX TORQUE SWITCHES	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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				9321-F-27503	MCC 36B	42	PA	55'-0"	MOTOR STARTER CONTACTS	CA
					MCC 36B	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					CCR PANEL SBF-1	1/882	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SBF-1	43/RS-3	CB	53'-0"	"ON/OFF" MAINTAINED	NV
** SI-0885A										
	SIS	4	08	500B971 SH 113, 128	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PA	34'-0"	MOV AUX CONTACTS	NV
					MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
				113E302 SH 2	MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	CA
				9321-F-27503	MCC 36A	42ao,42ac,42b,42bc	PA	55'-0"	CONTACTOR AUX CONTACTS	GERS
					MCC 36A	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					CCR RACK G-2	73-33acX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR PANEL SBF-1	1/885A	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
** SI-0885B										
	SIS	4	08	500B971 SH 10, 113,128	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PA	34'-0"	MOV AUX CONTACTS	NV
					MCC 36B	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
				113E302 SH 2	MCC 36B	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36B	42ao,42ac,42bo,42bc	PA	55'-0"	CONTACTOR AUX CONTACTS	GERS
					MCC 36B	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					CCR RACK G-1	731-33acX	CB	53'-0"	RELAY WHSE BF66F	CA
					CCR PANEL SBF-1	1/885B	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
** SI-0888A										
	SIS	4	08	500B971 SH 10, 14,113,127	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PA	51'-0"	MOV AUX CONTACTS	NV
					MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
				113E302 SH 2	MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	CA
				9321-F-27503	CCR RACK G-3	SI-11X	CB	53'-0"	RELAY WHSE BFD48S	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
				9321-LL-31173	CCR RACK G-2	730-33acX	CB	53'-0"	RELAY WHSE BF66F	CA
				SH 3, 5	480V SWGR 31, COMPT. 25H	SI-5A1	CB	15'-0"	RELAY WHSE BFD84S	CA
					CCR PANEL SBF-1	1/888A	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SBF-1	43/RS5	CB	53'-0"	"OFF/ON" SWITCH	NV
** SI-0888B										
	SIS	4	08	5008971 SH 10,	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PA	51'-0"	MOV AUX CONTACTS	NV
				14,113,127	MCC 36B	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
				113E302 SH 4	MCC 36B	42/O	PA	55'-0"	OPEN CONTACTOR	CA
				9321-F-27503	CCR RACK G-5	SI-21X	CB	53'-0"	RELAY WHSE BFD48S	CA
				9321-LL-31183	CCR RACK G-1	731-33acX	CB	53'-0"	RELAY WHSE BF66F	CA
				SH 3, 4	480V SWGR 32, COMPT. 8H	SI/6A1	CB	15'-0"	RELAY WHSE BFD48S	CA
					CCR PANEL SBF-1	1/888B	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SBF-1	43/RS5	CB	53'-0"	"OFF/ON" SWITCH	NV
** SI-0889A										
	SIS	4	08	5008971 SH 10,	CCR PANEL SBF-1	1/889A	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS, SPR RET TO AUTO	NV
				113,126	VALVE MOUNTED	33(tc,to,ao,bc,bo,ac)	VC	72'-0"	MOV AUX CONTACTS	NV
				9321-F-27353	MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36A	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	GERS
					MCC 36A	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** SI-0889B										
	SIS	4	08	5008971 SH 10,	CCR PANEL SBF-1	1/889B	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS, SPR RET TO AUTO	NV

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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				114,126	VALVE MOUNTED	33(tc,to,ao,bc,bo,ac)	VC	72'-0"	MOV AUX CONTACTS	NV
				9321-F-27353	MCC 36B	42/C	PA	55'-0"	CLOSE CONTACTOR	GERS
					MCC 36B	42/O	PA	55'-0"	OPEN CONTACTOR	GERS
					MCC 36B	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	GERS
					MCC 36B	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
** SI-0894A										
	SIS	2,3,4	08	500B971 SH 10,	CCR PANEL SMF	1/0894A	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS SPR RET TO AUTO	NV
				114,140	MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	GERS
				113E303 SH 4,8	MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	GERS
				9321-F-27353	MCC 36A	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	GERS
					MCC 36A	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo,ac)	VC	46'-0"	MOV AUX CONTACTS	NV
					CCR RACK G-3	SI-12X	CB	53'-0"	RELAY WHSE BFD48S	CA
** SI-0894B										
	SIS	2,3,4	08	500B971 SH 10,	CCR PANEL SMF	1/0894B	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS SPR RET TO AUTO	NV
				114,140	MCC 36B	42/C	PA	55'-0"	CLOSE CONTACTOR	GERS
				113E303 SH 4,8	MCC 36B	42/O	PA	55'-0"	OPEN CONTACTOR	GERS
				9321-F-27353	MCC 36B	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	GERS
					MCC 36B	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo,ac)	VC	46'-0"	MOV AUX CONTACTS	NV
					CCR RACK G-5	SI-22X	CB	53'-0"	RELAY WHSE BFD48S	CA
** SI-0894C										
	SIS	2,3,4	08	500B971 SH 10,	CCR PANEL SMF	1/0894C	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS SPR RET TO AUTO	NV

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				114,140	MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	GERS
				113E303 SH 4,8	MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	GERS
				9321-F-27353	MCC 36A	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	GERS
					MCC 36A	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo,ac)	VC	46'-0"	MOV AUX CONTACTS	NV
					CCR RACK G-3	SI-12X	CB	53'-0"	RELAY WHSE BFD48S	CA
** SI-0894D										
	SIS	2,3,4	08	500B971 SH 10,	CCR PANEL SMF	1/0894D	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS SPR RET TO AUTO	NV
				114,140	MCC 36B	42/C	PA	55'-0"	CLOSE CONTACTOR	GERS
				113E303 SH 4,8	MCC 36B	42/O	PA	55'-0"	OPEN CONTACTOR	GERS
				9321-F-27353	MCC 36B	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	GERS
					MCC 36B	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					VALVE MOUNTED	33(tc,to,ao,bc,bo,ac)	VC	46'-0"	MOV AUX CONTACTS	NV
					CCR RACK G-5	SI-22X	CB	53'-0"	RELAY WHSE BFD48S	CA
** SI-1802A										
	SIS	4	08	500B971 SH 114,131	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	VC	46'-0"	MOV AUX CONTACTS	NV
					MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	GERS
					MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	GERS
					MCC 36A	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	GERS
					CCR PANEL SBF-1	1/1802A	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SBF-1	43/RS-4	CB	53'-0"	"OFF/ON" SWITCH	NV
** SI-1802B										
	SIS	4	08	500B971 SH 114,131	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	VC	46'-0"	MOV AUX CONTACTS	NV
					MCC 36B	42/C	PA	55'-0"	CLOSE CONTACTOR	GERS
					MCC 36B	42/O	PA	55'-0"	OPEN CONTACTOR	GERS

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					MCC 36B	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	GERS
					CCR PANEL SBF-1	1/1802B	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SBF-1	43/RS-4	CB	53'-0"	"OFF/ON" SWITCH	NV
** SI-1810										
	SIS	1	08	500B971 SH 10, 13,114,141	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PA	15'-0"	MOV AUX CONTACTS	NV
					MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36A	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	CA
					MCC 36A	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					CCR PANEL SBF-1	1/1810	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
					CCR PANEL SBF-1	43/RS-8	CB	53'-0"	"OFF/ON" SWITCH	NV
** SI-1869A										
	SIS	4	08	500B971 SH 10, 116,135 9321-F-27353	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PA	15'-0"	MOV AUX CONTACTS	NV
					MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36A	42(ac,ao,bc,bo)	PA	55'-0"	CONTACTOR AUX CONTACTS	CA
					MCC 36A	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					CCR PANEL SBF-1	1/1869A	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV
** SI-1869B										
	SIS	4	08	500B971 SH 10, 116,135 9321-F-27353	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	PA	15'-0"	MOV AUX CONTACTS	NV
					MCC 36B	42/C	PA	55'-0"	CLOSE CONTACTOR	CA
					MCC 36B	42/O	PA	55'-0"	OPEN CONTACTOR	CA
					MCC 36B	42ac,ao,bc,bo	PA	55'-0"	CONTACTOR AUX CONTACTS	CA
					MCC 36B	49	PA	55'-0"	THERMAL OVERLOAD DEVICE	NV
					CCR PANEL SBF-1	1/1869B	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
** SI-HCV-638										
	SIS	4	08	500B971 SH 137	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	VC	66'-0"	MOV AUX CONTACTS	NV
				9321-F-27353 SH 1	MCC 36B	42/C	PA	55'-0"	CLOSE CONTACTOR	GERS
					MCC 36B	42/O	PA	55'-0"	OPEN CONTACTOR	GERS
					CCR PANEL SGF	1/638	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** SI-HCV-640										
	SIS	4	08	500B971 SH 137	VALVE MOUNTED	33(tc,to,ac,ao,bc,bo)	VC	66'-0"	MOV AUX CONTACTS	NV
				9321-F-27353 SH 1	MCC 36A	42/C	PA	55'-0"	CLOSE CONTACTOR	GERS
					MCC 36A	42/O	PA	55'-0"	OPEN CONTACTOR	GERS
					CCR PANEL SGF	1/640	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
** 953										
	SP	1	07	500B971 SH 120	SAMPLING PANEL	1/953	PA	55'-0"	"CLOSE/OPEN" SWITCH TWO POSITION MAINTAINED	NV
				500B971 SH 95	VALVE MOUNTED	33(ac,bo)	VC	73'-0"	LIMIT SWITCHES	NV
** 955A										
	SP	1	07	500B971 SH 95	SAMPLING PANEL	1/955A	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	NV
				500B971 SH 124C	SAMPLING PANEL	SS-34	PA	55'-0'	SWITCH	NV
					VALVE MOUNTED	33(ac,bo)	VC	62'-0"	VLV AUX LIMIT SWITCHES	NV
** 955B										
	SP	1	07	500B971 SH 95	SAMPLING PANEL	1/955B	PA	55'-0"	CONTROL SWITICH (CLOSE/OPEN)	NV
				500B971 SH 124C	SAMPLING PANEL	SS-35	PA	55'-0"	SWITCH	NV
					VALVE MOUNTED	33(ac,bo)	VC	62'-0"	VLV AUX LIMIT SWITCHES	NV
** 956C										
	SP	1	07	500B971 SH 10,	CCR RACK G-4	C-A12X	CB	53'-0"	RELAY WHSE BFD48S	CA
				13,95,124B	SAMPLING PANEL	IR42	PA	55'-0"	RELAY GOULD J13P20	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
				113E303 SH 6	SAMPLING PANEL	PB-42	PA	55'-0"	PUSHBUTTON	NV
				9321-F-27453	SAMPLING PANEL	1/S1	PA	55'-0"	"CLOSE/OPEN" CONTROL SWITCH 2-POSITION MAINTAINED	NV
					CCR PANEL SNF	1/956C	CB	53'-0"	REMOTE/LOCAL CONTROL SWITCH 2-POSITION MAINTAINED	NV
					VALVE MOUNTED	33(bo,ac,bc)	PP	41'-0"	VALVE POSITION SWITCHES	NV
** 956D										
	SP	1	07	500B971 SH 10, 13,95,124B	CCR RACK G-6	C-A22X	CB	53'-0"	RELAY WHSE BFD48S	CA
					SAMPLING PANEL	IR47	PA	55'-0"	RELAY GOULD J13P20	CA
				113E303 SH 6	SAMPLING PANEL	PB-47	PA	55'-0"	PUSHBUTTON	NV
				9321-F-27453	SAMPLING PANEL	1/S1	PA	55'-0"	"CLOSE/OPEN" CONTROL SWITCH 2-POSITION MAINTAINED	NV
					CCR PANEL SNF	1/956D	CB	53'-0"	REMOTE/LOCAL CONTROL SWITCH 2-POSITION MAINTAINED	NV
					VALVE MOUNTED	33(bo,ac,bc)	PP	41'-0"	VALVE POSITION SWITCHES	NV
** 956E										
	SP	1	07	500B971 SH 10, 13,96,124B	CCR RACK G-4	C-A12X	CB	53'-0"	RELAY WHSE BFD48S	CA
					SAMPLING PANEL	IR36	PA	55'-0"	RELAY GOULD J13P20	CA
				113E303 SH 6	SAMPLING PANEL	PB-36	PA	55'-0"	PUSHBUTTON	NV
				9321-F-27453	SAMPLING PANEL	1/S1	PA	55'-0"	"CLOSE/OPEN" SWITCH 2-POSITION MAINTAINED	NV
					OUTSIDE OF SAMP. ROOM	PB-36A			PUSHBUTTON	NV
					CCR PANEL SNF	1/956E	CB	53'-0"	REMOTE/LOCAL CONTROL SWITCH 2-POSITION MAINTAINED	NV
					VALVE MOUNTED	33(bo,ac,bc)	PP	41'-0"	VALVE POSITION SWITCHES	NV
** 956F										
	SP	1	07	500B971 SH 10, 13,96,124B	CCR RACK G-6	C-A22X	CB	53'-0"	RELAY WHSE BFD48S	CA
					SAMPLING PANEL	IR41	PA	55'-0"	RELAY GOULD J13P20	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
				113E303 SH 6	SAMPLING PANEL	PB-41	PA	55'-0"	PUSHBUTTON	NV
				9321-F-27453	SAMPLING PANEL	1/S1	PA	55'-0"	"CLOSE/OPEN" SWITCH 2-POSITION MAINTAINED	NV
					OUTSIDE OF SAMP. ROOM	PB-41A			PUSHBUTTON	NV
					CCR PANEL SNF	1/956F	CB	53'-0"	REMOTE/LOCAL CONTROL SWITCH 2-POSITION MAINTAINED	NV
					VALVE MOUNTED	33(bo,ac,bc)	PP	41'-0"	VALVE POSITION SWITCHES	NV
** 958										
	SP	1	07	9321-LL-31313	VALVE MOUNTED	33/O, 33/C	PA	55'-0"	VALVE LIMIT SWITCHES	NV
				SHT35	CCR PANEL JK1	1/958	CB	53'-0"	CONTROL SWITCH 2-POSITION MAINTAINED (CLOSE/OPEN)	NV
					CCR PANEL JK1	PB54	CB	54'-0"	PUSHBUTTON	NV
					CCR PANEL JK1	IR54	CB	53'-0"	RELAY	CA
					CCR RACK G-4	C-A13X	CB	53'-0"	RELAY WHSE BFD48S	CA
** 959										
	SP	1	07	500B971 SH 10, 96,124C	CCR RACK G-6	C-A24X	CB	53'-0"	RELAY WHSE BFD48S	CA
					SAMPLING PANEL	IR49	PA	55'-0"	RELAY GOULD J13P20	CA
				113E303 SH 6	SAMPLING PANEL	PB-49	PA	55'-0"	PUSHBUTTON	NV
				9321-F-27453	SAMPLING PANEL	1/S1	PA	55'-0"	"CLOSE/OPEN" SWITCH 2-POSITION MAINTAINED	NV
** 31 SW PUMP										
	SWN	5	06	9321-F-27223	PNL PS6	43	CB	15'-0"	TRANSFER SWITCH REMOTE/LOCAL	NV
				9321-LL-31173	480V SWGR 31, COMPT.25H	27-5A/X3	CB	15'-0"	RELAY WHSE BFD120S	GERS
				SHT.5,6B	480V SWGR 31, COMPT.25H	2SW1	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	CA
				500B971 SHT.33	480V SWGR 31, COMPT.25H	3-4/5A	CB	15'-0"	RELAY WHSE BFD22S	GERS
					480V SWGR 31, COMPT.25H	3-1/5A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT.25H	3-2/5A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT.25H	SI/5A	CB	15'-0"	RELAY WHSE BFD84S	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR PANEL SBF-1	43/SW	CB	53'-0"	1,2,3,4,5,6 MODE SELECTOR SWITCH	NV
					CCR PANEL SJF	1/SW1	CB	53'-0"	PULLOUT-STOP-AUTO-START SWITCH	NV
					CCR PANEL SBF-1	43/RS-2	CB	53'-0"	RECIRC PHASE SWITCH (OFF/ON)	NV
					PNL PS6	START	CB	15'-0"	PUSHBUTTON	NV
					PNL PS6	STOP	CB	15'-0"	PUSHBUTTON	NV
** 32 SW PUMP										
	SWN	5	06	500B971 SHT.42	PNL PS6	43	CB	15'-0"	TRANSFER SWITCH REMOTE/LOCAL	NV
				9321-F-27223	480V SWGR 31, COMPT. 28H	27-2A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
				9321-LL-31173	480V SWGR 31, COMPT. 28H	3-1/2A	CB	15'-0"	RELAY WHSE BFD40S	GERS
				SHT.6	480V SWGR 31, COMPT. 28H	SI/2A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 28H	3-2/2A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 32A	2SW2	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	CA
					480V SWGR 31, COMPT. 25H	2SW2-1	CB	15'-0"	TIME DELAY RELAY AGA 2412PC	CA
					480V SWGR 31, COMPT. 25H	52 SW1X	CB	15'-0"	RELAY WHSE BFD66S	CA
					480V SWGR 31, COMPT. 25H	52 EGX	CB	15'-0"	RELAY WHSE BFD66S	CA
					CCR PANEL SBF-1	43/SW	CB	53'-0"	1,2,3-4,5,6 MODE SELECTOR SWITCH	NV
					CCR PANEL SJF	1/SW2	CB	53'-0"	PULLOUT-STOP-AUTO-START SWITCH	NV
					PNL PS6	STOP	CB	15'-0"	PUSHBUTTON	NV
					PNL PS6	START	CB	15'-0"	PUSHBUTTON	NV
** 33 SW PUMP										
	SWN	5	06	500B971 SH 44	PNL PS6	43	CB	15'-0"	TRANSFER SWITCH REMOTE/LOCAL	NV
				9321-F-27223	480V SWGR 32, COMPT. 8H	27-6A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
				9321-LL-31183	480V SWGR 32, COMPT. 8H	SI/6A	CB	15'-0"	RELAY WHSE BFD84S	GERS
				SHT.4	480V SWGR 32, COMPT. 10A	2SW3	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	CA
					480V SWGR 32, COMPT. 8H	3-1/6A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 32, COMPT. 8H	3-2/6A	CB	15'-0"	RELAY WHSE BFD80S	GERS
					480V SWGR 32, COMPT. 8H	3-4/6A	CB	15'-0"	RELAY WHSE BFD22S	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					PNL PS6	START	CB	15'-0"	PUSHBUTTON	NV
					PNL PS6	STOP	CB	15'-0"	PUSHBUTTON	NV
					CCR PANEL SBF-1	43/SW	CB	53'-0"	1,2,3-4,5,6 MODE SELECTOR SWITCH	NV
					CCR PANEL SJF	1/SW3	CB	53'-0"	PULLOUT-STOP-AUTO-START	NV
					480V SWGR 31, COMPT. 25H	52 SW1X	CB	15'-0"	RELAY WHSE BFD66S	CA
					480V SWGR 31, COMPT. 25H	52 SW2X	CB	15'-0"	RELAY WHSE BFD66S	CA
					480V SWGR 31, COMPT. 25H	2SW3-1	CB	15'-0"	TIME DELAY RELAY AGA 2412PC	CA
					480V SWGR 31, COMPT. 25H	2SW3-2	CB	15'-0"	TIME DELAY RELAY AGA 2412PC	CA
					480V SWGR 31, COMPT. 25H	52 EGX	CB	15'-0"	RELAY WHSE BFD66S	CA
** 34 SW PUMP										
	SWN	5	06	500B971 SHT. 76	PNL PS6	43	CB	15'-0"	TRANSFER SWITCH REMOTE/LOCAL	NV
				9321-F-27223	480V SWGR 31, COMPT. 25H	27-5A/X3	CB	15'-0"	RELAY WHSE BFD120S	GERS
				9321-LL-31173	480V SWGR 31, COMPT. 23A	2SW4	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	CA
				SHT 5	480V SWGR 31, COMPT. 25H	SI/5A	CB	15'-0"	RELAY WHSE BFD84S	GERS
					480V SWGR 31, COMPT. 25H	3-1/5A	CB	15'-0"	RELAY WHSE BFD120S	GERS
					480V SWGR 31, COMPT. 25H	3-2/5A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 25H	3-4/5A	CB	15'-0"	RELAY WHSE BFD22S	GERS
					CCR PANEL SJF	1/SW4	CB	53'-0"	PULLOUT-STOP-AUTO-START SWITCH	NV
					PNL PS6	START	CB	15'-0"	PUSHBUTTON	NV
					CCR PANEL SBF-1	43/RS-2	CB	53'-0"	RECIRC PHASE SWITCH (OFF/ON)	NV
					CCR PANEL SBF-1	43/SW	CB	53'-0"	1.2.3-4.5.6 MODE SELECTOR SWITCH	NV
					PNL PS6	STOP	CB	15'-0"	PUSHBUTTON	NV
** 35 SW PUMP										
	SWN	5	06	500B971, SHT 34	480V SWGR 31, COMPT. 3A	2SW5	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	CA
				9321-F-27223	PNL PS6	43	IS	15'-0"	TRANSFER SWITCH REMOTE/LOCAL	NV
				9321-LL-31173	480V SWGR 31, COMPT. 28H	27-3A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
				SHT.6	480V SWGR 31, COMPT. 28H	SI/2A	CB	15'-0"	RELAY WHSE BFD120S	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR PANEL SBF-1	43/SW	CB	53'-0"	1,2,3-4,5,6 SELECTOR SWITCH	NV
					CCR PANEL SJF	1/SW5	CB	53'-0"	PULLOUT-STOP-AUTO-START SWITCH	NV
					480V SWGR 31, COMPT. 28H	3-1/3A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 28H	3-2/3A	CB	15'-0"	RELAY WHSE BFD40S	GERS
					480V SWGR 31, COMPT. 25H	52 EGX	CB	15'-0"	RELAY WHSE BFD66S	CA
					480V SWGR 31, COMPT. 25H	52 SW4X	CB	15'-0"	RELAY WHSE BFD66S	CA
					480V SWGR 31, COMPT. 25H	2SW5-1	CB	15'-0"	TIME DELAY RELAY AGA 2412PC	CA
	SWN	5	06		PNL PS6	START	CB	15'-0"	PUSHBUTTON	NV
					PNL PS6	STOP	CB	15'-0"	PUSHBUTTON	NV
** 36 SW PUMP										
	SWN	5	06	5008971 SHT.89	480V SWGR 32, COMPT. 8H	3-2/6A	CB	15'-0"	RELAY WHSE BFD80S	GERS
				9321-F-27223	480V SWGR 32, COMPT. 8H	27-6A/X2	CB	15'-0"	RELAY WHSE BFD120S	GERS
				9321-LL-31183	480V SWGR 32, COMPT. 8H	3-1/6A	CB	15'-0"	RELAY WHSE BFD120S	GERS
				SHT.4	CCR PANEL SBF-1	43/SW	CB	53'-0"	1,2,3-4,5,6 SELECTOR SWITCH	NV
					480V SWGR 32, COMPT. 8H	S1/6A	CB	15'-0"	RELAY WHSE BFD84S	GERS
	SWN	5	06		480V SWGR 31, COMPT. 25H	52 SW4X	CB	15'-0"	RELAY WHSE BFD66S	CA
					480V SWGR 31, COMPT. 25H	52 SW5X	CB	15'-0"	RELAY WHSE BFD66S	CA
					480V SWGR 31, COMPT. 25H	2SW6-1	CB	15'-0"	TIME DELAY RELAY AGA 2412PC	CA
					480V SWGR 31, COMPT. 25H	2SW6-2	CB	15'-0"	TIME DELAY RELAY AGA 2412PC	CA
					480V SWGR 32, COMPT. 10A	2SW6	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	CA
					CCR PANEL SJF	1/SW6	CB	53'-0"	PULLOUT-STOP-AUTO-START SWITCH	NV
					PNL PS6	43	CB	15'-0"	TRANSFER SWITCH REMOTE/LOCAL	NV
					PNL PS6	STOP	CB	15'-0"	PUSHBUTTON	NV
					PNL PS6	START	CB	15'-0"	PUSHBUTTON	NV
					480V SWGR 32, COMPT. 8H	3-4/6A	CB	15'-0"	RELAY WHSE BFD22S	GERS
** FCV-1176										
	SWN	5	07	9321-LL-31313 SHT 15	DG #31	HWTR1/DG1	DG	15'-0"	WATER JACKET TEMPERATURE SWITCH	CA
				9321-F-27223	DG #31	HLOTR1/DG1	DG	15'-0"	LUBE OIL CLR JACKET TEMPERATURE SWITCH	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					DG #32	HWTR1/DG2	DG	15'-0"	WATER JACKET TEMPERATURE SWITCH	CA
					DG #32	HLOTR1/DG2	DG	15'-0"	LUBE OIL CLR JACKET TEMPERATURE SWITCH	CA
					DG #33	HWTR1/DG3	DG	15'-0"	WATER JACKET TEMPERATURE SWITCH	CA
					LOCAL	1/DGCW1	CB	53'-0"	CLOSE/AUTO/OPEN SELECTOR SWITCH	NV
					CCR RACK G-3	SI-12X	DG	15'-0"	RELAY WHSE BFD48S	CA
					DG #33	HLOTR1/DG3	DG	15'-0"	LUBE OIL CLR JACKET TEMPERATURE SWITCH	CA
** FCV-1176A										
	SWN	5	07	9321-LL-31313 SHT 15A	DG #31	HWTR1/DG1	DG	15'-0"	WATER JACKET TEMPERATURE SWITCH	CA
				9321-F-27223	DG #32	HWTR1/DG2	DG	15'-0"	WATER JACKET TEMPERATURE SWITCH	CA
					DG #33	HWTR1/DG3	DG	15'-0"	WATER JACKET TEMPERATURE SWITCH	CA
					DG #31	HLOTR1/DG1	DG	15'-0"	LUBE OIL CLR JACKET TEMPERATURE SWITCH	CA
					DG #32	HLOTR1/DG2	DG	15'-0"	LUBE OIL CLR JACKET TEMPERATURE SWITCH	CA
					DG #33	HLOTR1/DG3	DG	15'-0"	LUBE OIL CLR JACKET TEMPERATURE SWITCH	CA
					LOCAL	1/DGCW2	CB	53'-0"	CLOSE/AUTO/OPEN SELECTOR SWITCH	NV
					CCR RACK G-3	SI-22X	CB	53'-0"	RELAY WHSE BFD 48S	CA
** SWN-TCV-1104										
	SWN	5	07	9321-LL-31313 SHT 15	CCR RACK G-3	SI-12X	CB	53'-0"	RELAY WHSE BFD48S	CA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV.	CONTACT RELAY TYPE	EVALUATION
					CCR PANEL SBF-1	1/RFCW1	CB	53'-0"	SELECTOR SWITCH	NV
					VALVE MOUNTED	33 (ab,ao,bc,bo)	PP	35'-0"	VALVE AUX CONTACTS	NV
** SWN-TCV-1105										
	SWN	5	07	9321-LL-31313 SHT 15A	CCR RACK G-3	SI-22X	CB	53'-0"	RELAY WHSE BFD48S	CA
					CCR PANEL SBF-1	1/RFCW2	CB	53'-0"	SELECTOR SWITCH	NV
					VALVE MOUNTED	33 (ab,ao,bc,bo)	PP	35'-0"	VALVE AUX CONTACTS	NV

APPENDIX C

IP-3 RELAY SCREENING AND EVALUATION FORMS RELAY TABULATION

VOLUMES I AND II

(PROVIDED IN SEPARATE BINDERS)

ATOMETRICS

APPENDIX D

IP-3 SEISMIC ADEQUACY EVALUATION OF ESSENTIAL RELAYS/CONTACTS ASSOCIATED WITH THE EQUIPMENT ON THE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)

ATOMETRICS

APPENDIX D

NEW YORK POWER AUTHORITY (NYPA)
INDIAN POINT NUCLEAR POWER STATION UNIT 3 (IP-3)

SEISMIC ADEQUACY EVALUATION OF ESSENTIAL RELAYS/CONTACTS ASSOCIATED WITH THE EQUIPMENT ON THE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)

Prepared By: _____ Date: 10/9/95
Jon E. Thompson, P.E.

Checked By: _____ Date: 10/9/95
Eung Park

ATOMETRICS

APPENDIX D

SEISMIC ADEQUACY EVALUATION OF ESSENTIAL RELAYS/CONTACTS ASSOCIATED WITH THE EQUIPMENT ON THE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)

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11	Attachments	D-15

APPENDIX D

SEISMIC ADEQUACY EVALUATION OF ESSENTIAL RELAYS/CONTACTS ASSOCIATED WITH THE EQUIPMENT ON THE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)

1.0 INTRODUCTION

1.1 Purpose

The purpose of this evaluation is to determine the seismic adequacy of essential relays/contacts associated with the equipment required to bring IP-3 to a safe shutdown condition and maintain it in the shutdown condition for 72 hours following a Safe Shutdown Earthquake (SSE). This evaluation supports the relay reviews performed in response to the NRC's Unresolved Safety Issue (USI) A-46 and documented in Appendix C of this report. The equipment required to bring the plant to a safe shutdown condition has been previously determined and is listed on the Safe Shutdown Equipment List (SSEL), Appendix A of this report.

This evaluation determines the seismic adequacy of the essential relays/contacts. The results of this evaluation are summarized on the Relay Screening and Evaluation Forms (RSEF), Appendix C of this report and the List of Relays Affecting Safe Shutdown Equipment at IP-3 (Relay List), Appendix B of this report.

1.2 Methodology

This evaluation is based on the relationship between the actual seismic demand at IP-3 and the seismic capacity of essential relays/contacts associated with the equipment on the SSEL. These essential relays have been identified by a previous screening process performed in accordance with the Generic Implementation Procedure (GIP), Reference 3.

The initial screening process involved the identification of all relays/contacts associated with the equipment listed on the SSEL. These relays/contacts have been listed on the Relay List, Appendix B. Initial evaluations of these relays/contacts were performed to determine the effects of relay/contact chatter on equipment function during and after an SSE, with or without the loss of offsite power. These evaluations are documented on the RSEFs provided in Appendix C.

Those relays/contacts that did not pass the initial screening process are considered essential and must be shown to be seismically adequate. Seismic adequacy can be demonstrated by comparing seismic demand data to known relay/contact specific experience data or actual relay/contact seismic qualification data.

If seismic adequacy cannot be demonstrated, then relay/contact malfunction must be capable of being corrected by an operator action within a reasonable time period. If this cannot be demonstrated then the essential relay/contact is identified as an "outlier" and corrective action is required to either modify the circuitry to render the relay/contact non-essential, demonstrate capability to resolve by operator action, or replace the relay/contact with a relay/contact of known adequate seismic capacity.

The methodology used to determine relationship between actual seismic demand and essential relay/contact seismic capacity is provided in the GIP, Reference 3. The primary instructions are provided in Part 2, Section 6, entitled Relay Functionality Review.

The IP-3 seismic demands were obtained from Reference 7, 8 and 9 which provide the SSE data. The seismic capacities of the relays/contacts are obtained from experience data that has been compiled and presented in reports which provide the Generic Response Spectra (GERS), References 5 and 6.

The seismic adequacy evaluations consist of the use of following four (4) "screens," as defined in the GIP:

1. <u>Level 1, High Capacity Relays</u>

   This screen consists of comparing the GIP defined Bounding Spectra to the site specific ground response spectra. If the Bounding Spectra envelopes the site specific ground response spectra and the equipment or cabinet containing the relay/contact is at or below 40 feet above grade, then this screen may be used. Relays/contacts not passing this screen may be screened using one of the remaining screens.

2. <u>Level 2, Use of In-cabinet Amplification Factors</u>

   This screen is based on using an in-cabinet response spectra which is calculated from the site specific floor response spectra multiplied by an appropriate safety factor and cabinet amplification factor defined in the GIP. The resulting in-cabinet response spectra is then compared to relay/contact seismic capacity data provided by the GERS or relay/contact specific seismic test data. Relays/contacts not passing this screen may be screened using Level 3 or Level 4 screens.

3. <u>Level 3, Use of In-cabinet Response Spectra</u>

   This screen is similar to a Level 2 screen except that it uses the actual in-cabinet response spectra calculated for the specific structure supporting the relay/contact in lieu of estimated amplification and safety factors.

4. Level 4, Use of Current Qualification Methods

The use of actual seismic test data, seismic qualification methods currently specified in NRC approved standards (ie. IEEE 344-1975,-1987), or current licensing criteria (ie. NRC Standard Review Plan and Regulatory Guides) are acceptable means for evaluating the seismic adequacy of relays/contacts.

If none of the above screening methods result in an acceptable comparison of seismic capacity to demand, then the relay/contact will be evaluated for resolution by operator action or designated as an "outlier." This evaluation is documented on the RSEFs, Appendix C.

In order to save time in performing circuit analyses associated with the Safeguards circuits and relay/contacts mounted within Motor Control Centers (MCCs), Switchgear (SWGR), and Battery Chargers, the relays/contacts in these circuits were initially reviewed for seismic adequacy using the equipment GERS provided in Reference 6. This screening method demonstrates that the relays/contacts associated with these circuits are seismically adequate and, therefore, do not require specific determination of their essentiality. Any relay/contact that could not be demonstrated to be seismically adequate by this evaluation was then evaluated for essentiality. This evaluation was documented on the RSEF's.

In accordance with the GIP, Reference 3, Section 6, page 6-17, when using the Level 2 screen described above, the comparison of in-cabinet seismic demand (IRS X AF X SF) to relay/contact seismic capacity (CAP) must be performed using the following formula:

$$CAP \geq IRS \times AF \times SF$$

Where the In-cabinet Response Spectra (IRS) is the Floor Response Spectra at the base of the cabinet being evaluated and the Amplification Factor (AF) and Safety Factor (SF) are defined as:

Cabinet Type	AF	SF
MCC	3.0	1.5
SWGR	7.0	1.5
Control Panel	4.5	1.5

1.3 Intended Use of the Results

The results of this evaluation are to be used to screen relays/contacts, associated with the equipment listed on the SSEL, which have been listed on the Relay List. Other equipment to be seismically verified using "SQUG Methodologies" may also use the results of this evaluation in order to screen associated relays/contacts. Verification of any of the "caveats" described in

References 5 and 6 associated with the referenced GERS must be attained by walkdowns performed in accordance with the GIP, Reference 3.

2.0 SUMMARY OF THE RESULTS

The results are presented in both the Relay List, Appendix B, and on the RSEFs, Appendix C. Screening levels 3 and 4 were not used to show seismic adequacy of relays/contacts at IP-3. Those relays/contacts that successfully pass the Level 1 or 2 screens are designated with the word "GERS" in the "evaluation" column of the Relay List and in the "SAT*" column on the RSEFs.

The results of this evaluation indicate that essential relays associated with the equipment on the SSEL are seismically adequate accept for:

1. Those that are manufactured by Gould;

2. Westinghouse model M101, M110, and Z relays.

GERS data does not exist nor could seismic qualification data be found to support the seismic adequacy of these relays. The Gould relays have been found to be chatter acceptable by circuit analysis, and the Westinghouse model relays have been determined to require corrective action. Documentation of these reviews is provided in the RESFs, Appendix C.

3.0 REFERENCES

The list of references is provided in Section 4 of this report.

4.0 GROUND RESPONSE SPECTRA VERSUS THE BOUNDING SPECTRA

The GIP, Reference 3, Part 2, Section 4, Figure 4-2 provides the Bounding Spectra to be used for comparison with the IP-3 site specific ground response spectra. The results of this comparison determine the ability to use the Level 1 screen for initially screening relays/contacts for seismic adequacy.

The Bounding Spectra must envelope the site specific ground response spectra at all frequencies in order to be able to use the Level 1 screen. Curve D-1 shows the comparison of the Bounding Spectra to the various IP-3 Ground Response Spectra which have been recreated from References 7, 8, and 9 and are shown in Curves I-20 through I-26, Appendix I of this report.

The comparison shows that the Bounding Spectra envelopes the IP-3 Ground Response Spectra at all frequencies, therefore, the Level 1 screen can be used.

5.0 FLOOR RESPONSE SPECTRA

Those relays/contacts that do not pass the Level 1 screen can then be screened using the Level 2 screen. In order to use this screen, the floor response spectra is required for the various locations of relay/contact mounting structures. The IP-3 floor response spectra used for this evaluation are summarized in curves provided in Appendix I. These spectra represent the largest horizontal motion of the East-West or North-South direction and were developed from the data provided in References 7, 8, and 9.

6.0 MCC AND SWGR EVALUATIONS

Reference 6, page 5-9, provides direction on screening relays/contacts using Motor Control Center (MCC) and Switchgear (SWGR) GERS. This method allows the use of conservative floor response spectra with no additional multipliers.

The following SWGR and MCC cabinets have been identified as required to shutdown the plant following an SSE:

1.	480V SWGR:	SWGR-31	CB elevation 15'0"
		SWGR-32	CB elevation 15'0"
		Diesel Gen SWGR	DGB elevation 15'0"
2.	480V MCCs:	MCC-32	TB elevation 15'0"
		MCC-33	TB elevation 15'0"
		MCC-34	TB elevation 15'0"
		MCC-36A	PAB elevation 55'0"
		MCC-36A Ext	PAB elevation 55'0"
		MCC-36B	PAB elevation 55'0"
		MCC-36B Ext	PAB elevation 55'0"
		MCC-36C	CB elevation 15'0"
		MCC-37	PAB elevation 55'0"
		MCC-38	VC elevation 68'0"
		MCC-39	CB elevation 33'0"

The MCC and SWGR seismic capacity data is obtained from Reference 6, see Attachment D-1 and D-2 respectively. This data is summarized and compared to the seismic demand for specific MCC and SWGR locations in Curves D-2 through D-7.

This evaluation shows that the relays/contacts mounted in the above SWGR and MCCs, other than auxiliary relays/contacts that are used for external control or lockout signals, are seismically adequate. Any auxiliary relay/contacts used for external control or lockout signals are evaluated separately and reported on the RSEF's, Appendix C.

7.0 SAFEGUARD CIRCUIT EVALUATIONS

Reference 4, page 5-9, provides direction on screening all relays/contacts associated with some circuits by using relay GERS rather than spending significant amounts of time doing separate circuit analyses. If seismic adequacy can be demonstrated for all or most of the relays within complicated circuits then determination of relay/contact essentiality is not necessary or at least limited to those relays/contacts that cannot be demonstrated as seismically adequate.

This method requires the determination of the in-cabinet response spectra (seismic demand) as discussed in the Level 2 screen above. The Safeguards cabinets G1 through G6, located in the Control Room, elevation 53'0" of the Control Building (CB) are control type cabinets. In accordance with the GIP, Reference 3, page 6-20, Table 6-2, the in-cabinet amplification factor is 4.5 and the appropriate safety factor is 1.5. The seismic demand, therefore, is 6.75 x's the floor response spectra shown in Curve I-1, Appendix I of this report. This in-cabinet response spectra is shown in Curve D-8.

The list of the relays located in the G1 through G6 racks and their associated contact numbers, manufacturers, and model numbers is provided in the Relay List, Appendix B of this report. The relay model types have been identified as the following:

1. Westinghouse model numbers BF, BFD, and MG-6.

2. Agastat model numbers 2412, 2414, and E7014.

3. Gould model number J13P30

The seismic capacity of these relays is compared to the in-cabinet response spectra calculated above. The seismic capacity (GERS) data is obtained from Reference 5. The comparison of the seismic demand to the relay seismic capacities are shown in Curve D-8.

This evaluation shows that the relays/contacts mounted in the Safeguards cabinets are seismically adequate with the exception of those manufactured by Gould. No GERS data is available nor could seismic qualification data be obtained for the Gould relays. Circuit evaluation has determined that these relays are chatter acceptable (CA) and is documented on the RSEFs, Appendix C.

8.0 ESSENTIAL RELAY EVALUATIONS

8.1 Agastat Relays

1. Relay Models identified:

   AGA 2412, 2412PC, 2412PD, 2412PE, 2412PF, 2412S

8.1 Agastat Relays (Cont'd)

1. Relay Models identified (Cont'd):

AGA 2414AD, 2414PD	AGA 2422
AGA 7014PD	AGA E7012PD

2. Mounting Structures and Locations:

Mounting Structure	Location
ACU 31	CB 15'0"
ACU 32	CB 15'0"
Control Room Panels: G1, G2, G3, G4, and G6 SC, and SJ	CB 53'0"
SWGR 31	CB 15'0"
SWGR 32	CB 15'0"
DGCB 31	DGB 15'0"
DGCB 32	DGB 15'0"
CSAPCH1	PAB 55'0"

3. Seismic Demand:

The CB, DGB, and PAB ground response spectra are shown in Curve D-1. The seismic demand for the Control Building, CB 15'0", and the Diesel Generator Building, DGB 15'0", is shown in Curve I-8, Appendix I. The seismic demand for the Control Building, CB 53'0", is shown in Curve D-12. The seismic demand for the Primary Auxiliary Building, PAB 55'0", is shown in Curve I-5, Appendix I.

4. Seismic Capacity:

The seismic capacity of the Agastat relays is provided in Reference 5, GERS Package GERS-RLY-PNT.7, page B-3, Attachment D-3.

The maximum capacity to which these relays are seismically adequate regardless of contact configuration and relay states (energized, de-energized, or transitional) are:

Relay	Capacity
AGA 2412	12.5g's
AGA 2414	10.0g's
AGA 2422	4.0g's (Transition, NO/NC)
AGA 7014	10.0g's
AGA 7022	4.0g's (Transition, NO/NC)
AGA E7012	12.5g's

5. Seismic Capacity Versus Demand:

The comparison of the Bounding Spectra to the appropriate ground response spectra are shown in Curve D-1. Using screening Level 1, since the Bounding Spectra envelopes the ground response spectra, the locations of the mounting structures are at or below 40′ above ground level, and the minimum seismic capacity of the relays is above 8.0g's; relays AGA 2412, AGA 2414, AGA 7014, and AGA E7012 are seismically adequate for the CB 15′0", DGB 15′0", and PAB 55′0" locations when mounted in a seismically adequate structure.

Relay AGA 2422 is mounted in a control board located in the Control Room, CB 53′0". As shown in Curve D-8, this relay is seismically adequate for this location and mounting structure.

Relay AGA 7022 is mounted in the Diesel Generator Control Board (DGCB) located in the Diesel Generator Building, DGB 15′0". As shown in Curve D-9, this relay is seismically adequate for this location and mounting structure.

Mounting structure CSAPCH1, located in the Primary Auxiliary Building, PAB 55′0", contains AGA 2412 and AGA E7012 relays only. Since both these relays are high capacity relays they are seismically adequate for this location and mounting structure.

8.2 Westinghouse Relays

1. Relay Models identified:

COV-8	BFD 66, 66F, 66S
CV-7	BFD 75S
CW	BFD 80S
BF 22, 22F	BFD 84, 84S
BF 40F	BFD 86S
BF 44V	BFD 120, 120S
BF 53	BFD F31S
BF 66, 66F, 66G, 66S	NBFD 24S
BF 84	NBFD 66S
BFD 20S	NBFD 84S
BFD 22S	M101
BFD 32S	M110
BFD 40S	MG-6
BFD 44S	SG
BFD 48F, 48S	SG-7
	WL
	Z

2. Mounting Structures and Locations:

Mounting Structure	Location
ACU 31	CB 15'0"
ACU 32	CB 15'0"
Control Room Panels:	CB 53'0"
E-8	
Flight Panel	
F7, and F-8	
G1, G2, G3, G4, and G6	
H4, and H5	
SB2F, SC, SH, SL, and SJ	
SWGR 31	CB 15'0"
SWGR 32	CB 15'0"
DGCB 31	DGB 15'0"
DGCB 32	DGB 15'0"
DGCB 33	DGB 15'0"

3. Seismic Demand:

The CB and DGB ground response spectra is shown in Curve D-1. The seismic demand for the Control Building, CB 15'0", and the Diesel Generator Building, DGB 15'0", is shown in Curve I-8, Appendix I. The seismic demand for the Control Building, CB 53'0", is shown in Curve D-12.

4. Seismic Capacity:

a. The seismic capacity of the BF, BFD, and NBFD relays is provided in Reference 5, GERS Package GERS-RLY-AI2.4, page B-43, Attachment D-6.

b. The seismic capacity of the SG, SG-12V, and MG-6 relays is provided in Reference 5, GERS Package GERS-RLY-ARH.5, page B-12, Attachment D-4.

c. The seismic capacity of the CV-7 and COV-8 relays is provided in Reference 5, GERS Package GERS-RLY-PP2.6, page B-78, Attachment D-8.

d. The seismic capacity of the WL relay is provided in Reference 5, GERS Package GERS-RLY-ALO.2, page B-57, Attachment D-7.

e. The seismic capacity of the CW relay is provided in Attachment D-13. These relays are now manufactured by ABB Power T&D Company, Inc.

f. GERS data does not exist for the M101, M110, and Z model relays.

The maximum capacity to which the above relays are seismically adequate regardless of relay configuration are:

Relay Model	Capacity
COV	14.2g's
CV	14.2g's
CW	8.0g's
BF	4.0g's (Non-operating, normally closed)
BFD	9.0g's
NBFD	3.0g's (Non-operating, normally closed)
MG-6	3.9g's (Non-operating, normally closed)
SG	5.0g's (Operating, normally closed)
WL	10.0g's

5. Seismic Capacity Versus Demand:

Using the Level 1 screen, since the Bounding Spectra envelopes the ground response spectra, the locations of the mounting structures are at or below 40' above ground level, and the minimum seismic capacity of the relays is 8.0g's or above; the BFD, CV, COV, CW, and WL relays are seismically adequate for the CB 15'0", CB 53'0", and DGB 15'0" locations when mounted in seismically adequate structures.

The MG-6 relays are all located in the Control Room, CB 53'0". All these relays have non-operating normally open contact configurations (see Attachment D-10) that, in accordance with the relay GERS, are seismically adequate to a level of 10.0g's. Using the Level 1 screen, these relays are, therefore, seismically adequate for use in the Control Room, CB 53'0", when mounted in seismically adequate mounting structures.

For the BF, NBFD, and SG relays, the Level 2 screen must be used. This method requires the determination of the in-cabinet response spectra (seismic demand). The mounting structures located in the Control Room, CB 53'0", are control type cabinets. In accordance with the GIP, Reference 3, page 6-20, Table 6-2, the in-cabinet amplification factor is 4.5 and the appropriate safety factor is 1.5. As shown in Curve D-8, these relays are seismically adequate for their location and mounting structure.

The DGCB 31, 32, and 33 located in the Diesel Generator Building, DGB 15'0", are control type cabinets. In accordance with the GIP, Reference 3, page 6-20, Table 6-2, the in-cabinet amplification factor is 4.5 and the appropriate safety factor is 1.5. As shown in Curve D-9, these relays are seismically adequate for this location and mounting structure.

The SWGR 31 and 32 in the Control Building, CB 15'0", are typical switchgear type cabinets. In accordance with the GIP, Reference 3, page 6-20, Table 6-2, the in-cabinet amplification factor is 7.0 and the appropriate safety factor is 1.5. As shown in Curve D-11, these relays are seismically adequate for this location and mounting structure.

The model M101, M110, and Z relays are only used in the Diesel Generator control circuits and are mounted in the three (3) Diesel Generator Control Boards located in the Diesel Generator Building. These relays require corrective action an are documented on the RESF's for the Diesel Generators DG-31, DG-32, and DG-33.

8.3 General Electric (GE) Essential Relays:

1. Relay Models and Locations:

   GE essential relays are limited to Model CR 120A mounted in the Diesel Generator Control Board (DGCB) 31 and 32 located in the Diesel Generator Building (DGB) elevation 15'0", Attachment D-11.

2. Seismic Demand:

   The DGB ground response spectra is shown in Curve D-1. The floor response spectra for the DGB 15'0" location is shown in Curve I-8, Appendix I.

3. Seismic Capacity:

   The seismic capacity of GE CR 120A relays is provided in Reference 3, GERS Package GERS-RLY-AI2.4, page B-43, Attachment D-6. The minimum seismic capacity of a GE CR 120A relay is 9.0g's, regardless of relay contact configuration and state (energized, de-energized, or transitional).

4. Seismic Demand Versus Capacity:

   Because the seismic capacity of the GE CR 120A relay is above 8.0g's, using the Level 1 Screen, these relays are

seismically adequate for use in the DGB when mounted in a seismically adequate structure.

8.4 Gould Essential Relays

1. Relay Models and Locations:

Relay	Mounting Structure	Location
J13	CCR Panel SH	CB 53'0"
J13 P20	CCR Panel SH	CB 53'0"
	DGCB 31, 32, and 33	DGB 15'0"
J13 P30	CCR Panels G4 and G6	CB 53'0"
	Sample Panel	PP 45'0"
J16 SV12	SWGR 31 and 32	CB 15'0"

2. No GERS data exists for Gould relays nor could seismic qualification data be found to support the seismic adequacy of these relays. These have been found to be chatter acceptable by circuit analysis. Documentation of these reviews is provided in the RESFs, Appendix C.

9.0 BATTERY CHARGERS

Only Battery Chargers 31 and 32 have essential relays located in them. In accordance with IP-3 DC System description, Attachment D-12, these Chargers are float type manufactured by Exide and are covered by Reference 6, GERS package GERS-BC.4, page C-18, Attachment D-7.

. As shown in Curve D-10, the GERS spectra envelopes IP-3 floor response spectra for control building elevation 48'0". The charges are located at elevation 33'0". These chargers are seismically adequate for this location.

10.0 SEISMIC RESPONSE SPECTRA

The seismic response spectra used in these evaluations is as follows:

Curve D-1	Ground Response Spectra Versus The Bounding Spectra.
Curve D-2	SWGR GERS Capacity Versus CB Elevation 15' 0" Floor Response Spectra.
Curve D-3	MCC GERS Capacity Versus VC Elevation 68' 0" Floor Response Spectra.
Curve D-4	MCC GERS Capacity Versus PAB Elevation 55' 0" Floor Response Spectra.

Curve D-5	MCC GERS Capacity Versus CB/DGB Elevation 15′ 0" Floor Response Spectra.
Curve D-6	MCC GERS Capacity Versus CB/DGB Elevation 32′ 0" Floor Response Spectra.
Curve D-7	MCC GERS Capacity Versus TB Elevation 15′ 0" Floor Response Spectra.
Curve D-8	Relays CV, COV, MG-6, WL, NBFD, SG, BF, and AGA-2422 GERS Capacity Versus 6.75 X's CB Elevation 53′ 0" Floor Response Spectra.
Curve D-9	Relays CV, COV, MG-6, WL, CR-120A, NBFD, SG, BF, and AGA-7022 GERS Capacity Versus 6.75 X's CB/DGB Elevation 15′ 0" Floor Response Spectra.
Curve D-10	Battery Chargers GERS Capacity Versus 6.75 X's CB/DGB Elevation 48′ 0" Floor Response Spectra.
Curve D-11	Relays CV, COV, MG-6, WL, CR-120A, NBFD, SG, BF, and AGA-7022 GERS Capacity Versus 10.5 X's CB/DGB Elevation 15′ 0" Floor Response Spectra.
Curve D-12	CB Elevation 53′ 0" Floor Response Spectra (Extrapolated).

11.0 ATTACHMENTS

D-1 Reference 6, page C-52, GERS package GERS-MCC.9, Generic Equipment Ruggedness Spectrum for Motor Control Centers (Low Voltage).

D-2 Reference 6, page C-80, GERS package GERS-MVS/LVS.7, Equipment Ruggedness Data for Switchgear (Med Voltage, Metal Clad)(Low Voltage, Metal Enclosed).

D-3 Reference 5, page B-3, GERS package GERS-RLY-PNT.7, Generic Response Spectra for Auxiliary Relays - Pneumatic Timing Type.

D-4 Reference 5, page B-12, GERS package GERS-RLY-ARH.5, Generic Response Spectra for Auxiliary Relay - Hinged Arm Type.

D-5 Reference 5, page B-33, GERS package GERS-RLY-AI1.4, Generic Response Spectra for Auxiliary Relay - Industrial Type 1 (600 V).

D-6 Reference 5, page B-43, GERS package GERS-RLY-AI2.4, Generic Response Spectra for Auxiliary Relay - Industrial Type 2 (300 V).

D-7 Reference 5, page B-57, GERS package GERS-RLY-ALO.2, Generic Response Spectra for Auxiliary Relay - Lockout Type.

D-8 Reference 5, page B-78, GERS package GERS-RLY-PP2.6, Generic Response Spectra for Protective Relay - Induction Disk Type (Group 2).

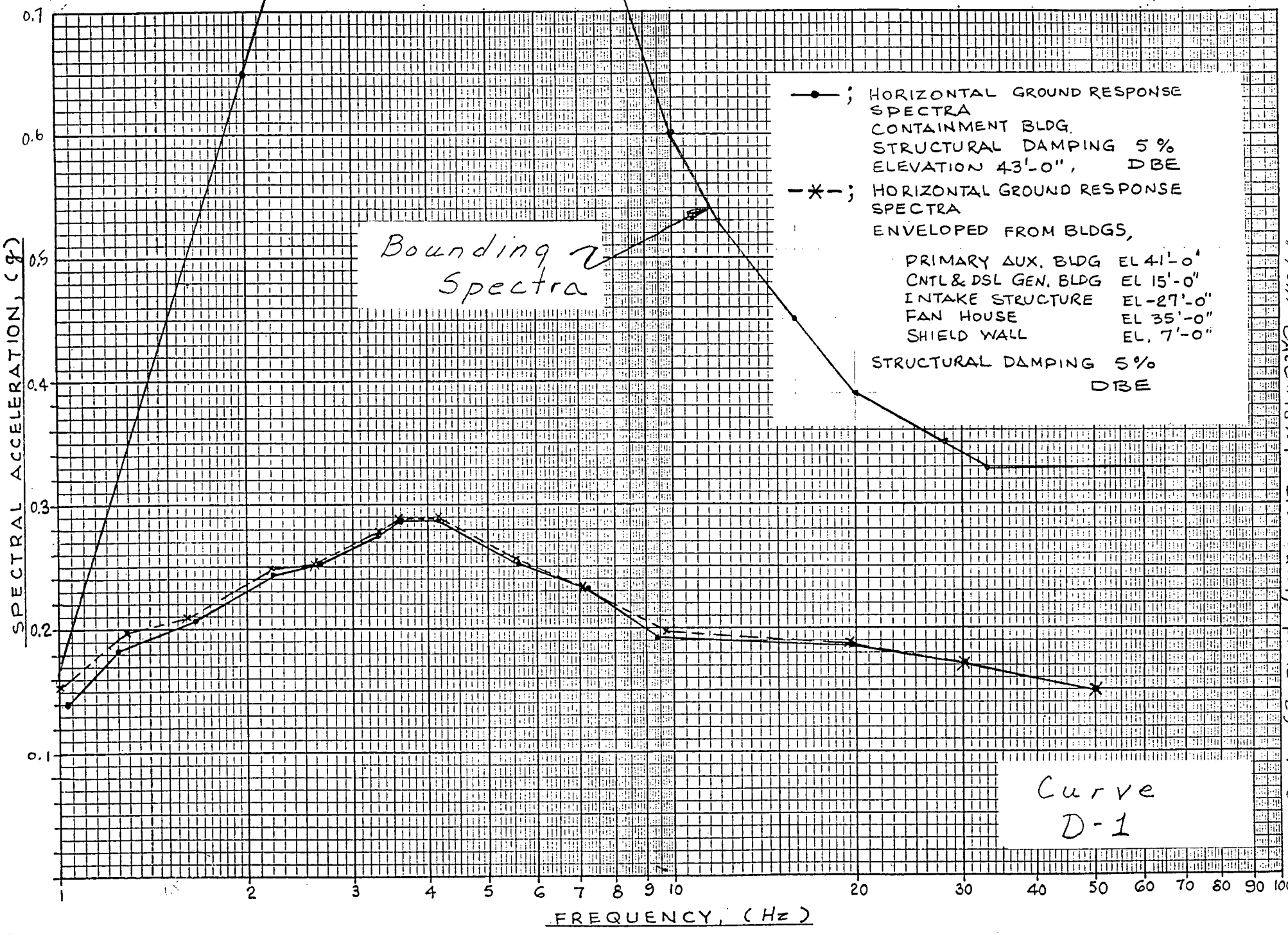
D-9 Reference 6, page C-18, GERS package GERS-BC.4, Generic Equipment Ruggedness Spectrum for Battery Chargers.

D-10 Portion of Drawing No. 113E303, Sheet 1, Rev. 24, Safeguards Actuation Schemes (shows contact configuration of Westinghouse MG-6 relays).

D-11 Portion of Indian Point Nuclear generating Station Unit 3 Relay List, printed 6/2/93, showing the model numbers of the relays in the diesel generator control circuits.

D-12 DC System Description, Rev. 0, pages 107 through 116, Section 7.4, Battery Chargers.

D-13 Westinghouse data associated with Type CW Power Relays. Renewal Parts Data 41-241A1.



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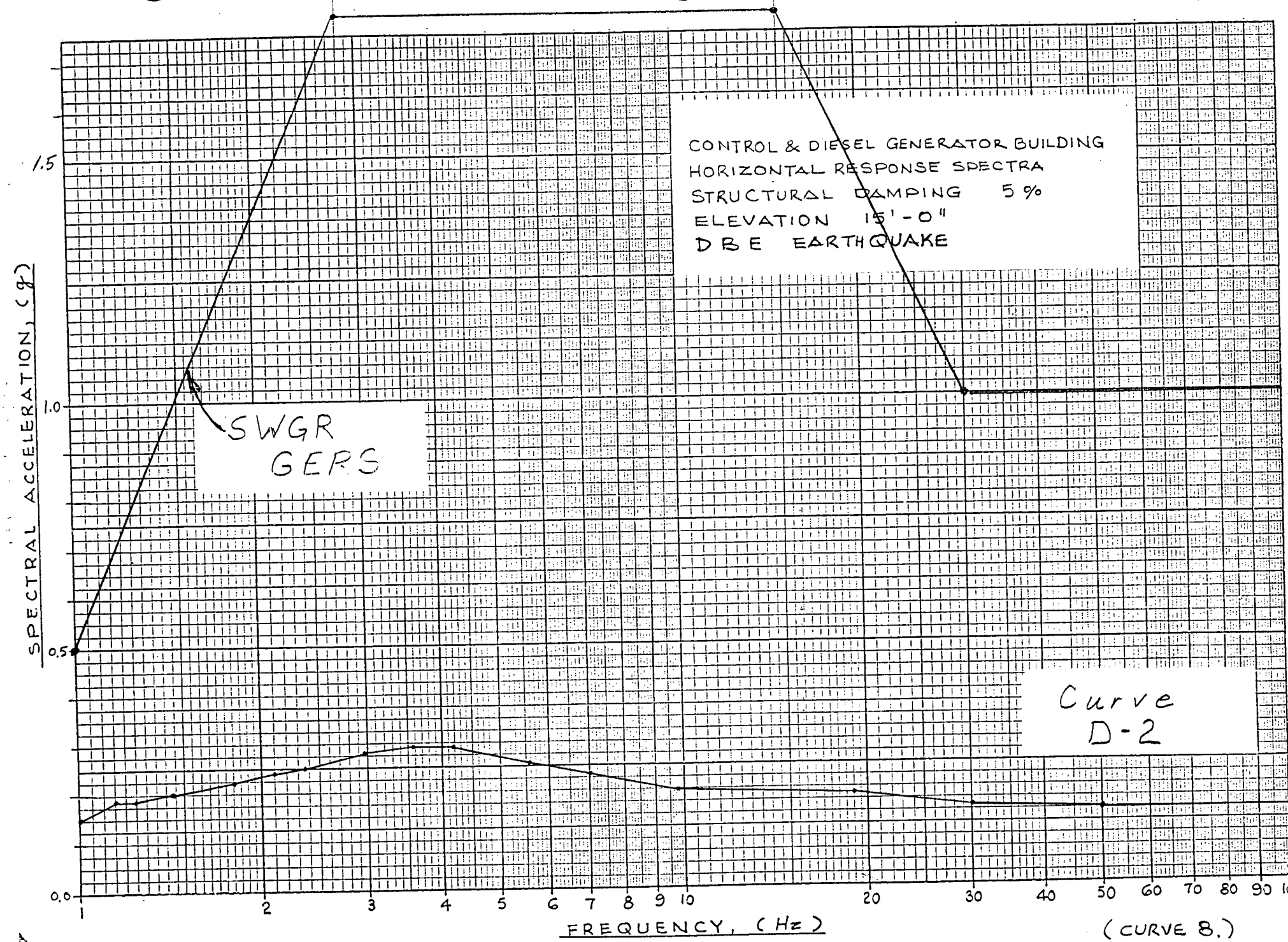
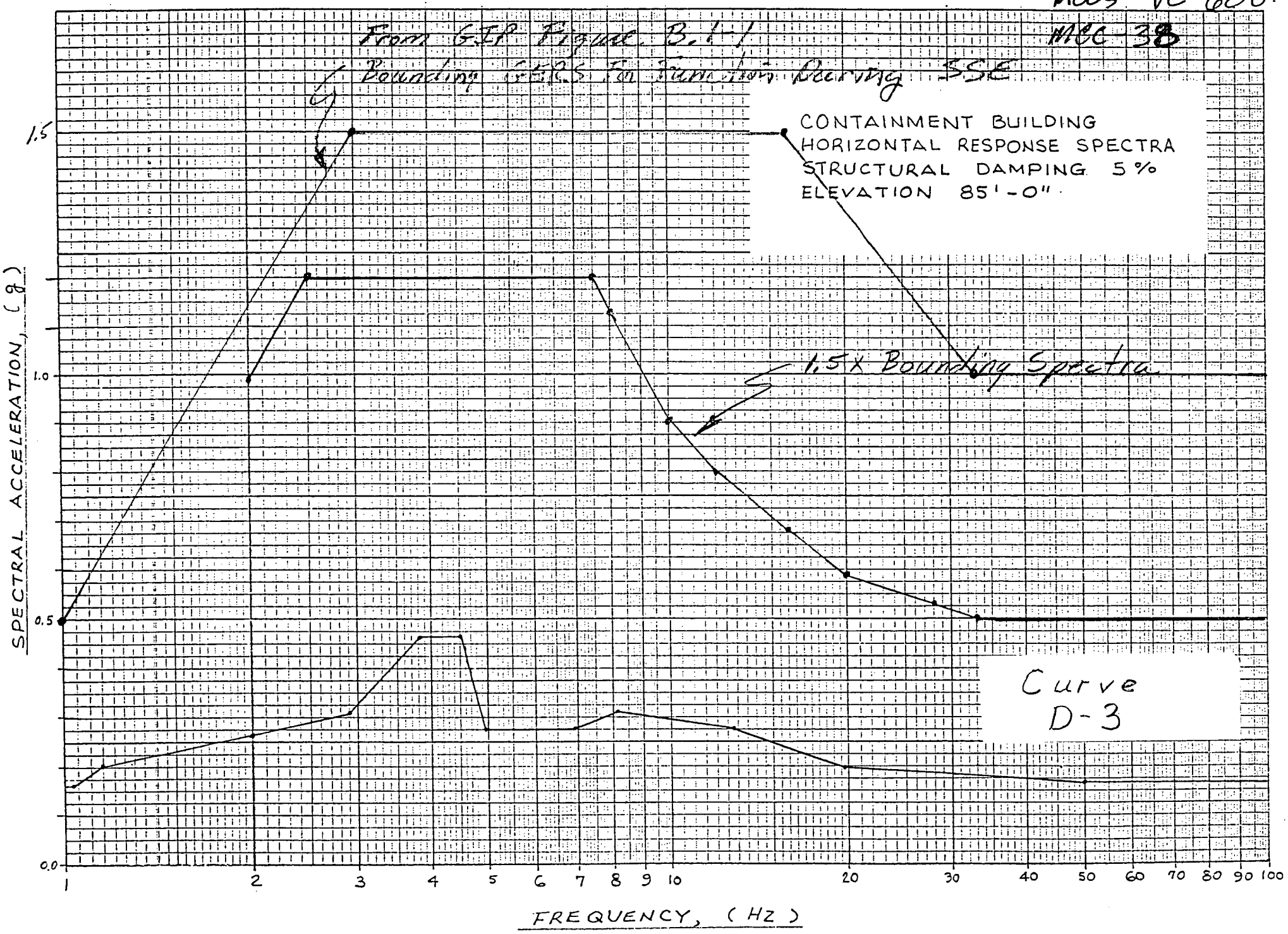
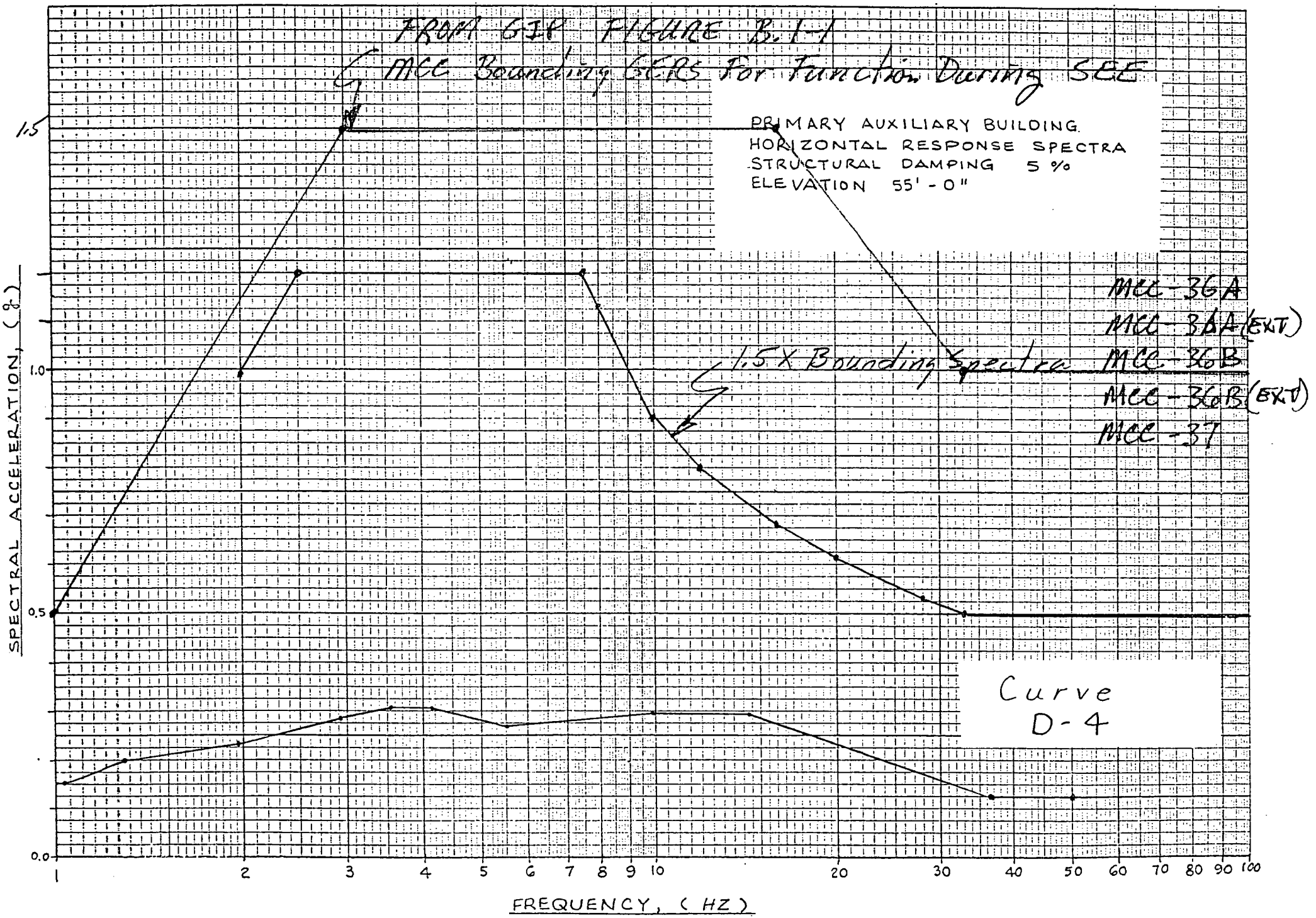

CONTROL & DIESEL GENERATOR BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5 %
ELEVATION 15'-0"
DBE EARTHQUAKE
SWGR
GERS
Curve
D-2
SPECTRAL ACCELERATION, (g)
1.5
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)

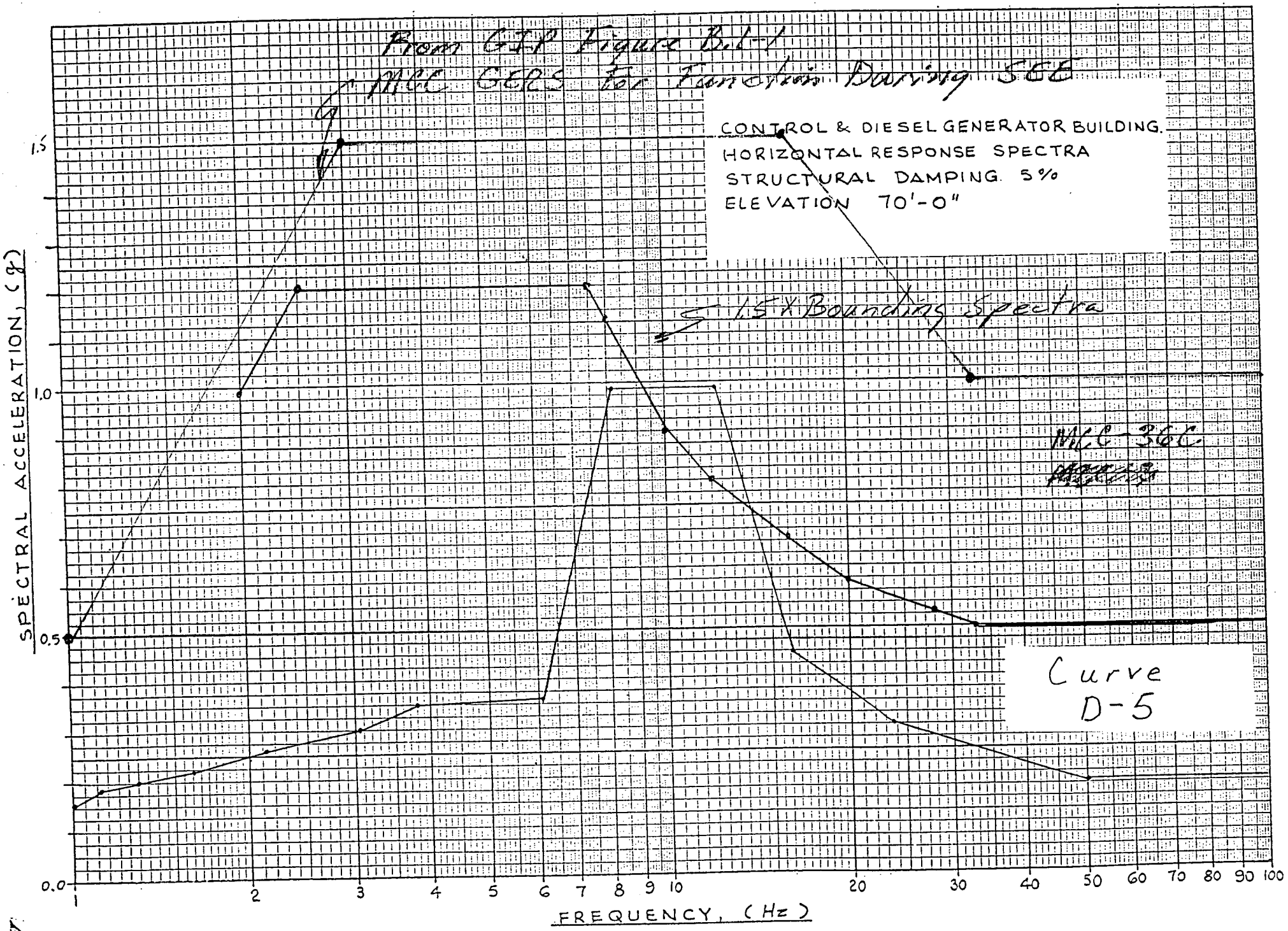
(CURVE 8.)

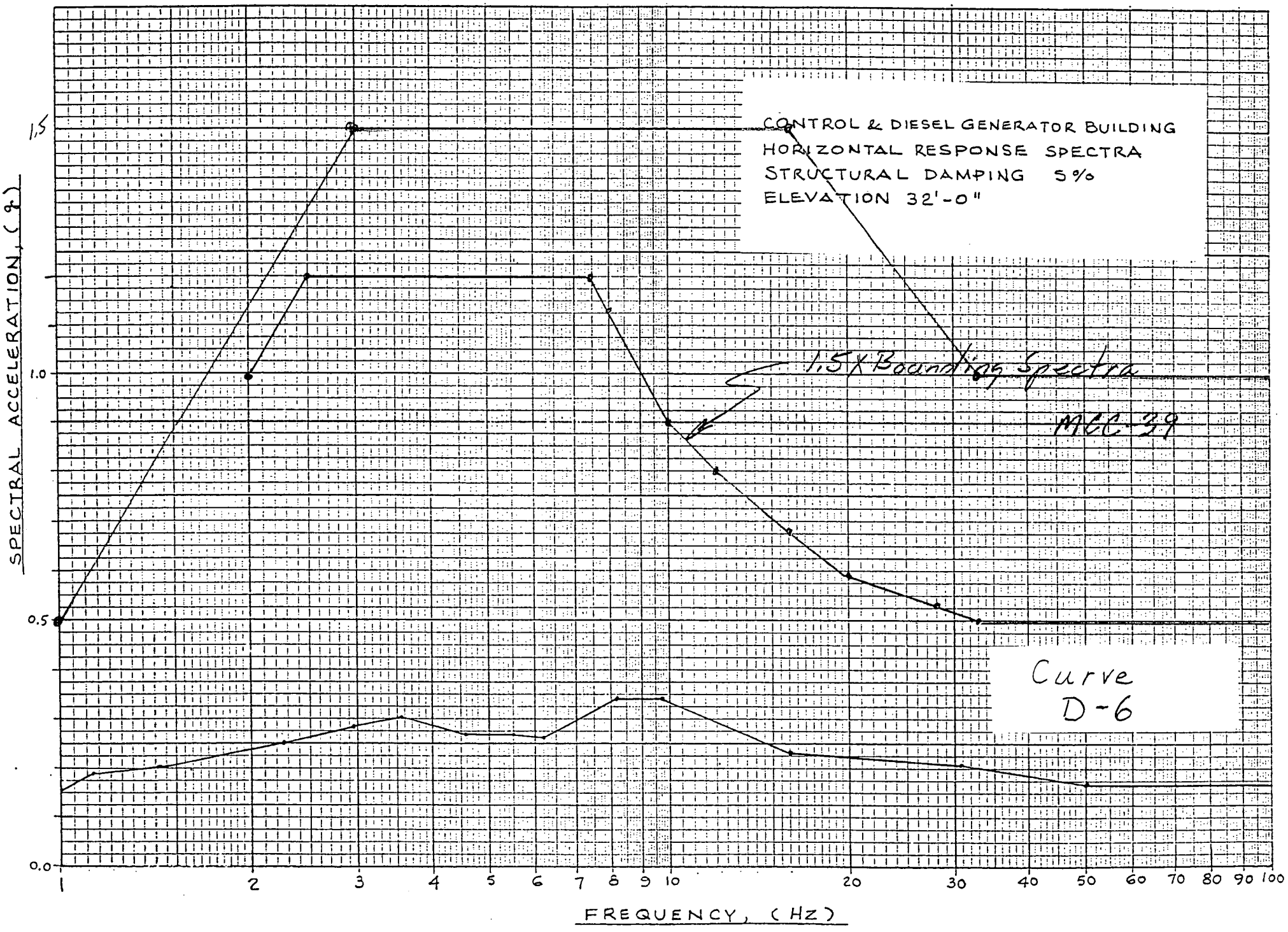
MCC's VC 68'04

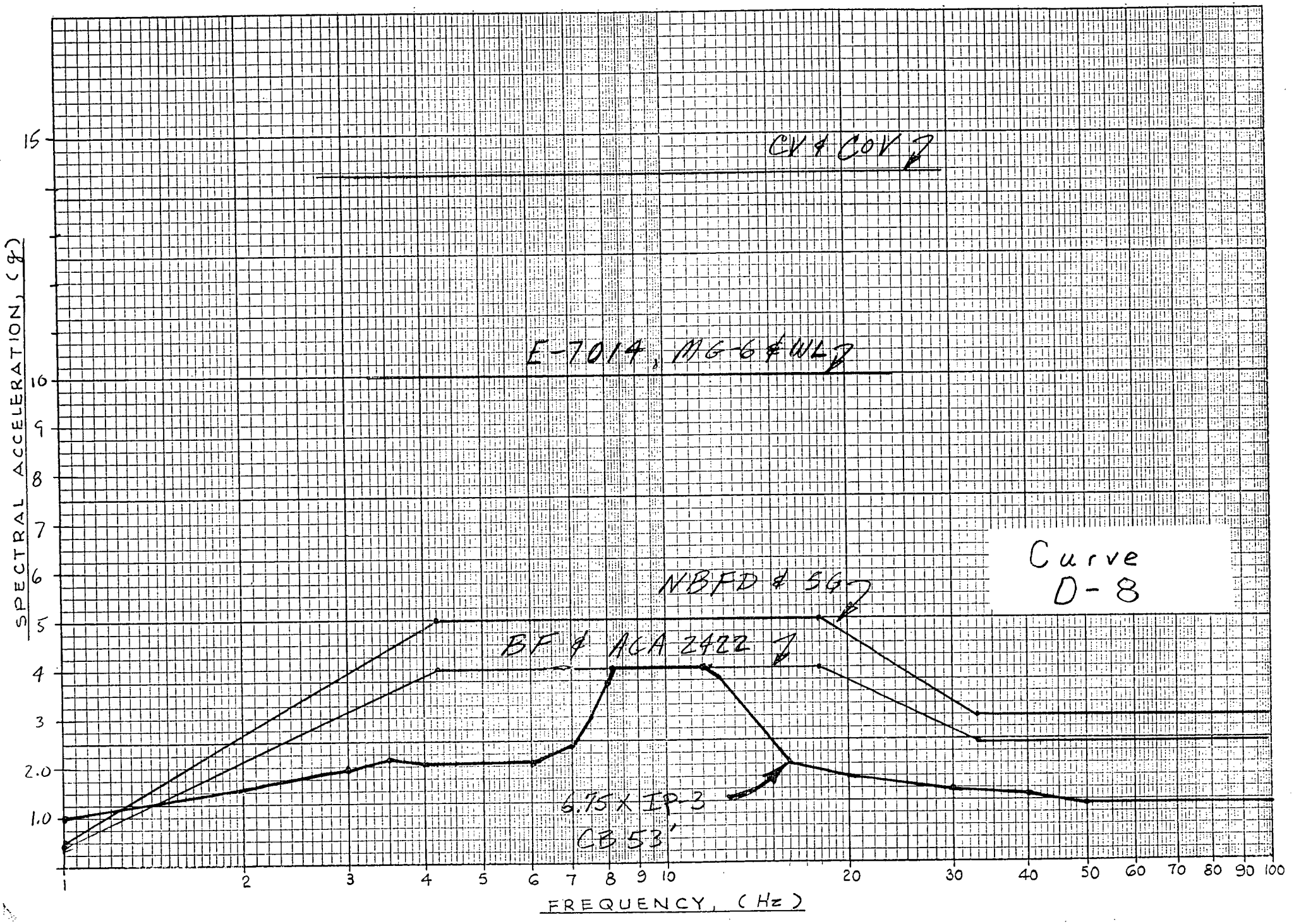
MCC 38

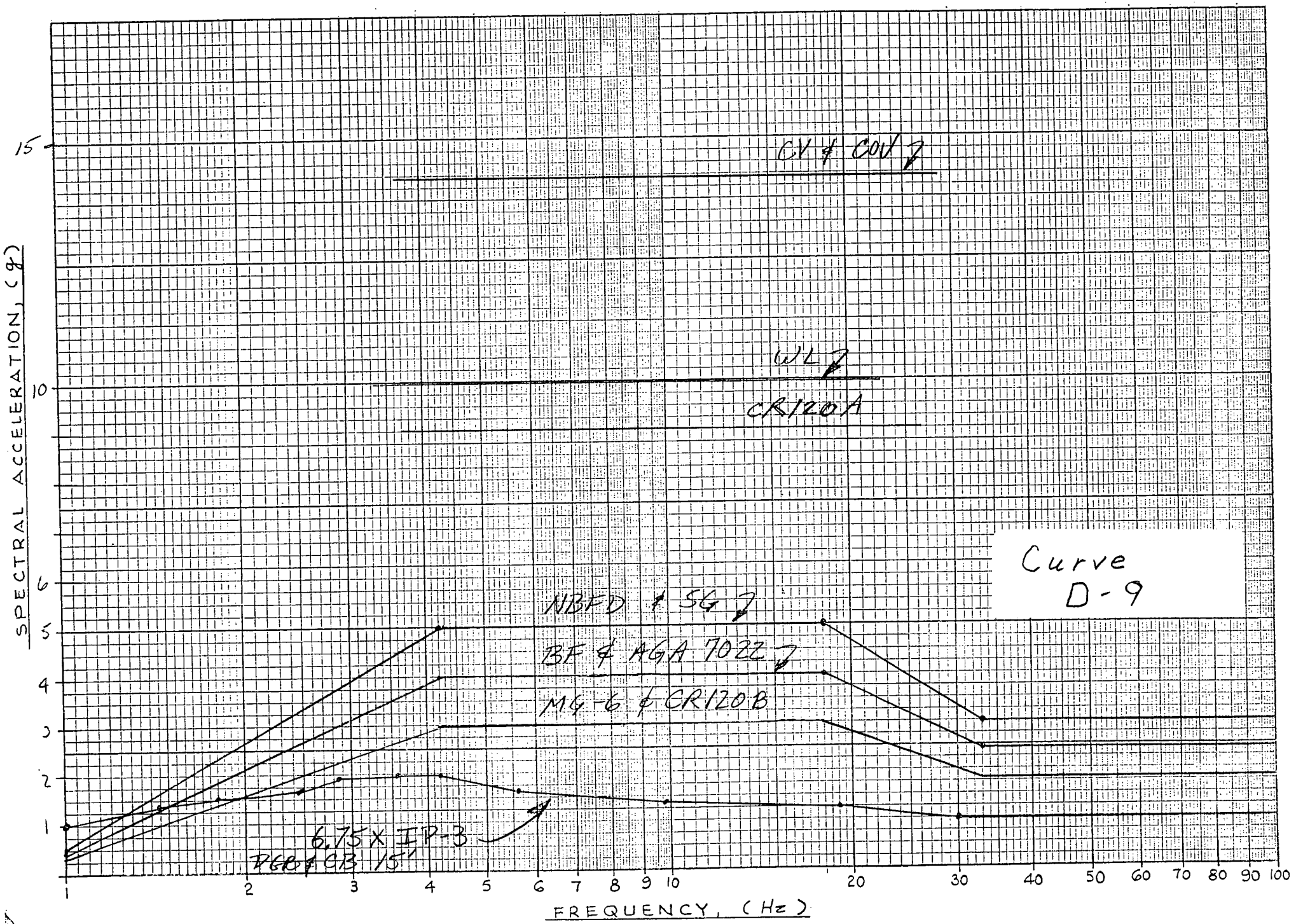


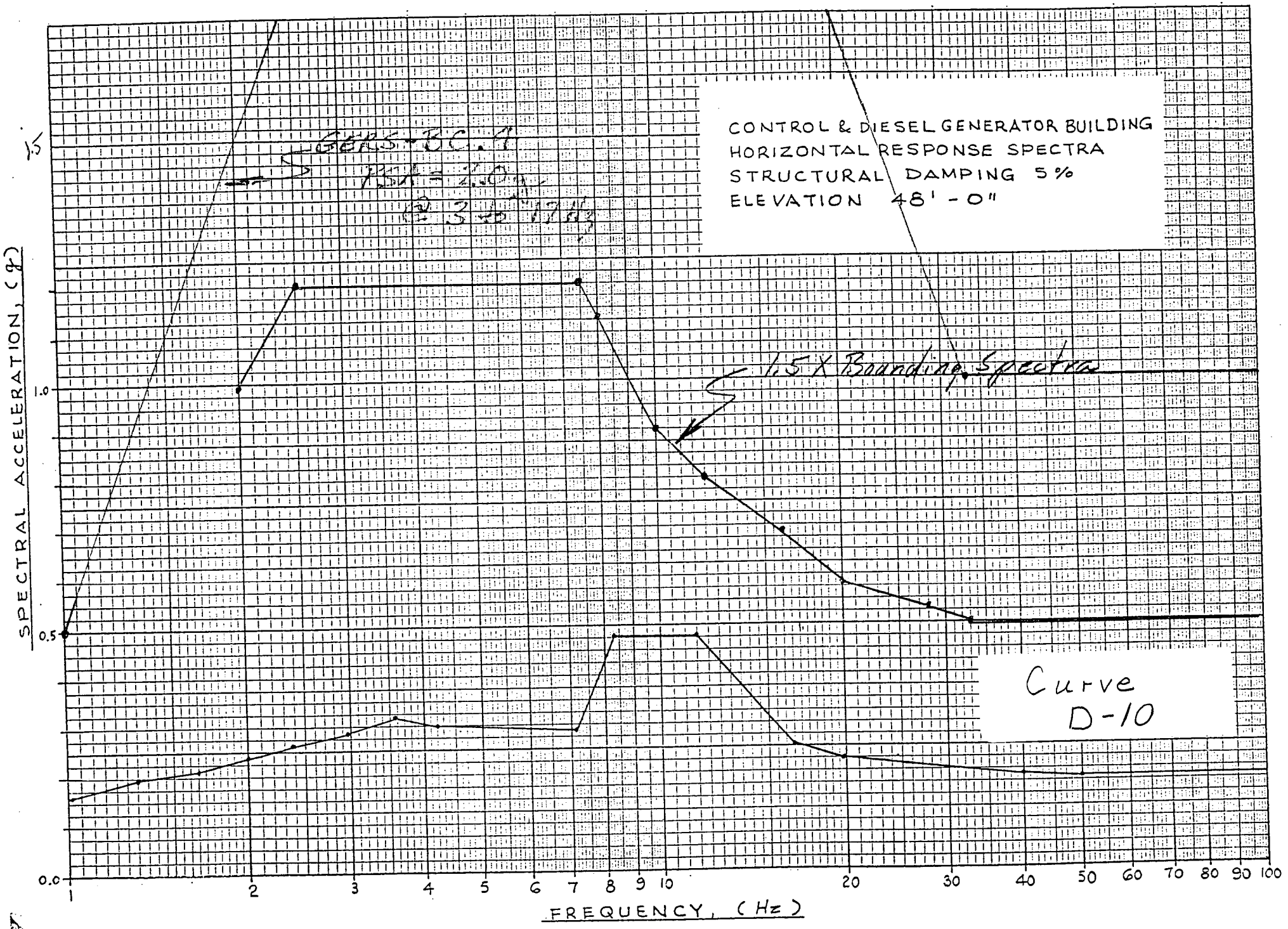

FROM GIP FIGURE B.1-1
MCC Bounding GERS For Function During SEE
PRIMARY AUXILIARY BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5 %
ELEVATION 55' - 0"
MCC-36A
MCC-36A (EXT)
MCC-36B
MCC-36B (EXT)
MCC-37
1.5 X Bounding Spectra
Curve D-4
SPECTRAL ACCELERATION, (g)
FREQUENCY, (HZ)
1.5
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100

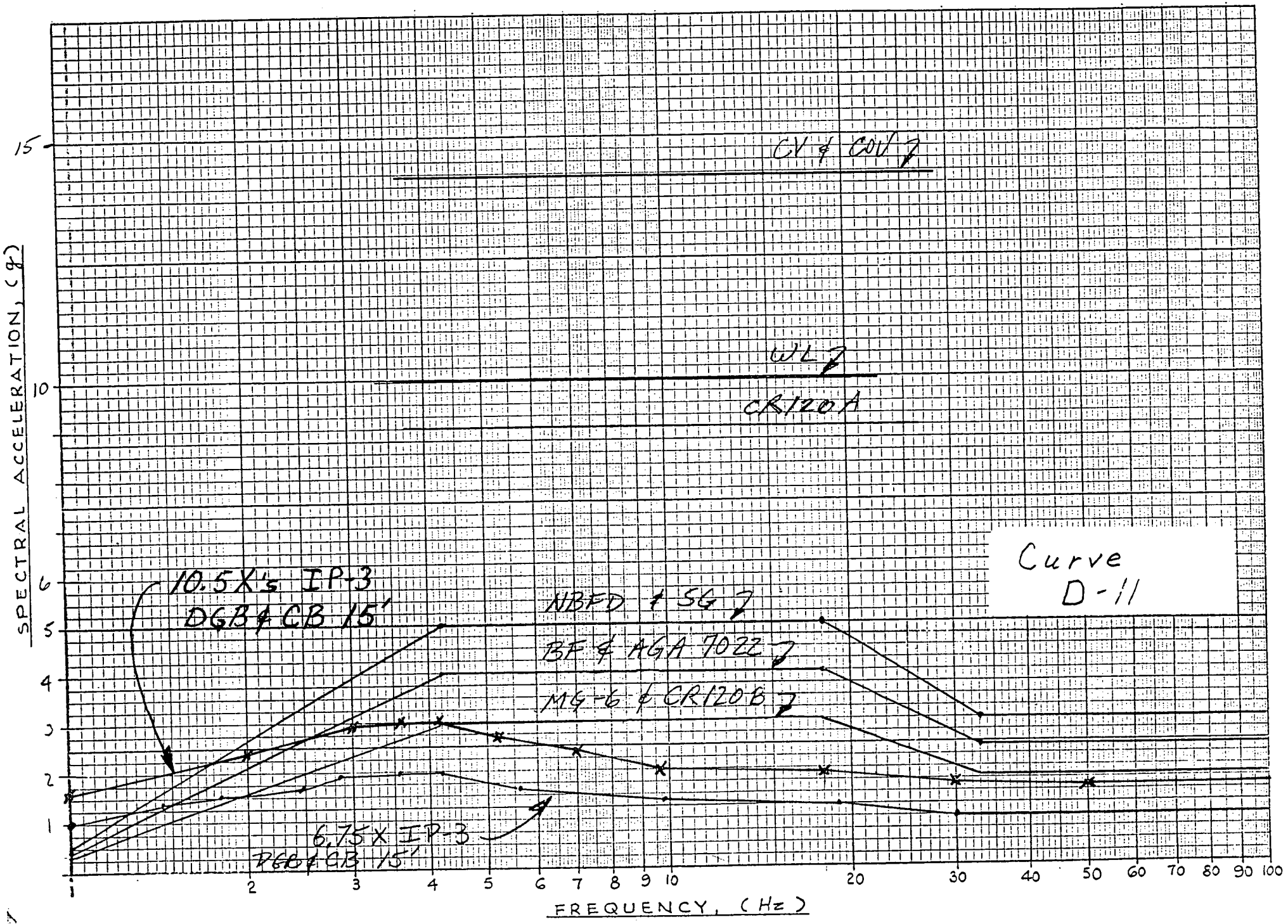

From GTP Figure B.1.4
MCC GERS for Function During SSE
CONTROL & DIESEL GENERATOR BUILDING.
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 70'-0"
1.5 X Bounding Spectra
MCC-SSE
Curve D-5
SPECTRAL ACCELERATION, (g)
1.5
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)

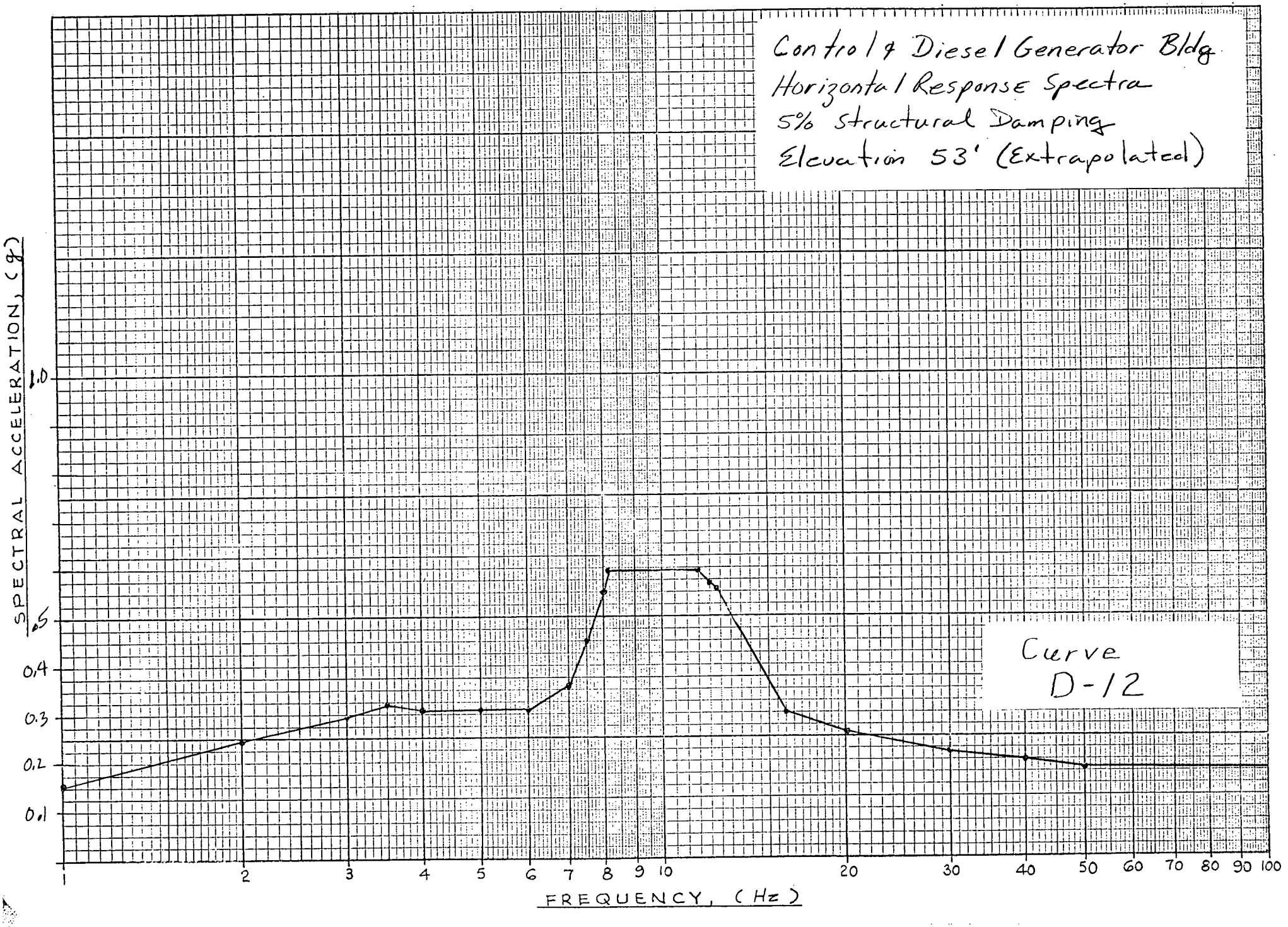

CONTROL & DIESEL GENERATOR BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 32'-0"
1.5 X Boundary Spectra
MEC-39
Curve D-6
SPECTRAL ACCELERATION, (g)
1.5
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)


Curve
D-8
CV & COV
E-7014, MG-6 & WLP
NBFD & SG
BF & AGA 2422
6.75 x 10-3
CB 53'
SPECTRAL ACCELERATION, (g)
FREQUENCY, (Hz)
15
10
9
8
7
6
5
4
3
2.0
1.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100


Curve D-9
CV & COV
WL
CR120A
NBFD & SG
BF & AGA 702Z
MG-6 & CR120B
6.75 X IP-3
PGO & CB 15
SPECTRAL ACCELERATION, (g)
FREQUENCY, (Hz)
15
10
6
5
4
3
2
1
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100


CONTROL & DIESEL GENERATOR BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 48' - 0"
1.5 X Bounding Spectra
Curve D-10
SPECTRAL ACCELERATION, (g)
FREQUENCY, (Hz)
1.5
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100


Curve D-11
CV & COV
WL
CR120A
10.5X's IP-3 DGB & CB 15'
NBFD & SG
BF & AGA 7022
MG-6 & CR120B
6.75X IP-3 DGB & CB 15'
SPECTRAL ACCELERATION, (g)
FREQUENCY, (Hz)
15
10
6
5
4
3
2
1
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100


Control & Diesel Generator Bldg
Horizontal Response Spectra
5% Structural Damping
Elevation 53' (Extrapolated)
Curve
D-12
SPECTRAL ACCELERATION, (g)
1.0
.5
0.4
0.3
0.2
0.1
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)

APPENDIX D
ATTACHMENTS 1 & 2

EPRI
Electric Power
Research Institute

Keywords:
Earthquakes
Seismic effects
Seismic qualification
Electrical equipment
Mechanical equipment
Equipment anchorage

EPRI NP-5223-SL
Revision 1
Projects 1707-15, 2925-2
Final Report
August 1991

Generic Seismic Ruggedness of Power Plant Equipment (Revision 1)

LICENSABLE MATERIAL

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Prepared by
ANCO Engineers, Inc.
Culver City, California

APPENDIX D
ATTACHMENT D-1
PAGE 1 of 11

GERS-MCC.9

GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

FOR

MOTOR CONTROL CENTERS
(LOW VOLTAGE)

Prepared for

ELECTRIC POWER RESEARCH INSTITUTE
Palo Alto, California

Prepared by

ANCO Engineers, Inc.
Culver City, California

February 1991

1.0 INTRODUCTION

A Generic Equipment Ruggedness Spectrum (GERS) for Motor Control Centers (low voltage) is presented and discussed in the following sections. An attached appendix discusses a test data base compiled by another organization.

2.0 EQUIPMENT DESCRIPTION

The equipment class covered by the GERS presented here is Low Voltage Motor Control Centers (MCC) which are steel enclosures containing various sizes of motor starters (contactors and overload relays), circuit breakers, disconnect switches, control or distribution transformers, and panelboards. They may also have indicator lamps and meters. Relays, when present, will be either industrial, socket, or pneumatic timing types.

The fundamental purpose of an MCC enclosure is to house the controls which turn motors on and off. Other components might also be located in MCCs for convenience such as light panels, HVAC heater controls, etc. The primary unit of motor control is a motor starter which consists of a contactor and motor running overcurrent protection.

A starter may be denoted as either full voltage or reduced voltage and either reversing or non-reversing. The most common application for most motors however, will be a full-voltage (FVR or FVNR) starter. In these cases, the motors will have high starting currents and torques. To prevent damage in case of a locked rotor, overload protection is provided by the overload relays. These devices, which are a component of every starter, are not to be confused with control relays (such as the types indicated above), since the overload relays are in reality a mechanical fuse. In some models of overload relays, a eutectic alloy is used which melts under the overload condition.

A contactor consists of a coil, armature, main contacts, and auxiliary contacts. The auxiliary contacts are accessories which may or may not be added to the contactor. The auxiliary contacts (also referred to as electrical interlocks) are used for seal-in and other signal functions. Another device, a mechanical interlock (mechanical linkage) may also be present which is usually associated with a reversing starter.

Cable or conduit enclosure entry can be from the bottom, top, or side. Units are low voltage rated at 600 VAC (480 VAC nominal) or 250 VDC. Typical low-voltage

NEMA nominal enclosure section sizes are 20 inches wide, 20 inches deep, and 90 inches high. They are fabricated of 14 gage or heavier steel sheets and supported on channels at the bottom. The base channels are either integral with the MCC frame or are external members connected by internal bolts to the MCC frame. Multiple MCC sections may be grouped together to make widths to 120 inches or greater. The units must be anchored at the base to a supporting structure. The validation of anchorage adequacy requires an independent evaluation. This equipment class covers virtually all low voltage MCCs used in power plants for critical motor control. The checklist given in Section 5 below can be used to screen for outliers.

3.0 TEST DATA BASE

The data base includes basic equipment descriptive information, test methods/description, and test data covering a wide range of MCC for fifteen separate tests. The earliest test in the data base was conducted in 1974. Forty vertical MCC sections with weights ranging from 200 to 800 pounds (per section) from ten manufacturers which represent the range of units found in actual power plants are included in the data base. The units tested involved both single- and multi-section MCC units (up to six sections). Two of the tests included valid data; however, they do not meet the class inclusion rules. One of these tests had a top brace attachment (i.e., not entirely base-mounted), and the other MCC unit was housed in a non-typical (larger) enclosure. All units were mounted within NEMA-type metal enclosures with either welded or bolted anchorage.

Twelve tests were performed with random, independent, biaxial input motions. One test used random, independent, triaxial input motion, while two additional tests utilized single-axis sine-beat inputs. The test results span the entire range of possible success and failure. Failure modes were contact chatter, starter change of state, and minor structural base damage. (An example of minor structural damage is a single broken bolt or a cracked weld.) In one test series involving four MCC sections, the equipment fragility limits were sought. In some cases, the tests were performed on MCCs in which artificially aged components had been installed, while in others, the components were new. Contact status and chatter duration was monitored during most tests. Tests were typically performed in a deenergized state and then repeated with the circuits energized. Some tests included an intentional state transition during input motion. Hi-pot tests, under- and over-voltage relay functionality, and circuit breaker functionality were checked before and after the tests.

Relay (not overload) contact chatter was also noted in some tests. Control relays are included in test MCC enclosures, since a qualification test considers all possible special configurations that may be furnished by a given manufacturer. However, the presence of a relay in a normal power plant MCC enclosure circuit is not a common occurrence. Control relays might be used in a special ground detection system, or to convert a DC control signal to an AC contactor coil voltage, or to introduce some timing function.

A recent USNRC-sponsored research project has compiled MCC fragility test data obtained from proprietary sources. The published results of this study provide an additional data base for identification of possible MCC failure modes. While the data cannot be reviewed due to proprietary restrictions, the results confirm that the functionality of MCCs is limited by main contactor and auxiliary contact chatter. The direct consequence of contact chatter is starter change-of-state which requires a manual reset. The USNRC-sponsored study also identified a weak internal base channel connection detail that allowed "all four corners" of a MCC enclosure "to break away" during a test input. This damage was accounted for in the GERS and associated checklist reported below.

A major manufacturer (Westinghouse Electric Corporation) has reviewed their seismic qualification testing program conducted on various MCC configurations. While the specific test levels and details remain proprietary, the manufacturer has quantified the test results for review purposes. Minor damage to the enclosure, at the base, was seen to initiate at the 2.5 g spectral level. Based on their test experience with qualification of other manufacturers' MCC configurations, they recommended that the 2.5 g spectral level be considered as a generic limit to prevent unacceptable base damage.

4.0 GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

Figure 1 compares the GERS to the horizontal Test Response Spectra (TRS) (standardized to 5% damping) for all of the twelve TRS used to construct the GERS. Both the energized and the deenergized data from successful tests are compared in Figure 1. For this equipment class, two basic GERS levels are specified; (1) "function during" and (2) "function after". The "function during" GERS conservatively accommodate the low bound of data base TRS for which contact chatter and contactor change of state was noted in a wide spectrum of cabinet and starter types as shown in Figure 2. The function during GERS level (1.5 g) is associated with either normally open or closed

auxiliary contact chatter*, main contact chatter, control relay chatter, and contactor change-of-state. Contactor change-of-state is conservatively assumed to be a consequence of auxiliary contact chatter when the auxiliary contacts are used for contactor seal-in (only normally open contacts are used for seal-in). For MCC base inputs greater than the "function during" GERS level, reset of the contactors may be necessary.

The GERS level for MCC "function after" is set at the spectral level which is the low bound of known "major" structural damage that has been documented. Any MCC may use this GERS level as long as an inspection of the internal mounting configuration satisfies certain caveats given in the following section.

The vertical TRS in all tests on which the GERS is based was approximately equal to the horizontal input motion. Thus, the GERS presented is valid for concurrent vertical and horizontal motion.

5.0 CHECKLIST

To apply this GERS to Motor Control Centers, the following criteria must be verified.

- The MCC must be a low voltage unit with a floor-mounted NEMA-type enclosure with an average weight per vertical section that does not exceed 800 pounds (review of manufacturer's submittals is sufficient).
- The MCC must be anchored and the installed anchorage must be evaluated.
- The base anchorage must utilize MCC base structural members (as supplied by the manufacturer) for attachment (base structural members are either channels integral with MCC frames or external channels connected by internal bolts). Base anchorage details that induce significant bending of sheet are not acceptable.

---

* Normally closed auxiliary contacts usually chatter at lower test levels than normally open contacts, however the spectral levels associated with contact chatter are not known with sufficient precision to make a distinction between chatter spectral levels for the two types of contacts.

- In order to utilize the "function after" GERS, the internal load transfer path from the anchorage to the MCC (base) frame must be inspected in addition to the required anchorage evaluation. MCC base channels with bolted anchorage that have less than four bolts per MCC section require a separate evaluation for stiffness. If internal mounting bolts (connection of MCC frame to external base channels) are present, there must be four bolts per section, and they must be at least 3/8-in. diameter. Any sheet metal cabinet components used for anchorage must have reinforcement. Excessive eccentricities in the internal load path which allow significant bending of sheet metal require a separate evaluation for adequacy and stiffness.

- Any MCC which does not meet the load path evaluation criteria must be considered as an outlier and separately evaluated for adequacy and stiffness.

- Cutouts in cabinet sheathing are less than 6-in. wide and 12-in. high in the lower half of the cabinet height.

- All door latches or screwdriver operated door fasteners must be secured. Drawout buckets must have positive latches.

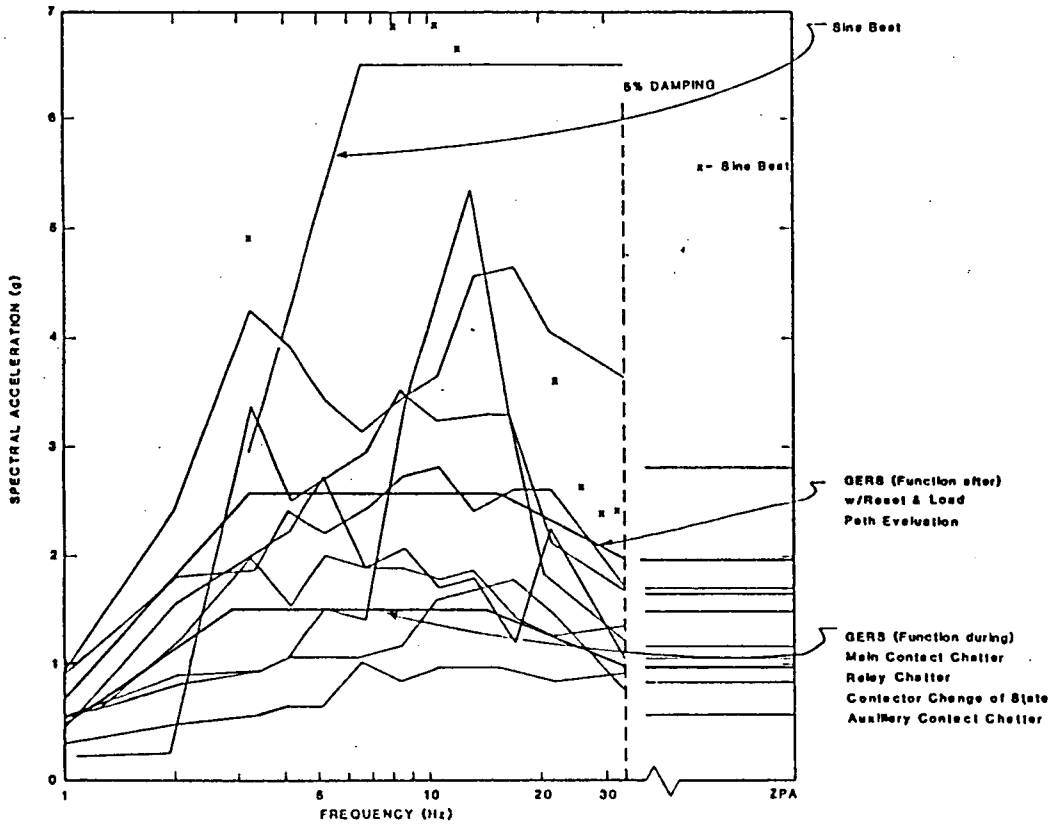
- In order to utilize the "function during" GERS, relays with low ruggedness must be excluded. All relays must have a GERS greater than 4.5 g within the amplified spectral region. (Here the term relays does not include contactors and other starter components.)

- Auxiliary contacts of contactors require a separate evaluation if they are used for external control or lockout signals.

- If the "function during" GERS limits for MCCs are exceeded by certain plant floor response spectra, the capability for reset of starters must be demonstrated in accordance with established procedures (Reference 5*). (In general, both system tolerance of the changed state and operator availability for manual reset must be shown.)

---

* Reference 5: Betlack, J., Carritte, R., and Schmidt, W., "Procedures for Evaluating Nuclear Power Plant Relay Seismic Functionality," EPRI Report NP-7148, 1991.



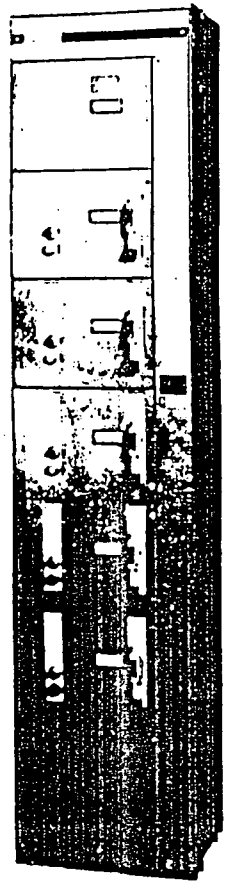


Figure 1. Comparison of GERS With Ruggedness Data: Function During and After for MCC

ATTACHMENT D-1
Page 7 of 11

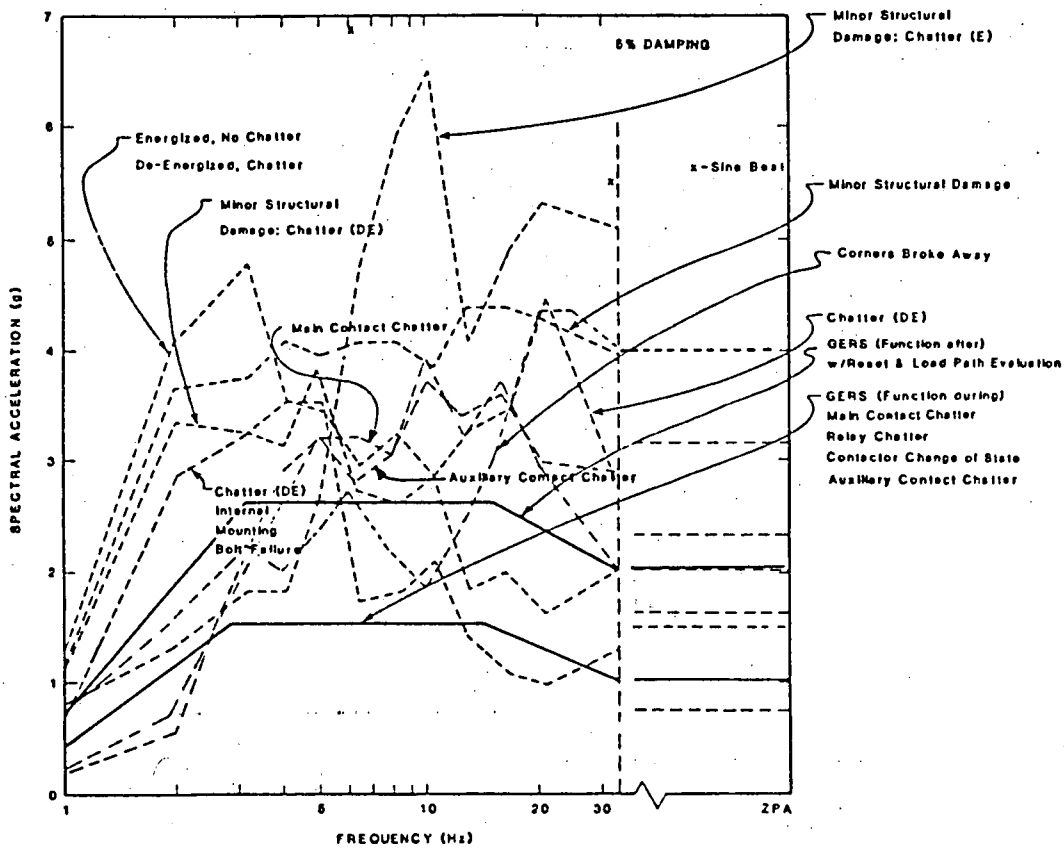


Figure 2. Comparison of GERS With Failure Data: Function During and After for MCC

APPENDIX

A detailed review of the following report concerned with the seismic fragility of MCCs has been conducted.

"Seismic Fragility of Nuclear Power Plant Components"; NUREG/CR-4659; BNL-NUREG-52007 Vol. 1, Brookhaven National Laboratory, June 1986; Vol. 2, December 1987; and Vol. 3, February 1990

The above report documents the fragility data collected to date in a USNRC sponsored study conducted by Brookhaven National Laboratory (BNL). The objective of the study was to quantify the fragility of selected equipment for use in seismic margin studies and probabilistic risk assessments.

The purpose of the review was to reconcile the MCC GERS levels given in earlier GERS studies with the reported BNL results. It should be noted that BNL gained access to some of the data under proprietary restrictions, thus the test reports cannot be directly reviewed by others. BNL uses 2% spectra averaged over the range 4-16 Hz (ASA) to indicate the test input level. For GERS construction, 5% spectra are used. For the discussion below, a factor of 0.63 was used to convert the BNL ASA values to comparable GERS values ($0.63 = \sqrt{2/5}$; see report, Section 2).

MCC Motor Starter Chatter and Change of State

The BNL report identified several tests with changes of state for starters which would require consideration of manual reset. Auxiliary contacts were found to change state at the same level as contact chatter, i.e., 1.3 g. Main contacts were found to change state at an input level of 1.6 g.

It was also observed that as test levels increased, normally closed (NC) auxiliary contacts chattered before normally open (NO) auxiliary contacts. A motor control circuit contains a variety of components (relays, contactors, auxiliary interlock contacts) which can be wired or interconnected in numerous ways to accomplish the control objectives. Thus, in a given test, the determination of the component which caused main contact chatter or change of state is often not possible. The spectral levels associated with contact chatter are not known with sufficient precision to distinguish between the various types of chatter occurring in the spectral range 1.3-1.6 g. For the reconciliation of the MCC GERS with the BNL

report, the 1.5-g level will be associated with auxiliary contact chatter, main contact chatter, and change of state. Relay chatter is also associated with this level. Thus, the 1.5-g level is the "function during" GERS level for relay, auxiliary, and main contact chatter. However, above this level, main contact change of state is possible and reset must be considered.

MCC Structural Adequacy

For previous GERS, the GERS level for "function after" was set at the 4.0 g spectral level. This GERS represented an input level which is slightly higher than the input level for which some of the MCCs in the GERS data base began to experience "minor" structural damage. Here the term "minor" refers to local weld cracking, sheet metal deformation, and the fracture of a single internal mounting bolt. The BNL data base also has these observed localized minor damage modes which do not limit the ability of an MCC unit to function after a seismic event (allowing, of course, for reset of starters which may have changed state).

However, the BNL data base contains a test in which "all four corners broke away from the base" at an average spectral level of approximately 2.5 g. The test failure, reported by BNL, was associated with an internal mounting bolt detail in which both bolt size and sheet flexibility were contributing factors. While the specific detail dimensions are proprietary, sufficient verbal information has been obtained during the review to allow the sketch of a similar detail shown in Figure A-1 to be drawn. This sketch provides a walkdown team with an example unacceptable detail to judge the stiffness and adequacy of given MCC internal load path. It should be noted that a reinforcing angle doubler is included in the detail.

The GERS level for function after is set at 2.5 g to accommodate this test result. A load path inspection is required to determine if an MCC base detail utilizes internal mounting bolts.

To insure that a detail, similar to the above test detail, would not pass a field evaluation, GERS caveats have been added to insure that internal mounting bolts (connection of MCC frame to external base channel) if present, must be at least 3/8-in. diameter and that any associated sheet metal anchor components must be reinforced.

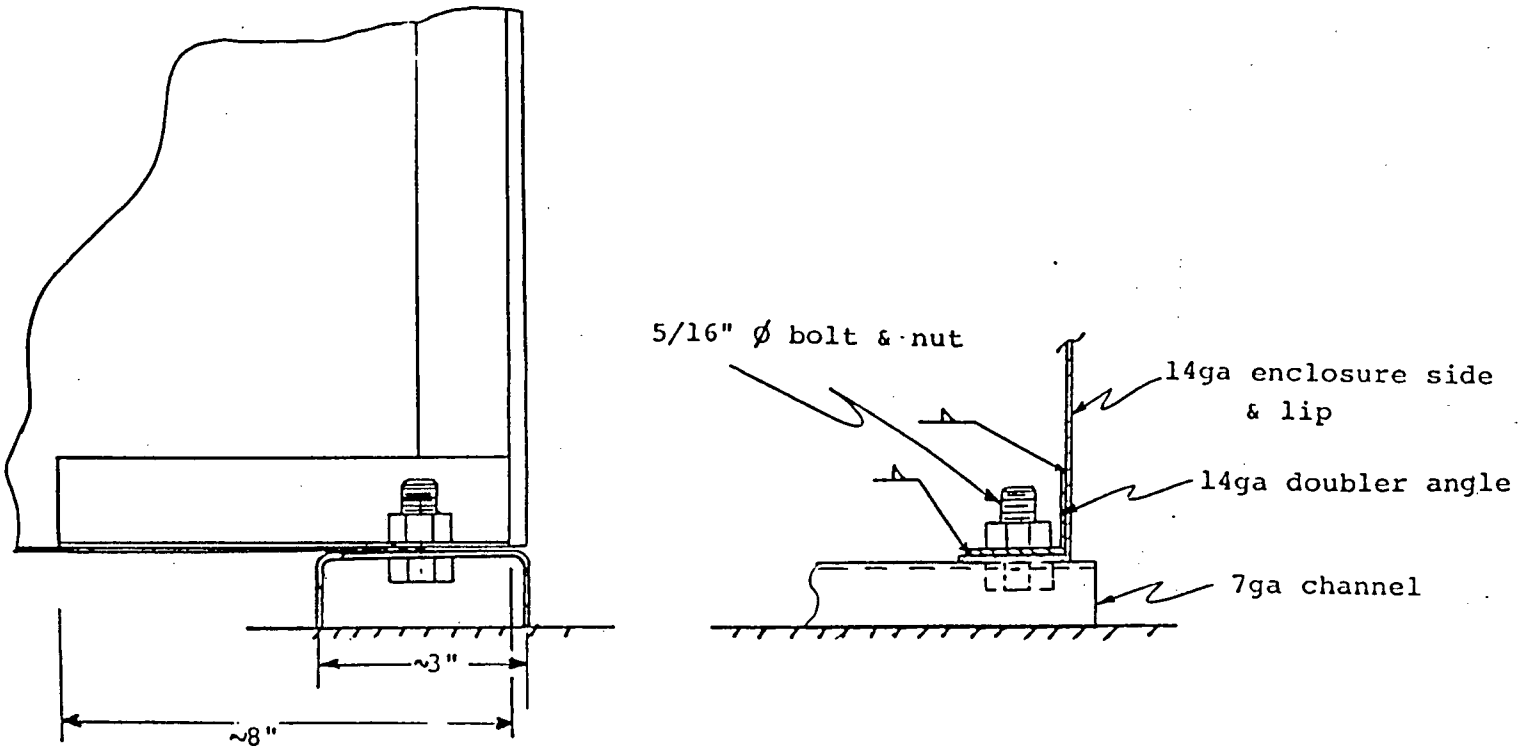


Figure A-1. Example of Unacceptable Internal Load Path Detail

APPENDIX D
ATTACHMENT D-2

EQUIPMENT RUGGEDNESS DATA

FOR

SWITCHGEAR

(MEDIUM VOLTAGE, METAL CLAD)

(LOW VOLTAGE, METAL ENCLOSED)

Prepared for

ELECTRIC POWER RESEARCH INSTITUTE
Palo Alto, California

Prepared by

ANCO Engineers, Inc.
Culver City, California

February 1991

1.0 INTRODUCTION

A Generic Equipment Ruggedness Spectrum (GERS) for both medium-voltage switchgear (metal clad) and low-voltage switchgear (metal enclosed) is presented and discussed in the following sections.

2.0 EQUIPMENT DESCRIPTION

The equipment class covered by the GERS presented here is power switchgear which has two subclasses: (1) metal clad medium voltage switchgear and (2) metal enclosed low-voltage switchgear.

2.1 Medium-Voltage Switchgear

Metal clad medium-voltage switchgear are housed in steel enclosures containing several truck-mounted drawout type circuit breakers, bus bars, auxiliary/protective relays, transformers, switches, and meters. Units are medium voltage rated at 5,000 VAC. Circuit breakers which must be jacked up to engage (vertical lift) into the connected position are not included in this class. Typical switchgear enclosure (ANSI C37.20) nominal section sizes are 30-inches wide, 60-inches deep, and 90-inches high. They are fabricated of 12 gage or heavier steel sheet and framed with angles or other formed members, with anchorage provisions included in the base frame. A typical installation of medium-voltage switchgear in a plant would consist of several "lines" of switchgear consisting of 10 to 20 "frames" or cubicles. Both the width and weight of a cubicle can vary considerably. Widths can range between 24 inches to 42 inches. Some cubicles can be essentially empty, while other cubicles can house very heavy circuit breaker units.

The units must be anchored to a supporting structure. The validation of anchorage adequacy requires an independent evaluation. This equipment class covers most medium voltage switchgear used in power plants for overcurrent protection in primary voltage (normally 4160 VAC) distribution systems. The checklist given in Section 5 can be used to screen for outliers.

2.2 Low-Voltage Switchgear

Metal enclosed low-voltage switchgear are housed in steel enclosures containing several drawout-type circuit breakers, bus bars, protective/auxiliary relays, and meters. Units are low-voltage rated at 600 VAC or 250 VDC. Typical switchgear

enclosure (ANSI C37.20) nominal section sizes are 20- to 30-in. wide, 60-in. deep, and 80- to 90-in. high. They are fabricated of 14 gage or heavier steel sheet and framed with angles or other formed members, with anchorage provisions included in the base frame. Several sections may be grouped together to make widths to 60 in. or greater. The units must be anchored to a supporting structure. The validation of anchorage adequacy requires an independent evaluation. This equipment class covers most low-voltage switchgear used in power plants for overcurrent protection in secondary low-voltage (normally 480 VAC or 125 VDC) distribution systems. Special design or custom switchgear is not included in this class. To exclude specially-designed switchgear the class is limited to three manufacturers. The checklist given in Section 5 can be used to screen for outliers.

3.0 TEST DATA BASE

3.1 Medium-Voltage Switchgear

The data base includes basic equipment descriptive information, test methods/descriptions, and test data covering a wide range of medium voltage switchgear for ten tests. The earliest test in the data base was conducted in 1974. Tests are usually conducted on three- and four-frame units (termed "composites") which house typical circuit breakers, bus, auxiliary controls, potential transformers, etc. The weights of these test specimens range between 7,500 to 10,000 pounds with widths that range between 90 to 120 inches. At least one frame usually houses controls and is, thus, very lightly loaded. In general, a single cubicle which houses a circuit breaker can weight between 3,000 to 5,000 pounds, depending upon the size of the breaker.

Eight tests were performed with random, independent, biaxial input motions. Two tests involved sine beat testing while an additional test included sine dwell tests. Contact status and chatter duration was monitored during most tests. Tests are typically performed in a non-operate state and then repeated with the breaker in operation. Hi-pot tests, relay functionality, and circuit breaker functionality are checked before and after the tests. Breaker trip is usually the primary safety-related function. Relay chatter and minor structure base damage were noted in some tests.

3.2 Low-Voltage Switchgear

The data base includes basic equipment descriptive information, test methods/descriptions, and test data covering a range of low-voltage switchgear for four multiple-unit tests. The earliest test in the data base was conducted in 1974. Seven vertical switchgear sections with weights ranging from 1,000 to 1,600 lb from three manufacturers which represent the range of units found in actual power plants are included in the data base. The units tested involved both two- and three-section line-ups and weighed from 3,000 to 5,000 lb. All units were mounted within ANSI-type metal enclosures with either welded or bolted anchorage. All units tested were new and some of the test reports abstracted indicated that aged components were included in the units tested.

Four tests were performed with random, independent, biaxial input motions. Contact status and chatter duration was monitored during most tests. Tests are typically performed in a non-operate state and then repeated with breaker operation. Hi-pot tests, relay functionality, and circuit breaker functionality are checked before and after tests. A breaker trip caused by a base weld failure occurred in one test run. Relay chatter and minor structural base damage were noted in some tests.

3.3 Chatter Tolerance

The functionality of switchgear is governed by the controlling protective and associated auxiliary relays. Relay chatter in switchgear tests is a common occurrence. In many tests, the standard 2-ms chatter failure criteria was utilized. Due to this conservative failure criteria, many relays were found to be unacceptable when mounted on typical switchgear enclosures. However, in other tests, the switchgear was considered as a complete subsystem where chatter can be tolerated without loss of switchgear function. The primary function of switchgear is to either connect or disconnect a main power circuit to protect the remainder of the circuit against overcurrent, overvoltage, undervoltage, phase reversal, etc., or to switch circuits upon command. As long as the switchgear can accomplish its primary function, the occurrence of minor chatter in a protective or associated auxiliary relay is not a relevant concern. System arguments (i.e., chatter does not affect switchgear function) and exclusion of certain relays (with known low ruggedness) from safety circuits are used to qualify switchgear units. Excessive relay chatter or a relay change of state (i.e., lockout or seal-in) which causes the circuit breaker to operate improperly is the functional failure mode of concern. It should

be noted that all data base switchgear units that were dynamically tested functioned in post-test operation, including those units that sustained minor base damage.

IEEE standard C37.81 for seismic qualification of power switchgear assemblies identifies the primary functional performance test criteria for switchgear to be associated with circuit breaker change of state. Accessories and control components may malfunction if (1) the primary switching function of the switchgear is not affected and (2) any circuit specifically identified in pretest criteria is not affected.

3.4 Switchgear Relay Screening Criteria

If a relay is associated with direct control and operation of the switchgear, only limited relay screening is required to insure that known low ruggedness relays are not present. For this purpose, review of parts lists is sufficient. No additional screening of relays is required unless a system analysis indicates that an identified relay is essential to other equipment. This is usually only for relays used to control components outside the switchgear or which cause lockout of a safety-related system. The evaluation procedure for relays associated with switchgear is detailed in Reference 5. As a minimum requirement, all relays screened using these GERS must be documented in the relay evaluation report. These relay screening criteria also apply to jack-up or vertical lift breakers since the exclusion of such breakers from the switchgear class considered here is due to known mechanical (non-relay) modifications that are required for adequate seismic ruggedness.

3.5 Additional Test Data Base

A recent USNRC-sponsored research project has compiled switchgear fragility test data obtained from proprietary sources. The published results* of this study provide an additional data base for identification of possible switchgear failure modes. It should be noted that the study was conducted with the objective of obtaining fragility statistics and not the demonstration of a ruggedness level for a given class of equipment. While the data is not directly accessible due to

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* "Seismic Fragility of Nuclear Power Plant Components"; NUREG/CR-4659; BNL-NUREG-52007, Vol. 1, June 1986; Vol. 2, December 1987; and Vol. 3, Brookhaven National Laboratory, February 1990.

proprietary restrictions, the study results confirm that the functionality of switchgear is not limited by relay contact chatter as long as relays with low ruggedness are excluded. This study has also indicated that breaker racking and positioning systems have affected secondary breaker contact operation during tests. Further, some mounting problems with internal switchgear components has been observed in a few tests. Since specific design changes were made to address these test results, they identify vintage issues. However, if specific checks are made for the presence of limit stops which prevent relative motion between medium-voltage breaker units and their enclosure frames, no conflicts exist between the BNL data base and the GERS levels for switchgear.

3.6 Manufacturer Review

A major manufacturer (Westinghouse Electric Corporation) has reviewed the seismic qualification testing program conducted on their low- and medium-voltage switchgear which was initiated in 1959. As a result of a series of tests conducted at increasing levels, certain modifications were found to be necessary to qualify the switchgear at increased levels. While the specific test levels and details are proprietary, the manufacturer has quantified the test results into two generic test levels (effective broad band test spectra) along with the modifications required to achieve that level. The modifications identified are also sufficiently generic to be applicable to other manufacturers switchgear. It is assumed that other manufacturers have made similar modifications to achieve seismic qualification at increased test levels. For medium-voltage switchgear, a maximum spectral test level of 1.8 g (5% damping, 4-16 Hz) may be achieved without modification if potential transformers, when present in switchgear units, are checked for appropriate restraints. A maximum spectral test level of 2.5 g may be achieved provided: (1) the medium-voltage breaker unit has acceptable vertical restraint, and (2) arc chutes have side-to-side restraint. For low-voltage switchgear units, a maximum spectral test level of 1.8 g may be achieved provided that there are side-to-side restraints for the breaker to prevent secondary contact deformation. A maximum spectral test level of 2.5 g may be achieved provided: (1) base frame reinforcement brackets are installed in the outside corners of the outer low-voltage switchgear cabinets in a lineup, (2) the low-voltage breaker unit has acceptable vertical restraints, and (3) the low-voltage breaker has the side-to-side restraints required for the 1.8 spectral test level.

Concerning switchgear relays, the program test results were consistent with the screening criteria discussed above.

4.0 GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

Figure 1 compares the switchgear GERS to the horizontal Test Response Spectra (TRS) (standardized to 5% damping) data for low-voltage switchgear. Figure 2 compares the switchgear GERS to the horizontal Test Response Spectra (TRS) (standardized to 5% damping) for medium-voltage switchgear.

Two GERS levels have been established for both switchgear classes. Each level requires that certain conditions exist before application of the GERS to switchgear. To utilize the GERS level of 1.8 g spectral acceleration for medium-voltage switchgear, potential transformers (if present) must be checked for restraint to prevent relative motion between contacts. To apply the 1.8 g GERS level to low-voltage switchgear, an inspection of the breaker must shown that sufficient side-to-side constraint of the drawout breaker exists to prevent excessive relative motion between secondary contacts located on the drawout breaker and the switchgear frame.

If an additional inspection of medium-voltage switchgear indicates that the breaker units are (1) restrained to prevent vertical uplift and (2) have side-to-side restraints for the arc chutes, then the GERS level may be increased to 2.5 g spectral acceleration. Similarly, the GERS level for low-voltage switchgear may be increased to the 2.5 g level, provided that an inspection indicates that (1) the breaker units are restrained to prevent vertical uplift and (2) base frame reinforcement is present in the outside corners of the outer cabinets of a low-voltage switchgear lineup.

These GERS represent test levels for which relay chatter (if chatter occurred) or other component behavior has not caused breaker malfunction, given that certain specific relays, which are known to be sensitive to vibration and which have caused breaker trip in switchgear tests, are not present. For switchgear, a limited screening of relays is required to insure that certain low ruggedness relays are not present (Reference 5 contains a list of these relays). Additional screening of switchgear relays is to be accomplished using the guidelines given in Reference 5. If system analysis indicates that certain switchgear mounted relays are essential to other equipment, then a complete screening evaluation of those relays is necessary (see Reference 5 for screening evaluation procedures).

The vertical TRS in all tests on which the GERS is based was approximately equal to the horizontal input motion. Thus the GERS presented is valid for concurrent vertical and horizontal motion.

5.0 CHECKLIST

To apply this GERS to switchgear, the following criteria must be verified.

- The medium-voltage switchgear must have a voltage rating less than or equal to 5,000 V and be housed within a floor-mounted ANSI-type enclosure with an average weight per vertical breaker section that does not exceed 5,000 lb (review of manufacturer's submittals is sufficient). The breakers are truck-mounted and are not a jack-up or vertical-lift type.

- The low-voltage switchgear must have a voltage rating less than or equal to 600 V and be housed within a floor-mounted ANSI-type enclosure with an average weight per vertical section that does not exceed 1,600 lb (review of manufacturer's submittals is sufficient).

- Low-voltage switchgear units must be manufactured by either ITE (Brown Boveri), Westinghouse, or General Electric.

- Switchgear GERS do not apply to specially-designed switchgear such as those used for reactor trip.

- The switchgear must be based anchored and the installed anchorage must be evaluated.

- All door latches or screwdriver operated door fasteners must be secured.

- Trunion mounted potential transformers (if present in medium-voltage switchgear) require sufficient restraint* to prevent relative motion between contacts. Any example of a restraint bracket for a potential transformer in Westinghouse switchgear is shown in Figure 3.

- Low-voltage switchgear must have sufficient side-to-side restraint* to prevent relative motion between secondary contacts on the breaker and cabinet. An example of a side-to-side restraint used in Westinghouse switchgear is shown in Figure 4.

---

* The demonstration of sufficient side-to-side restraint requires a general judgment that motion of the breaker or component as an independent rigid body is limited by the presence of stops or brackets that do not allow secondary contacts to disengage or be damaged.

- To utilize the 2.5 g GERS level for medium-voltage switchgear, an inspection must show: (1) sufficient arc chute side-to-side restraint to prevent arc chute movement, and (2) sufficient vertical restraint** to prevent breaker uplift. Where the original design does not provide for this restraint, it can be provided by one of several alternative restraint configuration. Examples of these additional restraints used in Westinghouse switchgear are shown in Figure 5.

- To utilize the 2.5 g GERS level for low-voltage switchgear, an inspection must show: (1) sufficient vertical restraint* to prevent breaker uplift, and (2) the outside base frame corners of the outer switchgear cabinets in a lineup have certain enhancements to improve their seismic ruggedness. For Westinghouse type switchgear, the outside base frame corners of the outer switchgear cabinets in a lineup should be reinforced (Figure 6). For other switchgears, the manufacturers (GE, ITE) should be consulted to determine what enhancements, if any, should be included in their switchgear cabinets to give them adequate ruggedness for seismic purposes and then check whether these enhancements have been included on their equipment.

- Preliminary screening of relays which control essential switchgear operation is required in all switchgear to insure that low-ruggedness** relays are not present.

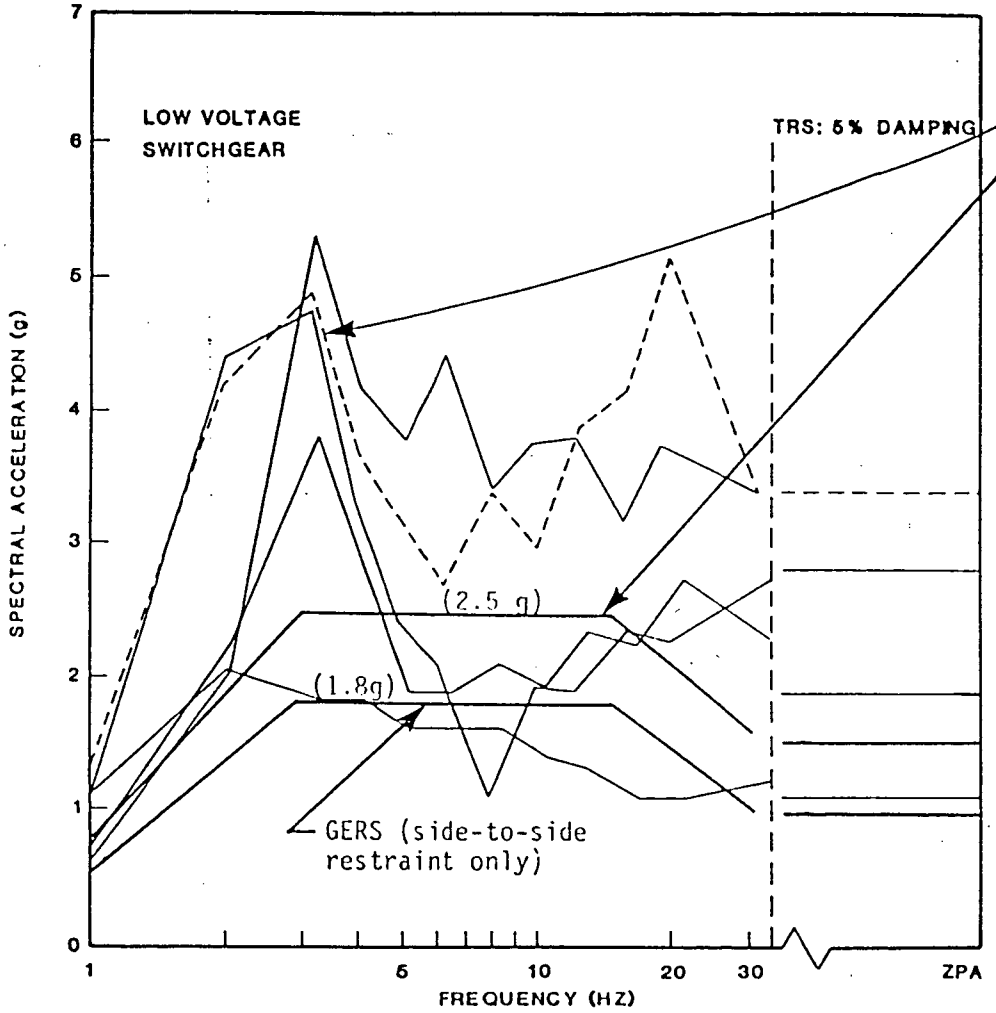
- Additional screening evaluation of relays associated with switchgear is to be accomplished in accordance with the specific guidelines given in Reference 5. It should be noted that all relays screened using these GERS must be documented in the relay evaluation report. In general, a complete screening evaluation is required only if the system analysist indicates that a relay is essential to other equipment or will cause an unacceptable lockout of equipment function.

- For the use of the 2.5 g GERS level for Westinghouse medium-voltage switchgear, the "Y" relay (anti-pump) shall not be a Beaver Type Z.

---

* The demonstration of sufficient vertical restraint requires a general judgment that the upward rigid body motion of the breaker unit is limited by the presence of stops or brackets that do not allow the draw-out breaker wheels to lift off guides.

** Reference 5: Betlack, J., Carritte, R., and Schmidt, W., "Procedures for Evaluating Nuclear Power Plant Relay Seismic Functionality", EPRI Report NP-7148, 1991.



Minor Structural Damage: Breaker Trip

GERS (vertical and side-to-side restraint plus base frame reinforcement)

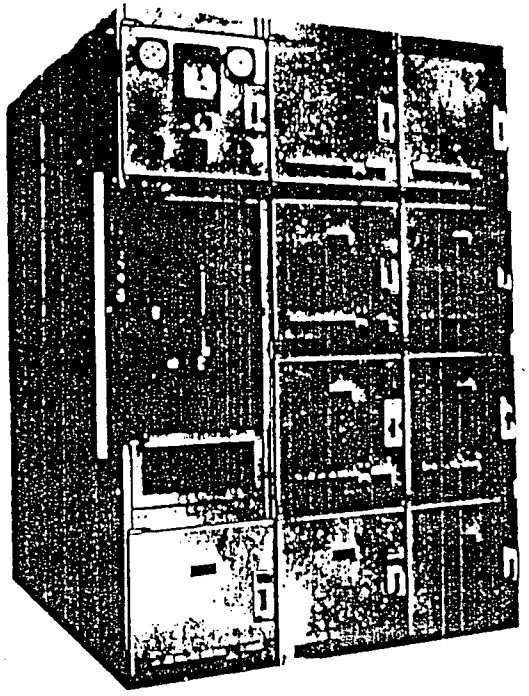
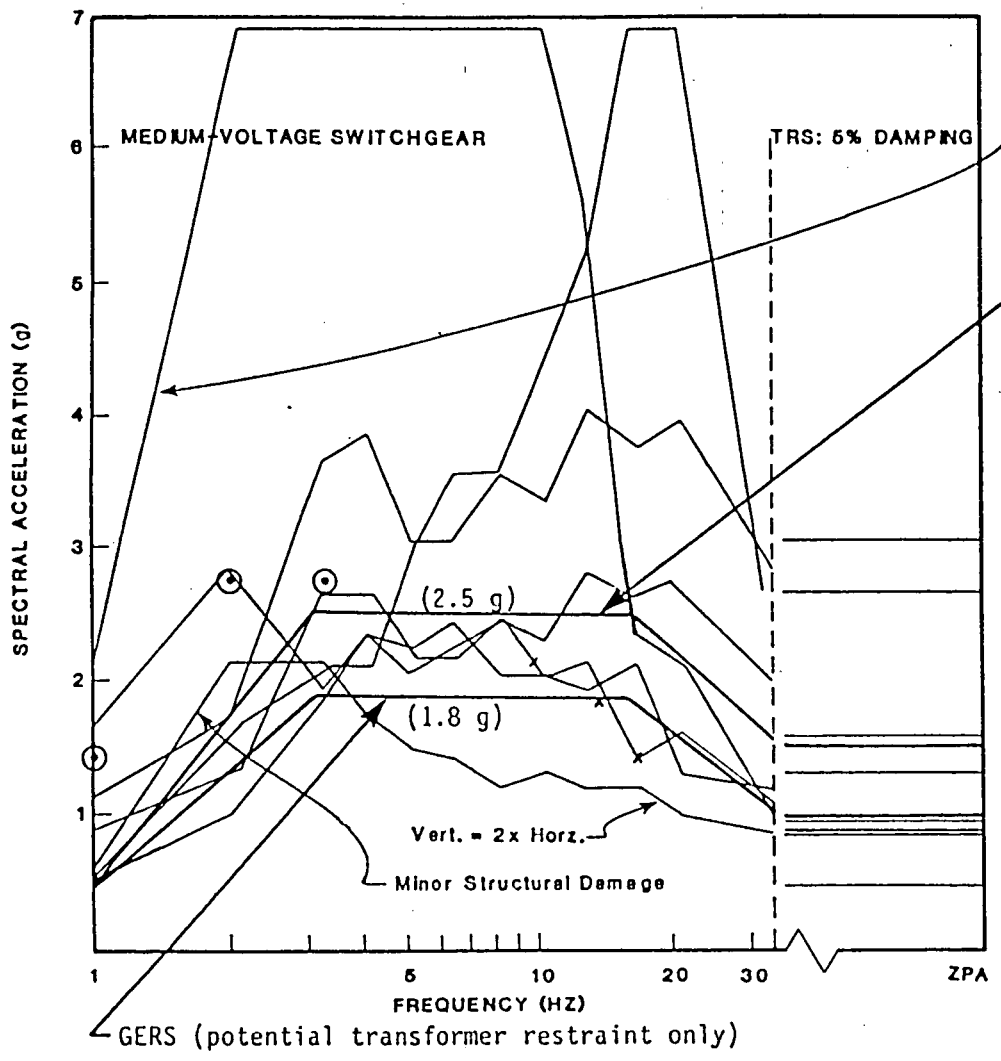


Figure 1. Comparison of TRS Data



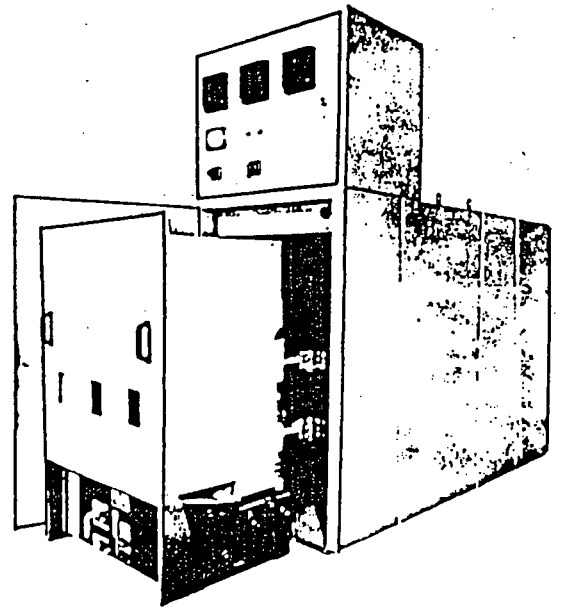
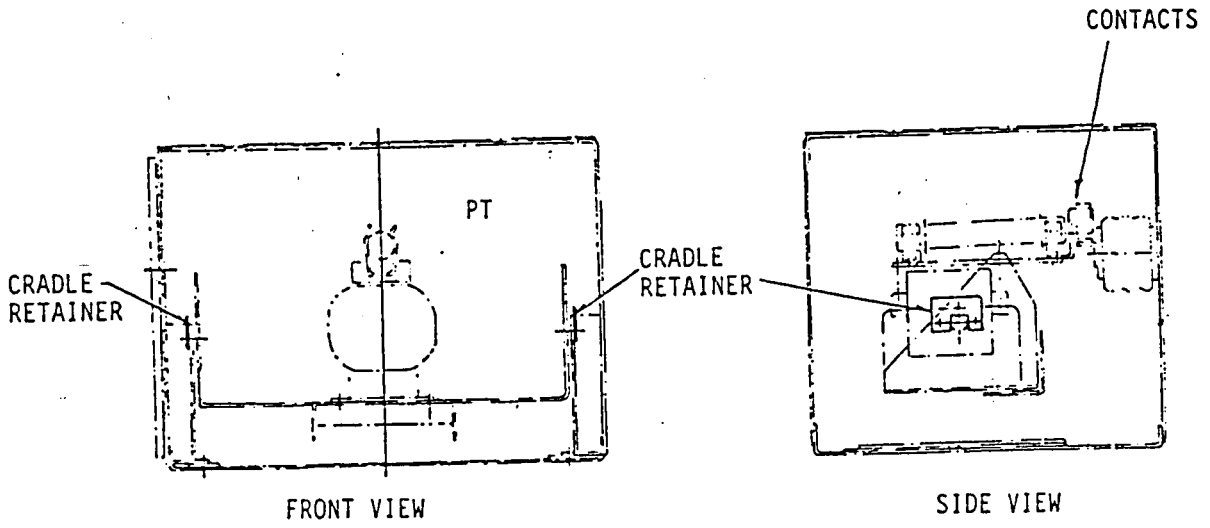
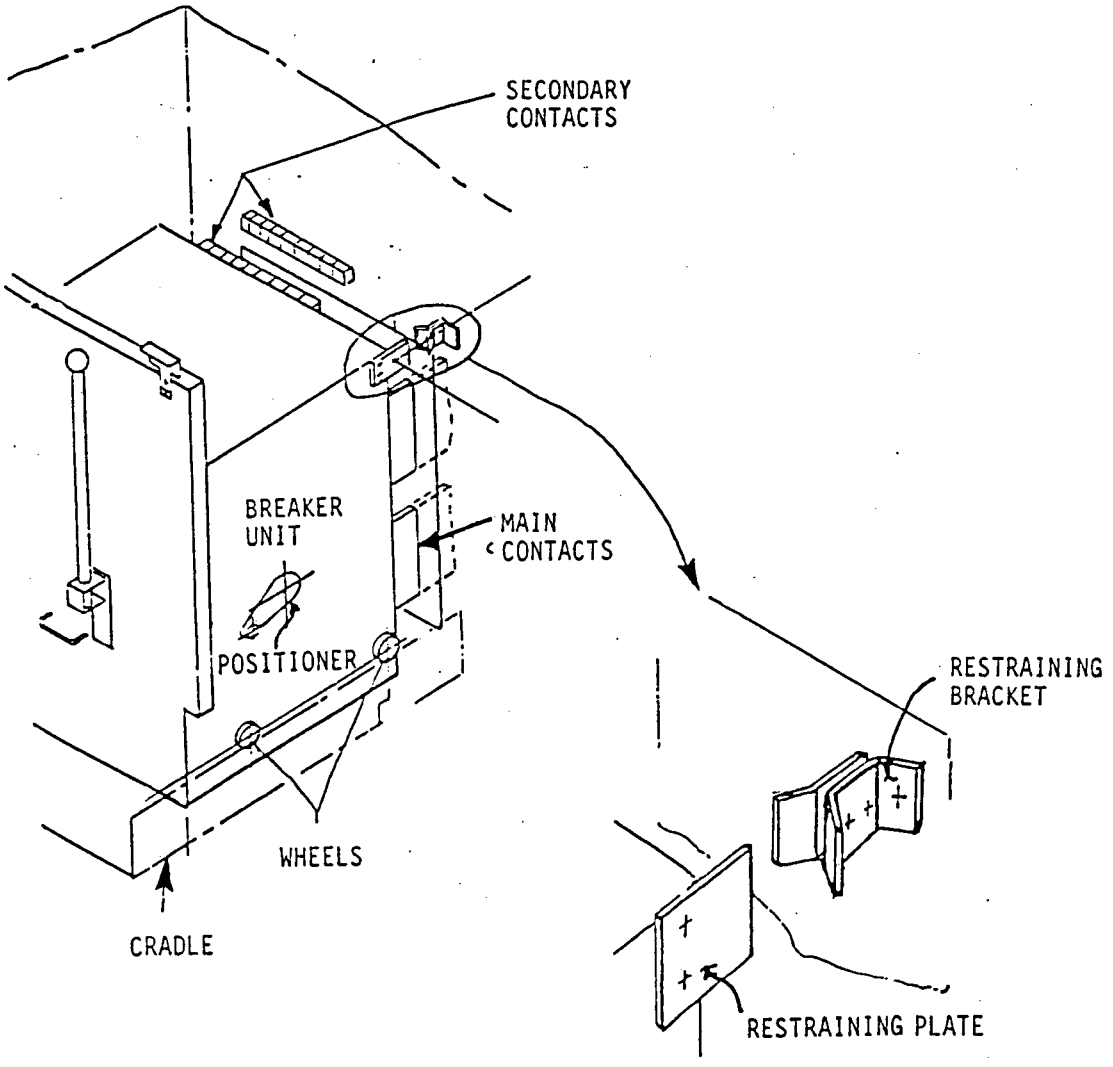


Figure 2. Comparison of TRS Data



Note: The Potential Transformer (PT) shown is housed within a separate compartment and is mounted on cradle which rotates about a yoke when the compartment door is opened, disengaging the PT contacts. The cradle rests on the yoke pin under gravity loading only. To prevent displacement of the cradle, the cradle retainer is added to restrain the yoke pin.

Figure 3. Example Potential Transformer Restraint



Note: As rolled in on wheel supported on cradle (supported by enclosure), the restraining plate is engaged into the restraining bracket at the same time the secondary and main contacts are engaged.

Figure 4. Example of Side-to-Side Restraint for Low-Voltage Switchgear

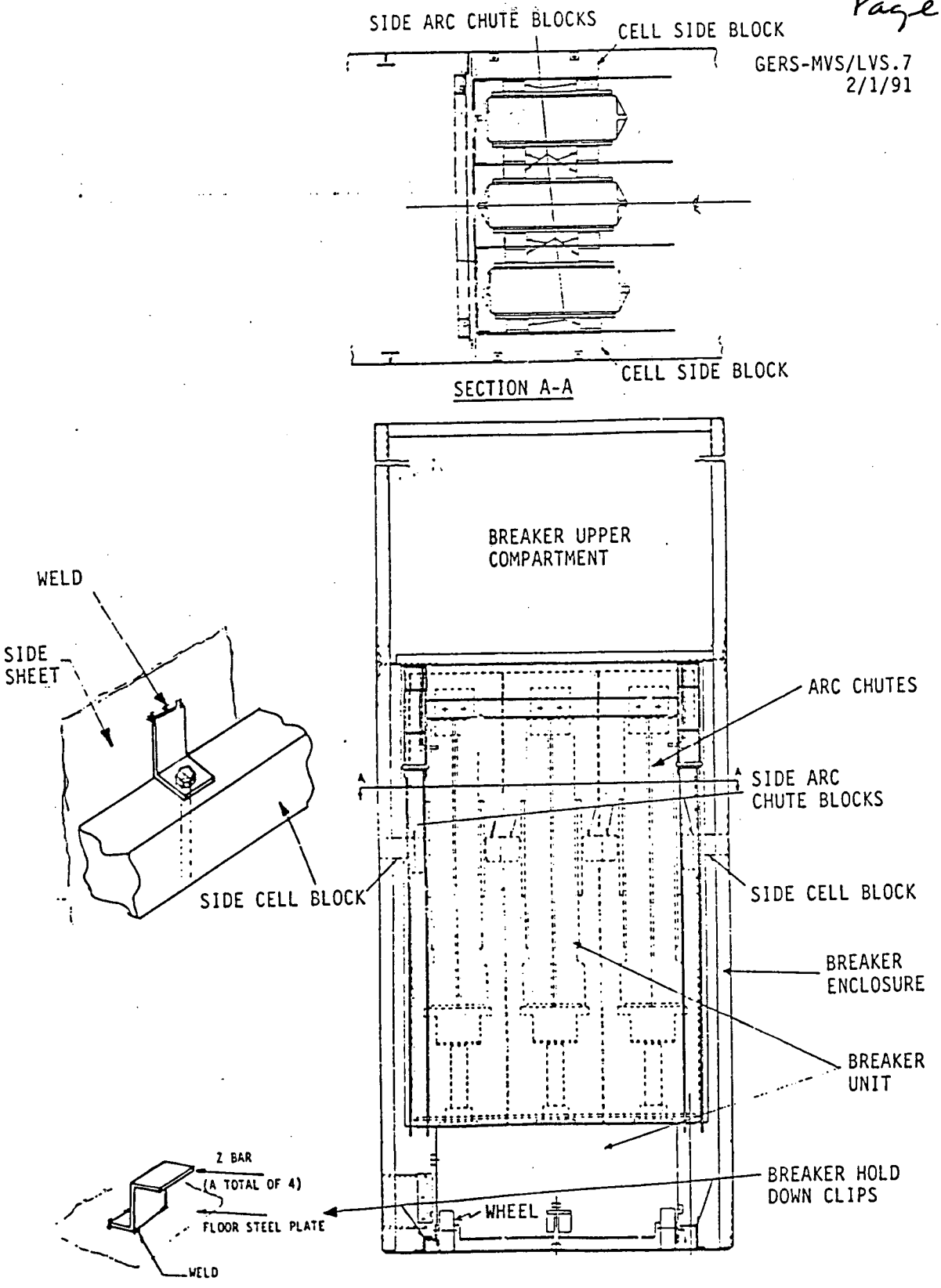


Figure 5. Example Arc Chute and Uplift Restraints for Medium-Voltage Switchgear

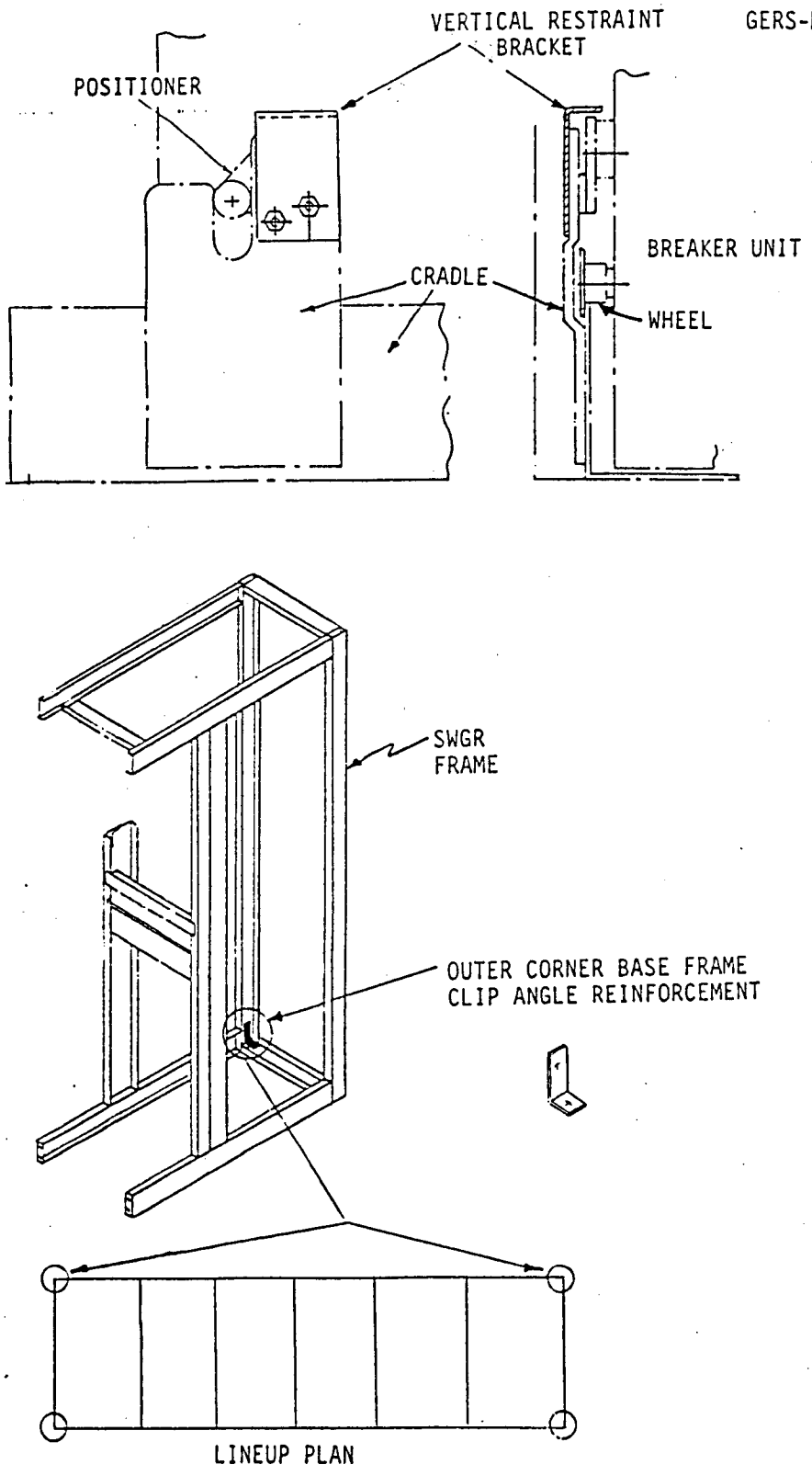


Figure 6. Example of Vertical Restraint and Base Frame Reinforcement for Low-Voltage Switchgear

APPENDIX D
ATTACHMENTS D3-D9

EPRI
Electric Power
Research Institute

Keywords:
Earthquakes
Seismic effects
Seismic qualification
Electrical equipment
Mechanical equipment
Equipment anchorage

EPRI NP-7147-SL
Projects 1707-15, 2925-2
Final Report
August 1991

Seismic Ruggedness of Relays

LICENSABLE MATERIAL

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ANCO Engineers, Inc.
Culver City, California

Westinghouse AR (AR440A, Style 766A025G01 tested) - Industrial Type 1 - Page B-37
Westinghouse ARD (ARD440SR, Style 765653G07 tested) - Industrial Type 1 - Page B-37
Westinghouse BF (BF80F tested) - Industrial Type 2 - Page B-46
Westinghouse BFD (BFD44S, BFD66, BFD53, BFD44 tested) - Industrial Type 2 - Page B-46
Westinghouse BTC (BTC22R tested) - Pneumatic Timing Relays - Page B-8
Westinghouse MG-6 (DC) - Hinged Armature Multi-Contact - Page B-18
Westinghouse NBFD - Industrial Type 2 - Page B-46
Westinghouse SG (DC voltage) - Double-Pole, Double Throw - Page B-19
Westinghouse WL (DC) (Style 300P672G01 tested) - Lockout - Page B-61

PROTECTIVE RELAY

GE GGP53B - Miscellaneous Types - Page B-92
GE IAC 53A (IAC53A2A tested) - Induction Disk - General Electric - Page B-75
GE IAC 54A (IAC54A2A tested) - Induction Disk - General Electric - Page B-75
GE IAC 77B (IAC77B2A tested) - Induction Disk - General Electric - Page B-75
GE IAV 53L OV,UV - Induction Disk - General Electric - Page B-75
GE IAV 54E (IAV54E1A tested) - Induction Disk - General Electric - Page B-75
GE IAV 55C - Induction Disk - General Electric - Page B-75
GE IFC 53B - Induction Disk - General Electric - Page B-75
GE IJD (52A, 53C) - Induction Disk - General Electric - Page B-75
GE NGV12A - Miscellaneous Types - Pages B-92
GE NGV13A - Miscellaneous Types - Page B-92
GE NGV29A - Miscellaneous Types - Page B-92
GE PJC11 (PJC11X1A tested) - Miscellaneous Types - Page B-92
GE PVD21A,D - Miscellaneous Types - Page B-92
GE SAM11A (SAM11A21A tested) - Miscellaneous Types - Page B-92
ITE27 - Miscellaneous Types - Page B-92
ITE59 - Miscellaneous Types - Page B-92
Westinghouse CA-16 (Style 1330D93__) - Induction Disk - Page B-83
NO → Westinghouse CO-2,-5,-6,-7,-8,-9,-11 (HILO) (Style 1456C05, 1472C25) - Induction Disk - Page B-83
Westinghouse CO-4 (Style 1327D47__) - Induction Disk - Page B-83
Westinghouse CO-8 Style 264C900A05, HILO - Induction Disk - Page B-84
Westinghouse CO-9 Style 1875282A - Induction Disk - Page B-84
Westinghouse COM-5 (Style 1326D81__) - Induction Disk - Page B-83
Westinghouse COV-8,-9 (Style 1342D82__, 1339D81__) - Induction Disk - Page B-83
Westinghouse CV-2,-4,-6,-7,-8 (Style 1454C77__, 1482B97__) - Induction Disk - Page B-83
Westinghouse CVQ (Style 1339D96__) - Induction Disk - Page B-83
Westinghouse KF (Style 290B346A09 tested, including seal-in or ICS unit) - Miscellaneous Types - Page B-92

APPENDIX D
ATTACHMENT D-3
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GERS-RLY-PNT.7

GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

FOR

AUXILIARY RELAYS-PNEUMATIC TIMING TYPE

Prepared for

ELECTRIC POWER RESEARCH INSTITUTE
Palo Alto, California

Prepared by

ANCO Engineers, Inc.
Culver City, California

May 1990

The fourth type of pneumatic timing relay is an accessory (700-NT) component which mounts on an Allen-Bradley Bulletin 700, Type N control relay. The contacts on the accessory timing unit have timing delay, while the contacts on the control relay are unaffected. The unit mounts in the horizontal position and weighs approximately 2 lb. The timing adjustment is accomplished by an uncalibrated dial on the timing accessory.

3.0 TEST DATA BASE

The types of data for this relay subclass consists of the Standard Response Spectra (ANSI/IEEE C37.98/501), fragility test data, and sine-dwell test data for certain models. Time delay relays have three operational states (energized, deenergized, and transitional*) as well as various combinations of normally open (NO) or normally closed (NC) contact configurations. Both AC and DC types are included in the test data. The test data covers testing conducted during all three operational states on models with several different contact configurations.

The first data set consists of the Standard Response Spectra (SRS) for four generic models of Agastat relays (Series 7000). Fragility testing of relays is conducted in accordance with ANSI/IEEE C37.98/501. This standard requires biaxial, random testing of individual relays to establish the chatter level of the relay model. It should be noted that the fragility of timing relays may also be determined by a failure to properly "time out" rather than chatter. The procedure for establishing an SRS from the fragility test data is described and a standard 2-ms chatter limit is defined in the document. These SRS represent the manufacturer's interpretation of ANSI/IEEE C37.98/501 for establishing the SRS ZPA from the fragility test response spectra obtained for each model.

The second data set consists of the fragility data for twelve models of Agastat (Series 7000) pneumatic timing relays (approximately 1977 vintage). The IEEE-344 definition of fragility, as the highest level of input without malfunction, applies here. All relays were panel mounted on a special mounting fixture (rigid) attached to the test table. The vector biaxial testing with broad-band input was conducted with increasing input levels until chatter or time-out malfunction occurred. Thirty-second duration input motions were used in the testing. The relays were set

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* A transitional state refers to the period of time delay between the energized and deenergized state, or vice versa.

to time-out after a 10 sec. delay. For the transitional state, the relays were required to time-out twice during the input motion duration.

The third data set consists of independent (i.e., not performed by the manufacturer) uniaxial sine test data conducted on an early (approximately 1970 vintage, now obsolete) Agastat Model (Series 2400) relay and a CR2820 relay. These tests were proof tests conducted to specified input levels and not fragility tests. The data collection effort was unable to locate any data on these relays for higher input levels or for which chatter occurred.

The fourth data set consists of the results of the EPRI test program conducted using vintage relays which had not been previously tested. These relays were submitted for test by various utilities from plant spare part stocks or by removal from actual service in plant circuits.

4.0 GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

The GERS for each sub-model of the four relay types considered herein are specified by the information presented in Table 1. The GERS level (defined as the 5% damped spectral level over the 4-16 Hz range) for each contact configuration and operational state, coupled with the normalized GERS shape indicated in Figure 1, allows a GERS to be constructed for the particular plant configuration encountered. These GERS are based on either the manufacturer's SRS ratings or the EPRI test program results. Shake table testing usually provides a higher test spectrum in the 16-33 Hz range than indicated by the ANSI C37.98 SRS spectral shape. When test data are available to demonstrate ruggedness greater than the SRS levels, the modified GERS shown in Figure 1 applies. For cases where only the SRS ratings are known, the ANSI C37.98 spectrum applies. The sub-model identification indicated is sufficient to identify the relay having the ruggedness level indicated.

The test data obtained from the EPRI test program is shown in Figure 2.

The available fragility data for Agastat relays is shown in Figure 3. It should be noted that the test data is for Series E7000 where the Prefix E denotes a nuclear Class 1E qualified relay. There are no physical differences between an Agastat commercial or nuclear grade relay*. The sine-dwell test levels (5% damping) for

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* Manufacturer confirmation has been obtained.

the Agastat 2400 Model is also indicated in Figure 3. The Agastat 2400 and 7000 series relays have a different external appearance but are internally the same relay*. The sine-dwell proof (not fragility) tests greater than 10 Hz demonstrate that the 2400 series is as ruggeded as the 7000 series. The sine-dwell test value at 5 Hz is due to a test machine limitation and, as such, does not reflect a deficiency of the tested relay.

Since the vertical TRS for the relays was equal to the horizontal input motion, the GERS presented is valid for concurrent vertical and horizontal motion.

Based on judgment, physical inspection, review of manufacturer's catalogs, and other relay literature, the important model number characters that affect ruggedness have been identified for each relay listed in Table 1. It is recommended that some review of catalog material or operation/installation manuals be conducted in order to familiarize a user of a specific relay GERS with the nomenclature and model number format of the general relay type. This information has been used in preparing the GERS. Any GERS user should have access to and understand such review material for both vintage and new relays.

5.0 CHECKLIST

To apply this GERS to pneumatic timing relays, the following criteria must be verified.

- The relay must be either an Agastat Series 7000 (E7000), 2100 or 2400, a GE CR2820B, a Westinghouse BTC, or an Allen-Bradley 700-NT.
- In order to utilize the GERS for a specific relay, the model numbers given in Table 1 must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.
- The GERS is for timing relays set to "time-out" within the nominal timing range of the relay model. The test data does not include relays with very short time delay settings. Timing errors may be induced for time delays less than about 0.3 sec.**, thus, a separate evaluation of the consequences fo delay time change is required for relays set for delay time less than approximately 0.3 sec.
- The Agastat and CR2820B relays must be mounted in the vertical position.

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* ibid.

** This limitation reflects a judgment that short-time delay settings may be influenced by input frequency content greater than about 3 Hz.

Table 1

GERS FOR PNEUMATIC TIMING RELAYS

CLASS: AUXILIARY RELAY
Subclass: Pneumatic Timing Relays

CHECKLIST:

- The relay must be either an Agastat Series 7000 (E7000), 2100 or 2400, a GE CR2820B, a Westinghouse BTC, or an Allen-Bradley 700-NT.
- In order to utilize the GERS for a specific relay, the model numbers given below must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.
- The GERS is for timing relays set to "time-out" within the nominal timing range of the relay model. The test data does not include relays with very short time delay settings. Timing errors may be induced for time delays less than about 0.3 sec.*, thus, a separate evaluation of the consequences for delay time change is required for relays set for delay time less than approximately 0.3 sec.
- The Agastat and CR2820B relays must be mounted in the vertical position.

RUGGEDNESS DATA:

	GERS** Level		
Type and Submodel Identification	Non-Operate NO/NC	Operate NO/NC	Transition NO/NC
Agastat E7012, 7012, 2412	12.5†	12.5 g†	12.5†
Agastat E7014, 7014, 2414	10†	10†	10†
Agastat E7022, 7022, 2422	6†	10†	4†
Agastat E7024, 7024, 2424	7†	10†	5†
Agastat 2112 (2112 AH1 tested)	10	10	10
Agastat 7012-LL (auxiliary contacts - accessory item)	10	9/7	NA
Allen-Bradley 700-NT (700 type N tested)	10	10	10
Westinghouse BTC (BTC22R tested)	10	10	10
GE CR2820B (CR2820B110AA2 tested)	10	10	10

---

* This limitation reflects a judgment that short-time delay settings may be influenced by input frequency content greater than about 3 Hz.
** Spectral acceleration, 4-16 Hz, 5% damping.
† ANSI/IEEE C37.98 SRS applies for frequencies > 16 Hz (existing test data; not based on EPRI test data).
NA - not applicable.

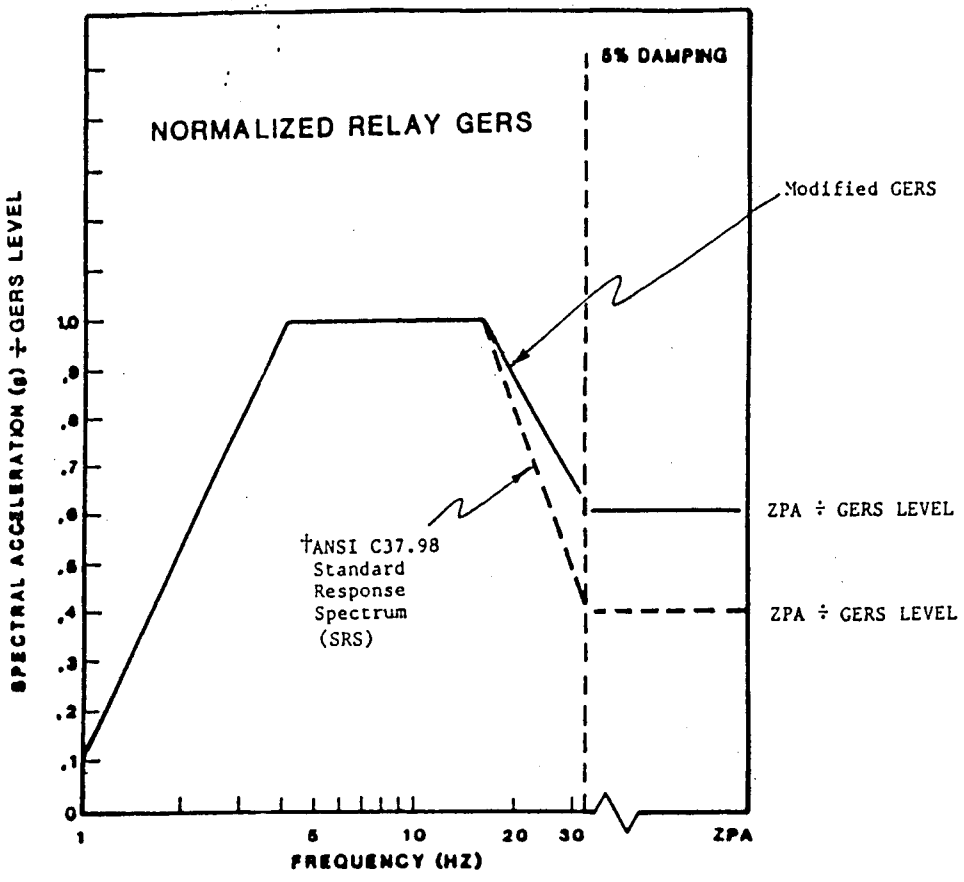

Figure 1. Normalized GERS for Pneumatic Timing Relays

Attachment D-3
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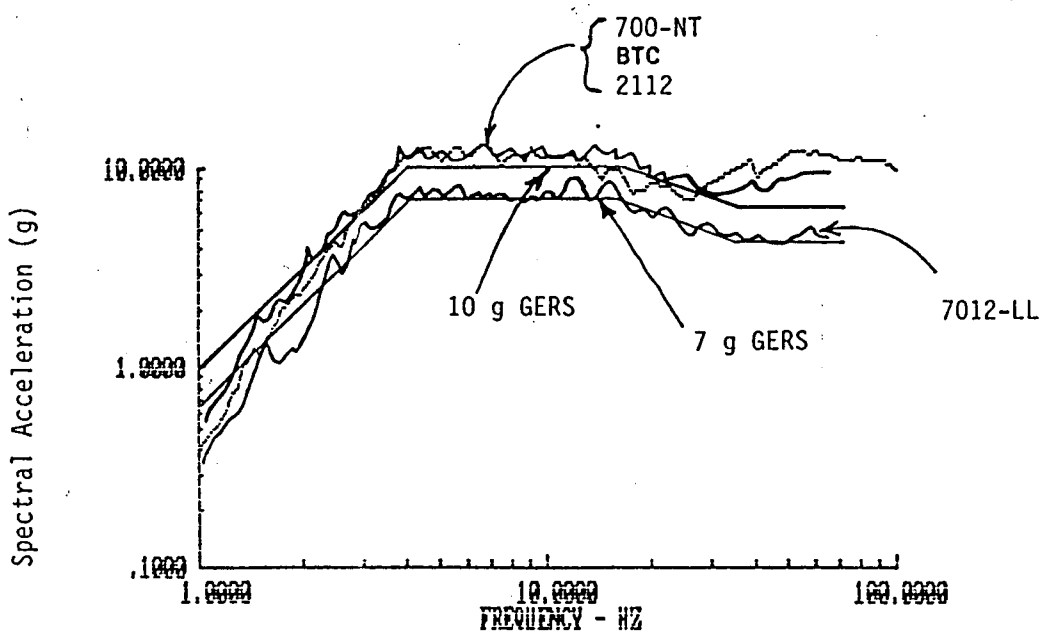


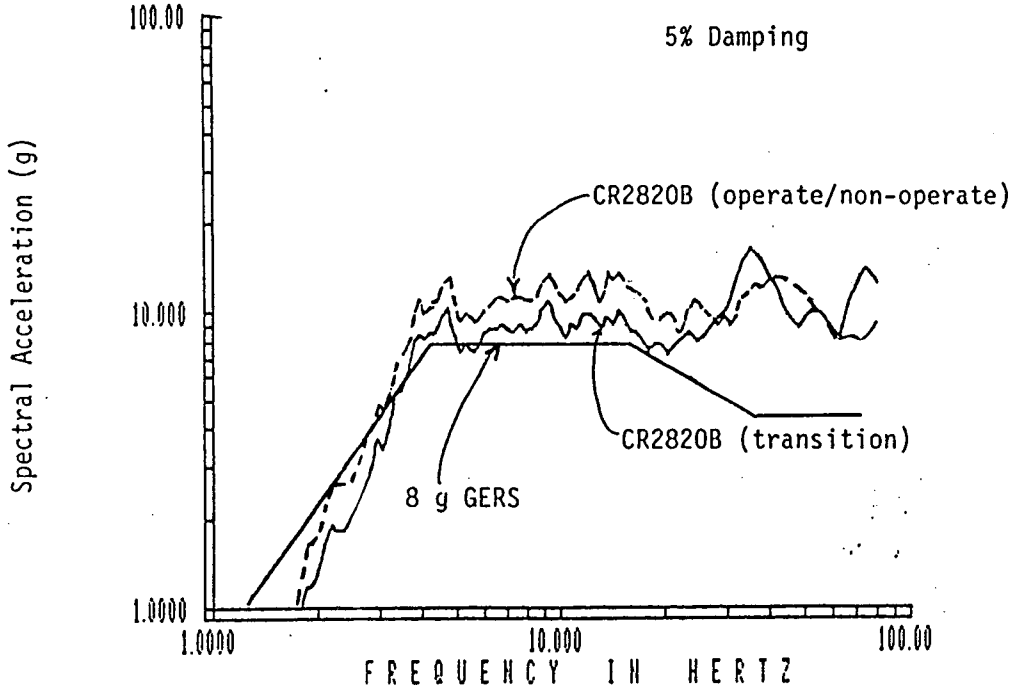
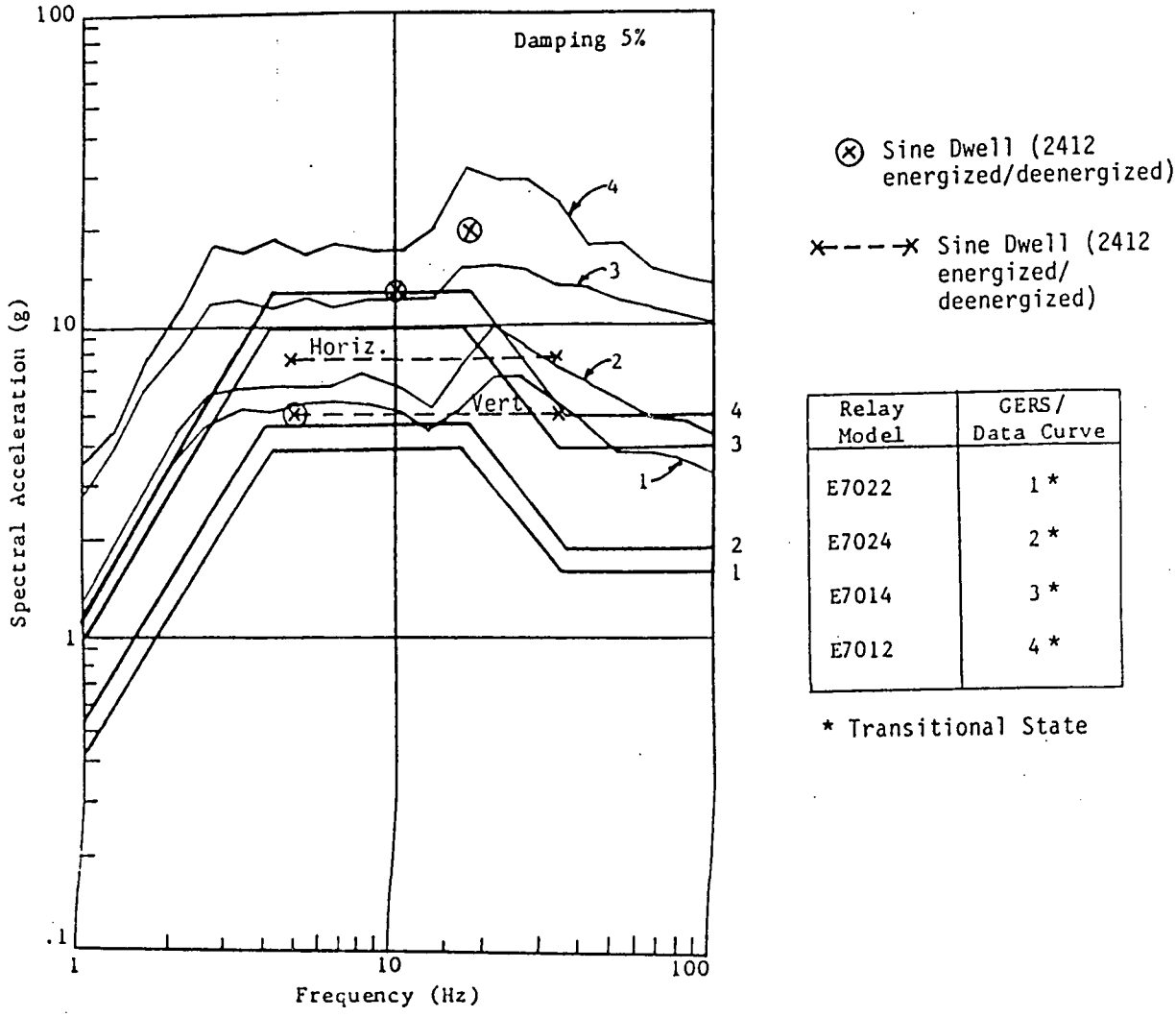


Figure 2. EPRI Relay Test Program Data



Relay Model	GERS/ Data Curve
E7022	1 *
E7024	2 *
E7014	3 *
E7012	4 *

* Transitional State

Figure 3. Comparison of GERS With Available Fragility Data for Agastat Relays

APPENDIX D
ATTACHMENT D-4
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GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

FOR

AUXILIARY RELAY-HINGED ARM TYPE

Prepared for

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Prepared by

ANCO Engineers, Inc.
Culver City, California

December 1990

1.0 INTRODUCTION

Generic Equipment Ruggedness Spectra (GERS) for auxiliary relays (hinged armature type) are presented and discussed in the following sections.

2.0 EQUIPMENT DESCRIPTION

The equipment class covered by the GERS presented here is seven models of auxiliary relays which utilize a hinged armature design. Four models are manufactured by General Electric and are referred to by their catalog identification: HFA, HLA, HGA, and HMA. Two models are manufactured by Westinghouse and are referred to by their catalog identification: MG-6 and SG. The other model is manufactured by Potter & Brumfield and is referred to by the catalog designation PRD.

The HFA and MG-6 are multi-contact relays (six contacts each) which are adjustable in terms of both contact configuration (NC and NO contacts may be interchanged) and operation time (time required for a NO contact to close after the coil is energized). The HLA is an obsolete relay (pre-1970) which is similar to the HFA in physical construction and operation but which has less adjustment range. A variety of sub-models are available for varying applications. Coil voltage levels (operating voltage) range from 24 VDC to 250 VDC and 120 VAC to 240 VAC. Typical power plant applications are 125 VDC or 120 VAC. Either self-reset or latching type (manual reset or remote electrical reset) models are used in common power plant applications. The primary sub-model identifier for the HFA is provided by the two or three numbers following the model designation (HFA) on the relay nameplate. For example, HFA11, HFA51, and HFA151 represent the same basic sub-model differing only in vintage (date of manufacture). The additional numbers that may be included on the nameplate indicate the reset type, contact configuration (as shipped from manufacturer), and case type. Coil power and voltage level are separately designated on the nameplate. For the MG-6, the additional information concerning reset, contact configuration, mounting type, etc. are provided by a style number, however, the designation (MG-6) is sufficient for identification. Again, coil power and voltage level are independently noted on the nameplate.

The HGA, HMA, PRD, and SG are relays with a double-pole, double-throw contact (two NC, two NO) configuration. The primary sub-model identifier for the HGA, PRD, and HMA are provided by the two or three characters following the model designation on the nameplate. For example, HGA11 and HGA111 differ only in vintage while the

HGA17A and HGA17H are different sub-models. The HGA has adjustable contact gap and spring tension settings. However, the HMA, PRD, and SG are not adjustable. Typical coil voltage levels range from 24 VDC to 250 VDC and 120 VAC to 240 VAC. The power and coil voltage level are independently noted on the nameplate of all four relay types.

All of the above relays mount on vertical panels. They are either bolted directly to panels or are installed in a case which is mounted on the panel. (The case, called a "drawout case", permits easy removal.) The relays range in weight from 5 to 12 lb and fit within an approximate 6-in. x 6-in. x 6-in. envelope. They are categorized as power system auxiliary relays and are present in many plant control circuits. The relays of this class are used by virtually all utilities.

3.0 TEST DATA BASE

The types of available test data for this relay subclass include the Standard Response Spectra (ANSI/IEEE C37.98) and sine-dwell test data for certain models. Additional data sets are available which provide fragility test data for some of the models. All of the relays have two operational states (energized and deenergized) as well as various combinations of normally open (NO) or normally closed (NC) contact configurations. The test data covers testing conducted during both operational states on models with several different contact configurations.

The first data set consists of the Standard Response Spectra (SRS) for four generic models of GE relays (HFA, HGA and HMA). These SRS represent the manufacturer's interpretation of ANSI/IEEE C37.98 for establishing the SRS ZPA from the fragility test response spectra obtained for each model. Fragility testing of relays is conducted in accordance with ANSI/IEEE C37.98. This standard requires biaxial, random testing of individual relays to establish the chatter level of the relay model. The procedure for establishing an SRS from the fragility test data is described and a standard 2-ms chatter limit is defined in the document. In general, the fragility data is considered proprietary by the manufacturer and thus is unavailable for comparison to the SRS.

The second data set consists of sine-beat fragility data for the Westinghouse relay, Model MG-6. This data is from tests conducted in 1975.

The third data set consists of independent (i.e., not performed by the manufacturer) uniaxial sine and sine-beat test data conducted on early (approximately 1970 vintage

GE relays. These tests were proof tests conducted to specified input levels and not fragility tests.

The fourth data set consists of the results of an independent fragility test program conducted in 1973. Three relay models were included in the program: HGA, HFA and MG-6.

The fifth data set includes qualification tests on equipment enclosures containing GE relays. This in-cabinet data, while available, is not documented with the same level of detail as the above four data sets. Certain assumptions regarding relay model/configuration and relay location with respect to measured response must be made to establish comparison with the SRS and other relay data. Thus, this data set is not considered in the following.

The sixth data set consists of the results of the EPRI test program conducted using both vintage and new relays which had not been previously tested. These relays were submitted for test by various utilities from plant spare part stocks or by removal from actual service in plant circuits.

In addition, the manufacturer has conducted a review of their seismic qualification data for the MG-6 relay. While the specific test data is proprietary, this review has indicated that their test levels for the MG-6 relay (NC contact deenergized) are approximately 25% lower than the EPRI test results obtained for the MG-6 relays (after adjustment).

4.0 GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

The GERS for each sub-model of the six relay types considered herein are specified by the information presented in Tables 1 and 2. The GERS level (defined as the 5% damped spectral level over the 4-16 Hz range) for each contact configuration and operational state, coupled with the normalized GERS shape indicated in Figure 1, allows a GERS to be constructed for the particular plant configuration encountered. These GERS are based on either manufacturer's SRS ratings, EPRI test program results, or other available test data. Shake table testing usually provides a higher test spectrum in the 16-33 Hz range than indicated by the ANSI C37.98 SRS spectral shape. When test data are available to demonstrate rugged greater than the SRS levels the modified GERS shown in Figure 1 applies. For cases where only the SRS ratings are known, the ANSI C37.98 spectrum applies. The adjustment state of

the tested relay is also indicated. The sub-model identification indicated is sufficient to identify the relay having the ruggedness level indicated.

The test data obtained from the EPRI test program is shown in Figures 2 and 3. Some additional data for relay model MG-6 is presented in Figure 4. Some additional fragility data is compared to the GERS for HFA and HGA in the deenergized state in Figure 5. As can be noted, the GERS adequately represent the ruggedness of these relays.

Since the vertical TRS for the relays was equal to the horizontal input motion, the GERS presented are valid for concurrent vertical and horizontal motions.

Based on judgment, physical inspection, review of manufacturer's catalogs, and other relay literature, the important model number characters that affect ruggedness have been identified for each relay listed in Tables 1 and 2. It is recommended that some review of catalog material or operation/installation manuals be conducted in order to familiarize a user of a specific relay GERS with the nomenclature and model number format of the general relay type. This information has been used in preparing the GERS. Any GERS user should have access to and understand such review material for both vintage and new relays.

5.0 CHECKLIST

To apply this GERS to auxiliary hinged armature relays, the following criteria must be verified.

- The relay must be either a GE HLA11B(DC), HFA11A(DC), HFA51A(DC), HFA151(1E), HGA11, HGA111, HGA17A(DC), HGA17H(DC), HMA11(DC)(1E), HMA111, a Westinghouse MG-6(DC) or SG(DC), or a Potter & Brumfield PRD11.

- In order to utilize the GERS for a specific relay, the model numbers given in Tables 1 and 2 must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.

- HFA and MG-6 relays have no more than 3 NC contacts.

- HFA and MG-6 relays have specific recommended minimum NO contact gap and NO/NC contact wipe (follow through movement of contact after initial contact touch adjustments - see following references):

  1) Westinghouse Instruction Leaflet IL.41-753.1, "Type MG-6 Multi-Contact Auxiliary Relay Instructions - Installation, Operation, Maintenance."

Table 2

GERS FOR DOUBLE-POLE, DOUBLE-THROW

CLASS: AUXILIARY RELAY
Subclass: Double-Pole, Double-Throw

CHECKLIST:

- The relay must be either a HGA11, HGA111, HGA17A(DC), HGA17H(DC), HMA11(DC)(1E), HMA111, a Westinghouse SG(DC), or a Potter & Brumfield PRD11.
- The GE HGA and Westinghouse SG relays have no GERS levels for the normally closed, deenergized contact configuration. The use of this relay configuration is not recommended if seismic ruggedness is to be demonstrated. Circuits with these contacts used must be checked for safety-related function.
- DC,AC ≡ 120 V (± 5V) rating.

RUGGEDNESS DATA:

Type Submodel Identification	Operation Time Adjustment**	GERS* Level Non-Operate NO	GERS* Level Non-Operate NC	GERS* Level Operate NO/NC
HGA 11 (AC)	high tension spring setting	10 g	NR	10 g
HGA 11 (DC)	17 ms operation time	8.8†	NR	4.4† NO/10† NC
HGA 111 (AC)	17 ms operation time	6.3†	NR	10†
HGA 111 (DC)	17 ms operation time	8.8†	NR	4.4† NO/10† NC
HGA 17A (DC)	280 ms dropout time	6	NR	10 NO/4 NC
HGA 17H (DC)	55 ms operation time	5	NR	5 NO/8 NC
HMA 11 (DC)	N/A	10	5	10
HMA 111 (AC)(1E)	N/A	15†	6.3†	15†
HMA 111 (DC)(1E)	N/A	15†	1.3†	15†
SG (DC voltage)	N/A	9	NR	8 NO/5 NC
PRD11 (AC)	N/A	10	3	10
PRD11 (DC)	N/A	10	4	9

* Spectral acceleration, 4-16 Hz, 5% damping.
** Each GERS level is associated with a specific required adjustment.
† ANSI/IEEE C37.98 SRS applies for frequencies > 16 Hz (existing test data; not based on EPRI test data).
NR - Not recommended due to low ruggedness.
N/A Not adjustable.

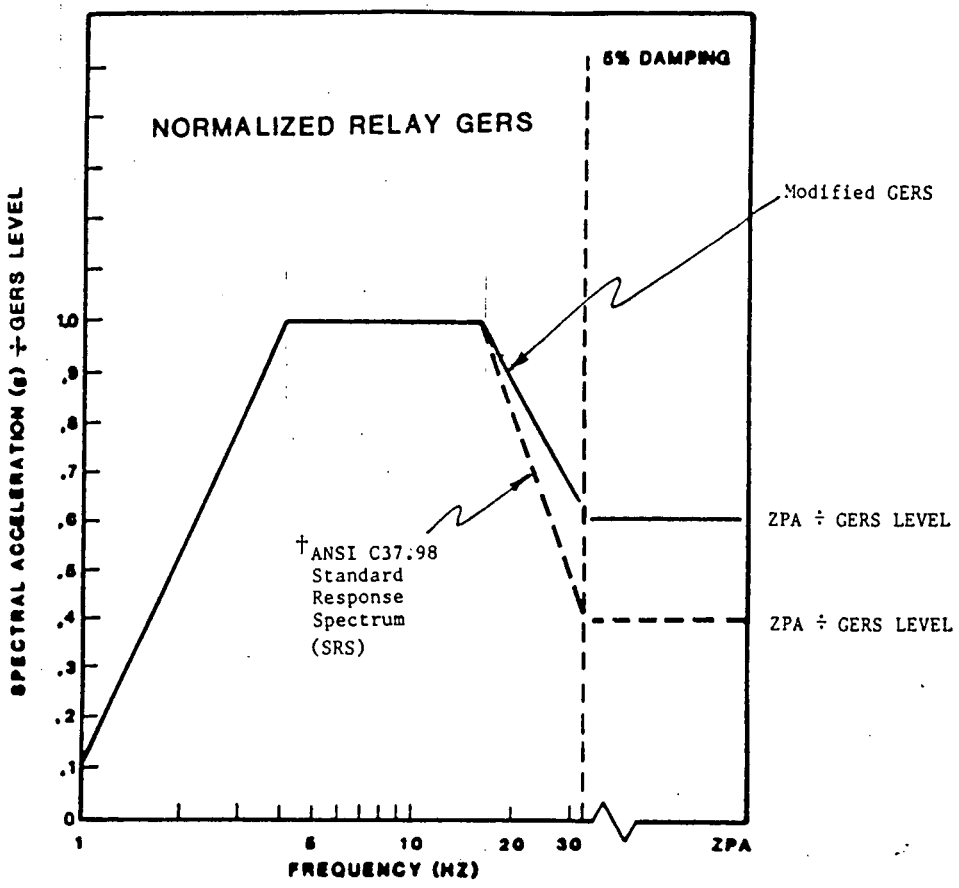


Figure 1. Normalized GERS for Hinged Armature Multi-contact Relays and Double-Pole, Double-Throw Relays

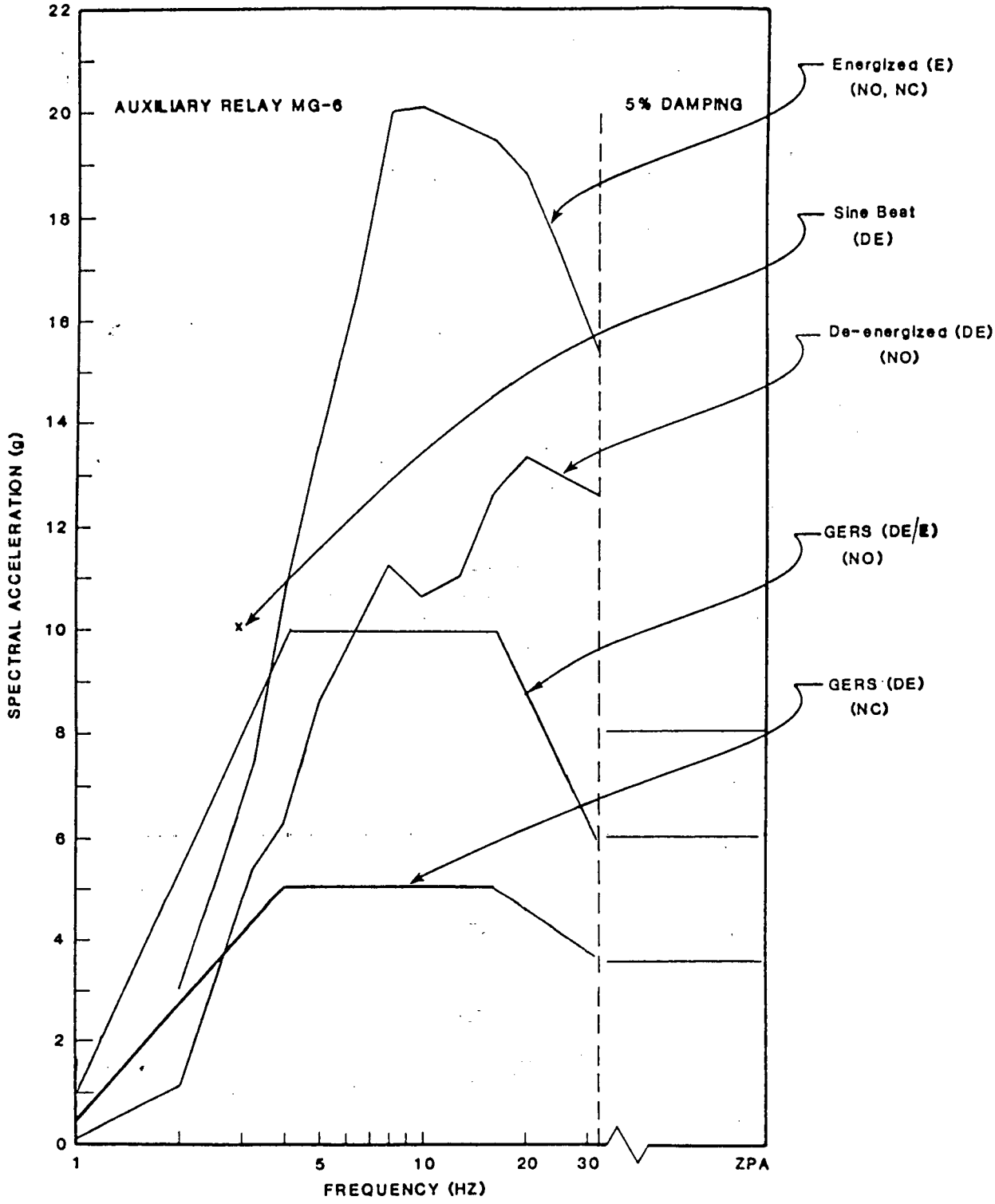


Figure 4. Additional Test Data For Auxiliary Relay MG-6

APPENDIX D
ATTACHMENT D-5

GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

FOR

AUXILIARY RELAY-INDUSTRIAL TYPE 1 (600 V)

Prepared for

ELECTRIC POWER RESEARCH INSTITUTE
Palo Alto, California

Prepared by

ANCO Engineers, Inc.
Culver City, California

December 1990

1.0 INTRODUCTION

Generic Equipment Ruggedness Spectra (GERS) for auxiliary relays (Industrial Type 1, 600 V class) is presented and discussed in the following sections.

2.0 EQUIPMENT DESCRIPTION

The equipment class covered by the GERS presented here is five models of auxiliary relays which are standard industrial control relays. The models are manufactured by General Electric, Westinghouse, Square D, or Clark, and are referred to by their catalog nomenclature: CR120B, CR120BD, CR2810A, AR, ARD, 8501-X, or 4U. These models are multiple contact auxiliary relays which are field convertible to either normal open (NO) or normally closed (NC) contacts rated at 600 VAC and 250 VDC. Coil voltages range from 12 VDC to 125 VDC and 120 to 480 VAC. These relays have from 4 to 12 poles and have a variety of normally open/normally closed configurations available. The relays range in weight from 1.5 to 2.5 lb and fit within an approximate 2.5-in. x 3.5 in. envelope. These relays should be mounted on vertical panels. These relays are categorized as auxiliary relays and are present in many plant control circuits. The relays of this class are used by many utilities.

3.0 TEST DATA BASE

The types of data for this relay subclass consists of fragility test data and in-cabinet measured response data recorded during qualification testing of equipment such as motor control centers and switchgear.

The relays have two operational states (energized and deenergized) as well as various combinations of normally open (NO) or normally closed (NC) contact configurations. The test data covers testing conducted during both operational states on models with several different contact configurations.

The first data set consists fragility data for the GE CR120B and CR120BD model relays. Fragility testing of relays is conducted in accordance with ANSI/IEEE C37.98/501. This standard requires biaxial, random testing of individual relays (a sample of three is recommended) to establish the chatter level of the relay. A standard 2-ms chatter limit is defined in the document. The IEEE-344 definition of fragility, as the highest level of input without malfunction, applies here. A Standard Response Spectra (SRS), as defined in the standard, was not indicated for this data. All relays were panel-mounted on a special mounting fixture (rigid)

attached to the test table. The vector biaxial testing with broadband input* was conducted with increasing input levels until chatter occurred.

A second data set includes qualification tests on equipment enclosures containing CR120B relays. This in-cabinet data is documented with a sufficient level of detail to be compared to the fragility data.

The third data set consists of the results of the EPRI test program conducted using vintage relays which had not been previously tested. These relays were submitted for test by various utilities from plant spare part stocks or by removal from actual service in plant circuits.

In addition, the manufacturer has conducted a review of their seismic qualification data for the AR and ARD relays. While the specific test data is proprietary, this review has indicated that their test levels for the AR and ARD relays are approximately 25% lower (NC contact deenergized) than the EPRI test results obtained for the AR/ARD relays.

4.0 GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

The GERS for each sub-model of the three relay types considered herein are specified by the information presented in Table 1. The GERS level (defined as the 5% damped spectral level over the 4-16 Hz range) for each contact configuration and operational state, coupled with the normalized GERS shape indicated in Figure 1, allows a GERS to be constructed for the particular plant configuration encountered. These GERS are based on either the manufacturer's SRS ratings or the EPRI test program results. Shake table testing usually provides a higher test spectrum in the 16-33 Hz range than indicated by the ANSI C37.98 SRS spectral shape. When test data are available to demonstrate ruggedness greater than the SRS levels, the modified GERS shown in Figure 1 applies. For cases where only the SRS ratings are known, the ANSI C37.98 spectrum applies.

The test data obtained from the EPRI test program is shown in Figure 2.

The manufacturer's fragility TRS data (5% damping) for both the CR120B and CR120BD are shown in Figure 3. The measured TRS at the mounting location of a CR120

* An early draft version of IEEE-501 was used which had the amplified region of the SRS from 4 to 10 Hz.

included in a MCC test is shown in Figure 4 and compared to the fragility data. During the MCC test, the relay state was changed, thus the in-cabinet TRS is valid for both the energized and deenergized state. It is apparent, that there is a substantial difference between the manufacturer's test data and the actual performance of the relay in an item of equipment. This high level of apparent ruggedness was confirmed by a test of a CR120B in the EPRI test program. However, the GERS for the CR120B was constructed using the manufacturer's data for the relay for the frequency range less than 10 Hz. For the frequency range greater than 10 Hz, the performance of the relay in both the MCC test and EPRI test was taken into account for GERS construction.

Since the vertical TRS for the relays was equal to the horizontal input motion, the GERS presented is valid for concurrent vertical and horizontal motion.

Based on judgment, physical inspection, review of manufacturer's catalogs, and other relay literature, the important model number characters that affect ruggedness have been identified for each relay listed in Table 1. It is recommended that some review of catalog material or operation/installation manuals be conducted in order to familiarize a user of a specific relay GERS with the nomenclature and model number format of the general relay type. This information has been used in preparing the GERS. Any GERS user should have access to and understand such review material for both vintage and new relays.

5.0 CHECKLIST

To apply this GERS to industrial relays at the mounting points, the following criteria must be verified.

- The relay must be either a General Electric CR120B, CR120BD, CR2810A, a Westinghouse AR or ARD, a Square D 8501-X, or a Clark 4U8 or 4U3.
- In order to utilize the GERS for a specific relay, the model numbers given in Table 1 must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.

Table 1

GERS FOR INDUSTRIAL TYPE 1 (600 V) RELAYS

CLASS: AUXILIARY RELAY
Subclass: Industrial Type 1 (600 V)

CHECKLIST:

- The relay must be either a General Electric CR120B, CR120BD, CR2810A, a Westinghouse AR or ARD, a Square D 8501-X, or a Clark 4U8 or 4U3.
- In order to utilize the GERS for a specific relay, the model numbers given below must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.

RUGGEDNESS DATA:

Type and Submodel Identification	GERS* Level: Non-Operate NO	GERS* Level: Non-Operate NC	GERS* Level: Operate NO/NC
GE CR120B	3†**	3†	5†
GE CR120BD	3†**	3†	7†
Westinghouse AR (AR440A, Style 766A025G01 tested)	10†	7.5†	10†
Westinghouse ARD (ARD440SR, Style 765653G07 tested)	10†	4.5†	10†
GE CR2810A (CR2810A14AJ tested)	6	4	10
Square D 8501-X (8501-X060 tested)	8	6	10
Clark 4U8 (4U8-5 tested)	6	5	10
Clark 4U3 (4U3-1 tested)	8	6	10

* Spectral acceleration, 4-16 Hz, 5% damping.
** Lowest GERS level for either NO or NC.
† ANSI/IEEE C37.98 SRS applies for frequencies > 16 Hz (existing test data; not based on EPRI test data).

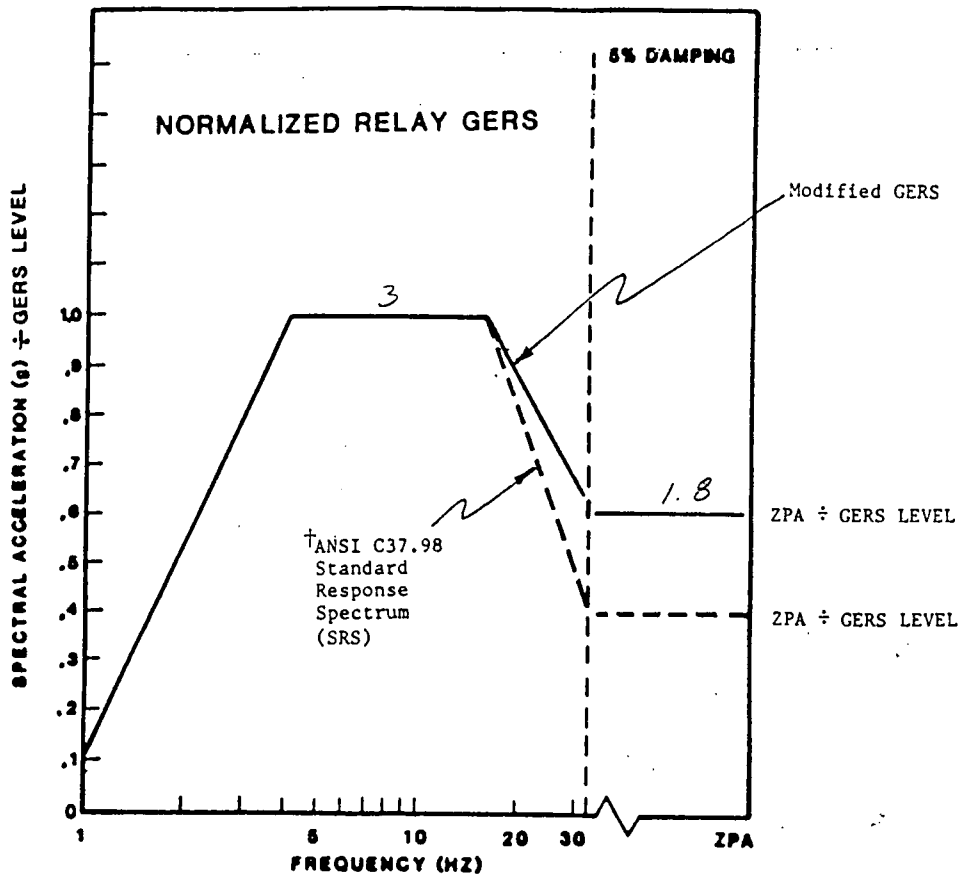
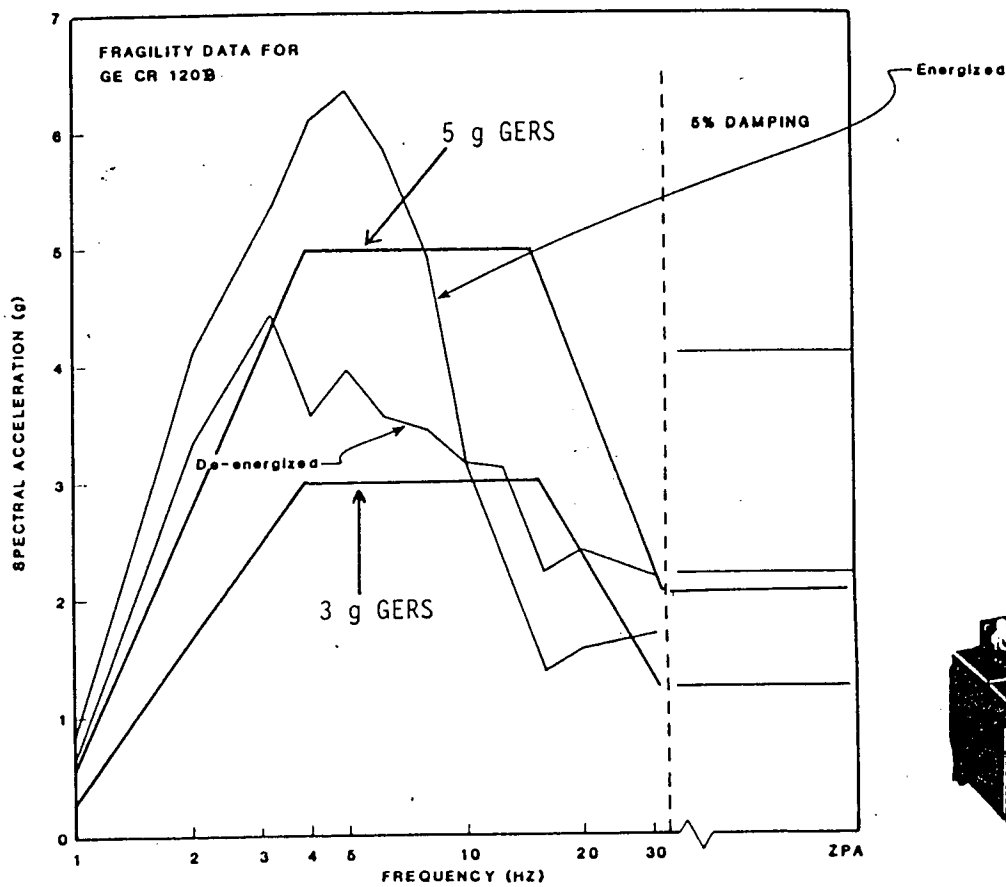


Figure 1. Normalized GERS for Industrial Type 1 (600 V) Relays



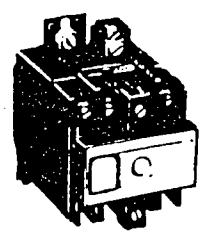


Figure 3(b). Fragility Data for GE CR120B

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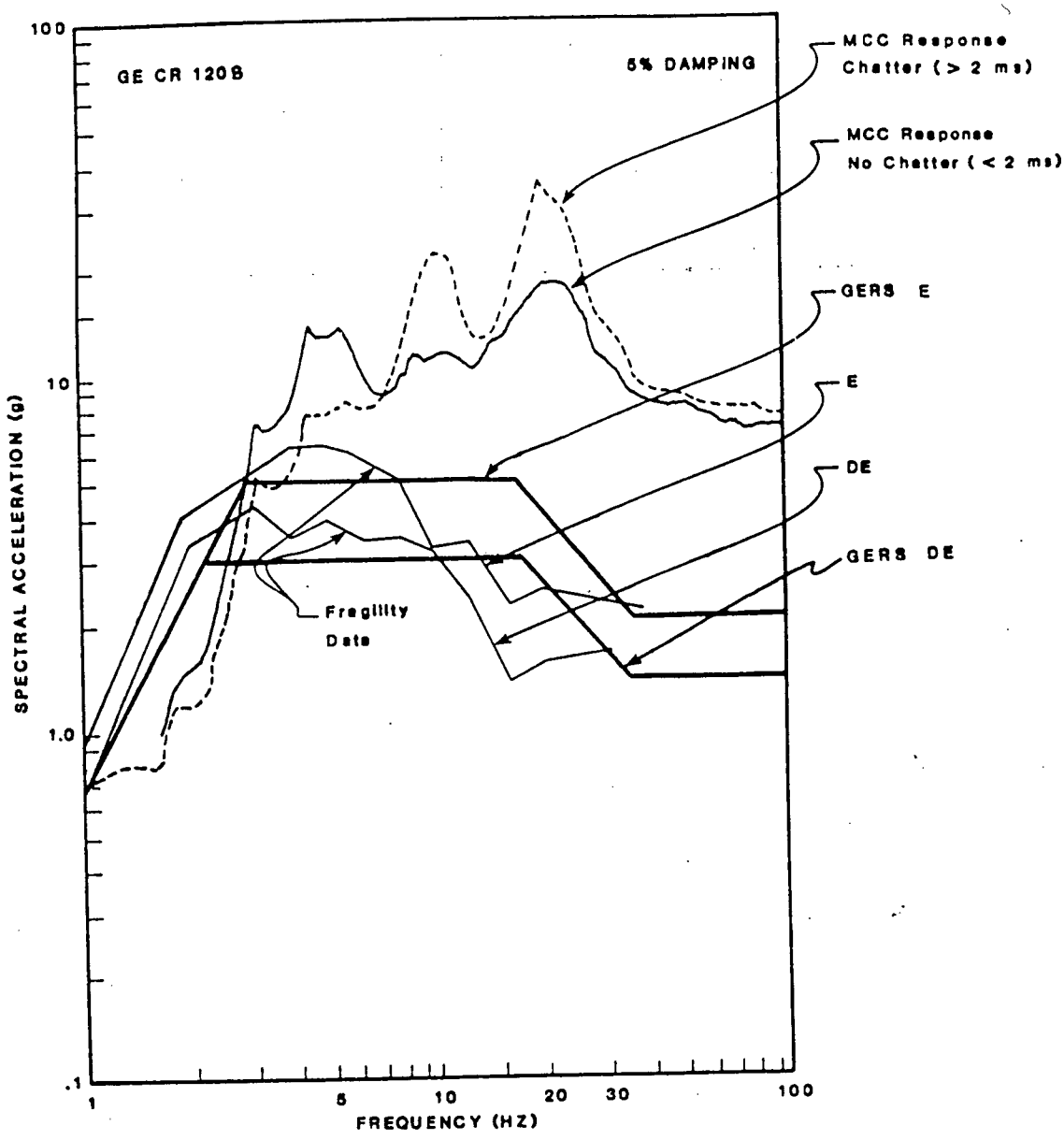

Figure 4. Comparison of GERS With Fragility Data and MCC Response Data for GE CR120B

APPENDIX D
ATTACHMENT D-6

GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

FOR

AUXILIARY RELAY-INDUSTRIAL TYPE 2 (300 V)

Prepared for

ELECTRIC POWER RESEARCH INSTITUTE
Palo Alto, California

Prepared by

ANCO Engineers, Inc.
Culver City, California

December 1990

1.0 INTRODUCTION

Generic Equipment Ruggedness Spectra (GERS) for auxiliary relays (Industrial Type 2, 300 V class) is presented and discussed in the following sections.

2.0 EQUIPMENT DESCRIPTION

The equipment class covered by the GERS presented here is six models of auxiliary relays which are standard industrial control relays. The models are manufactured by either Rowan (ITE), General Electric, Westinghouse, Cutler-Hammer, Square D, or Allen-Bradley and are referred to by their catalog nomenclature: 2180 or 2190, CR120A, NBFD, BFD, BF, D23MB, 8501-G, 8501-GD, and 700-N. These models are multiple contact auxiliary relays which are field convertible to either normal open (NO) or normally closed (NC) contacts rated at 300 VAC and 125 VDC. Coil voltages range from 12 VDC to 125 VDC and 120 to 480 VAC. These relays have from 4 to 12 poles and have a variety of normally open/normally closed configurations available. The relays range in weight from 1.5 to 2.5 lb and fit within an approximate 2.5-in. x 3.5 in. envelope. These relays should be mounted on vertical panels. These relays are categorized as auxiliary relays and are present in many plant control circuits. The relays of this class are used by many utilities.

3.0 TEST DATA BASE

The available test data for this relay subclass consists of the results of the EPRI test program conducted using vintage relays which had not been previously tested. These relays were submitted for test by various utilities from plant part stocks or by removal from actual service in plant circuits.

In addition, the manufacturer has conducted a review of their seismic qualification data for the BF, BFD, and NBFD relays. While the specific test data is proprietary, this review had indicated that the NBFD relay is sufficiently different from the BFD relay to warrant classification as a sepearate relay model. This review has allowed quantification of appropriate GERS levels for the NBFD and BF (NC contact, non-operate) relays.

4.0 GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

The GERS for each relay model considered herein are specified by the information presented in Table 1. The GERS level (defined as the 5% damped spectral level

over the 4-16 Hz range) for each contact configuration and operational state, coupled with the normalized GERS shape indicated in Figure 1, allows a GERS to be constructed for the particular plant configuration encountered. These GERS are based on the EPRI test program results. The test data obtained from the EPRI test program is shown in Figure 2.

Since the vertical TRS for the relays was approximately equal to the horizontal input motion, the GERS presented are valid for concurrent vertical and horizontal motions.

Based on judgment, physical inspection, review of manufacturer's catalogs, and other relay literature, the important model number characters that affect ruggedness have been identified for each relay listed in Table 1. It is recommended that some review of catalog material or operation/installation manuals be conducted in order to familiarize a user of a specific relay GERS with the nomenclature and model number format of the general relay type. This information has been used in preparing the GERS. Any GERS user should have access to and understand such review material for both vintage and new relays.

5.0 CHECKLIST

To apply this GERS to auxiliary relays, the following criteria must be verified.

- The relay must be either a Rowan 2180 or 2190, General Electric CR120A, Westinghouse NBFD, BFD, or BF, Cutler-Hammer D23MB (D26MPR or D26MPF contacts), Square D 8501-G or 8501-GD, or Allen-Bradley 700-N.
- In order to utilize the GERS for a specific relay, the model numbers given in Table 1 must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.

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Table 1

GERS FOR INDUSTRIAL TYPE 2 (300 V) RELAYS

CLASS: AUXILIARY RELAY
Subclass: Industrial Type 2 (300 V)

CHECKLIST:

- The relay must be either a Rowan 2180 or 2190, General Electric CR120A, Westinghouse NBFD, BFD, or BF, Cutler-Hammer D23MB (D26MPR or D26MPF contacts), Square D 8501-G or 8501-GD, or Allen-Bradley 700-N.
- In order to utilize the GERS for a specific relay, the model numbers given below must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.

RUGGEDNESS DATA:

	GERS* Level		
	Non-Operate		Operate
Type and Submodel Identification	NO	NC	NO/NC
GE CR120A (CR120A02202AA tested)	10	9	10
Westinghouse BFD (BFD44S, BFD66, BFD53, BFD44 tested)	10	9	10
Westinghouse BF (BF80F tested)	10†	4†	10†
Cutler-Hammer D23MB (D26MPR or D26MPF contacts)	10	9	10
Square D 8501-G (G080 tested)	10	5	10
Square D 8501-GD (GD020 tested)	10	10	10
Allen-Bradley 700-N	10	10	10
Rowan 2180 (FE44AA tested)	7	2	9
Rowan 2190 (E22PA tested)	10	9	10
Westinghouse NBFD	10†	5†	10†

* Spectral acceleration, 4-16 Hz, 5% damping.

† ANSI/IEEE C37.95 SRS applies for frequencies > 16 hz (existing test data; not based on EPRI test data).

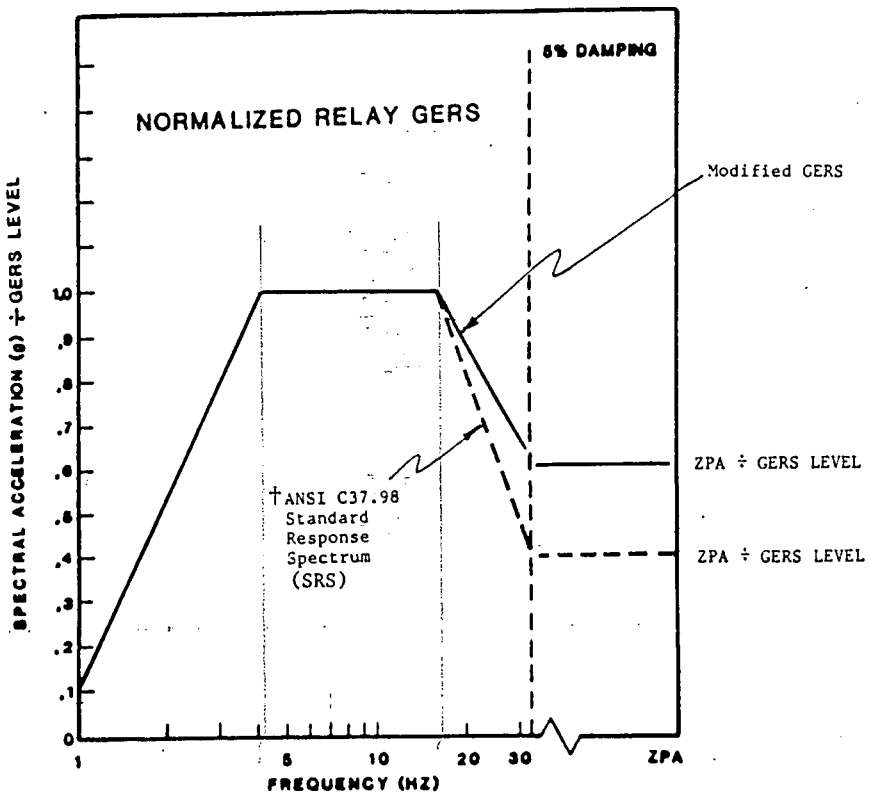

Figure 1. Normalized GERS for Industrial Type 2 (300 V) Relays

APPENDIX D
ATTACHMENT D-7

GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

FOR

AUXILIARY RELAY-LOCKOUT TYPE

Prepared for

ELECTRIC POWER RESEARCH INSTITUTE
Palo Alto, California

Prepared by

ANCO Engineers, Inc.
Culver City, California

May 1990

Since the vertical TRS for the relays was approximately equal to the horizontal input motion, the GERS presented are valid for concurrent vertical and horizontal motions.

Based on judgment, physical inspection, review of manufacturer's catalogs, and other relay literature, the important model number characters that affect ruggedness have been identified for each relay listed in Table 1. It is recommended that some review of catalog material or operation/installation manuals be conducted in order to familiarize a user of a specific relay GERS with the nomenclature and model number format of the general relay type. This information has been used in preparing the GERS. Any GERS user should have access to and understand such review material for both vintage and new relays.

5.0 CHECKLIST

To apply this GERS to auxiliary hinged armature relays, the following criteria must be verified.

- The relay must be a GE HEA, Westinghouse WL, or Electroswitch LOR relay.
- In order to utilize the GERS for a specific relay, the model numbers given in Table 1 must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.

Table 1

GERS FOR LOCKOUT RELAYS

CLASS: AUXILIARY RELAY
Subclass: Lockout

CHECKLIST:

- The relay must be a GE HEA, Westinghouse WL, or Electroswitch LOR relay.
- In order to utilize the GERS for a specific relay, the model numbers given below must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.

RUGGEDNESS DATA:

Type and Submodel Identification	GERS* Level Non-Operate NO/NC	GERS* Level Operate NO/NC
GE HEA61A,-B,-C (AC/DC)	10 g †	10 g †
GE HEA61V (AC/DC) [61V19X2 (DC) tested]	10	10
Westinghouse WL (DC) (Style 300P672G01 tested)	10	10
Electroswitch LOR (7803F tested)	(10)**†	(10)**†

* Spectral acceleration, 4-16 Hz, 5% damping.
** LOR by similarity to manual control switch.
† ANSI/IEEE C37.98 SRS applies for frequencies > 16 Hz (existing test data; not based on EPRI test data).

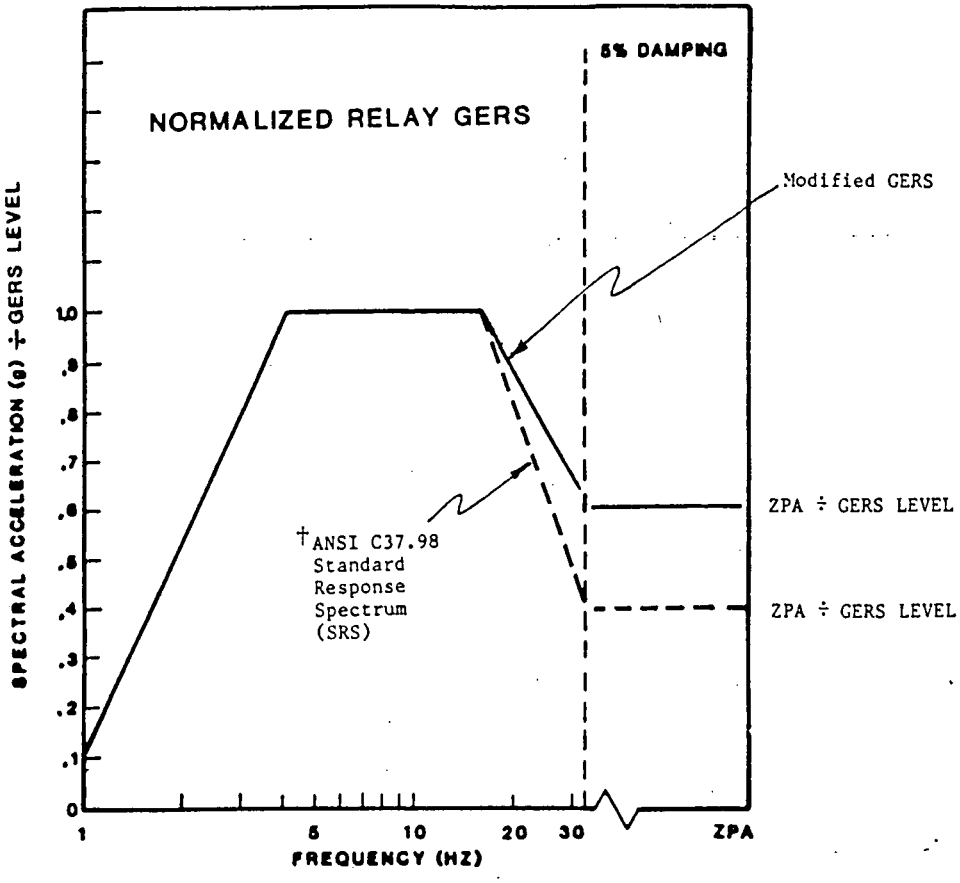

Figure 1. Normalized GERS for Lockout Relays

APPENDIX D
ATTACHMENT D-8

GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

FOR

PROTECTIVE RELAY-INDUCTION DISK TYPE (GROUP 2)

Prepared for

ELECTRIC POWER RESEARCH INSTITUTE
Palo Alto, California

Prepared by

ANCO Engineers, Inc.
Culver City, California

May 1990

1.0 INTRODUCTION

Generic Equipment Ruggedness Spectra (GERS) for protective relays (induction disk type) are presented and discussed in the following sections.

2.0 EQUIPMENT DESCRIPTION

The equipment class covered by the GERS presented here is seven models of relays which includes such types as overvoltage relays, undervoltage relays, overcurrent relays, and differential current relays. All models are manufactured by Westinghouse and are referred to by their catalog nomenclature and description:

CV, under/over timing voltage relay (CV-2, -4, -6, -7, -8)

CO (HI-LO), overcurrent timing relay (CO-2, -5, -6, -7, -8, -9, -11)

CO-4, overcurrent step-timing relay

COM-5, overcurrent relay

COV, overcurrent timing or undervoltage relay (COV-8, -9)

CVQ, undervoltage relay

CA-16, differential current relay

CO-9, very inverse overcurrent timing relay

These protective relays are used in connection with auxiliary relays to protect electrical equipment such as switchgear and diesel generators. They are usually installed in protective relay panels or switchgear. Relays of this class contain an induction disc, damping magnet, and one or more hinged armature units (clapper-type contacts) with integral targets. These hinged armature contacts are picked-up by either a DC-operated seal-in unit [denoted as an Indicating Contact Switch (ICS) unit by Westinghouse] or an AC-operated unit which functions if a preset current level is exceeded (non-timing) [denoted as an Instantaneous Indicating Trip (IIT) by Westinghouse]. Class 1E relays have special modifications to enhance seismic ruggedness.

All of the above relays mount on vertical panels. They are installed in a case which is bolted to the panel. (The case, called a "drawout case", permits easy removal.)

The relays range in weight from 5 to 20 lb and fit within an approximate 5-in. x 6-in. x 8-in. to 18-in. envelope. They are categorized as protective relays and are present in many plant control circuits where they are used in circuits to protect electrical equipment. The relays of this class are used by many utilities.

3.0 TEST DATA BASE

The types of data for this relay subclass consists of the Standard Response Spectra (ANSI/IEEE C37.98/501) for certain models. These relays have a normally open (NO) contact configuration incorporating the seal-in unit (ICS) coil in series. Some models also have additional normally closed (NC) or NO contacts without seal-in available. The test data covers testing conducted during both the non-operate and operate states.

The first data set consists of the Standard Response Spectra (SRS) for seven generic models of Westinghouse induction disk relays. Fragility testing of relays is conducted in accordance with ANSI/IEEE C37.98/501. This standard requires biaxial, random testing of individual relays to establish the chatter level of the relay model. The procedure for establishing an SRS from the fragility test data is described and a standard 2-ms chatter limit is defined in the document. The indicating contactor switch (ICS) (hinged armature component of these protective relays) was modified in approximately 1974. Therefore, the SRS are valid only for IE relays manufactured during and after 1974. These SRS represent the manufacturer's interpretation of ANSI/IEEE C37.98/501 for establishing the SRS ZPA from the fragility test response spectra obtained for each model. In general, the fragility data is considered proprietary by the manufacturer and thus is unavailable for comparison to the SRS.

4.0 GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

The GERS for each sub-model of the eight relay types considered herein are specified by the information presented in Tables 1 and 2. The GERS level (defined as the 5% damped spectral level over the 4-16 Hz range) for each contact configuration and operational state, coupled with the normalized GERS shape indicated in Figures 1 and 2, allows a GERS to be constructed for the particular plant configuration encountered. These GERS are based on either the manufacturer's SRS ratings or the EPRI test program results. Shake table testing usually provides a higher test spectrum in the 16-33 Hz range than indicated by the ANSI C37.98 SRS spectral shape.

When test data are available to demonstrate ruggedness greater than the SRS levels, the modified GERS shown in Figures 1 and 2 applies. For cases where only the SRS ratings are known, the ANSI C37.98 spectrum applies. The sub-model identification indicated is sufficient to identify the relay having the ruggedness level indicated.

Each of the SRS (5% damping) for the Westinghouse models is considered to be a GERS for the particular operational state. Table 1 gives the GERS for the Westinghouse models in the operate and non-operate state. Since the vertical TRS for the relays was equal to the horizontal input motion, the GERS presented is valid for concurrent vertical and horizontal motion.

Protective relays are by basic function adjustable. ANSI/IEEE C37.98 provides specific guidance as to the test settings for protective relays. For protective relays, an adjustment can affect the seismic response of the relay. The guidance given in ANSI/IEEE C37.98, for protective relay test settings, provide the most sensitive setting (e.g., unity time dial setting) for the relay and thus the lowest fragility level results from testing. In addition, ANSI/IEEE C37.98 provides specific non-operate and operate electric test conditions for each type of relay which enhances sensitivity. For example, overcurrent protective relays are tested with the lowest current setting and operate/non-operate conditions of 60%/200% of current setting, respectively. For the EPRI testing, target seal-in (or indicating contactor switch) units are tested with twice rated current which greatly increases the likelihood of seal-in due to induction disk contact chatter or target seal-in unit contact chatter.

Based on judgment, physical inspection, review of manufacturer's catalogs, and other relay literature, the important model number characters that affect ruggedness have been identified for each relay listed in Tables 1 and 2. It is recommended that some review of catalog material or operation/installation manuals be conducted in order to familiarize a user of a specific relay GERS with the nomenclature and model number format of the general relay type. This information has been used in preparing the GERS. Any GERS user should have access to and understand such review material for both vintage and new relays.

5.0 CHECKLIST

To apply this GERS to Westinghouse protective relays, the following criteria must be verified.

- The relay must be a Westinghouse Model CO, CV, COM, COV, CVQ, or CA relay.
- In order to utilize the GERS for a specific relay, the model numbers given in Tables 1 and 2 must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.
- To utilize the Class 1E GERS, a 1E marking must be present on the relay body which designates a Class 1E device.
  - Only the style numbers listed are acceptable without review of manufacturers catalog data to insure a Class 1E relay.
  - Induction disc relays must have a shroud over the coiled windup spring to prevent contact shorts due to spring vibration.
- To utilize the non-1E GERS, only the style numbers indicated (or equivalent identified by manufacturer) are acceptable.
- Time dial settings must be unity or greater.

Table 1

GERS FOR INDUCTION DISK - WESTINGHOUSE CLASS 1E

CLASS: PROTECTIVE RELAY
Subclass: Induction Disk - Westinghouse Class 1E

CHECKLIST:

- The relay must be a Westinghouse Model CO, CV, COM, COV, CVQ, or CA relay.
- In order to utilize the GERS for a specific relay, the model numbers given below must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.
- To utilize the Class 1E GERS, a 1E marking must be present on the relay body which designates a Class 1E device.
  - Only the style numbers listed are acceptable without review of manufacturers catalog data to insure a Class 1E relay.
  - Induction disc relays must have a shroud over the coiled windup spring to prevent contact shorts due to spring vibration.

RUGGEDNESS DATA:

Type and Submodel Identification	GERS* Level Non-Operate/Operate NO/NC
CV-2, -4, -6, -7, -8; Style 1454C77__, 1482B97__	14.2 g†
COV-8, -9; Style 1342D82__, 1339D81__	14.2†
CVQ Style 1339D96__	14.2†
CO-4 Style 1327D47__	14.2†
CO-2, -5, -6, -7, -8, -9, -11; HILO Style 1456C05__, 1472C25__	14.2†
CA-16 Style 1330D93__	14.2†
COM-5 Style 1326D81__	14.2†

* Spectral acceleration, 4-16 Hz, 5% damping.
† Existing test data; not based on EPRI test data.

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Table 2

GERS FOR INDUCTION DISK - WESTINGHOUSE

CLASS: PROTECTIVE RELAY
Subclass: Induction Disk - Westinghouse

CHECKLIST:

- In order to utilize the GERS for a specific relay, the model numbers given below must be verified from either nameplate data, original invoices, electrical/control drawings, or inventory lists.
- To utilize the non-1E GERS, only the style numbers indicated (or equivalent identified by manufacturer) are acceptable.
- Time dial settings must be unity or greater.

RUGGEDNESS DATA:

Type and Submodel Identification	GERS* Level Non-Operate NO/NC	GERS* Level Operate NO/NC
CO-8 Style 264C900A05, HILO	7/NA	10/NA
CO-9 Style 1875282A	10/NA	8/NA

* Spectral acceleration, 4-16 Hz, 5% damping.
NA - not applicable.

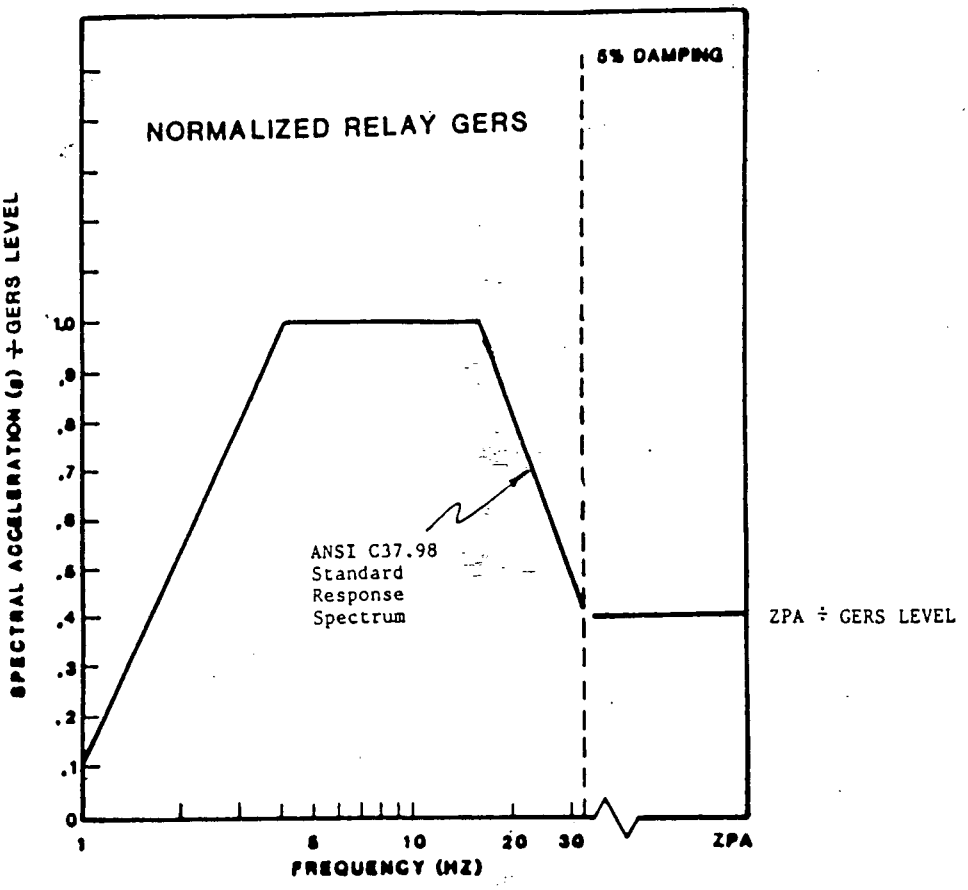

Figure 1. Normalized GERS for Induction-Disk - Westinghouse Class 1E Relays

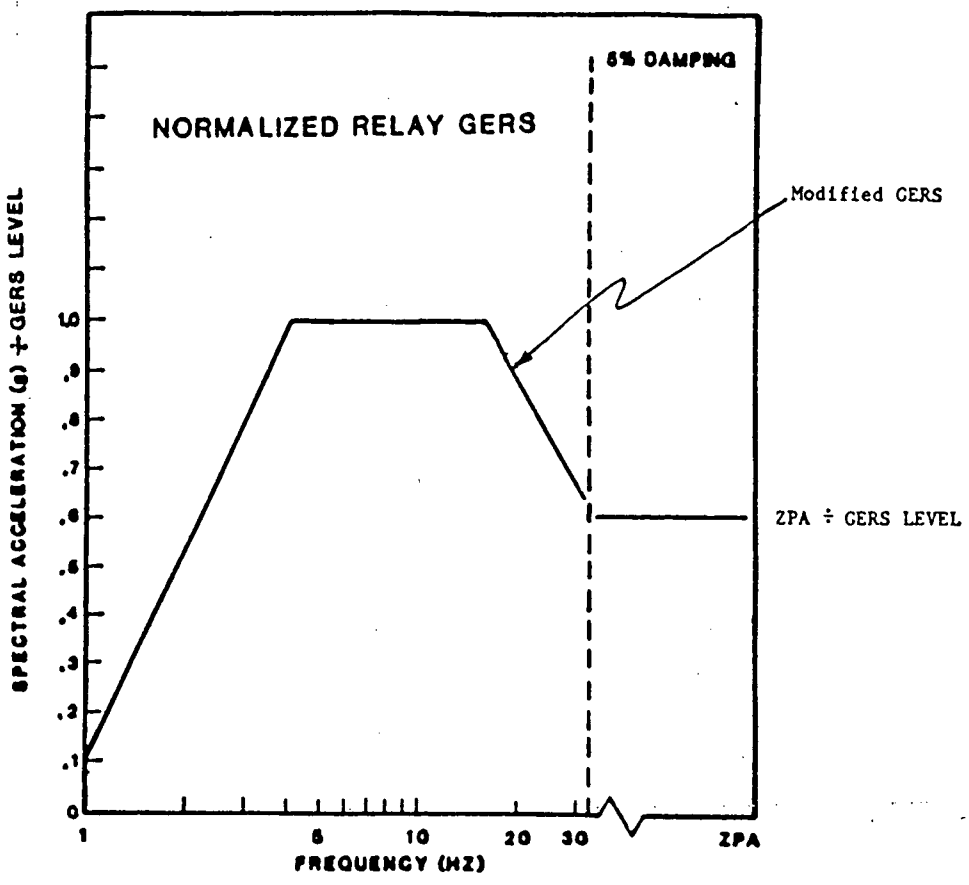

Figure 2. Normalized GERS for Induction Disk - Westinghouse Relays

APPENDIX D
ATTACHMENT D-9

GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

FOR

BATTERY CHARGERS

Prepared for

ELECTRIC POWER RESEARCH INSTITUTE
Palo Alto, California

Prepared by

ANCO Engineers, Inc.
Culver City, California

February 1991

1.0 INTRODUCTION

A Generic Equipment Ruggedness Spectrum (GERS) for stationary battery chargers (solid-state type) is presented and discussed in the following sections.

2.0 EQUIPMENT DESCRIPTION

The equipment class covered by the GERS presented here is battery chargers suitable for float charging of lead-acid storage battery sets. Units included range from 25- to 600-amp capacity with either single or three-phase voltage ratings of 24-250 volts d.c. and 120-480 volts a.c. All of the units utilize solid-state technology (silicon-controlled rectifier, SCR) in both the main circuits and the power controls. Major components are protective circuit breakers, transformers, power supply, SCR, filter, and various alarm relays, and control circuits. All are housed in NEMA-type floor or wall enclosures. The units must be anchored to a supporting structure. The validation of anchorage adequacy requires an independent evaluation. Virtually all battery chargers used in power plants for float charging of lead-acid storage battery sets are included within this equipment class. The checklist, given in Section 5, can be used to screen for outliers.

3.0 TEST DATA BASE

The data base includes basic equipment descriptive information, test methods/descriptions, and test data covering a wide range of stationary battery chargers (solid-state type). Ten qualification tests on sixteen different models from three manufacturers (C&D, PCP, and Exide) which represent the range of units found in actual power plants are included in the data base. It should be noted that in some tests several models were tested at the same time. The earliest test in the data base was conducted in 1974. Some of the units tested had cabinet design modifications based on results from earlier shake table test programs. Both floor- and wall-mounted configurations were tested with weights ranging from 150 to 4,300 pounds. The largest wall-mounted unit tested was under 600 pounds. All units were mounted within NEMA-type metal enclosures with either welded or bolted anchorage. In general, the aging status of components was not included in the test reports abstracted.*

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* The aging of components is often conducted in separate programs prior to the seismic qualification test effort. Thus, the seismic test documentation often does not describe the aged condition of the component being tested.

The tests were performed using random, independent, biaxial or triaxial inputs. Acceptable performance was defined, for all tests, to be the ability to function without intermittent voltage output, both during and after the tests. Monitoring during testing included relay contact chatter. Equipment natural frequencies ranged from 8 to 20 Hz.

Exceptions noted in five items during four separate tests were limited to intermittent operation, a DC breaker trip, post-test surge suppressor blow-out, an indicator lamp filament failure causing a fuse to blow with resultant alarm contact change of state (relay chatter also occurred), and an internal wire contact short. The last exception was due to improper wiring (bare wire without insulation) during manufacture and is not considered relevant since normal utility acceptance inspection procedures would have indicated incorrect wiring. (The bare wire was taped and the qualification test continued.) The intermittent operation, breaker trip, surge-suppressor, and blown fuse exceptions were considered failures for the purpose of constructing a GERS.

4.0 GENERIC EQUIPMENT RUGGEDNESS SPECTRUM

Nine TRS in the data base were selected to construct the GERS. Figure 1 compares the GERS to the horizontal Test Response Spectra (TRS) (standardized to 5% damping) for which the test battery chargers performed satisfactorily. No battery charger weighed more than 2,850 lb within the group of successful tests. Figure 2 compares the GERS to TRS for which intermitent output occurred, breaker trip occurred, post-test surge suppressor failure, and for the blown fuse failure noted above. The GERS shown in Figures 1 and 2 is lower than the envelope of satisfactory data and accommodates the failure data. The vertical TRS in all tests on which the GERS is based was equal to or greater than the horizontal input motion; thus the GERS presented is valid for concurrent vertical and horizontal motion.

5.0 CHECKLIST

To apply this GERS to stationary battery chargers, the following criteria must be verified.

- The charger must be a solid-state unit with SCR power controls (C&D, PCP, or Exide) wall- or floor-mounted within a NEMA-type enclosure (review of manufacturer's submittals is sufficient).

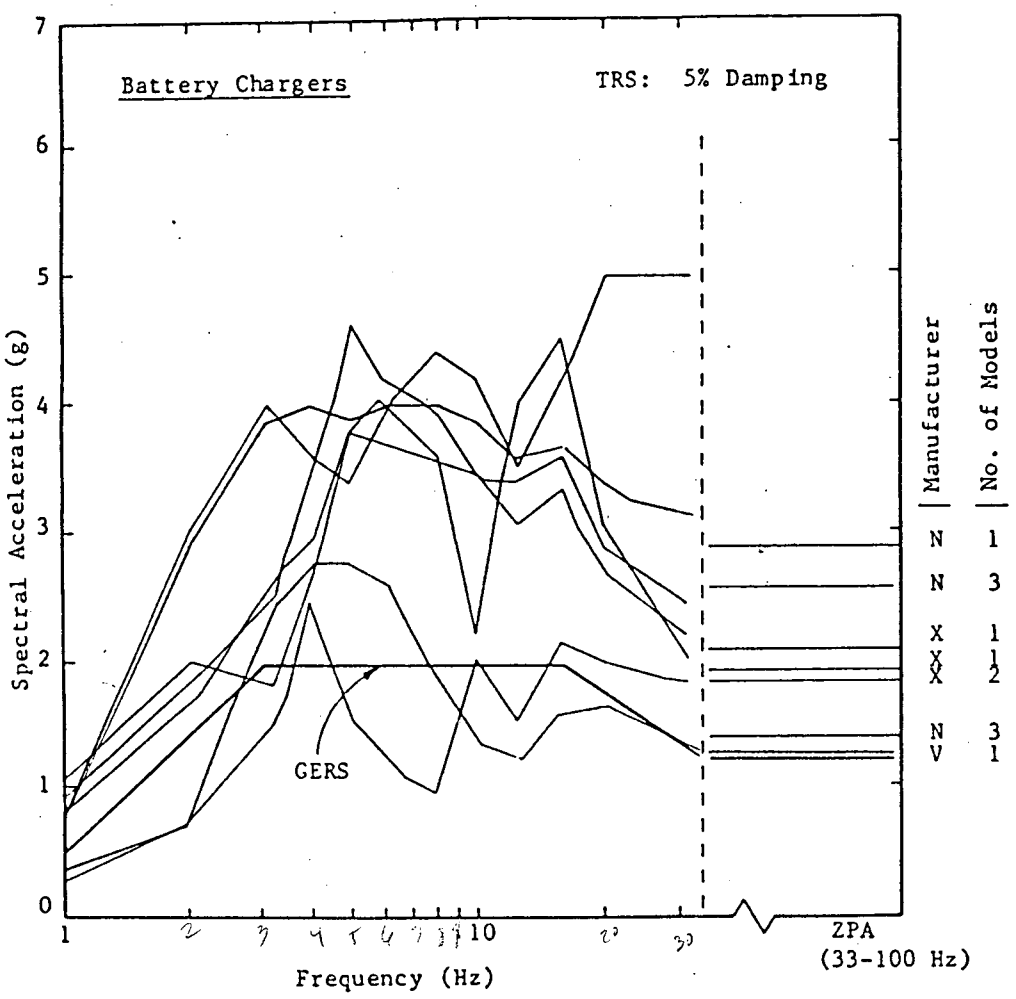
- Charger size and capacity must be within the following range: 24-250 vdc, 120-480 vac, 25 to 600 amps; and weight in the range of 150 to 2,850 lb with wall-mounted units limited to 600 lb or less (review of manufacturer's submittals or charger nameplate is sufficient).

- The charger must be anchored and the installed anchorage must be evaluated.

- In addition to the anchorage evaluation, the charger base support details must be reviewed and evaluated to assure that the anchorage forces can be transferred by the enclosure base. Base channel supports require particular attention.

- The attachment of heavy internal components, such as power transformers, must be inspected to insure that an adequate load path exists between the component supports and the cabinet anchorage. In general, such heavy components should be located in the lower half of the enclosure height and either supported from the base or a rear panel. If cutouts are adjacent to support points for heavy internal components, a separate evaluation is required.

- All door latches or screwdriver operated door fasteners must be secured.



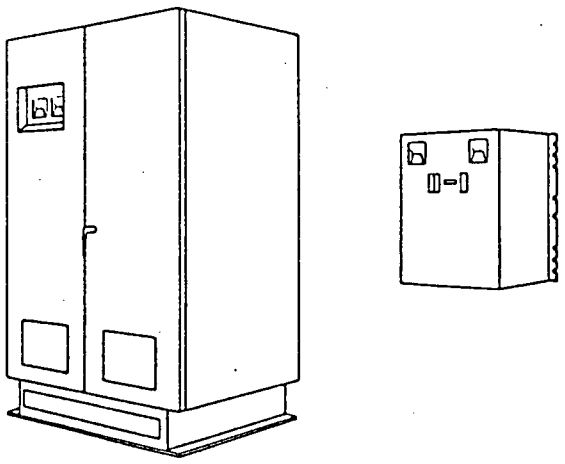


Figure 1. Comparison of GERS with ruggedness TRS data: success data for battery chargers.

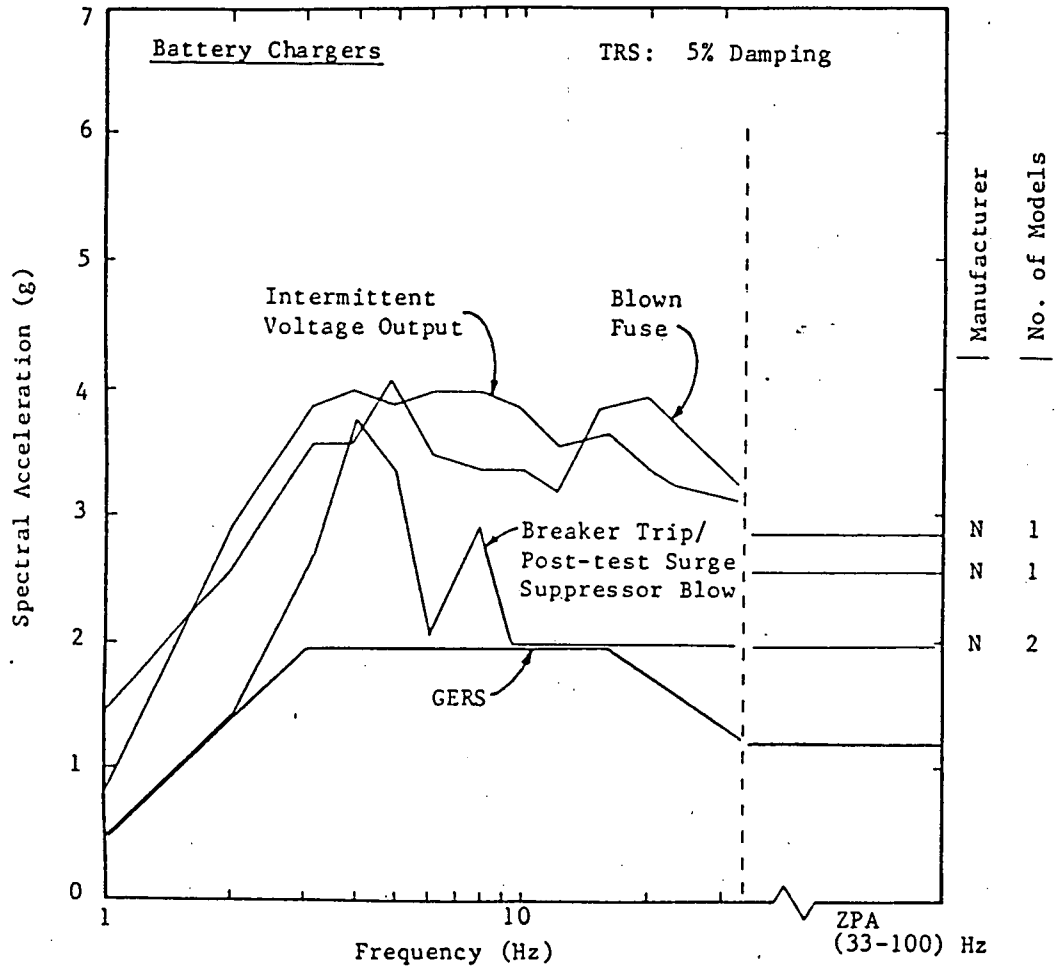


Figure 2. Comparison of GERS with TRS data: failure data for battery chargers.

OT2A N.O. N.C.

LOCK 2A L22 L21 N.O. R22 N.C.

ESET PUSHBUTTON SW. OPERATOR-OT2B1

C-A1 PB/RC-A2
C-B1 PB/RC-B2
V1 PB/RV2

(FRONT) TYPE OT2A L12 L11 N.O. R11 R12 N.C.

2ND BLOCK OT2A L22 L21 N.O. R21 R22 N.C.

UN-BLOCK BLOCK 3 POSITION SPRING RETURN TO NEUT. OPERATOR-OT2V6

1/SIB
2/SIB

1ST BLOCK CH. I (B)	3 4	X	O	O
	1 2	X	X	O
2ND BLOCK CH. II (A)	3 4	X	O	O
	1 2	X	X	O

AUTO TRIP RESET

(W) OPERATOR PB-1JXH 3-POSITION 1DB1A5 SPRING RETURN TO AUTO

1/MSI-31 1/MSI-33
1/MSI-32 1/MSI-34

INSTRUMENT BUS-33 CIRCUIT NO.2 120 V.A.C. 3 50 4 TO X1 RELAYS

INSTRUMENT BUS-33 CIRCUIT NO.20 120 V.A.C. 3 50 4 TO X2 RELAYS

TACT CIRCUIT POSITION
CK L R
LOCK NT) OT2A L12 L11 N.O. R11 R12 N.C.

ESET PUSHBUTTON SW. OPERATOR-OT2B1 TEST FOR PB/T1 & PB/T2

PB/SITR1	PB/SITR2
PB/T1	PB/T2
PB/TR1	PB/TR2
PB/STR1	PB/STR2
PB/CATR1	PB/CATR2
PB/CBTR1	PB/CBTR2
PB/VTR1	PB/VTR2
PB/RTT1	PB/RTT2

A B CONTROL BOARD MODULE CONNECTOR PIN IDENTIFICATION

C1 C2 REAR CENTER FRONT GOULD RELAY

SUPPLIED WITH UNMARKED TERMINALS. NUMBERS ASSIGNED FOR TERMINAL LOCATION PURPOSES ONLY

SAFEGUARD'S CABINETS G4 & G6

C1 C2 REAR CENTER FRONT BF

WESTINGHOUSE TYPE "BF" RELAY

SUPPLIED WITH UNMARKED TERMINALS. NUMBERS ASSIGNED FOR TERMINAL LOCATION PURPOSES ONLY

SAFEGUARD'S CABINETS G3,G4,G5 & G6

D
ER 2
RIGHT PUSH
O X
X X

BLOCK	C			E			C			D		
R-304 501-CECO	TIER 1			TIER 2			TIER 3			TIER 4		
	LEFT	RIGHT	PUSH	LEFT	RIGHT	PUSH	LEFT	RIGHT	PUSH	LEFT	RIGHT	PUSH
TOP	O	O	X	X	X	O	O	O	X	O	O	X
BOTTOM	X	O	O	X	O	O	X	O	O	O	X	X

/ITCHES (O=OPEN CONTACT. X=CLOSE CONTACT)

ION
QUARE
TMENT NO.
TERMINAL
#113E303 SH. 8
2=CAB. G5 & G6)
UARE
AL POINT
INAL

NEWARK ELECTRONICS CORP.
TYPE 820-2701
STOCK #25F1003
013S-502 WHITE LENS
STOCK # 25F999
0111-502 RED LENS

W 1 725 N.P. ITEM NO. SEE SH.8 2 3

TEST LIGHT
PUSH TO TEST (3 WATT OR LESS)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 (R) (O)

MG-6
(FRONT VIEW)

UNCONTROLLED DRAWING

Copy Date _____

CAUTION -- Extended use of this drawing copy may result in its inaccuracy due to subsequent design changes and drawing updates

1972M1015

REV NO	DATE	DESCRIPTION	DWN/CHK	DS	DE/DM	PROJ APP.
24	7/20/92	AS BUILT PER DCR 100047812.	EJV/EEA		OR	
23	3/23/82	AS BUILT PER MOD.#88-03-146MS.	AMJ/REG	-	AE	-
22	8/12/81	AS BUILT PER MOD.#88-03-081MS.	EJV/REG	-	AE	-

REVISIONS

DWN / CHK'D	
DES SUPV	INDIAN POINT NO.3 NUCLEAR POWER PLANT
DISCIPLINE ENG	
DISCIPLINE MGR.	
PROJ APPROVAL	SAFEGUARDS ACTUATION SCHEMES
DATE	

NewYorkPower Authority

SCALE NONE
DWG NO 113E303 SHEET 1
REV 24

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APPENDIX D
ATTACHMENT
D-10
Page 1 of 1

MANUFACTURER	RC CATALOG NO.	RELAY TYPE	RELAY NUMBER
Agastat	74 2122DH39YB	Time Delay	27-1-62A
Agastat	74 2122DH39YB	Time Delay	27-2-62A
Agastat	74 2122DH39YB	Time Delay	27-3-62A
Agastat	74 2122DH39YB	Time Delay	27-4-62A
Agastat	75 7012PE	Time Delay	62BU
Agastat	75 7012PE	Time Delay	62P
Agastat	76 2412PB	Time Delay	62TR1
Agastat	76 2412PB	Time Delay	TD1 BU-138
Agastat	76 2412PB	Time Delay	TD1 BU-345
Agastat	76 2412PB	Time Delay	TD1 PRI-138
Agastat	76 2412PB	Time Delay	TD2 BU-138
Agastat	76 2412PB	Time Delay	TD2 BU-345
Agastat	76 2412PB	Time Delay	TD2 PRI-138
Agastat	76 2412PB	Time Delay	TD2 PRI-345
Agastat	77 2412PDL	Time Delay	63X-BU
Agastat	77 2412PDL	Time Delay	63X-P
Agastat	77 2412PDL	Time Delay	TD2 BU BS 6
Agastat	77 2412PDL	Time Delay	TD2 P BS 6
Agastat	83 2412PBL	Time Delay	TD1 PRI-345
Agastat	84 7032PCC	Time Delay	TD3 BU-138
Agastat	84 7032PCC	Time Delay	TD3 BU-345
Agastat	84 7032PCC	Time Delay	TD3 PRI-138
Agastat	84 7032PCC	Time Delay	TD3 PRI-345
ASEA	89 RAGEA	Ground Fault	59N-BU
General Electric	50 CR120A26241	Non-Latch	DG 31-32X
General Electric	50 CR120A26241	Non-Latch	DG 31-51GX
General Electric	50 CR120A26241	Non-Latch	DG 31-51VX
General Electric	50 CR120A26241	Non-Latch	DG 31-86X
General Electric	50 CR120A26241	Non-Latch	DG 31-ASR

APPENDIX D
ATTACHMENT D-II
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MANUFACTURER	RC CATALOG NO.	RELAY TYPE	RELAY NUMBER
General Electric	50 CR120A26241	Non-Latch	DG 31-BG1R
General Electric	50 CR120A26241	Non-Latch	DG 31-CR-1
General Electric	50 CR120A26241	Non-Latch	DG 31-CR-2
General Electric	50 CR120A26241	Non-Latch	DG 31-ESR-1
General Electric	50 CR120A26241	Non-Latch	DG 31-ESR-11
General Electric	50 CR120A26241	Non-Latch	DG 31-ESR-2
General Electric	50 CR120A26241	Non-Latch	DG 31-ESR-21
General Electric	50 CR120A26241	Non-Latch	DG 31-FODPR
General Electric	50 CR120A26241	Non-Latch	DG 31-FODSR
General Electric	50 CR120A26241	Non-Latch	DG 31-FR
General Electric	50 CR120A26241	Non-Latch	DG 31-H-HWTR
General Electric	50 CR120A26241	Non-Latch	DG 31-HLOTR
General Electric	50 CR120A26241	Non-Latch	DG 31-HR
General Electric	50 CR120A26241	Non-Latch	DG 31-HWTR
General Electric	50 CR120A26241	Non-Latch	DG 31-HWTR-1
General Electric	50 CR120A26241	Non-Latch	DG 31-K1X
General Electric	50 CR120A26241	Non-Latch	DG 31-LAPR
General Electric	50 CR120A26241	Non-Latch	DG 31-LFLR
General Electric	50 CR120A26241	Non-Latch	DG 31-LHOTR-1
General Electric	50 CR120A26241	Non-Latch	DG 31-LODFR
General Electric	50 CR120A26241	Non-Latch	DG 31-LODSR
General Electric	50 CR120A26241	Non-Latch	DG 31-OCR
General Electric	50 CR120A26241	Non-Latch	DG 31-OPR-1
General Electric	50 CR120A26241	Non-Latch	DG 31-OSR
General Electric	50 CR120A26241	Non-Latch	DG 31-RR
General Electric	50 CR120A26241	Non-Latch	DG 31-SDR
General Electric	50 CR120A26241	Non-Latch	DG 31-UPR
General Electric	50 CR120A26241	Non-Latch	DG 32-32X
General Electric	50 CR120A26241	Non-Latch	DG 32-51GX

Attachment D-11
Page 2 of 5

MANUFACTURER	RC CATALOG NO.	RELAY TYPE	RELAY NUMBER
General Electric	50 CR120A26241	Non-Latch	DG 32-51VX
General Electric	50 CR120A26241	Non-Latch	DG 32-86X
General Electric	50 CR120A26241	Non-Latch	DG 32-ASR
General Electric	50 CR120A26241	Non-Latch	DG 32-BGIR
General Electric	50 CR120A26241	Non-Latch	DG 32-CR-1
General Electric	50 CR120A26241	Non-Latch	DG 32-CR-2
General Electric	50 CR120A26241	Non-Latch	DG 32-ESR-1
General Electric	50 CR120A26241	Non-Latch	DG 32-ESR-11
General Electric	50 CR120A26241	Non-Latch	DG 32-ESR-2
General Electric	50 CR120A26241	Non-Latch	DG 32-ESR-21
General Electric	50 CR120A26241	Non-Latch	DG 32-FODPR
General Electric	50 CR120A26241	Non-Latch	DG 32-FODSR
General Electric	50 CR120A26241	Non-Latch	DG 32-FR
General Electric	50 CR120A26241	Non-Latch	DG 32-H-HWTR
General Electric	50 CR120A26241	Non-Latch	DG 32-HLOTR
General Electric	50 CR120A26241	Non-Latch	DG 32-HLOTR-1
General Electric	50 CR120A26241	Non-Latch	DG 32-HR
General Electric	50 CR120A26241	Non-Latch	DG 32-HWTR
General Electric	50 CR120A26241	Non-Latch	DG 32-HWTR-1
General Electric	50 CR120A26241	Non-Latch	DG 32-K1X
General Electric	50 CR120A26241	Non-Latch	DG 32-LAPR
General Electric	50 CR120A26241	Non-Latch	DG 32-LFTR
General Electric	50 CR120A26241	Non-Latch	DG 32-LODFR
General Electric	50 CR120A26241	Non-Latch	DG 32-LODSR
General Electric	50 CR120A26241	Non-Latch	DG 32-OCR
General Electric	50 CR120A26241	Non-Latch	DG 32-OPR-1
General Electric	50 CR120A26241	Non-Latch	DG 32-OSR
General Electric	50 CR120A26241	Non-Latch	DG 32-RR
General Electric	50 CR120A26241	Non-Latch	DG 32-SDR

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MANUFACTURER	RC CATALOG NO.	RELAY TYPE	RELAY NUMBER
General Electric	50 CR120A26241	Non-Latch	DG 32-SWLFX
General Electric	50 CR120A26241	Non-Latch	DG 32-UPR
General Electric	50 CR120A26241	Non-Latch	DG 33-32X
General Electric	50 CR120A26241	Non-Latch	DG 33-51GX
General Electric	50 CR120A26241	Non-Latch	DG 33-51VX
General Electric	50 CR120A26241	Non-Latch	DG 33-86X
General Electric	50 CR120A26241	Non-Latch	DG 33-ASR
General Electric	50 CR120A26241	Non-Latch	DG 33-CR-1
General Electric	50 CR120A26241	Non-Latch	DG 33-CR-2
General Electric	50 CR120A26241	Non-Latch	DG 33-EFLR
General Electric	50 CR120A26241	Non-Latch	DG 33-ESR-1
General Electric	50 CR120A26241	Non-Latch	DG 33-ESR-11
General Electric	50 CR120A26241	Non-Latch	DG 33-ESR-2
General Electric	50 CR120A26241	Non-Latch	DG 33-ESR-21
General Electric	50 CR120A26241	Non-Latch	DG 33-FODPR
General Electric	50 CR120A26241	Non-Latch	DG 33-FODSR
General Electric	50 CR120A26241	Non-Latch	DG 33-FR
General Electric	50 CR120A26241	Non-Latch	DG 33-H-HWTR
General Electric	50 CR120A26241	Non-Latch	DG 33-HLOTR
General Electric	50 CR120A26241	Non-Latch	DG 33-HLOTR-1
General Electric	50 CR120A26241	Non-Latch	DG 33-HR
General Electric	50 CR120A26241	Non-Latch	DG 33-HWTR
General Electric	50 CR120A26241	Non-Latch	DG 33-HWTR-1
General Electric	50 CR120A26241	Non-Latch	DG 33-K1X
General Electric	50 CR120A26241	Non-Latch	DG 33-LAPR
General Electric	50 CR120A26241	Non-Latch	DG 33-LODFR
General Electric	50 CR120A26241	Non-Latch	DG 33-LODSR
General Electric	50 CR120A26241	Non-Latch	DG 33-OCR
General Electric	50 CR120A26241	Non-Latch	DG 33-OPR-1

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Page 4 of 5

MANUFACTURER	RC CATALOG NO.	RELAY TYPE	RELAY NUMBER
General Electric	50 CR120A26241	Non-Latch	DG 33-OSR
General Electric	50 CR120A26241	Non-Latch	DG 33-RR
General Electric	50 CR120A26241	Non-Latch	DG 33-SDR
General Electric	57 CFVB 12CFVB11A3A	Voltage Balance	60
General Electric	59 IJS 12IJS52D1A	Sync Check	GCB BT5-6-25
General Electric	61 HGA 12HGA11H52	Non-Latch	GCB BT5-6-74X1
General Electric	62 HGA 12HGA11H54	Non-Latch	F4 CLOSE 74-5
General Electric	62 HGA 12HGA11H54	Non-Latch	F4 OPEN 74-6
General Electric	62 HGA 12HGA11H54	Non-Latch	GCB BT5-6-74-3
General Electric	62 HGA 12HGA11H54	Non-Latch	GCB BT5-6-74-4
General Electric	63 HGA 12HGA11H70	Non-Latch	F4-BK5-74Y1
General Electric	63 HGA 12HGA11H70	Non-Latch	F4-BK5-74Y2
General Electric	93 GXS 12GXS181A	Synchronizing Check	25/345
General Electric	94 12NGA15L3	Non-Latching	OSY/345
Gould	40 J16SV12	Voltage Sensing	27-3/2A
Gould	40 J16SV12	Voltage Sensing	27-3/3A
Gould	40 J16SV12	Voltage Sensing	27-3/5A
Gould	40 J16SV12	Voltage Sensing	27-3/6A
Gould	40 J16SV12	Voltage Sensing	27-4/2A
Gould	40 J16SV12	Voltage Sensing	27-4/3A
Gould	40 J16SV12	Voltage Sensing	27-4/5A
Gould	40 J16SV12	Voltage Sensing	27-4/6A
Gould	41 J13P20	Non-Latch	876A-TTD-2X
Gould	41 J13P20	Non-Latch	876B-TTD-2X
Gould	41 J13P20	Non-Latch	BFPB-1
Gould	41 J13P20	Non-Latch	DG 31-H
Gould	41 J13P20	Non-Latch	DG 31-I
Gould	41 J13P20	Non-Latch	DG 31-N
Gould	41 J13P20	Non-Latch	DG 31-RSIS

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APPENDIX D
ATTACHMENT D-12

Page 1 of 10
From IP-3 DC System Description.

disconnect is closed to connect the battery to the discharge test rig.

7.4 Battery Chargers

Battery chargers are used to keep the batteries in a fully charged condition, perform periodic equalizing charges, and to supply the DC power panels under normal operating conditions. The plant has 5 battery chargers numbered 31-35. 31-34 feed their associated DC power panels and batteries. Battery charger 35 is an installed spare and
can replace any one of the other 4 if the need arises.

The battery chargers are all forced-air cooled, self regulating SCCR type battery chargers that convert the 3 phase, 480 VAC input power from the MCC's into 125 VDC. Battery chargers 31, 32, and 35 are Exide Model SCFR 130-3-400 Battery Chargers. This indicates that the
rated voltage is 130, its 3 phase and is rated at 400 amps. Battery chargers 33 and 34 are rated at 130 volts and 200 amps each.

The battery chargers are powered by the 480 volt MCC's as follows:

BATTERY CHARGER 31--MCC-39
BATTERY CHARGER 32--MCC-37
BATTERY CHARGER 33--MCC-34 — MCC 34C - See Figure 27.1.7.1
BATTERY CHARGER 34--MCC-32
"Installed Spare" — BATTERY CHARGER 35--MCC-39

7.4.1 Battery Charger Theory of Operation

The 3 phase 480 volt power from the MCC is brought into an AC circuit breaker and then to the primary windings of the main

power transformer. The secondary windings of the main power transformer provide the 3 phase AC power at the correct voltage (approx. 129 volts) to the combination thryister and silicon full wave rectifier through current limiting fuses. The magnitude of the DC output voltage is determined by controlling the time during which the SCCR's are turned on during the part of the cycle when the anode of the SCCR is at a positive potential with respect to the cathode. The time when the SCCR's are fired is controlled by a voltage regulator which continuously monitors the DC output voltage. The output voltage setting can be adjusted by a potentiometer located on the charger control panel.

To prevent damage to the current limiting fuses due to excessive in-rush current, the regulator has a built-in slow turn-on feature which controls the rate of rise of the output voltage when the unit is energized. This allows the DC output to increase to rated voltage slowly, thus preventing damage to the fuses. The charger is also current limited to 110% of rated current to protect the charger as well as the battery from excessive charging currents.

On short circuits and severe overloads exceeding the capability of the current limiting circuit, the SCCR gating controller will go into gate pulse suppression. This condition is indicated by a white indicating light on the front of the charger. Gate pulse suppression as the name implies, simply prevents the SCCR's from turning on and therefore effectively shuts down the charger. The AC circuits will still be energized under this condition.

If this condition occurs, once the cause has been found and corrected, the charger can be placed back in operation by opening the AC input breaker, waiting 2 sec's, then reclosing the AC input breaker. Gate pulse suppression can also be caused by a failure of the charger cooling fan.

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The SCR's are cooled by a small, single phase fan assembly located at the bottom of the heat sinks. The power transformer and filters are forced air cooled by an air exhaust system consisting of an air tight plenum chamber with a 3 phase exhaust fan located in the top of the chamber. The thyrister power module uses a slot in the control panel for natural convection cooling. The power transformer is located in the bottom of the control cabinet. A plenum is extended over and is sealed around the coils. The 3 phase exhaust fan is located at the top of the plenum and creates a differential pressure between the inside and outside of the chamber. This results in air being drawn through the transformer coil air ducts. A differential pressure relay monitors the operation of the fan.

Should the SCCR fan fail, a relay will deenergize and will activate gate pulse suppression to effectively shutdown the charger to prevent overheating. If the 3 phase transformer cooling fan fails, a time delay relay is activated and after a few seconds, the AC input breaker will trip open. A bypass contact allows the AC breaker to be closed on startup and activates the time delay to insure the fan is running soon after startup.

7.4.2 Controls 31, 32, and 35 Battery Chargers (Fig. 27.1.7.2)

AC INPUT BREAKER--this breaker connects the 480 volt MCC input to the battery charger.

DC OUTPUT BREAKER--this breaker connects the battery charger to the DC power panel

GROUND DET. RELAY RESET TOGGLE SWITCH--this switch is used to reset the ground detection relays after a ground condition has been corrected. It is necessary because the

relays once pulled in by a ground condition will not drop out since the drop out voltage is always less than the pull in voltage.

HV SHUTDOWN AND RESET TOGGLE SWITCH--this switch will reset the high voltage S/D alarm red light on the control panel, clear the input to the common alarm on supervisory panel SHF, and reset the HV S/D circuit for the battery charger. If the battery charger should trip again after it is reset, then I&C should be consulted.

FLOAT ADJUST--screw type adjust potentiometer used to adjust the nominal float voltage that the charger will maintain on the battery

EQUALIZE ADJUST--screw type adjust potentiometer used to adjust the equalizing voltage used when performing an equalizing charge on the battery

EQUALIZE/FLOAT SELECT TOGGLE SWITCH--this toggle switch has (2) positions, equalize and float, and is used to select which type of charge is being performed on the battery.

ALARM BYPASS TOGGLE SWITCHES--(6) toggle switches are provided under a class cover on the charger control panel to bypass individual alarm functions in the event of a spurious alarm circuit or for maintenance. The switches have (2) positions, normal and bypass. In normal, each of the alarm functions input to the common "BATTERY CHARGER TROUBLE" alarm on supv. panel SHF. In the bypass position, this alarms input to common BATTERY CHARGER TROUBLE ALARM on SHF is disabled and an amber light above the switch will light to alert the operator that the alarm is bypassed. This switch will not affect the local alarm buzzer on the charger control panel. The following alarms are inputs to

common alarm on SHF from 31 and 32 battery chargers:

LOW DC VOLTAGE
GROUNDS POS AND NEG
AC FAILURE
BATTERY DISCHARGE
OVERTEMPERATURE
CHARGER SHUTDOWN

COMMON ALARM BUZZER ON/OFF TOGGLE SWITCH--this switch is used to turn on and off the common alarm buzzer at the battery charger. An amber light above the switch will light when the switch is in the off position. This switch disables the local buzzer for the following alarms:

LOW DC VOLTAGE
GROUNDS POS AND NEG
AC FAILURE
BATTERY DISCHARGE
OVERTEMPERATURE

AC VOLTAGE SELECTOR SWITCH--this switch is used to select which voltage will be read on the AC volt meter. It's a (4) position switch, L1L2, L2L3, L3L1 and OFF.

AC AMPERAGE SELECTOR SWITCH--this switch is used to select which of the phases will be read on the AC ammeter. It's a (3) position switch, 1, 2, and 3.

7.4.3 Indications (31, 32, and 35 Chargers)

AC ON--a green light on the control panel indicating that AC

power is available at the charger (i.e. the AC input breaker is closed and power is available from the MCC).

AC FAILURE--a red light indicating that AC power to the charger has been lost.

DC VOLTAGE--a 0-200 volt meter that indicates the DC voltage out of the charger

DC AMPS--a 0-500 amp meter that indicates the DC load on the battery charger

GROUND DETECTION--(2) red lights are provided for ground detection, 1 for (+) ground and 1 for (-) ground which monitor the (+) and (-) terminal voltage to chassis ground. Normally with no ground present, both lights are out. If a ground condition develops, the light for the opposite polarity will light. Once the relay has been pulled in and the light lit for this type of ground detection circuit, the relay must be reset. This is done with the ground det. relay reset switch discussed in the controls section.

HIGH VOLTAGE SHUTDOWN--this is a red light on the control panel that will light if the charger has been shutdown due to high voltage. The setting is at 146 volts DC for both 31, 32 and 35 chargers. Once the charger is shutdown on high voltage the reset toggle is used to reset the charger to operation and clear the local and common category alarm on SHF. This alarm input to the common battery trouble alarm on SHF cannot be bypassed.

NOTE: NONE OF THE LOCAL ALARMS FOR 35 BATTERY CHARGER ARE WIRED INTO THE SUPERVISORY ALARM ON SHF

LOW VOLTAGE--a red light on the control panel to indicate that the DC output of the charger is below 106.5 volts.

OVERTEMP--a red light on the control panel to indicate an over temperature condition exists.

BATTERY DISCHARGE--an amber light on the control panel to indicate that the battery is no longer receiving charging current. This is done by monitoring the direction of current flow in a DC meter shunt connected in the main battery lead. When the polarity changes form negative to positive the alarm circuit is activated.

ALARM BYPASS LIGHTS--(6) amber lights on the control panel indicate the status of the alarm bypass toggle switches discussed in the controls section. The light for each of the following alarms will light if that respective alarms bypass switch is placed in the bypass position:

AC FAILURE
LOW DC VOLTAGE
BATTERY DISCHARGE
OVERTEMPERAURE
GND DET POSITIVE
GND DET NEGATIVE

COMMON ALARM BYPASS--this is an amber light associated with the common alarm bypass toggle switch discussed in the controls section. This light will light if the common alarm bypass toggle switch is placed in the off position.

AC VOLTMETER--this meter has a voltage range of 0-600 volts and indicates the phase to phase voltage for the phases selected by the selector switch. The choices are L1L2, L2L3, or L3L1.

AC AMMETER--this meter has a range of 0-150 amps and will indicate the amps for the phase selected by the selector switch. The choices are 1, 2, or 3.

7.4.4 Controls (33 and 34 Battery Chargers) (Fig. 27.1.7.3)

EQUALIZING CHARGE TIMER KEY SWITCH--this switch is used to select the charge mode of the charger, either float or equalizing charge voltage.

CHARGE/DISCHARGE KEY SWITCH--this switch is used to select either charge (float or equalizing) as determined by the CHARGE TIMER KEY SWITCH which is the normal position when the charger is in service. When the charger is to be shutdown, once both the AC input and DC output breakers are open, the switch is placed to the discharge position to discharge the capacitor bank. When placed in this position, a red light above the switch will light momentarily and then go out as the capacitors are discharged. The lamp is only a gross means of determining the charge state of the capacitor bank and cannot determine a partial discharge. Each set of capacitors should be checked individually before servicing.

ALARM BYPASS SWITCHES--(3) alarm bypass switches are provided to allow individual alarm functions to be bypassed in case of failure or for maintenance. They are 2 position, normal and bypass. In the normal position, the alarm function is an input to the common "BATTERY CHARGER TROUBLE" alarm on SHF. In the bypass position, this alarm input to the supervisory alarm is disabled and a common single white ALARM BYPASS LIGHT above the switches will light. The following alarm functions are inputs to the common alarm on SHF:

LOW DC VOLTAGE
GROUNDS
AC FAILURE

FLOATING VOLTAGE ADJUST--a screw type adjustment for setting the float voltage.

EQUALIZING VOLTAGE ADJUST--a screw type adjustment for setting the equalizing voltage.

ALARM SILENCE PUSHBUTTON--used to silence the audible local alarm buzzer on the charger control panel.

AC INPUT BREAKER--connects the charger to its AC power source.

DC OUTPUT BREAKER--connects the charger to the battery thru the DC power panel.

7.4.5 Indications 33 and 34 Chargers

GROUND DETECTION LIGHT--this is a red light that will light when the ground detection relay is energized indicating the presence of a ground. An audible alarm buzzer at the control panel will also sound.

LOW VOLTAGE LIGHT--this is a red light that will light to indicate that the DC output voltage of the charger has fallen below 116 volts DC.

AC INPUT INDICATING LIGHT--this is an amber light that will light to indicate that AC voltage is available at the charger after the AC input breaker is closed.

AUDIBLE ALARM BUZZER--this buzzer will sound on any charger alarm condition. It can be silenced by pressing the ALARM SILENCE PUSHBUTTON.

AC FAILURE ALARM LIGHT--this is a red light that will indicate a loss of voltage on the secondary windings of the main power transformer.

DC VOLTMETER--this is a 0-150 volt meter and will indicate the DC voltage out of the charger.

DC AMMETER--this is a 0-250 amp meter for 33 charger and a 0-200 amp meter on 34 charger. It will indicate the current being drawn from the charger by the DC load.

CHARGE/DISCHARGE LIGHT--this is a red light that will light momentarily when the CHARGE/DISCHARGE KEY SWITCH is placed in discharge. It will go out as the capacitor bank discharges.

ALARM BYPASS LIGHT--this is a white light that will light when any 1 of the 3 alarm bypass switches are placed in the bypass position.

8.0 INSTRUMENT BUS POWER SOURCES 118 VAC DISTRIBUTION (Fig. 27.1.8.1)

8.1 General Description

The 118 VAC instrument busses provide power to reactor protection and safeguards equipment and vital plant instrumentation so it is vital that they have a reliable source of power. This is accomplished by having each bus powered by a static inverter which is fed from the batteries or battery chargers via the DC

Westinghouse Electric Corporation
Relay and Telecommunications Division
Coral Springs, FL 33060

APPENDIX D
ATTACHMENT D-13
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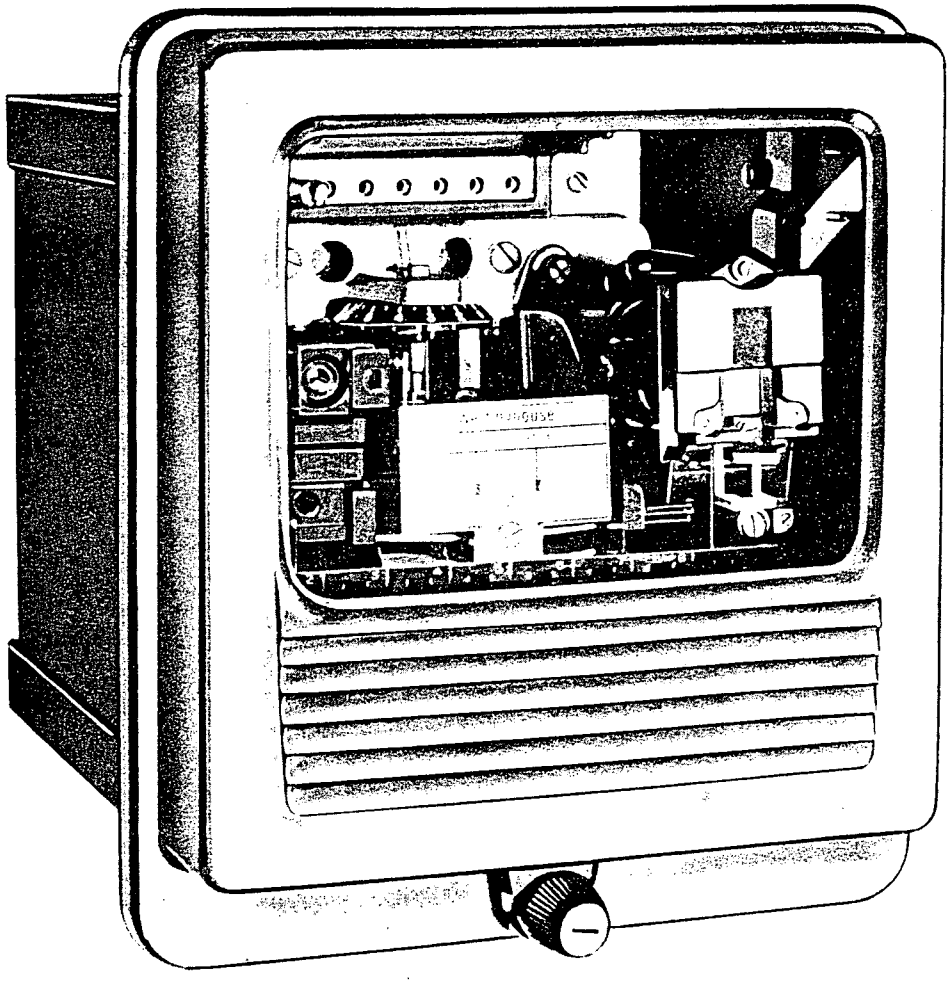
August, 1985
Supersedes RPD 41-241A1 dated
January, 1979
Mailed to: E, D, C/41-400B, 41-500B

Type CW Power Relays



Ordering Information

- Name the part and give its style number.
- Give the complete nameplate data.
- State method of shipment desired.
- Send all orders or correspondence to nearest sales office of the company.

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Type CW Relay in FT-11 Case①
Three Phase

Complete Relay Style Number	Volts	Watts	Contacts	Style Number of Part	
				Electromagnet	Moving Contact
1962190④	120	100-600	SPST	183A475G23	880A721G21
1962400④	120	20-120	SPST	183A475G22	880A721G20
1963182④	208	35-200	SPST	183A475G27	880A721G20
1963432	120	20-120	SPST	183A475G22	880A721G20
289B988A17	120	20-120	SPST	183A475G22	880A721G20
289B988A18	120	100-600	SPST	183A475G23	880A721G21
289B988A19	120	20-120	DPST	183A475G22	880A721G22
289B988A20	120	100-600	DPST	183A475G23	880A721G23
289B988A21	208	35-200	SPST	183A475G27	880A721G20
289B988A22	208	175-1000	SPST	183A475G28	880A721G21
289B988A23	120	20-120	SPDT	183A475G22	880A721G31
289B988A24	120	100-600	SPDT	183A475G23	880A721G39
289B988A25	240	35-200	SPST	876A509G05	880A721G20
289B988A26④	208	175-1000	SPST	183A475G28	880A721G21
289B988A31	120	20-120	SPST	183A475G22	880A721G20
774B464A10	120	20-120	SPST	183A475G22	880A721G20
774B464A12④	120	20-120	SPDT	183A475G22	880A721G31
774B464A14	120	100-600	SPST	183A475G23	880A721G21
774B464A15	208	35-200	SPST	183A475G27	880A721G20

Type CW Relay in FT-21 Case①
Single Phase

Complete Relay Style Number	Volts	Watts	Contacts	Style Number of Part	
				Electromagnet	Moving Contact
1962437④	120	20-120	SPST	183A475G22	880A721G25
1962637	120	20-120	SPST	183A475G22	880A721G40
1962715④	120	100-600	SPST	183A475G23	880A721G34
289B988A09	120	20-120	SPST	183A475G22	880A721G25
289B988A10	120	100-600	SPST	183A475G23	880A721G34
289B988A11	120	20-120	DPST	183A475G22	880A721G27
289B988A12	120	100-600	DPST	183A475G23	880A721G41
289B988A14③	120	20-120	SPST	183A475G22	880A718G15
289B988A15③	120	100-600	SPST	183A475G23	880A718G16
289B988A29④	240	200-1200	SPST	876A509G06	880A721G34
774B464A09④	120	20-120	SPST	184A475G22	880A718G15
774B464A13	120	100-600	SPST	184A475G23	880A718G16
774B464A16	120	20-120	SPST	184A475G22	880A721G25

① For Flexitest case parts refer to RPD 41-076A1.
③ Under power relay.
④ 50 Hz.

A Hachnet D-13
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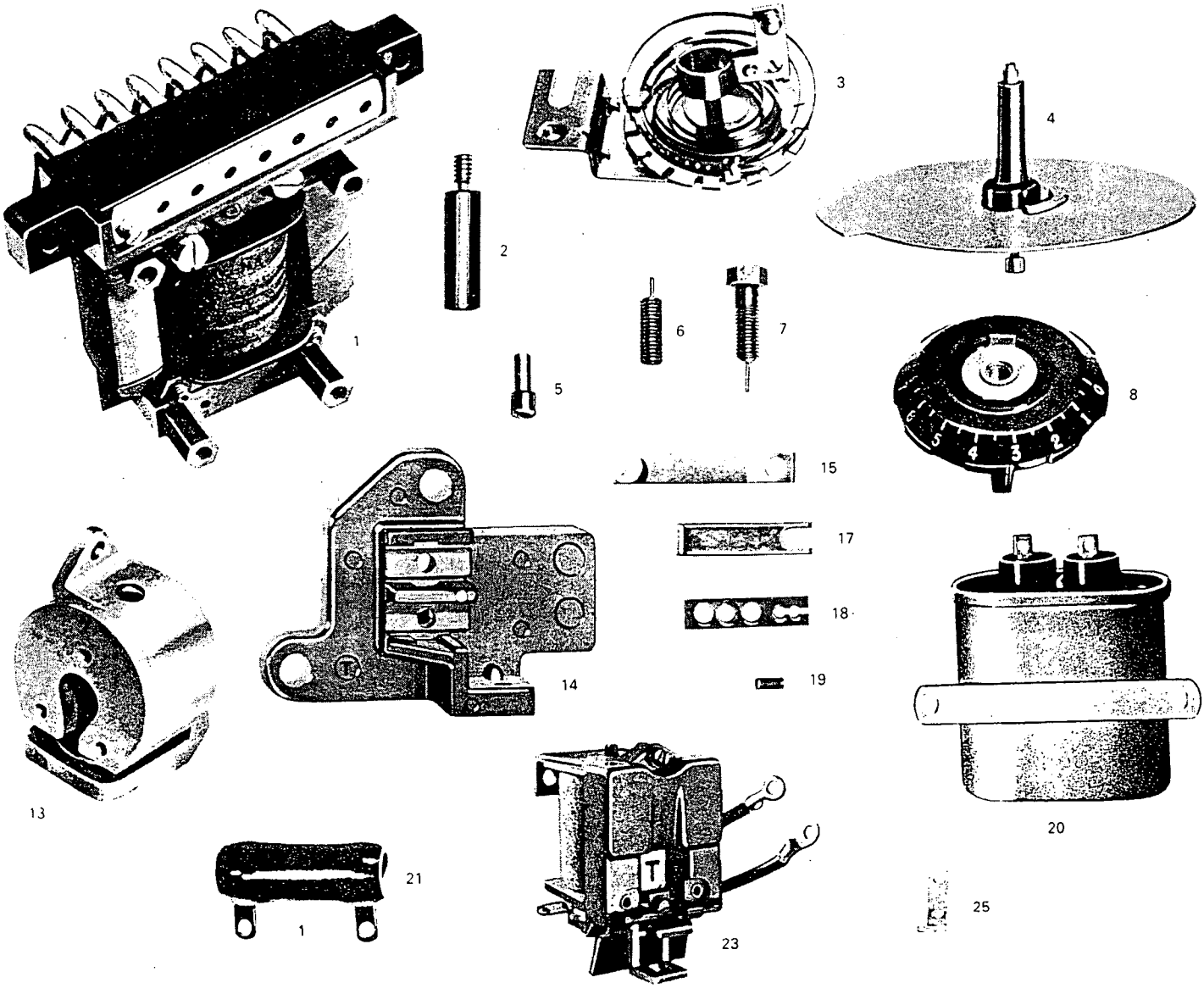

Ref. No.	Description of Part	Style Number
1	Electromagnet w tap Plate	See Table★
2	Tap Screw	1545282
3	Moving Contact Assembly	See Table★
4	Disc and Shaft Assembly	880A772G12
4	Disc and Shaft Assembly for Under Power Relays	880A772G21
5	Lower Bearing	184A440G01
6	Lower Bearing Screw	3499A37G09
7	Upper Bearing Screw	52D6291G03
8	Dial Assembly for SPST and DPST Relays	1878801
Δ 9	Dial Assembly for SPDT Relays	1875855
Δ10	Dial Assembly for SPDT Relays	52D6380G02
Δ11	Lead for SPDT	1537048
Δ12	Contact on Spring Assembly	1875701
13	Permanent Magnet (100W-600W); (175W-1000W); (200W-1200W)	1732777
13	Permanent Magnet (20W-120W); (35-200W)	1732780
14	Insulation Mounting Block for Stationary Contact	33B3110H02
15	Stationary Contact for SPST and SPDT Relays	1732776★

Ref. No.	Description of Part	Style Number
Δ16	Stationary Contact for DPST Relays	52D6280G02★⑤
17	Contact Plate for Single Trip Relays	1732759
18	Contact Plate for Double Trip Relays Only	818794⑤
19	Adjusting Screw Double Trip Relays Only	718931⑤
Δ20	Capacitor 4 MFD	1723407★
20	Capacitor 1.6 MFD	1875936★
21	Resistor 265 Ohms	1267273★
21	Resistor 800 Ohms	1202495★
Δ22	Reactor (20W-120W)	24A4948G27★
Δ22	Reactor (100W-600W)	24A4948G25★
Δ22	Reactor (200W-1200W)	24A4948G22★
23	ICS Unit (.2-2A Single Trip, Blank Target)	3491A37G17②★
23	ICS Unit (.2-2A Double Trip, Blank Target)	3491A37G18★②
24	ACS Unit (1A Single Trip, Blank Target)	3491A39G17②★
24	ACS Unit (1A Single Trip, "T" Target)	3491A39G15★②
24	ACS Unit (2A Single Trip, "T" Target)	3491A30G13②★
25	Stationary Contact for ICS & ACS Units	1732407★

NOTE: Parts indented are included in the part under which they are indented.

② For ICS and ACS parts refer to RPD 41-076A1.
⑤ Two (2) used.
Δ Not illustrated.
★ Recommended for stock.

Over or Reverse Power, 0.2/2.0 Amp DC Indicating Contactor Switch.<3>
(Device Number: 32, DB 41-262E)

Single Phase, Maximum Torque Angle: I in phase with V, FT- 21 Case.

	Relay Rating			Relay Data	
Type	Volts	Single Phase Watts	Contacts	Internal Schematic	Style Number
CW<1>	120	20-120	Spst-cc	183A773	289B988A09
		100-600			289B988A10
Single Unit Relay		20-120	Dpst-cc	183A774	289B988A11
		100-600			289B988A12

Three Phase, Maximum Torque Angle: I leads V by 30 degrees, FT- 11 Case.

	Relay Rating			Relay Data	
Type	Volts Line-Line	Three Phase Watts/1.7321	Contacts	Internal Schematic	Style Number
CW<1>	120	20-120	Spst-cc	183A776	<S>289B988A17
		100-600			289B988A18
Single Unit Relay	240	35-200	Spst-cc	183A776	289B988A25
	208	35-200	Spst-cc	183A776	289B988A21
		175-1000			289B988A22
	120	20-120	Dpst-cc	184A554	289B988A19
		100-600			289B988A20
	120	20-120	Spdt-cc and co<2>	629A173	289B988A23
		100-600			289B988A24

Under Power (Device Number: 32, DB 41-262E)
Single Phase, Maximum Torque Angle: I in phase with V, FT- 21 Case.

	Relay Rating			Relay Data	
Type	Volts	Single Phase Watts	Contacts	Internal Schematic	Style Number
CW<1> Single Unit Relay	120	20-120	Spst-co	184A954	<4>289B988A14
		100-600			<4>289B988A15

<S> Denotes item available from stock.
<4> 50-Hertz relays and auxiliaries can be supplied at same price. Order "Similar to Style Number ...., except 50 Hertz".
<2> Electrically common moving contact.
<3> ICS: Indicating Contactor Switch (dc current operated) having seal-in contacts and indicating target which are actuated when the ICS coil is energized at or above pickup current setting. Suitable for dc control

APPENDIX E

LIST OF ESSENTIAL RELAYS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** 480V SWGR 31						
	27-2A/X3	RELAY WHSE NBFD84S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-2A/X2	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	62-1/2A	TIME DELAY RELAY AGA TDPU 40 SEC.	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	62-2/2A	TIME DELAY RELAY AGA TDPU 2 SEC.	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-2A/X1	RELAY WHSE SG12V	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-2A/X4	RELAY WHSE SG12V	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-1/2A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-2/2A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	SI/2A1	RELAY WHSE BFD48S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	SI-21X/TRAIN 2	RELAY WHSE BFD120S	CCR RACK G-5	CB	53'-0"	GERS
	SI-11X/TRAIN 1	RELAY WHSE BFD120S	CCR RACK G-3	CB	53'-0"	GERS
	27-3A/X2	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	86/2A	RELAY WHSE WL	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	86/3A	RELAY WHSE WL	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-5A/X3	AUX RELAY BFD120S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	86/5A	RELAY WHSE WL	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	SI/2A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	SI/5A	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-5A/X2	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-5A/X4	RELAY WHSE SG12V	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-5A/X1	RELAY WHSE SG12V	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-1/5A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-2/5A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	62-1/5A	TIME DELAY RELAY AGA TDPU 40 SEC.	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	62-2/5A	TIME DELAY RELAY AGA TDPU 2 SEC.	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	SI/5A1	RELAY WHSE BFD48S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	62-1/3A	TIME DELAY RELAY AGA TDPU 40 SEC.	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	62-2/3A	TIME DELAY RELAY AGA TDPU 2 SEC.	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-3A/X3	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-3A/X1	RELAY WHSE SG12V	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-3A/X4	RELAY WHSE SG12V	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-1/3A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-2/3A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	SI/2A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	BFP/L	RELAY WHSE BFD22S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	OTS/A	OVERCURRENT TRIP ALARM CONTACTS	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	74/2A	RELAY WHSE BFD22S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-1/2A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-1/3A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-2/2A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-2/3A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-5/2A	RELAY WHSE BFD44S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-3A/X5	RELAY WHSE BFD24S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-3/2A1	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-3/2A2	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-3/3A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-3A/X1	RELAY SG12V	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	74/5A	RELAY WHSE BFD22S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	3-1/5A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	3-2/5A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	3-5/5A	RELAY WHSE BFD22S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	3-3/5A1	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	3-3/5A2	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	BFP/K	RELAY WHSE BFD44S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	86/EG1	RELAY WHSE WL	31EGD CONTROL PANEL PP9	DG	15'-0"	GERS
	27X1/EG1	RELAY MG-6	31EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	K1X/EG1	RELAY WHSE CR120A	31EDG CONTROL PANEL PP9	DG	15'-0"	GERS
** 480V SWGR 32						
	27-6A/X2	RELAY WHSE BFD120S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	62-1/6A	TIME DELAY RELAY AGA TDPU 40 SEC.	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	62-2/6A	TIME DELAY RELAY AGA TDPU 2 SEC.	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	27-6A/X3	RELAY WHSE BFD84S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	27-6A/X4	RELAY WHSE SG12V	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	27-6A/X1	RELAY WHSE SG12V	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	27-1/6A	RELAY WHSE CV-7	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	27-2/6A	RELAY WHSE CV-7	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	SI/6A1	RELAY WHSE BFD48S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	SI-21X/TRAIN 2	RELAY WHSE BFD120S	CCR RACK G-5	CB	53'-0"	GERS
	SI-11X/TRAIN 1	RELAY WHSE BFD120S	CCR RACK G-3	CB	53'-0"	GERS
	86/6A	RELAY WHSE WL	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	SI/6A	RELAY WHSE BFD84S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	74/6A	RELAY WHSE BFD22S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-1/6A	RELAY WHSE BFD120S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-2/6A	RELAY WHSE BFD80S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-5/6A	RELAY WHSE BFD22S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-3/6A1	RELAY WHSE BFD80S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-3/6A2	RELAY WHSE BFD80S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-4/6A	RELAY WHSE BFD22S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	1X/BFPT1	RELAY WHSE BFD22S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	BFP	RELAY WHSE BFD44S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	1X/BFPT2	RELAY WHSE BFD22S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	52a, 52b	SWITCHGEAR BREAKER AUX CONTACTS (MECHANICALLY ACTIVATED)	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
** MCC-32						
	3-3/3A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
** MCC-33						
	3-3/3A1	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
** MCC-34						
	27-2A/2X	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28M	CB	15'-0"	GERS
** MCC-36A						
	SI/5A	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
** MCC-36B						
	SI/6A	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 8H	CB	15'-0"	GERS
** MCC-36C						
	1/MCC6C	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	CCR PANEL SBF-1	CB	53'-0"	GERS
** MCC-37						
	3-3/6A2	RELAY WHSE BFD80S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
** MCC-38						
	3-3/5A2	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** MCC-39						
	3-3/5A2	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	52a/52/EG3	AUX CONTACT BREAKER 52/EG3	480V SWGR 31, COMPT. 18B	CB	15'-0"	GERS
** AC-0746						
	SI/5A1	RELAY WHSE BFD48S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
** AC-0747						
	SI/5A1	RELAY WHSE BFD48S	480 SWGR31, COMPT. 25H	CB	15'-0"	GERS
** AC-0899A						
	42/C	CLOSE CONTACTOR	MCC 36B, COMPT. 2FH	PA	55'-0"	GERS
	42/O	OPEN CONTACTOR	MCC 36B, COMPT. 2FH	PA	55'-0"	GERS
	SI/6A1	AUX RLY WHSE #BFD48S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
** AC-0899B						
	42/C	CLOSE CONTACTOR	MCC 36A, COMPT. 6RM	PA	55'-0"	GERS
	42/O	OPEN CONTACTOR	MCC 36A, COMPT. 6RM	PA	55'-0	GERS
	SI/6A1	AUX RLY WHSE #BFD48S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
** ABFP-31						
	2-1/TDC	TIME DELAY RELAY AGA 2412PC	480V SWGR 32, BUS 6A	CB	15'-0"	GERS
	TDC/AFPR1	TIME DELAY RELAY AGA 2412	CCR PANEL SC	CB	53'-0"	GERS
	AMSAC	RELAY	AMSAC CABINET	CB	53'-0"	GERS
	3-1/3A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-3A/X3	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-2/3A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	BFP-K	RELAY WHSE BFD44S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	BFP	RELAY WHSE BFD44S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** ABFP-33						
	2-1/TDC	TIME DELAY RELAY AGA 7014PD	480V SWGR 32, COMPT. 11D	CB	15'-0"	GERS
	TDC/AFPR3	TIME DELAY RELAY AGA 2412	CCR PANEL SC	CB	53'-0"	GERS
	AMSAC	RELAY	AMSAC CABINET	CB	53'-0"	GERS
	3-1/6A	RELAY WHSE BFD40S	480V SWGR 31	CB	15'-0"	GERS
	27-6A/X3	RELAY WHSE BFD84S	480V SWGR 31	CB	15'-0"	GERS
	3-2/6A	RELAY WHSE BFD40S	480V SWGR 31	CB	15'-0"	GERS
	BFP-K	RELAY WHSE BFD44S	480V SWGR 31	CB	15'-0"	GERS
** BFD-FCV-1121						
	1X/AF1	RELAY WHSE NBFD66S	CCR PANEL SC	CB	53'-0"	GERS:
** BFD-FCV-1123						
	1X/AF3	RELAY WHSE NBFD66S	CCR PANEL SC	CB	53'-0"	GERS
** AC-793						
	C-A11X	RELAY WHSE BFD48S	CCR RACK G-4	CB	53'-0"	GERS
** AC-FCV-625						
	C-B11X	RELAY WHSE BFD66S	CCR RACK G-4	CB	53'-0"	GERS
** ACAPCC1						
	2CC1-2	TIME DELAY RELAY AGA 2412PD	480V SWGR 31, COMPT. 21A	CB	15'-0"	GERS
	2CC1-1	TIME DELAY RELAY AGA 2412PC	480V SWGR 31, COMPT. 21A	CB	15'-0"	GERS
	86	RELAY WHSE BFD22S	480V SWGR 31, COMPT. 21A	CB	15'-0"	GERS
	2CC1	TIME DELAY RELAY AGA 2412PC	480V SWGR 31, COMPT. 21A	CB	15'-0"	GERS
	3-1/5A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-5A/X3	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	3-2/5A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	SI/5A1	RELAY WHSE BFD48S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	3-3/5A2	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	PC-600AX	RELAY WHSE BFD66F	CCR RACK G-2	CB	53'-0"	GERS
	PC-600BX	RELAY WHSE BFD66F	CCR RACK G-2	CB	53'-0"	GERS
	52 CC2X	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	52 CC3X	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	52 SWX	RELAY WHSE BFD66S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
** ACAPCC2						
	2CC2-2	TIME DELAY RELAY AGA 2412S	480V SWGR 31, COMPT. 30A	CB	15'-0"	GERS
	86	RELAY WHSE BFD22S	480V SWGR 31, COMPT. 30A	CB	15'-0"	GERS
	52 SWX	RELAY WHSE BFD66S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	52 CC3X	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-2A/X2	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28	CB	15'-0"	GERS
	3-2/2A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28	CB	15'-0"	GERS
	3-1/2A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28	CB	15'-0"	GERS
	3-3/2A1	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 28	CB	15'-0"	GERS
	SI/2A1	RELAY WHSE BFD48S	480V SWGR 31, COMPT. 28	CB	15'-0"	GERS
	2CC2	TIME DELAY RELAY AGA 2412	480V SWGR31, COMPT. 30A	CB	15'-0"	GERS
** ACAPCC3						
	2CC3-2	TIME DELAY RELAY AGA 2412PD	480V SWGR 32, COMPT. 15A	CB	15'-0"	GERS
	86	RELAY WHSE BFD32S	480V SWGR 32, COMPT. 15A	CB	15'-0"	GERS
	27-6A/X3	RELAY WHSE BFD84S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	SI/6A1	RELAY WHSE BFD48S	480V SWGR 32, COMPT. 8H	CB	53'-0"	GERS
	3-2/6A	RELAY WHSE BFD80S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-1/6A	RELAY WHSE BFD120S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-3/6A2	RELAY WHSE BFD80S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** CH-201						
	C-A11X	RELAY WHSE BFD48S	CCR RACK G-4	CB	53'-0"	GERS
** CH-202						
	C-A21X	RELAY WHSE BFD48S	CCR RACK G-6	CB	53'-0"	GERS
** CH-AOV-200A						
	C-A11X	RELAY WHSE BFD48S	CCR RACK G-4	CB	53'-0"	GERS
** CH-AOV-200B						
	C-A11X	RELAY WHSE BFD48S	CCR RACK G-4	CB	53'-0"	GERS
** CH-AOV-200C						
	C-A11X	RELAY WHSE BFD48S	CCR RACK G-4	CB	53'-0"	GERS
** CH-FCV-110A						
	LC-112BX	AUX RELAY BF22F	CCR RACK G-2	CB	53'-0"	GERS
	BSX-1	RELAY WHSE BFD66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-2	RELAY WHSE BFD66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-3	RELAY WHSE BFD66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-4	RELAY WHSE BFD84	CCR RACK G-2	CB	53'-0"	GERS
** CH-FCV-110B						
	BSX-2	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-4X1	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-1	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-3	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
** CH-FCV-111A						
	BSX-1	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	BSX-2	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-3	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-4	RELAY WHSE BF84	CCR RACK G-2	CB	53'-0"	GERS
** CH-FCV-111B						
	BSX-1	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-3	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-2	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
** CH-LCV-112B						
	LC-112C/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
** CH-LCV-112C						
	LC-112C/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
** CH-MOV-222						
	42/C	OPEN CONTACTOR	MCC 36A, COMPT. 1RM	PA	55'-0"	GERS
	42/O	CLOSE CONTACTOR	MCC 36A, COMPT. 1RM	PA	55'-0"	GERS
	C-B11X	RELAY WHSE BFD66S	CCR RACK G-4	CB	53'-0"	GERS
	C-B21X	RELAY WHSE BFD66S	CCR RACK G-6	CB	53'-0"	GERS
** CH-MOV-333						
	42a/O	CONTACTOR AUX CONTACT	MCC 36B, COMPT. 1RM	PA	55'-0"	GERS
	42a/C	CONTACTOR AUX CONTACT	MCC 36B, COMPT. 1RM	PA	55'-0"	GERS
** CSAPBA1						
	BSX-1	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-2	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-3	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-4	RELAY WHSE BF84	CCR RACK G-2	CB	53'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	LC-112BX	RELAY WHSE BF22	CCR RACK G-2	CB	53'-0"	GERS
	YIC-111	DEMIN. WATER COUNTER	CCR PANEL FBF	CB	53'-0"	GERS
	42(S),42(F),42b(S),42b(F) ,42a(F)	MOTOR STARTER CONTACTS	MCC 36A, COMPT. 7RH	PA	55'-0"	GERS
** CSAPBA2						
	BSX-1	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-2	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-3	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-4	RELAY WHSE BF84	CCR RACK G-2	CB	53'-0"	GERS
	LC-112BX	RELAY WHSE BF22	CCR RACK G-2	CB	53'-0"	GERS
	YIC-111	DEMIN. WATER COUNTER	CCR PANEL FBF	CB	53'-0"	GERS
	42(S),42(F),42b(S),42b(F) ,42a(F)	MOTOR STARTER CONTACTS	MCC 36B, COMPT. 7RH	PA	55'-0"	GERS
** CSAPCH1						
	2C1	TIME DELAY RELAY AGA 2412	LOCAL	PA	55'-0"	GERS
	63-1	BEARING OIL PRESSURE SWITCH A.B. BULLETION 836-T	LOCAL	PA	55'-0"	GERS
	SI-11X	RELAY WHSE BFD120S	CCR RACK G-3	CB	53'-0"	GERS
	SI-5A	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-5A/X2	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-5A/X3	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	3-3/5A1	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-5A/X1	RELAY WHSE SG12V	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-5A/X4	RELAY WHSE SG12V	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-1/5A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-2/5A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** CSAPCH2						
	3-3/3A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-3A/X5	RELAY WHSE NBFD24S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-3A/X3	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-3A/X2	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-3A/X1	RELAY WHSE SG12V	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-3A/X4	RELAY WHSE SG12V	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-1/3A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-2/3A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	SI/2A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	2C2	TIME DELAY RLY AGA 2412PD	480V SWGR 32, COMPT. 5A	CB	15'-0"	GERS
	SI-11X	RELAY WHSE BFD120S	CCR RACK G-3	CB	53'-0"	GERS
	SI-21X	RELAY WHSE BFD120S	CCR RACK G-5	CB	53'-0"	GERS
	63	BEARING OIL PRESSURE SWITCH A.B. BULLETION 836-T	LOCAL	PA	55'-0"	GERS
** CSAPCH3						
	3-3/6A2	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-6A/X3	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-6A/X2	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-6A/X1	RELAY WHSE SG12V	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-6A/X4	RELAY WHSE SG12V	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-1/6A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-2/6A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	SI/6A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	2C3	TIME DELAY RELAY AGA 2412PD	480V SWGR 32, COMPT. 5A	CB	15'-0"	GERS
	SI-21X	RELAY WHSE BFD120S	CCR RACK G-5	CB	53'-0"	GERS
	63	BEARING OIL PRESSURE SWITCH A.B. BULLETION 836-T	LOCAL	PA	55'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** DG-31						
	RR/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	NST/EG1	TIME DELAY RELAY AGA 7022PF	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	OPT2/EG1	TIME DELAY RELAY AGA 2412PD	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	OPT1/EG1	TIME DELAY RELAY AGA 2412PD	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	OSR/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	OPR1/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	86/EG1	RELAY WHSE WL	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	OCR/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	SDR/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	32/EG1	CURRENT SENSING RELAY WHSE CW 2892988A17A	31 EDG CONTROL PANEL PP9	DG	15'-0"	TEST
	32X/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	51V-3/EG1	OVERCURRENT RELAY WHSE COV-8	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	51V-1/EG1	OVERCURRENT RELAY WHSE COV-8	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	ESR1/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	PDT	TIME DELAY AGA 2412PF	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	ESR2/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	RSIS	RELAY GOULD J13P20	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	ESR-11/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	ESR21/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	SI-23X	RELAY WHSE BFD48S	CCR RACK G-5	CB	53'-0"	GERS
	CR1/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	51V-2/EG1	OVERCURRENT RELAY WHSE COV-8	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	CR2/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	SI-21X	RELAY WHSE BFD120S	CCR RACK G-5	CB	53'-0"	GERS
	BG1R/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	SI-11X	RELAY WHSE BFD120S	CCR RACK G-3	CB	53'-0"	GERS
	SI-13X	RELAY WHSE BFD48S	CCR RACK G-3	CB	53'-0"	GERS
	51VX/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	27-2A/X1	RELAY WHSE SG	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-2A/X4	RELAY WHSE SG	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-2A/X3	RELAY WHSE NBFD84S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	OCT1/EG1	TIME DELAY RELAY AGA 2412PD	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	OCT2/EG1	TIME DELAY RELAY AGA 2412PD	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	86X/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	K1/EG1	RELAY WHSE M101	EDG VOLT. REG RELAY PNL31	DG	10'-0"	CR
	K4/EG1	BREAKER CLOSURE RELAY WHSE Z	EDG VOLT. REG RELAY PNL31	DG	10'-0"	CR
	86/2A	RELAY WHSE WL	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	R1/EG1	RELAY WHSE BFD22S	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	27X1/EG1	UNDERVOLTAGE RELAY MG6	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	R2/EG1	RELAY WHSE BFD22S	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	*VBR/EG1	VOLTAGE BUILDUP RELAY WHSE CV-7	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	K1X/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	3-3/2A	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	K2/EG1	RELAY WHSE M110	EDG VOLT. REG RELAY PNL31	DG	10'-0"	CR
	27-2A/X2	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	K3/EG1	RELAY WHSE Z	EDG VOLT. REG RELAY PNL31	DG	10'-0"	CR
	51GX/EG1	RELAY GE CR120A	31 EDG CONTROL PANEL PP9	DG	15'-0"	GERS
	27-1/2A	RELAY WHSE CV-7	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	27-2/2A	RELAY WHSE CV-7	480V SWGR31, COMPT. 28H	CB	15'-0"	GERS
** DG-32						
	RR/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	NST/EG2	TIME DELAY RELAY AGA 2422PF	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	OPT2/EG2	TIME DELAY RELAY AGA 2412PD	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	OPT1/EG2	TIME DELAY RELAY AGA 2412PD	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	OSR/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	OPR1/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	86/EG2	RELAY WHSE WL	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	OCR/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	SDR/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	32/EG2	CURRENT SENSING RELAY WHSE CW 2892988A17A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	TEST
	32X/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	51V-3/EG2	OVERCURRENT RELAY WHSE COV-8	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	51V-1/EG2	OVERCURRENT RELAY WHSE COV-8	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	ESR1/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	PDT/EG2	TIME DELAY RELAY AGA 2412PF	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	ESR2/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	RSIS/EG2	RELAY GOULD J13P20	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	ESR-11/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	ESR21/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	SI-23X/EG2	RELAY WHSE BFD48S	CCR RACK G-5	CB	53'-0"	GERS
	CR1/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	51V-2/EG2	OVERCURRENT RELAY WHSE COV-8	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	CR2/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	BG1R/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	51VX/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	27-6A/X1	RELAY WHSE SG	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	27-6A/X4	RELAY WHSE SG	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	27-6A/X3	RELAY WHSE BFD84S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	OCT1/EG2	TIME DELAY RELAY AGA 2412PD	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	OCT2/EG2	TIME DELAY RELAY AGA 2412PD	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	86X/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	K1/EG2	RELAY WHSE M101	EDG VOLT. REG RELAY PNL32	DG	10'-0"	CR
	K4/EG2	BREAKER CLOSURE RELAY WHSE Z	EDG VOLT. REG RELAY PNL32	DG	10'-0"	CR
	86/6A	RELAY WHSE WL	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	R1/EG2	RELAY WHSE BFD22S	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	27X1/EG2	UNDERVOLTAGE RELAY MG6	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	R2/EG2	RELAY WHSE BFD22S	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	*VBR/EG2	VOLTAGE BUILDUP RELAY WHSE CV-7	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	K1X/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	K2/EG2	RELAY WHSE M110	EDG VOLT. REG RELAY PNL32	DG	10'-0"	CR
	27-6A/X2	RELAY WHSE BFD120S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	K3/EG2	RELAY WHSE Z	EDG VOLT. REG RELAY PNL32	DG	10'-0"	CR
	51GX/EG2	RELAY GE CR120A	32 EDG CONTROL PANEL PQ1	DG	15'-0"	GERS
	27-1/6A	RELAY WHSE CV-7	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
** DG-33						
	RR/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	NST/EG3	TIME DELAY RELAY AGA 2422PF	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	OPT2/EG3	TIME DELAY RELAY AGA 2412PD	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	OPT1/EG3	TIME DELAY RELAY AGA 2412PD	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	OSR/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	OPR1/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	86/EG3	RELAY WHSE WL	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	OCR/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	SDR/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	32/EG3	CURRENT SENSING RELAY WHSE CW 2892988A17A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	TEST
	32X/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	51V-3/EG3	OVERCURRENT RELAY WHSE COV-8	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	51V-1/EG3	OVERCURRENT RELAY WHSE COV-8	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	ESR1/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	PDT/EG3	TIME DELAY RELAY AGA 2412PF	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	ESR2/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	RSIS/EG3	RELAY GOULD J13P20	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	ESR-11/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	ESR-21/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	BCS-5A	PULOUT TO LOCKOUT BUS 2A - XFORM. BRKR. TRIP AND CLOSE SW	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	SI-13X/EG2	RELAY WHSE BFD84S	CCR RACK G-3	CB	53'-0"	GERS
	CR1/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	51V-2/EG3	OVERCURRENT RELAY WHSE COV-8	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	CR2/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	BG1R/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	51VX/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	27-5A/X1	RELAY WHSE SG	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-5A/X4	RELAY WHSE SG	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-5A/X3	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	OCT1/EG3	TIME DELAY RELAY AGA 2412PD	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	OCT2/EG3	TIME DELAY RELAY AGA 2412PD	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	86X/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	K1/EG3	RELAY WHSE M101	EDG VOLT. REG RELAY PNL33	DG	10'-0"	CR
	K4/EG3	BREAKER CLOSURE RELAY WHSE Z	EDG VOLT. REG RELAY PNL33	DG	10'-0"	CR
	86/5A	RELAY WHSE WL	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	R1/EG3	RELAY WHSE BFD22S	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	27X1/EG3	UNDERVOLTAGE RELAY MG6	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	R2/EG3	RELAY WHSE BFD22S	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	*VBR/EG3	VOLTAGE BUILDUP RELAY WHSE CV-7	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	K1X/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS
	K2/EG3	RELAY WHSE M110	EDG VOLT. REG RELAY PNL33	DG	10'-0"	CR
	3-3/5A1	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	27-5A/X2	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	K3/EG3	RELAY WHSE Z	EDG VOLT. REG RELAY PNL33	DG	10'-0"	CR
	51GX/EG3	RELAY GE CR120A	33 EDG CONTROL PANEL PQ2	DG	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	27-1/5A	RELAY WHSE CV-7	480V SWGR 31,COMPT. 25H	CB	15'-0"	GERS
	SI-5A	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
** 0031CRFU						
	2/CRF1	TIME DELAY RELAY AGA 2412PD	480V SWGR 31	CB	15'-0"	GERS
	27-5A/X3	RELAY WHSE BFD120S	480V SWGR 31	CB	15'-0"	GERS
	3-1/5A	RELAY WHSE BFD120S	480V SWGR 31	CB	15'-0"	GERS
** 0031ETEF						
	R1	RELAY WHSE BFD22S	DELUGE SYS CTRL PNL PY3	ET	34'-0"	GERS
	42a, 42b	MOTOR STARTER AUX CONTACTS	MCC 36A	PA	55'-0"	GERS
	R2	RELAY WHSE BFD22S	DELUGE SYS CTRL PNL PY4	ET	34'-0"	GERS
	42	MOTOR STARTER CONTACTS	MCC 36A	PA	55'-0"	GERS
** 0032CRFU						
	2/CRF2	TIME DELAY RELAY AGA 2412PD	480V SWGR 31, COMPT. 12A	CB	15'-0"	GERS
	27-2A/X2	RELAY WHSE BFD44S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-1/2A	RELAY WHSE BFD120S	480V SWGR 31	CB	15'-0"	GERS
** 0032ETEF						
	R2	RELAY WHSE BFD22S	DELUGE SYS CTRL PNL PY4	ET	34'-0"	GERS
	R1	RELAY WHSE BFD22S	DELUGE SYS CTRL PNL PY3	ET	34'-0"	GERS
	42	MOTOR STARTER CONTACTS	MCC 36B	PA	55'-0"	GERS
	42a, 42b	MOTOR STARTER AUX CONTACTS	MCC 36B	PA	55'-0"	GERS
** 0033CRFU						
	2/CRF3	TIME DELAY RELAY AGA 2412PD	480V SWGR 31, COMPT. 22A	CB	15'-0"	GERS
	27-5A/X3	RELAY WHSE BFD84S	480V SWGR 31	CB	15'-0"	GERS
	3-1/5A	RELAY WHSE BFD120S	480V SWGR 31	CB	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** 0033ETEF						
	R3	AUX RELAY BFD22S	DELUGE SYS CTRL PNL PY5	ET	34'-0"	GERS
	R4	AUX RELAY BFD22S	DELUGE SYS CTRL PNL PY6	ET	34'-0"	GERS
	42	MOTOR STARTER CONTACTS	MCC 36A	PA	55'-0"	GERS
	42a, 42b	MOTOR STARTER AUX CONTACTS	MCC 36A	PA	55'-0"	GERS
** 0034CRFU						
	27-3A/X2	RELAY WHSE BFD120S	480V SWGR 31	CB	15'-0"	GERS
	2/CRF4	TIME DELAY RELAY AGA 2414PD	480V SWGR 31	CB	53'-0"	GERS
** 0034ETEF						
	R3	AUX RELAY BFD22S	DELUGE SYS CTRL PNL PY5	ET	34'-0"	GERS
	R4	AUX RELAY BFD22S	DELUGE SYS CTRL PNL PY6	ET	34'-0"	GERS
	42	MOTOR STARTER CONTACTS	MCC 36B	PA	55'-0"	GERS
	42a, 42b	MOTOR STARTER AUX CONTACTS	MCC 36B	PA	55'-0"	GERS
** 0035CRFU						
	3-1/6A	RELAY WHSE CV-7	480V SWGR 32	CB	15'-0"	GERS
	2/CRF5	TIME DELAY RELAY AGA 2412PD	CCR RACK G-2	CB	53'-0"	GERS
	27-6A/X2	RELAY WHSE BFD120S	480V SWGR 32	CB	15'-0"	GERS
** 31 PABEF						
	BF444/CBP31	WHSE RELAY	FAN ROOM CONTROL PNL JC1	FR	80'-0"	GERS
	42b/CBPF	MOTOR STARTER CONTACT	480V MCC 37	PA	55'-0"	GERS
	42b/PABSF	MOTOR STARTER CONTACT	480V MCC 37	PA	55'-0"	GERS
** 31CRDF						
	42, 42a, 42b	MOTOR STARTER CONTACTS	MCC 38, COMPT. 2D	VC	68'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** 32 PABEF						
	BF44/CBP32	WHSE RELAY	FAN ROOM CONTROL PNL JC1	FR	80'-0"	GERS
	42b/CBPF	MOTOR STARTER CONTACT	480V MCC 37	PA	55'-0"	GERS
	42b/PABSF	MOTOR STARTER CONTACT	480V MCC 37	PA	55'-0"	GERS
	3-3/6A1	RELAY WHSE BFD80S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
** 32CRDF						
	42, 42a, 42b	MOTOR STARTER CONTACTS	MCC 38, COMPT. 2F	VC	68'-0"	GERS
** 33CRDF						
	42, 42a, 42b	MOTOR STARTER CONTACTS	MCC 38, COMPT. 2H	VC	68'-0"	GERS
** 34CRDF						
	42, 42a, 42b	MOTOR STARTER CONTACTS	MCC 38, COMP. 2K	CB	68'-0"	GERS
** ACU31						
	RF1	RELAY WHSE BF22F	ACU31	CB	15'-0"	GERS
** ACU32						
	RF2	RELAY WHSE BF22F	ACU32	CB	15'-0"	GERS
	432	RELAY WHSE BF22F	ACU32	CB	15'-0"	GERS
** PABSF						
	42, 42b	MOTOR STARTER CONTACTS	MCC37, COMPT 1FE	PA	55'-0"	GERS
** 0031 IAC						
	42, 42a, 42b	MOTOR STARTER CONTACTS	MCC 39	CB	33'-0"	GERS
** 0031CLWP						
	42, 42a, 42b	MOTOR STARTER CONTACTS	MCC 39, COMPT. 4K	CB	33'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** 0032 IAC						
	42, 42a, 42b	MOTOR STARTER CONTACTS	MCC 34	TB	33'-0"	GERS
** 0032CLWP						
	42, 42a, 42b	MOTOR STARTER CONTACTS	MCC 34	TB	15'-0"	GERS
** SOV-1428						
	C-A13X	RELAY WHSE BFD48S	CCR RACK G-4	CB	53'-0"	GERS
	C-A23X	RELAY WHSE BFD48S	CCR RACK G-6	CB	53'-0"	GERS
** PCV-1139						
	AMSAC	RELAY	AMSAC CABINET	CB	15'-0"	GERS
** 31PWMUP						
	BSX-1	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-2	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-3	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-4	RELAY WHSE BF84	CCR RACK G-2	CB	53'-0"	GERS
	LC-112BX	RELAY WHSE BF22	CCR RACK G-2	CB	53'-0"	GERS
	42/PWMP31, 42a	MOTOR STARTER CONTACTS	MCC-37, COMPT. 6RK	PA	55'-0"	GERS
** 32PWMUP						
	BSX-1	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-2	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-3	RELAY WHSE BF66	CCR RACK G-2	CB	53'-0"	GERS
	BSX-4	RELAY WHSE BF84	CCR RACK G-2	CB	53'-0"	GERS
	LC-112BX	RELAY WHSE BF22	CCR RACK G-2	CB	53'-0"	GERS
	42/PWMP32, 42a	MOTOR STARTER CONTACTS	MCC-37, COMPT. 5RK	PA	55'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** G-2						
	PC-455F/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	PC-455I/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-455J/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	PC-456F/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	PC-456G/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-457F/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-472/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-474B/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	71-SG1/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	71-SG2/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	71-SG3/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	71-SG4/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	TC-412/I-X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-412/K-X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-412/L-X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-412/L-X-2	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	LC-106A/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-SAT-2	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-412/QX	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-412/RX	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	P5	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	LC-112A/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	LC-112B/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	LC-112C/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	TC-103/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-107/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-122/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-127/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-129/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	TC-140/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-602A/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-917A/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TC-917B/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	LC-628A/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	TURB.A	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-124/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-131/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-135B/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-139/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-145/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-919/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-602B/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-600A/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	PC-600B/X	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	YC-110/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	YC-111/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-183/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-186/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-187/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	PC-188/X	RELAY WHSE BF22F	CCR RACK G-2	CB	53'-0"	GERS
	BSX/1	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	BSX/2	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	BSX/3	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	BSX/4	RELAY WHSE BF84F	CCR RACK G-2	CB	53'-0"	GERS
	BSX/4X1	RELAY WHSE BF66F	CCR RACK G-2	CB	53'-0"	GERS
	2-BSX/6	TIME DELAY RELAY AGA 2414AD	CCR RACK G-2	CB	53'-0"	GERS
	2-BSX/7	TIME DELAY RELAY AGA 2414AD	CCR RACK G-2	CB	53'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** PBU1						
	3-3/3A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	86	RELAY WHSE BFD22S	480V SWGR 32, COMPT. 4A	CB	15'-0"	GERS
** PBU2						
	3-3/2A2	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	86	RELAY WHSE BFD22S	480V SWGR 31, COMPT. 30A	CB	15'-0"	GERS
** PBU3						
	3-3/5A2	RELAY WHSE BFD80S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	86	RELAY WHSE BFD22S	480V SWGR 31, COMPT. 20A	CB	15'-0"	GERS
** ACAPRH1						
	27-3A/X2	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	53'-0"	GERS
	2/RHR1	TIME DELAY RELAY AGA 2412PD	480V SWGR 32, COMPT. 5A	CB	53'-0"	GERS
	3-1/3A	RELAY WHSE BFD120S	CCR RACK G-2	CB	53'-0"	GERS
** ACAPRH2						
	27-6A/X2	RELAY WHSE BFD120S	480V SWGR 32, COMPT. 8H	CB	53'-0"	GERS
	2/RHR2	TIME DELAY RELAY AGA 2412PD	CCR RACK G-2	CB	53'-0"	GERS
	3-1/6A	RELAY WHSE BFD120S	CCR RACK G-2	CB	53'-0"	GERS
** SI-0885A						
	42ao,42ac,42b,42bc	CONTACTOR AUX CONTACTS	MCC 36A	PA	55'-0"	GERS
** SI-0885B						
	42ao,42ac,42bo,42bc	CONTACTOR AUX CONTACTS	MCC 36B	PA	55'-0"	GERS
** SI-0889A						
	42ac,42ao,42bc,42bo	CONTACTOR AUX CONTACTS	MCC 36A	PA	55'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** SI-0889B						
	42/C	CLOSE CONTACTOR	MCC 36B	PA	55'-0"	GERS
	42/O	OPEN CONTACTOR	MCC 36B	PA	55'-0"	GERS
	42ac,42ao,42bc,42bo	CONTACTOR AUX CONTACTS	MCC 36B	PA	55'-0"	GERS
** SI-0894A						
	42/C	CLOSE CONTACTOR	MCC 36A	PA	55'-0"	GERS
	42/O	OPEN CONTACTOR	MCC 36A	PA	55'-0"	GERS
	42ac,42ao,42bc,42bo	CONTACTOR AUX CONTACTS	MCC 36A	PA	55'-0"	GERS
** SI-0894B						
	42/C	CLOSE CONTACTOR	MCC 36B	PA	55'-0"	GERS
	42/O	OPEN CONTACTOR	MCC 36B	PA	55'-0"	GERS
	42ac,42ao,42bc,42bo	CONTACTOR AUX CONTACTS	MCC 36B	PA	55'-0"	GERS
** SI-0894C						
	42/C	CLOSE CONTACTOR	MCC 36A	PA	55'-0"	GERS
	42/O	OPEN CONTACTOR	MCC 36A	PA	55'-0"	GERS
	42ac,42ao,42bc,42bo	CONTACTOR AUX CONTACTS	MCC 36A	PA	55'-0"	GERS
** SI-0894D						
	42/C	CLOSE CONTACTOR	MCC 36B	PA	55'-0"	GERS
	42/O	OPEN CONTACTOR	MCC 36B	PA	55'-0"	GERS
	42ac,42ao,42bc,42bo	CONTACTOR AUX CONTACTS	MCC 36B	PA	55'-0"	GERS
** SI-1802A						
	42/C	CLOSE CONTACTOR	MCC 36A	PA	55'-0"	GERS
	42/O	OPEN CONTACTOR	MCC 36A	PA	55'-0"	GERS
	42ac,42ao,42bc,42bo	CONTACTOR AUX CONTACTS	MCC 36A	PA	55'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** SI-1802B						
	42/C	CLOSE CONTACTOR	MCC 36B	PA	55'-0"	GERS
	42/O	OPEN CONTACTOR	MCC 36B	PA	55'-0"	GERS
	42ac,42ao,42bc,42bo	CONTACTOR AUX CONTACTS	MCC 36B	PA	55'-0"	GERS
** SI-HCV-638						
	42/C	CLOSE CONTACTOR	MCC 36B	PA	55'-0"	GERS
	42/O	OPEN CONTACTOR	MCC 36B	PA	55'-0"	GERS
** SI-HCV-640						
	42/C	CLOSE CONTACTOR	MCC 36A	PA	55'-0"	GERS
	42/O	OPEN CONTACTOR	MCC 36A	PA	55'-0"	GERS
** 31 SW PUMP						
	27-5A/X3	RELAY WHSE BFD120S	480V SWGR 31, COMPT.25H	CB	15'-0"	GERS
	3-4/5A	RELAY WHSE BFD22S	480V SWGR 31, COMPT.25H	CB	15'-0"	GERS
	3-1/5A	RELAY WHSE BFD120S	480V SWGR 31, COMPT.25H	CB	15'-0"	GERS
	3-2/5A	RELAY WHSE BFD40S	480V SWGR 31, COMPT.25H	CB	15'-0"	GERS
	SI/5A	RELAY WHSE BFD84S	480V SWGR 31, COMPT.25H	CB	15'-0"	GERS
** 32 SW PUMP						
	27-2A/X2	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-1/2A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	SI/2A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-2/2A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
** 33 SW PUMP						
	27-6A/X2	RELAY WHSE BFD120S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	SI/6A	RELAY WHSE BFD84S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
ESSENTIAL RELAYS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	3-1/6A	RELAY WHSE BFD120S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-2/6A	RELAY WHSE BFD80S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-4/6A	RELAY WHSE BFD22S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
** 34 SW PUMP						
	27-5A/X3	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	SI/5A	RELAY WHSE BFD84S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	3-1/5A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	3-2/5A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
	3-4/5A	RELAY WHSE BFD22S	480V SWGR 31, COMPT. 25H	CB	15'-0"	GERS
** 35 SW PUMP						
	27-3A/X2	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	SI/2A	RELAY WHSE BFD120S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-1/3A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
	3-2/3A	RELAY WHSE BFD40S	480V SWGR 31, COMPT. 28H	CB	15'-0"	GERS
** 36 SW PUMP						
	3-2/6A	RELAY WHSE BFD80S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	27-6A/X2	RELAY WHSE BFD120S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-1/6A	RELAY WHSE BFD120S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	SI/6A	RELAY WHSE BFD84S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS
	3-4/6A	RELAY WHSE BFD22S	480V SWGR 32, COMPT. 8H	CB	15'-0"	GERS

APPENDIX F

LIST OF RELAY OPERATOR ACTIONS

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
OPERATOR ACTIONS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** AC-793						
	IR6	RELAY GOULD J13	CCR PANEL SHR	CB	53'-0"	OA
** AC-FCV-625						
	FIC-625	FLOW SWITCH	CCR PANEL SGF	CB	53'-0"	OA
** CH-FCV-110B						
	YIC-110	BORIC ACID COUNTER	CCR PANEL FBF	CB	53'-0"	OA
** CSAPBA1						
	YIC-110	BORIC ACID COUNTER	CCR PANEL FBF	CB	53'-0"	OA
** CSAPBA2						
	YIC-110	BORIC ACID COUNTER	CCR PANEL FBF	CB	53'-0"	OA
** 31CHGR (GE3)						
	DPR	DIFF PRESS RELAY	BATTERY CHRGR 31	CB	33'-0"	OA
	TDR	TIME DELAY RELAY	BATTERY CHRGR 31	CB	33'-0"	OA
** 32CHGR (GE4)						
	DPR	DIFF PRESS RELAY	BATTERY CHRGR 32	CB	33'-0"	OA
	TDR	TIME DELAY RELAY	BATTERY CHRGR 32	CB	33'-0"	OA
** ACU31						
	1RR3	RESET RELAY	ACU31	CB	15'-0"	OA
	1CT	COMPRESSOR THERMOSTAT CONTACTS	ACU31	CB	15'-0"	OA
	1HIP	HIGH PRESSURE CUTOUT SWITCH	ACU31	CB	15'-0"	OA
	1LOP	LOW PRESSURE CUTOUT SWITCH	ACU31	CB	15'-0"	OA
	2RR3	RESET RELAY	ACU31	CB	15'-0"	OA
	2CT	COMPRESSOR THERMOSTAT CONTACTS	ACU31	CB	15'-0"	OA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
OPERATOR ACTIONS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	2HIP	HIGH PRESSURE CUTOUT SWITCH	ACU31	CB	15'-0"	OA
	2LOP	LOW PRESSURE CUTOUT SWITCH	ACU31	CB	15'-0"	OA
	1RR2	RESET RELAY	ACU31	CB	15'-0"	OA
	2RR2	RESET RELAY	ACU31	CB	15'-0"	OA
** ACU32						
	1RR3	RESET RELAY	ACU32	CB	15'-0"	OA
	1CT	COMPRESSOR THERMOSTAT RELAY	ACU32	CB	15'-0"	OA
	1HIP	HIGH PRESSURE CUTOUT RELAY	ACU32	CB	15'-0"	OA
	1LOP	LOW PRESSURE CUTOUT RELAY	ACU32	CB	15'-0"	OA
	2RR3	RESET RELAY	ACU32	CB	15'-0"	OA
	2CT	COMPRESSOR THERMOSTAT RELAY	ACU32	CB	15'-0"	OA
	2HIP	HIGH PRESSURE CUTOUT RELAY	ACU32	CB	15'-0"	OA
	2LOP	LOW PRESSURE CUTOUT RELAY	ACU32	CB	15'-0"	OA
	1RR2	RESET RELAY	ACU32	CB	15'-0"	OA
	2RR2	RESET RELAY	ACU32	CB	15'-0"	OA
** SOV-1428						
	IR28	RELAY GOULD J13P20	CCR PANEL SHR	CB	53'-0"	OA
** 31PWMUP						
	YIC-110	BORIC ACID COUNTER	CCR PANEL FBF	CB	53'-0"	OA
	YIC-111	DEMIN WATER COUNTER	CCR PANEL FBF	CB	53'-0"	OA
** 32PWMUP						
	YIC-110	BORIC ACID COUNTER	CCR PANEL FBF	CB	53'-0"	OA
	YIC-111	DEMIN WATER COUNTER	CCR PANEL FBF	CB	53'-0"	OA

APPENDIX G

LIST OF RELAYS REQUIRING CORRECTIVE ACTION

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
CORRECTIVE ACTION REQUIRED

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** DG-31						
	K1/EG1	RELAY WHSE M101	EDG VOLT. REG RELAY PNL31	DG	10'-0"	CR
	K4/EG1	BREAKER CLOSURE RELAY WHSE Z	EDG VOLT. REG RELAY PNL31	DG	10'-0"	CR
	K2/EG1	RELAY WHSE M110	EDG VOLT. REG RELAY PNL31	DG	10'-0"	CR
	K3/EG1	RELAY WHSE Z	EDG VOLT. REG RELAY PNL31	DG	10'-0"	CR
** DG-32						
	K1/EG2	RELAY WHSE M101	EDG VOLT. REG RELAY PNL32	DG	10'-0"	CR
	K4/EG2	BREAKER CLOSURE RELAY WHSE Z	EDG VOLT. REG RELAY PNL32	DG	10'-0"	CR
	K2/EG2	RELAY WHSE M110	EDG VOLT. REG RELAY PNL32	DG	10'-0"	CR
	K3/EG2	RELAY WHSE Z	EDG VOLT. REG RELAY PNL32	DG	10'-0"	CR
** DG-33						
	K1/EG3	RELAY WHSE M101	EDG VOLT. REG RELAY PNL33	DG	10'-0"	CR
	K4/EG3	BREAKER CLOSURE RELAY WHSE Z	EDG VOLT. REG RELAY PNL33	DG	10'-0"	CR
	K2/EG3	RELAY WHSE M110	EDG VOLT. REG RELAY PNL33	DG	10'-0"	CR
	K3/EG3	RELAY WHSE Z	EDG VOLT. REG RELAY PNL33	DG	10'-0"	CR

APPENDIX H

RELAY OUTLIER SEISMIC VERIFICATION SHEETS(OSVSs)

OUTLIER SEISMIC VERIFICATION SHEET (OSVS)

1. OUTLIER IDENTIFICATION, DESCRIPTION, AND LOCATION

Equipment ID Number DG31 Equipment Class 17

Equipment Location: Building DGB Floor Elevation 15'-0"

Room or Row/Column ____ Base Elevation 15'-0"

Equipment Description Emergency Diesel Generator

2. OUTLIER ISSUE DEFINITION

a. Identify all the screening guidelines which are not met. (Check more than one if several guidelines could not be satisfied.)

Mechanical and Electrical Equipment		Tanks and Heat Exchangers	
Capacity vs. Demand	____	Shell Buckling[1]	____
Caveats	____	Anchor Bolts and Embedment	____
Anchorage	____	Anchorage Connections	____
Seismic Interaction	____	Flexibility of Attached Piping[1]	____
Other	____	Other	____
		Cable and Conduit Raceways	
Essential Relays		Inclusion Rules	____
Capacity vs. Demand	✓	Other Seismic Performance Concerns	____
Mounting, Type, Location	____	Limited Analytical Review	____
Other	____	Other	____

1 Shell buckling and flexibility of attached piping only apply to large, flat-bottom, vertical tanks.

b. Describe all the reasons for the outlier (i.e., if all the listed outlier issues were resolved, then the signatories would consider this item of equipment to be verified for seismic adequacy):

The diesel shutdown relay K1, K2, K3, and K4 do not have any seismic experience or test data available to establish adequate seismic capacity.

OUTLIER SEISMIC VERIFICATION SHEET (OSVS)

Equipment ID Number DG31

3. PROPOSED METHOD OF OUTLIER RESOLUTION (OPTIONAL)

a. Define proposed method(s) for resolving outlier.

Relays should be tested or replaced.

b. Provide information needed to implement proposed method(s) for resolving outlier (e.g., estimate of fundamental frequency).

Relays should be tested to a level exceeding 3g's and enveloping Curve D-11, 10.5 x's IP-3 DGB 15', Appendix D, or be replaced by a functionally equivalent relay with known seismic capacity which exceeds this demand.

4. CERTIFICATION:

The information on this OSVS is, to the best of our knowledge and belief, correct and accurate, and resolution of the outlier issues listed on the previous page will satisfy the requirements for this item of equipment to be verified for seismic adequacy:

Approved by: (For Equipment Classes #0 - #22, all the Seismic Capability Engineers on the Seismic Review Team (SRT) should sign; there should be at least two on the SRT. One signatory should be a licensed professional engineer. For Relays, the Lead Relay Reviewer should sign.)

Print or Type Name	Signature	Date
John E. Thompson, P.E.	[signature]	9/30/95

Print or Type Name Signature Date

Print or Type Name Signature Date

OUTLIER SEISMIC VERIFICATION SHEET (OSVS)

1. OUTLIER IDENTIFICATION, DESCRIPTION, AND LOCATION

Equipment ID Number DG32 Equipment Class 17

Equipment Location: Building DGB Floor Elevation 15'-0"

Room or Row/Column ____ Base Elevation 15'-0"

Equipment Description Emergency Diesel Generator

2. OUTLIER ISSUE DEFINITION

a. Identify all the screening guidelines which are not met. (Check more than one if several guidelines could not be satisfied.)

Mechanical and Electrical Equipment		Tanks and Heat Exchangers	
Capacity vs. Demand	____	Shell Buckling[1]	____
Caveats	____	Anchor Bolts and Embedment	____
Anchorage	____	Anchorage Connections	____
Seismic Interaction	____	Flexibility of Attached Piping[1]	____
Other	____	Other	____
		Cable and Conduit Raceways	
Essential Relays		Inclusion Rules	____
Capacity vs. Demand	✓	Other Seismic Performance Concerns	____
Mounting, Type, Location	____	Limited Analytical Review	____
Other	____	Other	____

1 Shell buckling and flexibility of attached piping only apply to large, flat-bottom, vertical tanks.

b. Describe all the reasons for the outlier (i.e., if all the listed outlier issues were resolved, then the signatories would consider this item of equipment to be verified for seismic adequacy):

The diesel shutdown relays K1, K2, K3, and K4 do not have any seismic experience or test data available to establish adequate seismic capacity.

OUTLIER SEISMIC VERIFICATION SHEET (OSVS)

Equipment ID Number DG32

3. PROPOSED METHOD OF OUTLIER RESOLUTION (OPTIONAL)

a. Define proposed method(s) for resolving outlier.

Relays should be tested or replaced.

b. Provide information needed to implement proposed method(s) for resolving outlier (e.g., estimate of fundamental frequency).

Relays should be tested to a level exceeding 3g's and enveloping Curve D-11, 10.5X's IP-3 DGB 15', Appendix D, or be replaced by a functionally equivalent relay of known seismic capacity which exceeds this demand.

4. CERTIFICATION:

The information on this OSVS is, to the best of our knowledge and belief, correct and accurate, and resolution of the outlier issues listed on the previous page will satisfy the requirements for this item of equipment to be verified for seismic adequacy:

Approved by: (For Equipment Classes #0 - #22, all the Seismic Capability Engineers on the Seismic Review Team (SRT) should sign; there should be at least two on the SRT. One signatory should be a licensed professional engineer. For Relays, the Lead Relay Reviewer should sign.)

Print or Type Name	Signature	Date
Jon E. Thompson, P.E.		9/30/95

Print or Type Name Signature Date

Print or Type Name Signature Date

OUTLIER SEISMIC VERIFICATION SHEET (OSVS)

1. OUTLIER IDENTIFICATION, DESCRIPTION, AND LOCATION

Equipment ID Number DG33 Equipment Class 17

Equipment Location: Building DGB Floor Elevation 15'-0"

Room or Row/Column ___ Base Elevation 15'-0"

Equipment Description Emergency Diesel Generator

2. OUTLIER ISSUE DEFINITION

a. Identify all the screening guidelines which are not met. (Check more than one if several guidelines could not be satisfied.)

Mechanical and Electrical Equipment		Tanks and Heat Exchangers	
Capacity vs. Demand	___	Shell Buckling[1]	___
Caveats	___	Anchor Bolts and Embedment	___
Anchorage	___	Anchorage Connections	___
Seismic Interaction	___	Flexibility of Attached Piping[1]	___
Other	___	Other	___
		Cable and Conduit Raceways	
Essential Relays		Inclusion Rules	___
Capacity vs. Demand	✓	Other Seismic Performance Concerns	___
Mounting, Type, Location	___	Limited Analytical Review	___
Other	___	Other	___

1 Shell buckling and flexibility of attached piping only apply to large, flat-bottom, vertical tanks.

b. Describe all the reasons for the outlier (i.e., if all the listed outlier issues were resolved, then the signatories would consider this item of equipment to be verified for seismic adequacy):

The diesel shutdown relays K1, K2, K3, and K4 do not have any seismic experience or test data available to establish adequate seismic capacity.

OUTLIER SEISMIC VERIFICATION SHEET (OSVS)

Equipment ID Number DG33

3. PROPOSED METHOD OF OUTLIER RESOLUTION (OPTIONAL)

a. Define proposed method(s) for resolving outlier.

Relays should be tested or replaced.

b. Provide information needed to implement proposed method(s) for resolving outlier (e.g., estimate of fundamental frequency).

Relays should be tested to a level exceeding 3g's and enveloping Curve D-11, 10.5 X.s IP-3 DGB 15', Appendix D, or be replaced by a functionally equivalent relay of known seismic capacity which exceeds this demand.

4. CERTIFICATION:

The information on this OSVS is, to the best of our knowledge and belief, correct and accurate, and resolution of the outlier issues listed on the previous page will satisfy the requirements for this item of equipment to be verified for seismic adequacy:

Approved by: (For Equipment Classes #0 - #22, all the Seismic Capability Engineers on the Seismic Review Team (SRT) should sign; there should be at least two on the SRT. One signatory should be a licensed professional engineer. For Relays, the Lead Relay Reviewer should sign.)

Print or Type Name	Signature	Date
Joe E. Thompson, P.E.	[signature]	9/30/95

Print or Type Name	Signature	Date

APPENDIX I

IP-3 FLOOR RESPONSE SPECTRA SUMMARIES

APPENDIX I

SEISMIC ADEQUACY EVALUATION OF ESSENTIAL RELAYS/CONTACTS ASSOCIATED WITH THE EQUIPMENT ON THE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)

LIST OF RESPONSE SPECTRA CURVES

CURVE I-1	Containment Building - Elevation 85′ 0"
CURVE I-2	Containment Building - Elevation 106′ 0"
CURVE I-3	Containment Building - Elevation 127′ 0"
CURVE I-4	Inner Containment Pressurizer Shield Wall - Elevation 127′ 6"
CURVE I-5	Primary Auxiliary Building - Elevation 55′ 0"
CURVE I-6	Primary Auxiliary Building - Elevation 73′ 0"
CURVE I-7	Primary Auxiliary Building - Elevation 90′ 0"
CURVE I-8	Control and Diesel Generator Building - Elevation 15′ 0"
CURVE I-9	Control and Diesel Generator Building - Elevation 32′ 0"
CURVE I-10	Control and Diesel Generator Building - Elevation 48′ 0"
CURVE I-11	Control and Diesel Generator Building - Elevation 70′ 0"
CURVE I-12	Intake Structure - Elevation 15′ 0"
CURVE I-13	Electrical Tunnel, Pipe Penetration/Pipe Tunnel - Elevation 42′ 0"
CURVE I-14	Electrical Tunnel, Pipe Penetration/Pipe Tunnel - Elevation 42′ 0"
CURVE I-15	Auxiliary Boiler Feedwater Pump Building - Elevation 42′ 0"
CURVE I-16	Auxiliary Boiler Feedwater Pump Building - Elevation 54′ 0"
CURVE I-17	Auxiliary Boiler Feedwater Pump Building - Elevation 66′ 0"

LIST OF RESPONSE SPECTRA CURVES

CURVE I-18	Auxiliary Boiler Feedwater Pump Building - Elevation 78′ 0"
CURVE I-19	Diesel Generator Fuel Oil Tank - Elevation 32′ 0"
CURVE I-20	IP-3 Horizontal Ground Response Spectra

ATOMETRICS

ATOMETRICS CALCULATION COVER SHEET

JO No. 18904-00

CALCULATION No. 18904-IP3-SQ001 REV No. 0

OBJECTIVE ;

TO CREATE CURVES, FREQUENCY VS. FLOOR RESPONSE SPECTRAL ACCELERATION, AT THE ELEVATIONS OF EACH BUILDING WHERE EQUIPMENTS ARE LOCATED AT INDIAN POINT GENERATING STATION UNIT #3

METHOD/ASSUMPTIONS ;

SEE PAGE 4

REFERENCES ;

1. TECHNICAL REPORT TR-7366-3, "DIGITIZED DATA BY PERIOD DESIGN RESPONSE SPECTRA DATABASE FOR INDIAN POINT UNIT #3", DATED MARCH 22, 1991
2. "GENERIC IMPLEMENT PROCEDURE (GIP) FOR SEISMIC VERIFICATION OF NUCLEAR PLANT" BY WESTON & STRAWN, DATED JUNE, 1991

CONCLUSIONS ;

FOR SEISMIC RESPONSE SPECTRA CURVES 1 THRU 20, SEE PAGES 10 THRU 29

PREPARER	E. PARK / E. Park (PRINT/SIGN)	4/25/95 (DATE)	CLASSIFICATIONS
REVIEWER	R. J. MUXO / [signature] (PRINT/SIGN)	5/11/95 (DATE)	CONFIRMATION REQ'D? N/A
APPROVER	J.E. Thompson / [signature] (PRINT/SIGN)	5/11/95 (DATE)	FILE LOCATIONS

CALCULATION REVISION STATUS

REVISION No.	DESCRIPTION OF CHANGE	PREP'D DATE	CHECK'D DATE
0	ORIGINAl ISSUE	SEE COVER SHEET	SEE COVER SHEET

TABLE OF CONTENTS

	DESCRIPTION	PAGE
1.	CALCULATION COVER SHEET	1
2.	CALCULATION REVISION STATUS	2.
3.	TABLE OF CONTENTS	3.
4.	METHOD AND ASSUMPTIONS	4
5	LIST OF BUILDINGS	5 & 6
6	BUILDING LOCATION & SECTION VIEW	7 TO 9
7	SEISMIC RESPONSE SPECTRA CURVES	10 TO 29
8	DATA TO CREATE SEISMIC CURVES	30 TO 52

METHOD AND ASSUMPTIONS.

THE SEISMIC RESPONSE SPECTRA CURVES PLOTTED IN THIS CALC ARE FOR DBE WITH 5% STRUCTURAL DAMPING VALUE.

INVERT DIGITIZED PERIODS TO OBTAIN FREQUENCIES CORRESPONDING TO EACH PERIOD. THE DATA ARE FROM REFERENCE LISTED ON COVER SHEET.

PER REF. 2 ONE MAX. HORIZONTAL SEISMIC ACCELERATION CAN BE USED.
THEREFORE, ENVELOP THE ACCELERATIONS FROM N-S & E-W DIRECTIONS TO OBTAIN MAXIMUM HORIZONTAL VALUE.

PLOT FREQUENCIES AND RESPONSE SPECTRAL ACCELERATIONS TO CREATE CURVES AS SHOWN PAGES 1 TO 20.

THERE ARE NO SEISMIC RESPONSE ACCELERATION VALUES EXISTING FOR THE BUILDINGS, ELECTRICAL TUNNEL, PIPE PENETRATION / PIPE TUNNEL, AUX. BOILER FEEDWATER PUMP BUILDING AND DIESEL GENERATOR OIL STORAGE TANK. TO OBTAIN SEISMIC ACCELERATION VALUES FOR THESE BUILDINGS, IT IS ASSUMED THAT THE VALUES FROM "ADJACENT BUILDING" CAN BE UTILIZED FOR THESE BUILDINGS BASED ON LOCATIONS OF STRUCTURE, SIMILARITY OF CONSTRUCTION AND ELEVATIONS.
THE FREQUENCIES AND ACCELERATIONS FOR "ADJACENT BUILDING" ARE SHOWN ON CORRESPONDING FREQUENCY CALC.

LIST OF BUILDINGS PLOTTED SEISMIC RESPONSE CURVE

CONTAINMENT BUILDING ;- EL. 43'-0" (GROUND RESPONSE)
EL. 85'-0"
EL. 106'-0"
EL. 127'-0"

INNER CONTANMENT - PRESSURIZER SHIELD WALL ; - EL. 127'-6"

PRIMARY AUXILIARY BLDG ; - EL. 41'-0" (GROUND RESPONSE)
EL. 55'-0"
EL. 73'-0"
EL. 90'-0"

CONTROL AND DIESEL GENERATOR BUILDING ; - EL. 15'-0" (GROUND RESPONSE)
EL. 32'-0"
EL. 48'-0"
EL. 70'-0"

INTAKE STRUCTURE ; - EL. -27'-0" (GROUND RESPONSE)
EL. 15'-0"

ELECTRICAL TUNNEL, PIPE PENETRATION/ PIPE TUNNEL ; - EL. 35'-0" (GROUND RESPONSE)
EL. 51'-0"

* USED SEISMIC VALUES FROM ADJACENT BUILDING "FAN HOUSE"

AUXILIARY BOILER FEEDWATER PUMP BUILDING ;- EL. 7'-0" (GROUND RESPONSE)
EL. 42'-0"
EL. 54'-0"
EL. 66'-0"
EL. 78'-0"

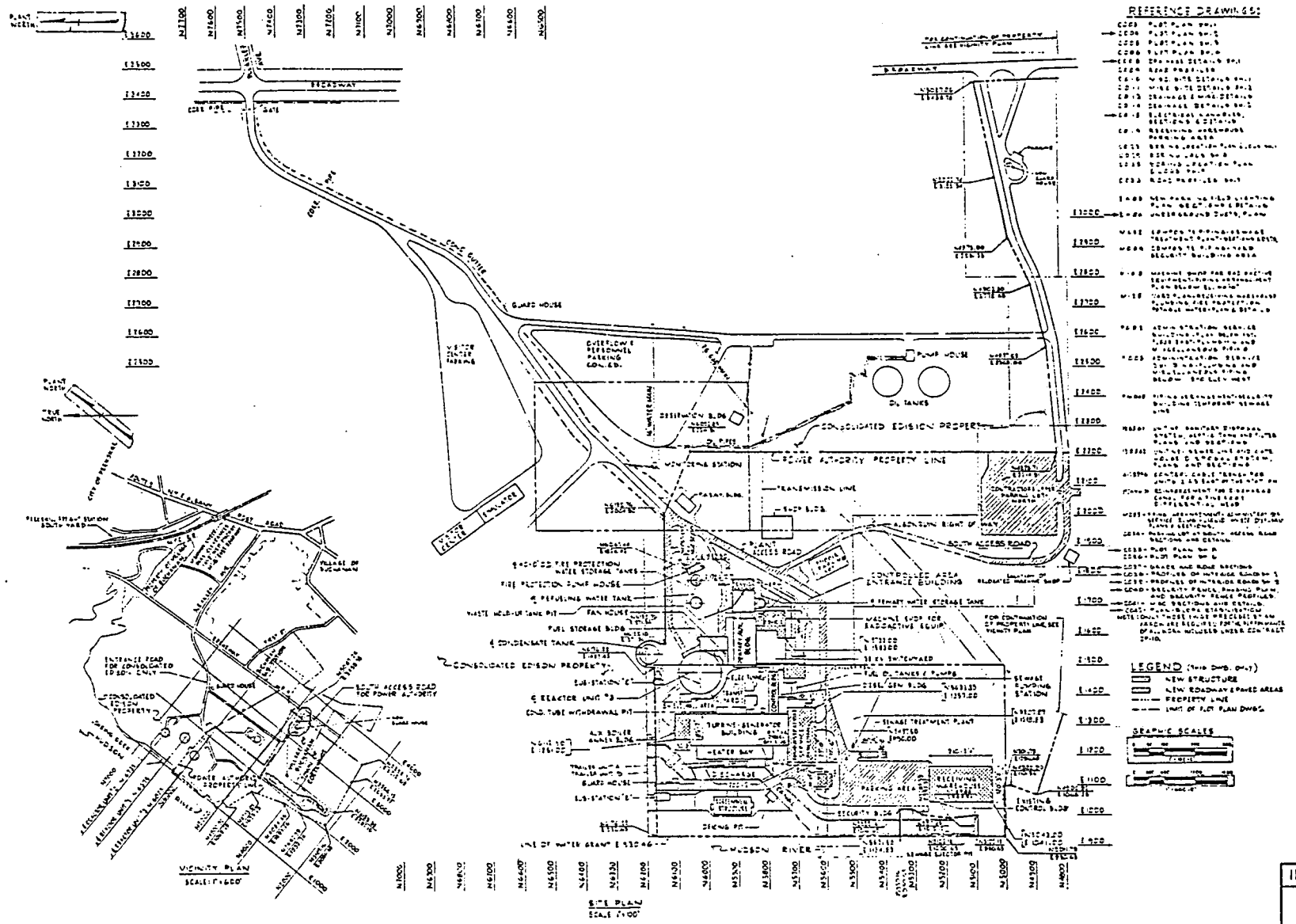
/ * USED SEISMIC VALUES FROM ADJACENT BUILDING "SHIED WALL"

DIESEL GENERATOR FUEL OIL TANK ;- EL. 32'-0"

* USED SEISMIC VALUES FROM ADJACENT BUILDING "CONTROL AND DIESEL GENERATOR BUILDING"

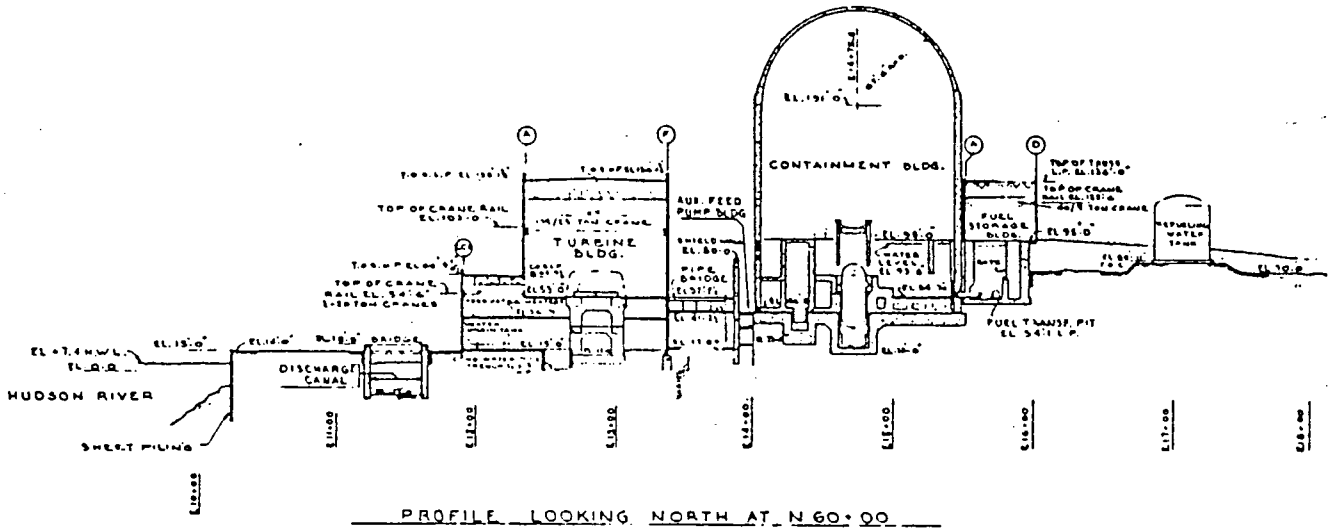
NOTES: 1. THE GROUND RESPONSE SPECTRA CURVES FOR CONTAINMENT BUILDING AND OTHER BUILDINGS HAVE BEEN COMBINED ON ONE CURVE (SEE CURVE # 20).

2. THE SEISMIC RESPONSE SPECTRA DATA TO CREATE THE CURVES ARE ATTACHED ON PAGES 30 THRU 52.



CALC # 18904-IP3-SQ001
PAGE 7 OF 52

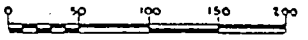
INDIAN POINT 3		FSAR UPI
PLOT PLAN		
REV. 0	JULY, 1982	FIGURE NO. 1.2



PROFILE LOOKING NORTH AT N 60+00

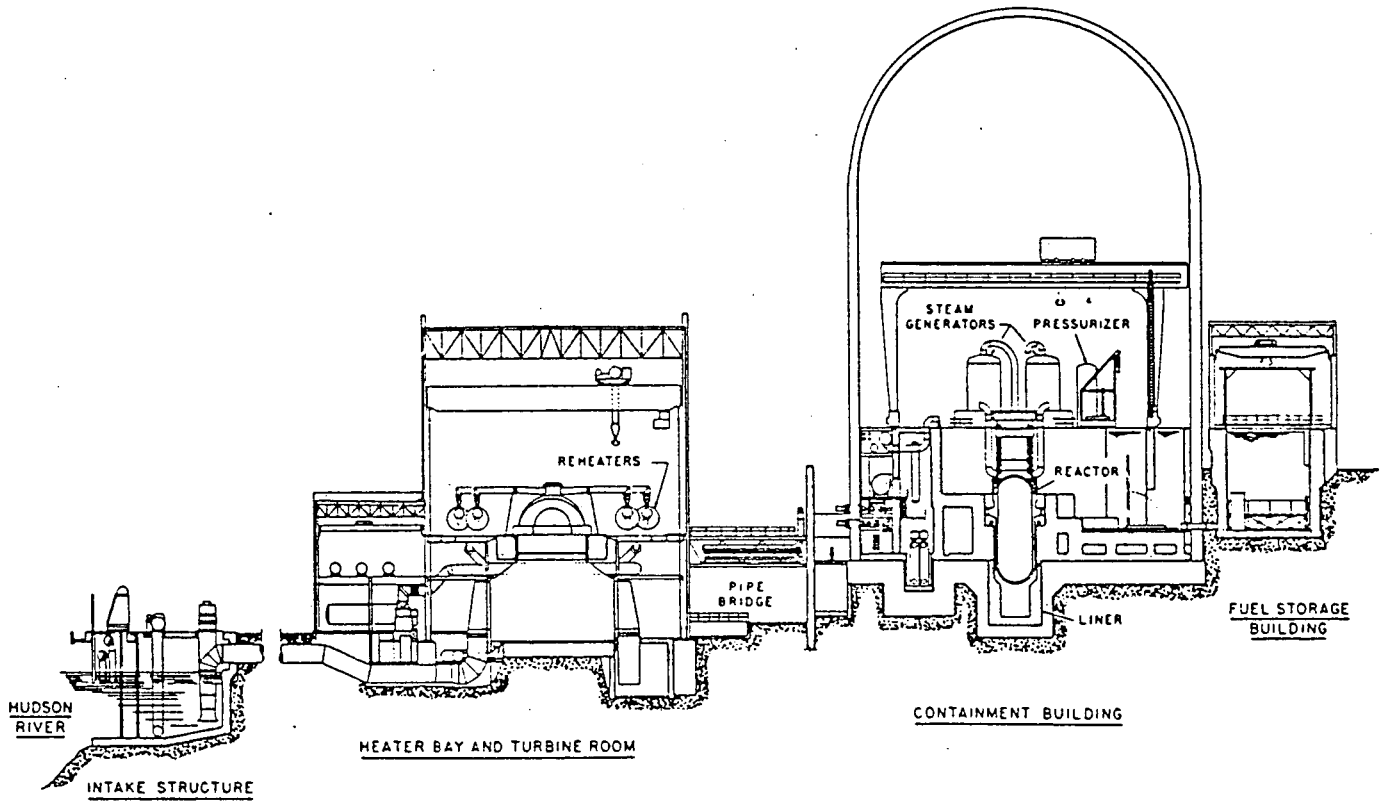
SCALE: 1" = 50'-0"

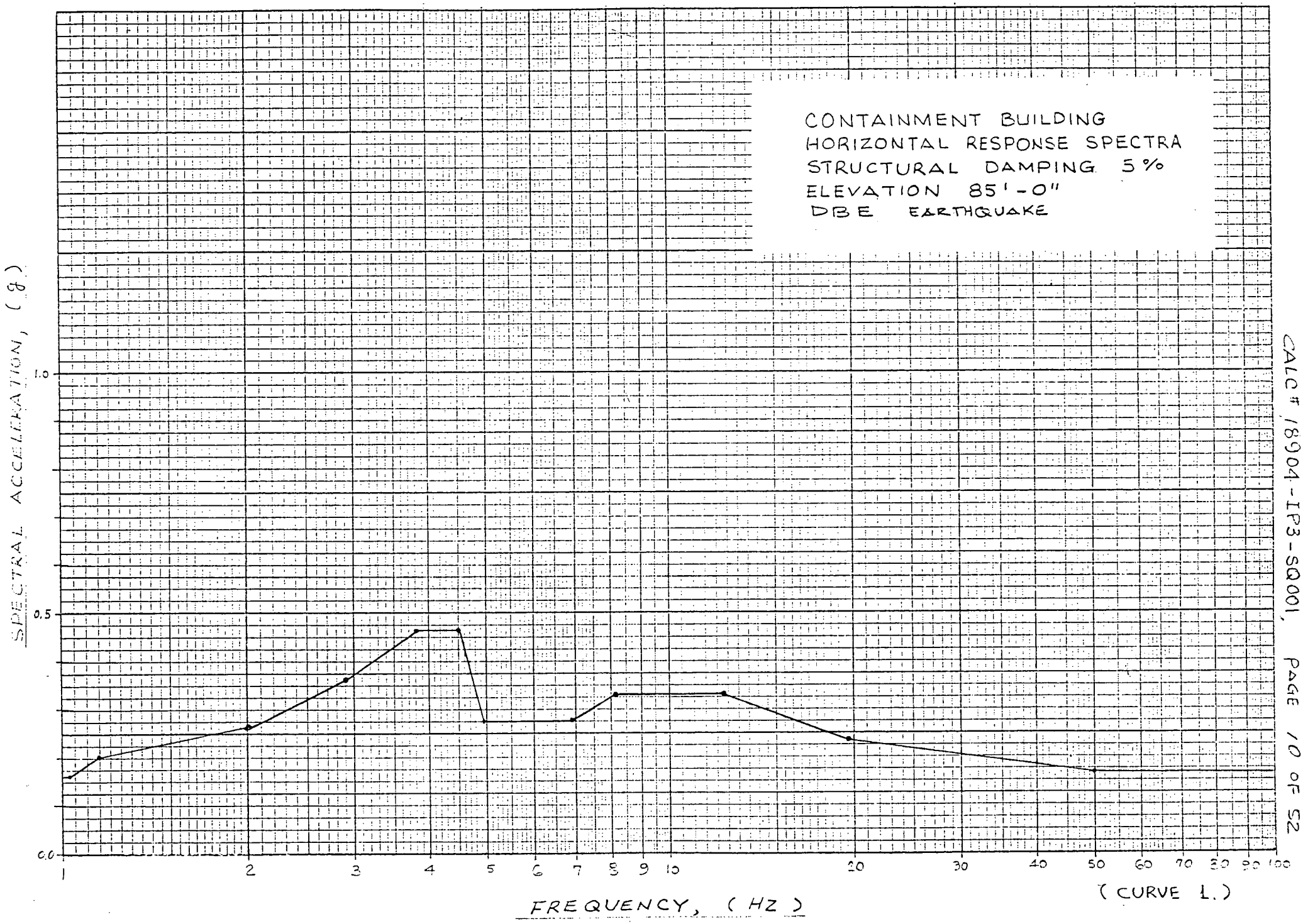
NOTE:
DWG. FOR SYSTEMS DESCRIPTION BOOKLET ONLY
NOT A CONSTRUCTION DWG.

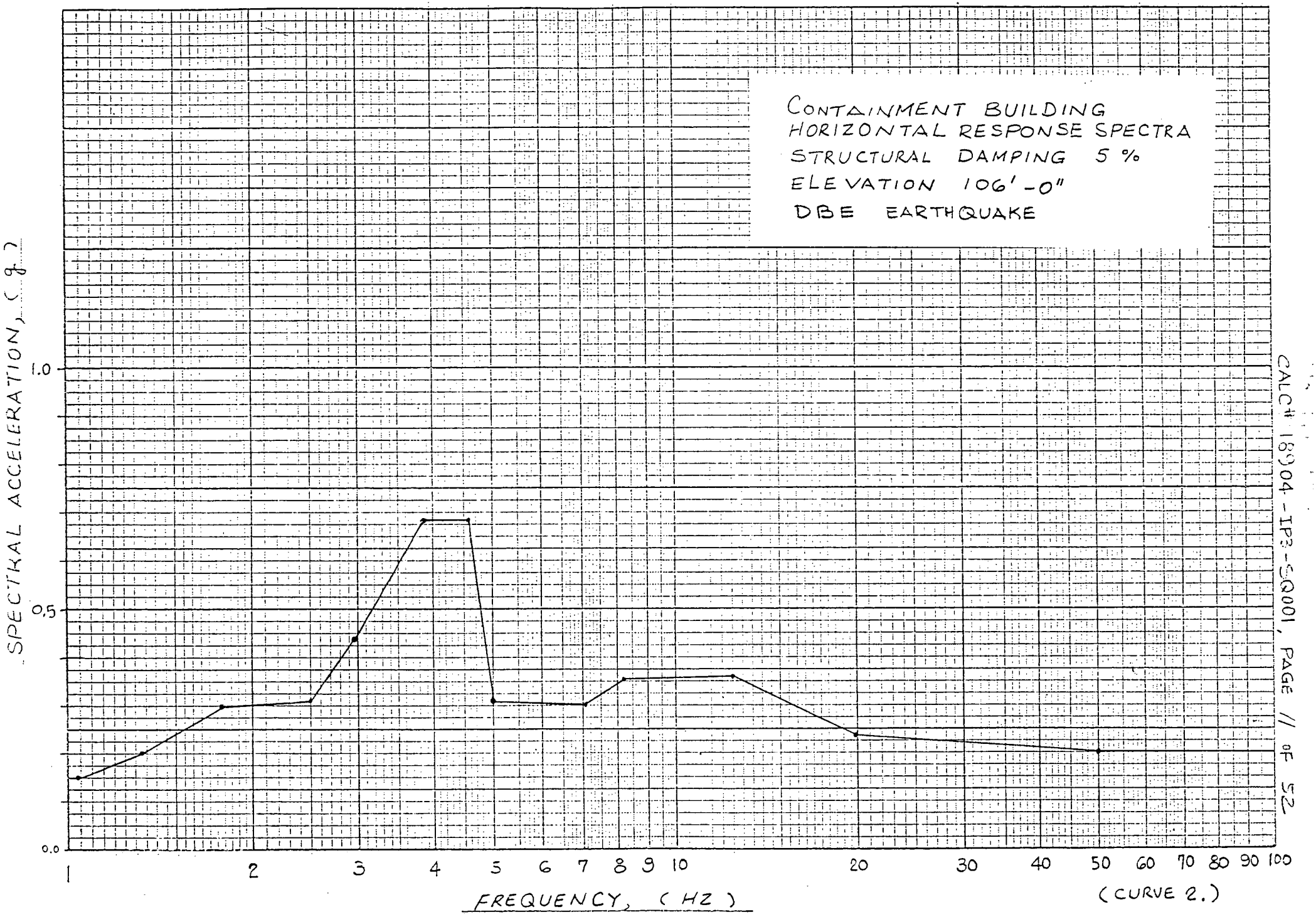


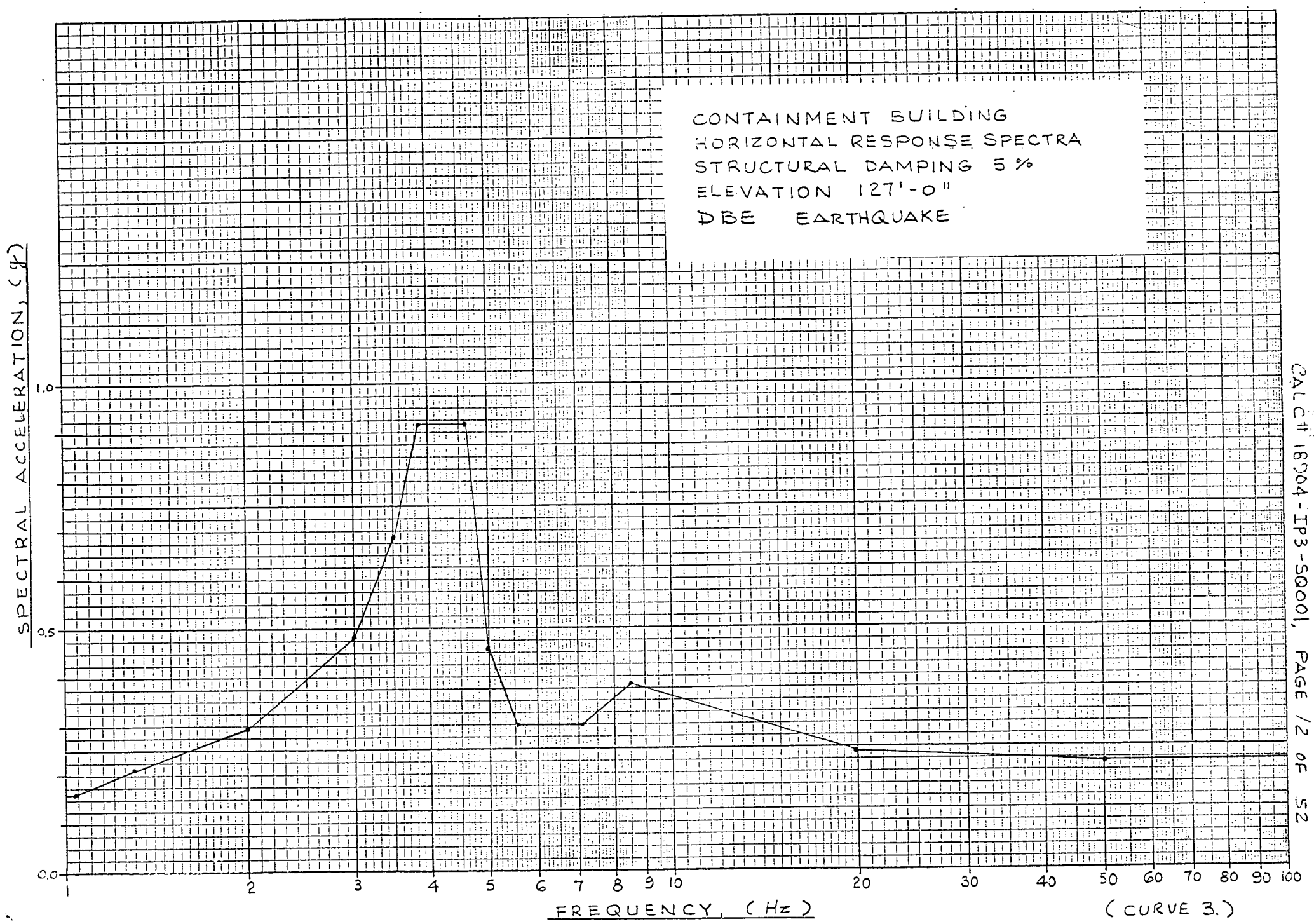
INDIAN POINT 3		FSAR UPDATE
PROFILE LOOKING NORTH THRU TURBINE, CONTAINMENT AND FUEL STORAGE BUILDINGS		
REV. 0	JULY, 1982	FIGURE NO. 1.2-4

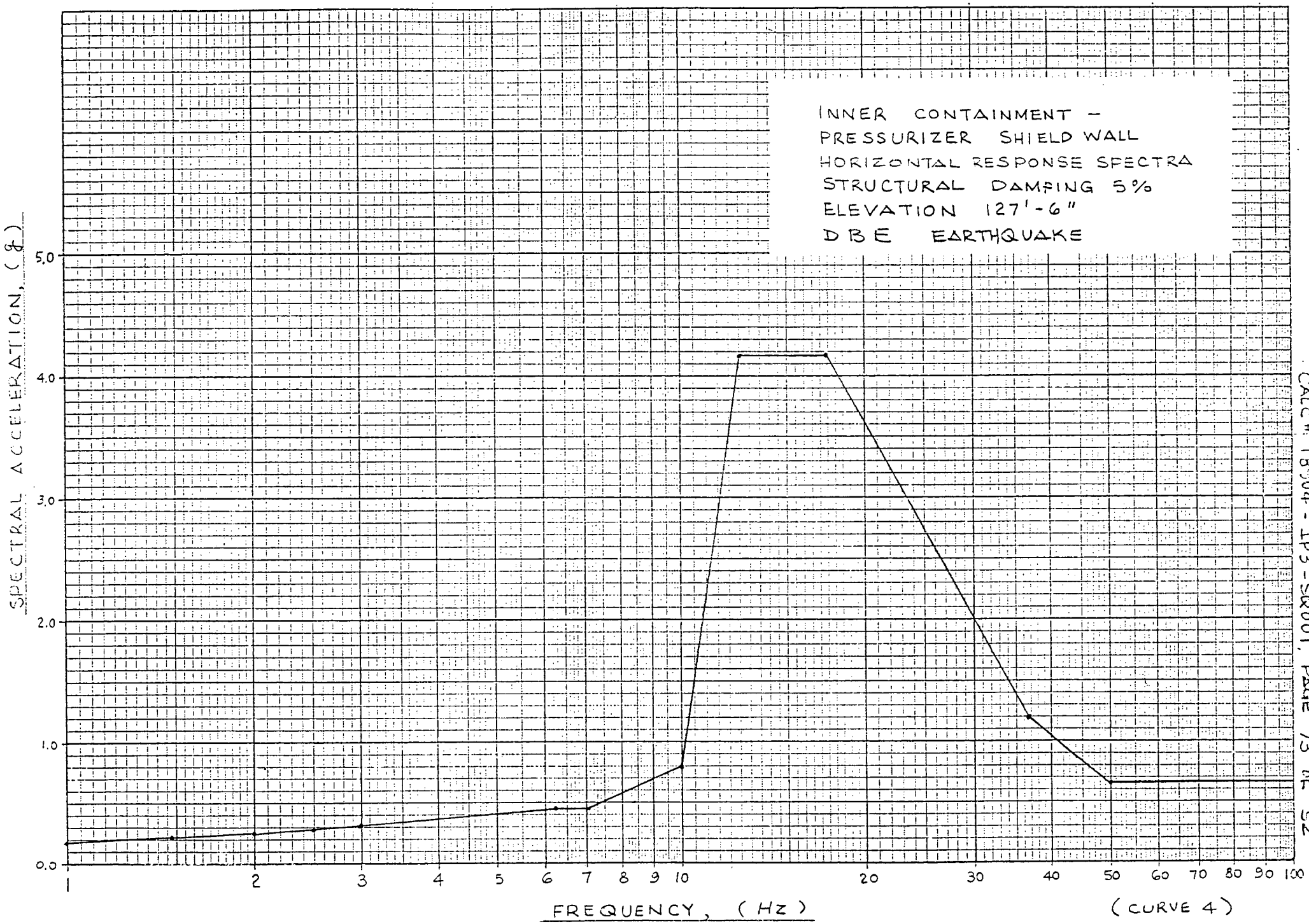
CALC # 18904-IP3-SQ001, PAGE 8 OF 52

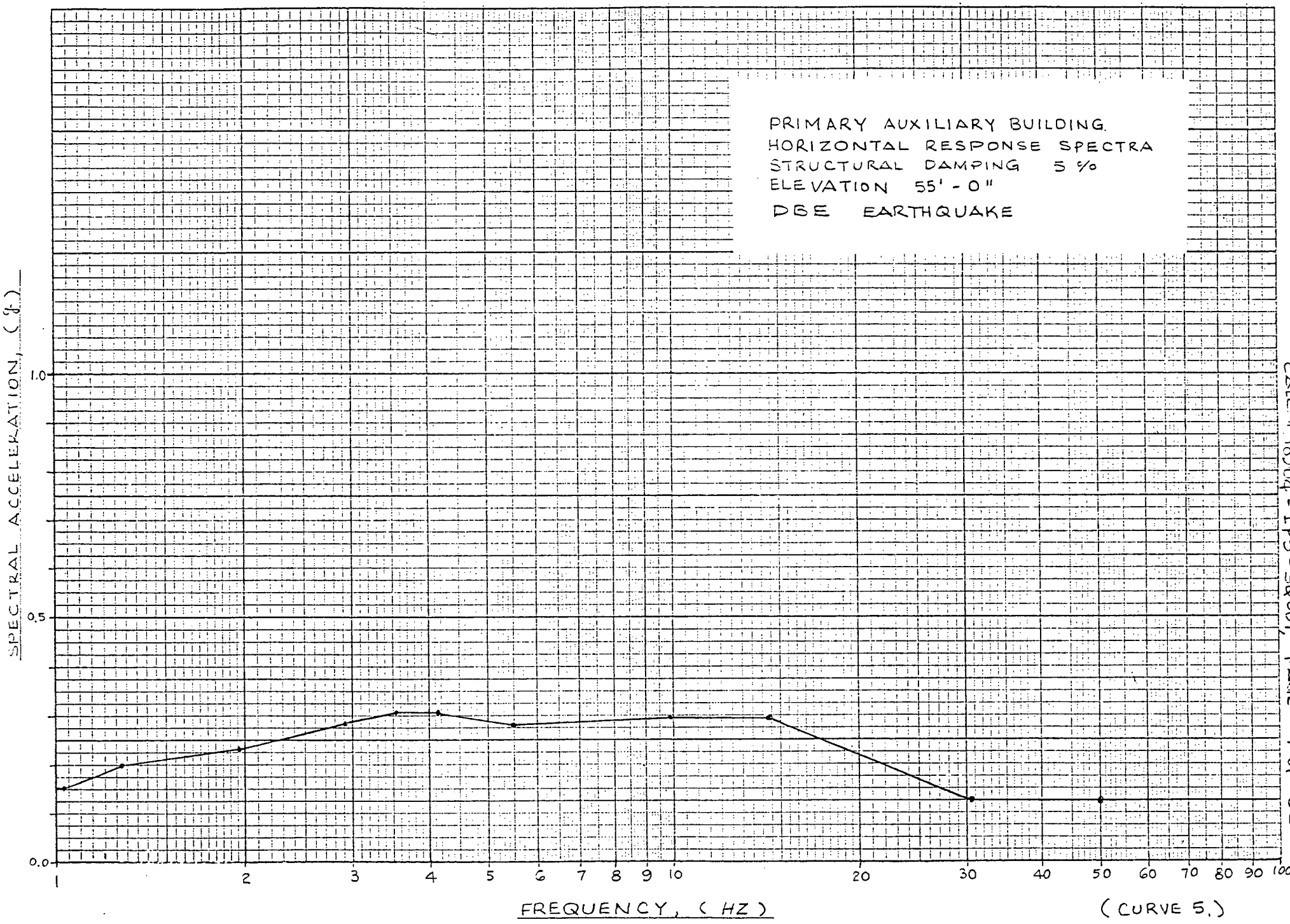

STEAM GENERATORS
PRESSURIZER
REHEATERS
REACTOR
PIPE BRIDGE
LINER
FUEL STORAGE BUILDING
HUDSON RIVER
CONTAINMENT BUILDING
HEATER BAY AND TURBINE ROOM
INTAKE STRUCTURE


CONTAINMENT BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 85'-0"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (HZ)
(CURVE 1.)

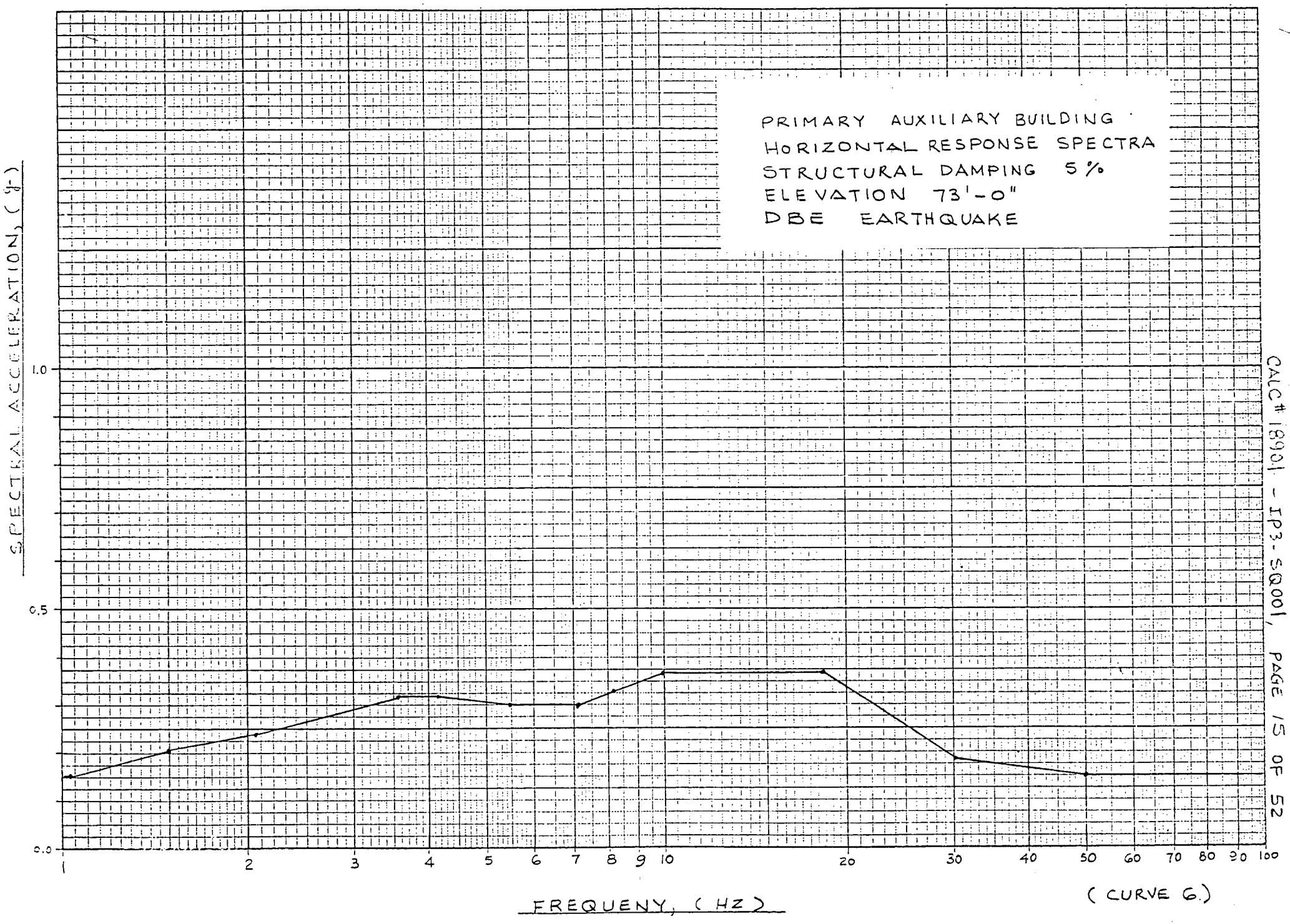

CONTAINMENT BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5 %
ELEVATION 106'-0"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (HZ)
(CURVE 2.)

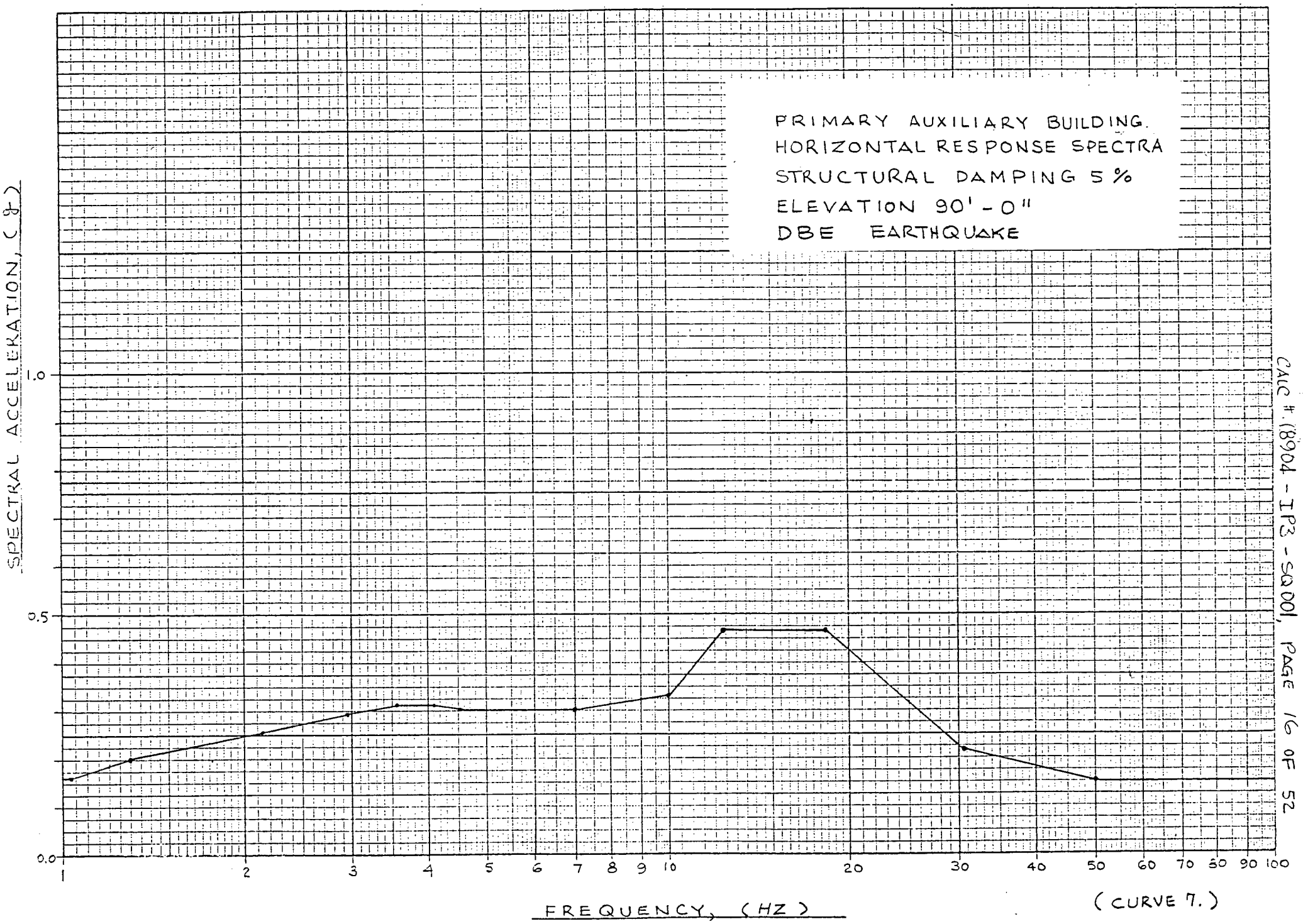

CONTAINMENT BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5 %
ELEVATION 127'-0"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)
(CURVE 3.)

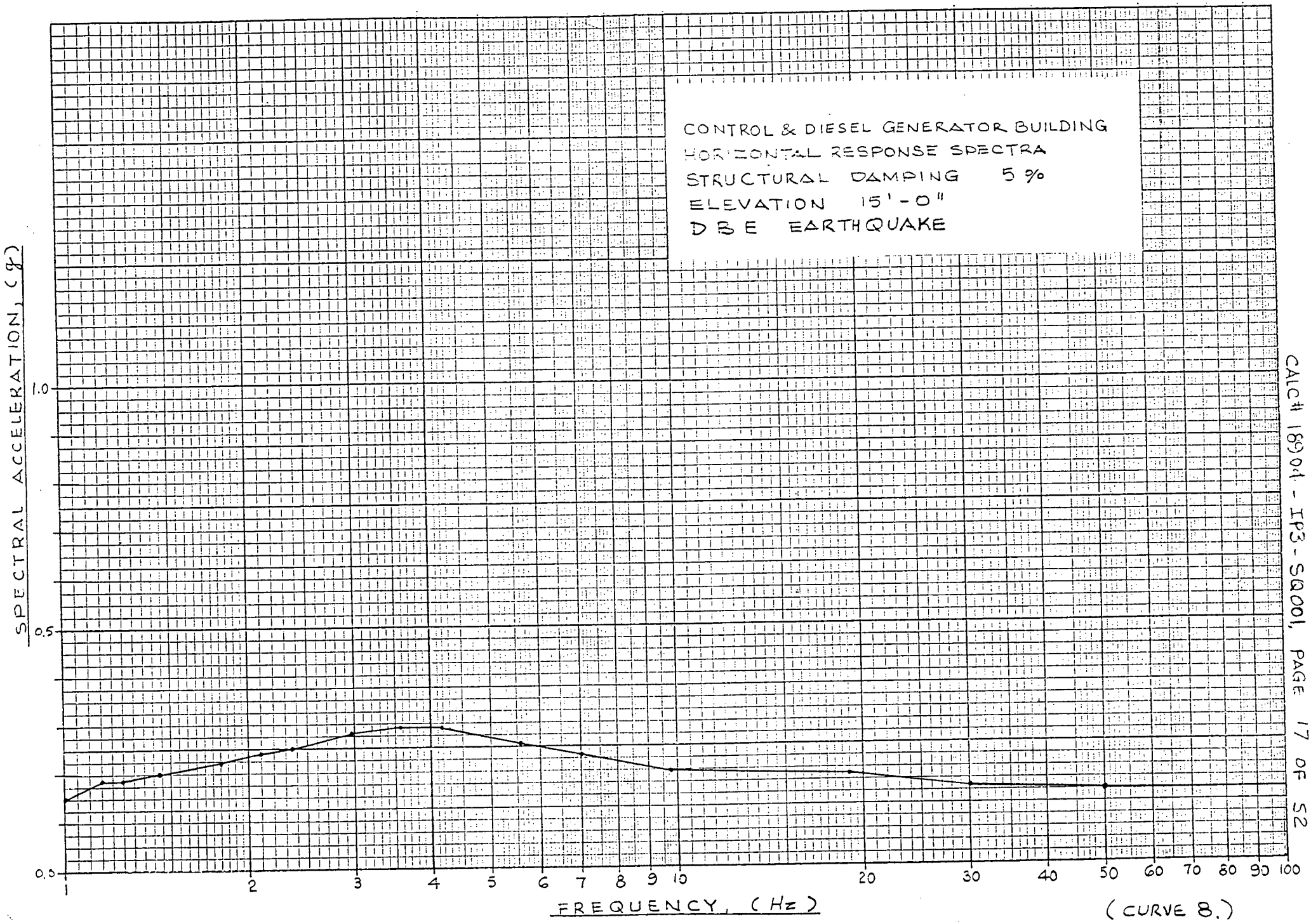

INNER CONTAINMENT -
PRESSURIZER SHIELD WALL
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 127'-6"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
5.0
4.0
3.0
2.0
1.0
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)
(CURVE 4)


PRIMARY AUXILIARY BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5 %
ELEVATION 55' - 0"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (HZ)

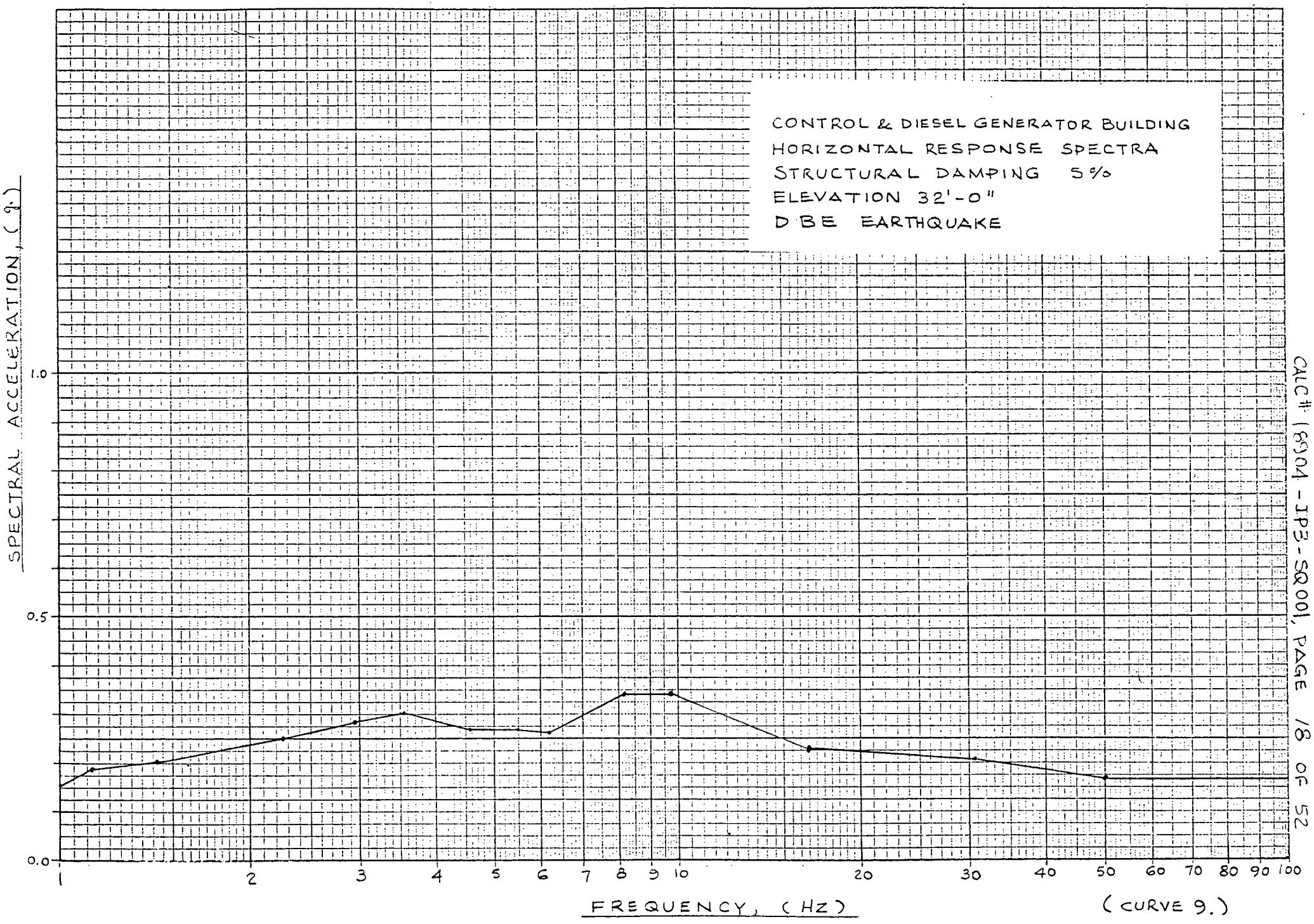
(CURVE 5.)


PRIMARY AUXILIARY BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 73'-0"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENY, (HZ)
(CURVE 6.)

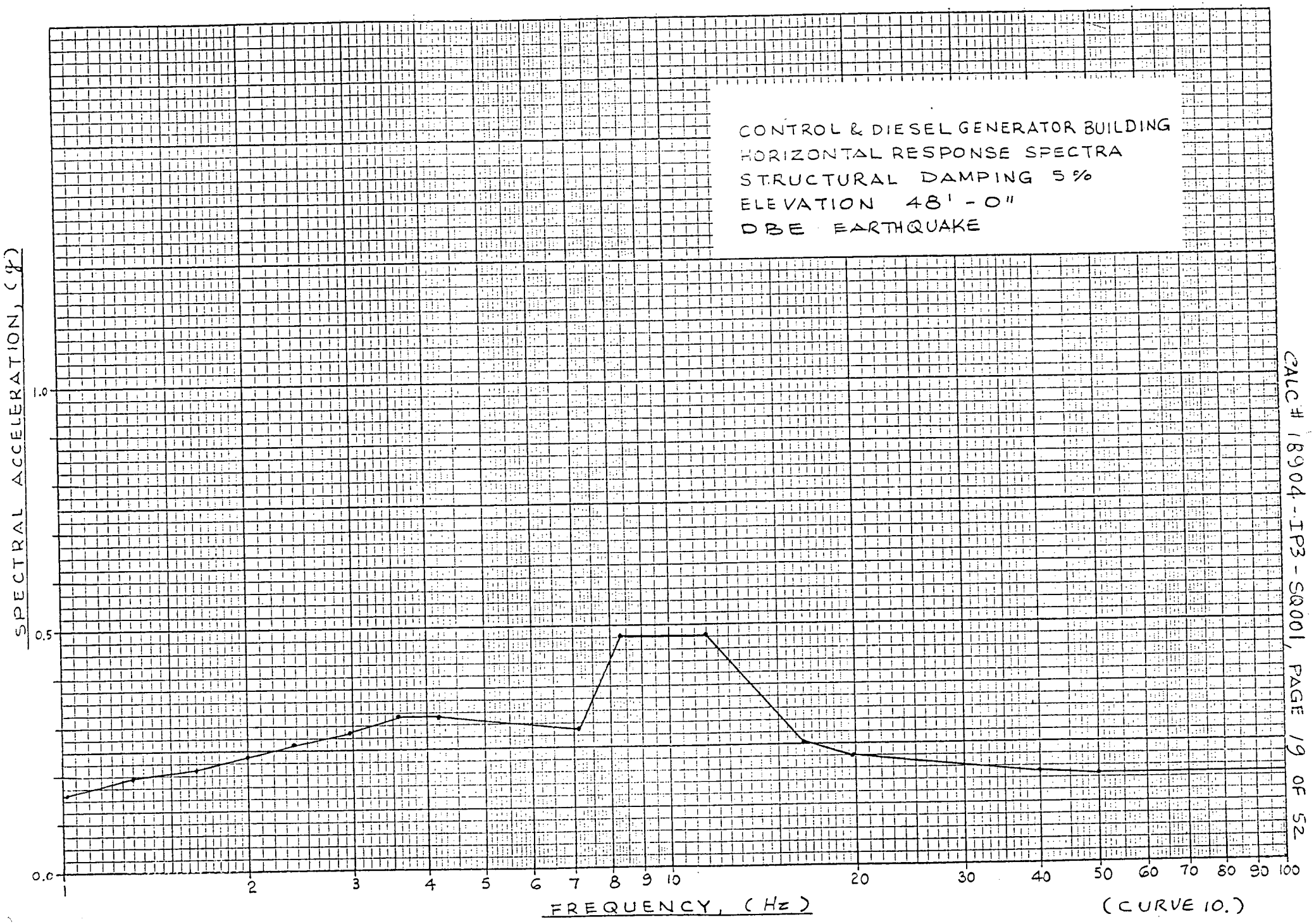

PRIMARY AUXILIARY BUILDING.
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 90'-0"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (HZ)
(CURVE 7.)

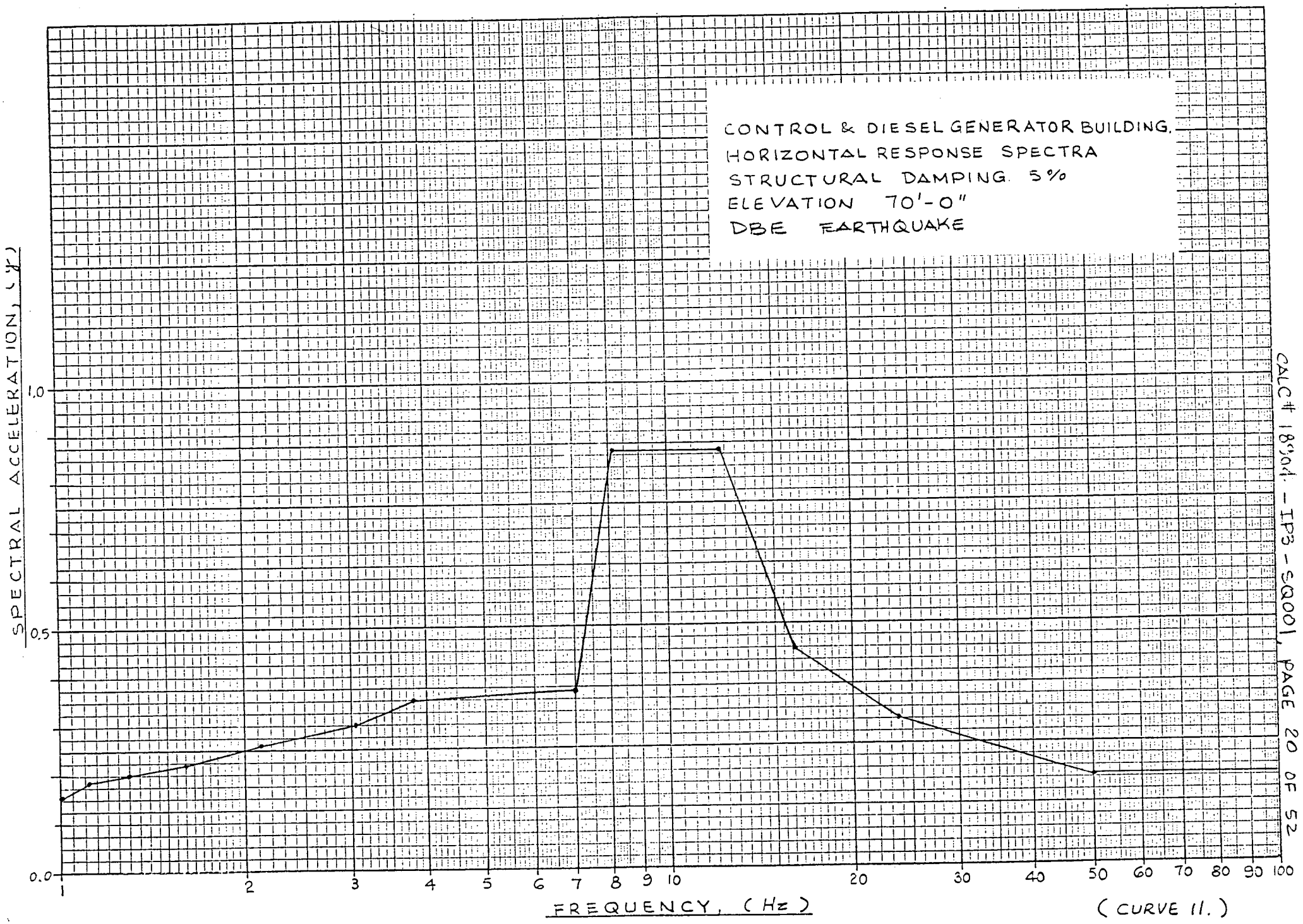

CONTROL & DIESEL GENERATOR BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5 %
ELEVATION 15'-0"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)

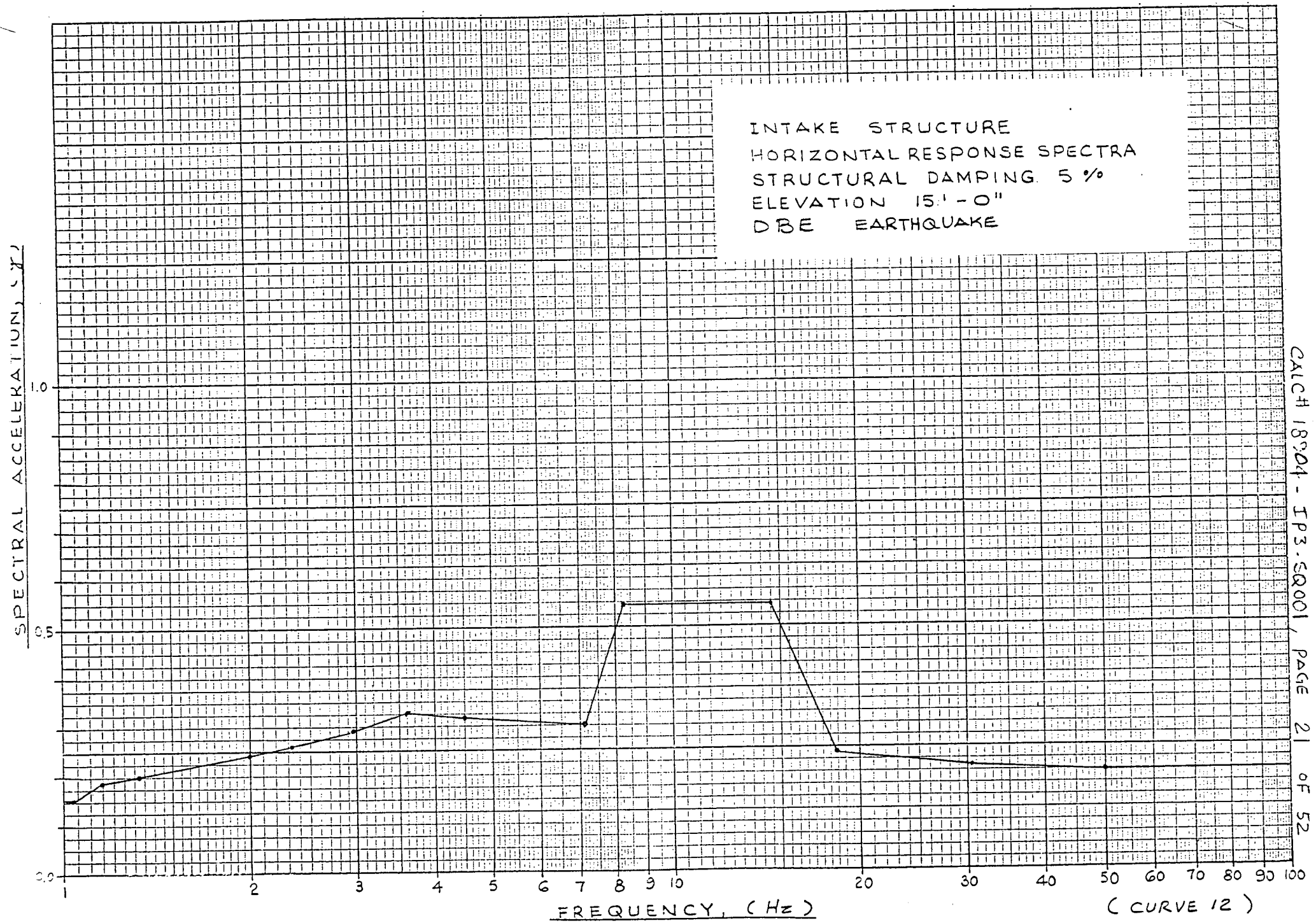
(CURVE 8.)

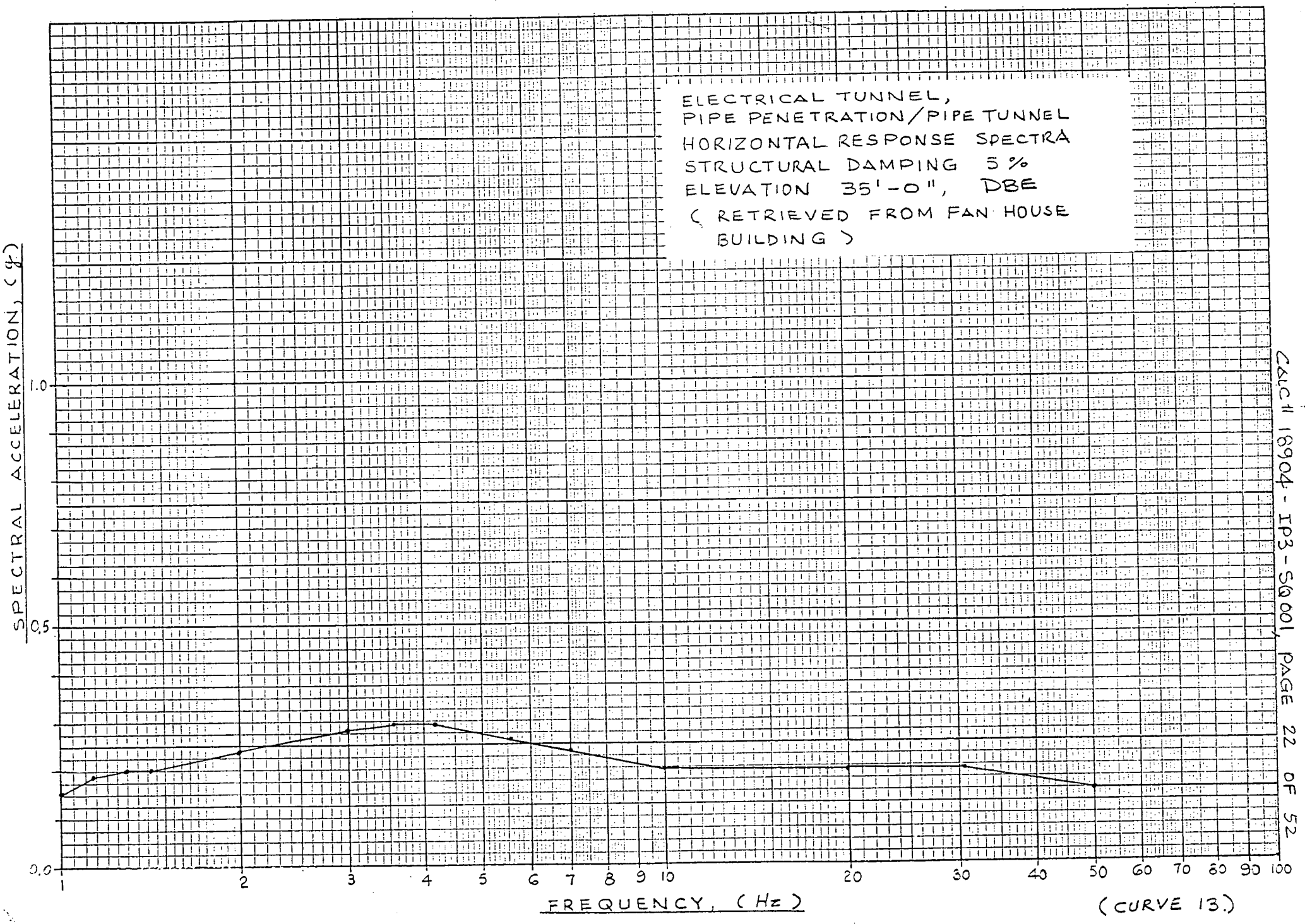

CONTROL & DIESEL GENERATOR BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 32'-0"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (HZ)

(CURVE 9.)

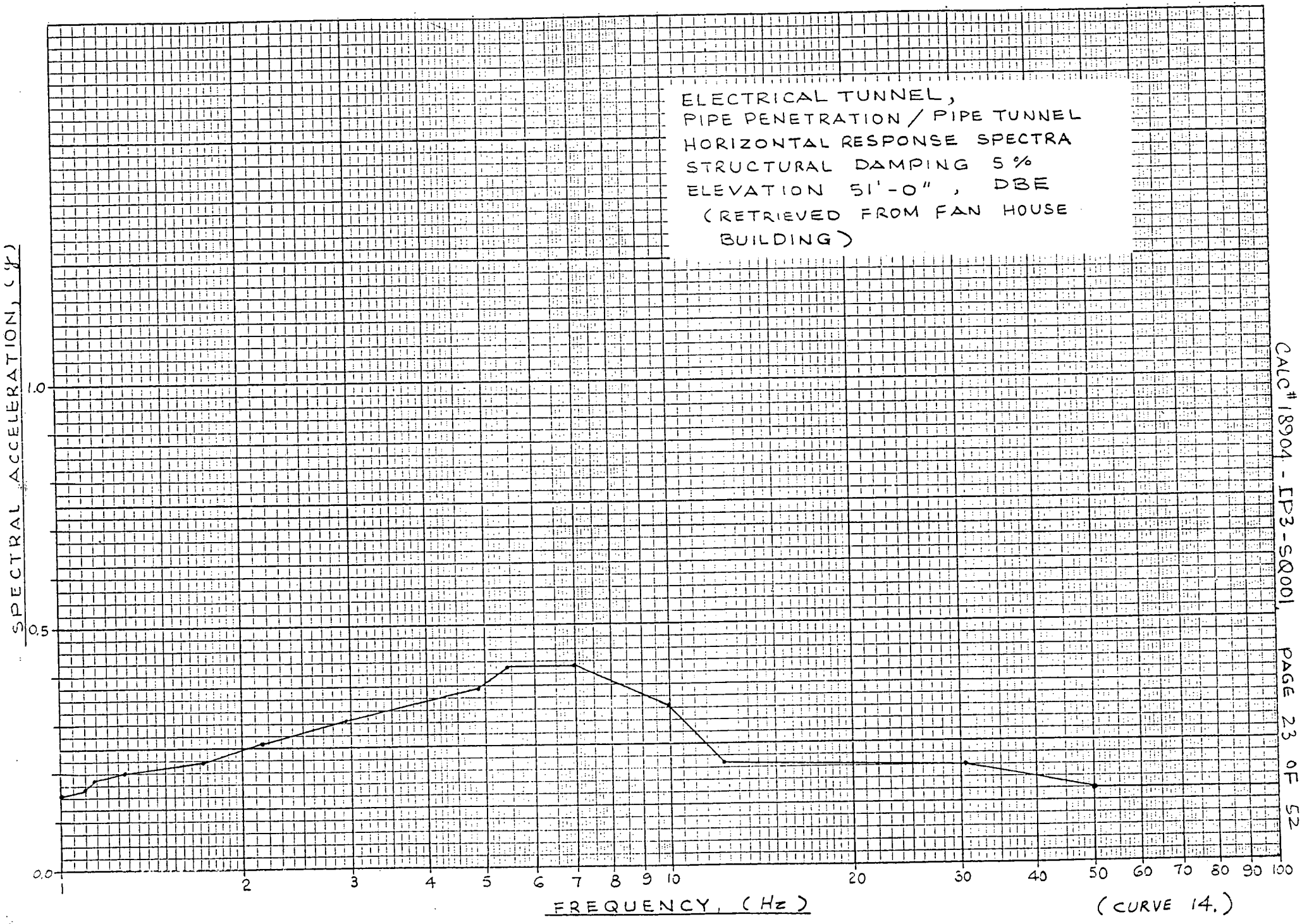

CONTROL & DIESEL GENERATOR BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 48' - 0"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)
(CURVE 10.)


CONTROL & DIESEL GENERATOR BUILDING.
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 70'-0"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)
(CURVE 11.)

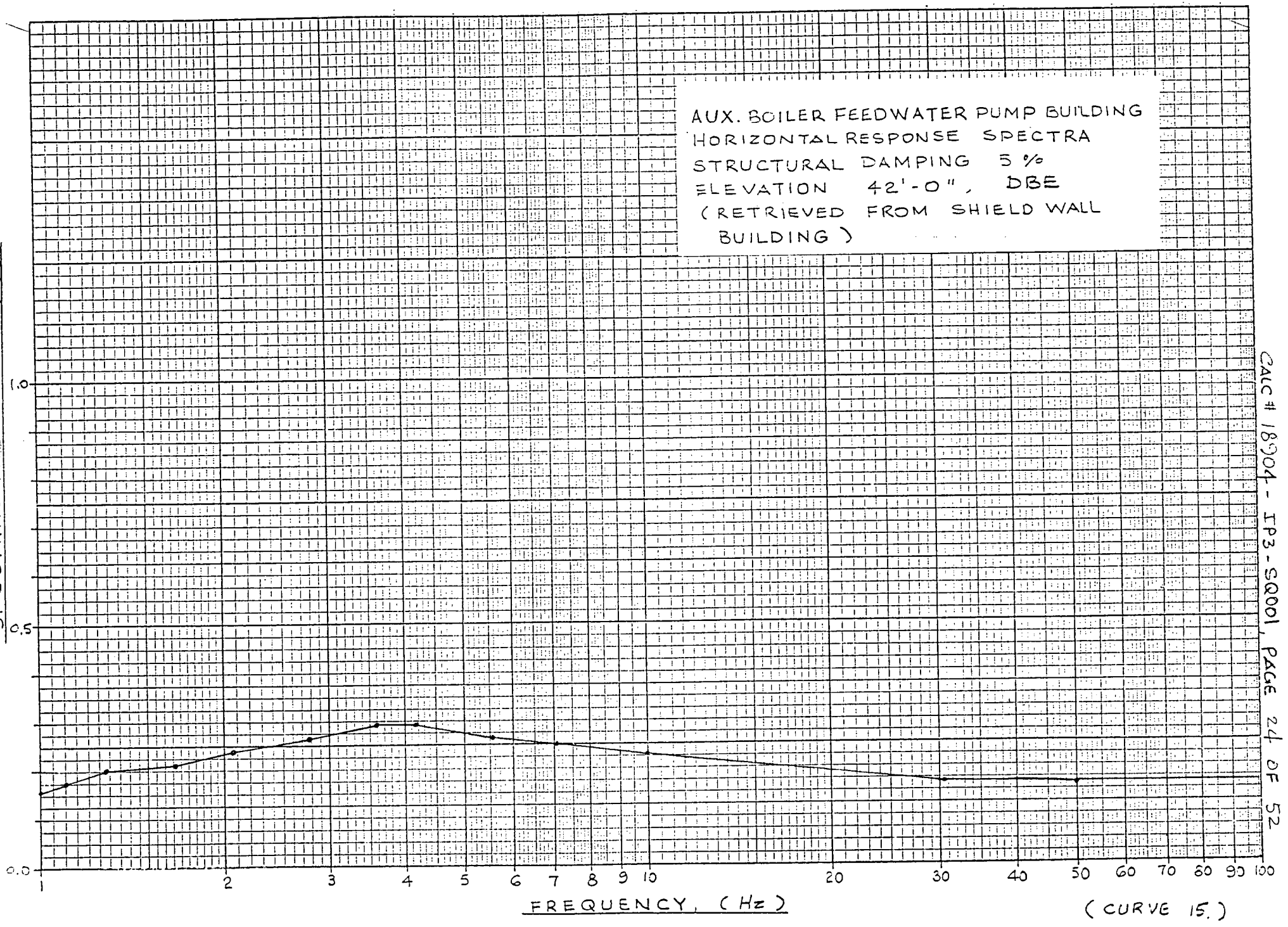

INTAKE STRUCTURE
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5 %
ELEVATION 15'-0"
DBE EARTHQUAKE
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)
(CURVE 12)


ELECTRICAL TUNNEL,
PIPE PENETRATION/PIPE TUNNEL
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 35'-0", DBE
(RETRIEVED FROM FAN HOUSE BUILDING)
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)

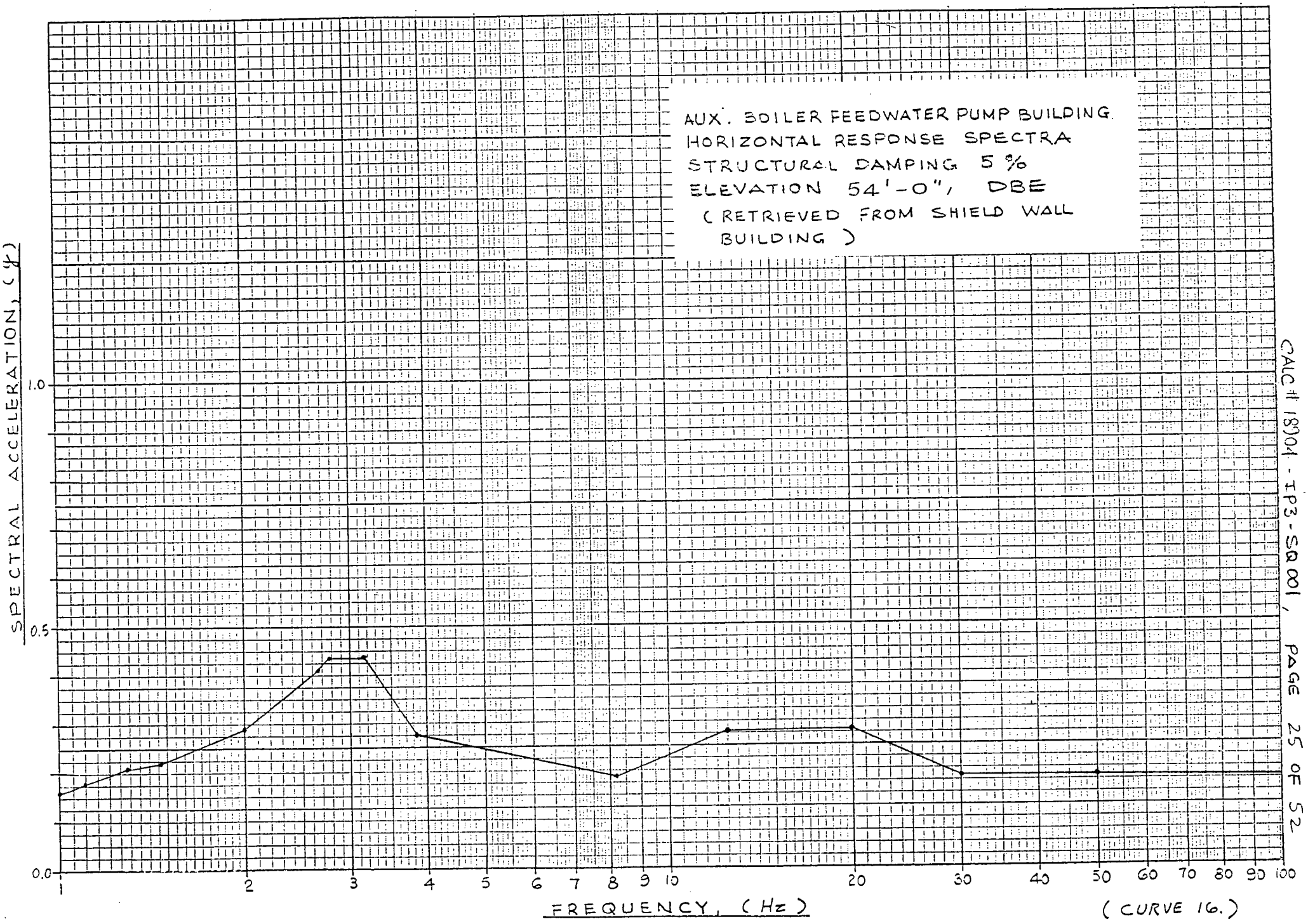
(CURVE 13.)


ELECTRICAL TUNNEL,
PIPE PENETRATION / PIPE TUNNEL
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%
ELEVATION 51'-0", DBE
(RETRIEVED FROM FAN HOUSE BUILDING)
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)

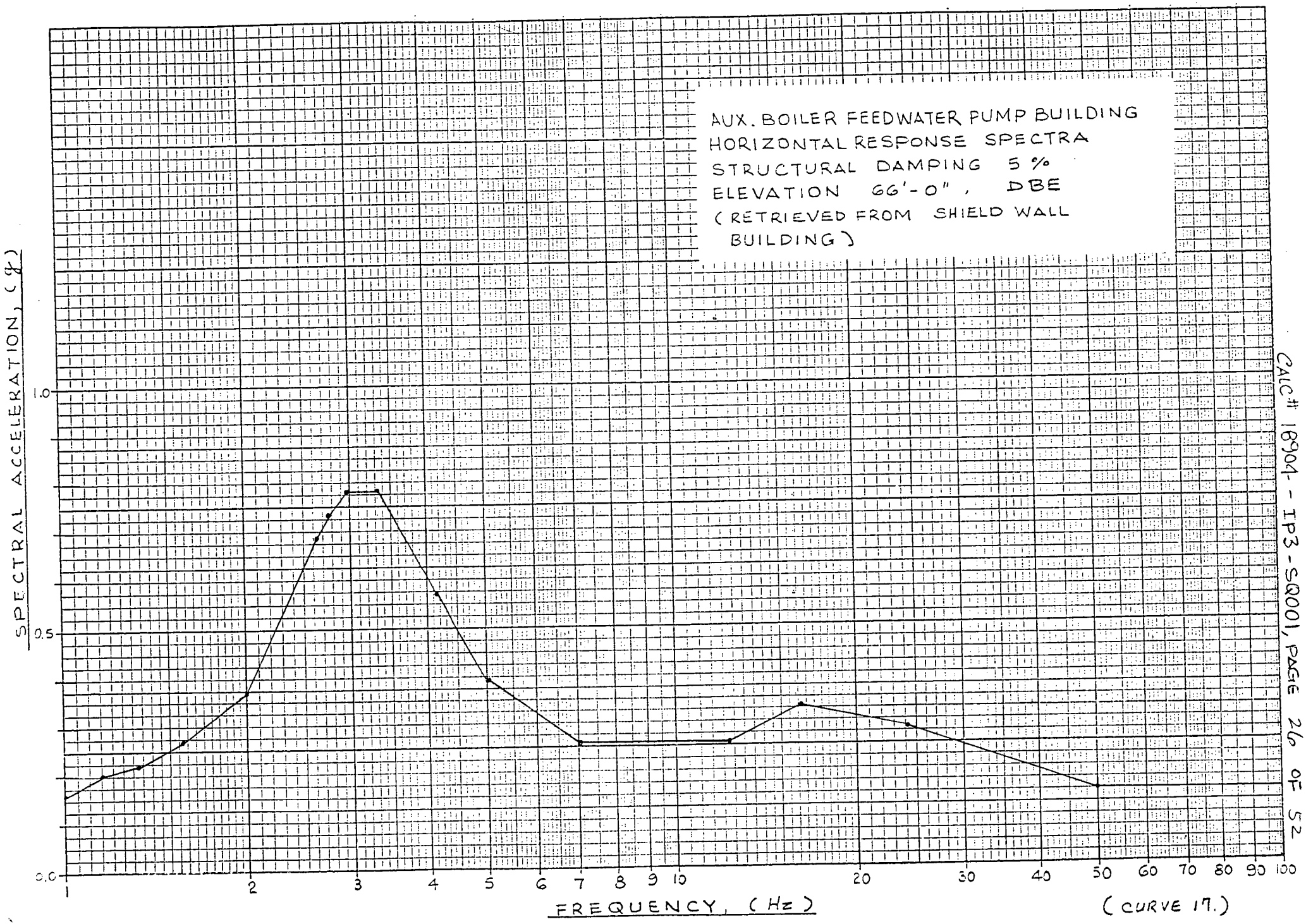
(CURVE 14.)


AUX. BOILER FEEDWATER PUMP BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5 %
ELEVATION 42'-0", DBE
(RETRIEVED FROM SHIELD WALL BUILDING)
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)

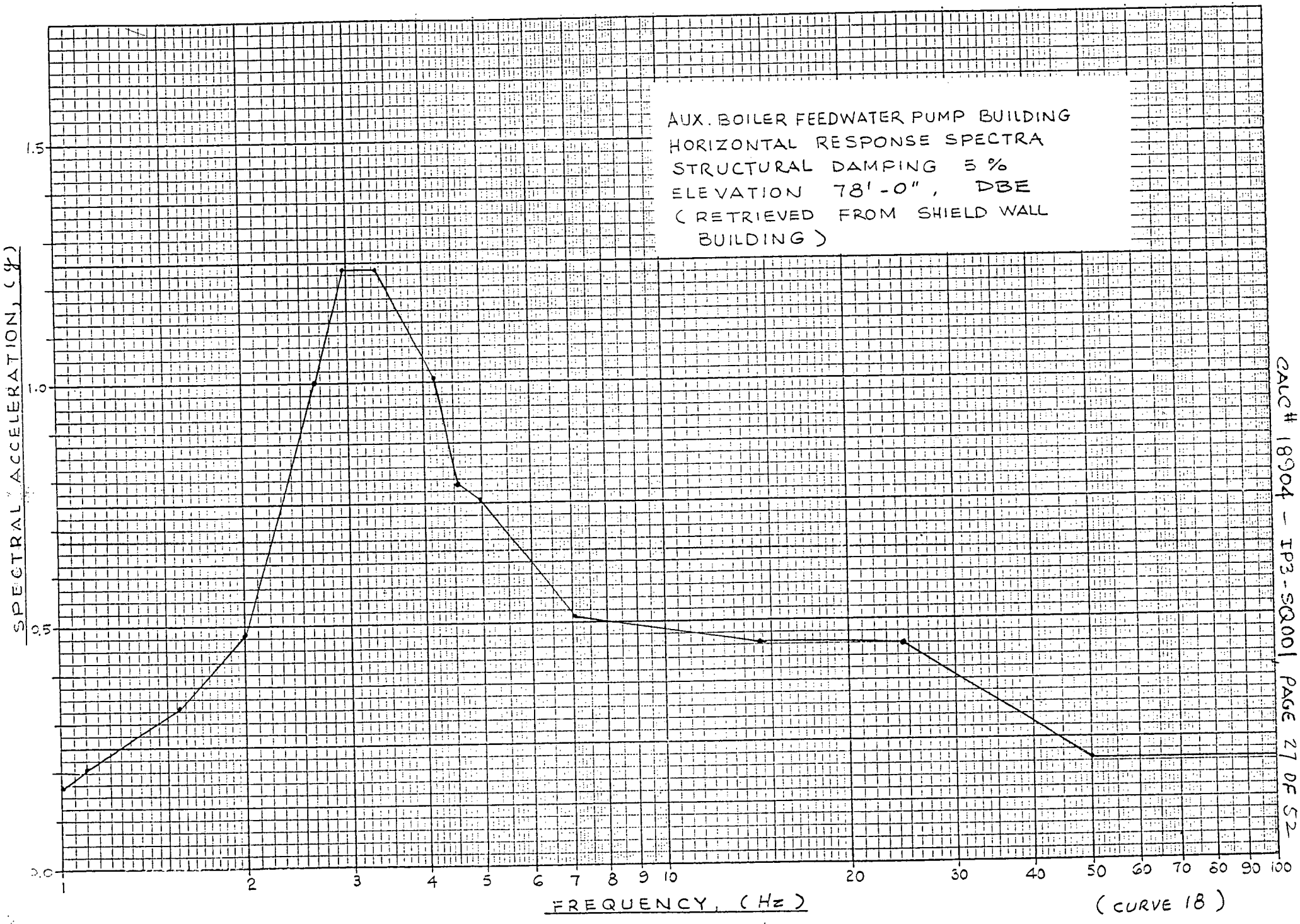
(CURVE 15.)

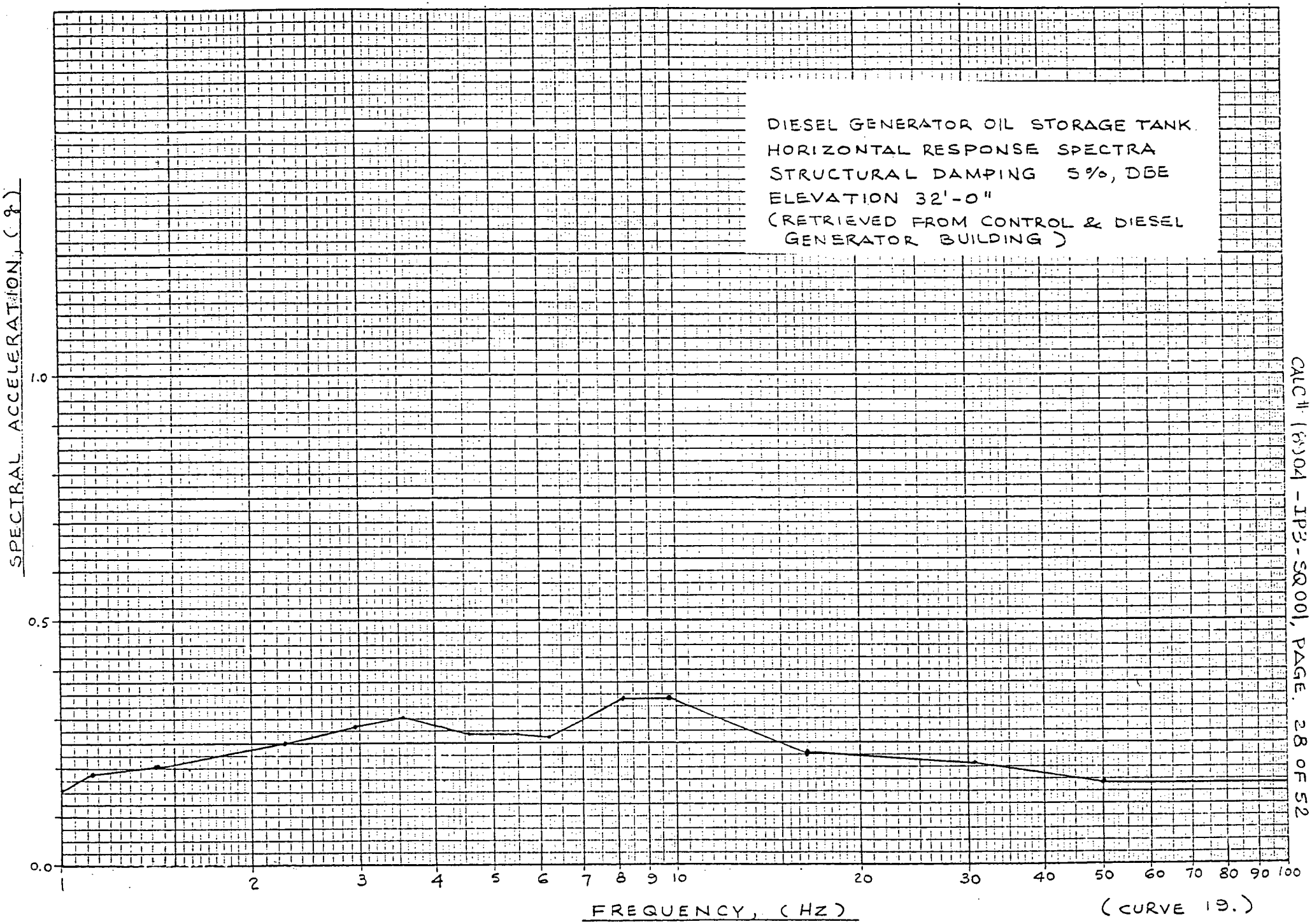

AUX. BOILER FEEDWATER PUMP BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5 %
ELEVATION 54'-0", DBE
(RETRIEVED FROM SHIELD WALL BUILDING)
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)

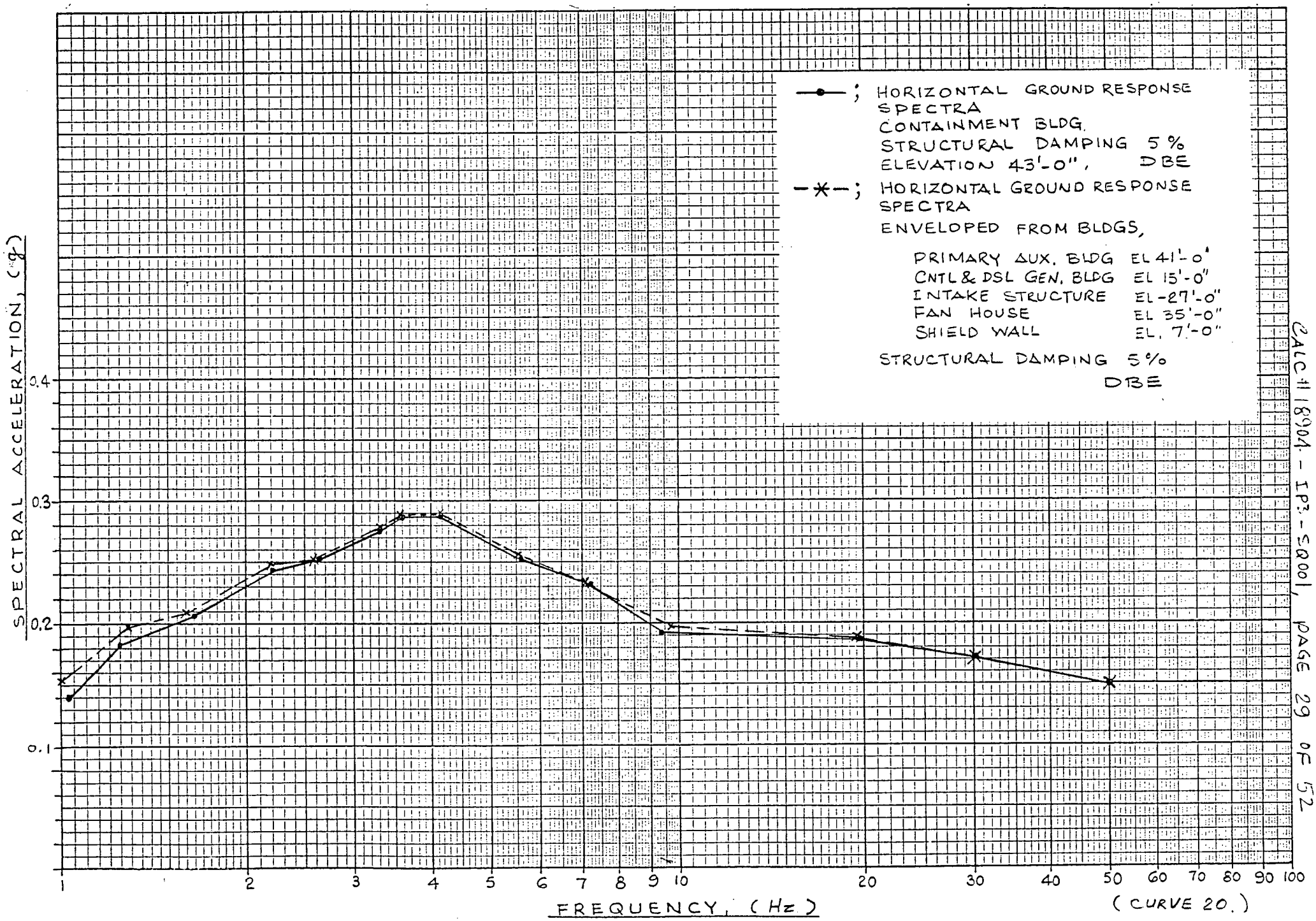
(CURVE 16.)


AUX. BOILER FEEDWATER PUMP BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5 %
ELEVATION 66'-0", DBE
(RETRIEVED FROM SHIELD WALL BUILDING)
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)

(CURVE 17.)


AUX. BOILER FEEDWATER PUMP BUILDING
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5 %
ELEVATION 78'-0", DBE
(RETRIEVED FROM SHIELD WALL BUILDING)
SPECTRAL ACCELERATION, (g)
1.5
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)
(CURVE 18)


DIESEL GENERATOR OIL STORAGE TANK
HORIZONTAL RESPONSE SPECTRA
STRUCTURAL DAMPING 5%, DBE
ELEVATION 32'-0"
(RETRIEVED FROM CONTROL & DIESEL GENERATOR BUILDING)
SPECTRAL ACCELERATION, (g)
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (HZ)
(CURVE 19.)


—•—; HORIZONTAL GROUND RESPONSE SPECTRA
CONTAINMENT BLDG.
STRUCTURAL DAMPING 5%
ELEVATION 43'-0", DBE
—*—; HORIZONTAL GROUND RESPONSE SPECTRA
ENVELOPED FROM BLDGS,
PRIMARY AUX. BLDG EL 41'-0"
CNTL & DSL GEN. BLDG EL 15'-0"
INTAKE STRUCTURE EL -27'-0"
FAN HOUSE EL 35'-0"
SHIELD WALL EL. 7'-0"
STRUCTURAL DAMPING 5%
DBE
SPECTRAL ACCELERATION, (g)
0.4
0.3
0.2
0.1
1
2
3
4
5
6
7
8
9
10
20
30
40
50
60
70
80
90
100
FREQUENCY, (Hz)
(CURVE 20.)

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : CONTAINMENT BUILDING
ELEVATION : 85'
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 1

Nº	PERIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1700
2	0.0507,	19.72	0.2299
3	0.0828,	12.08	0.3180
4	0.1228,	8.14	0.3180
5	0.1446,	6.92	0.2762
6	0.2015,	4.96	0.2762
7	0.2215,	4.51	0.4646
8	0.2621,	3.82	0.4646
9	0.3015,	3.32	0.3697
10	0.3439,	2.91	0.3662
11	0.4016,	2.50	0.2915
12	0.4541,	2.20	0.2760
13	0.5009,	2.00	0.2636
14	0.6009,	1.66	0.2298
15	0.6237,	1.60	0.2241
16	0.6518,	1.53	0.2127
17	0.7007,	1.43	0.2100
18	0.7599,	1.32	0.2050
19	0.7804,	1.28	0.1828
20	0.7999,	1.25	0.1818
21	0.8639,	1.16	0.1842
22	0.9008,	1.11	0.1775
23	0.9386,	1.06	0.1560
24	0.9787,	1.02	0.1560

* DATA FROM REFERENCE PAGE B-12

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : CONTAINMENT BUILDING
ELEVATION : 106'
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 2

No	PERIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.2000
2	0.0507,	19.72	0.2320
3	0.0813,	12.30	0.3588
4	0.1216,	8.22	0.3569
5	0.1416,	7.06	0.3043
6	0.2004,	4.99	0.3105
7	0.2202,	4.54	0.6766
8	0.2607,	3.83	0.6766
9	0.3015,	3.32	0.4250
10	0.3408,	2.93	0.4216
11	0.3649,	2.74	0.3840
12	0.3848,	2.60	0.3363
13	0.4003,	2.50	0.3131
14	0.5618,	1.78	0.2906
15	0.6003,	1.67	0.2739
16	0.6326,	1.58	0.2519
17	0.6498,	1.54	0.2342
18	0.7000,	1.43	0.2092
19	0.7259,	1.38	0.2056
20	0.7587,	1.32	0.2069
21	0.7785,	1.28	0.1879
22	0.7997,	1.25	0.1864
23	0.8482,	1.18	0.1828
24	0.8798,	1.14	0.1846
25	0.8999,	1.11	0.1716
26	0.9195,	1.09	0.1608
27	0.9430,	1.06	0.1543
28	0.9743,	1.03	0.1517

* DATA FROM REFERENCE PAGE B-11

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : CONTAINMENT BUILDING
ELEVATION : 127'
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 3

№	PERIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.2200
2	0.0507,	19.72	0.2400
3	0.0869,	11.51	0.3817
4	0.1176,	8.50	0.3861
5	0.1220,	8.20	0.3352
6	0.1409,	7.10	0.3079
7	0.1808,	5.53	0.3079
8	0.2022,	4.95	0.4639
9	0.2192,	4.56	0.9190
10	0.2611,	3.83	0.9190
11	0.2818,	3.55	0.6857
12	0.3020,	3.31	0.6068
13	0.3232,	3.10	0.4830
14	0.3374,	2.96	0.4830
15	0.3634,	2.75	0.4387
16	0.4021,	2.49	0.3389
17	0.4493,	2.23	0.3118
18	0.5002,	2.00	0.2950
19	0.6003,	1.67	0.2463
20	0.7000,	1.43	0.2099
21	0.7287,	1.37	0.2099
22	0.7639,	1.31	0.2116
23	0.7808,	1.28	0.1936
24	0.8001,	1.25	0.1915
25	0.8777,	1.14	0.1926
26	0.9000,	1.11	0.1776
27	0.9367,	1.06	0.1633
28	0.9713,	1.03	0.1595

* DATA FROM REFERENCE PAGE B-10.

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : INNER CONTAINMENT PRESSURIZER SHIELD WALL.
ELEVATION : 127'-6"
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 4

Nº	PERIOD (S)	FREQ (Hz)	ACCEL. (g)
1	0.0200,	50.0	0.6600
2	0.0326,	30.67	1.2000
3	0.0576,	17.36	4.1826
4	0.0801,	12.48	4.1826
5	0.1004,	9.96	0.7996
6	0.1227,	8.15	0.5491
7	0.1414,	7.07	0.4533
8	0.1610,	6.21	0.4533
9	0.1829,	5.48	0.3930
10	0.2208,	4.53	0.3623
11	0.2574,	3.88	0.3838
12	0.2814,	3.55	0.3232
13	0.3323,	3.01	0.3139
14	0.3572,	2.80	0.2861
15	0.4000,	2.50	0.2832
16	0.4602,	2.17	0.2767
17	0.5000,	2.00	0.2606
18	0.5999,	1.67	0.2248
19	0.6749,	1.48	0.2267
20	0.7007,	1.43	0.2060
21	0.7574,	1.32	0.2117
22	0.7830,	1.28	0.1872
23	0.9000,	1.11	0.1947
24	0.9335,	1.07	0.1646
25	0.9800,	1.02	0.1676
26	0.9983,	1.00	0.1816

* DATA FROM REFERENCE PAGE 13-126

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : PRIMARY AUXILIARY BUILDING
ELEVATION : 55'
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 5

NO.	PERIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1500
2	0.0326,	30.67	0.1500
3	0.0688,	14.53	0.2924
4	0.1012,	9.90	0.2924
5	0.1420,	7.04	0.2708
6	0.1636,	6.11	0.2708
7	0.1818,	5.50	0.2759
8	0.2201,	4.54	0.2759
9	0.2418,	4.14	0.3038
10	0.2805,	3.56	0.3038
11	0.3006,	3.33	0.2843
12	0.3408,	2.93	0.2843
13	0.3611,	2.77	0.2650
14	0.3811,	2.62	0.2591
15	0.4215,	2.37	0.2591
16	0.4446,	2.25	0.2507
17	0.4612,	2.17	0.2507
18	0.5177,	1.93	0.2347
19	0.5412,	1.85	0.2292
20	0.5627,	1.78	0.2255
21	0.5862,	1.70	0.2178
22	0.6001,	1.67	0.2143
23	0.6226,	1.61	0.2110
24	0.6603,	1.51	0.2086
25	0.7003,	1.43	0.2086
26	0.7373,	1.35	0.2005
27	0.7780,	1.28	0.2005
28	0.7996,	1.25	0.1856
29	0.8787,	1.14	0.1843
30	0.8996,	1.11	0.1757
31	0.9179,	1.09	0.1623
32	0.9398,	1.06	0.1543
33	0.9654,	1.03	0.1543

* DATA FROM REFERENCE PAGE B-52.

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING: PRIMARY AUXILIARY BUILDING

ELEVATION: 73'

EARTHQUAKE: DEE, HORIZONTAL
CURVE : 6

Nº	PERIOD (SEC)	FREQ. (Hz)	ACCEL (g)
1	0.0200,	50.00	0.1500
2	0.0326,	30.67	0.1800
3	0.0543,	18.42	0.3709
4	0.1005,	9.95	0.3709
5	0.1217,	8.22	0.3340
6	0.1414,	7.07	0.2946
7	0.1829,	5.47	0.2946
8	0.2213,	4.52	0.3006
9	0.2414,	4.14	0.3131
10	0.2812,	3.56	0.3131
11	0.3013,	3.32	0.2877
12	0.3413,	2.93	0.2877
13	0.3621,	2.76	0.2663
14	0.3809,	2.62	0.2610
15	0.4230,	2.36	0.2610
16	0.4442,	2.25	0.2525
17	0.4592,	2.18	0.2525
18	0.4850,	2.06	0.2460
19	0.5209,	1.92	0.2336
20	0.5468,	1.83	0.2271
21	0.5741,	1.74	0.2216
22	0.5993,	1.67	0.2138
23	0.6642,	1.50	0.2080
24	0.7001,	1.43	0.2080
25	0.7362,	1.36	0.1994
26	0.7791,	1.28	0.1994
27	0.7996,	1.25	0.1845
28	0.8792,	1.14	0.1826
29	0.8999,	1.11	0.1741
30	0.9175,	1.09	0.1611
31	0.9377,	1.07	0.1523
32	0.9657,	1.04	0.1523

* DATA FROM REFERENCE PAGE B-53

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : PRIMARY AUXILIARY BUILDING
ELEVATION : 90'
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 7

No	PERIOD (SEC)	FREQ (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1500
2	0.0326,	30.67	0.2200
3	0.0543,	18.42	0.4693
4	0.0802,	12.47	0.4693
5	0.1001,	10.00	0.3369
6	0.1215,	8.23	0.3057
7	0.1415,	7.07	0.3009
8	0.2206,	4.53	0.3031
9	0.2411,	4.15	0.3164
10	0.2811,	3.56	0.3164
11	0.3006,	3.32	0.2892
12	0.3403,	2.94	0.2892
13	0.3618,	2.76	0.2679
14	0.3816,	2.62	0.2633
15	0.4200,	2.38	0.2633
16	0.4436,	2.25	0.2547
17	0.4671,	2.14	0.2531
18	0.5490,	1.82	0.2275
19	0.5669,	1.76	0.2246
20	0.5991,	1.67	0.2146
21	0.6392,	1.56	0.2093
22	0.6807,	1.47	0.2093
23	0.7016,	1.42	0.2003
24	0.7608,	1.31	0.2003
25	0.7801,	1.28	0.1788
26	0.8371,	1.19	0.1788
27	0.8578,	1.16	0.1848
28	0.8710,	1.15	0.1848
29	0.9025,	1.108	0.1734
30	0.9161,	1.09	0.1612
31	0.9369,	1.07	0:1524
32	0.9673,	1.03	0.1524

* DATA FROM REFERENCE PAGE B-58

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : CONTROL & DIESEL GENERATOR BUILDING
ELEVATION : 32'
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 9 & 19

Nº	PERIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1700
2	0.0326,	30.67	0.2100
3	0.0606,	16.50	0.2276
4	0.1027,	9.74	0.3442
5	0.1221,	8.19	0.3442
6	0.1422,	7.03	0.2633
7	0.1614,	6.20	0.2633
8	0.1809,	5.53	0.2736
9	0.2194,	4.56	0.2736
10	0.2413,	4.14	0.3072
11	0.2806,	3.56	0.3072
12	0.3005,	3.33	0.2810
13	0.3411,	2.93	0.2810
14	0.3600,	2.78	0.2669
15	0.3811,	2.62	0.2583
16	0.4220,	2.37	0.2583
17	0.4416,	2.26	0.2504
18	0.4614,	2.17	0.2483
19	0.5650,	1.77	0.2234
20	0.5992,	1.67	0.2139
21	0.6281,	1.59	0.2101
22	0.6631,	1.51	0.2075
23	0.6996,	1.43	0.2075
24	0.7357,	1.36	0.1993
25	0.7796,	1.28	0.1993
26	0.7991,	1.25	0.1831
27	0.8792,	1.14	0.1831
28	0.9024,	1.11	0.1720
29	0.9163,	1.09	0.1625
30	0.9377,	1.07	0.1530
31	0.9939,	1.00	0.1530

* DATA FROM REFERENCE, PAGE B-60

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : CONTROL & DIESEL GENERATOR BUILDING

ELEVATION : 48'

EARTHQUAKE : DBE, HORIZONTAL

CURVE : 10

Nº	PERIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1800
2	0.0250,	40.00	0.1850
3	0.0507,	19.72	0.2248
4	0.0605,	16.50	0.2542
5	0.0869,	11.50	0.4759
6	0.1214,	8.34	0.4759
7	0.1401,	7.14	0.2858
8	0.2193,	4.56	0.2877
9	0.2403,	4.16	0.3213
10	0.2799,	3.57	0.3213
11	0.3021,	3.31	0.2829
12	0.3406,	2.93	0.2829
13	0.3631,	2.75	0.2681
14	0.3829,	2.61	0.2612
15	0.4213,	2.37	0.2612
16	0.4417,	2.26	0.2522
17	0.4705,	2.12	0.2490
18	0.5005,	2.00	0.2404
19	0.6005,	1.66	0.2131
20	0.6538,	1.53	0.2074
21	0.6800,	1.47	0.2074
22	0.7062,	1.42	0.1983
23	0.7610,	1.31	0.1983
24	0.7807,	1.28	0.1768
25	0.8410,	1.19	0.1768
26	0.8592,	1.16	0.1822
27	0.8807,	1.13	0.1802
28	0.8983,	1.11	0.1741
29	0.9115,	1.10	0.1656
30	0.9163,	1.09	0.1609
31	0.9392,	1.06	0.1515
32	0.9771,	1.02	0.1515

* DATA FROM REFERENCE, PAGE B-61

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : CONTROL & DIESEL GENERATOR BUILDING
ELEVATION : 70'
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 11

Nº	PERIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1800
2	0.0421,	23.75	0.3050
3	0.0622,	16.08	0.4467
4	0.0807,	12.39	0.8554
5	0.1226,	8.16	0.8554
6	0.1429,	7.00	0.3684
7	0.1643,	6.09	0.3606
8	0.1870,	5.35	0.3439
9	0.2024,	4.94	0.3381
10	0.2442,	4.10	0.3466
11	0.2632,	3.80	0.3589
12	0.2828,	3.54	0.3071
13	0.3394,	2.95	0.2910
14	0.3915,	2.55	0.2732
15	0.4424,	2.26	0.2612
16	0.4719,	2.12	0.2612
17	0.5368,	1.86	0.2414
18	0.5686,	1.76	0.2271
19	0.6009,	1.66	0.2215
20	0.6282,	1.59	0.2143
21	0.6791,	1.47	0.2127
22	0.7134,	1.40	0.2008
23	0.7610,	1.31	0.2008
24	0.7821,	1.28	0.1818
25	0.8441,	1.18	0.1791
26	0.8605,	1.16	0.1845
27	0.8920,	1.12	0.1813
28	0.9360,	1.07	0.1556
29	0.9987,	1.00	0.1569

* DATA FROM REFERENCE, PAGE B-62.

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : INTAKE STRUCTURE
ELEVATION : 15'
EARTHQUAKE : DBE, HORIZONTAL.
CURVE : 12

Nº	PERIOD (SEC)	FREQ (Hz)	ACCEL (g)
1	0.0200,	50.00	0.2000
2	0.0326,	30.67	0.2100
3	0.0543,	18.42	0.2400
4	0.0687,	14.56	0.5473
5	0.1208,	8.28	0.5473
6	0.1406,	7.11	0.3047
7	0.1780,	5.62	0.3047
8	0.2204,	4.54	0.3191
9	0.2384,	4.20	0.3306
10	0.2786,	3.59	0.3306
11	0.2999,	3.33	0.2874
12	0.3399,	2.94	0.2874
13	0.3599,	2.78	0.2712
14	0.3774,	2.65	0.2648
15	0.4199,	2.38	0.2648
16	0.4392,	2.28	0.2557
17	0.4522,	2.21	0.2557
18	0.4983,	2.00	0.2439
19	0.5240,	1.91	0.2349
20	0.5985,	1.67	0.2154
21	0.6401,	1.56	0.2106
22	0.6784,	1.47	0.2106
23	0.7017,	1.42	0.2001
24	0.7590,	1.32	0.2001
25	0.7797,	1.28	0.1784
26	0.8395,	1.19	0.1784
27	0.8588,	1.16	0.1837
28	0.8783,	1.14	0.1837
29	0.9023,	1.11	0.1723
30	0.9179,	1.09	0.1603
31	0.9375,	1.07	0.1536
32	0.9681,	1.03	0.1536

* DATA FROM REFERENCE, PAGE B-99

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING: FAN HOUSE BUILDING
ELEVATION: 51'
EARTHQUAKE: DBE, HORIZONTAL
CURVE : 14

NO.	PERIOD (SEC)	FREQ (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1500
2	0.0326,	30.67	0.2000
3	0.0809,	12.36	0.2188
4	0.1020,	9.80	0.3306
5	0.1236,	8.09	0.3306
6	0.1435,	6.97	0.4149
7	0.1851,	5.40	0.4149
8	0.2048,	4.88	0.3734
9	0.2437,	4.10	0.3354
10	0.2829,	3.53	0.3354
11	0.3046,	3.28	0.3051
12	0.3427,	2.92	0.3051
13	0.3641,	2.75	0.2678
14	0.4227,	2.36	0.2678
15	0.4417,	2.26	0.2580
16	0.4670,	2.14	0.2580
17	0.5601,	1.78	0.2328
18	0.5822,	1.72	0.2210
19	0.6570,	1.52	0.2117
20	0.6997,	1.43	0.2117
21	0.7356,	1.36	0.2011
22	0.7809,	1.28	0.2011
23	0.8006,	1.25	0.1851
24	0.8807,	1.13	0.1835
25	0.9054,	1.10	0.1721
26	0.9165,	1.09	0.1625
27	0.9372,	1.07	0.1546
28	0.9987,	1.00	0.1546

* DATA FROM REFERENCE, PAGE B-83

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING: SHIELD WALL
ELEVATION: 42'
EARTHQUAKE: DBE, HORIZONTAL
CURVE: 15

Nº	PERIOD (SEC)	FREQ. (Hz)	ACCEL (g)
1	0.0200,	50.00	0.1600
2	0.0326,	30.67	0.1700
3	0.0615,	16.26	0.1837
4	0.0809,	12.36	0.2193
5	0.1010,	9.90	0.2294
6	0.1208,	8.28	0.2294
7	0.1412,	7.08	0.2493
8	0.1596,	6.26	0.2493
9	0.1805,	5.54	0.2659
10	0.2196,	4.55	0.2659
11	0.2406,	4.15	0.2959
12	0.2802,	3.57	0.2959
13	0.2993,	3.34	0.2802
14	0.3397,	2.94	0.2802
15	0.3615,	2.76	0.2621
16	0.3806,	2.63	0.2571
17	0.4201,	2.38	0.2571
18	0.4409,	2.27	0.2493
19	0.4628,	2.16	0.2466
20	0.4805,	2.08	0.2430
21	0.4993,	2.00	0.2365
22	0.5340,	1.87	0.2297
23	0.5599,	1.78	0.2248
24	0.5994,	1.67	0.2130
25	0.6311,	1.58	0.2099
26	0.6649,	1.50	0.2078
27	0.6990,	1.43	0.2078
28	0.7348,	1.36	0.2005
29	0.7789,	1.28	0.2005
30	0.7995,	1.25	0.1847
31	0.8590,	1.16	0.1832
32	0.8782,	1.14	0.1832
33	0.8990,	1.11	0.1750
34	0.9179,	1.09	0.1614
35	0.9374,	1.07	0.1534
36	0.9971,	1.00	0.1544

* DATA FROM REFERENCE, PAGE B-117

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : SHIELD WALL
ELEVATION : 54'
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 16

Nº	PRIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1800
2	0.0326,	30.67	0.1800
3	0.0507,	19.72	0.2774
4	0.0802,	12.47	0.2774
5	0.1010,	9.90	0.2062
6	0.1213,	8.24	0.1812
7	0.1621,	6.17	0.1812
8	0.1821,	5.50	0.1941
9	0.2008,	5.00	0.2205
10	0.2608,	3.83	0.2728
11	0.2806,	3.56	0.2771
12	0.3195,	3.13	0.4357
13	0.3595,	2.78	0.4357
14	0.3808,	2.63	0.4160
15	0.4203,	2.38	0.3260
16	0.4418,	2.26	0.3074
17	0.5003,	2.00	0.2870
18	0.5589,	1.79	0.2713
19	0.5805,	1.72	0.2601
20	0.5999,	1.67	0.2453
21	0.6205,	1.61	0.2382
22	0.6572,	1.52	0.2211
23	0.6996,	1.43	0.2211
24	0.7363,	1.36	0.2103
25	0.7789,	1.28	0.2103
26	0.7998,	1.25	0.1928
27	0.8786,	1.14	0.1918
28	0.9066,	1.10	0.1776
29	0.9194,	1.09	0.1677
30	0.9404,	1.06	0.1590
31	0.9608,	1.04	0.1557
32	0.9986,	1.00	0.1580

* DATA FROM REFERENCE, PAGE B-123

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : SHIELD WALL
ELEVATION : 66'
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 17

№	PERIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1500
2	0.0414,	24.15	0.2825
3	0.0614,	16.29	0.3368
4	0.0818,	12.22	0.2547
5	0.1424,	7.02	0.2570
6	0.2002,	5.00	0.3933
7	0.2206,	4.53	0.4179
8	0.2407,	4.15	0.5693
9	0.2808,	3.56	0.5693
10	0.3005,	3.33	0.7703
11	0.3376,	2.96	0.7703
12	0.3595,	2.78	0.7357
13	0.3805,	2.63	0.6837
14	0.4398,	2.27	0.4116
15	0.4996,	2.00	0.3738
16	0.5637,	1.77	0.3448
17	0.6252,	1.60	0.2813
18	0.6420,	1.56	0.2735
19	0.6746,	1.48	0.2444
20	0.7153,	1.40	0.2224
21	0.7591,	1.32	0.2236
22	0.7792,	1.28	0.2002
23	0.8211,	1.22	0.1961
24	0.8713,	1.15	0.2052
25	0.8996,	1.11	0.1973
26	0.9377,	1.07	0.1593
27	0.9971,	1.00	0.1618

* DATA FROM REFERENCE, PAGE B-121

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : SHIELD WALL
ELEVATION : 78'
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 18

Nº	PERIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.2100
2	0.0407,	24.57	0.4485
3	0.0695,	14.40	0.4525
4	0.1413,	7.08	0.5190
5	0.1618,	6.18	0.6055
6	0.1829,	5.47	0.7049
7	0.2011,	4.97	0.7578
8	0.2199,	4.55	0.7872
9	0.2392,	4.18	1.0819
10	0.2791,	3.58	1.0819
11	0.3002,	3.33	1.2384
12	0.3397,	2.94	1.2384
13	0.3599,	2.78	1.0859
14	0.3795,	2.63	1.0015
15	0.3999,	2.50	0.8521
16	0.4205,	2.38	0.6916
17	0.4455,	2.24	0.5641
18	0.4618,	2.26	0.5116
19	0.4996,	2.00	0.4772
20	0.5629,	1.78	0.4331
21	0.5986,	1.67	0.3782
22	0.6202,	1.61	0.3347
23	0.6402,	1.62	0.3267
24	0.7000,	1.43	0.2453
25	0.7482,	1.33	0.2453
26	0.7853,	1.27	0.2154
27	0.8997,	1.11	0.2173
28	0.9386,	1.06	0.1686
29	0.9967,	1.00	0.1705

* DATA FROM REFERENCE, PAGE B-120

FREQUENCY CORRESPONDING TO PERIODS

BUILDING : CONTAINMENT BUILDING
ELEVATION : 43'-0", (GROUND RESPONSE.)
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 20

Nº	PERIODS (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1500
2	0.0323,	30.96	0.1700
3	0.0507,	19.72	0.1863
4	0.0774,	12.92	0.1863
5	0.1064,	9.40	0.1935
6	0.1391,	7.19	0.2332
7	0.1577,	6.34	0.2332
8	0.1785,	5.60	0.2567
9	0.2182,	4.58	0.2567
10	0.2397,	4.17	0.2878
11	0.2788,	3.58	0.2878
12	0.3007,	3.32	0.2759
13	0.3396,	2.92	0.2759
14	0.3606,	2.77	0.2586
15	0.3802,	2.63	0.2520
16	0.4194,	2.38	0.2520
17	0.4442,	2.25	0.2446
18	0.4527,	2.21	0.2446
19	0.6072,	1.65	0.2080
20	0.6984,	1.43	0.2047
21	0.7320,	1.37	0.1975
22	0.7758,	1.29	0.1975
23	0.7987,	1.25	0.1808
24	0.8791,	1.14	0.1790
25	0.9059,	1.10	0.1669
26	0.9366,	1.07	0.1508
27	0.9798,	1.02	0.1495

* DATA FROM REFERENCE, PAGE B-3

GROUND RESPONSE SPECTRA VALUES OTHER THAN CONTAINMENT BLDG.

TABULATED BELOW ARE FREQUENCIES AND ACCELERATIONS AT MASS POINT GROUND RESPONSE ENVELOPED FROM BUILDINGS PRIMARY AUXILIARY BUILDING, CONTROL & DIESEL GEN. BLDG, INTAKE STRUCTURURE, FAN HOUSE & SHIELDWALL. SINCE THE VALUES AT GROUND RESPONSE ARE VERY CLOSE FOR EACH BUILDING, ENVELOPING ACCELERATIONS FROM EACH BUILDING WILL BE REASONABLE AND CONSERVATIVE.

SEE NEXT PAGES FOR INDIVIDUAL DATA — CURVE 20 —

Nº	PERIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200	50.00	0.1500
2	0.0323	30.96	0.1700
3	0.0507	19.72	0.1873
4	0.0806	12.40	0.1873
5	0.1021	9.79	0.1931
6	0.1236	8.09	0.2103
7	0.1418	7.05	0.2349
8	0.1599	6.25	0.2349
9	0.1803	5.55	0.2590
10	0.2192	4.56	0.2590
11	0.2400	4.17	0.2898
12	0.2800	3.57	0.2898
13	0.2996	3.34	0.2768
14	0.3397	2.94	0.2768
15	0.3606	2.77	0.2602
16	0.2805	2.63	0.2545
17	0.4208	2.37	0.2545
18	0.4414	2.26	0.2466
19	0.4589	2.18	0.2448
20	0.4790	2.09	0.2413
21	0.5015	1.99	0.2348
22	0.5257	1.90	0.2284
23	0.5587	1.79	0.2232
24	0.5804	1.72	0.2167
25	0.5992	1.67	0.2119
26	0.6185	1.62	0.2093
27	0.6995	1.43	0.2088
28	0.6986	1.43	0.2080
29	0.7767	1.29	0.2020
30	0.7802	1.28	0.1992
31	0.8780	1.14	0.1847
32	0.8795	1.14	0.1829
33	0.8992	1.11	0.1743
34	0.9185	1.09	0.1600
35	0.9368	1.07	0.1540
36	0.9906	1.00	0.1540

FREQUENCES CORRESPONDING TO PERIODS

BUILDING : PRIMARY AUXILIARY BUILDING.
ELEVATION : 41'-0 (GROUND RESPONSE)
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 20

No	PERIOD (SEC)	FREQ (HZ)	ACCEL. (g)
1	0.0200,	50.00	0.1500
2	0.0326,	30.67	0.1700
3	0.0507,	19.72	✓ 0.1857
4	0.0795,	12.58	0.1857
5	0.1017,	9.83	✓ 0.1920
6	0.1211,	8.25	0.2074
7	0.1414,	7.07	✓ 0.2340
8	0.1605,	6.23	0.2340
9	0.1801,	5.55	✓ 0.2576
10	0.2197,	4.55	0.2576
11	0.2405,	4.16	✓ 0.2883
12	0.2807,	3.56	✓ 0.2883
13	0.3007,	3.32	✓ 0.2759
14	0.3398,	2.94	0.2759
15	0.3601,	2.78	✓ 0.2589
16	0.3831,	2.61	0.2529
17	0.4212,	2.37	0.2529
18	0.4441,	2.25	0.2447
19	0.4557,	2.19	0.2447
20	0.4790,	2.09	✓ 0.2399
21	0.5020,	2.00	0.2339
22	0.5257,	1.90	0.2284
23	0.5590,	1.79	0.2223
24	0.5994,	1.67	✓ 0.2109
25	0.6200,	1.61	0.2079
26	0.6999,	1.43	0.2067
27	0.7386,	1.35	✓ 0.1986
28	0.7807,	1.28	0.1986
29	0.8004,	1.25	✓ 0.1834
30	0.8790,	1.14	0.1824
31	0.8997,	1.11	0.1736
32	0.9194,	1.09	0.1595
33	0.9389,	1.06	0.1524
34	0.9722,	1.03	✓ 0.1524

* DATA FROM REFERENCE, PAGE B-55

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : CONTROL & DIESEL GENERATOR BUILDING
ELEVATION : 10' DIESEL, 15' CONTROL (GROUND RESPONSE)
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 8 & 20

№	PERIOD (SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1500
2	0.0326,	30.67	0.1700
3	0.0507,	19.72	0.1862
4	0.0820,	12.20	0.1862
5	0.1026,	9.75	0.1927
6	0.1221,	8.19	0.2075
7	0.1416,	7.06	0.2348
8	0.1609,	6.21	0.2348
9	0.1800,	5.55	0.2584
10	0.2186,	4.57	0.2584
11	0.2392,	4.18	0.2893
12	0.2800,	3.57	0.2893
13	0.2997,	3.34	0.2762
14	0.3375,	2.96	0.2762
15	0.3597,	2.78	0.2598
16	0.3818,	2.62	0.2535
17	0.4210,	2.37	0.2535
18	0.4400,	2.27	0.2450
19	0.4771,	2.10	0.2405
20	0.4992,	2.00	0.2346
21	0.5561,	1.80	0.2229
22	0.5988,	1.67	0.2115
23	0.6199,	1.61	0.2084
24	0.6982,	1.43	0.2071
25	0.7398,	1.35	0.1983
26	0.7787,	1.28	0.1983
27	0.8004,	1.25	0.1829
28	0.8789,	1.14	0.1829
29	0.8984,	1.11	0.1743
30	0.9175,	1.09	0.1606
31	0.9394,	1.06	0.1530
32	0.9769,	1.02	0.1530

* DATA FROM REFERENCE PAGE B-63

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : INTAKE STRUCTURE
ELEVATION : -27'-0" (GROUND RESPONSE)
EARTHQUAKE : DEE, HORIZONTAL
CURVE : 20

NO	PERIOD(SEC)	FREQ. (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1500
2	0.0326,	30.67	0.1700
3	0.0507,	19.72	0.1857
4	0.0799,	12.52	0.1857
5	0.0999,	10.00	0.1912
6	0.1196,	8.36	0.2061
7	0.1408,	7.10	0.2333
8	0.1591,	6.28	0.2333
9	0.1799,	5.56	0.2573
10	0.2173,	4.60	0.2573
11	0.2389,	4.19	0.2889
12	0.2795,	3.58	✓ 0.2889
13	0.2997,	3.33	✓ 0.2760
14	0.3389,	2.95	0.2760
15	0.3593,	2.78	✓ 0.2593
16	0.3794,	2.63	0.2535
17	0.4191,	2.39	0.2535
18	0.4404,	2.27	✓ 0.2455
19	0.4753,	2.10	0.2406
20	0.4987,	2.00	0.2333
21	0.5373,	1.86	0.2255
22	0.5607,	1.78	0.2217
23	0.5987,	1.67	✓ 0.2104
24	0.6194,	1.61	0.2074
25	0.7008,	1.43	0.2060
26	0.7361,	1.36	✓ 0.1985
27	0.7791,	1.28	0.1985
28	0.7989,	1.25	✓ 0.1832
29	0.8779,	1.14	0.1832
30	0.8988,	1.11	0.1744
31	0.9172,	1.09	0.1611
32	0.9390,	1.06	0.1528
33	0.9516,	1.05	✓ 0.1528

* DATA FROM REFERENCE, PAGE B-97

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : FAN HOUSE BUILDING
ELEVATION : 35', (GROUND RESPONSE)
EARTHQUAKE : DBE, HORIZONTAL
CURVE : 13 & 20

№	PERIOD (SEC)	FREQ. (Hz)	ACCEL (g)
1	0.0200,	50.00	0.1500
2	0.0326,	30.67	0.1700
3	0.0507,	19.72	0.1873
4	0.0806,	12.40	0.1873
5	0.1021,	9.79	0.1931
6	0.1236,	8.09	0.2103
7	0.1418,	7.05	0.2349
8	0.1599,	6.25	0.2349
9	0.1803,	5.55	0.2590
10	0.2192,	4.56	0.2590
11	0.2400,	4.17	0.2898
12	0.2800,	3.57	0.2898
13	0.2996,	3.34	0.2768
14	0.3397,	2.94	0.2768
15	0.3606,	2.77	0.2602
16	0.3805,	2.63	0.2545
17	0.4208,	2.37	0.2545
18	0.4414,	2.26	0.2466
19	0.4589,	2.18	0.2448
20	0.4790,	2.09	0.2413
21	0.5015,	1.99	0.2348
22	0.5657,	1.77	0.2224
23	0.5827,	1.72	0.2164
24	0.5996,	1.67	0.2128
25	0.6187,	1.61	0.2099
26	0.6402,	1.56	0.2088
27	0.6995,	1.43	0.2088
28	0.7286,	1.37	0.2020
29	0.7767,	1.29	0.2020
30	0.8002,	1.25	0.1847
31	0.8780,	1.14	0.1847
32	0.9042,	1.10	0.1715
33	0.9188,	1.09	0.1603
34	0.9390,	1.06	0.1530
35	0.9896,	1.01	0.1530

* DATA FROM REFERENCE, PAGE B-82.

FREQUENCIES CORRESPONDING TO PERIODS

BUILDING : SHIELD WALL
ELEVATION : 7'-0" (GROUND RESPONSE)
EARTHQUAKE : DBE, HORIZONTAL.
CURVE : 20

No.	PERIOD (SEC)	FREQ (Hz)	ACCEL. (g)
1	0.0200,	50.00	0.1500
2	0.0326,	30.67	0.1700
3	0.0507,	19.72	0.1861
4	0.0812,	12.32	0.1861
5	0.1010,	9.90	0.1919
6	0.1215,	8.23	0.2081
7	0.1412,	7.03	0.2339
8	0.1600,	6.25	0.2339
9	0.1804,	5.54	0.2576
10	0.2190,	4.57	0.2576
11	0.2395,	4.17	0.2886
12	0.2800,	3.57	0.2886
13	0.3000,	3.33	0.2760
14	0.3391,	2.95	0.2760
15	0.3595,	2.78	0.2596
16	0.3792,	2.64	0.2540
17	0.4195,	2.38	0.2540
18	0.4406,	2.27	0.2455
19	0.4595,	2.17	0.2433
20	0.4791,	2.09	0.2397
21	0.4997,	2.00	0.2341
22	0.5300,	1.99	0.2280
23	0.5587,	1.79	0.2232
24	0.5804,	1.72	0.2167
25	0.5992,	1.67	0.2119
26	0.6185,	1.62	0.2093
27	0.6422,	1.56	0.2080
28	0.6986,	1.43	0.2080
29	0.7400,	1.53	0.1992
30	0.7802,	1.28	0.1992
31	0.8002,	1.25	0.1841
32	0.8795,	1.14	0.1829
33	0.8992,	1.11	0.1743
34	0.9185,	1.09	0.1600
35	0.9368,	1.07	0.1540
36	0.9906,	1.00	0.1540

* DATA FROM REFERENCE, PAGE B-113

APPENDIX J

IP-3 SAFE SHUTDOWN EQUIPMENT LIST (SSEL)

OPERATIONS GROUP REVIEW

ATOMETRICS

123 Main Street
White Plains, New York 10601
914 681.6200

New York Power Authority

Date: 11- 6-1995
Transmittal No: 95-007
Contract No: 893-51330

To: ATOMETRICS, INC.
2 Crosfield Avenue
West Nyack, NY 10994

Attn: Mr.J.Thompson

V/C NO: Rev: 1 Status: 1
REQUIRED OPERATOR ACTIONS

The documents listed above are being returned to you with status as indicated on the document.

Very truly yours,

P.Okas
Senior Project Engineer

cc: M.Lakis, A.Pal, P.Okas, R.Schimpf, C.Yeh, DDC File

Indian Point 3
Nuclear Power Plant

New York Power Authority

Memorandum

3 November 1995
IP-OPS-95-216

To: P. Okas

From: R. A. Schimpf

Subject: Indian Point 3 Nuclear Power Plant
Operations Department
Seismic Qualification

Reference: NYPA Transmittal 95-007, Required Operator Actions

I have completed the requested reviews of the referenced document. The following is a comment based on this review:

> The Required Operator Actions identified actions that operators would take due to component mis-operation as a result of a seismic event. The actions listed would be normally taken by the operators for the component mis-operation including the manual positioning of valves if not capable of positioning using the valve's normal operator (air or motor). These actions are not specifically identified in procedures. The Operations Department is in the process of performing an upgrade on our procedures. During this upgrade process, we will determine if the specific operator actions identified in these documents will be incorporated into the appropriate procedures.
>
> Operability of equipment identified in the reference document is not a concern for the identified required actions.

I am available to discuss these specific comments and to answer questions related to this subject that needs Operations input.

cc: M. Lakis
N. Eggemeyer
J. Jordan

G:\RAS\SQUG1

TO:

FROM: _____

SUBJECT: REPLY TO INTERNAL TRANSMITTAL NO.: **95-007**
VENDOR: **ATOMETRICS INC.**

PROJECT: CONTRACT: **893-51330**
IP3 USI A-46 (SQUG)

I have reviewed the transmitted information and:
__ I have no comments.
__ I have the following comments:

ITEM COMMENTS

NEW YORK POWER AUTHORITY
DOCUMENT REVIEW STATUS
STATUS NO: 1 ☒ ACCEPTED 2 ☐ ACCEPTED AS NOTED RESUBMITTAL NOT REQUIRED 3 ☐ ACCEPTED AS NOTED RESUBMITTAL REQUIRED 4 ☐ NOT ACCEPTED
Permission to proceed does not constitute acceptance or approval of design details, calculations, analysis, test methods or materials developed or selected by the supplier and does not relieve supplier from full compliance with contractual negotiations.
REVIEWED BY: [illegible] TITLE: SR. PROJ. ENGR
DATE: 11/6/95

No. 100,216

PLEASE NOTE: INCORPORATE TRANSMITTAL NUMBER INTO SUBJECT HEADING OF ANY MEMORANDUM REGARDING THIS TRANSMITTAL.

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
OPERATOR ACTIONS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
** AC-793						
	IR6	RELAY GOULD J13	CCR PANEL SHR	CB	53'-0"	OA
** AC-FCV-625						
	FIC-625	FLOW SWITCH	CCR PANEL SGF	CB	53'-0"	OA
** CH-FCV-110B						
	YIC-110	BORIC ACID COUNTER	CCR PANEL FBF	CB	53'-0"	OA
** CSAPBA1						
	YIC-110	BORIC ACID COUNTER	CCR PANEL FBF	CB	53'-0"	OA
** CSAPBA2						
	YIC-110	BORIC ACID COUNTER	CCR PANEL FBF	CB	53'-0"	OA
** 31CHGR (GE3)						
	DPR	DIFF PRESS RELAY	BATTERY CHRGR 31	CB	33'-0"	OA
	TDR	TIME DELAY RELAY	BATTERY CHRGR 31	CB	33'-0"	OA
** 32CHGR (GE4)						
	DPR	DIFF PRESS RELAY	BATTERY CHRGR 32	CB	33'-0"	OA
	TDR	TIME DELAY RELAY	BATTERY CHRGR 32	CB	33'-0"	OA
** ACU31						
	1RR3	RESET RELAY	ACU31	CB	15'-0"	OA
	1CT	COMPRESSOR THERMOSTAT CONTACTS	ACU31	CB	15'-0"	OA
	1HIP	HIGH PRESSURE CUTOUT SWITCH	ACU31	CB	15'-0"	OA
	1LOP	LOW PRESSURE CUTOUT SWITCH	ACU31	CB	15'-0"	OA
	2RR3	RESET RELAY	ACU31	CB	15'-0"	OA
	2CT	COMPRESSOR THERMOSTAT CONTACTS	ACU31	CB	15'-0"	OA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: SYSTEM
OPERATOR ACTIONS

EQUIPMENT ID NUMBER	CONTACT/CONTACT GROUP	CONTACT RELAY TYPE	MOUNTING STRUCTURE	BLDG	ELEV	EVALUATION
	2HIP	HIGH PRESSURE CUTOUT SWITCH	ACU31	CB	15'-0"	OA
	2LOP	LOW PRESSURE CUTOUT SWITCH	ACU31	CB	15'-0"	OA
	1RR2	RESET RELAY	ACU31	CB	15'-0"	OA
	2RR2	RESET RELAY	ACU31	CB	15'-0"	OA
** ACU32						
	1RR3	RESET RELAY	ACU32	CB	15'-0"	OA
	1CT	COMPRESSOR THERMOSTAT RELAY	ACU32	CB	15'-0"	OA
	1HIP	HIGH PRESSURE CUTOUT RELAY	ACU32	CB	15'-0"	OA
	1LOP	LOW PRESSURE CUTOUT RELAY	ACU32	CB	15'-0"	OA
	2RR3	RESET RELAY	ACU32	CB	15'-0"	OA
	2CT	COMPRESSOR THERMOSTAT RELAY	ACU32	CB	15'-0"	OA
	2HIP	HIGH PRESSURE CUTOUT RELAY	ACU32	CB	15'-0"	OA
	2LOP	LOW PRESSURE CUTOUT RELAY	ACU32	CB	15'-0"	OA
	1RR2	RESET RELAY	ACU32	CB	15'-0"	OA
	2RR2	RESET RELAY	ACU32	CB	15'-0"	OA
** SOV-1428						
	1R28	RELAY GOULD J13P20	CCR PANEL SHR	CB	53'-0"	OA
** 31PWMUP						
	YIC-110	BORIC ACID COUNTER	CCR PANEL FBF	CB	53'-0"	OA
	YIC-111	DEMIN WATER COUNTER	CCR PANEL FBF	CB	53'-0"	OA
** 32PWMUP						
	YIC-110	BORIC ACID COUNTER	CCR PANEL FBF	CB	53'-0"	OA
	YIC-111	DEMIN WATER COUNTER	CCR PANEL FBF	CB	53'-0"	OA

123 Main Street
White Plains, New York 10601
914 681.6200

NewYorkPower Authority

Date: 9-27-1995
Transmittal No: 95-003
Contract No: S93-51330

To: ATOMETRICS INC.
2 Crosfield Avenue
West Nyack, NY 10994

Attn: Mr.J.Thompson,P.E.

Subject: IP3 USI A-46 (SQUG)

V/C NO: USI A-46 Rev: 1 Status: 1
SAFE SHUTDOWN EQUIPMENT LIST FOR SEISMIC VERIFICATION

V/C NO: Rev: A Status: 1
REQUIRED OPERATOR ACTIONS

The documents listed above are being returned to you with status as indicated on the document.

Very truly yours,

Pokas

P.Okas
Senoir Project Engineer

cc:M.Lakis, A.Pal, C.Yeh, P.Okas, J.Lafferty, R.Schimpf, N.Mathers, DDC File

NewYorkPower Authority

Memorandum

September 26, 1995
IP-OPS-95-201

MEMORANDUM TO: P. OKAS

FROM: R. A. SCHIMPF

SUBJECT: INDIAN POINT 3 NUCLEAR POWER PLANT
OPERATIONS DEPARTMENT
SEISMIC QUALIFICATION

References:
a. NYPA Transmittal 95-003, Safe Shutdown Equipment List for Seismic Verification
b. NYPA Transmittal 95-004, Relay Screening for EDG's and Required Operator Actions

I have completed the requested reviews of the referenced documents. The following are comments based on this review:

1. The Safe Shutdown Equipment List for Seismic Verification contains equipment required to shutdown the plant to its safe shutdown (hot shutdown) condition consistent with plant procedures and operator training. It also contains the minimum equipment that would be necessary to shutdown the plant to its cold shutdown condition. These items should not be removed from this list but it should be understood.

2. The Relay Screening for the EDGs and the Required Operator Actions identified actions that operators would take due to component mis-operation as a result of a seismic event. The actions listed would be normally taken by the operators for the component mis-operation including the manual positioning of valves if not capable of positioning using the valve's normal operator (air or motor). These actions are not specifically identified in procedures. The Operations Department is in the process of performing an upgrade on our procedures. During this upgrade process, we will determine if the specific operator actions identified in these documents will be incorporated into the appropriate procedures.

I am available to discuss these specific comments and to answer questions related to this subject that needs Operations input.

R. A. Schimpf
Operations Engineering Supervisor

cc: M. Lakes
N. Eggemeyer
J. Jordan

NEW YORK POWER AUTHORITY

PROJECT: IP3 USI A-46 (SQUG)

NYPA INTXMTL #: 95-004 DATED: 9-12-1995 FILE #: S93-51330
NYPA EXTXMTL #: DATED: 0- 0-0000 DOC #:
Title: REQUIRED OPERATOR ACTIONS

	FOR					FOR			
	INFO	COMM	NC	C		INFO	COMM	NC	C
M. LAKIS									
A. PAL									
P. OKAS									
C. YEM									
R. SCHIMPF									
J. LAFFERTY									

NYPA FILE NO. S93-51330

REVIEWED BY:

COMMENTS DUE: 09-26-95

RETURN TO: P. OKAS

No 100.215

NOTE: PLEASE DO NOT REMOVE THIS SHEET FROM THE ATTACHED DOCUMENT

TO:

FROM: _____

SUBJECT: REPLY TO INTERNAL TRANSMITTAL NO.: **95-004**
VENDOR: **ATOMETRICS INC.**

PROJECT: CONTRACT: **S93-51330**
IP3 USI A-46 (SQUG)

I have reviewed the transmitted information and:
__ I have no comments.
__ I have the following comments:

ITEM	COMMENTS

NEW YORK POWER AUTHORITY

DOCUMENT REVIEW STATUS

STATUS NO:
1 ☒ ACCEPTED
2 ☐ ACCEPTED AS NOTED RESUBMITTAL NOT REQUIRED
3 ☐ ACCEPTED AS NOTED RESUBMITTAL REQUIRED
4 ☐ NOT ACCEPTED

Permission to proceed does not constitute acceptance or approval of design details, calculations, analysis, test methods or materials developed or selected by the supplier and does not relieve supplier from full compliance with contractual negotiations.

REVIEWED BY: [signature] TITLE: SR PROT ENGR

DATE: 8/27/95

No. 100.216

PLEASE NOTE: INCORPORATE TRANSMITTAL NUMBER INTO SUBJECT HEADING OF ANY MEMORANDUM REGARDING THIS TRANSMITTAL.

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: OPERATOR ACTION

EQUIPMENT ID NUMBER	SYS	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
** AC-793							
	CCW	CCR PANEL SHR	IR6	CB	53'-0"	RELAY GOULD J13	OA
** AC-FCV-625							
	CCW	CCR PANEL SGF	FIC-625	CB	53'-0"	FLOW SWITCH	OA
** CH-FCV-110B							
	CVCS	CCR PANEL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	OA
** CSAPBA1							
	CVCS	CCR PANEL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	OA
** CSAPBA2							
	CVCS	CCR PANEL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	OA
** GE3							
	DC	BATTERY CHRGR 31	DPR	CB	33'-0"	DIFF PRESS RELAY	OA
		BATTERY CHRGR 31	TDR	CB	33'-0"	TIME DELAY RELAY	OA
** GE4							
	DC	BATTERY CHRGR 32	DPR	CB	33'-0"	DIFF PRESS RELAY	OA
		BATTERY CHRGR 32	TDR	CB	33'-0"	TIME DELAY RELAY	OA
** DG-31							
	EDG	31 EDG CONTROL PANEL PF9	32/EG1	DG	15'-0"	CURRENT SENSING RELAY WHSE CW 2892988A17A	OA
		EDG VOLT. REG RELAY PNL31	K1/EG1	DG	10'-0"	RELAY WHSE M101	OA
		EDG VOLT. REG RELAY PNL31	K4/EG1	DG	10'-0"	BREAKER CLOSURE RELAY WHSE Z	OA
		EDG VOLT. REG RELAY PNL31	K2/EG1	DG	10'-0"	RELAY WHSE M110	OA
		EDG VOLT. REG RELAY PNL31	K3/EG1	DG	10'-0"	RELAY WHSE Z	OA
** DG-32							
	EDG	32 EDG CONTROL PANEL PQ1	32/EG2	DG	15'-0"	CURRENT SENSING RELAY WHSE CW 2892988A17A	OA
		EDG VOLT. REG RELAY PNL32	K1/EG2	DG	10'-0"	RELAY WHSE M101	OA
		EDG VOLT. REG RELAY PNL32	K4/EG2	DG	10'-0"	BREAKER CLOSURE RELAY WHSE Z	OA
		EDG VOLT. REG RELAY PNL32	K2/EG2	DG	10'-0"	RELAY WHSE M110	OA
		EDG VOLT. REG RELAY PNL32	K3/EG2	DG	10'-0"	RELAY WHSE Z	OA
** DG-33							
	EDG	33 EDG CONTROL PANEL PQ2	32/EG3	DG	15'-0"	CURRENT SENSING RELAY WHSE CW 2892988A17A	OA
		EDG VOLT. REG RELAY PNL33	K1/EG3	DG	10'-0"	RELAY WHSE M101	OA
		EDG VOLT. REG RELAY PNL33	K4/EG3	DG	10'-0"	BREAKER CLOSURE RELAY WHSE Z	OA
		EDG VOLT. REG RELAY PNL33	K2/EG3	DG	10'-0"	RELAY WHSE M110	OA
		EDG VOLT. REG RELAY PNL33	K3/EG3	DG	10'-0"	RELAY WHSE Z	OA

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: OPERATOR ACTION

EQUIPMENT ID NUMBER	SYS	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
** ACU31							
	HVAC	ACU31	1RR3	CB	15'-0"	RESET RELAY	OA
		ACU31	1CT	CB	15'-0"	COMPRESSOR THERMOSTAT CONTACTS	OA
		ACU31	1HIP	CB	15'-0"	HIGH PRESSURE CUTOUT SWITCH	OA
		ACU31	1LOP	CB	15'-0"	LOW PRESSURE CUTOUT SWITCH	OA
		ACU31	2RR3	CB	15'-0"	RESET RELAY	OA
		ACU31	2CT	CB	15'-0"	COMPRESSOR THERMOSTAT CONTACTS	OA
		ACU31	2HIP	CB	15'-0"	HIGH PRESSURE CUTOUT SWITCH	OA
		ACU31	2LOP	CB	15'-0"	LOW PRESSURE CUTOUT SWITCH	OA
		ACU31	1RR2	CB	15'-0"	RESET RELAY	OA
		ACU31	2RR2	CB	15'-0"	RESET RELAY	OA
** ACU32							
	HVAC	ACU32	1RR3	CB	15'-0"	RESET RELAY	OA
		ACU32	1CT	CB	15'-0"	COMPRESSOR THERMOSTAT RELAY	OA
		ACU32	1HIP	CB	15'-0"	HIGH PRESSURE CUTOUT RELAY	OA
		ACU32	1LOP	CB	15'-0"	LOW PRESSURE CUTOUT RELAY	OA
		ACU32	2RR3	CB	15'-0"	RESET RELAY	OA
		ACU32	2CT	CB	15'-0"	COMPRESSOR THERMOSTAT RELAY	OA
		ACU32	2HIP	CB	15'-0"	HIGH PRESSURE CUTOUT RELAY	OA
		ACU32	2LOP	CB	15'-0"	LOW PRESSURE CUTOUT RELAY	OA
		ACU32	1RR2	CB	15'-0"	RESET RELAY	OA
		ACU32	2RR2	CB	15'-0"	RESET RELAY	OA
** SOV-1428							
	IA	CCR PANEL SHR	1RS8	CB	53'-0"	RELAY GOULD J13F20	OA

123 Main Street
White Plains, New York 10601
914 681.6200

New York Power Authority

Date: **8- 1-1994**
Transmittal No: **94-003**
Contract No: **S93-51330**

To: Atometrics Incorporated
2 Crosfield Avenue
West Nyack, NY 10994

Attn: Mr. Jon Thompson

Subject: IP3 USI A-46 (SQUG)

0002A V/C NO:**USI A-46** Sht: Rev: Status: **1**
SAFE SHUTDOWN EQUIPMENT LIST FOR SEISMIC VERIFICAITON

0003A V/C NO:**USI A-46** Sht: Rev: Status: **1**
LIST OF RELAYS AFFECTING SAFE SHUTDOWN EQUIPMENT

0005A V/C NO:**USI A-46** Sht: Rev: Status: **1**
SAFE SHUTDOWN EQUIPMENT LIST - SYSTEMS OF CHOICE

The documents listed above are being returned to you with status as indicated on the document.

Very truly yours,

P. Okas
Sr. Project Engineer

cc: A. Pal, M. Lakis, T. Klein, P. Okas, B. Young, M. Garofalo, P. Kokolakis, C. Yeh, J. Jordan, T. Moran, DDC File

Indian Point 3
Nuclear Power Plant

NewYorkPower Authority

Memorandum

July 29, 1994
IP-OPS-94-191

MEMORANDUM TO: PETER OKAS

FROM: JOHN JORDAN

SUBJECT: REVIEW OF THE SAFE SHUTDOWN EQUIPMENT LIST

The Indian Point Three Operations Department has conducted a review of the SSEL systems listed in attachment 1. This review confirmed that the shutdown path selected for USI A-46 and included in the SSEL is a legitimate safe shutdown path consistent with plant procedures and operator training.

Two Methods of reviewing the SSEL against plant operating procedures were performed. The first method of review was a "table top" review. This review was performed by an Assistant Shift Supervisor with help from various staff members. The review verified that all equipment called out for in the operating procedures for the selected path are included in the SSEL.

A control room walk through in which an operating crew in the control room talked and walked through a plant shutdown was used as the second method of review. Four scenarios were run. In all scenarios a Seismic event occurred. Scenario one also included a loss of off site power and the failure of AC-MOV-731 to open. The procedure flow path for scenario one was POP 3.1 ("Plant Shutdown from full power operation to zero power operation") - E-0 ("Reactor Trip or Safety Injection") - ES 0.1 ("Reactor Trip Response) - SOP-RHR-1 ("Residual Heat Removal System"). Scenario two also included a reactor trip, a loss of off site power, the failure of all equipment not included on the SSEL list, a loss of letdown due to the failure of LCV-459 and the failure of the Main Steam Isolation Valves to shut. The procedure flow path for scenario two was as follows E-0 ("Reactor Trip or Safety Injection") - ES 0.1 ("Reactor Trip Response") - ES 0.2 ("Natural Circulation Cooldown"). Scenario three also included a loss of off site power, loss of reactor coolant pumps and a loss of bus 6A. The procedure flow path for scenario three was as follows E-0 ("Reactor Trip of Safety Injection") - ES 0.1 ("Reactor Trip Response") - ES 0.2 ("Natural Circulation Cooldown"). The fourth scenario was a normal plant shutdown. The procedure flow path for scenario four was POP 3.1 ("Plant Shutdown from full power operation to zero

power operation") - POP 3.3 ("Plant Cooldown - Hot to Cold Shutdown"). In all cases the plant was brought to Cold Shutdown and place on RHR using systems included in the SSEL.

The SSEL systems list was reviewed for compatibility with plant operating methods using the "table top" method and control room walk throughs. The SSEL was found to be acceptable

John Jordan 7/29/94

John Jordan
Assistant Shift Supervisor

/gmr

cc: N. Eggemeyer
IP3 Record Center

NEW YORK POWER AUTHORITY

PROJECT: IP3 USI A-46 (SQUG)

NYPA INTXMTL #: DATED: 0- 0-0000 FILE #: S93-51330 0005A
NYPA EXTXMTL #: 94-003 DATED: 8- 1-1994 DOC #: USI A-46
Title: SAFE SHUTDOWN EQUIPMENT LIST - SYSTEMS OF CHOICE

NEW YORK POWER AUTHORITY

DOCUMENT REVIEW STATUS

STATUS NO:

1 [X] ACCEPTED
2 [ ] ACCEPTED AS NOTED RESUBMITTAL NOT REQUIRED
3 [ ] ACCEPTED AS NOTED RESUBMITTAL REQUIRED
4 [ ] NOT ACCEPTED

Permission to proceed does not constitute acceptance or approval of design details, calculations, analysis, test methods or materials developed or selected by the supplier and does not relieve supplier from full compliance with contractual negotiations.

REVIEWED BY: [signature] TITLE: SR PROJ ENGR

SSEL - SYSTEMS OF CHOICE DATE: 7/29/94

No. 100,216

NOTE: PLEASE DO NOT REMOVE THIS SHEET FROM THE ATTACHED DOCUMENT

ATOMETRICS
INCORPORATED

July 22, 1994

NYP-1169
JO No. 18904-00

Mr. Peter Okas
Senior Project Engineer
New York Power Authority
123 Main Street
White Plains, NY 10601

Subject: Submittal of the SSEL Systems of Choice
Resolution of NRC Unresolved Safety Issue (USI) A-46
Indian Point Nuclear Power Plant Unit No. 3 (IP-3)

References:

1. July 7, 1994 NYPA fax of Electrical Support Systems from P. Okas/J. Bretti (NYPA) to J.E. Thompson (Atometrics)

2. June 29, 1994 transmittal of SSEL Systems of Choice, Atometrics letter NYPA-1158, J.E. Thompson (Atometrics) to P. Okas (NYPA)

Dear Mr. Okas:

This letter supersedes Atometrics' letter NYP-1167 dated July 20, 1994 in its entirety.

Attached is Table 2A, "Preferred Safe Shutdown Systems List (Function 5)", Revision 3. This list has been updated to reflect the electrical support systems identified in Reference 1. These power sources have been previously included in the SSEL where motive and control power were required to achieve or maintain the desired state of a safe shutdown (active) component. Also added is the closed cooling water system serving the Instrument Air Compressors.

Table 1A "Preferred Safe Shutdown Systems List (Functions 1-4) is also included for reference, as requested.

CORPORATE HEADQUARTERS • 2 CROSFIELD AVENUE
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MT. LAUREL, NJ 08054 • (609) 273-4414 • FAX (609) 273-9469

Should you have any questions or if further information is required, please do not hesitate to call.

Very truly yours,

Jon E. Thompson, P.E.
Project Manager

LT:jes
attachment

cc: MLevine
Job Book (IP-3 SQUG)

Table 1A
Preferred Safe Shutdown Systems (Functions 1 - 4)
Indian Point Nuclear Power Plant Unit No. 3
New York Power Authority

Item	Systems	Indian Point 3 Drawing Number	Function 1 Reactor Reactivity Control	Function 2 RCS Pressure Control	Function 3 RCS Inventory Control	Function 4 Decay Heat Removal
		Color Code	Violet	Blue	Green	Pink
1.	Chemical & Volume Control System	9321-F-27363/R35	X	X	X	
2.	Reactor Coolant System - Sheet No. 1	9321-F-27383/R25	X	X	X	X
3.	Reactor Coolant System - Sheet No. 2	9321-F-27473/R29	X	X	X	
4.	Safety Injection System - Sheet No. 2	9321-F-27503/R29	X		X	
5.	Sampling System	9321-F-27453/R22	X			
6.	Auxiliary Coolant System PA/FS - Sheet No. 1	9321-F-27513/R17				X
7.	Safety Injection System - Sheet No. 1	9321-F-27353/R29				X
8.	Condensate & BFP Suction - Sheet No. 1	9321-F-20183/R44				X
9.	Boiler Feedwater	9321-F-20193/R42				X

Table 1A
Preferred Safe Shutdown Systems (Functions 1 - 4)
Indian Point Nuclear Power Plant Unit No. 3
New York Power Authority

Item	Systems	Indian Point 3 Drawing Number	Function 1 Reactor Reactivity Control	Function 2 RCS Pressure Control	Function 3 RCS Inventory Control	Function 4 Decay Heat Removal
		Color Code	Violet	Blue	Green	Pink
10.	Main Steam	9321-F-20173/R48				X

Notes:

1. Refer to SSEL and color-coded flow diagrams for shutdown equipment involvement with each function. (See Reference NYP-1134 dated March 24, 1994).

Table 2A
Preferred Safe Shutdown Systems (Function 5)
Indian Point Nuclear Power Plant Unit No. 3
New York Power Authority

Item	Systems	Indian Point 3 Drawing Number	Function 5 Support Systems
		Color Code	Orange
1.	Auxiliary Coolant System PA/FS - Sheet No. 1	9321-F-27513/R17	X
2.	Auxiliary Coolant System CTMT	9321-F-27203/R20	X
3.	Main Steam	9321-F-20173/R48	X
4.	Instrument Air	9321-F-20363/R41	X
5.	Instrument Air Sheet - No. 2	9321-F-70093/R12	X
6.	Instrument Piping Schematics Sheet No. 3	9321-F-70123/R14	X
7.	Instrument Piping Schematics Sheet No. 7	9321-F-70483/R5	X
8.	Nitrogen to Nuclear Equipment	9321-F-27233/R29	X
9.	Service Water System - Sheet No. 1	9321-F-20333/R33	X
10.	Service Water System Nuclear	9321-F-27223/R19	X
11.	Closed Cooling Water System	9321-F-23913/R13	X
12.	Hydrogen and CO2	9321-F-20403/R25	X
13.	Jacket Water to Diesel Generators	9321-H-20283/R18	X
14.	Starting Air to Diesel Generators	9321-H-20293/R15	X
15.	Fuel Oil to Diesel Generators	9321-F-20303/R20	X

Table 2A
Preferred Safe Shutdown Systems (Function 5)
Indian Point Nuclear Power Plant Unit No. 3
New York Power Authority

Item	Systems	Indian Point 3 Drawing Number	Function 5 Support Systems
		Color Code	Orange
16.	Lube Oil to Diesel Generators	9321-F-21193/R3	X
17.	R.V.L.I.S. - CTMT Bldg	9321-F-72043/R4	X
18.	Ventilation System - DG/CB	9321-F-41023/R7	X
19.	Ventilation System - Misc Areas (AFPB)	9321-F-40433/R3	X
20.	Ventilation System - VC and PA Areas	9321-F-40223/R22	X
21.	125 VDC Distribution Panels	9321-F-30083/R38	X
22.	125 VDC Power Panels	9321-F-30083/R38	X
23.	118V AC Instrument Buses	9321-F-39893/R16	X
24.	480 VAC Switchgear	617F644/R20	X
25.	480 VAC MCC No. 31, 33 & 34	9321-F-30043/R33 Sheet 1	X
	480 VAC MCC No. 32 & 35	9321-F-30043/R4 Sheet 2	X
	480 VAC MCC No. 37, 38, 39 & 311	9321-F-30053/R39	X
	480 VAC MCC No. 36A, 36B & 36C	9321-F-30063/R48	X
26.	Emergency Diesel Generators	617F644/R20	X

Notes:

1. Refer to SSEL and color-coded flow diagrams for shutdown equipment involvement with each function. (See Reference NYP-1134 dated March 24, 1994.)

ATOMETRICS

FAX TRANSMITTAL

DATE: 7/29/94

OF PAGES 3
(Includes fax cover sheet)

TO: P. OKAS
NYPA- WPO

FAX #: (914) 681-6920

FROM: J. Thompson / L Trow

TEL NO.: (914) 353-4040

MESSAGE: ENCLOSED ARE THE ADDED Components TO SSEL AS REQUESTED BY J. JORDAN / IP-3 Ops STAFF.

OPERATOR

CORPORATE HEADQUARTERS • 2 CROSFIELD AVENUE
WEST NYACK, NY 10994 • (914) 353-4040 • FAX (914) 353-0287

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INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
NI 31D	20	NIS	X					SOURCE RANGE SUR DETECTORS	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-331333	PNL FCF	118VAC IB32
NI 31D	20	NIS	X					SOURCE RANGE SUR DETECTORS	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33153	PNL FCF	118VAC IB32
NI 32D	20	NIS	X					SOURCE RANGE SUR DETECTORS	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31
NI 31B	20	NIS	X					SOURCE RANGE SUR DETECTORS	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FCF	118VAC IB32
NI 32B	20	NIS	X					SOURCE RANGE SUR DETECTORS	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31
NI 35D	20	NIS	X					INTER. RANGE SUR	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FCF	118VAC IB32
NI 36D	20	NIS	X					INTER. RANGE SUR	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31
NI 35B	20	NIS	X					INTER. RANGE SUR	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FCF	118VAC IB32
NI 36B	20	NIS	X					INTER. RANGE SUR	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FCF	118VAC IB31
NI 41B	20	NIS	X					POWER RANGE CHANNEL	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FDF	118VAC IB32
NI 41C	20	NIS	X					POWER RANGE CHANNEL	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33133	PNL FDF	118VAC IB32
NI 42B	20	NIS	X					POWER RANGE CHANNEL	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FDF	118VAC IB31
NI 42C	20	NIS	X					POWER RANGE CHANNEL	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-33143	PNL FDF	118VAC IB31
NI 43B	20	NIS	X					POWER RANGE CHANNEL	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-31353	PNL FDF	118VAC IB34
NI 43C	20	NIS	X					POWER RANGE CHANNEL	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-31353	PNL FDF	118VAC IB34
NI 44B	20	NIS	X					POWER RANGE CHANNEL	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-31363	PNL FDF	118VAC IB33
NI 44C	20	NIS	X					POWER RANGE CHANNEL	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-31363	PNL FDF	118VAC IB33
IRPI	20	NIS	X					INT. RANGE POWER IND.	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-31343	PNL FCF	118VAC IB31
LI-1253	20	NIS	X					CMT LEVEL TRANSMITTER	9321-F-70273.9321-F-70283	S	R	VC	46'-0"	ON	ON	YES	9321-F-31343		RACK A-5/IB32-1
LI-1254	20	NIS	X					CMT LEVEL TRANSMITTER	9321-F-70273.9321-F-70283	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893		RACK A-6/IB32-1
LR-1253	20	NIS	X					CONTAINMENT LEVEL RECORDER	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB JD1	118VAC IB32A-I
LR-1254	20	NIS	X					CONTAINMENT LEVEL RECORDER	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB JD1	118VAC IB32A-I
PR-1421	20	NIS	X					CONTAINMENT PRESSUE RECORDER	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB JD2	118VAC IB32A-II
PR-1422	20	NIS	X					CONTAINMENT PRESSUE RECORDER	9321-F-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	CAB JD2	118VAC IB32A-II
PI-1421	20	NIS	X					CTMT PRESSURE TRANSMITTER	9321-F-27503	S	R	PA	49'-0"	ON	ON	YES	9321-F-39893	CR RACK 24A	118VAC IB
PI-1422	20	NIS	X					CTMT PRESSURE TRANSMITTER	9321-F-27503	S	R	PA	49'-0"	ON	ON	YES	9321-F-39893	CR RACK 24A	118VAC IB
FI-144A	20	CVCS					X	SEAL INS. FLOW INDICATOR	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	125VDC DST PNL 32
FI-143A	20	CVCS					X	SEAL INS. FLOW INDICATOR	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	125VDC DST PNL 32
FI-116A	20	CVCS					X	SEAL INS. FLOW INDICATOR	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	125VDC DST PNL 32
FI-115A	20	CVCS					X	SEAL INS. FLOW INDICATOR	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	125VDC DST PNL 32

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
LI-426A	20	RCS					X	PRESSURIZER INDICATOR	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	125VDC DST PNL 32
FI-144A	18	CVCS					X	SEAL INJ. FLOW TRANSMITTER	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	RACK A-6	118VAC IB32-I
FI-143A	18	CVCS					X	SEAL INJ. FLOW TRANSMITTER	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	RACK A-6	118VAC IB32-I
FI-116A	18	CVCS					X	SEAL INJ. FLOW TRANSMITTER	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	RACK A-6	118VAC IB32-I
FI-115A	18	CVCS					X	SEAL INJ. FLOW TRANSMITTER	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-F-39853	RACK A-6	118VAC IB32-I
LI-462A	18	CVCS					X	PRESSURIZER LEVEL TRANSMITTER	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-F-27473	RACK B-10	118VAC IB33-1V
BUS 2A-VM	18	480VAC					X	VOLTAGE MONITOR	113E700 SHT 4	S	R	CB	53'-0"	ON	ON	YES	617F644		BUS 2A
BUS 3A-VM	18	480VAC					X	VOLTAGE MONITOR	113E700 SHT 4	S	R	CB	53'-0"	ON	ON	YES	617F644		BUS 2A
BUS 5A-VM	18	480VAC					X	VOLTAGE MONITOR	113E700 SHT 4	S	R	CB	53'-0"	ON	ON	YES	617F644		BUS 2A
BUS 6A-VM	18	480VAC					X	VOLTAGE MONITOR	113E700 SHT 4	S	R	CB	53'-0"	ON	ON	YES	617F644		BUS 2A

NEW YORK POWER AUTHORITY

PROJECT: IP3 USI A-46 (SQUG)

NYPA INTXMTL #: 94-004 DATED: 6-24-1994 FILE #: S93-51330 0002A
NYPA EXTXMTL #: 94-003 DATED: 8- 1-1994 DOC #: USI A-46
Title: SAFE SHUTDOWN EQUIPMENT LIST FOR SEISMIC VERIFICAITON

NEW YORK POWER AUTHORITY

DOCUMENT REVIEW STATUS

STATUS NO:

1 ☒ ACCEPTED
2 ☐ ACCEPTED AS NOTED RESUBMITTAL NOT REQUIRED
3 ☐ ACCEPTED AS NOTED RESUBMITTAL REQUIRED
4 ☐ NOT ACCEPTED

Permission to proceed does not constitute acceptance or approval of design details, calculations, analysis, test methods or materials developed or selected by the supplier and does not relieve supplier from full compliance with contractual negotiations.

REVIEWED BY: [illegible] TITLE: SR PROJ ENG'R

SSEL (A-46) DATE: 7/29/94

No. 100,216

NOTE: PLEASE DO NOT REMOVE THIS SHEET FROM THE ATTACHED DOCUMENT

INDIAN POINT UNIT 2
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID	EQUIP NO	CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
CAB IRP		20				X			RVLIS CABINET	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL FAP		20					X		FLIGHT PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL FCP		20					X		FLIGHT PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL FDF		20					X		FLIGHT PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL FDP		20					X		FLIGHT PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL IA		20						X	IA COMPRESSOR CONTROL PANEL	9321-F-30523	S		CB	15'-0"	N/A	N/A			ADDED	
PNL PIT		20					X		LOCAL CCR AC CNTRL PANEL	9321-LL-31263	S		CB	15'-0"	N/A	N/A			ADDED	
PNL PP3		20					X		31 EDG CONTROL PANEL	9321-05-3343.6	S		DG	15'-0"	N/A	N/A			ADDED	
PNL PQ1		20					X		32 EDG CONTROL PANEL	9321-05-3343.6	S		DG	15'-0"	N/A	N/A			ADDED	
PNL PQ2		20					X		33 EDG CONTROL PANEL	9321-05-3343.6	S		DG	15'-0"	N/A	N/A			ADDED	
PNL SJF		20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SJP		20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SLF		20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SLP		20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SMF		20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SMR		20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SNF		20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SNR		20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SOF		20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SOR		20						X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL VRP	31	20						X	31 EDG VOLTAGE REG PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A			ADDED	
PNL VRP	32	20						X	32 EDG VOLTAGE REG PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A			ADDED	
PNL VRP	33	20						X	33 EDG VOLTAGE REG PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A			ADDED	
PNL XK1		20					X		PANEL XK1	9321-LD-72173 SH. 3	S		CD	82'-0"	N/A	N/A	N/A		ADDED	
PNL XK3		20					X		PANEL XK3	9321-LD-72173 SH. 4	S		CD	82'-0"	N/A	N/A	N/A		ADDED	
RACK 19		18						X	INSTRUMENT RACK	9321-F-70273	S		VC	68'-0"	N/A	N/A			ADDED	
RACK 20		18						X	INSTRUMENT RACK	9321-F-30523	S		VC	68'-0"	N/A	N/A			ADDED	
RACK 21		18						X	INSTRUMENT RACK	9321-F-30523	S		VC	68'-0"	N/A	N/A			ADDED	
RACK 26		18						X	INSTRUMENT RACK	9321-F-70533	S		AB	19'-6"	N/A	N/A			ADDED	
RACK 4-A		18						X	INSTRUMENT RACK	9321-F-70283	S		VC	68'-0"	N/A	N/A			ADDED	
RACK 4-B		18						X	INSTRUMENT RACK	9321-F-70273	S		VC	68'-0"	N/A	N/A			ADDED	
RACK 5		18						X	INSTRUMENT RACK	9321-F-70523	S		AB	18'-6"	N/A	N/A			ADDED	

INDIAN POINT UNIT 2
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
RACK 7	18			X				INSTRUMENT RACK	9321-LL-31313 SHT 13	S		CB	53'-0"	N/A	N/A			ADDED	
RACK 8	18			X				INSTRUMENT RACK	9321-F-70533	S		AB	18'-6"	N/A	N/A			ADDED	
RACK 9	18			X				INSTRUMENT RACK	9321-F-70533	S		AB	18'-6"	N/A	N/A			ADDED	
RACK A-1	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK A-10	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK A-2	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK A-3	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK A-4	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK A-5	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK A-6	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK A-7	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK A-8	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK A-9	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK B-1	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK B-10	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK B-11	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK B-2	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK B-3	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK B-4	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK B-5	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK B-6	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK B-7	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK B-8	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK B-9	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK C-1	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK C-10	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK C-11	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK C-2	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK C-3	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK C-4	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK C-5	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK C-6	20			X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID	EQUIP NO	CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
RACK C-7	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK C-8	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK C-9	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK D-1	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK D-10	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK D-11	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK D-2	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK D-3	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK D-4	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK D-5	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK D-6	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK D-7	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK D-8	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK D-9	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK E-1	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK E-2	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK E-3	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK E-4	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK E-5	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK E-6	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK E-7	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK F-1	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK F-2	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK F-3	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK F-4	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK F-5	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK F-6	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK F-7	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK G-1	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK G-2	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK G-3	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK G-4	20				X				CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID	EQUIP NO	CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
RACK G-5	20					X			CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK G-6	20					X			CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK H-1	20					X			CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK H-2	20					X			CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK H-3	20					X			CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK H-4	20					X			CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
RACK H-5	20					X			CCR RACK	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
B14	16	118 VAC				X			INST BUS 33.33A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
B13	16	118 VAC				X			STATIC INVERTER #31 FUSE BOX	9321-F-39893	S	R	CB	33'-0"	ENERG	ENERG	NO			N/A
B14	16	118 VAC				X			STATIC INVERTER #32 FUSE BOX	9321-F-39893	S	R	CB	33'-0"	ENERG	ENERG	NO			N/A
EGA1	16	118 VAC				X			25 KVA STATIC INVERTER #31	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
EGA2	16	118 VAC				X			25 KVA STATIC INVERTER #32	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
GF2	16	118 VAC				X			25 KVA STATIC INVERTER #34	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 34
GF9	16	118 VAC				X			25 KVA STATIC INVERTER #33	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 33
K4C	16	118 VAC				X			STATIC INVERTER #33 FUSE BOX	9321-F-39893	S	R	CB	33'-0"	ENERG	ENERG	NO			N/A
K4F	16	118 VAC				X			INST BUS 31.31A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
K4G	16	118 VAC				X			INST BUS 32.32A MANUAL BY-PASS SWITCH	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A
K50	14	118 VAC				X			118 VAC INST BUS 31A	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 31
K51	14	118 VAC				X			118 VAC INST BUS 32A	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 32
K62	16	118 VAC				X			MANUAL TRANSFER SWITCH #34	9321-F-39893	S	R	CB	33'-0"	N/A	N/A	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
PE6	14	118 VAC					X	118 VAC INSTR BUS 34	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 34
PE7	14	118 VAC					X	118 VAC INSTR BUS 33	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 33
PE8	14	118 VAC					X	118 VAC INST BUS 31	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 31
PE9	14	118 VAC					X	118 VAC INST BUS 32	9321-F-39893	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		STATIC INVERT 32
BFB	04	120 VAC					X	120/120 VAC SOLATRON TRANSFORMER #32	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-39893		BC2
BIG	04	480 VAC					X	480/120 VAC ELGAR TRANSFORMER (FOR IB-33,33A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30052		MCC-39
BC2	04	480 VAC					X	480/120 VAC TRANSFORMER #32 (FOR IB-24,34A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30063		MCC 366
BI2	04	480 VAC					X	480/120 VAC SOLA XFMR (FOR IB-31,31A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30043 SHT. 1		MCC-34
BI4	04	480 VAC					X	480/120 VAC SOLA XFMR (FOR IB-32,32A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30043 SHT. 1		MCC-33
BJ1	04	480 VAC					X	480/120 VAC SOLA XFMR (ALT FOR IB-34,34A)	9321-F-39893	S	R	CB	33'-0"	ON	ON	YES	9321-F-30063		MCC-362
BUS 2A	02	480 VAC					X	480VAC SWGR 31 BUS 2A	617F644	S	R	CB	15'-0"	ON	ON	YES	617F645		EDG31
BUS 3A	02	480 VAC					X	480VAC SWGR 32 BUS 3A	617F644	S	R	CB	15'-0"	ON	ON	YES	617F645		EDG31
BUS 5A	02	480 VAC					X	480VAC SWGR 31 BUS 5A	617F644	S	R	CB	15'-0"	ON	ON	YES	617F645		EDG33
BUS 6A	02	480 VAC					X	480VAC SWGR 32 BUS 6A	617F644	S	R	CB	15'-0"	ON	ON	YES	617F645		EDG33
MCC-32	01	480 VAC					X	480 VAC MCC	9321-F-30043 SHT. 2		R	TB	15'-0"	ON	ON	YES	617F644	NON SEISMIC	BUS 3A
MCC-33	01	480 VAC					X	480 VAC MCC	9321-F-30043	S	R	TB	15'-0"	ON	ON	YES	617F644	NON SEISMIC	BUS 2A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID	EQUIP NO	CLASS	SYSTEM	F1	F2	F3	F4	FS	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS.	DWG.	NOTES	POWER SOURCE
MCC-34	01	480 VAC					X		480 VAC MCC	9321-F-30043	S	R	18	15'-0"	ON	ON	YES	617F644		NON SEISMIC	BUS 2A
MCC-36A	01	480 VAC					X		480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644			BUS 5A
MCC-36A EXTENSION	01	480 VAC					X		480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644			BUS 5A
MCC-36B	01	480 VAC					X		480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644			BUS 6A
MCC-36B EXTENSION	01	480 VAC					X		480 VAC MCC	9321-F-30063	S	R	PA	55'-0"	ON	ON	YES	617F644			BUS 6A
MCC-36C	01	480 VAC					X		480 VAC MCC	9321-F-30063	S	R	CB	15'-0"	ON	ON	YES	617F644			BUS 2A
MCC-37	01	480 VAC					X		480 VAC MCC	9321-F-30053	S	R	PA	55'-0"	ON	ON	YES	617F644			BUS 6A
MCC-38	01	480 VAC					X		480 VAC MCC	9321-F-30053	S	R	VC	68'-0"	ON	ON	YES	617F644			BUS 5A
MCC-39	01	480 VAC					X		480 VAC MCC	9321-F-30053	S	R	CB	33'-0"	ON	ON	YES	617F644			BUS 5A
PNL FAF	20	480 VAC			X				FLIGHT PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A				ADDED	
DG-31-VM	18	480VAC					X		DG 31 VOLTMETER	9321-F-33603	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893			118VAC IB32-I
DG-31-WM	18	480VAC					X		DG 31 WATTMETER	9321-F-33603	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893			118VAC IB32-I
DG-32-VM	18	480VAC					X		DG 32 VOLTMETER	9321-F-33603	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893			118VAC IB32-I
DG-32-WM	18	480VAC					X		DG 32 WATTMETER	9321-F-33603	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893			118VAC IB32-I
DG-33-VM	18	480VAC					X		DG 33 VOLTMETER	9321-F-33603	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893			118VAC IB32-I
DG-33-WM	18	480VAC					X		DG 33 WATTMETER	9321-F-33603	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893			118VAC IB32-I
AC-1870	8	ACS					X		RHR PUMP MINI FLOW TEST LINE VALVE	9321-F-27513 SHT. 1	S	R	PP	51'-0"	OPEN	OPEN	NO				N/A
AC-730	7	ACS			X				RHR SUCT LN ISO VLV	9321-F-27203	S	R	VC	56'-6"	CLOSED	OPEN	YES	9321-F-30063		CMP 2FM	MCC-36A
AC-731	7	ACS			X				RHR SUCT LN ISO VLV	9321-F-27203	S	R	VC	59'-6"	CLOSED	OPEN	YES	9321-F-30063		CMP 2FM	MCC-36B
AC-743	8	ACS			X				RHR PUMP MINI FLOW TEST LINE	9321-F-27513 SHT. 1	S	R	PP	51'-0"	OPEN	OPEN	NO				N/A
AC-744	8	ACS			X				RHR PUMP DISCH ISO VLV	9321-F-27512 SHT. 1	S	R	PA	15'-0"	OPEN	OPEN	NO				N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
AC-745A	8	ACS				X		RHR HTX 32 INLET ISO VLV	9321-F-27203	S	R	VC	66'-0"	OPEN	OPEN	NO			N/A
AC-745B	8	ACS				X		RHR HTX 32 INLET ISO VLV	9321-F-27203	S	R	VC	66'-0"	OPEN	OPEN	NO			N/A
AC-746	8	ACS				X		32 RHR HTX OUTLET ISO STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
AC-747	8	ACS				X		31 RHR HTX OUTLET ISO STOP VLV	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
AC-899A	8	ACS				X		RHR HTX 32 OUTLET STOP	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
AC-899B	8	ACS				X		RHR HTX 31 OUTLET STOP	9321-F-27353 SHT. 1	S	R	VC	68'-0"	OPEN	OPEN	NO			N/A
PC-635	18	ACS				X		RHR PRESSURE CONTROLLER	9321-F-27513 SHT 1	S	R	PA	15'-0"	ON	ON	YES 9321-F-31993			118VAC IB32-I
PI-635	18	ACS				X		RHR PRESSURE INDICATOR	9321-F-27513 SHT 1	S	R	PA	15'-0"	ON	ON	YES 9321-F-31993			118VAC IB32-I
PNL SGF	20	ACS					X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SGR	20	ACS					X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
ABFP-31	5	AFW				X		MOTOR DRIVEN AUX. FEEDWATER PUMP NO. 31	9321-F-20183 SHT 1	S	R	AB	18'-6"	OFF	ON	YES 617F644		SG-32-6D	EDS 3A
ABFP-32	5	AFW				X		TURBINE DRIVEN AUX. FEEDWATER PUMP NO. 32	9321-F-20183 SHT 1	S	R	AB	18'-6"	OFF	ON	NO			N/A
ABFP-33	5	AFW				X		MOTOR DRIVEN AUX. FEEDWATER PUMP NO. 33	9321-F-20183 SHT 1	S	R	AB	18'-6"	OFF	ON	YES 617F644		SG-32-11D	EDS 6A
BFD-FCV-1121	7	AFW				X		31AFP RECIRC LINE CTRL VALVE	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES 9321-LL-31313		CKT. 5	125V DC PP 31
BFD-FCV-1123	7	AFW				X		32AFP RECIRC LINE CTRL VALVE	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES 9321-LL-31313		CKT. 5	125V DC DIST 32
BFD-FCV-405A	7	AFW				X		NO.32 AFWP MAN FLOW CNTRL TO 31 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	NO			N/A
BFD-FCV-405B	7	AFW				X		NO.32 AFWP MAN FLOW CNTRL TO 32 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	NO			N/A
BFD-FCV-405C	7	AFW				X		NO.32 AFWP MAN FLOW CNTRL TO 33 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	NO			N/A
BFD-FCV-405D	7	AFW				X		NO.32 AFWP MAN FLOW CNTRL TO 34 SG	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	NO			N/A
BFD-FCV-406A	7	AFW				X		NO.31 AFWP MAN FLOW CNTRL TO 31 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
BFD-FCV-406B	7	AFW				X		NO.31 AFWP MAN FLOW CNTRL TO 32 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
BFD-FCV-406C	7	AFW				X		NO.33 AFWP MAN FLOW CNTRL TO 33 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
BFD-FCV-406D	7	AFW				X		NO.33 AFWP MAN FLOW CNTRL TO 34 SG	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
FI-1200	20	AFW				X		AFW TO SG 31 FLOW INDICATOR	9321-F-20193	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.9	PNL SCF 6	RACK 09/1B33-IV
FI-1201	20	AFW				X		AFW TO SG 32 FLOW INDICATOR	9321-F-20193	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.10	PNL SCF 5	RACK 09/1B33-IV
FI-1202	20	AFW				X		AFW TO SG 33 FLOW INDICATOR	9321-F-20193	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.11	PNL SCF 5	RACK 09/1B33-IV
FI-1203	20	AFW				X		AFW TO SG 34 FLOW INDICATOR	9321-F-20193	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.12	PNL SCF 5	RACK 09/1B33-IV
FI-1200	18	AFW				X		AFW TO SG 31 FLOW TRANSMITTER	9321-F-70033	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.9		RACK 09/1B33-IV
FI-1201	18	AFW				X		AFW TO SG 32 FLOW TRANSMITTER	9321-F-70033	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.10		RACK 09/1B33-IV
FI-1202	18	AFW				X		AFW TO SG 33 FLOW TRANSMITTER	9321-F-70033	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.11		RACK 09/1B33-IV
FI-1203	18	AFW				X		AFW TO SG 34 FLOW TRANSMITTER	9321-F-70033	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.12		RACK 09/1B33-IV
HCV-1118	7	AFW				X		32 AFWP TURB GOVRNER	9321-F-20193	S	R	AB	18'-6"	CLOSED	OPEN	YES	9321-F-39893		RACK 44/1B31-2
PCV-1213	7	AFW				X		PRESSURE CONTROL VALVE	9321-F-20193	S	R	AB	18'-6"	OPEN	OPEN	NO			N/A
PI-1260	20	AFW				X		AFW 31 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.19		RACK 09/1B33-IV
PI-1261	20	AFW				X		AFW 32 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.20		RACK 09/1B33-IV
PI-1262	20	AFW				X		AFW 33 DISCHG PRESS INDICATOR	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.21		RACK 09/1B33-IV
PM-405A	7	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK 09/1B33-IV
PM-405B	7	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK 09/1B33-IV
PM-405C	7	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK 85/1B33-IV
PM-405D	7	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 32 AFWP	9321-F-20193	S	R	AB	18'-6"	ON	ON	YES	9321-LD-72123 SHT.2		RACK 85/1B33-IV
PM-406A	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 31 AFWP	9321-LD-72123 SHT3	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.3		RACK 85/1B33-IV
PM-406B	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 31 AFWP	9321-LD-72123 SHT3	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.3		RACK 85/1B33-IV
PM-406C	18	AFW				X		PRESSURE SIGNAL CONVERTER CONDITIONER 33 AFWP	9321-LD-72123 SHT4	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72123 SHT.4		RACK 85/1B33-IV

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
AC-789	8	CCW				X		CCW RET FR RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-791	7	CCW				X		CCW TO EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	CLOSED	CLOSED	NO			N/A
AC-793	7	CCW				X		CCW RETRN FR EXC L/D ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	YES	5008971 SHT. 91	CNT. 3	DC PNL 31
AC-796	7	CCW				X		CCW RETRN FR EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	CLOSED	CLOSED	YES	5008971 SHT. 92	CNT. 6	DC PNL 32
AC-797	8	CCW				X		CCW SUPP-RCP ISO VALVE	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
AC-798	7	CCW				X		CCW TO EXC L/DN HX-31 ISO VLV	9321-F-27513 SHT1	S	R	PP	51'-0"	CLOSED	CLOSED	NO			N/A
AC-822A	8	CCW				X		RHR HTX ISO. VLV	9321-F-27513	S	R	PP	41'-0"	CLOSED	OPEN	YES	5008971 SHT.111		MCC 36A
AC-822B	8	CCW				X		RHR HTX ISO. VLV	9321-F-27513	S	R	PP	41'-0"	CLOSED	OPEN	YES	5008971 SHT.111		MCC 36E
AC-FCV-625	9	CCW				X		CCW RET FR RCP MTR COOLERS	9321-F-27513 SHT1	S	R	PP	51'-0"	OPEN	OPEN	NO			N/A
ACAHCC1	21	CCW				X		CCW HEAT EXCH NO 31	9321-F-27513 SHT1	S		PA	55'-0"	N/A	N/A	NO			N/A
ACAHCC2	21	CCW				X		CCW HEAT EXCH NO.32	9321-F-27513 SHT1	S		PA	55'-0"	N/A	N/A	NO			N/A
ACAPCC1	5	CCW				X		CCW PUMP NO 31	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-21B	BUS 5A
ACAPCC2	5	CCW				X		CCW PUMP NO. 32	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-30D	BUS 2A
ACAPCC3	5	CCW				X		CCW PUMP NO 33	9321-F-27513 SHT1	S	R	PA	41'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-15D	BUS 6A
ACATCC1	21	CCW				X		CC SURGE TANK #31	9321-F-27513 SHT1	S		PA	73'-0"	N/A	N/A	NO			N/A
ACATCC2	21	CCW				X		CC SURGE TANK #32	9321-F-27513 SHT1	S		PA	73'-0"	N/A	N/A	NO			N/A
FI-611	18	CCW				X		RC PUMP #31 THERMAL BARRIER OUTLET FLOW IND.	9321-F-27203	S	R	VC	79'-0"	ON	ON	YES	9321-F-39893		RACK A5/1B 32-1
FI-614	18	CCW				X		RC PUMP #32 THERMAL BARRIER OUTLET FLOW IND.	9321-F-27203	S	R	VC	79'-0"	ON	ON	YES	9321-F-39893		RACK A5/1B 32-1
FI-617	18	CCW				X		RC PUMP #33 THERMAL BARRIER OUTLET FLOW IND.	9321-F-27203	S	R	VC	79'-0"	ON	ON	YES	9321-F-39893		RACK A5/1B 32-1
FI-620	18	CCW				X		RC PUMP #34 THERMAL BARRIER OUTLET FLOW IND.	9321-F-27203	S	R	VC	79'-0"	ON	ON	YES	9321-F-39893		RACK A5/1B 32-1
FI-601A	18	CCW				X		CCW HTX OUTLET FLOW	9321-F-27513 SHT1	S	R	PA	41'-0"	ON	ON	YES	9321-LO-32113 SHT.2		RACK A5/1B 32-1
FI-601B	18	CCW				X		CCW HTX OUTLET FLOW	9321-F-27513 SHT1	S	R	PA	41'-0"	ON	ON	YES	9321-LO-32113 SHT.2		RACK A5/1B 32-1
TCV-130	7	CCW				X		NON REGEN HX OUTLET TCV	9321-F-27513 SHT1	S	R	PA	73'-0"	OPEN	OPEN	NO			N/A
CST	21	COND		X				CONDENSATE STOR TANK	9321-F-20183 SHT 1	S		YD	69'-0"	N/A	N/A	NO			N/A
LCV-1158-1	7	COND		X				CST LO LVL CONTROL VALVE	9321-F-20183	S	R	AB	19'-6"	OPEN	CLOSED	NO			N/A
LCV-1158-2	7	COND		X				CST LO LVL CONTROL VALVE	9321-F-20183	S	R	AB	18'-6"	OPEN	CLOSED	NO			N/A
LI-1128	20	COND		X				COND STG TANK LEVEL INDICATOR	9321-F-20183 SHT 1	S	R	CB	53'-0"	ON	ON	YES	9321-F-22003	PNL SCF	IB 33

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
LI-1128A	20	COND				X		COND STG TANK LEVEL INDICATOR	9321-F-20183 SHT 1	S	R	CB	53'-0"	ON	ON	YES	9321-F-32003	PNL SCF	IB 33
LT-1128	18	COND				X		COND STG TANK LEVEL TRANSMITTER	9321-F-20183 SHT 1	S	R	YD	82'-0"	ON	ON	YES	9321-F-32003		IB 33
LT-1128A	18	COND				X		COND STG TANK LEVEL TRANSMITTER	9321-F-20183 SHT 1	S	R	YD	82'-0"	ON	ON	YES	9321-F-32003		IB 33
PCV-1187	7	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
PCV-1188	7	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
PCV-1189	7	COND				X		CITY WATER SUPPLY ISO VALVE	9321-F-20183	S	R	AB	18'-6"	CLOSED	CLOSED	NO			N/A
CRPI	20	CRD	X					CONTROL ROD CLUSTER POSITIVE INDICATOR	9321-F-30503.-30523	S	R	CB	53'-0"	ON	ON	YES	9321-F-20052		
0031CHPS	21	CVCS	X	X	X			31 CHARG PMP SUCT STABILIZER SEPARATOR	9321-F-27363	S		PA	55'-0"	N/A	N/A	NO			N/A
0032CHPS	21	CVCS	X	X	X			32 CHARG PMP SUCT STABILIZER SEPARATOR	9321-F-27363	S		PA	55'-0"	N/A	N/A	NO			N/A
0033CHPD	21	CVCS	X	X	X			33 CHP PULSATION DAMPENER	9321-F-27363	S		PA	55'-0"	N/A	N/A	NO			N/A
0033CHPS	21	CVCS	X	X	X			33 CHARG PMP SUCT STABILIZER SEPARATOR	9321-F-27363	S		PA	55'-0"	N/A	N/A	NO			N/A
CH-201	7	CVCS	X	X	X			LETDN LINE ISO VLV	9321-F-27363	S	R	PP	51'-0"	OPEN	OPEN	YES	5008971 SHT.90	CKT.3	DC-PNL31
CH-202	7	CVCS	X	X	X			LETDN LINE ISO VLV	9321-F-27363	S	R	PP	51'-0"	OPEN	OPEN	YES	5008971 SHT.90	CKT.6	DC-PNL32
CH-265	7	CVCS	X	X				VCT GAS ANALYZER SAMPLE VALVE	9321-F-27363	S	R	PA	73'-0"	CLOSED	CLOSED	NO			N/A
CH-268	8	CVCS	X	X	X			VCT VENT ISO VALVE	9321-F-27363	S	R	PA	73'-0"	CLOSED	CLOSED	NO			N/A
CH-310	7	CVCS	X	X	X			DEBORATING DEMIN DIVERSION	9321-F-27363	S	R	PA	42'-0"	OPEN	CLOSED	YES	5008971 SHT.91	CKT.15	DC-PNL32
CH-AOV-200A	7	CVCS	X	X	X			LETDOWN ORIFICE ISO VALVE	9321-F-27363	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
CH-AOV-200B	7	CVCS	X	X	X			LETDOWN ORIFICE ISO VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.3	DC-PNL31
CH-AOV-200C	7	CVCS	X	X	X			LETDOWN ORIFICE ISO VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.3	DC-PNL31
CH-AOV-204A	7	CVCS	X	X	X			ALT CHG FLOW NO 2 HOT LEG CTRL VLV	9321-F-27363	S	R	VC	58'-0"	CLOSED	CLOSED	YES	5008971 SHT.90	CKT.15	DC-PNL32
CH-AOV-204B	7	CVCS	X	X	X			CHG FLOW NO 1 COLD LEG CTRL VLV	9321-F-27363	S	R	VC	46'-0"	OPEN	OPEN	NO			N/A
CH-AOV-212	7	CVCS	X	X	X			AUX SPRAY CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OP/CLOSED	YES	5008971 SHT.90	CKT.3	DC-PNL31
CH-AOV-213A	7	CVCS	X	X	X			EXCESS LETDOWN CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.15	DC-PNL32
CH-AOV-213B	7	CVCS	X	X	X			EXCESS LETDOWN CTRL VLV	9321-F-27363	S	R	VC	46'-0"	CLOSED	OPEN	YES	5008971 SHT.90	CKT.5	DC-PNL31

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
CH-AOV-215	7	CVCS	X		X			EXC LETDN LINE DIVERSION CTRL VLV	9321-F-27363	S	R	VC	46'-0"	OPEN	OPEN	YES	5008971 SHT.90	CKT.5	DC-PNL31
CH-AOV-246	7	CVCS	X		X			RCP SEAL NO. 1 BYPASS VLV TO VCT	9321-F-27363	S	R	VC	53'-0"	CLOSED	CLOSED	NO			N/A
CH-AOV-261A	7	CVCS			X			31 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-AOV-261B	7	CVCS			X			32 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-AOV-261C	7	CVCS			X			33 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-AOV-261D	7	CVCS			X			34 RCP SEAL DISCHARGE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	NO			N/A
CH-FCV-110A	7	CVCS	X		X			BORIC ACID FLOW CTRL	9321-F-27363	S	R	PA	80'-0"	CLOSED	OPEN	NO			N/A
CH-FCV-110B	7	CVCS	X		X			BORIC ACID BLNDR OUTLET	9321-F-27363	S	R	PA	73'-0"	CLOSED	OPEN	YES	5008971 SHT. 105	CKT. 5	DC PNL 31
CH-FCV-111A	7	CVCS	X		X			PRIMARY WTR MAKEUP VLV	9321-F-27363	S	R	PA	78'-0"	CLOSED	CLOSED	NO			N/A
CH-FCV-111B	7	CVCS	X		X			BLENDER FLOW TO VCT CTRL VALVE	9321-F-27363	S	R	PA	78'-0"	CLOSED	CLOSED	NO			N/A
CH-HCV-123	7	CVCS			X			EXCESS LETDOWN HX OUTFLOW CTRL VALVE	9321-F-27363	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
CH-HCV-133	7	CVCS				X		RHR HTX OUTLET TO CVCS	9321-F-27363	S	R	VC	55'-3"	CLOSED	CLOSED	NO			N/A
CH-HCV-142	7	CVCS	X	X	X			REGEN HX FLOW CTRL	9321-F-27363	S	P	PP	41'-0"	OPEN	OPEN	YES	9321-F-29833	PNL SF	IE 31-11
CH-LCV-112A	7	CVCS			X			MAKE-UP TO VCT 3-WAY VALVE	9321-F-27363	S	R	PA	80'-0"	OPEN	OPEN	YES	5008971 SHT. 105	CKT. 5	DC PNL 31
CH-LCV-112B	7	CVCS	X		X			RWST TO CHARGING PUMP SUCTION VALVE	9321-F-27363	S	R	PA	65'-0"	CLOSED	CLOSED	YES	5008971 SHT. 110	CMP 1FH	MCC-36B
CH-LCV-112C	8	CVCS			X			VCT OUTLET ISO VLV	9321-F-27363	S	R	PA	73'-0"	OPEN	OPEN	NO			N/A
CH-LCV-459	7	CVCS	X	X	X			LETDOWN CTRL VALVE	9321-F-27363	S	R	VC	79'-0"	OPEN	OPEN	YES	5008971 SHT. 106	CKT. 15	DC PNL 32
CH-MOV-205	8	CVCS	X	X	X			CHARGING FLOW TO RCS ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-222	8	CVCS	X		X			RCP SEAL WTR RETURN ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-226	8	CVCS	X	X	X			CHARGING LINE CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250A	8	CVCS			X			31 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250B	8	CVCS			X			32 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250C	8	CVCS			X			33 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-250D	8	CVCS			X			34 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-333	8	CVCS	X		X			BORIC ACID FEED TO CHG PUMPS VALVE	9321-F-27363	S	R	PA	73'-0"	CLOSED	CLOSED	NO			N/A
CH-MOV-441	8	CVCS			X			31 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-442	8	CVCS			X			32 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A

INDIAN POINT UNIT 2
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
CH-MOV-443	8	CVCS			X			33 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-MOV-444	8	CVCS			X			34 RCP SEAL INJ CTMT ISO VLV	9321-F-27363	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
CH-PCV-113A	7	CVCS	X	X	X			VCT N2 REGULATOR	9321-F-27363	S		PA	75'-0"	OPEN	OPEN	NO			N/A
CH-PCV-114	7	CVCS	X	X	X			VCT N2 REGULATOR	9321-F-27363	S		PA	74'-0"	CLOSED	OPEN	NO			N/A
CH-PCV-135	7	CVCS	X	X	X			LETDOWN BP CONTROL	9321-F-27363	S	R	PA	75'-0"	OPEN	OPEN	NO			N/A
CH-TCV-149	7	CVCS	X	X	X			DEMIN BYPASS VLV	9321-F-27363	S	R	PA	80'-0"	CLOSED TO VCT	OPEN	YES	5008971 SHT. 106	CKT. 15	DC PNL 32
CHRG PP31 CASING HTX	21	CVCS					X	CHARGING PP31 FLUID DRIVE CASING OIL COOLER	9321-F-27513	S		PA	55'-0"	N/A	N/A	NO			N/A
CHRG PP31 CRANK HTX	21	CVCS					X	CHARGING PP31 PUMP CRANKCASE OIL COOLER	9321-F-27513	S		PA	55'-0"	N/A	N/A	NO			N/A
CHRG PP32 CASING HTX	21	CVCS					X	CHARGING PP32 FLUID DRIVE CASING OIL COOLER	9321-F-27513	S		PA	55'-0"	N/A	N/A	NO			N/A
CHRG PP32 CRANK HTX	21	CVCS					X	CHARGING PP32 PUMP CRANKCASE OIL COOLER	9321-F-27513	S		PA	55'-0"	N/A	N/A	NO			N/A
CHRG PP33 CASING HTX	21	CVCS					X	CHARGING PP33 FLUID DRIVE CASING OIL COOLER	9321-F-27513	S		PA	55'-0"	N/A	N/A	NO			N/A
CHRG PP33 CRANK HTX	21	CVCS					X	CHARGING PP33 PUMP CRANKCASE OIL COOLER	9321-F-27513	S		PA	55'-0"	N/A	N/A	NO			N/A
CSAHEL1	21	CVCS			X	X		31 EXCS LETDWN HTX	9321-F-27363	S		VC	68'-0"	N/A	N/A	NO			N/A
CSAHNR1	21	CVCS	X	X	X			NON REGEN HEAT EXCH NO 31	9321-F-27363,9321-F-27513	S		PA	73'-0	N/A	N/A	NO			N/A
CSAHRG1	21	CVCS	X	X	X			31 REGEN HTX	9321-F-27363	S		VC	68'-0"	N/A	N/A	NO			N/A
CSAHSW1	21	CVCS	X		X			SEAL WTR HEAT EXCH NO. 31	9321-F-27363	S		PA	73'-0"	N/A	N/A	NO			N/A
CSAPBA1	5	CVCS	X	X	X			BORIC ACID TRANSFER PUMP 31	9321-F-27363	S	R	PA	73'-0"	RUN'G/OFF	ON	YES	9321-F-30063	CMP-7RH	MCC-36A
CSAPBA2	5	CVCS	X	X	X			BORIC ACID TRANSFER PUMP 32	9321-F-27363	S	R	PA	73'-0"	RUN'G/OFF	ON	YES	9321-F-30063	CMP-7RH	MCC-36B
CSAPCH1	5	CVCS	X	X	X			NO. 31 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-22C	BUS 5A
CSAPCH2	5	CVCS	X	X	X			NO. 32 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-5C	BUS 3A
CSAPCH3	5	CVCS	X	X	X			NO. 33 CHARGING PUMP	9321-F-27363	S	R	PA	55'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-13C	BUS 6A
CSATBA1	21	CVCS	X		X			BORIC ACID STG TANK 31	9321-F-27363	S		PA	73'-0	N/A	N/A	NO			N/A
CSATBA2	21	CVCS	X		X			BORIC ACID STG TANK 32	9321-F-27363	S		PA	73'-0"	N/A	N/A	NO			N/A
CSATVC1	21	CVCS	X	X	X			VOLUME CONTROL TANK NO. 31	9321-F-27363	S		PA	73'-0"	N/A	N/A	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
FI-128B	20	CVCS	X		X			CHG FLOW TO REG HX INDICATOR	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-LO-72203 SHT.17		RACK C10/1B31-II
FI-134	20	CVCS	X		X			LETDOWN FLOW INDICATOR	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-LO-72203 SHT.17	PNL SFF	RACK C10/1B31-II
FIC-111	18	CVCS	X		X			PRIMARY WATER FLOW CONTROL	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL FBF	RACK C10/1B31-II
FIT-111	18	CVCS	X		X			PRM WTR FLOW INDZ XMTR	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LO-72203 SHT.5		RACK C10/1B31-II
FIT-156A	18	CVCS			X			RCP 34 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LO-72203 SHT.34		RACK C9/1B31-II
FIT-156B	18	CVCS			X			RCP 34 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LO-72203 SHT.34		RACK C9/1B31-II
FIT-157A	18	CVCS			X			RCP 33 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LO-72203 SHT.35		RACK C9/1B31-II
FIT-157B	18	CVCS			X			RCP 33 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LO-72203 SHT.35		RACK C9/1B31-II
FIT-158A	18	CVCS			X			RCP 32 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LO-72203 SHT.36		RACK C10/1B31-II
FIT-158B	18	CVCS			X			RCP 32 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LO-72203 SHT.36		RACK C10/1B31-II
FIT-159A	18	CVCS			X			RCP 31 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LO-72203 SHT.37		RACK C10/1B31-II
FIT-159B	18	CVCS			X			RCP 31 SEAL LEAKOFF FLOW TRANSMITTER	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-LO-72203 SHT.37		RACK C10/1B31-II
FM-111A	00	CVCS	X					ELECTRO PNEUMATIC CONVERTER	9321-H-39923	S	R	CB	53'-0"	ON	ON	YES	9321-LO-72203 SHT.5		RACK C10/1B31-II
FR-156	20	CVCS			X			34 RCP SEAL LEAKOFF FLOW	9321-F-39763	S	R	CB	53'-0"	ON	ON	YES	9321-LO-72123 SHT.34	PNL FDF	RACK C9/1B31-II
FR-157	20	CVCS			X			33 RCP SEAL LEAKOFF FLOW	9321-F-39763	S	R	CB	53'-0"	ON	ON	YES	9321-LO-72123 SHT.35	PNL FDF	RACK C9/1B31-II
FR-158	20	CVCS			X			32 RCP SEAL LEAKOFF FLOW	9321-F-39763	S	R	CB	53'-0"	ON	ON	YES	9321-LO-72123 SHT.36	PNL FDF	RACK C10/1B31-II
FR-159	20	CVCS			X			31 RCP SEAL LEAKOFF FLOW	9321-F-39763	S	R	CB	53'-0"	ON	ON	YES	9321-LO-72123 SHT.37	PNL FDF	RACK C10/1B31-II
FT-128	18	CVCS	X					CHG FLOW TO REG HX TRANSMITTER	9321-F-27363	S	R	PP	41'-0"	ON	ON	YES	9321-LO-72203 SHT.17	PNL SFF	RACK C10/1B31-II
FT-134	18	CVCS	X					LETDOWN FLOW TRANSMITTER	9321-F-27363	S	R	PA	75'-0"	ON	ON	YES	9321-LO-72203 SHT.17	PNL SFF	RACK C10/1B31-II
LI-102	20	CVCS	X		X			BORIC ACID STORAGE TANK #32 LEVEL INDICATOR	113E700 SHT 11	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC 1B31-II
LI-106	20	CVCS	X		X			BORIC ACID STORAGE TANK #31 LEVEL INDICATOR	113E700 SHT 11	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC 1B31-II
LI-112	20	CVCS	X		X			VCT LEVEL INDICATOR	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC 1B31-II

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
LT-102	18	CVCS	X		X			BORIC ACID STORAGE TANK #32 LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-10	118VAC IB31-II
LT-106	18	CVCS	X		X			BORIC ACID STORAGE TANK #31 LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-10	118VAC IB31-II
LT-112	18	CVCS	X		X			VCT LEVEL TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
PI-135	18	CVCS	X	X	X			NON REGEN HX OUTLET LETDOWN PRESS INDICATOR	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72203 SHT.18	PNL SFF	RACK C10/IB31-II
PI-139	20	CVCS	X		X			VCT PRESSURE INDICATOR	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-LS-72203 SHT.19	PNL SFF	RACK C10/IB31-II
PI-1428	20	CVCS	X					CHG PP DISCH PRESS INDICATOR	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72203 SHT.23		RACK C9/IB31-II
PNL FCF	20	CVCS				X		FLIGHT PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL PF6	20	CVCS				X		GAS ANALYZING PANEL	113E303 SHT 6	S		PA	55'-0"	N/A	N/A			ADDED	
PNL PL6	20	CVCS	X					CHARGING PUMPS SPEED CONTROL PANEL	9321-F-70403	S		PA	55'-0"	N/A	N/A			ADDED	
PNL SFF	20	CVCS					X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SFR	20	CVCS					X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PT-135	18	CVCS	X	X	X			NON REGEN HX OUTLET LETDOWN PRESS TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.18	PNL SFF	RACK C10/IB31-II
PT-139	18	CVCS	X					VCT PRESSURE TRANSMITTER	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-LD-72203 SHT.19	PNL SFF	RACK C10/IB31-II
PT-142	18	CVCS	X					CHG PP DISCH PRESS TRANSMITTER	9321-F-27363	S	R	PA	55'-0"	ON	ON	YES	9321-LD-72203 SHT.23	PNL SFF	RACK C9/IB31-II
SC-141A	8	CVCS	X					31 CHRG PP SPEED CONTROL-LOCAL	9321-F-27363	S	R	PA	55'-0"	ON	ON	YES	5008971 SHT.27	PNL FBF	IB-34
SC-141B	8	CVCS	X					32 CHRG PP SPEED CONTROL-LOCAL	9321-F-27363	S	R	PA	55'-0"	ON	ON	YES	5008971 SHT.32	PNL FBF	IB-34
SC-141C	8	CVCS	X					33 CHRG PP SPEED CONTROL-LOCAL	9321-F-27363	S	R	PA	55'-0"	ON	ON	YES	5008971 SHT.33	PNL FBF	IB-34
SOV-459	8	CVCS	X	X	X			LETDOWN STOP VALVE	9321-F-70283	S	R	VC	79'-0"	ENERG	ENERG	YES	5008971 SHT.106	CKT.15	DC-PNL32
TE-122	19	CVCS	X					EXCESS LETDOWN TEMP ELEMENT	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-126	19	CVCS	X		X			REGEN HX CHG FLOW TEMP ELEMENT	9321-F-27363	S	R	PA	46'-0"	ON	ON	YES	9321-F-39892	RACK C-9	118VAC IB31-II
TE-127	19	CVCS	X					REGEN HX CHG FLOW TEMPERATURE ELEMENT	9321-F-27363	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK C-9	118VAC IB31-II
TE-130	19	CVCS	X					NON REGHX OUTLET LETDOWN TEMP ELEMENT	9321-F-27363	S	R	PA	73'-0"	ON	ON	YES	9321-F-39893	RACK C-10	118VAC IB31-II
TI-122	20	CVCS	X					EXCESS LETDOWN TEMPERATURE INDICATOR	9321-H-39923 SHT 81	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
TI-126	19	CVCS	X		X			REGEN HX CHG FLOW TEMP INDICATOR	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SFF	118VAC IB32-I

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
TI-127	20	CVCS	X					REGEN HX CHG FLOW TEMPERATURE INDICATOR	9321-F-72203 SHT 13A	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IE31 II
TI-130	19	CVCS	X					NON REGEN OUTLET LETDOWN TEMP INDICATOR	9321-F-27363	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	PNL SFF	119VAC IE32-1
31CHGR	16	DC				X		BATTERY CHARGER 31	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30053		MCC39
32CHGR	16	DC				X		BATTERY CHARGER 32	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30053		MCC37
33CHGR	16	DC				X		BATTERY CHARGER 33	9321-F-30523	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063		MCC36C
34CHGR	16	DC				X		BATTERY CHARGER 34	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30042 SHT. 2		MCC32
BATTERY 31	15	DC				X		BATTERY BANK 31	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		31CHGR
BATTERY 32	15	DC				X		BATTERY BANK 32	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		32CHGR
BATTERY 33	15	DC				X		BATTERY BANK 33	9321-F-30523	S	R	DG	15'-0"	ON	ON	YES	9321-F-30083		33CHGR
BATTERY 34	15	DC				X		BATTERY BANK 34	9321-F-30523	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		34CHGR
CBBATT31	14	DC				X		800A BATTERY 31 CIRCUIT BREAKER	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY31
CBBATT32	14	DC				X		800A BATTERY 32 CIRCUIT BREAKER	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY32
CBBATT33	14	DC				X		400A BATTERY 33 CIRCUIT BREAKER	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY33
CBBATT34	14	DC				X		600A BATTERY 34 CIRCUIT BREAKER	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY34
PNL K48	14	DC				X		125 VDC DISTRIBUTION PNL 31A	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL K49	14	DC				X		125 VDC DISTRIBUTION PNL 32A	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
PNL PC1	14	DC				X		125 VDC POWER PANEL #31	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 31
PNL PC2	14	DC				X		125 VDC POWER PANEL #32	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 32
PNL PC3	14	DC				X		125 VDC DISTRIBUTION PNL 31	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL PC4	14	DC				X		125 VDC DISTRIBUTION PNL 32	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
PNL PC8	14	DC				X		125 VDC DISTRIBUTION PNL 33	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 31
PNL PC9	14	DC				X		125 VDC POWER PANEL #33	9321-F-30083	S	R	CB	15'-0"	ON	ON	YES	9321-F-30083		BATTERY 33
PNL PD9	14	DC				X		125 VDC DISTRIBUTION PNL 34	9321-F-30083	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC PWR PNL 32
PNL PF7	14	DC				X		125 VDC POWER PANEL #34	9321-F-30083	S	R	CB	33'-0"	ON	ON	YES	9321-F-30083		BATTERY 34
0031EDAC	12	EDG				X		STARTING AIR COMPRESSOR 31	9321-H-20293	S	R	DG	15'-0"	ENERGIZED	ENERGIZED	YES	9321-LL-31333 SHT.2		MCC 34
0031EDJET	21	EDG				X		JET WTR EXP TANK 31 DG	9321-H-20283	S		DG	20'-0"	N/A	N/A	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
0031EDSAT	21	EDG			X			START AIR TANK 31 DG	9321-H-20283	S		DG	15'-0"	N/A	N/A	NO			N/A
0032EDAC	12	EDG			X			STARTING AIR COMPRESSOR 32	9321-H-20293	S	R	DG	15'-0"	ENERGIZED	ENERGIZED	YES	9321-LL-31333 SHT.3		MCC 37
0032EDJET	21	EDG			X			JKT WTR EXP TANK 32 DG	9321-H-20283	S		DG	26'-0"	N/A	N/A	NO			N/A
0032EDSAT	21	EDG			X			START AIR TANK 32 DG	9321-H-20283	S		DG	15'-0"	N/A	N/A	NO			N/A
0033EDAC	12	EDG			X			STARTING AIR COMPRESSOR 33	9321-H-20293	S	R	DG	15'-0"	ENERGIZED	ENERGIZED	YES	9321-LL-31333 SHT.4		MCC 39
0033EDJET	21	EDG			X			JKT WTR EXP TANK 33 DG	9321-H-20283	S		DG	26'-0"	N/A	N/A	NO			N/A
0033EDSAT	21	EDG			X			START AIR TANK 33 DG	9321-H-20283	S		DG	15'-0"	N/A	N/A	NO			N/A
31 DG FUEL XFER PUMP	5	EDG			X			F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-6"	OFF	ON	YES	9321-F-30063	CMP-1FL	MCC-36C
32 DG FUEL XFER PUMP	5	EDG			X			F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-0"	OFF	ON	YES	9321-F-30063	CMP-5RM	MCC-36B
33 DG FUEL XFER PUMP	5	EDG			X			F.O. TRANSFER PUMP	9321-F-20303	S	R	YD	38'-0"	OFF	ON	YES	9321-F-30063	CMP-5RM	MCC-36A
DF-LCV-1207A	7	EDG			X			31 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36C
DF-LCV-1207B	7	EDG			X			31 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36C
DF-LCV-1208A	7	EDG			X			32 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36B
DF-LCV-1208B	7	EDG			X			32 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36B
DF-LCV-1209A	7	EDG			X			33 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36A
DF-LCV-1209B	7	EDG			X			33 EDG FODT CNTRL VALVE	9321-F-20303	S	R	DG	26'-0"	ON	ON	YES	9321-LL-31333 SHT 15		MCC-36A
DG-31	17	EDG			X			DIESEL GEN NO. 31	9321-F-20303	S	R	DG	15'-0"	OFF	ON	NO			N/A
DG-32	17	EDG			X			DIESEL GEN NO. 32	9321-F-20303	S	R	DG	15'-0"	OFF	ON	NO			N/A
DG-33	17	EDG			X			DIESEL GEN NO. 33	9321-F-20303	S	R	DG	15'-0"	OFF	OFF	NO			N/A
EDG-31-FO-DTNK	21	EDG			X			F.O. DAY TANK NO. 31	9321-F-20303	S		DG	26'-0"	N/A	N/A	NO			N/A
EDG-31-FO-STNK	21	EDG			X			F.O. STORAGE TANK 31	9321-F-20303	S		YD	27'-0"	N/A	N/A	NO			N/A
EDG-31-LO-P	5	EDG			X			DG 31 ENGINE DRIVER LUBE OIL PUMP	9321-F-21193	S	R	DG	15'-0"	OFF	ON	YES	9321-LL-31333 SHT.2		MCC 34
EDG-32-FO-DTNK	21	EDG			X			F.O. DAY TANK NO. 32	9321-F-20303	S		DG	26'-0"	N/A	N/A	NO			N/A
EDG-32-FO-STNK	21	EDG			X			F.O. STORAGE TANK 32	9321-F-20303	S		YD	27'-0"	N/A	N/A	NO			N/A
EDG-32-LO-P	5	EDG			X			DG 32 ENGINE DRIVER LUBE OIL PUMP	9321-F-21193	S	R	DG	15'-0"	OFF	ON	YES	9321-LL-31333 SHT.3		MCC 37
EDG-33-FO-DTNK	21	EDG			X			F.O. DAY TANK NO. 33	9321-F-20303	S		DG	26'-0"	N/A	N/A	NO			N/A
EDG-33-FO-STNK	21	EDG			X			F.O. STORAGE TANK 33	9321-F-20303	S		YD	27'-0"	N/A	N/A	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR FEQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
EDG-33-LO-P	5	EDG				X		DG 33 ENGINE DRIVER LUBE OIL PUMP	9321-F-21193	S	R	DG	15'-0"	OFF	ON	YES	9321-LL-31333 SHT.4		MCC 39
PNL 31EDGA	20	EDG			X			31 EDG AUXILIARIES CONTROL PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A			ADDED	
PNL 32EDGA	20	EDG			X			32 EDG AUXILIARIES CONTROL PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A			ADDED	
PNL 33EDGA	20	EDG			X			33 EDG AUXILIARIES CONTROL PANEL	9321-F-22503	S		DG	15'-0"	N/A	N/A			ADDED	
PNL SHF	20	ELECT				X		SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SHR	20	ELECT				X		SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
LI-417A	20	FW			X			SG 31 LEVEL INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
LI-417D	18	FW			X			SG 31 LEVEL INDICATOR	9321-F-70533 SHT 1	S	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		480V SWGR 32 COMPT. 6D
LI-427A	20	FW			X			SG 32 LEVEL INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
LI-427D	18	FW			X			SG 32 LEVEL INDICATOR	9321-F-70533 SHT 1	S	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		480V SWGR 32 COMPT. 6D
LI-437A	20	FW			X			SG 33 LEVEL INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
LI-437D	18	FW			X			SG 33 LEVEL INDICATOR	9321-F-70533 SHT 1	S	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		480V SWGR 32 COMPT. 6D
LI-447A	20	FW			X			SG 34 LEVEL INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
LI-447D	18	FW			X			SG 34 LEVEL INDICATOR	9321-F-70533 SHT 1	S	R	AB	18'-6"	ON	ON	YES	9321-LL-31183 SHT 11A		480V SWGR 32 COMPT. 6D
LR-417-1	20	FW			X			SG 31 LEVEL RECORDER	9321-F-20193	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125V DC DST PNL 32
LR-417-2	20	FW			X			SG 32 LEVEL RECORDER	9321-F-20193	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125V DC DST PNL 32
LR-437-1	20	FW			X			SG 33 LEVEL RECORDER	9321-F-20193	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125V DC DST PNL 32
LR-437-2	20	FW			X			SG 34 LEVEL RECORDER	9321-F-20193	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125V DC DST PNL 32
LT-417A	18	FW			X			SG 31 LEVEL TRANSMITTER	9321-F-20193	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F21	118VDC IB33-IV
LT-417D	18	FW			X			SG 31 LEVEL TRANSMITTER	9321-F-20193	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F21	118VDC IB33-IV
LT-427A	18	FW			X			SG 32 LEVEL TRANSMITTER	9321-F-20193	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F21	118VDC IB33-IV
LT-427D	18	FW			X			SG 32 LEVEL TRANSMITTER	9321-F-20193	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F21	118VDC IB33-IV
LT-437A	18	FW			X			SG 33 LEVEL TRANSMITTER	9321-F-20193	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F21	118VDC IB33-IV
LT-437D	18	FW			X			SG 33 LEVEL TRANSMITTER	9321-F-20193	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F21	118VDC IB33-IV
LT-447A	18	FW			X			SG 34 LEVEL TRANSMITTER	9321-F-20193	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F21	118VDC IB33-IV
LT-447D	18	FW			X			SG 34 LEVEL TRANSMITTER	9321-F-20193	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F21	118VDC IB33-IV
PCV-0942	7	GAS				X		N2 HEADER REGULATING VALVE	9321-F-27033	S		PA	55'-0"	OPEN	OPEN	NO			N/A
PCV-1042	7	GAS				X		HYDROGEN SUPPLY PRESSURE CONTROL VALVE	9321-F-20403	S		PA	55'-0"	OPEN	OPEN	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
PCV-1043	7	GAS				X		N2 SUPPLY TO VCT PRESS CTRL VALVE	9321-F-27233	S		PA	55'-0"	OPEN	OPEN	NO			N/A
PCV-1044	7	GAS				X		N2 SUPPLY TO VCT PRESS CTRL VALVE	9321-F-27233	S		PA	55'-0"	CLOSED	OPEN	NO			N/A
PCV-1273	7	GAS				X		N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1274	7	GAS				X		N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1275	7	GAS				X		N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PCV-1276	7	GAS				X		N2 BACKUP SUPPLY	9321-F-70533 SHT. 2	S		AB	18'-6"	OPEN	OPEN	NO			N/A
PNL N2	20	GAS			X			N2 BOTTLE SUPPLY PCV PANEL	9321-F-70403	S		PA	55'-0"	N/A	N/A	NO		ADDED	
PRV-6300	7	GAS				X		N2 TO PORV 456 REG VALVE	9321-F-27203	S		VC	68'-0"	OPEN	OPEN	NO			N/A
PRV-6301	7	GAS				X		N2 TO PORV 455C REG VALVE	9321-F-27203	S		VC	68'-0"	OPEN	OPEN	NO			N/A
0031ACVP	20	HVAC				X		AIR CONTROL VENT PANEL 31 EDG	9321-F-41023	S	F	DG	15'-0"	ON	ON	YES			
0031ART	21	HVAC				X		AIR RECEIVER 30 GAL. TANK # 31	9321-F-41023	S		DG	15'-0"	N/A	N/A	NO			N/A
0031CRFU	10	HVAC				X		31 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES 617F644			480v BUS 5A
0031ETEF	9	HVAC				X		EL TNL EXHAUST FAN 31 (LOWER)	9321-F-41023	S	R	ET	34'-0"	RUN'G/OFF	ON	YES 9321-F-30063		CMP 1FB	MCC-36A
00310AL A	10	HVAC				X		OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			N/A
00310AL B	10	HVAC				X		OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			N/A
00310AL C	10	HVAC				X		OUTSIDE AIR LOUVER 31 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			N/A
0032ACVP	20	HVAC				X		AIR CONTROL VENT PANEL 32 EDG	9321-F-41023	S	R	DG	15'-0"	ON	ON	YES			
0032ART	21	HVAC				X		AIR RECEIVER 30 GAL. TANK # 32	9321-F-41023	S		DG	15'-0"	N/A	N/A	NO			N/A
0032CRFU	10	HVAC				X		32 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES			480v BUS 2A
0032ETEF	9	HVAC				X		EL TNL EXHAUST FAN 32 (LOWER)	9321-F-41023	S	R	ET	34'-0"	RUN'G/OFF	ON	YES 9321-F-30063		CMP 1FB	MCC-36B
00320AL A	10	HVAC				X		OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			N/A
00320AL B	10	HVAC				X		OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			N/A
00320AL C	10	HVAC				X		OUTSIDE AIR LOUVER 32 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			N/A
0033ACVP	20	HVAC				X		AIR CONTROL VENT PANEL 33 EDG	9321-F-41023	S	R	DG	15'-0"	ON	ON	YES			
0033ART	21	HVAC				X		AIR RECEIVER 30 GAL. TANK # 33	9321-F-41023	S		DG	15'-0"	N/A	N/A	NO			N/A
0033CRFU	10	HVAC				X		33 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES 617F644			480v BUS 5A
0033ETEF	9	HVAC				X		EL TNL EXHAUST FAN 33 (UPPER)	9321-F-41023	S	R	ET	46'-0"	RUN'G/OFF	ON	YES 9321-F-30063		CMP 2FB	MCC-36A
00330AL A	10	HVAC				X		OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			N/A
00330AL B	10	HVAC				X		OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			N/A
00330AL C	10	HVAC				X		OUTSIDE AIR LOUVER 33 EDG	9321-F-41023	S	R	DG	44'-0"	CLOSED	OPEN	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
0034CRFU	10	HVAC				X		34 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480v BUS 3A
0034ETEF	9	HVAC				X		EL INL EXHAUST FAN 34 (UPPER)	9321-F-41023	S	R	ET	46'-0"	RUN'G/OFF	ON	YES	9321-F-30063	CMP 7FB	MCC-36B
0035CRFU	10	HVAC				X		35 CTMT RECIRC FAN UNIT	9321-F-40223	S	R	VC	68'-0"	ON	ON	YES	617F644		480v BUS 6A
31 PABEF	9	HVAC				X		PRIMARY AUX BUILDING EXHAUST FAN	9321-F-40223	S	R	FB	72'-0"	ON	ON	YES	617F644		480V BUS 3A
31CRDF	9	HVAC				X		CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	CMP 2G	MCC-3E
32 PABEF	9	HVAC				X		PRIMARY AUX BUILDING SUPPLY FAN	9321-F-40223	S	R	FB	72'-0"	ON	ON	YES	617F6444		480V BUS 6A
32CRDF	9	HVAC				X		CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	CMP 2F	MCC-3B
33CRDF	9	HVAC				X		CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	CMP 2H	MCC-3B
34CRDF	9	HVAC				X		CRD COOLING FAN	9321-F-25083	S	R	VC	98'-0"	ON	ON	YES	9321-F-30053	CMP 2K	MCC-3B
ACU31	10	HVAC				X		CONTROL ROOM A/C UNIT 31	9321-F-41023	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063	CMP 6FB	MCC-36A
ACU32	10	HVAC				X		CONTROL ROOM A/C UNIT 32	9321-F-41023	S	R	CB	15'-0"	ON	ON	YES	9321-F-30063	CMP 6FB	MCC-36B
F-311	9	HVAC				X		AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	18'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-312	9	HVAC				X		AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	18'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-313	9	HVAC				X		AFPB EXH FAN/DAMPER	9321-F-40433	S	R	AB	32'-6"	RUN/OFF	ON	YES	9321-F-30283		LTG PNL 324
F-314	9	HVAC				X		EDG 31 CMPT EF 314	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-315	9	HVAC				X		EDG 31 CMPT EF 315	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
F-316	9	HVAC				X		EDG 32 CMPT EF 316	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-317	9	HVAC				X		EDG 32 CMPT EF 317	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
F-318	9	HVAC				X		EDG 33 CMPT EF 318	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36A/5RM
F-319	9	HVAC				X		EDG 33 CMPT EF 319	9321-F-41023	S	R	DG	44'-0"	RUN'G/OFF	ON	YES	9321-F-30063		MCC-36B/5RM
PABSF	9	HVAC				X		PRIMARY AUX BUILDING SUPPLY FAN	9321-F-40223	S	R	PA	41'-0"	ON	ON	YES	9321-F-21893		MCC 37
PNL 324	20	HVAC			X			LIGHTING PANEL 324	9321-F-30283	S		AB	18'-6"	N/A	N/A			ADDED	
PNL PI1	20	HVAC			X			31 EDG PNEU CONTROL PANEL	9321-F-32173	S		DG	15'-0"	N/A	N/A			ADDED	
PNL PI2	20	HVAC			X			32 EDG PNEU CONTROL PANEL	9321-F-32173	S		DG	15'-0"	N/A	N/A			ADDED	
PNL PI3	20	HVAC			X			33 EDG PNEU CONTROL PANEL	9321-F-32173	S		DG	15'-0"	N/A	N/A			ADDED	
PNL PY3	20	HVAC			X			DELUGE SYS CONTROL PANEL	9321-LL-31313 SHT228	S		LT	34'-0"	N/A	N/A			ADDED	
0031 IAC	12	IA				X		INST AIR COMP 31	9321-F-20363	S	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-F-30053	CMP 3M	MCC-3C
0031 IACA	21	IA				X		INST AIR COMP 31 AFTERCOOLER	9321-F-20363	S		CB	15'-0"	N/A	N/A	NO			N/A
0031ARTMSIV	21	IA				X		MSIV AIR RECIEVER TANK (MS 1-311)	9321-F-70093	S		AB	23'-8"	N/A	N/A	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID	EQUIP NO	CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
0031CLWP	5		IA			X			31 I/A CMPR COOLING WTR PMP	9321-F-70483	S	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-LL-31243 SHT. 5	COMPT. 4K	MCC 39
0031CWHX	21		IA			X			31 I/A CMPR COOLING WTR HX	9321-F-27223	S		CB	15'-0"	N/A	N/A	NO			N/A
0031IACJC	21		IA			X			INST AIR COMP 31 JACKET COOLER	9321-F-23913	S		CB	15'-0"	N/A	N/A	NO			N/A
0032 IAC	12		IA			X			INST AIR COMP 32	9321-F-20363	S	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-F-30043	CMP 1G	MCC-34
0032 IACA	21		IA			X			INST AIR COMP 32 AFTERCOOLER	9321-F-20363	S		CB	15'-0"	N/A	N/A	NO			N/A
0032ARTMSIV	21		IA			X			MSIV AIR RECIEVER TANK (MS 1-32)	9321-F-70093	S		AB	61'-0"	N/A	N/A	NO			N/A
0032CLWP	5		IA			X			32 I/A CMPR CL COOLING WTR PMP	9321-F-70483	S	R	CB	15'-0"	RUN'G/OFF	ON	YES	9321-LL-31243 SHT. 11	COMPT. 3M	MCC 34
0032CWHX	21		IA			X			32 I/A CMPR CL COOLING WTR HX	9321-F-27223	S		CB	15'-0"	N/A	N/A	NO			N/A
0032IACJC	21		IA			X			INST AIR COMP 32 JACKET COOLER	9321-F-23913	S		CB	15'-0"	N/A	N/A	NO			N/A
0033ARTMSIV	21		IA			X			MSIV AIR RECIEVER TANK (MS 1-33)	9321-F-70093	S		AB	73'-8"	N/A	N/A	NO			N/A
0034ARTMSIV	21		IA			X			MSIV AIR RECIEVER TANK (MS 1-34)	9321-F-70093	S		AB	61'-0"	N/A	N/A	NO			N/A
31 IA RD	12		IA			X			REFRIGERANT DRYER #31	9321-F-20363	S		CB	15'-0"	ON	ON	YES	9321-F-30053	CMP 3BR	MCC-39
32 IA RD	12		IA			X			REFRIGERANT DRYER #32	9321-F-20363	S		CB	15'-0"	OFF	OFF	NO			N/A
33HDDS	12		IA			X			HEATLESS DESSICANT DRYER SKID	9321-F-20363	S		CB	15'-0"	ON	ON	NO			N/A
DESICCANT DRYER	12		IA			X			STANDBY NONREGENERATIVE DESICCANT DRYER	9321-F-20363	S		CB	15'-0"	OFF	OFF	NO			N/A
IA-31-TK	21		IA			X			INST AIR RECEIVER	9321-F-20363	S		CB	15'-0"	N/A	N/A	NO			N/A
IACCET	21		IA			X			EXPANSION TANK	9321-F-23913	S		CB	33'-0"	N/A	N/A	NO			N/A
PCV-1141	7		IA			X			INSTRUMENT AIR AUTO BYPASS VALVE	9321-F-70483	S	R	CB	15'-0"	CLOSED	CLOSED	NO			N/A
PCV-1142	7		IA			X			INSTRUMENT AIR EMERGENCY MAKEUP VALVE	9321-F-70483	S	R	CB	15'-0"	CLOSED	CLOSED	NO			N/A
PCV-1143	7		IA			X			INSTRUMENT AIR AUTO BYPASS VALVE	9321-F-70483,9321-F-20363	S	R	CB	15'-0"	CLOSED	CLOSED	NO			N/A
PCV-1228	7		IA			X			I/A SPPLY CONT BLDG INSIR AIR HDR	9321-F-20363,9321-F-70093	S	R	PP	41'-0"	OPEN	OPEN	NO			N/A
PI-1144	29		IA			X			STATION AIR NUCL SERV PRESS INDICATOR	9321-F-20363	S	R	CB	15'-0"	ON	ON	YES	9321-LD-72343 SHT.2	PNL SJF	INST. AIR
PI-1192	20		IA			X			IACC WATER PRESS INDICATOR	9321-F-23913	S	R	CB	15'-0"	ON	ON	YES	9321-F-31993		118VAC IB32-1

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID	EQUIP NO	CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
PT-1144	20	IA					X		STATION AIR NUCL SERV PRESS TRANSMITTER	9321-F-20363	S	R	CB	15'-0"	ON	ON	YES	9321-LL-31243 SHT.2	PNL SJF	INST. AIR
PT-1197	18	IA					X		IACC WATER PRESS TRANSMITTER	9321-F-23913	S	R	CB	15'-0"	ON	ON	YES	9321-LL-31293 SHT.5	COMPT. 4K	
SOV-1177	6	IA					X		31 IAC AC CNTRL VALVE	9321-F-23913	S	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31293 SHT.2	COMPT. 3M	MCC 39
SOV-1178		IA					X		32 IAC AC CNTRL VALVE	9321-F-23913	S	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31243 SHT.10	COMPT. 1G	MCC 34
SOV-1198	8	IA					X		31 AFTERCOOLER INLET SOLENOID	9321-F-20363	S	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31193 SHT 2	COMPT. 3M	MCC 39
SOV-1199	6	IA					X		32 AFTERCOOLER INLET SOLENOID	9321-LL-31243	S	R	CB	15'-0"	ENERG	ENERG	YES	9321-LL-31243 SHT 10	COMPT. 1G	MCC 34
SOV-1230	8	IA					X		SG 31 MSIV SOV	9321-F-70093	S	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125V DP33
SOV-1231	8	IA					X		SG 31 MSIV SOV	9321-F-70093	S	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125V DP34
SOV-1232	8	IA					X		SG 31 MSIV SOV	9321-F-70093	S	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125V DP33
SOV-1233	8	IA					X		SG 31 MSIV SOV	9321-F-70093	S	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125V DP34
SOV-1234	8	IA					X		SG 32 MSIV SOV	9321-F-70093	S	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125V DP33
SOV-1235	8	IA					X		SG 32 MSIV SOV	9321-F-70093	S	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125V DP34
SOV-1236	8	IA					X		SG 32 MSIV SOV	9321-F-70093	S	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125V DP33
SOV-1237	8	IA					X		SG 32 MSIV SOV	9321-F-70093	S	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125V DP34
SOV-1238	8	IA					X		SG 33 MSIV SOV	9321-F-70093	S	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125V DP33
SOV-1239	8	IA					X		SG 33 MSIV SOV	9321-F-70093	S	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125V DP34
SOV-1240	8	IA					X		SG 33 MSIV SOV	9321-F-70093	S	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125V DP33
SOV-1241	8	IA					X		SG 33 MSIV SOV	9321-F-70093	S	R	AB	77'-4"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125V DP34
SOV-1242	8	IA					X		SG 34 MSIV SOV	9321-F-70093	S	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31312 SHT. 21	CKT. 4	125V DP33
SOV-1243	8	IA					X		SG 34 MSIV SOV	9321-F-70093	S	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125V DP34
SOV-1244	8	IA					X		SG 34 MSIV SOV	9321-F-70093	S	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 4	125V DP33
SOV-1245	8	IA					X		SG 34 MSIV SOV	9321-F-70093	S	R	AB	64'-8"	DE-ENERG	ENERG	YES	9321-LL-31313 SHT. 21	CKT. 14	125V DP34
SOV-1428	8	IA					X		SOLENOID VALVE FOR PCV-1228	9321-F-20363	S	R	PP	41'-0"	ENERG	ENERG	YES	9321-LL-31313 SHT. 19		6G PNL 31
FI-419A	20	MS			X				SG 31 STEAM FLOW INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
FI-419B	20	MS			X				SG 31 STEAM FLOW INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
FI-429A	20	MS			X				SG 32 STEAM FLOW INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
FI-429B	20	MS			X				SG 32 STEAM FLOW INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
FI-439A	20	MS			X				SG 33 STEAM FLOW INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
FI-439B	20	MS			X				SG 33 STEAM FLOW INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
FI-449A	20	MS			X				SG 34 STEAM FLOW INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
FI-449C	20	MS			X				SG 34 STEAM FLOW INDICATOR	113E700 SHT 26A	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID	EQUIP NO	CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
FT-419A	18	MS			X				SG 31 STEAM FLOW TRANSMITTER	9321-F-70015	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC 1632-I
FT-419B	18	MS			X				SG 31 STEAM FLOW TRANSMITTER	9321-F-70015	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC 1632-I
FT-429A	18	MS			X				SG 32 STEAM FLOW TRANSMITTER	9321-F-70015	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC 1632-I
FT-429B	18	MS			X				SG 32 STEAM FLOW TRANSMITTER	9321-F-70015	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4A	118VAC 1632-I
FT-439A	18	MS			X				SG 33 STEAM FLOW TRANSMITTER	9321-F-70015	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC 1632-I
FT-439B	18	MS			X				SG 33 STEAM FLOW TRANSMITTER	9321-F-70015	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC 1632-I
FT-449A	18	MS			X				SG 34 STEAM FLOW TRANSMITTER	9321-F-70015	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC 1632-I
FT-449B	18	MS			X				SG 34 STEAM FLOW TRANSMITTER	9321-F-70015	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK 4B	118VAC 1632-I
MS-1-31	7	MS			X				31 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	77'-0"	OPEN	CLOSED	NO			N/A
MS-1-32	7	MS			X				32 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	65'-0"	OPEN	CLOSED	NO			N/A
MS-1-33	7	MS			X				33 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	77'-0"	OPEN	CLOSED	NO			N/A
MS-1-34	7	MS			X				34 SG MSIV	9321-F-20173,9321-F-70093	S	R	AB	65'-0"	OPEN	CLOSED	NO			N/A
MS-45-1	7	MS			X				STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-45-2	7	MS			X				STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-45-3	7	MS			X				STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-45-4	7	MS			X				STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-1	7	MS			X				STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-2	7	MS			X				STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-3	7	MS			X				STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A
MS-46-4	7	MS			X				STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID	EQUIP NO	CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING S/S.	DWG.	NOTES	POWER SOURCE
MS-47-1		7	MS				X		STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
MS-47-2		7	MS				X		STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
MS-47-3		7	MS				X		STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
MS-47-4		7	MS				X		STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
MS-48-1		7	MS				X		STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
MS-48-2		7	MS				X		STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
MS-48-3		7	MS				X		STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
MS-48-4		7	MS				X		STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
MS-49-1		7	MS				X		STEAM GEN 31 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
MS-49-2		7	MS				X		STEAM GEN 32 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
MS-49-3		7	MS				X		STEAM GEN 33 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
MS-49-4		7	MS				X		STEAM GEN 34 SAFETY RELIEF VALVE	9321-F-20173	S		AB	77'-0"	CLOSED	CLOSED	NO				N/A
PC-419		20	MS				X		SG #31 STEAM PRESS CONTROLLER	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	FBF		IB 33-IV
PC-429		20	MS				X		SG #32 STEAM PRESS CONTROLLER	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	FCF		IB 34-III
PC-439		20	MS				X		SG #33 STEAM PRESS CONTROLLER	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	FCF		IB 34-III
PC-449		20	MS				X		SG #34 STEAM PRESS CONTROLLER	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893	FBF		IB 33-IV
PCV-1134		7	MS				X		ATM STM RELIEF VALVE 31 SG	9321-F-20173	S	R	AB	74'-0"	CLOSED	OP/CL	YES	9321-F-70123	FBF		I/A
PCV-1135		7	MS				X		ATM STM RELIEF VALVE 32 SG	9321-F-20173	S	R	AB	61'-0"	CLOSED	OP/CL	YES	9321-F-70123	FBF		I/A
PCV-1136		7	MS				X		ATM STM RELIEF VALVE 33 SG	9321-F-20173	S	R	AB	74'-0"	CLOSED	OP/CL	YES	9321-F-70123	FBF		I/A
PCV-1137		7	MS				X		ATM STM RELIEF VALVE 34 SG	9321-F-20173	S	R	AB	61'-0"	CLOSED	OP/CL	YES	9321-F-70123	FBF		I/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
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SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS.	PWG.	NOTES	POWER SOURCE
PCV-1139	7	MS				X		AUX FWP TURB STM SUPP PRESS REDUCING VALVE	9321-F-20173	S	R	AB	15'-0"	CLOSED	OPEN	NO				N/A
PCV-1310A	7	MS				X		AUX FWP TURB STM SUPP SHUT-OFF VALVE	9321-F-20173	S	R	AB	30'-0"	CLOSED	OPEN	NO				N/A
PCV-1310B	7	MS				X		AUX FWP TURB STM SUPP SHUT-OFF VALVE	9321-F-20173	S	R	AB	36'-0"	CLOSED	OPEN	NO				N/A
PI-419A	20	MS				X		SG 31 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FBF	RACK B-S/1833-IV
PI-419B	20	MS				X		SG 31 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FBF	RACK B-S/1833-IV
PI-419C	20	MS				X		SG 31 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FBF	RACK B-S/1833-IV
PI-429A	20	MS				X		SG 32 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FCF	RACK B-S/1833-IV
PI-429B	20	MS				X		SG 32 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FCF	RACK B-S/1833-IV
PI-429C	20	MS				X		SG 32 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FCF	RACK B-S/1833-IV
PI-439A	20	MS				X		SG 33 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FCF	RACK B-S/1833-IV
PI-439B	20	MS				X		SG 33 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FCF	RACK B-S/1833-IV
PI-439C	20	MS				X		SG 33 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FCF	RACK B-S/1833-IV
PI-449A	20	MS				X		SG 34 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FBF	RACK B-S/1833-IV
PI-449B	20	MS				X		SG 34 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FBF	RACK B-S/1833-IV
PI-449C	20	MS				X		SG 34 STEAM PRESS INDICATOR	9321-F-20173	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		FBF	RACK B-S/1833-IV
PM-419I	18	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	S	R	AB	77'-4"	ON	ON	YES	9321-LD-72373 SHT 3			118VAC 1833-IV
PM-429I	18	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	S	R	AB	64'-8"	ON	ON	YES	9321-F-32003			118VAC 1834-III
PM-439I	19	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	S	R	AB	77'-7"	ON	ON	YES	9321-F-32003			118VAC 1834-III
PM-449I	18	MS				X		PRESSURE SIGNAL CONVERTER CONDITIONER	9321-F-20173	S	R	AB	64'-8"	ON	ON	YES	9321-LD-72373 SHT 6			118VAC 1833-IV
PNL #1	20	MS				X		ATM STEAM DUMP PANEL #1	9321-F-70313	S		AB	43'-0"	N/A	N/A				ADDED	
PNL #2	20	MS				X		ATM STEAM DUMP PANEL #2	9321-F-70313	S		AB	43'-0"	N/A	N/A				ADDED	
PNL 1-31	20	MS					X	31 SG MSIV SOV PANEL	9321-F-70313	S		AB	77'-4"	N/A	N/A				ADDED	
PNL 1-32	20	MS					X	32 SG MSIV SOV PANEL	9321-F-70313	S		AB	64'-8"	N/A	N/A				ADDED	
PNL 1-33	20	MS					X	33 SG MSIV SOV PANEL	9321-F-70313	S		AB	77'-4"	N/A	N/A				ADDED	
PNL 1-34	20	MS					X	34 SG MSIV SOV PANEL	9321-F-70313	S		AB	64'-8"	N/A	N/A				ADDED	

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
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SORTED BY: SYSTEM

EQUIPMENT ID	EQUIP NO	CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
PT-419A	18	MS					X		SG 31 STEAM PRESS TRANSMITTER	9321-F-70033	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
PT-419B	18	MS					X		SG 31 STEAM PRESS TRANSMITTER	9321-F-70033	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
PT-419C	18	MS					X		SG 31 STEAM PRESS TRANSMITTER	9321-F-70033	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
PT-429A	18	MS					X		SG 32 STEAM PRESS TRANSMITTER	9321-F-70033	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
PT-429B	18	MS					X		SG 32 STEAM PRESS TRANSMITTER	9321-F-70033	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
PT-429C	18	MS					X		SG 32 STEAM PRESS TRANSMITTER	9321-F-70033	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
PT-439A	18	MS					X		SG 33 STEAM PRESS TRANSMITTER	9321-F-70033	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
PT-439B	18	MS					X		SG 33 STEAM PRESS TRANSMITTER	9321-F-70023	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
PT-439C	18	MS					X		SG 33 STEAM PRESS TRANSMITTER	9321-F-70023	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
PT-449A	18	MS					X		SG 34 STEAM PRESS TRANSMITTER	9321-F-70023	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
PT-449B	18	MS					X		SG 34 STEAM PRESS TRANSMITTER	9321-F-70023	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
PT-449C	18	MS					X		SG 34 STEAM PRESS TRANSMITTER	9321-F-70023	S	R	AB	18'-6"	ON	ON	YES	9321-F-39893	RACK 89	118VAC IB33-IV
31PWMUP		PW			X				31 PRIMARY WATER MAKEUP PUMP	9321-F-27243	S	R	PA	41'-0"	ON	ON	YES	5008971 SHT 83		MCC 37 - 5RA
32PWMUP		PW			X				32 PRIMARY WATER MAKEUP PUMP	9321-F-27243	S	R	PA	41'-0"	OFF	OFF	NO	5008971 SHT 83		MCC 37 - 5RA
PWST 21		PW			X				PRIMARY WATER STORAGE TANK	9321-F-27243	S		YD	54'-0"	N/A	N/A	NO			N/A
FI-414	20	RCS					X		RX COOLANT LOOP I FLOW INDICATOR CH I	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 32
FI-415	20	RCS					X		RX COOLANT LOOP I FLOW INDICATOR CH II	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 32
FI-424	20	RCS					X		RX COOLANT LOOP I FLOW INDICATOR CH I	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 32
FI-425	20	RCS					X		RX COOLANT LOOP I FLOW INDICATOR CH II	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 32
FI-434	20	RCS					X		RX COOLANT LOOP I FLOW INDICATOR CH I	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 32
FI-435	20	RCS					X		RX COOLANT LOOP I FLOW INDICATOR CH II	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 32
FI-444	20	RCS					X		RX COOLANT LOOP I FLOW INDICATOR CH I	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 32
FI-445	20	RCS					X		RX COOLANT LOOP I FLOW INDICATOR CH II	113E700 SHT 21	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 32
FI-496A	20	RCS			X				RHR TO RCS 34 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 65	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
FI-496B	20	RCS		X				RHR TO RCS 33 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 71	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
FI-496C	20	RCS		X				RHR TO RCS 32 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 65	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
FI-496D	20	RCS		X				RHR TO RCS 31 COLD LEG FLOW INDICATOR	9321-H-39923 SHT 71	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
FT-414	18	RCS			X			RX COOLANT LOOP 1 FLOW TRANSMITTER CH I	9321-F-27383	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC I832-I
FT-415	18	RCS			X			RX COOLANT LOOP 1 FLOW TRANSMITTER CH II	9321-F-27383	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC I832-II
FT-424	18	RCS			X			RX COOLANT LOOP 2 FLOW TRANSMITTER CH I	9321-F-27383	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC I832-I
FT-425	18	RCS			X			RX COOLANT LOOP 2 FLOW TRANSMITTER CH II	9321-F-27383	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC I832-II
FT-434	18	RCS			X			RX COOLANT LOOP 3 FLOW TRANSMITTER CH I	9321-F-27383	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC I832-I
FT-435	18	RCS			X			RX COOLANT LOOP 3 FLOW TRANSMITTER CH II	9321-F-27383	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC I832-II
FT-444	18	RCS			X			RX COOLANT LOOP 4 FLOW TRANSMITTER CH I	9321-F-27383	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC I832-I
FT-445	18	RCS			X			RX COOLANT LOOP 4 FLOW TRANSMITTER CH II	9321-F-27383	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC I832-II
FT-946A	18	RCS			X			RHR TO RCS 34 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK E1	118VAC I832-I
FT-946B	18	RCS			X			RHR TO RCS 33 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC I834-III
FT-946C	18	RCS			X			RHR TO RCS 32 COLD LEG FLOW TRANSMITTER	9321-F-27353 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC I832-I
FT-946D	18	RCS			X			RHR TO RCS 31 COLD LEG FLOW TRANSMITTER	9321-F-27535 SHT1	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893		118VAC I834-III
LI-1311	20	RCS		X				RVLIS INDICATOR	9321-F-30523	S	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC I832A-I (TRAIN B)

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
LI-1312	20	RCS			X			RVLIS INDICATOR	9321-F-30523	S	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LI-1321	20	RCS			X			RVLIS INDICATOR	9321-F-30523	S	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LI-1322	20	RCS			X			RVLIS INDICATOR	9321-F-30523	S	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LI-459	20	RCS	X					PRESSURIZER INDICATOR CH I	113E700 SHT 29	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
LI-460	20	RCS	X					PRESSURIZER INDICATOR CH II	113E700 SHT 29	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 31
LI-461	20	RCS	X					PRESSURIZER INDIACTOR CH III	113E700 SHT 29	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 32
LI-470	20	RCS	X					PRT LEVEL INDICATOR	9321-F-27373 SHT2	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DST PNL 32
LT-1311	18	RCS			X			RX VESSEL LVL TRNSMTR NARROW RANGE (RVLIS-A)	9321-F-72043	S	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB31A-II (TRAIN A)
LT-1312	18	RCS			X			RX VESSEL LEVEL TRNSMTR WIDE RANGE (RVLIS-A)	9321-F-72043	S	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB31A-II (TRAIN B)
LT-1321	18	RCS			X			RX VESSEL LVL TRNSMTR NARROW RANGE (RVLIS-B)	9321-F-72043	S	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LT-1322	18	RCS			X			RX VESSEL LEVEL TRNSMTR WIDE RANGE (RVLIS-B)	9321-F-72043	S	R	PP	41'-0"	ON	ON	YES	9321-F-39883		118VAC IB32A-I (TRAIN B)
LT-459	18	RCS			X			PRESSURIZER LEVEL TRANSMITTER CH I	9321-F-70513	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F19	118VAC IB33 CHIV
LT-460	18	RCS			X			PRESSURIZER LEVEL TRANSMITTER CH II	9321-F-70513	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F19	118VAC IB33 CHIV
LT-470	18	RCS	X					PRT LEVEL TRANSMITTER	9321-F-27473	S	R	VC	65'-0"	ON	ON	YES	9321-LD-72453 SHT 17	RACK A-5	IB 32-I
PCV-455A	7	RCS	X					PZR SPRAY CONTROL VALVE	9321-F-27473	S	R	VC	68'-0"	CLOSED	CLOSED	NO			N/A
PCV-455B	7	RCS	X					PZR SPRAY CONTROL VALVE	9321-F-27473	S	R	VC	68'-0"	CLOSED	CLOSED	NO			N/A
PCV-455C	7	RCS	X					PRESSURIZER PORV	9321-F-27473	S	R	VC	124'-0	CLOSED	CLOSED	NO			N/A
PCV-456	7	RCS	X					PRESSURIZER PORV	9321-F-27473	S	R	VC	124'-0	CLOSED	CLOSED	NO			N/A
PCV-473	7	RCS	X					N2 SUPPLY TO PRT	9321-F-27473	S		PA	41'-0"	OPEN	OPEN	NO			N/A
PI-402	20	RCS	X					LOOP 31 HOT LEG PRESSURE INDICATOR	9321-F-39923 SHT 80	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB31-II
PI-403	20	RCS	X					LOOP 34 HOT LEG PRESSURE INDICATOR	9321-F-39923 SHT 64	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC IB33-IV

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
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SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
PI-413	20	RCS	X					LOOP 31 HOT LEG PRESSURE INDICATOR	9321-LD-72453 SHT21A	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC I631-II
PI-443	20	RCS	X					LOOP 34 HOT LEG PRESSURE INDICATOR	9321-LD-72453 SHT23E	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC I631-II
PI-455	20	RCS	X					PRT PRESSURE INDICATOR	113E700 SHT 29	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DCI PNL 31
PI-456	20	RCS	X					PRT PRESSURE INDICATOR	113E700 SHT 29	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DCI PNL 31
PI-457	20	RCS	X					PRT PRESSURE INDICATOR	113E700 SHT 29	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083		125VDC DCI PNL 31
PI-472	20	RCS	X					PRT PRESSURE INDICATOR	9321-F-27473	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72453 SHT 19	PNL SAF	
PNL FBR	20	RCS			X			FLIGHT PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SAF	20	RCS				X		SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SAR	20	RCS				X		SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PT-402	18	RCS	X					LOOP 31 HOT LEG PRESSURE	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-H-39923 SHT 80		BUS 31 8KR2
PT-403	18	RCS	X					LOOP 34 HOT LEG PRESSURE	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-H-39923 SHT 84		BUS 32 8KR3
PT-413	18	RCS	X					LOOP 31 HOT LEG PRESSURE	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK H1	118VAC I632-I
PT-443	18	RCS	X					LOOP 34 HOT LEG PRESSURE	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK H3	118VAC I633-IV
PT-455	18	RCS	X					PRESSURIZER PRESSURE CH I TRANSMITTER	9321-F-70513	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F19	118VAC I8-IV
PT-456	18	RCS	X					PRESSURIZER PRESSURE CH II TRANSMITTER	9321-F-70513	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F19	118VAC I6-IV
PT-457	18	RCS	X					PRESSURIZER PRESSURE CH III TRANSMITTER	9321-F-70513	S	R	VC	68'-0"	ON	ON	YES	9321-F-39893	RACK F19	118VAC I633-IV
PT-472	18	RCS	X					PRT PRESSURE TRANSMITTER	9321-F-27473	S	R	VC	62'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC I632-I
PT-474	18	RCS	X					PRESSURIZER PRESSURE CH IV TRANSMITTER	9321-F-70513	S	R	VC	53'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC I632-IV
RC-516	7	RCS	X					PRESSURIZER RELIEF TANK VENT VALVE	9321-F-27473	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
RC-519	7	RCS	X					PRIMARY WATER MAKE-UP TO PRT VALVE	9321-F-27473	S	R	PP	41'-0"	CLOSED	CLOSED	NO			N/A
RC-523	7	RCS	X					PRT DRAIN VALVE	9321-F-27473	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
RC-544	7	RCS	X	X				REACTOR VESSEL FLANGE LEAK-OFF CTRL VLV	9321-F-27383	S	R	VC	60'-0"	OPEN	CLOSED	YES	5008971 SHT.91	CKT.5	DC-PNL31
RC-549	7	RCS	X					PRESS RELIEF GAS ANALYZER CTRL VALVE	9321-F-27473	S	R	PA	54'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
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SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
RC-552	7	RCS		X				PRIMARY WATER MAKE-UP TO PRT VALVE	9321-F-27473	S	R	PP	41'-0"	CLOSED	CLOSED	NO			N/A
RC-560	7	RCS		X				PRT SPRAY ISO STOP VALVE	9321-F-27473	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
RC-MOV-535	8	RCS		X	X			PORV BLK VLV 455C	9321-F-27473	S	R	VC	124'-0	OPEN	OPEN	YES	9321-F-30063	CMP-1FH	MCC-36B
RC-MOV-536	8	RCS		X	X			PORV BLK VLV 456	9321-F-27473	S	R	VC	124'-0	OPEN	OPEN	YES	9321-F-30063	CMP-1FH	MCC-36A
TE-411A1	19	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-34423	RACK A4	118VAC I832-I
TE-411A2	20	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-34423	RACK A4	118VAC I832-I
TE-411A3	19	RCS				X		RCS LOOP 31 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-34423	RACK A4	118VAC I832-I
TE-411B	19	RCS	X	X		X		RCS LOOP 31 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39923	RACK A4	118VAC I832-I
TE-413A	19	RCS	X	X		X		RCS LOOP 31 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39923	RACK A4	118VAC I832-I
TE-413B	19	RCS	X	X		X		RCS LOOP 31 COLD LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39923	RACK A4	118VAC I832-I
TE-421A1	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39923	RACK A10	118VAC I831-I
TE-421A2	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39923	RACK A10	118VAC I831-I
TE-421A3	19	RCS				X		RCS LOOP 32 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39923	RACK A10	118VAC I831-I
TE-421B	19	RCS	X	X		X		RCS LOOP 32 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39923	RACK A10	118VAC I831-I
TE-423A	19	RCS	X	X		X		RCS LOOP 32 HOT LEG WIDE RANGE TEMP ELEME	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39923	RACK A10	118VAC I831-I
TE-423B	19	RCS	X	X		X		RCS LOOP 32 COLD LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39923	RACK A10	118VAC I831-I
TE-431A1	20	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39993	RACK B3	118VAC I834-III
TE-431A2	19	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39993	RACK B3	118VAC I834-III

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
TE-431A3	19	RCS				X		RCS LOOP 33 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC I634-III
TE-431B	19	RCS	X	X		X		RCS LOOP 33 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC I634-III
TE-433A	19	RCS	X	X		X		RCS LOOP 33 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B3	118VAC I634-III
TE-433B	19	RCS	X	X		X		RCS LOOP 33 COLD WIDE RANGE LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-LD-32453 SHT 22	RACK B3	118VAC I634-III
TE-441A1	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC I633-IV
TE-441A2	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC I633-IV
TE-441A3	19	RCS				X		RCS LOOP 34 HOT LEG TEMP ELEMENT	9321-F-27383	S	R	VC	55'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC I633-IV
TE-441B	19	RCS	X	X		X		RCS LOOP 34 COLD LEG TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC I633-IV
TE-443A	19	RCS	X	X		X		RCS LOOP 34 HOT LEG WIDE RANGE TEMP ELEMENT	9321-F-27383,F-3027	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK B10	118VAC I633-IV
TE-443B	19	RCS	X	X		X		RCS LOOP 34 COLD LEG WIDE RANGE TEMP ELEMENT	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-LD-32453 SHT 23	RACK B10	118VAC I633-IV
TE-453	19	RCS			X			PRESSURIZER LIQUID SPACE TEMP ELEMENT	9321-F-27473	S	R	VC	73'-0"	ON	ON	YES	9321-F-39893	RACK A6	118VAC I832-I
TE-454	19	RCS	X					PRESSURIZER STEAM SPACE TEMP ELEMENT	9321-F-27473	S	R	VC	117'-0	ON	ON	YES	9321-F-39893	RACK A6	118VAC I832-I
TE-471	19	RCS			X			PRT TEMP ELEMENT	9321-F-27473	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC I832-I
TI-453	20	RCS			X			PRESSURIZER LIQUID SPACE TEMP INDICATOR	9321-H-39923 SHT 83	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	125VDC DST PNL 32
TI-454	20	RCS			X			PRESSURIZER STEAM TEMP INDICATOR	9321-H-39923 SHT 83	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	125VDC DST PNL 32
TI-471	20	RCS			X			PRT TEMP INDICATOR	9321-F-27473	S	R	CB	53'-0"	ON	ON	YES	9321-F-30083	PNL SAF	125VDC DIST PNL 32
TR-413		RCS	X	X		X		RCS 31 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	S	R	CB	53'-0"	ON	ON	YES	9321-F-39883		RACK A-67 I832-I

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM .

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
TR-413		RCS	X	X		X		RCS 31 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	S	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/1B32-I
TR-423		RCS	X	X		X		RCS 31 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	S	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/1B32-I
TR-433		RCS	X	X		X		RCS 31 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	S	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/1B32-I
TR-443		RCS	X	X		X		RCS 31 LOOP HOT/COLD WIDE RANGE RECORDER	9321-F-39763	S	R	CB	53'-0"	ON	ON	YES	9321-F-32003		RACK A-6/1B32-I
ACAHRS1	21	RHR				X		RHR HTEXCH # 31	9321-F-27203	S		VC	66'-0"	N/A	N/A	NO			N/A
ACAHRS2	21	RHR				X		RHR HTEXCH # 32	9321-F-27203	S		VC	66'-0"	N/A	N/A	NO			N/A
ACAPRH1	5	RHR				X		31 RHR PUMP	9321-F-27513 SHT1	S	R	PA	15'-0"	OFF	ON	YES	617F644		BUS 3A
ACAPRH2	5	RHR				X		32 RHR PUMP	9321-F-27513 SHT1	S	R	PA	15'-0"	OFF	ON	YES	617F644		BUS 6A
FI-642	20	RHR				X		RHR FLOW INDICATOR	9321-F-27513 SHT. 1	S	R	CB	53'-0"	ON	ON	YES			
FT-638	18	RHR				X		RHR FLOW TRANSMITTER	9321-F-27353 SHT. 1	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A6	118VAC 1B32-I
FT-640	18	RHR				X		RHR FLOW TRANSMITTER	9321-F-27353 SHT. 1	S	R	VC	46'-0"	ON	ON	YES	9321-F-39893	RACK A5	118VAC 1B32-I
TE-636	19	RHR				X		RHR HX TEMP INLET TEMP ELEMENT	9321-F-27513	S	R	PA	15'-0"	ON	ON	YES	9321-LD-72112 SHT 9	PNL SGF	RACK A5/1B32-I
TE-639	19	RHR				X		RHR HX 31 OUTLET TEMP ELEMENT	9321-F-27513	S	R	VC	68'-0"	ON	ON	YES	9321-LD-72513 SHT 2	PNL SGF	RACK A5/1B32-I
TE-641	19	RHR				X		RHR HX 32 OUTLET TEMP ELEMENT	9321-F-27513	S	R	VC	46'-0"	ON	ON	YES	9321-LD-72513 SHT 3	PNL SGF	RACK A6/1B32-I
LI-920	20	SIS		X				RWST LEVEL INDICATOR	9321-H-39893 SHT 67	S	R	CB	53'-0"	ON	ON	YES	9321-F-39893		118VAC 1B32-II
LIC-921	18	SIS	X					RWST LEVEL INDICATOR	9321-F-27503 SHT. 2	S	R	TK	79'-0"	ON	ON	YES			
LT-920	18	SIS	X					RWST LEVEL TRANSMITTER	9321-F-27503 SHT. 2	S	R	TK	79'-0"	ON	ON	YES	9321-F-39893	RACK E-1	118VAC 1B32-I
PNL SBF-1	20	SIS					X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SBF-2	20	SIS					X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SBR-1	20	SIS					X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PNL SBR-2	20	SIS					X	SUPERVISORY PANEL	9321-F-30523	S		CB	53'-0"	N/A	N/A			ADDED	
PWST-31	21	SIS	X		X			REFUEL WTR STORAGE TANK	9321-F-27503 SHT. 2	S		YD	80'-0"	N/A	N/A	NO			N/A
SI-0882	7	SIS	X			X		RWST SUPPLY TO RHR PUMPS	9321-F-27503 SHT. 2	S	R	PA	15'-0"	OPEN	CLOSED	YES	9321-F-30063	CMP-4FD	MCC-36B
SI-0885A	8	SIS				X		RHR PUMPS SUCTION FROM CONTAINMENT SUMP	9321-F-27503 SHT2	S	R	PA	34'-0"	CLOSED	CLOSED	NO			N/A
SI-0885B	8	SIS				X		RHR PUMPS SUCTION FROM CONTAINMENT SUMP	9321-F-27503 SHT. 2	S	R	PA	34'-0"	CLOSED	CLOSED	NO			N/A
SI-0888A	8	SIS				X		HIGH HEAD INJECTION RECIRC STOP	9321-F-27503	S	R	PA	51'-0"	CLOSED	CLOSED	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
SI-0888B	8	SIS				X		HIGH HEAD INJECTION RECIRC STOP	9321-F-27503	S	R	PA	51'-0"	CLOSED	CLOSED	NO			N/A
SI-0889A	8	SIS				X		CIMT SPRAY HEADER ISO VALVE	9321-F-27353 SHT. 1	S	R	VC	72'-6"	CLOSED	CLOSED	NO			N/A
SI-0889B	8	SIS				X		CIMT SPRAY HEADER ISO VALVE	9321-F-27353 SHT. 1	S	R	VC	72'-6"	CLOSED	CLOSED	NO			N/A
SI-0894A	8	SIS		X	X	X		NO. 31 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	CMP-3RM	MCC-36A
SI-0894B	8	SIS		X	X	X		NO. 32 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	CMP-3RM	MCC-36B
SI-0894C	8	SIS		X	X	X		NO. 33 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	CMP-2RD	MCC-36A
SI-0894D	8	SIS		X	X	X		NO. 34 ACCUM ISOLATION VALVE	9321-F-27353	S	R	VC	46'-0"	OPEN	CLOSED	YES	9321-F-30063	CMP-2RD	MCC-36B
SI-1802A	8	SIS				X		SIS RECIRC PUMP DISCHARGE VALVE	9321-F-27353	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
SI-1802B	8	SIS				X		SIS RECIRC PUMP DISCHARGE VALVE	9321-F-27353	S	R	VC	46'-0"	CLOSED	CLOSED	NO			N/A
SI-1810	7	SIS	X					MOV RWST TO SI PUMP ISO VALVE	9321-F-27503	S	R	PA	15'-0"	OPEN	CLOSED	YES	9321-F-30063	CMP BFD	MCC-36A
SI-1869A	8	SIS				X		RHR HX 32 TO RHR MINI FLOW VALVES	9321-F-27353	S	R	VC	55'-0"	OPEN	OPEN	YES	5008971 SHT.116	CMP 7FH	MCC-36A
SI-1869B	8	SIS				X		RHR HX 31 TO RHR MINI FLOW VALVES	9321-F-27353	S	R	VC	55'-0"	OPEN	OPEN	YES	5008971 SHT.116	CMP 7FH	MCC-36B
SI-HCV-638	8	SIS				X		RHR HTX 31 DISCH. THROTTLE VLV.	9321-F-27353 SHT. 1	S	R	VC	66'-0"	OPEN	OPEN	YES	5008971 SHT.137		MCC-36B
SI-HCV-640	8	SIS				X		RHR HTX 32 DISCH. THROTTLE VLV.	9321-F-27353 SHT. 1	S	R	VC	66'-0"	OPEN	OPEN	YES	5008971 SHT.137		MCC-36A
31 PLSSHTX	21	SP	X					31 PZR LIQ SPACE SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
31 RCSSHTX	21	SP	X					31 RCS SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
32 PLSSHTX	21	SP	X					32 PZR LIQ SPACE SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
32 RCSSHTX	21	SP	X					32 RCS SAMPLE HTX	9321-F-27453	S		PA	55'-0"	N/A	N/A	NO			N/A
953	7	SP	X					PZR LIQ SPC SAMPLE LINE	9321-F-27453	S	R	VC	73'-6"	CLOSED	CLOSED	YES	5008971 SHT.95	CKT.12	DC-PNL32
955A	7	SP	X					31 HL SAMPLE LINE	9321-F-27453	S	R	VC	62'-0"	CLOSED	CLOSED	NO			N/A
955B	7	SP	X					33 HL SAMPLE LINE	9321-F-27453	S	R	VC	62'-0"	CLOSED	CLOSED	NO			N/A
956C	7	SP	X					PZR LIQ SPACE SAMPLE LINE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	5008971 SHT.96	CKT.3	DC-PNL31
956D	7	SP	X					PZR LIQ SPACE SAMPLE LINE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	5008971 SHT.96	CKT.6	DC-PNL32
956E	7	SP	X					RCS HL SAMPLE LINE ISO VALVE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	5008971 SHT.96	CKT.3	DC-PNL31
956F	7	SP	X					RCS HL SAMPLE LINE ISO VALVE	9321-F-27453	S	R	PP	41'-0"	OPEN	OPEN	YES	5008971 SHT.96	CKT.6	DC-PNL32

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
958	7	SP	X					RHR SAMPLE LINE	9321-F-27453	S	R	PP	41'-0"	CLOSED	OPEN	YES	5006971 SHT.96	CKT.12	DC-PNL33
959	7	SP	X					RHR SAMPLE LINE	9321-F-27453	S	R	PP	41'-0"	CLOSED	OPEN	YES	5008971 SHT.96	CKT.12	DC-PNL33
PNL #3	20	SP				X		SAMPLING SYS CONTROL PANEL #3	9321-F-70403	S		PA	55'-0"	N/A	N/A			ADDED	
PNL #4	20	SP				X		SAMPLING SYS CONTROL PANEL #4	9321-F-70403	S		PA	55'-0"	N/A	N/A			ADDED	
PT-433	18	SP		X				LOOP 33 HOT LEG PRESSURE	9321-F-27383	S	R	VC	46'-0"	ON	ON	YES	9321-F-39833		RACK H2/1B31-II
31 SW PUMP (M)	6	SWN					X	31 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-23D	BUS 5A
32 SW PUMP (M)	6	SWN					X	32 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-39B	BUS 2C
33 SW PUMP (M)	6	SWN					X	33 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-10D	BUS 6A
34 SW PUMP (M)	6	SWN					X	34 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-31-23C	BUS 5A
35 SW PUMP (M)	6	SWN					X	35 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-3D	BUS 3A
36 SW PUMP (M)	6	SWN					X	36 SERVICE WATER PUMP	9321-F-20333 SHT 1	S	R	IS	15'-0"	RUN'G/OFF	ON	YES	617F644	SG-32-10B	BUS 6A
EDG-31-JW HTX	21	SWN					X	DG 31 JACKET WATER COOLER	9321-H-20283	S		DG	15'-0"	ON	ON	NO			N/A
EDG-31-LO HTX	21	SWN					X	DG 31 LUBE OIL COOLER	9321-H-20283	S		DG	15'-0"	ON	ON	NO			N/A
EDG-32-JW HTX	21	SWN					X	DG 32 JACKET WATER COOLER	9321-H-20283	S		DG	15'-0"	ON	ON	NO			N/A
EDG-32-LO HTX	21	SWN					X	DG 32 LUBE OIL COOLER	9321-H-20283	S		DG	15'-0"	ON	ON	NO			N/A
EDG-33-JW HTX	21	SWN					X	DG 33 JACKET WATER COOLER	9321-H-20283	S		DG	15'-0"	ON	ON	NO			N/A
EDG-33-LO HTX	21	SWN					X	DG 33 LUBE OIL COOLER	9321-H-20283	S		DG	15'-0"	ON	ON	NO			N/A
FCV-1176	7	SWN					X	EDG JW/LO CLRS RET HDR FLOW CONT. VLV.	9321-F-27223	S	R	DG	15'-0"	CLOSED	OPEN	YES	9321-LL-31213 SHT 15	CKT. 5	125V DC DIST PNL 31
FCV-1176A	7	SWN					X	EDG JW/LO CLRS RET HDR FLOW CONT. VLV	9321-F-27223	S	R	DG	15'-0"	CLOSED	OPEN	YES	9321-LL-31313 SHT 15	CKT. 5	125V DC DIST PNL 32
PCV-1296	8	SWN					X	31 A/C UNIT CONDENSER	9321-F-27223	S	R	CB	15'-0"	CLOSED	OPEN	YES			
PCV-1297	8	SWN					X	32 A/C UNIT CONDENSER	9321-F-27223	S	R	CB	15'-0"	OPEN	OPEN	YES			
PI-1190	20	SWN					X	SVC WATER NUCL HDR PRESS INDICATOR	9321-F-20333	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72543 SHT.9		RACK D9/1B34-IV
PI-1191	20	SWN					X	SVC WATER NUCL HDR PRESS INDICATOR	9321-F-20333	S	R	CB	53'-0"	ON	ON	YES	9321-LD-72543 SHT.10		RACK D9/1B33-IV
PT-1190	18	SWN					X	SVC WATER NUCL HDR PRESS TRANSMITTER	9321-F-20333	S	R	TB	15'-0"	ON	ON	YES	9321-LD-72543 SHT.9		RACK D9/1B33-IV
PT-1191	18	SWN					X	SVC WATER NUCL HDR PRESS TRANSMITTER	9321-F-20333	S	R	TB	15'-0"	ON	ON	YES	9321-LD-72543 SHT.10		RACK D9/1B33-IV
SWN-04	R	SWN					X	DISCH HDR X-TIE VALVE	9321-F-20333	S		IS	15'-0"	OPEN	OPEN	NO			N/A

INDIAN POINT UNIT 3
SAFE SHUTDOWN EQUIPMENT LIST FOR
SEISMIC VERIFICATION USI A-46
SORTED BY: SYSTEM

EQUIPMENT ID NO	EQUIP CLASS	SYSTEM	F1	F2	F3	F4	F5	EQUIPMENT DESCRIPTION	DRAWING NUMBER	S	R	LOC.	ELEV.	NORMAL STATE	DESIRED STATE	PWR REQ	SUPPORTING SYS. DWG.	NOTES	POWER SOURCE
SWN-05	R	SWN					X	DISCH HDR X-TIE VALVE	9321-F-20333	S		IS	15'-0"	CLOSED	CLOSED	NO			N/A
SWN-06	R	SWN					X	ISO VALVE-CONV COOLERS	9321-F-20333	S		IS	15'-0"	OPEN	OPEN	NO			N/A
SWN-07	R	SWN					X	ISO VALVE-CONV COOLERS	9321-F-20333	S		IS	15'-0"	CLOSED	CLOSED	NO			N/A
SWN-FCV-1111	R	SWN					X	ISO VALVE-CONV PLANT SERVICES	9321-F-20333	S		IS	15'-0"	CLOSED	CLOSED	NO			N/A
SWN-FCV-1112	R	SWN					X	ISO VALVE-CONV PLANT SERVICES	9321-F-20333	S		IS	15'-0"	OPEN	CLOSED	NO			N/A
SWN-TC-1113	7	SWN					X	INST AIR CC HX SW OUTLET TC	9321-F-27223	S	R	CB	15'-0"	ON	ON	YES	9321-LO-72543 SHT.8		I/A
SWN-TCV-1103	7	SWN					X	CFCU OUTLET CONTROL VLV	9321-F-27223	S	R	PP	35'-0"	OPEN	OPEN	YES	9321-F-39893	PANEL SB2	118VAC IB32-I
SWN-TCV-1104	7	SWN					X	CFCU OUTLET BYPASS VLV	9321-F-27223	S	R	PP	35'-0"	CLOSED	CLOSED	NO	9321-F-39893	PANEL SB2	118VAC IB32-I
SWN-TCV-1105	7	SWN					X	CFCU OUTLET BYPASS VLV	9321-F-27223	S	R	PP	35'-0"	CLOSED	CLOSED	NO			N/A
SWN-TCV-1113	7	SWN					X	INST AIR CC HX SW OUTLET TCV	9321-F-27223	S	R	CB	15'-0"	OPEN	OPEN	YES	9321-LO-72543 SHT.8		I/A

NEW YORK POWER AUTHORITY

PROJECT: IP3 USI A-46 (SQUG)

NYPA INTXMTL #: 94-005 DATED: 6-30-1994 FILE #: S93-51330 0003A
NYPA EXTXMTL #: 94-003 DATED: 8- 1-1994 DOC #: USI A-46
Title: LIST OF RELAYS AFFECTING SAFE SHUTDOWN EQUIPMENT

NEW YORK POWER AUTHORITY

DOCUMENT REVIEW STATUS

STATUS NO:

1 ☒ ACCEPTED
2 ☐ ACCEPTED AS NOTED RESUBMITTAL NOT REQUIRED
3 ☐ ACCEPTED AS NOTED RESUBMITTAL REQUIRED
4 ☐ NOT ACCEPTED

Permission to proceed does not constitute acceptance or approval of design details, calculations, analysis, test methods or materials developed or selected by the supplier and does not relieve supplier from full compliance with contractual negotiations.

REVIEWED BY: [illegible] TITLE: SR PROJ ENGR

LIST OF RELAYS DATE: 7/25/94

No. 100.216

NOTE: PLEASE DO NOT REMOVE THIS SHEET FROM THE ATTACHED DOCUMENT

ATOMETRICS
INCORPORATED

June 20, 1994

NYPA-1153
JO No. 18904-00

Mr. Peter Okas
Senior Nuclear Project Engineer
New York Power Authority
123 Main Street
White Plains, New York 10601

Subject: Submittal of the "Preliminary Relay List Associated with the Safe Shutdown Equipment List (SSEL)" Resolution of NRC Unresolved Safety Issue (USI) A-46 at Indian Point Nuclear Power Plant Unit No. 3 (IP-3)

Dear Mr. Okas:

Enclosed for your review and comment are three (3) copies of the Relay List which identifies all relays and contacts associated with the equipment on the SSEL. Your comments associated with this draft submittal should be returned to Atometrics by July 20, 1994.

The enclosed Table 1 identifies those components for which we have not been able to obtain the schematic diagrams necessary to complete the relay list and relay reviews. We have been unsuccessful in obtaining these schematics through Document Control and, therefore, your assistance in obtaining these drawings would be appreciated.

Should you have any questions or if further information is required, please do not hesitate to call.

Very truly yours,

Jon E. Thompson, P.E.
Project Manager

JET:dlm
enclosure

cc: TMoran (NYPA) w/o enclosure
MLakis (NYPA) w/o enclosure
APal (NYPA) w/o enclosure
MLevine w/o enclosure
Job Book - NYPA (SQUG)

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Table 1
Components Requiring Schematic Diagrams
to Complete the Relay List and Relay Reviews

Item	Component ID	System	Description
1.	SOV-1258	COND	CST Low Level Control Valve (LCV-1158-1) Solenoid Valve
2.	SOV-1259	COND	CST Low Level Control Valve (LCV-1158-2) Solenoid Valve
3.	CH-HCV-133	CVCS	RHR Heat Exchanger Outlet to CVCS
4.	CH-LCV-112C	CVCS	VCT Outlet Isolation Valve
5.	CH-MOV-441	CVCS	31 RCP Seal Injection Containment Isolation Valve
6.	CH-MOV-442	CVCS	32 RCP Seal Injection Containment Isolation Valve
7.	CH-MOV-443	CVCS	33 RCP Seal Injection Containment Isolation Valve
8.	CH-MOV-444	CVCS	34 RCP Seal Injection Containment Isolation Valve
9.	863	GAS	N2 Header Supply Valve
10.	PCV-0942	GAS	N2 Header Regulating Valve
11.	TCV-111	IA	Instrument Air Temperature Control Valve
12.	958	SP	RHR Sample Line
13.	PCV-1139	MS	Aux FWP Turbine Steam Supply Pressure Reducing Valve
14.	EF-311	HVAC	Aux Feed Pump Bldg Exhaust Fan 311
15.	EF-312	HVAC	Aux Feed Pump Bldg Exhaust Fan 312
16.	EF-313	HVAC	Aux Feed Pump Bldg Exhaust Fan 313
17.	EF-314	HVAC	Motor Operated Louver 314
18.	EF-315	HVAC	Motor Operated Louver 315

NEW YORK POWER AUTHORITY

PROJECT: IP3 USI A-46 (SQUG)

NYPA INTXMTL #: 94-005 DATED: 6-30-1994 FILE #: 893-51330 0003A
NYPA EXTXMTL #: DATED: 0- 0-0000 DOC #: USI A-46
Title: LIST OF RELAYS AFFECTING SAFE SHUTDOWN EQUIPMENT

	FOR					FOR			
	INFO	COMM	NC	C		INFO	COMM	NC	C
PAL		X							
LAKIS		X							
KLEIN		X							
OKAS		X							
YOUNG		X							
GAROFALO		X							
KOKOLAKIS		X							
YEH		X							
CAPUTO		X			NYPA FILE NO.				
MORAN		X			S93-51330-0003A				
					REVIEWED BY:				
COMMENTS DUE: 7-8-94					RETURN TO: P. OKAS				

NOTE: PLEASE DO NOT REMOVE THIS SHEET FROM THE ATTACHED DOCUMENT

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
** B16	118VAC	5	16	9321-F-39893. 9321-F-95073 9321-F-30513	MANUAL XSFER SW CAB	B.W	CB	33'-0"	SWITCH CONTACTS	
** EG41	118VAC	5	16	9321-F-39893. 9321-F-39993	INVERTER CAB.	PB1	CB	33'-0"	PRE-CHARGE PUSHBUTTON	
					INVERTER CAB.	PB2	CB	33'-0"	LAMP TEST/ ALARM RESET PUSHBUTTON	
					INVERTER CAB.	CB1	CB	33'-0"	BATTERY INPUT CKT. BREAKER CONTACTS	
					INVERTER CAB.	CB2	CB	33'-0"	INVERTER OUTPUT CKT. BREAKER CONTACTS	
					INVERTER CAB.	CB3	CB	33'-0"	ALTERN. SOURCE INPUT CKT. BREAKER CONTACTS	
** EG42	118VAC	5	16	9321-F-39893. 9321-F-39993	INVERTER CAB.	PB1	CB	33'-0"	PRE-CHARGE PUSHBUTTON	
					INVERTER CAB.	PB2	CB	33'-0"	LAMP TEST/ ALARM RESET PUSHBUTTON	
					INVERTER CAB.	CB1	CB	33'-0"	BATTERY INPUT CKT. BREAKER CONTACTS	
					INVERTER CAB.	CB2	CB	33'-0"	INVERTER OUTPUT CKT. BREAKER CONTACTS	
					INVERTER CAB.	CB3	CB	33'-0"	ALTERN. SOURCE INPUT CKT. BREAKER CONTACTS	
** GC9	118VAC	5	16	9321-F-39893. 9321-F-39993	INVERTER CAB.	PB1	CB	33'-0"	PRE-CHARGE PUSHBUTTON	
					INVERTER CAB.	PB2	CB	33'-0"	LAMP TEST/ ALARM RESET PUSHBUTTON	
					INVERTER CAB.	CB1	CB	33'-0"	BATTERY INPUT CKT. BREAKER CONTACTS	
					INVERTER CAB.	CB2	CB	33'-0"	INVERTER OUTPUT CKT. BREAKER CONTACTS	
					INVERTER CAB.	CB3	CB	33'-0"	ALTERN. SOURCE INPUT CKT. BREAKER CONTACTS	
** GF2	118VAC	5	16	9321-F-39893. 9321-F-39523 9321-F-32043	INVERTER CAB.	PB1	CB	33'-0"	PRE-CHARGE PUSHBUTTON	
					INVERTER CAB.	PB2	CB	33'-0"	OVERCURRENT RESET PUSHBUTTON	
					INVERTER CAB.	CB1	CB	33'-0"	RECT. A.C. INPUT BREAKER CONTACTS (NOT USED)	
					INVERTER CAB.	CB2	CB	33'-0"	BATTERY INPUT BREAKER CONTACTS	
					INVERTER CAB.	CB3	CB	33'-0"	INV. D.C. INPUT BREAKER CONTACTS	

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					INVERTER CAB.	C84	CB	33'-0"	INV. A.C. OUTPUT BREAKR. CONTACTS	
** 147	118VAC	S	16	9321-F-39893. 9321-F-39993 9321-F-30513	MANUAL BYPASS SW CAB	B.W	CB	33'-0"	SWITCH CONTACTS	
** 146	118VAC	S	16	9321-F-39893. 9321-F-39993 9321-F-30513	MANUAL BYPASS SW CAB	B.W	CB	33'-0"	SWITCH CONTACTS	
** 147	118VAC	S	16	9321-F-39893. 9321-F-33833 9321-F-32003	MANUAL BYPASS SW CAB	B.W.	CB	33'-0"	SWITCH CONTACTS	
** 480V SWGR 31	480VAC	S	02	9321-LL-31173 SH 2.	SWGR ISOLATION CAB CH IV	4/ISO			DIESEL GENERATOR ISOLATION SWITCH	
				3,5,6,6B,7,12,13,	PANEL SH	1-1/2A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPR RET TO OFF	
				14.18	DIESEL ISOLATION CAB	8/ISO			DIESEL GENERATOR ISOLATION SWITCH (MAINTAINED CONTACTS)	
				IP3V-0013-0003	DIESEL GEN 31 CNTL BOARD	1-2/2A	DG	15'-0"	BREAKER CONTROL SWITCH	
				9321-F-33533	DIESEL GEN 31 CNTL BOARD	SS/2A	DG	15'-0"	SYNCHRONIZING SWITCH	
				9321-LL-31183 SH 12	480V SWGR 31, COMPT. 28H	27-2A/X3	CB	15'-0"	AUX RELAY NBFDB4S	
				113E303 SH 4	PANEL SH.	1/2A	CB	53'-0"	CONTROL SWITCH	
					480V SWGR 31, COMPT. 28H	27-2A/X2	CB	15'-0"	AUX RELAY BFD120S	
					480V SWGR 31, COMPT. 28H	TS/DGV-2A	CB	15'-0"	KEY OPERATED TEST SWITCH 1-POSITION MAINTAINED	
					480V SWGR 31, COMPT. 28H	62-1/2A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 40 SEC.	
					480V SWGR 31, COMPT. 28H	62-2/2A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 2 SEC.	
					480V SWGR 31, COMPT. 28H	TS/UV-2A	CB	15'-0"	KEY OPERATED TEST SWITCH 2-POSITION MAINTAINED	
					480V SWGR 31, COMPT. 28H	27-2A/X1	CB	15'-0"	RELAY SG12V	
					480V SWGR 31, COMPT. 28H	27-2A/X4	CB	15'-0"	RELAY SG12V	
					480V SWGR 31, COMPT. 28H	27-1/2A	CB	15'-0"	UNDERVOLTAGE SENSING RELAY WHSE CV-7	
					480V SWGR 31, COMPT. 28H	27-2/2A	CB	15'-0"	UNDERVOLTAGE SENSING RELAY WHSE CV-7	
					480V SWGR 31, COMPT. 28H	27-3/2A & 27-3X/2A	CB	15'-0"	RELAY GOULD 316SV12	
					480V SWGR 31, COMPT. 28H	27-4/2A & 27-4X/2A	CB	15'-0"	RELAY GOULD 316SV12	

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31, COMPT. 26H	SI/2A1	CB	15'-0"	RELAY BFD48S	
					RACK G-5	SI-21X/TRAIN 2	CB	53'-0"	RELAY BFD120S	
					RACK G-3	SI-11X/TRAIN 1	CB	53'-0"	RELAY BFD120S	
					SWGR ISOLATION CAB CH IV	1/ISO			ISOLATION SWITCH	
					PANEL SH	1-1/2AT3A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	
					DIESEL GEN 31 CNTL BOARD	SS/2AT3A	DG	15'-0"	CONTROL SWITCH 3-POSITION SPRING RETURN TO OFF	
					480V SWGR 31, COMPT. 28H	27-3A/X2	CB	15'-0"	AUX RELAY BFD120S	
					480V SWGR 32, COMPT. 76C	52b/3AT6A	CB	15'-0"	BREAKER AUX CONTACT (BUS 3A & BUS 6A TIE BREAKER)	
					480V SWGR 32, COMPT. 18C	52b/3A	CB	15'-0"	BREAKER AUX CONTACT (BUS 3A MAIN BREAKER)	
					480V SWGR 32, COMPT. 78C	33H/3AT6A	CB	15'-0"	POSITION SWITCH	
					480V SWGR 32, COMPT. 18C	33H/3A	CB	15'-0"	POSITION SWITCH	
					480V SWGR 31, COMPT. 28H	86/2A	CB	15'-0"	RELAY WHSE WL	
					480V SWGR 31, COMPT. 28H	86/3A	CB	15'-0"	RELAY WHSE WL	
					DIESEL GEN 31 CNTL BOARD	1-2/2AT3A	DG	15'-0"	BREAKER CONTROL SWITCH	
						1/2AT5A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPR RET TO OFF	
					480V SWGR 31, COMPT. 25H	27-5A/X3	CB	15'-0"	AUX RELAY	
					480V SWGR 31, COMPT. 25H	86/5A	CB	15'-0"	RELAY WHSE WL	
					480V SWGR 31, COMPT. 28H	SI/2A	CB	15'-0"	RELAY BFD120S	
					480V SWGR 31, COMPT. 25H	SI/5A	CB	15'-0"	RELAY BFD84S	
					480V SWGR 31, COMPT. 25H	27-5A/X2	CB	15'-0"	RELAY BFD84S	
					480V SWGR 31, COMPT. 25H	TS/UV-5A	CB	15'-0"	KEY OPERATED TEST SWITCH 3-POSITION MAINTAINED	
					480V SWGR 31, COMPT. 25H	27-5A/X4	CB	15'-0"	RELAY SG12V	
					480V SWGR 31, COMPT. 25H	27-5A/X1	CB	15'-0"	RELAY SG12V	
					480V SWGR 31, COMPT. 28H	27-1/5A	CB	15'-0"	UNDERVOLTAGE SENSING RELAY WHSE CV-7	
					480V SWGR 31, COMPT. 28H	27-2/5A	CB	15'-0"	UNDERVOLTAGE SENSING RELAY WHSE CV-7	
					PANEL SH	1-1/5A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPR RET TO OFF	
					DIESEL GEN 33 CNTL BOARD	1-2/5A	DG	15'-0"	BREAKER CONTROL SWITCH	
					DIESEL GEN 33 CNTL BOARD	SS/5A	DG	15'-0"	SYNCHRONIZING SWITCH	
					480V SWGR 31, COMPT. 25H	TS/DGV-5A	CB	15'-0"	KEY OPERATED TEST SWITCH 1-POSITION MAINTAINED	
					480V SWGR 31, COMPT. 25H	62-1/5A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 40 SEC.	
					480V SWGR 31, COMPT. 25H	62-2/5A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 2 SEC.	
					480V SWGR 31, COMPT. 25H	27-3/5A & 27-3X/5A	CB	15'-0"	RELAY GOULD 316SV12	
					480V SWGR 31, COMPT. 25H	27-4/5A & 27-4X/5A	CB	15'-0"	RELAY GOULD 316SV12	
					480V SWGR 31, COMPT. 25H	SI/5A1	CB	15'-0"	RELAY BFD48S	

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31, COMPT. 25H	BFP/L	CB	15'-0"	RELAY BFD225	
					430V SWGR 31, COMPT. 25H	33M	CB	15'-0"	SWITCHGEAR BREAKER CELL SWITCHES (MECHANICALLY ACTIVATED)	
					480V SWGR 31, COMPT. 25H	52a, 52b	CB	15'-0"	SWITCHGEAR BREAKER AUX CONTACTS (MECHANICALLY ACTIVATED)	
					480V SWGR 31, COMPT. 25H	OTS	CB	15'-0"	SOLID STATE (AMPTECTOR) SERIES OVERCURRENT	
					480V SWGR 31, COMPT. 25H	OTS/A	CB	15'-0"	OVERCURRENT TRIP ALARM CONTACTS	
** 480V SWGR 32	450VAC	5		02 9321-LL-31183 SH	PANEL SH	1-1/6A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPR RET TO OFF	
				2,4,7,12,18	DIESEL GEN 32 CNTL BOARD	1-2/6A	DG	15'-0"	BREAKER CONTROL SWITCH	
				9321-LL-31173 SH	DIESEL GEN 32 CNTL BOARD	SS/6A	DG	15'-0"	SYNCHRONIZING SWITCH	
				2,3,6,68	480V SWGR 32, COMPT. 8H	27-6A/X2	CB	15'-0"	AUX RELAY BFD120S	
				IP3V-0013-0003	480V SWGR 32, COMPT. 8H	TS/DGV-6A	CB	15'-0"	KEY OPERATED TEST SWITCH 1-POSITION MAINTAINED	
				113E303 SH 4	480V SWGR 32, COMPT. 8H	62-1/6A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 40 SEC.	
					480V SWGR 32, COMPT. 8H	62-2/6A	CB	15'-0"	TIME DELAY RELAY AGA TDPU 2 SEC.	
					480V SWGR 32, COMPT. 8H	27-6A/X3	CB	15'-0"	AUX RELAY BFD84S	
					480V SWGR 32, COMPT. 8H	TS/CV-6A	CB	15'-0"	KEY OPERATED TEST SWITCH 3-POSITION MAINTAINED	
					480V SWGR 32, COMPT. 8H	27-6A/X4	CB	15'-0"	RELAY SG12V	
					480V SWGR 32, COMPT. 8H	27-6A/X1	CB	15'-0"	RELAY SG12V	
					480V SWGR 32, COMPT. 8H	27-1/6A	CB	15'-0"	UNDERVOLTAGE SENSING RELAY WHSE CV-7	
					480V SWGR 32, COMPT. 8H	27-2/6A	CB	15'-0"	UNDERVOLTAGE SENSING RELAY WHSE CV-7	
					480V SWGR 32, COMPT. 8H	27-3/6A & 27-3X/6A	CB	15'-0"	RELAY GOULD 316SV12	
					480V SWGR 32, COMPT. 8H	27-4/6A & 27-4X/6A	CB	15'-0"	RELAY GOULD 316SV12	
					480V SWGR 32, COMPT. 8H	SI/6A1	CB	15'-0"	RELAY BFD48S	
					RACK G-5	SI-21X/TRAIN 2	CB	53'-0"	RELAY BFD120S	
					SWGR ISOLATION CAB CH III	S/ISO			DIESEL GENERATOR ISOLATION SWITCH	
					PANEL SH	1-1/3A	CB	53'-0"	CONTROL SWITCH 3-POSITION SPR RET TO OFF	
					DIESEL ISOLATION CABINET	7/ISO			DIESEL GENERATOR ISOLATION SWITCH	
					DIESEL GEN 31 CNTL BOARD	1-2/3A	DG	15'-0"	BREAKER CONTROL SWITCH	
					DIESEL GEN 31 CNTL BOARD	SS/3A	DG	15'-0"	SYNCHRONIZING SWITCH	
					480V SWGR 31 COMPT. 28H	27-3A/X2	CB	15'-0"	AUX RELAY BFD120S	

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** MCC-32	480VAC	5	01	9321-LL-31183 SHT.14,4	480V SWGR 32 COMPT. 12C	CLOSE	CB	15'-0"	PUSHBUTTON	
					480V SWGR 32 COMPT. 12C	TRIP	CB	15'-0"	PUSHBUTTON	
					480V SWGR 32 COMPT. 9H	3-3/6A2	CB	15'-0"	AUX RLY WHSE #BFD80S	
** MCC-36	480VAC	5	01	9321-LL-31173 SHT.9,5	480V SWGR 31 COMPT. 20C	CLOSE	CB	15'-0"	PUSHBUTTON	
					480V SWGR 31 COMPT. 20C	TRIP	CB	15'-0"	PUSHBUTTON	
					480V SWGR 31 COMPT. 25H	3-3/5A2	CB	15'-0"	AUX RLY WHSE #BFD80S	
** MCC-39	480VAC	5	01	9321-LL-31173 SHT.9, 5	480V SWGR 31 COMPT. 20C	CLOSE	CB	15'-0"	PUSHBUTTON	
					480V SWGR 31 COMPT. 20C	TRIP	CB	15'-0"	PUSHBUTTON	
					480V SWGR 31 COMPT. 25H	3-3/5A2	CB	15'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 31 COMPT. 17B	52b/52/5A	CB	15'-0"	AUX CONTACT BREAKER 52/5A	
					480V SWGR 31 COMPT. 17B	33/b/52/5A	CB	15'-0"	POSITION SWITCH BREAKER 52/5A	
					430V SWGR 31 COMPT. 18B	33b/52/EG3	CB	15'-0"	POSITION SWITCH BREAKER 52/EG3	
					480V SWGR 31 COMPT. 18B	52a/52/EG3	CB	15'-0"	AUX CONTACT BREAKER 52/EG3	
** ABFP-31	AFW	4	5	9321-F-20183, 9321-F-20193,113E302	LOCAL AT EQUIPMENT	43/AF1	AB	18'-6"	SELECTOR SWITCH (REMOTE / LOCAL)	
				9321-LL-31403 SHT. 7, 113E303	LOCAL AT EQUIPMENT	START	AB	18'-6"	PUSHBUTTON	
				9321-LL-31183 SHTS. 11, 5	LOCAL AT EQUIPMENT	STOP	AB	18'-6"	PUSHBUTTON	
				9321-LL-31173 SHTS.3, 6, 6B	480V SWGR 32, COMPT. 6A	2-1/TDC	CB	15'-0"	RELAY AGA 2412PD	
				9321-LL-31313 SHT.10	CONTROL ROOM PNL FAF	1/BFPT1			CONTROL SWITCH	
					SUPERVISORY PNL SCF	1/AF1	CB	53'-0"	CONTROL SWITCH (TRIP/OFF/CLOSE)	
					SUPERVISORY PNL SCF	TDC/AFPR1	CB	53'-0"	TIME DELAY RELAY AGA #S-2412	
					AMSAC CABINET	AMSAC	CB	53'-0"	AUX RELAY	
					SUPERVISORY PNL SCF	63X1/BFP1	CB	53'-0"	AUX RELAY BFD22S	
					SUPERVISORY PNL SCF	1/BFPT1	CB	53'-0"	CONTROL SWITCH	
					SUPERVISORY PNL SCF	1X/AF1	CB	53'-0"	AUX RELAY NBFD66S	
					SUPERVISORY PNL SCF	1/AFPR1	CB	53'-0"	CONTROL SWITCH	
					TERMINAL BOX X32	30X1/AFPR1	AB	18'-6"	AUX RIX MAGNECRAFT ELE CO. 188RX-4	
					LOCAL AT EQUIPMENT	80-1/AFPR1	AB	18'-6"	SWITCH	
					480V SWGR 31	3-1/3A	CB	15'-0"	AUX RLY WHSE #BFD40S	

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					480V SWGR 31	27-3A/X3	CB	15'-0"	AUX RLY WHSE #BFDB4S	
					480V SWGR 31	3-2/3	CB	15'-0"	AUX RLY WHSE #BFD40S	
					480V SWGR 31	BFP-X	CB	15'-0"	AUX RLY WHSE #BFD44S	
					480V SWGR 31	52a/EG1	CB	15'-0"	SWITCHGEAR POSITION SWITCH	
					480V SWGR 31	33H/EG1	CB	15'-0"	SWITCHGEAR POSITION SWITCH	
					480V SWGR 31/COMPT. 28H	3-5/2A	CB	15'-0"	AUX RLY WHSE #BFD44S	
					480V SWGR 31/COMPT. 28H	TS/UV/3A	CB	15'-0"	TEST SWITCH	
					480V SWGR 31/COMPT. 28H	27-3A/X2	CB	15'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 31/COMPT. 28H	27-3A/X1	CB	15'-0"	RELAY SG 12V	
					480V SWGR 31/COMPT. 28H	27-3A/X4	CB	15'-0"	RELAY SG 12V	
					480V SWGR 31/COMPT. 28H	27-1/3A	CB	15'-0"	RELAY CV	
					480V SWGR 31/COMPT. 28H	27-2/3A	CB	15'-0"	RELAY CV	
					480V SWGR 31/COMPT. 28H	3-1/3A	CB	15'-0"	RELAY WHSE #BFD40S	
					480V SWGR 31/COMPT. 28H	3-2/3A	CB	15'-0"	RELAY WHSE #BFD40S	
					DG CONTROL PNL	1-2/EG1	DG	15'-0"	CONTROL SWITCH	
					SWGR ISO CAB IV	3/ISO			ISOLATION SWITCH	
					B.F.P TURBINE 31 CONSOLE	63-1/GVP1			PRESSURE SWITCH	
					CONTROL ROOM PNL	1-1/EG1	CB	53'-0"	CONTROL SWITCH	
					CONTROL ROOM PNL	PB RESET	CB	53'-0"	PUSHBUTTON SWITCH	
					MISC. RELAY RACK G2	71 (SG1-X)	CB	53'-0"	AUX RLY WHSE #BF66G	
					MISC. RELAY RACK G2	71 (SG2-X)	CB	53'-0"	AUX RLY WHSE #BF66G	
					MISC. RELAY RACK G2	71 (SG3-X)	CB	53'-0"	AUX RLY WHSE #BF66G	
					MISC. RELAY RACK G2	71 (SG4-X)	CB	53'-0"	AUX RLY WHSE #BF66G	
					SAFEGUARD CAB G3	SI-11X	CB	53'-0"	AUX RLY WHSE #BFD120S	
					SAFEGUARD CAB G5	SI-21X	CB	53'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 32	BFP	CB	15'-0"	AUX RLY WHSE #BFD44S	
					480V SWGR 32	1X/BFPT1	CB	15'-0"	AUX RLY WHSE #BFD22S	
** AEFP-33										
	AFW	4	5	9321-F-20183, 9321-F-20193,113E302	LOCAL AT EQUIPMENT	43/AF3	AB	16'-6"	SELECTOR SWITCH (REMOTE / LOCAL)	
				9321-LL-31403 SHT. 7, 113E303	LOCAL AT EQUIPMENT	START	AB	18'-6"	PUSHBUTTON	
				9321-LL-31183 SHTS. 11, 5	LOCAL AT EQUIPMENT	STOP	AB	18'-6"	PUSHBUTTON	
				9321-LL-31172 SHTS.3, 6, 6B	480V SWGR 32, COMPT. 11D	2-1/TDC	CB	15'-0"	RELAY AGA 7014PD	
					SUPERVISORY PNL SCF	1/AF3	CB	53'-0"	CONTROL SWITCH (TRIP/OFF/CLOSE)	
					SUPERVISORY PNL SCF	TDC/AFPR3	CB	53'-0"	TIME DELAY RELAY AGA #5-2412	
					AMSAC CABINET	AMSAC	CB	53'-0"	AUX RELAY	
					SUPERVISORY PNL SCF	63X1/BFP1	CB	53'-0"	AUX RELAY BFD22S	
					SUPERVISORY PNL SCF	1/BFPT1	CB	53'-0"	CONTROL SWITCH	
					SUPERVISORY PNL SCF	1X/AF3	CB	53'-0"	AUX RELAY NBFD66S	
					SUPERVISORY PNL SCF	1/AFPR3	CB	53'-0"	CONTROL SWITCH	

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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					TERMINAL BOX IN ELEC TNL	80X1/AFPR3				
					LOCAL AT EQUIPMENT	80/AFPR3	AB	18'-6"	FLOW SWITCH	
					480V SWGR 31	3-1/6A	CB	15'-0"	AUX RLY WHSE #BFD40S	
					480V SWGR 31	27-6A/X3	CB	15'-0"	AUX RLY WHSE #BFD84S	
					480V SWGR 31	3-2/6A	CB	15'-0"	AUX RLY WHSE #BFD40S	
					480V SWGR 31	BFP-K	CB	15'-0"	AUX RLY WHSE #BFD44S	
					480V SWGR 31	52a/EG2	CB	15'-0"	SWITCHGEAR POSITION SWITCH	
					480V SWGR 31	33H/EG2	CB	15'-0"	SWITCHGEAR POSITION SWITCH	
					480V SWGR 31/COMPT. 28H	3-5/6A	CB	15'-0"	AUX RLY WHSE #BFD44S	
					480V SWGR 31/COMPT. 28H	TS/UV/3A	CB	15'-0"	TEST SWITCH	
					480V SWGR 31/COMPT. 28H	27-6A/X2	CB	15'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 31/COMPT. 28H	27-6A/X1	CB	15'-0"	RELAY SG 12V	
					480V SWGR 31/COMPT. 28H	27-6A/X4	CB	15'-0"	RELAY SG 12V	
					480V SWGR 31/COMPT. 28H	27-1/6A	CB	15'-0"	RELAY CV	
					480V SWGR 31/COMPT. 28H	27-2/6A	CB	15'-0"	RELAY CV	
					480V SWGR 31/COMPT. 28H	3-1/6A	CB	15'-0"	RELAY WHSE #BFD40S	
					480V SWGR 31/COMPT. 28H	3-2/6A	CB	15'-0"	RELAY WHSE #BFD40S	
					DG CONTROL PNL	1-2/EG3	DG	15'-0"	CONTROL SWITCH	
					B.F.P TURBINE 31 CONSOLE	63-1/GVP1			PRESSURE SWITCH	
					CONTROL ROOM PNL	1-1/EG2	CB	53'-0"	CONTROL SWITCH	
					CONTROL ROOM PNL	FB RESET	CB	53'-0"	PUSHBUTTON SWITCH	
					MISC. RELAY RACK G2	71 (SG1-X)	CB	53'-0"	AUX RLY WHSE #BF66G	
					MISC. RELAY RACK G2	71 (SG2-X)	CB	53'-0"	AUX RLY WHSE #BF66G	
					MISC. RELAY RACK G2	71 (SG3-X)	CB	53'-0"	AUX RLY WHSE #BF66G	
					MISC. RELAY RACK G2	71 (SG4-X)	CB	53'-0"	AUX RLY WHSE #BF66G	
					SAFEGUARD CAB G3	SI-11X	CB	53'-0"	AUX RLY WHSE #BFD120S	
					SAFEGUARD CAB G5	SI-21X	CB	53'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 32	BFP	CB	15'-0"	AUX RLY WHSE #BFD44S	
					480V SWGR 32	1X/BFPT1	CB	15'-0"	AUX RLY WHSE #BFD22S	
** BFD-FCV-1121	AFW	4	7	9321-LL-31313 SHT. 10	LOCAL AT EQUIPMENT	60-1/AFPR1	AB	18'-6"	FLOW SWITCH	
				9321-LL-31313 SHT. 10A	LOCAL AT EQUIPMENT	80/AFPR1	AB	18'-6"	FLOW SWITCH	
				9321-F-32263	SUPERVISORY PNL SC	1X/AF1	CB	53'-0"	AUX RLY WHSE #NBFD66S	
					SUPERVISORY PNL SC	1/AFPR1	CB	53'-0"	CONTROL SWITCH (CLOSE /AUTO/OPEN)	
					SUPERVISORY PNL SC	1/AF1	CB	53'-0"	CONTROL SWITCH	
					TERM. BOX Y21	80X1/AFPR1	ET	34'-0"	RELAY MAGNECRAFT ELEC. CO. 18BRX-4	
					TERM. BOX Y21	80X1-1/AFPR1	ET	34'-0"	RELAY MAGNECRAFT ELEC. CO. 18BRX-4	
					480V SWGR 32	52a/AF1	CB	15'-0"	AUX CONTACT CIRCUIT BREAKER 52a/AF1	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31 COMPT 25H	27-1/5A	CB	15'-0"	AUX RELAY CV-7	
					480V SWGR 31 COMPT 25H	27-2/5A	CB	15'-0"	AUX RELAY CV-7	
					MAIN CONTROL BOARD	SB1	CB	53'-0"	PUSHBUTTON 193 RESET	
					MAIN CONTROL BOARD	1-1/EG3	CB	53'-0"	CONTROL SWITCH (SG)	
					DIESLEL GENERATOR SWGR	1-2/EG3			CONTROL SWITCH SC)	
					SAFEGUARD CAB G3	S1-11X/TRAIN1	CB	53'-0"	AUX RELAY WHSE #BFD120S	
					MISC. RELAY RACK (G2)	PC-600AX	CB	53'-0"	AUX RELAY WHSE #BFD66F	
					MISC. RELAY RACK (G2)	PC-600BX	CB	53'-0"	AUX RELAY WHSE #BFD66F	
					480V SWGR 31 BKR 52/EG3	52a, 52b	CB	15'-0"	AUX BKR CONTACTS	
					480V SWGR 31 BKR 52/EG3	33H, 33a, 33	CB	15'-0"	AUX BKR CONTACTS	
					SPVSRY PNL SGF	1/CC1	CB	53'-0"	CONTROL SWITCH	
					480V SWGR 31 COMPT 25H	52 CC2X	CB	15'-0"	AUX RLY WHSE #BFD84S	
					480V SWGR 31 COMPT 25H	52 CC3X	CB	15'-0"	AUX RLY WHSE #BFD84S	
					480V SWGR 31 COMPT 25H	52 SWX	CB	15'-0"	AUX RLY WHSE #BFD66S	
					480V SWGR 31 COMPT 32D	33 CC2	CB	15'-0"	BKR AUX SWITCH	
					480V SWGR 31 COMPT 32D	52a/CC2	CB	15'-0"	BKR AUX SWITCH	
					480V SWGR 32 COMPT 15D	33 CC3	CB	15'-0"	BKR AUX SWITCH	
					480V SWGR 32 COMPT 15D	52a/CC3	CB	15'-0"	BKR AUX SWITCH	
** ACAPCC2										
	CCW	5	5	5008971 SHT. 45, 9	480V SWGR 31 COMPT 30A	2CC2-2	CB	15'-0"	TIME DELAY RELAY AGA 2412S	
					480V SWGR 31 COMPT 30A	86	CB	15'-0"	LOCKOUT RELAY WHSE #BFD22S	
					480V SWGR 31 COMPT 25H	52 SWX	CB	15'-0"	AUX RELAY	
					480V SWGR 31 COMPT 25H	52 CC3X	CB	15'-0"	AUX RELAY	
					MISC. RELAY RACK G2	PC 600AX	CB	53'-0"	AUX RELAY	
					MISC. RELAY RACK G2	PC 600BX	CB	53'-0"	AUX RELAY	
					SUPERVISORY PNL SGF	1/CC2	CB	53'-0"	CONTROL SWITCH	
					480V SWGR 31 COMPT 28	27-2A/X2	CB	15'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 31 COMPT 28	3-2/2A	CB	15'-0"	AUX RLY WHSE #BFD40S	
					480V SWGR 31 COMPT 28	3-1/2A	CB	15'-0"	AUX RLY WHSE #BFD40S	
					480V SWGR 31 COMPT 28	3-3/2A1	CB	15'-0"	AUX RLY WHSE #BFD80S	
					480V SWGR 31 COMPT 28	S1/2A1	CB	15'-0"	AUX RLY WHSE #BFD48S	
					480V SWGR 31 BKR 52/EG1	52aEG1, 52bEG1	CB	15'-0"	AUX BKR CONTACTS	
					480V SWGR 31 BKR 52/EG1	33a, 33EG1	CB	15'-0"	AUX BKR CONTACTS	
** ACAPCC3										
	CCW	5	5	5008971 SHT. 46	480V SWGR 32 COMPT 15A	2CC3-2	CB	15'-0"	TIME DELAY RELAY AGA 2412PD	
				9321-LL-31183 SHT.4	480V SWGR 32 COMPT 15A	86	CB	15'-0"	LOCKOUT RELAY WHSE #BFD32S	
					480V SWGR 32 COMPT 8H	27-6A/X3	CB	15'-0"	AUX RLY WHSE #BFD84S	
					SUPERVISORY PNL SGF	S1/6A1			AUX RLY WHSE #BFD48S	
					480V SWGR 32 COMPT 8H	3-2/6A	CB	15'-0"	AUX RLY WHSE #BFD80S	
					480V SWGR 32 COMPT 8H	3-1/6A	CB	15'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 32 COMPT 8H	3-3/6A2	CB	15'-0"	AUX RLY WHSE #BFD80S	
					480V SWGR 32 BKR 52/EG2	52aEG2, 52bEG2	CB	15'-0"	AUX BKR CONTACTS	
					480V SWGR 32 BKR 52/EG2	33aEG2, 33EG2	CB	15'-0"	AUX BKR CONTACTS	
					SUPERVISORY PNL SB1F	43/RS-2	CB	53'-0"	SELECTOR SWITCH	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR 1P-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					SUPERVISORY PNL SGF	1/CC3	CB	53'-0"	CONTROL SWITCH	
					MISC. RLY RACK G2	PC600 AX	CB	53'-0"	AUX RLY WHSE #BFD66F	
					MISC. RLY RACK G2	PC600 BX	CB	53'-0"	AUX RLY WHSE #BFD66F	
** PCV-11B7										
	COND	4	7	9321-LL-31313 SHT.8	SUPERVISORY PNL SCF	1/CWMU1	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
					LOCAL AT EQUIPMENT	33(ao,bo)/CUMU1	AB	18'-6"	LIMIT SWITCH	
** PCV-11B8										
	COND	4	7	9321-LL-31313 SHT.8	SUPERVISORY PNL SCF	1/CWMU2	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
					LOCAL AT EQUIPMENT	33(ao,bo)/CUMU2	AB	18'-6"	LIMIT SWITCH	
** PCV-11B9										
	COND	4	7	9321-LL-31313 SHT.8	SUPERVISORY PNL SCF	1/CWMU3	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
					LOCAL AT EQUIPMENT	33(ao,bo)/CUMU3	AB	18'-6"	LIMIT SWITCH	
** CH-201										
	CVCS	1,2,3	7	5008971 SHT.124A, 90, 10	CH-201 (VLV MTD)	33(ac,bc,bo)	PP	51'-0"	VLV AUX CONTACTS	
				113E303 SHT. 4, 6	SAFEGUARD CAB G4	C-A11X	CB	53'-0"	AUX RLY WHSE #BFD48S	
					SUPVSRY PNL SNF	1/201	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
					SUPVSRY PNL SNF	PB12	CB	53'-0"	PUSHBUTTON	
					SUPVSRY PNL SHR	IR12	CB	53'-0"	GOULD RELAY J13	
** CH-202										
	CVCS	1,2,3	7	5008971 SHT. 124A, 90, 9	CH-202 (VLV MTD)	33(ac,bc,bo)	PP	51'-0"	VLV AUX CONTACTS	
				113E303 SHT. 4, 6	SAFEGUARD CAB G6	C-A21X	CB	53'-0"	AUX RLY WHSE #BFD48S	
					SUPVSRY PNL SNF	1/202	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
					SUPVSRY PNL SNF	PB11	CB	53'-0"	PUSHBUTTON	
					SUPVSRY PNL SHR	IR11	CB	53'-0"	GOULD RELAY J13	
** CH-268										
	CVCS	1,2,3	8	5008971 SHT. 122, 91	SUPVSRY PNL SFF	1/268	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-310										
	CVCS	1,2,3	7	5008971 SHT.120, 91	CH-310 (VLV MTD)	33(bo,ac)	PA	42'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SFF	1/310	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-AOV-200A										
	CVCS	1,2,3	7	5008971 SHT. 91, 122, 10	CH-AOV-200A (VLV MTD)	33(ac,bc,bo)	VC	46'-0"	VLV AUX CONTACTS	
				113E303 SHT. 6, 8	LOCAL AT EQUIPMENT	43	VC	46'-0"	CONTROL SWITCH (CLOSE/REMOTE)	
					SUPVSRY PNL SFF	1/200A	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
					SAFEGUARD CAB G4	C-A11X	CB	53'-0"	AUX RLY WHSE #BFD48S	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
** CH-AOV-200B										
	CVCS	1,2,3	7	5008971 SHT.91, 122, 10	CH-AOV-200B (VLV MTD)	33(ac,bc,bo)	VC	46'-0"	VLV AUX CONTACTS	
				113E303 SHT. 6, 8	LOCAL AT EQUIPMENT	43	VC	46'-0"	CONTROL SWITCH (CLOSE/REMOTE)	
					SUPVSRY PNL SFF	1/200B	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
					SAFEGUARD CAB G4	C-A11X	CB	53'-0"	AUX RLY WHSE #BFD48S	
** CH-AOV-200C										
	CVCS	1,2,3	7	5008971 SHT. 91, 122,10	CH-AOV-200C (VLV MTD)	33(ac,bc,bo)	VC	46'-0"	VLV AUX CONTACTS	
** CH-AOV-204A										
	CVCS	1,2,3	7	5008971 SHT. 90, 120, 10	CH-AOV-204A (VLV MTD)	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SFF	1/204A	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-AOV-204B										
	CVCS	1,2,3	7	5008971 SHT. 90,120, 10	CH-AOV-204B (VLV MTD)	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SFF	1/204B	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-AOV-212										
	CVCS	1,2,3	7	5008971 SHT. 90, 120, 10	CH-AOV-212 (VLV MTD)	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SFF	1/212	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-AOV-213A										
				113E303 SHT. 6, 8	LOCAL AT EQUIPMENT	43	VC	46'-0"	CONTROL SWITCH (CLOSE/REMOTE)	
					SAFEGUARD CAB G4	C-A11X	CB	53'-0"	AUX RLY WHSE #BFD48S	
	CVCS	1,2,3	7	5008971 SHT.90, 120, 10	CH-AOV-213A (VLV MTD)	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SFF	1/313A	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-AOV-213B										
					SUPVSRY PNL SFF	1/200C	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
	CVCS	1,2,3	7	5008971 SHT. 90, 120, 10	CH-AOV-213B (VLV MTD)	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SFF	1/313B	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-AOV-215										
	CVCS	1,3	7	5008971 SHT. 90, 120, 10	CH-AOV-215 (VLV MTD)	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SFF	1/215	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
** CH-AOV-246	CVCS	1,3	7	5008971 SHT. 120, 90	CH-AOV-246 (VLV MTD)	33(ac,bo)	VC	53'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SFF	1/246	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-AOV-261A	CVCS	3	7	5008971 SHT. 120, 90	CH-AOV-261A (VLV MTD)	33(ac,bo)	VC	79'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SAF	1/261A	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-AOV-261B	CVCS	3	7	5008971 SHT. 120, 90	CH-AOV-261B (VLV MTD)	33(ac,bo)	VC	79'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SAF	1/261B	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-AOV-261C	CVCS	3	7	5008971 SHT. 120, 90	CH-AOV-261C (VLV MTD)	33(ac,bo)	VC	79'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SAF	1/261C	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-AOV-261D	CVCS	3	7	5008971 SHT. 120, 91	CH-AOV-261D (VLV MTD)	33(ac,bo)	VC	79'-0"	VLV AUX CONTACTS	
					SUPVSRYP PNL SAF	1/261D	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-FCV-110A	CVCS	1,3	7	5008971 SHT. 105, 122, 201	MISC. RLY RACK G2	LC-1128X	CB	53'-0"	AUX RLY	
				113E302 SHT. 2	MISC. RLY RACK G2	BSX-1	CB	53'-0"	AUX RLY WHSE #BFD66	
					MISC. RLY RACK G2	BSX-2	CB	53'-0"	AUX RLY WHSE #BFD66	
					MISC. RLY RACK G2	BSX-3	CB	53'-0"	AUX RLY WHSE #BFD66	
					MISC. RLY RACK G2	BSX-4	CB	53'-0"	AUX RLY WHSE #BFDB4	
					FLIGHT PNL FCF	1/6CR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START)	
					FLIGHT PNL FCF	43/8AB	CB	53'-0"	MODE SWITCH (DILUTE/BORATE/AUTO/MANUAL)	
					FLIGHT PNL FBF	YIC-111	CB	53'-0"	PRIMARY WATER COUNTER	
					FLIGHT PNL FBF	YIC-110	CB	53'-0"	BORIC AIC COUNTER	
** CH-FCV-110B	CVCS	1,3	7	5008971 SHT. 105, 122, 201	CH-FCV-110B (VLV MTD)	33(ac)	PA	73'-0"	VLV AUX CONTACTS	
				113E302 SHT.2	MISC. RLY RACK G2	BSX-2	CB	53'-0"	AUX RLY WHSE #BF66	
					MISC. RLY RACK G2	BSX-4X1	CB	53'-0"	AUX RLY WHSE #BF66	
					MISC. RLY RACK G2	BSX-1	CB	53'-0"	AUX RLY WHSE #BF66	
					MISC. RLY RACK G2	BSX-3	CB	53'-0"	AUX RLY WHSE #BF66	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					FLIGHT PNL FCF	1/BCR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START)	
					FLIGHT PNL FCF	43/BAB	CB	53'-0"	MODE SWITCH (DILUTE/BORATER/AUTO/MANUAL)	
					FLIGHT PNL FBF	YIC-111	CB	53'-0"	PRIMARY WATER COUNTER	
					FLIGHT PNL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	
					MISC. RLY RACK G2	LC-1128X	CB	53'-0"	AUX RLY WHSE #BF22	
** CH-FCV-111A	CVCS	1.3	7	5008971 SHT.105, 122, 201 113E302 SHT. 2	MISC. RLY RACK G2	LC-1128X	CB	53'-0"	AUX RLY WHSE #BF22	
					MISC. RLY RACK G2	BSX-1	CB	53'-0"	AUX RLY WHSE #BF66	
					MISC. RLY RACK G2	BSX-2	CB	53'-0"	AUX RLY WHSE #BF66	
					MISC. RLY RACK G2	BSX-3	CB	53'-0"	AUX RLY WHSE #BF66	
					MISC. RLY RACK G2	BSX-4	CB	53'-0"	AUX RLY WHSE #BF84	
					FLIGHT PNL FCF	1/BCR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START)	
					FLIGHT PNL FCF	43/BAB	CB	53'-0"	MODE SWITCH (DILUTE/BORATE/AUTO/MANUAL)	
					FLIGHT PNL FBF	YIC-111	CB	53'-0"	PRIMARY WATER COUNTER	
					FLIGHT PNL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	
** CH-FCV-111B	CVCS	1.3	7	5008971 SHT.105, 122, 201 113E302 SHT. 2	CH-FCV-111B (VLV MTD)	33(ac)	PA	78'-0"	VLV AUX CONTACT	
					SAFEGUARD CAB G2	BSX-1	CB	53'-0"	AUX RLY WHSE #BF66	
					SAFEGUARD CAB G2	BSX-3	CB	53'-0"	AUX RLY WHSE #BF66	
					SAFEGUARD CAB G2	BSX-2	CB	53'-0"	AUX RLY WHSE #BF66	
					FLIGHT PNL FCF	1/BCR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START)	
					FLIGHT PNL FCF	43/BAB	CB	53'-0"	MODE SWITCH (BORATE/AUTO/MANUAL/DILUTE)	
					FLIGHT PNL FBF	YIC-111	CB	53'-0"	PRIMARY WATER COUNTER	
					FLIGHT PNL FBF	YIC-110	CB	53'-0"	BORIC AICD COUNTER	
** CH-LCV-112A	CVCS	1.2.3	7	5008971 SHT.105, 120 113E302 SHT. 2	MISC. RLY RACK G2	LC-112A/X	CB	53'-0"	AUX RLY	
					CH-LCV-112A (VLV MTD)	33(ac,bo)	PA	80'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SFF	1/112A	CB	53'-0"	SELECTOR SWITCH (DIRECT/AUTO/NORMAL)	
** CH-LCV-112B	CVCS	1.2.3	7	5008971 SHT. 110, 133, 10 113E302 SHT.2	CH-LCV-112B (VLV MTD)	33(ac,bo,tc,ao,to,bc)	PA	65'-0"	VLV AUX CONTACTS	
					SUPVSRY PNL SFF	1/LC-112B	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
				9321-F-27363	MISC. RLY RACK G2	LC-112C/X	CB	53'-0"	AUX RLY WHSE #BF66F	
					MCC 36B/1RH	42/O	PA	55'-0"	OPEN CONTACT	
					MCC 36B/1RH	42/C	PA	55'-0"	CLOSE CONTACT	
					MCC 36B/1RH	49	PA	55'-0"	THERMAL OVERLOAD CONTACT	
** CH-LCV-112C	CVCS	1,2,3	8	5008971 SHT.114, 133, 10	CH-LCV-112B (VLV MTD)	33(ao)	PA	65'-0"	VLV AUX CNTACTS	
				9321-F-27363, 113E302 SHT.2	CH-LCV-112C (VLV MTD)	33(ac,ao,bc,bo,tc,to)	PA	73'-0"	VLV AUX CONTACTS	
					MCC 36A/1RH	42/C	PA	55'-0"	CONTACTOR AUX CONTACT	
					MCC 36A/1RH	42/O	PA	55'-0"	CONTACTOR AUX CONTACT	
					MCC 36A/1RH	42a/C	PA	55'-0"	CONTACTOR AUX CONTACT	
					MCC 36A/1RH	42a/O	PA	55'-0"	CONTACTOR AUX CONTACT	
					MCC 36A/1RH	42b/O	PA	55'-0"	CONTACTOR AUX CONTACT	
					MCC 36A/1RH	49	PA	55'-0"	THERMAL CONTACT	
					SUPVSRY PNL SFF	LCV-112C	CB	53'-0"	SELECTOR SW (CLOSE/AUTO/OPEN)	
					MIS. RLY RACK G2	LC-112C/X	CB	53'-0"	AUX RLY BF66F	
** CH-LCV-459	CVCS	1,2,3	7	5008971, SHT 10, SHT 106 & 120	CH-LCV-459 (VLV MTD)	33ao/LCV-459	VC	79'-0"	LIMIT SWITCH CONTACT	
				113E302, SHT 1	CCR RACK G-2	LC-459C-X	CB	53'-0"	RELAY BF66F	
					CCR PANEL SFF	1/LCV-459	CB	53'-0"	CONTROL SWITCH, 3-POSITION MAINTAINED	
** CH-MOV-205	CVCS	1,2,3	8	5008971 SHT. 109, 211	MCC 36BEX/9FJ	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC 36BEX/9FJ	42/O	PA	55'-0"	OPEN CONTACTOR	
					MCC 36BEX/9FJ	1/205	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	
					CH-MOV-205 (VLV MTD)	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	
** CH-MOV-222	CVCS	1,3	8	5008971 SHT. 114, 130	MCC 36A/1RM	42/C	PA	55'-0"	OPEN CONTACTOR	
				113E303 SHT. 6, 8	MCC 36A/1RM	42/O	PA	55'-0"	CLOSE CONTACTOR	
					SAFEGUARD CAB G4	C-B11X	CB	53'-0"	AUX RLY WHSE 38FD66S	
					SAFEGUARD CAB G6	C-B21X	CB	53'-0"	AUX RLY WHSE #6FD66S	
					SUPVSRY PNL SNF	1/222	CB	53'-0"	CONTROL SWITCH (CLOSE/AUTO/OPEN)	
** CH-MOV-226	CVCS	1,2,3	8	5008971 SHT. 109, 211	MCC 36B/9FJ	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC 36B/9FJ	42/O	PA	55'-0"	OPEN CONTACTOR	
					MCC 36B/9FJ	1/266	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR 1P-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					CH-MOV-226 (VLV MTD)	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	
** CH-MOV-250A	CVCS	3	B	5008971 SHT. 109, 211	MCC 36BEX/11FC	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC 36BEX/11FC	42/O	PA	55'-0"	OPEN CONTACTOR	
					MCC 36BEX/11FC	1/250A	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	
					CH-MOV-250A (VLV MTD)	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	
** CH-MOV-250B	CVCS	3	B	5008971 SHT.109, 211	CH-MOV-250B (VLV MTD)	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	
					MCC 36BEX/10FJ	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC 36BEX/10FJ	42/O	PA	55'-0"	OPEN CONTACTOR	
					MCC 366EX/10FJ	1/250B	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-MOV-250C	CVCS	3	B	5008971 SHT. 109, 211	MCC 36BEX/9FM	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC 36BEX/9FM	42/O	PA	55'-0"	OPEN CONTACTOR	
					MCC 36BEX/9FM	1/250C	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	
					CH-MOV-250C (VLV MTD)	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	
** CH-MOV-250D	CVCS	3	B	5008971 SHT. 109, 211	MCC 36BEX/11FF	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC 36BEX/11FF	42/O	PA	55'-0"	OPEN CONTACTOR	
					MCC 36BEX/11FF	1/250D	PA	55'-0"	CONTROL SWITCH (CLOSE/OPEN)	
					CH-MOV-250D (VLV MTD)	33(tc,to,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	
** CH-MOV-333	CVCS	1,3	B	5008971 SHT.114, 125, 10 9321-F-27363 SHT. 1	MCC 366/1RM	42/C	PA	55'-0"	CONTACTOR RLY	
					MCC 368/1RM	42/O	PA	55'-0"	CONTACTOR RLY	
					MCC 368/1RM	42a/O	PA	55'-0"	CONTACTOR RLY	
					MCC 368/1RM	42a/C	PA	55'-0"	CONTACTOR RLY	
					CH-MOV-333 (VLV MTD)	33(tc,to,ac,ao,bc,bo)	PP	41'-0"	MOV AUX CONTACTS	
					SUPRVSRY PNL SFF	1/333	CB	53'-0"	CONTROL SWITCH (CLOSE/OPEN)	
** CH-TCV-149	CVCS	1,2,3	7	5008971 SHT. 106, 120	LOCAL TO HX	LIC-149	PA	80'-0"	TEMP CONTROLLER	
					SUPVSRY PNL SFF	1/149	CB	53'-0"	SELECTOR SWITCH (DIVERT/AUTO)	
					CH-TCV-149 (VLV MTD)	33(ac,bc)	PA	80'-0"	VLV AUX CONTACTS	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
** CSAPBA1										
	CVCS	1,2,3	7	500B971 SHT. 53, 201, 9, 11, 13, 14 9321-F-27363, 113E302 SHT. 2	SAFEGUARD CAB G2	BSX-1	CB	53'-0"	AUX RLY WHSE #BF66	
					SAFEGUARD CAB G2	BSX-2	CB	53'-0"	AUX RLY WHSE #BF66	
					SAFEGUARD CAB G2	BSX-3	CB	53'-0"	AUX RLY WHSE #BF66	
					SAFEGUARD CAB G2	BSX-4	CB	53'-0"	AUX RLY WHSE #BFB4	
					SAFEGUARD CAB G2	LC-1128X	CB	53'-0"	AUX RLY WHSE #BF22	
					FLIGHT PNL FCF	1/BATP31	CB	53'-0"	SPRING RTN TO AUTO SW (START/AUTO/STOP/PULL)	
					FLIGHT PNL FCF	1/BCR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START) SPRING RTN. TO NORM AFTER S	
					FLIGHT PNL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	
					FLIGHT PNL FBF	YIC-111	CB	53'-0"	DEMIN. WATER COUNTER	
					LOCAL CTRL STATION	43-1/BATP31			SELECTOR SWITCH (LOCAL/REMOTE)	
					LOCAL CTRL STATION	1-2/BATP31			SELECTOR SWITCH (SLOW/STOP/FAST)	
					FLIGHT PNL FCF	43/BAB	CB	53'-0"	MODE SWITCH (DILUTE/BORATE/AUTO/MANUAL)	
					FLIGHT PNL FCF	43A/BATP31	CB	53'-0"	SELECTOR SWITCH (SLOW/FAST)	
					MCC 36A/7RH	42(S),42(f),42b(S),42b(F) ,42a(F)	PA	55'-0"	MOTOR STARTER CONTACTS	
					MCC 36A/7RH	49(F),49 (S)	PA	55'-0"	THERMAL OVERLOAD CONTACT	
** CSAPBA2										
	CVCS	1,2,3	7	500B971 SHT. 53, 201, 9, 11, 13, 14 9321-F-27363, 113E302 SHT. 2	SAFEGUARD CAB G2	BSX-1	CB	53'-0"	AUX RLY WHSE #BF66	
					SAFEGUARD CAB G2	BSX-2	CB	53'-0"	AUX RLY WHSE #BF66	
					SAFEGUARD CAB G2	BSX-3	CB	53'-0"	AUX RLY WHSE #BF66	
					SAFEGUARD CAB G2	BSX-4	CB	53'-0"	AUX RLY WHSE #BFB4	
					SAFEGUARD CAB G2	LC-1128X	CB	53'-0"	AUX RLY WHSE #BF22	
					FLIGHT PNL FCF	1/BATP32	CB	53'-0"	SPRING RTN TO AUTO SW (START/AUTO/STOP/PULL)	
					FLIGHT PNL FCF	1/BCR	CB	53'-0"	MAKEUP SWITCH (STOP/NORM/START) SPRING RTN. TO NORM AFTER S	
					FLIGHT PNL FBF	YIC-110	CB	53'-0"	BORIC ACID COUNTER	
					FLIGHT PNL FBF	YIC-111	CB	53'-0"	DEMIN. WATER COUNTER	
					LOCAL CTRL STATION	43-1/BATP32			SELECTOR SWITCH (LOCAL/REMOTE)	
					LOCAL CTRL STATION	1-2/BATP32			SELECTOR SWITCH (SLOW/STOP/FAST)	
					FLIGHT PNL FCF	43/BAB	CB	53'-0"	MODE SWITCH (DILUTE/BORATE/AUTO/MANUAL)	
					FLIGHT PNL FCF	43A/BATP32	CB	53'-0"	SELECTOR SWITCH (SLOW/FAST)	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					MCC 36B/7RH	42(S),42(F),42b(S),42b(F) ,42a(F)	PA	55'-0"	MOTOR STARTER CONTACTS	
					MCC 36B/7RH	49(F),49 (S)	PA	55'-0"	THERMAL OVERLOAD CONTACT	
** CSAPCH1	CVCS	1,2,3	5	500B971 SHT.9,13,26	FLIGHT PNL FBF	1/C1	CB	53'-0"	CONTROL SWITCH SPRING RETURN TO OFF	
				9321-LL-31173 SHT. 2,3,5,6B	LOCAL AT EQUIPMENT	62/C1	PA	55'-0"	TIME DELAY RLY AGAE7012PD	
				9321-F-27363	LOCAL AT EQUIPMENT	43	PA	55'-0"	SELECTOR SWITCH (REMOTE/LOCAL)	
					LOCAL AT EQUIPMENT	START	PA	55'-0"	PUSHBUTTON	
					LOCAL AT EQUIPMENT	STOP	PA	55'-0"	PUSHBUTTON	
					LOCAL AT EQUIPMENT	2C1	PA	55'-0"	TIME DELAY RLY AGA2412	
					PUMP ASSEMBLY	63-1	PA	55'-0"	BEARING OIL PRESS SW ALLEN BRADLEY BUL.836-T	
					SAFEGUARD CAB G3	S1-11X	CB	53'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 31 COMPT.25H	S1-5A	CB	15'-0"	AUX RLY WHSE #BFD84S	
					480V SWGR 31 COMPT.25H	27-5A/X2	CB	15'-0"	AUX RLY WHSE #BFD84S	
					480V SWGR 31 COMPT.25H	27-5A/X3	CB	15'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 31 COMPT.25H	3-3/5A1	CB	15'-0"	AUX RLY WHSE #BFD80S	
					480V SWGR 31 COMPT.25H	TS/UV/5A	CB	15'-0"	TEST SWITCH	
					480V SWGR 31 COMPT.25H	27-5A/X1	CB	15'-0"	AUX RLY SG-12V	
					480V SWGR 31 COMPT.25H	27-5A/X4	CB	15'-0"	AUX RLY SG-12V	
					480V SWGR 31 COMPT.25H	27-1/5A	CB	15'-0"	AUX RLY CV-7	
					480V SWGR 31 COMPT.25H	27-2/5A	CB	15'-0"	AUX RLY CV-7	
					480V SWGR 31	33	CB	15'-0"	POSITION SWITCH	
** CSAPCH2	CVCS	1,2,3	5	500B971 SHT.72	FLIGHT PNL FBF	1/C2	CB	53'-0"	CONTROL SWITCH SPRING RETURN TO OFF	
				9321-LL-31173 SHT.6,6B	LOCAL AT EQUIPMENT	43	PA	55'-0"	SELECTOR SWITCH (REMOTE/LOCAL)	
					LOCAL AT EQUIPMENT	START	PA	55'-0"	PUSHBUTTON	
					LOCAL AT EQUIPMENT	STOP	PA	55'-0"	PUSHBUTTON	
					480V SWGR 31/COMPT.28H	3-3/3A	CB	15'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 31/COMPT.28H	62/C2	CB	15'-0"	TIME DELAY RLY AGAE-7012-PD	
					480V SWGR 31/COMPT.28H	27-3A/X5	CB	15'-0"	AUX RLY WHSE #NBFD24S	
					480V SWGR 31/COMPT.28H	27-3A/X3	CB	15'-0"	AUX RLY WHSE #BFD84S	
					480V SWGR 31/COMPT.28H	27-3A/X2	CB	15'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 31/COMPT.28H	TS/UV/3A	CB	15'-0"	TEST SWITCH THREE POSITION MAINAINED	
					480V SWGR 31/COMPT.28H	27-3A/X1	CB	15'-0"	AUX RLY SG-12V	
					480V SWGR 31/COMPT.28H	27-3A/X4	CB	15'-0"	AUX RLY SG-12V	
					480V SWGR 31/COMPT.28H	27-1/3A	CB	15'-0"	AUX RLY CV	
					480V SWGR 31/COMPT.28H	27-2/3A	CB	15'-0"	AUX RLY CV	
					480V SWGR 31/COMPT.28H	S1/3A	CB	15'-0"	AUX RLY WHSE #BFD120S	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					480V SWGR 31/COMPT.28H	52aC2	CB	15'-0"	MECH. SWITCH	
					480V SWGR 31/COMPT.28H	33C2	CB	15'-0"	MECH. SWITCH	
					480V SWGR 32/COMPT.5A	2C2	CB	15'-0"	TIME DELAY RLY AGASTAT 2412PD	
					SAFEGUARD CAB G3	SI-11X	CB	53'-0"	AUX RLY WHSE #BFD120S	
					SAFEGUARD CAB G5	SI-21X	CB	53'-0"	AUX RLY WHSE #BFD120S	
					PUMP ASSEMBLY	63	PA	55'-0"	BEARING OIL PRESSURE SW A-B BULLETION 836-T	
** CSAFCH3	CVCS	1,2,3	5	5006971 SHT.73	FLIGHT PNL FBF	1/C3	CB	53'-0"	CONTROL SWITCH SPRING RETURN TO OFF	
				9321-LL-31183 SHT.4	LOCAL AT EQUIPMENT	43	PA	55'-0"	SELECTOR SWITCH (REMOTE/LOCAL)	
					LOCAL AT EQUIPMENT	START	PA	55'-0"	PUSHBUTTON	
					LOCAL AT EQUIPMENT	STOP	PA	55'-0"	PUSHBUTTON	
					480V SWGR 31/COMPT.28H	3-3/6A2	CB	15'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 31/COMPT.28H	62/C3	CB	15'-0"	TIME DELAY RLY AGAE-7012-PD	
					480V SWGR 31/COMPT.28H	27-6A/X3	CB	15'-0"	AUX RLY WHSE #BFD84S	
					480V SWGR 31/COMPT.28H	27-6A/X2	CB	15'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 31/COMPT.28H	TS/UV/6A	CB	15'-0"	TEST SWITCH THREE POSITION MAINAINED	
					480V SWGR 31/COMPT.28H	27-6A/X1	CB	15'-0"	AUX RLY SG-12V	
					480V SWGR 31/COMPT.28H	27-6A/X4	CB	15'-0"	AUX RLY SG-12V	
					480V SWGR 31/COMPT.28H	27-1/6A	CB	15'-0"	AUX RLY CV	
					480V SWGR 31/COMPT.28H	27-2/6A	CB	15'-0"	AUX RLY CV	
					480V SWGR 31/COMPT.28H	S1/6A	CB	15'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 31/COMPT.28H	52aC3	CB	15'-0"	MECH. SWITCH	
					480V SWGR 31/COMPT.28H	33C3	CB	15'-0"	MECH. SWITCH	
					480V SWGR 32/COMPT.5A	2C3	CB	15'-0"	TIME DELAY RLY AGASTAT 2412PD	
					SAFEGUARD CAB G5	SI-21X	CB	53'-0"	AUX RLY WHSE #BFD120S	
					PUMP ASSEMBLY	63	PA	55'-0"	BEARING OIL PRESSURE SW A-B BULLETION 836-T	
** GE3	DC	5	I6	9321-F-30083 REV.38	BATTERY CHRGR 31	DPR	CB	33'-0"	DIFF.PRESS.RLY.	
				9321-H-36073 REV.0	BATTERY CHRGR 31	TDR	CB	33'-0"	TIME DLY.RLY.	
				9321-F-36063 REV.0	BATTERY CHRGR 31	K2	CB	33'-0"	POSITIVE GRND.DETECT.CNTRL.RLY.	
				9321-F-36093 REV.1	BATTERY CHRGR 31	K3	CB	33'-0"	NEGATIVE GRND.DETECT.CNTRL.RLY.	
				9321-F-39993 REV.4	BATTERY CHRGR 31	K21	CB	33'-0"	HIGH D.C.VOLTAGE CNTRL.RLY.	
					BATTERY CHRGR 31	SW1	CB	33'-0"	HIGH D.C.VOLTAGE CNTRL.RLY.	
					BATTERY CHRGR 31	SW1	CB	33'-0"	FLOAT EQUALIZER SWITCH	
					BATTERY CHRGR 31	SW3	CB	33'-0"	GRD.DETECT.RLY.RESET SWITCH	
					BATTERY CHRGR 31	SW14	CB	33'-0"	HIGH VOLTAGE CNTRL.RLY.RESET SWITCH	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
** GE4	DC	5	16	9321-F-30083 REV.3B	BATTERY CHRGR 31	DPR	CB	33'-0"	DIFF.PRESS.RLY.	
				9321-H-36073 REV.0	BATTERY CHRGR 31	TDR	CB	33'-0"	TIME DLY.RLY.	
				9321-F-36083 REV.0	BATTERY CHRGR 31	K2	CB	33'-0"	POSITIVE GRD.DETECT.CNTRL.RLY.	
				9321-F-36093 REV.1	BATTERY CHRGR 31	K21	CB	33'-0"	HIGH D.C.VOLTAGE CNTRL.SWITCH	
				9321-F-39993 REV.4	BATTERY CHRGR 31	SW1	CB	33'-0"	FLOAT EQUALIZER SWITCH	
					BATTERY CHRGR 31	SW3	CB	33'-0"	GRD.DETECT.RLY.RESET SWITCH	
					BATTERY CHRGR 31	SW14	CB	33'-0"	HIGH VOLTAGE CNTRL.RLY.RESET SWITCH	
** GE6	DC	5	16	9321-F-30083 REV.3B	BATTERY CHRGR 33	K1	CB	15'-0"	HIGH VOLTAGE DISCONNECT RLY	
				1P3V-80-4.5-0014 REV.1	BATTERY CHRGR 33	K2	CB	15'-0"	AC POWER FAILURE ALARM RLY	
					BATTERY CHRGR 33	EQSW	CB	15'-0"	EQUALIZE SWITCH	
** GF3	DC	5	16	9321-F-30083 REV.3B	BATTERY CHRGR 34	K1	CB	33'-0"	HIGH VOLTAGE DISCONNECT RLY	
				1P3V-80-4.5-0014 REV.1	BATTERY CHRGR 34	K2	CB	33'-0"	AC POWER FAILURE ALARM RLY	
					BATTERY CHRGR 34	EQSW	CB	33'-0"	EQUALIZE SWITCH	
** 0031EDAC	EDG	5	12	9321-F-20903	LOCAL COMB STARTER	42	DG	15'-0"	MOTOR STARTER CKTS	CA
				9321-LL-31333 SHT. 1,2	LOCAL COMB STARTER	49	DG	15'-0"	THERMAL OVERLOAD CKTS	NV
					LOCAL ENG AUX CTRL CAB	1/0031EDAC	DG	15'-0"	ON-AUTO-OFF SWITCH	NV
					AIR RECEIVER	63/0031EDAC	DG	15'-0"	PRESSURE SWITCH	CA
** 0032EDAC	EDG	5	12	9321-F-20903	LOCAL COMB STARTER	42	DG	15'-0"	MOTOR STARTER CKTS	CA
				9321-LL-31333 SHT. 1, 3	LOCAL COMB STARTER	49	DG	15'-0"	THERMAL OVERLOAD CKTS	NV
					AIR RECEIVER	63/0032EDAC	DG	15'-0"	PRESSURE SWITCH	CA
					LOCAL ENG AUX CTRL CAB	1/0032EDAC	DG	15'-0"	ON-AUTO-OFF SWITCH	NV
** 0033EDAC	EDG	5	12	9321-F-20903	LOCAL COMB STARTER	42	DG	15'-0"	MOTOR STARTER CKTS	CA
				9321-LL-31333 SHT. 1, 4	LOCAL COMB STARTER	49	DG	15'-0"	THERMAL OVERLOAD CKTS	NV
					LOCAL ENG AUX CTRL CAB	1/0033EDAC	DG	15'-0"	"ON-AUTO-OFF" SWITCH	NV
					AIR RECEIVER	63/0033EDAC	DG	15'-0"	PRESSURE SWITCH	CA
** 31 DG FUEL XFER PUMP	EDG	5	7	9321-F-20303	LOCAL COMB STARTER	42, 42a	DG	38'-0"	MOTOR STARTER CKTS	CA
					F.O. DAY TANK 31	71/DT1	DG	26'-0"	LC-1207S LEVEL SW	CA

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					LCV-1207A	33-1/ac	DG	26'-0"	LIMIT SWITCH	NV
					LOCAL ENG AUX CTL CAB	1/FP1	DG	36'-0"	STOP-AUTO-START TO AUTO	NV
					LOCAL COMB STARTER	49	DG	38'-0"	THERMAL OVERLOAD CKTS	NV
					LCV-1207B	33-11/ac	DG	26'-0"	LIMIT SWITCH	NV
** 32 DG FUEL XFER PUMP										
	EDG	5		9321-F-20303	LOCAL COMB STARTER	42, 42a	DG	38'-0"	MOTOR STARTER CKTS	CA
				9321-LL-31333 SHT.15, 6	LCV-1208A	33-2/ac	DG	26'-0"	LIMIT SWITCH	NV
					LCV-1208B	33-12/ac	DG	26'-0"	LIMIT SWITCH	NV
					DAY TANK 32	71/DT2	DG	26'-0"	LC-1208S LEVEL SW	CA
					LOCAL ENG AUX CTL CAB	1/FP2	DG	38'-0"	STOP-AUTO-START TO AUTO	NV
					LOCAL COMB STARTER	49	DG	38'-0"	THERMAL OVERLOAD CKT	NV
					STORAGE TANK 32	71/FST2	DG	38'-0"	LC-1205S LEVEL SW	CA
** 33 DG FUEL XFER PUMP										
	EDG	5	5	9321-F-20303	LOCAL COMB STARTER	42, 42a	DG	38'-0"	MOTOR STARTER CKTS	CA
				9321-LL31333 SHT. 15, 6	LCV-1209B	33-13/ac	DG	26'-0"	LIMIT SWITCH	NV
					LCV-1209A	33-3/ac	DG	26'-0"	LIMIT SWITCH	NV
					LOCAL ENG AUX CTL CAB	1/FP3	DG	38'-0"	STOP-AUTO-START SEL SW	NV
					STORAGE TANK 3	71/FST3	DG	38'-0"	LC-1206S LEVEL SWITCH	CA
					DAY TANK 33	71/DT3	DG	26'-0"	LC-1209S LEVEL SWITCH	CA
					LOCAL COMB STARTER	49	DG	38'-0"	THERMAL OVERLOAD CKT	NV
** DG-31										
	EDG	5	17	9321-H-20283, 9321-H-20293	DG-31 CTRL PNL	RR/EG1	DG	15'-0"	RUN RELAY CR120	CA
				9321-F-20303, EP 9321-005-3445	DG-31 CTRL PNL	ECS/EG1	DG	15'-0"	MAN/OFF/AUTO ENGN CTRL SWITCH	NV
				9321-LL-31173 SHT.3,6,6B,12,13,18	DG-31 CTRL PNL	SPB/EG1	DG	15'-0"	START PUSHBUTTON	NV
				9321-LL31183 SHT.7	31-DG CTRL PNL	NST/EG1	DG	15'-0"	NORMAL SHUTDOWN TIMER RLY AGASTAT 7022PF	CA
					DG-31 SKID	OPS3/EG1	DG	10'-0"	OIL PRESSURE SW	NV,RoBox
					DG-31 SKID	OPS2/EG1	DG	10'-0"	OIL PRESSURE SW	NV,RoBox
					DG-31 SKID	OPS1/EG1	DG	10'-0"	OIL PRESSURE SW	NV,RoBox
					DG-31 CTRL PNL	OPT2/EG1	DG	15'-0"	OIL PRESSURE TD RLY 2412PD	OA,OL
					DG-31 CTRL PNL	OPT1/EG1	DG	15'-0"	OIL PRESSURE TD RLY 2412PD	OA,OL
					DG-31 CTRL PNL	OSR/EG1	DG	15'-0"	OVERSPEED RLY CR120	NV, RoBOX
					DG-31 CTRL PNL	BCS-2&T3A	DG	15'-0"	SWGR 31 BUS 2A-3A TIE BREAKER S2/2AT3A TRIP AND CLOSE SW	NV
					DG-31 CTRL PNL	OPR1/EG1	DG	15'-0"	OIL PRESSURE RELAY CR120	OA,OL
					DG-31 CTRL PNL	86/EG1	DG	15'-0"	LOCL OUT HAND RESET RLY WL 300P776G01	OA,OL
					DG-31 CTRL PNL	SS/2A	DG	15'-0"	KEY SYNCHRONIZER SW	NV

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					DG-31 CTRL PNL	OCR/EG1	DG	15'-0"	OVERCRANK RELAY CR120	OA,OL
					DG-31 CTRL PNL	SOR/EG1	DG	15'-0"	SHUTDOWN TD RELAY CR120	OA,OL
					DG-31 CTRL PNL	32/EG1	DG	15'-0"	CW REVERSE POWER RELAY CW 2892988A17A	OA,OL
					DG-31 CTRL PNL	32X/EG1	DG	15'-0"	REVERSE POWER RELAY CR120	OA,OL
					DG-31 CTRL PNL	51V-3/EG1	DG	15'-0"	COV OVERCURRENT RELAY COV-8	GERS:14
					DG-31 CTRL PNL	SS/3A	DG	15'-0"	KEY SYNCHRZR SWIRCH	GERS:14
					DG-31 CTRL PNL	51V-1/EG1	DG	15'-0"	COV OVERCURRENT RELAY COV-8	GERS:14
					DG-31 CTRL PNL	ESR1/EG1	DG	15'-0"	ENGINE START RELAY CR120	OA,OL
					DG-31 CTRL PNL	PDT	DG	15'-0"	PRESSURE DELAY TIMER	GERS:9
					DG-31 CTRL PNL	ESR2/EG1	DG	15'-0"	ENGINE START RELAY CR120	OA,OL
					DG-31 CTRL PNL	RSIS	DG	15'-0"	AUX RELAY	GERS:10
					DG-31 CTRL PNL	ESR-11/EG1	DG	15'-0"	ENGINE AUX START RELAY CR120	NA
					DG-31 CTRL PNL	SS-2A13A	DG	15'-0"	KEYED SYNCHRZR SWITCH	GERS:10
					DG-31 CTRL PNL	ESR21/EG1	DG	15'-0"	ENGINE AUX START RELAY CR120	NA
					DG-31 CTRL PNL	BCS-2A	DG	15'-0"	PULOUT TO LOCKOUT BUS 2A - XFORM. BRKR. TRIP AND CLOSE SW	GERS:10
					DG-31 CTRL PNL	STP/EG1	DG	15'-0"	STOP PUSHBUTTON	CA
					DG-31 CTRL PNL	BCS-3A	DG	15'-0"	PULOUT TO LOCKOUT BUS 3A - XFORM. BRKR. TRIP AND CLOSE SW	GERS:10
					DG-31 SKID	JWPS1/EG1	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV,RoBox
					DG-31 CTRL PNL	*SHS/EG1	DG	15'-0"	OFF-AUTO SPACE HTR. SW	OA,OL
					DG-31 SKID	JWPS2/EG1	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV,RoBox
					SAFEGUARD CAB. G5	SI-23X	CB	53'-0"	AUX RLY WHSE #BFD48S	GERS:10
					DG-31 CTRL PNL	CR1/EG1	DG	15'-0"	CTRL RLY CR120 FOR ASV1	OA,OL
					DG-31 CTRL PNL	51V-2/EG1	DG	15'-0"	COV OVERCURRENT RELAY COV-8	GERS:14
					DG-31 CTRL PNL	CR2/EG1	DG	15'-0"	CTRL RLY CR120 FOR ASV2	OA,OL
					SAFEGUARD CAB G5	SI-21X	CB	53'-0"	AUX RLY WHSE #BFD120S	GERS:9
					DG-31 CTRL PNL	BG1R/EG1	DG	15'-0"	PERMISSIVE START RLY CR120	OA,OL
					SAFEGUARD CAB G2	SI-11X	CB	53'-0"	AUX RLY WHSE #BFD120S	GERS:10
					DG-31 CTRL PNL	BG1S/EG1	DG	15'-0"	PERMISSIVE START SW	NV
					SAFEGUARD CAB G3	SI-13X	CB	53'-0"	AUX RLY WHSE #BFD48S	GERS:10
					DG-31 CTRL PNL	51VX/EG1	DG	15'-0"	OVERCURRENT RELAY CR120	OA,OL
					480V SWGR31 COMPT. 26H	27-2A/X1	CB	15'-0"	SG RELAY	GERS:9
					480V SWGR31 COMPT. 28H	27-2A/X4	CB	15'-0"	SG RELAY	GERS:10
					480V SWGR31 COMPT. 28H	27-2A/X3	CB	15'-0"	AUX RELAY WHSE #NBFDB4S	GERS:10
					DG-31 CTRL PNL	RESET/EG1	DG	15'-0"	PUSHBUTTON	OA,OL
					DG-31 CTRL PNL	ASP/EG1	DG	15'-0"	ALARM SILENCE PB	NV
					DG-31 CTRL PNL	OCT1/EG1	DG	15'-0"	OVERCRANK TD RLY 2412PD	OA,OL
					DG-31 CTRL PNL	OCT2/EG1	DG	15'-0"	OVERCRANK TD RLY 2412PD	OA,OL
					DG-31 CTRL PNL	ES/EG1	DG	15'-0"	EMERG FIELD SHTDWN PB	NV
					DG-31 CTRL PNL	86X/EG1	DG	15'-0"	LOCK OUT RLY CR120	OA,OL
					DG-31 CTRL PNL	FODPR/EG1	DG	15'-0"	H DIF PRESS F OIL PRIM FILTER RLY CR120	NA
					DG-31 CTRL PNL	HLOTR/EG1	DG	15'-0"	HI LO TEMP RLY CR120	NA
					VOLTAGE REG PNL	X1/EG1	DG	10'-0"	RELAY	OA,OL

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					DG-31 CTRL PNL	HLOTR-1/EG1	DG	15'-0"	HI LO TEMP RLY CR120	NA
					VOLTAGE REG PNL	K4/EG1	DG	10'-0"	BRKR CLOSURE RELAY	OA,OL
					DG-31 CTRL PNL	LAPR/EG1	DG	15'-0"	LO START AIR PRESS RLY	NA
					DG-31 SKID	JWPS4/EG1	DG	10'-0"	JACKET WATER PRESSURE SW	NV,RoBox
					DG-31 CTRL PNL	LFLR/EG1	DG	15'-0"	LOW-LOW DAY TANK FUEL LEVEL RLY CR120	NA
					DG-31 SKID	OSR/EG1	DG	10'-0"	OVERSPEED MICRO SW	NV,RoBox
					DG-31 CTRL PNL	HWTR/EG1	DG	15'-0"	HI WATER TEMP RLY CR120	NA
					DG-31 SKID	JWPS3/EG1	DG	10'-0"	JACKET WATER PRESSURE SWITCH	OA,OL
					DG-31 CTRL PNL	HWTR-1/EG1	DG	15'-0"	HI WATER TEMP RLY CR120	NA
					DG-31 SKID	JWPS6/EG1	DG	10'-0"	JACKET WATER PRESSURE SWITCH	OA,OL
					DG-31 CTRL PNL	HHWTR/EG1	DG	15'-0"	HI-HI WATER TEMP RLY CR120	NA
					480V SWGR 31 COMPT 28H	86/2A	CB	15'-0"	WL RELAY	OA,OL
					DG-31 CTRL PNL	R1/EG1	DG	15'-0"	BFD22S RLY	NA
					DG-31 CTRL PNL	27X1/EG1	DG	15'-0"	UNDERVOLTAGE RELAY MG6	OA,OL
					DG-31 CTRL PNL	R2/EG1	DG	72'-0"	BFD22S RLY	NA
					DG-31 CTRL PNL	*VBR/EG1	DG	15'-0"	VOLT BUILDUP RLY CV-7	
					DG-31 CTRL PNL	ASR/EG1	DG	15'-0"	ALARM SILENCE RLY CR120	NA
					DG-31 CTRL PNL	UPS/EG1	DG	15'-0"	UNIT PARALLEL SW	NV
					DG-31 CTRL PNL	HR/EG1	DG	15'-0"	HORN RLY CR120	NA
					DG-31 CTRL PNL	K1X/EG1	DG	15'-0"	EXCITER FIELD SHUTD RLY CR120	OA,OL
					DG-31 CTRL PNL	FR/EG1	DG	15'-0"	FAULT RLY CR120	NA
					DG-31 CTRL PNL	LODFR/EG1	DG	15'-0"	DIF PRESS L OIL FILTER RLY CR120	NA
					480V SWGR 31 COMPT 28H	3-3/2A1	CB	15'-0"	AUX RELAY WHSE #BFD80S	OA,OL
					480V SWGR 31 COMPT 28H	1S/UV/2A	CB	15'-0"	TEST SWITCH	OA,OL
					VOLTAGE REG PNL	K2/EG1	DG	10'-0"	RELAY	NA
					DG-31 CTRL PNL	BATT-RE/EG1	DG	15'-0"	RESET PB	NA
					480V SWGR 31 COMPT 28H	S1-2A	CB	15'-0"	AUX RELAY WHSE #BFD120S	NV,RoBox
					480V SWGR 31 COMPT 28H	27-2A/X2	CB	15'-0"	AUX RELAY WHSE #BFD48S	OA,OL
					DG-31 CTRL PNL	FODSR/EG1	DG	15'-0"	H DIF PRESS F OIL SEC FILTER RLY CR120	NA
					VOLTAGE REG PNL	K1A/EG1	DG	10'-0"	RELAY	OA,OL
					SUPVSRY PNL SH	1-1/EG1	CB	53'-0"	CONTROL SWITCH	NV,RoBox
					DG-31 CTRL PNL	*CTS/EG1	DG	15'-0"	VOLT CTRL SEL SW	NV
					DG-31 CTRL PNL	*SSP/EG1	DG	15'-0"	GOVERNOR SPEED	NV
					DG-31 CTRL PNL	VRE/EG1	DG	15'-0"	VOLT REG RESET PB	NV
					DG-31 CTRL PNL	51GX/EG1	DG	15'-0"	GROUND OVERCURRENT RLY CR120	NA
					DG-31 CTRL PNL	LODSR/EG1	DG	15'-0"	L OIL DIF PRESS STRAINER RLY CR120	NA
					DIESEL ISOLATION CAB	9/1SO			ISOLATION SWITCH	
					480V SWGR 31 BUS 2A	52b/2A	CB	15'-0"	MECHANICAL CONTACTS	
					480V SWGR 31 BUS 2A	52b/2AT5A	CB	15'-0"	MECHANICAL CONTACTS	
					480V SWGR 31 BUS 2A	33H/2A	CB	15'-0"	SWCHGR BREAKER CONTACTS	
					480V SWGR 31 BUS 2A	33H/2AT5A	CB	15'-0"	SWCHGR BREAKER CONTACTS	
					SPVSRY PNL SH	74/EG1	CB	53'-0"	ALARM RLY BFD22S	NA

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					480V SWGR ISO CAB CHIV	2/ISO	CB	15'-0"	ISOLATION SWITCH	CA
					DG-31 CTRL PNL	BCS/EG1	DG	15'-0"	PULL-OUT TO LOCK-OUT DG-31 BUS 2A BRKR.	NV
					PP9 DG-31 CTRL PNL	SS/EG1	DG	15'-0"	KEY SYNCHRONIZER SW	NV
** DG-32										
	EDG	5	17	9321-H-20283, 9321-H-20293	DG-32 CTRL PNL	RR/EG2	DG	10'-0"	RUN RELAY CR120	CA
				9321-F-20303, FP 9321-005-3445	DG-32 CTRL PNL	ECS/EG2	DG	10'-0"	MAN/OFF/AUTO ENGN CTRL SWITCH	NV
				9321-LL-31173 SHT.3,7	DG-32 CTRL PNL	SPB/EG2	DG	10'-0"	START PUSHBUTTON	NV
				9321-LL-31183 SHT.17,18,4,1	DG-32 CTRL PNL	NST/EG2	DG	10'-0"	NORMAL SHUTDOWN TIMER RLY 2422PM	CA
					DG-32 SKID	OPS3/EG2	DG	10'-0"	OIL PRESSURE SW	NV,RoBox
					DG-32 SKID	OPS2/EG2	DG	10'-0"	OIL PRESSURE SW	NV,RoBox
					DG-32 SKID	OPS1/EG2	DG	10'-0"	OIL PRESSURE SW	NV,RoBox
					DG-32 CTRL PNL	OPT2/EG2	DG	10'-0"	OIL PRESSURE TO RLY 2412PD	OA,OL
					DG-32 CTRL PNL	OPT1/EG2	DG	10'-0"	OIL PRESSURE TO RLY 2412PD	OA,OL
					DG-32 CTRL PNL	OSR/EG2	DG	10'-0"	OVERSPEED RLY CR120	NV, RoBOX
					DG-32 CTRL PNL	BCS-SS6A	DG	10'-0"	PUL-OUT TO LOCK OUT BUS 2A-XFORM. BRKR. TRIP AND CLOSE SW	NV
					DG-32 CTRL PNL	OPR1/EG2	DG	10'-0"	OIL PRESSURE RELAY CR120	OA,OL
					DG-32 CTRL PNL	86/EG2	DG	10'-0"	LOCL OUT HAND RESET RLY WL 300P776G01	OA,OL
					DG-32 CTRL PNL	OCR/EG2	DG	10'-0"	OVERCRANK RELAY CR120	OA,OL
					DG-32 CTRL PNL	SDR/EG2	DG	10'-0"	SHUTDOWN TD RELAY CR120	OA,OL
					DG-32 CTRL PNL	32/EG2	DG	10'-0"	CW REVERSE POWER RELAY CW 2B92988A17A	OA,OL
					DG-32 CTRL PNL	32X/EG2	DG	10'-0"	REVERSE POWER RELAY CR120	OA,OL
					DG-32 CTRL PNL	51V-3/EG2	DG	10'-0"	COV OVERCURRENT RELAY COV-8	GERS:14
					DG-32 CTRL PNL	51V-1/EG2	DG	10'-0"	COV OVERCURRENT RELAY COV-8	GERS:14
					DG-32 CTRL PNL	ESR1/EG2	DG	10'-0"	ENGINE START RELAY CR120	OA,OL
					DG-32 CTRL PNL	PDT/EG2	DG	10'-0"	PRESSURE DELAY TIMER	GERS:9
					DG-32 CTRL PNL	ESR2/EG2	DG	10'-0"	ENGINE START RELAY CR120	OA,OL
					DG-32 CTRL PNL	RSIS/EG2	DG	10'-0"	AUX RELAY	GERS:10
					DG-32 CTRL PNL	ESR-11/EG2	DG	10'-0"	ENGINE AUX START RELAY CR120	NA
					DG-32 CTRL PNL	ESR21/EG2	DG	10'-0"	ENGINE AUX START RELAY CR120	NA
					DG-32 CTRL PNL	BCS-6A	DG	10'-0"	PULOUT TO LOCKOUT BUS 2A - XFORM. BRKR. TRIP AND CLOSE SW	GERS:10
					DG-32 CTRL PNL	STP/EG2	DG	10'-0"	STOP PUSHBUTTON	CA
					DG-32 SKID	JWPS1/EG2	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV,RoBox
					DG-32 CTRL PNL	*SHS/EG2	DG	10'-0"	OFF-AUTO SPACE HTR. SW	OA,OL
					DG-32 SKID	JWPS2/EG2	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV,RoBox
					SAFEGUARD CAB. G5	SI-23X/EG2	CB	53'-0"	AUX RLY WHSE #BFD4BS	GERS:10

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					DG-32 CTRL PNL	CR1/EG2	DG	10'-0"	CTRL RLY CR120 FOR ASV1	OA,OL
					DG-32 CTRL PNL	51V-2/EG2	DG	10'-0"	COV OVERCURRENT RELAY COV-8	GERS:14
					DG-32 CTRL PNL	CR2/EG2	DG	10'-0"	CTRL RLY CR120 FOR ASV2	OA,OL
					DG-32 CTRL PNL	BG1R/EG2	DG	10'-0"	PERMISSIVE START RLY CR120	OA,OL
					DG-32 CTRL PNL	BG1S/EG2	DG	10'-0"	PERMISSIVE START SW	NV
					DG-32 CTRL PNL	51VX/EG2	DG	10'-0"	OVERCURRENT RELAY CR120	OA,OL
					480V SWGR32 COMPT. 8H	27-6A/X1	CB	15'-0"	SG RELAY	GERS:9
					480V SWGR32 COMPT. 8H	27-6A/X4	CB	15'-0"	SG RELAY	GERS:10
					480V SWGR32 COMPT. 8H	27-6A/X3	CB	15'-0"	AUX RELAY WHSE #BFD84S	GERS:10
					DG-32 CTRL PNL	RESET1/EG2	DG	10'-0"	PUSHBUTTON	OA,OL
					DG-32 CTRL PNL	ASP/EG2	DG	10'-0"	ALARM SILENCE PB	NV
					DG-32 CTRL PNL	OCT1/EG2	DG	10'-0"	OVERCRANK TD RLY 2412PD	OA,OL
					DG-32 CTRL PNL	OCT2/EG2	DG	10'-0"	OVERCRANK TD RLY 2412PD	OA,OL
					DG-32 CTRL PNL	ES/EG2	DG	10'-0"	EMERG FIELD SHTDWN PB	NV
					DG-32 CTRL PNL	86X/EG2	DG	10'-0"	LOCK OUT RLY CR120	OA,OL
					DG-32 CTRL PNL	FODPR/EG2	DG	10'-0"	H DIF PRESS F OIL PRIM FILTER RLY CR120	NA
					DG-32 CTRL PNL	HLOTR/EG2	DG	10'-0"	HI LO TEMP RLY CR120	NA
					VOLTAGE REG PNL	X1/EG2	DG	10'-0"	RELAY	OA,OL
					DG-32 CTRL PNL	HLOTR-1/EG2	DG	10'-0"	HI LO TEMP RLY CR120	NA
					VOLTAGE REG PNL	X4/EG2	DG	10'-0"	BRKR CLOSURE RELAY	OA,OL
					DG-32 CTRL PNL	LAPR/EG2	DG	10'-0"	LO START AIR PRESS RLY	NA
					DG-32 SKID	JWPS4/EG2	DG	10'-0"	JACKET WATER PRESSURE SW	NV,RoBox
					DG-32 CTRL PNL	LFLR/EG2	DG	10'-0"	LOW-LOW DAY TANK FUEL LEVEL RLY CR120	NA
					DG-32 SKID	OSR/EG2	DG	10'-0"	OVERSPEED MICRO SW	NV,RoBox
					DG-32 CTRL PNL	HWTR/EG2	DG	10'-0"	HI WATER TEMP RLY CR120	NA
					DG-32 SKID	JWPS3/EG2	DG	10'-0"	JACKET WATER PRESSURE SWITCH	OA,OL
					DG-32 CTRL PNL	HWTR-1/EG2	DG	10'-0"	HI WATER TEMP RLY CR120	NA
					DG-31 SKID	JWPS6/EG2	DG	10'-0"	JACKET WATER PRESSURE SWITCH	OA,OL
					DG-32 CTRL PNL	HHWTR/EG2	DG	10'-0"	HI-HI WATER TEMP RLY CR120	NA
					480V SWGR 32 COMPT 8H	86/6A	CB	15'-0"	WL RELAY	OA,OL
					DG-32 CTRL PNL	R1/EG2	DG	10'-0"	BFD22S RLY	NA
					DG-32 CTRL PNL	27X1/EG2	DG	10'-0"	UNDERVOLTAGE RELAY MG6	OA,OL
					DG-32 CTRL PNL	R2/EG2	DG	10'-0"	BFD22S RLY	NA
					DG-32 CTRL PNL	*VBR/EG2	DG	10'-0"	VOLT BUILDUP RLY CV-7	
					DG-32 CTRL PNL	ASR/EG2	DG	10'-0"	ALARM SILENCE RLY CR120	NA
					DG-32 CTRL PNL	UPS/EG2	DG	10'-0"	UNIT PARALLEL SW	NV
					DG-32 CTRL PNL	HR/EG2	DG	10'-0"	HORN RLY CR120	NA
					DG-32 CTRL PNL	K1X/EG2	DG	10'-0"	EXCITER FIELD SHUTD RLY CR120	OA,OL
					DG-32 CTRL PNL	FR/EG2	DG	10'-0"	FAULT RLY CR120	NA
					DG-32 CTRL PNL	LODFR/EG2	DG	10'-0"	DIF PRESS L OIL FILTER RLY CR120	NA
					480V SWGR 32 COMPT 8H	TS/UV/6A	CB	15'-0"	TEST SWITCH	OA,OL
					VOLTAGE REG PNL	X2/EG2	DG	10'-0"	RELAY	NA
					DG-32 CTRL PNL	BATT-RE/EG2	DG	10'-0"	RESET PB	NA

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					DG-32 CTRL PNL	SWLFX/EG2	CB	10'-0"	AUX RELAY CR120	NV,RoBox
					480V SWGR 32 COMPT BH	27-6A/X2	CB	15'-0"	AUX RELAY WHSE #BFD120S	OA,OL
					DG-32 CTRL PNL	FODSR/EG2	DG	10'-0"	H DIF PRESS F OIL SEC FILTER RLY CR120	NA
					VOLTAGE REG PNL	K1A/EG2	DG	10'-0"	RELAY	OA,OL
					SUPVSRY PNL SH	1-1/EG2	CB	53'-0"	CONTROL SWITCH	NV,RoBox
					DG-32 CTRL PNL	#CTS/EG2	DG	10'-0"	VOLT CTRL SEL SW	NV
					DG-32 CTRL PNL	#SSP/EG2	DG	10'-0"	GOVERNOR SPEED	NV
					DG-32 CTRL PNL	VRE/EG2	DG	10'-0"	VOLT REG RESET PB	NV
					DG-32 CTRL PNL	S16X/EG2	DG	10'-0"	GROUND OVERCURRENT RLY CR120	NA
					DG-32 CTRL PNL	LODSR/EG2	DG	10'-0"	L OIL DIF PRESS STRAINER RLY CR120	NA
					480V SWGR 32 COMPT. BH	27-2/6A	CB	15'-0"	ISOLATION SWITCH	
					480V SWGR 32 BUS 6A	52b/6A	CB	15'-0"	MECHANICAL CONTACTS	
					480V SWGR 32 BUS 6A	52b/3AT6A	CB	15'-0"	MECHANICAL CONTACTS	
					480V SWGR 32 BUS 6A	33H/6A	CB	15'-0"	SWCHGR BREAKER CONTACTS	
					480V SWGR 32 BUS 6A	33H/3AT6A	CB	15'-0"	SWCHGR BREAKER CONTACTS	
					SPVSRY PNL SH	74/EG2	CB	53'-0"	ALARM RLY BFD22S	NA
					480V SWGR 32 COMPT. BH	27-1/6A	CB	15'-0"	AUX RLY CV	CA
					DG-32 CTRL PNL	BCS/EG2	DG	10'-0"	PULL-OUT TO LOCK-OUT DG-32 BUS 2A BRKR.	NV
					DG-32 CTRL PNL	SS/EG2	DG	10'-0"	KEY SYNCHRONIZER SW	NV
** DG-33										
	EDG	S	17	9321-M-20283, 9321-M-20293, 9321-F-20303, FP 9321-005-3445, 9321-LL-31173 SHT.3,6,68,12,13,18	DG-33 CTRL PNL	RR/EG3	DG	10'-0"	RUN RELAY CR120	CA
					DG-33 CTRL PNL	ECS/EG3	DG	10'-0"	MAN/OFF/AUTO ENGN CTRL SWITCH	NV
					DG-33 CTRL PNL	SPB/EG3	DG	10'-0"	START PUSHBUTTON	NV
					DG-33 CTRL PNL	NST/EG3	DG	10'-0"	NORMAL SHUTDOWN TIMER RLY 2422PF	CA
					DG-33 SKID	OPS3/EG3	DG	10'-0"	OIL PRESSURE SW	NV,RoBox
					DG-33 SKID	OPS2/EG3	DG	10'-0"	OIL PRESSURE SW	NV,RoBox
					DG-33 SKID	OPS1/EG3	DG	10'-0"	OIL PRESSURE SW	NV,RoBox
					DG-33 CTRL PNL	OPT2/EG3	DG	10'-0"	OIL PRESSURE TD RLY 2412PD	OA,OL
					DG-33 CTRL PNL	OPT1/EG3	DG	10'-0"	OIL PRESSURE TD RLY 2412PD	OA,OL
					DG-33 CTRL PNL	OSR/EG3	DG	10'-0"	OVERSPEED RLY CR120	NV, RoBOX
					DG-33 CTRL PNL	SS/5A	DG	10'-0"	PUL-OUT TO LOCK OUT BUS 5A-XFORM. BRKR. TRIP AND CLOSE SW	NV
					DG-33 CTRL PNL	OPR1/EG3	DG	10'-0"	OIL PRESSURE RELAY CR120	OA,OL
					DG-33 CTRL PNL	S6/EG3	DG	10'-0"	LOCL OUT HAND RESET RLY WL 300P776G01	OA,OL
					DG-33 CTRL PNL	OCR/EG3	DG	10'-0"	OVERCRANK RELAY CR120	OA,OL
					DG-33 CTRL PNL	SDR/EG3	DG	10'-0"	SHUTDOWN TD RELAY CR120	OA,OL

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					DG-33 CTRL PNL	32/EG3	DG	10'-0"	CW REVERSE POWER RELAY CW 289298BA17A	OA,OL
					DG-33 CTRL PNL	32X/EG3	DG	10'-0"	REVERSE POWER RELAY CR120	OA,OL
					DG-33 CTRL PNL	51V-3/EG3	DG	10'-0"	COV OVERCURRENT RELAY COV-8	GERS:14
					DG-33 CTRL PNL	51V-1/EG3	DG	10'-0"	COV OVERCURRENT RELAY COV-8	GERS:14
					DG-33 CTRL PNL	ESR1/EG3	DG	10'-0"	ENGINE START RELAY CR120	OA,OL
					DG-33 CTRL PNL	PDT/EG3	DG	10'-0"	PRESSURE DELAY TIMER	GERS:9
					DG-33 CTRL PNL	ESR2/EG3	DG	10'-0"	ENGINE START RELAY CR120	OA,OL
					DG-33 CTRL PNL	RS1S/EG3	DG	10'-0"	AUX RELAY	GERS:10
					DG-33 CTRL PNL	ESR-11/EG3	DG	10'-0"	ENGINE AUX START RELAY CR120	NA
					DG-33 CTRL PNL	ESR-21/EG3	DG	10'-0"	ENGINE AUX START RELAY CR120	NA
					DG-33 CTRL PNL	BCS-5A	DG	10'-0"	PULOUT TO LOCKOUT BUS 2A - XFORM. BRKR. TRIP AND CLOSE SW	GERS:10
					DG-33 CTRL PNL	STP/EG3	DG	10'-0"	STOP PUSHBUTTON	CA
					DG-33 SKID	JWPS1/EG3	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV,RoBox
					DG-33 CTRL PNL	*SHS/EG3	DG	10'-0"	OFF-AUTO SPACE HTR. SW	OA,OL
					DG-33 SKID	JWPS2/EG3	DG	10'-0"	JACKET WATER PRESSURE SWITCH	NV,RoBox
					SAFEGUARD CAB. G3	SI-13X/EG2	CB	52'-0"	AUX RLY WHSE #BFD48S	GERS:10
					DG-33 CTRL PNL	CR1/EG3	DG	10'-0"	CTRL RLY CR120 FOR ASV1	OA,OL
					DG-33 CTRL PNL	51V-2/EG3	DG	10'-0"	COV OVERCURRENT RELAY COV-8	GERS:14
					DG-33 CTRL PNL	CR2/EG3	DG	10'-0"	CTRL RLY CR120 FOR ASV2	OA,OL
					DG-33 CTRL PNL	BG1R/EG3	DG	10'-0"	PERMISSIVE START RLY CR120	OA,OL
					DG-33 CTRL PNL	BG1S/EG3	DG	10'-0"	PERMISSIVE START SW	NV
					DG-33 CTRL PNL	51VX/EG3	DG	10'-0"	OVERCURRENT RELAY CR120	OA,OL
					480V SWGR31 COMPT.25H	27-5A/X1	CB	15'-0"	SG RELAY	GERS:9
					480V SWGR31 COMPT.25H	27-5A/X4	CB	15'-0"	SG RELAY	GERS:10
					480V SWGR31 COMPT.25H	27-5A/X3	CB	15'-0"	AUX RELAY WHSE #BFD84S	GERS:10
					DG-33 CTRL PNL	RESET/EG3	DG	10'-0"	PUSHBUTTON	OA,OL
					DG-33 CTRL PNL	ASP/EG3	DG	10'-0"	ALARM SILENCE PB	NV
					DG-33 CTRL PNL	OCT1/EG3	DG	10'-0"	OVERCRANK TD RLY 2412PD	OA,OL
					DG-33 CTRL PNL	OCT2/EG3	DG	10'-0"	OVERCRANK TD RLY 2412PD	OA,OL
					DG-33 CTRL PNL	ES/EG3	DG	10'-0"	EMERG FIELD SHTDWN PB	NV
					DG-33 CTRL PNL	86X/EG3	DG	10'-0"	LOCK OUT RLY CR120	OA,OL
					DG-33 CTRL PNL	FODPR/EG3	DG	10'-0"	H DIF PRESS F OIL PRIM FILTER RLY CR120	NA
					DG-33 CTRL PNL	HLOTR/EG3	DG	10'-0"	HI LO TEMP RLY CR120	NA
					VOLTAGE REG PNL	K1/EG3	DG	10'-0"	RELAY	OA,OL
					DG-33 CTRL PNL	HLOTR-1/EG3	DG	10'-0"	HI LO TEMP RLY CR120	NA
					VOLTAGE REG PNL	X4/EG3	DG	10'-0"	BRKR CLOSURE RELAY	OA,OL
					DG-33 CTRL PNL	LAPR/EG3	DG	10'-0"	LO START AIR PRESS RLY	NA
					DG-33 SKID	JWPS4/EG3	DG	10'-0"	JACKET WATER PRESSURE SW	NV,RoBox
					DG-33 CTRL PNL	LFLR/EG3	DG	10'-0"	LOW-LOW DAY TANK FUEL LEVEL RLY CR120	NA
					DG-33 SKID	OSR/EG3	DG	10'-0"	OVERSPEED MICRO SW	NV,RoBox
					DG-33 CTRL PNL	HWTR/EG3	DG	10'-0"	HI WATER TEMP RLY CR120	NA
					DG-33 SKID	JWPS3/EG3	DG	10'-0"	JACKET WATER PRESSURE SWITCH	OA,OL

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					DG-33 CTRL PNL	HWTR-1/EG3	DG	10'-0"	HI WATER TEMP RLY CR120	NA
					DG-33 SKID	JWPS6/EG3	DG	10'-0"	JACKET WATER PRESSURE SWITCH	OA,OL
					DG-33 CTRL PNL	HHWTR/EG3	DG	10'-0"	HI-HI WATER TEMP RLY CR120	NA
					480V SWGR 31 COMPT.25H	86/5A	CB	15'-0"	WL RELAY	OA,OL
					DG-33 CTRL PNL	R1/EG3	DG	10'-0"	BFD22S RLY	NA
					DG-33 CTRL PNL	27X1/EG3	DG	10'-0"	UNDERVOLTAGE RELAY M66	OA,OL
					DG-33 CTRL PNL	R2/EG3	DG	10'-0"	BFD22S RLY	NA
					DG-33 CTRL PNL	*VBR/EG3	DG	10'-0"	VOLT BUILDUP RLY CV-7	
					DG-33 CTRL PNL	ASR/EG3	DG	10'-0"	ALARM SILENCE RLY CR120	NA
					DG-33 CTRL PNL	UPS/EG3	DG	10'-0"	UNIT PARALLEL SW	NV
					DG-33 CTRL PNL	HR/EG3	DG	10'-0"	HORN RLY CR120	NA
					DG-33 CTRL PNL	K1X/EG3	DG	10'-0"	EXCITER FIELD SHUTD RLY CR120	OA,OL
					DG-33 CTRL PNL	FR/EG3	DG	10'-0"	FAULT RLY CR120	NA
					DG-33 CTRL PNL	LODFR/EG3	DG	10'-0"	DIF PRESS L OIL FILTER RLY CR120	NA
					480V SWGR 31 COMPT.25H	TS/UV/5A	CB	15'-0"	TEST SWITCH	OA,OL
					VOLTAGE REG PNL	K2/EG3	DG	10'-0"	RELAY	NA
					DG-33 CTRL PNL	BATT-RE/EG3	DG	10'-0"	RESET PB	NA
					480V SWGR 31 COMPT.25H	3-3/5A1	CB	15'-0"	AUX RELAY WHSE #BFD80S	NV,RoBox
					480V SWGR 31 COMPT.25H	27-5A/X2	CB	15'-0"	AUX RELAY WHSE #BFD120S	OA,OL
					DG-33 CTRL PNL	FODSR/EG3	DG	10'-0"	H DIF PRESS F OIL SEC FILTER RLY CR120	NA
					VOLTAGE REG PNL	K1A/EG3	DG	10'-0"	RELAY	OA,OL
					SUPVSRY PNL SH	1-1/EG3	CB	53'-0"	CONTROL SWITCH	NV,RoBox
					DG-33 CTRL PNL	*CTS/EG3	DG	10'-0"	VOLT CTRL SEL SW	NV
					DG-33 CTRL PNL	*SSP/EG3	DG	10'-0"	GOVERNOR SPEED	NV
					DG-33 CTRL PNL	VRE/EG3	DG	10'-0"	VOLT REG RESET PB	NV
					DG-33 CTRL PNL	SIGX/EG3	DG	10'-0"	GROUND OVERCURRENT RLY CR120	NA
					DG-33 CTRL PNL	LODSP/EG3	DG	10'-0"	L OIL DIF PRESS STRAINER RLY CR120	NA
					480V SWGR 31 COMPT.25H	27-2/5A	CB	15'-0"	ISOLATION SWITCH	
					480V SWGR 31 BUS 5A	52b/5A	CB	15'-0"	MECHANICAL CONTACTS	
					480V SWGR 32 BUS 5A	52b/24T5A	CB	15'-0"	MECHANICAL CONTACTS	
					480V SWGR 31 BUS 5A	33H/5A	CB	15'-0"	SWCHGR BREAKER CONTACTS	
					480V SWGR 31 BUS 5A	33H/24T5A	CB	15'-0"	SWCHGR BREAKER CONTACTS	
					SPVSRY PNL SH	74/EG3	CB	53'-0"	ALARM RLY BFD22S	NA
					480V SWGR 31 CAMPT.25H	27-1/5A	CB	15'-0"	AUX RLY CV	CA
					DG-33 CTRL PNL	BCS/EG3	DG	10'-0"	PULL-OUT TO LOCK-OUT DG-33 BUS 5A BRKR.	NV
					DG-33 CTRL PNL	SS/EG3	DG	10'-0"	KEY SYNCHRONIZER SW	NV
** LCV-1207A	EDG	5	7	9321-F-20303 9321-LL-31333 SHT.15	DAY TANK 1	71/DT1	DG	26'-0"	LC-1207S LEVEL SW	CA
					VLV MTD	33-1/ac	DG	26'-0"	VALVE POSITION SW	NV
					VLV MTD	33-1/bo	DG	26'-0"	VALVE POSITION SW	NV

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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					VLV MTD	33-11ac, 33-11/bo	DG	26'-0"	VALVE POSITION SW	NV
** LCV-1207E	EDG	5	7	9321-F-20303	DAY TANK 1	71/DT1	DG	26'-0"	LC-1207S LEVEL SWITCH	CA
				9321-LL-31333 SHT. 15	VALVE MTD	33-1/ac	DG	26'-0"	VALVE POSITION SW	NV
					VALVE MTD	33-1/bo	DG	26'-0"	VALVE POSITION SW	NV
					VALVE MTD	33-11/ac, 33-11/bo	DG	26'-0"	VALVE POSITION SW	NV
** LCV-1206A	EDG	5	7	9321-F-20303	DAY TANK 2	71/DT2	DG	26'-0"	LC-1208S LEVEL SWITCH	CA
				9321-LL-31333 SHT. 15	VALVE MTD	33-2/ac	DG	26'-0"	VALVE POSITION SW	NV
					VALVE MTD	33-2/bo	DG	26'-0"	VALVE POSITION SW	NV
					VALVE MTD	33-12/ac,33-12/bo	DG	26'-0"	VALVE POSITION SW	NV
** LCV-1208B	EDG	5	7	9321-F-20303	DAY TANK 2	71/DT2	DG	26'-0"	LC-1208S LEVEL SWITCH	CA
				9321-LL-31333 SHT. 15	VALVE MTD	33-2/ac	DG	26'-0"	VALVE POSITION SWITCH	NV
					VALVE MTD	33-2/bo	DG	26'-0"	VALVE POSITION SWITCH	NV
					VALVE MTD	33-12/ac, 33-12/bo	DG	26'-0"	VALVE POSITION SWITCH	NV
** LCV-1209A	EDG	5	7	9321-F-20303	DAY TANK 3	71/DT3	DG	26'-0"	LC-1209S LEVEL SWITCH	CA
				9321-LL-31333 SHT.15	VALVE MTD	33-3/ac	DG	26'-0"	VALVE POSITION SWITCH	NV
					VALVE MTD	33-3/bo	DG	26'-0"	VALVE POSITION SWITCH	NV
					VALVE MTD	33-13/ac, 33-13/bo	DG	26'-0"	VALVE POSITION SWITCH	NV
** LCV-1209B	EDG	5	7	9321-F-20303	DAY TANK 3	71/DT3	DG	26'-0"	LC-1209S LEVEL SWITCH	CA
				9321-LL-31333 SHT. 15	VALVE MTD	33-3/ac	DG	26'-0"	VALVE POSITION SWITCH	NV
					VALVE MTD	33-3/bo	DG	26'-0"	VALVE POSITION SWITCH	NV
					VALVE MTD	33-13/ac, 33-13/bo	DG	26'-0"	VALVE POSITION SWITCH	NV
** 31CRDF	HVAC	5	9	9321-F-40223	PANEL SL	1/CRCF1 (o,sc,c)	CB	53'-0"	PULL-STOP-AUTO-START	
				9321-LL-31283 SH3	MCC-38	42, 42a, 42b	VC	68'-0"	MOTOR STARTER CONTACTS	
				9321-F-31933 SH3	MCC-38	49	VC	68'-0"	THERMAL OVERLOAD CONTACT	
					LOCAL AT FAN	START, STOP	VC	95'-0"	PUSHBUTTONS	
** 31CRFU	HVAC	5	10	9321-F-40223	LOCAL	43	VC	68'-0"	REMOTE-LOCAL SW	
				617F644	LOCAL	START, STOP	VC	68'-0"	PUSHBUTTONS	

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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				6008971 SH37	SB2F CONTROL BOARD	1/CRF1	CB	53'-0"	STOP-AUTO-START SWITCH	
					SB2F CONTROL BOARD	74	CB	53'-0"	BFD-20S ALARM RELAY	
					480V SWGR 31	2/CRF1	CB	15'-0"	AGA2412PD TIME DEL.ALM.REL.	
					480V SWGR 31	27-5A/X3	CB	15'-0"	BFD-120S	
					480V SWGR 31	3-1/5A	CB	15'-0"	BFD-120S	
					480V SWGR 31	27-5A/X3	CB	15'-0"	BFD-120S	
** 31ETEF	HVAC	5	9	9321-LL-31263 SH2	SPVSRY PNL SL	1/F31	CB	53'-0"	STOP/AUTO/START/SWITCH	
				9321-F-31313 SH22	DELUGE SYS CNTRL PNL	1X	PP	65'-0"	DELUGE SYSTEM CONTACT	
				9321-F-31403 SH19	SPVSRY PNL SL	74-1	CB	53'-0"	ALARM RELAY BF-22F	
					DELUGE SYS CNTRL PNL	2X	PP	53'-0"	DELUGE SYSTEM CONTACT	
					PANEL SL	43L/F31	CB	53'-0"	FAN21/FAN22 SEL SW	
					MCC-36A	49	PA	55'-0"	THERMAL ELEMENT	
					DELUGE SYS CNTRL PNL	R1	PP	65'-0"	BFD22S RELAY	
					MCC-36A	42a, 42b	PA	55'-0"	MOT ST AUX CONTACTS	
					DELUGE SYS CNTRL PNL	R2	PA	55'-0"	BFD22S RELAY	
					SPVSRY PNL	1/F31-2	CB	53'-0"	AUTO/RUN SWITCH	
					MCC-36A	42	PA	55'-0"	MOTOR STARTER CONTACTS	
** 32CRDF	HVAC	9	9	9321-F-40223	PANEL SL	1/CRCF2 (o,sc,o)	CB	53'-0"	"PULL-STOP-AUTO-START" TO "AUTO"	
				9321-LL-31283 SH3	MCC-38	42, 42a, 42b	VC	68'-0"	MOTOR STARTER CONTACTS	
				9321-F-31933 SH3	MCC-38	49	VC	68'-0"	THERMAL OVERLOAD CONTACT	
					LOCAL AT FAN	START, STOP	VC	95'-0"	PUSHBUTTONS	
** 32CRFU	HVAC	5	10	9321-F-40223	LOCAL	43	VC	68'-0"	REMOTE-LOCAL TRANS SW	
				5006971 SH78	LOCAL	START, STOP	VC	68'-0"	PUSHBUTTONS	
					SAFEGUARD CAB G2	2/CRF2	CB	53'-0"	AGA2412PD TIME DEL ALM REL	
					SAFEGUARD CAB G1	27-2A/X2	CB	53'-0"	BFD-120S	
					SB2F CNTRL BOARD	74	CB	53'-0"	BFD-20S ALM RELAY	
					480 SWGR 31	3-1/2A	CB	15'-0"	BFD-120S	
					SB2F CNTRL BOARD	1/CRF2	CCR	53'-0"	STOP-AUTO-START SW	
** 32ETEF	HVAC	5	9	9321-LL-31263 SH1-3	SPVSRY PNL SL	1/F32	CB	53'-0"	STOP-AUTO-START 3 POS.MAINT.	
				9321-F-31313 SH22	SPVSRY PNL SL	43L/F32	CCR	53'-0"	FAN11/FAN12 SEL SW	
				9321-F-31403 SH19	SPVSRY PNL SL	74-2	CCR	53'-0"	ALARM RELAY	
					DELUGE SYS CNTRL PNL	R2	PP	65'-0"	BFD22S RELAY	
					DELUGE SYS CNTRL PNL	1/F32-2	PP	65'-0"	AUTO/RUN SWITCH	
					DELUGE SYS CNTRL PNL	1X	PP	65'-0"	DELUGE SYS CONTACT	
					DELUGE SYS CNTRL PNL	R1	PP	65'-0"	BFD22S RELAY	
					MCC-36B	49	PP	65'-0"	THERMAL ELEMENT	
					MCC-36B	42	PA	55'-0"	MOTOR STARTER CONTACTS	

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					MCC-36B	42a, 42b	PP	65'-0"	MOTOR STARTER AUX.CONTACTS	
					DELUGE SYS CNTRL PNL	2X	PP	65'-0"	DELUGE SYS CONTACT	
** 33CRDF	HVAC	5	9	9321-F-40223	PANEL SL	1/CRCF3 (o,sc,c)	CB	53'-0"	PULL-START-AUTO-STOP	
				9321-LL-31283 SH3	MCC-38	42, 42a, 42b	VC	68'-0"	MOTOR STARTER CONTACTS	
				9321-F-31933	LOCAL AT FAN	START, STOP	VC	95'-0"	PUSHBUTTONS	
					MCC-28	49	VC	68'-0"	THERMAL OVERLOAD CONTACT	
** 33CRFU	HVAC	5	10	9321-F-40223	LOCAL	START, STOP	CB	68'-0"	PUSHBUTTONS	
				5008971 SH47	LOCAL	43	CB	69'-0"	REMOTE-LOCAL TRANS SW	
					SAFEGUARD CAB G1	2/CRF3	CCR	53'-0"	AGA2412PD TIME DEL ALM REL	
					SB2F CNTRL BOARD	1/CRF3	CB	53'-0"	STOP-AUTO-START SW	
					480V SWGR 31	27-5A/X3	CB	15'-0"	BFD-64S	
					480V SWGR 31	3-1/5A	CB	15'-0"	BFD-120S	
					SB2F CNTRL BOARD	74	CCR	53'-0"	BFD-20S ALARM RELAY	
** 33ETEF	HVAC	5	9	9321-LL-31263 SH6	SPVSRY PNL SL	1/F33	CB	53'-0"	STOP-AUTO-START SWITCH	
				9321-F-31313 SH22	SPVSRY PNL SL	74-1	CB	53'-0"	ALARM RELAY	
				9321-F-31403 SH19	DELUGE SYS CNTRL PNL	P3	PP	65'-0"	AUX.RELAY	
					DELUGE SYS CNTRL PNL	R4	PP	65'-0"	AUX.RELAY	
					DELUGE SYS CNTRL PNL	3X	PP	65'-0"	DELUGE SYS CONTACT	
					DELUGE SYS CNTRL PNL	4X	PP	65'-0"	DELUGE SYS CONTACT	
					SPVSRY PNL-SL	43u/F33	CB	53'-0"	FAN 33/34 SEL SW	
					MCC-36A	49	PA	55'-0"	THERMAL DEVICE	
					MCC-36A	42	PA	55'-0"	MOTOR STARTER CONTACTS	
					MCC-36A	42a, 42b	PA	55'-0"	MOTOR STARTER AUX.CONTACTS	
					DELUGE SYS.CNTRL.PNL.	1/F33-2	PP	65'-0"	AUTO/RUN SW	
** 34CRDF	HVAC	5		9321-F-40223	PANEL SL	1/CRCF4 (o,sc,c)	CCR	53'-0"	SELECTOR SWITCH	
				9321-LL-31283 SH1	MCC-38	42, 42a, 42b	CB	68'-0"	MOTOR STARTER CONTACTS	
				9321-F-31935	LOCAL AT FAN	START, STOP	CB	95'-0"	PUSHBUTTONS	
					MCC-38	49	CB	68'-0"	THERMAL OVERLOAD CONTACT	
** 34CRFU	HVAC	5		9321-F-40223	LOCAL	43	CB	68'-0"	"REMOTE-LOCAL" MAN TRANS SW	
				5008971 SH48	SB2F CNTRL BOARD	1/CRF4	CCR	53'-0"	"STOP-AUTO-START" MAN SW	
					SAFEGUARD CAB G1	27-3A/X13	CCR	53'-0"	BFD-120S	
					SB2F CNTRL BOARD	74	CCR	53'-0"	BFD-20S ALARM RELAY	
					480V SWGR 31	27-3A/X2	CB	15'-0"	BFD-120S	
					480V SWGR 31	2/CRF4	CB	53'-0"	AGA2412PD TD ALM RELAY	

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** 34ETEF										
	HVAC	5	9	9321-LL-31263 SH7	SPVSRY PNL-SL	1/F34	CB	53'-0"	STOP-AUTO-START SW	
				9321-F-31313 SH22	SPVSRY PNL-SL	74-2	CB	53'-0"	ALARM RELAY	
				9321-F-31403 SH19	DELUGE SYS CNTRL PNL	R3	PP	65'-0"	AUX.RELAY	
					DELUGE SYS CNTRL PNL	R4	PP	65'-0"	AUX.RELAY	
					DELUGE SYS CNTRL PNL	3X	PP	65'-0"	DELUGE SYS.CONTACT	
					DELUGE SYS CNTRL PNL	4X	PP	65'-0"	DELUGE SYS.CONTACT	
					SPVSRY PNL-SL	43u/F34	CB	53'-0"	FAN 33/34 SEL SW	
					MCC-36B	49	PA	55'-0"	THERMAL DEVICE	
					MCC-36B	42	PA	55'-0"	MOTOR STARTER CONTACTS	
					MCC-36B	42a, 42b	PA	55'-0"	MOTOR STARTER AUX.CONTACTS	
					DELUGE SYS CNTRL PNL	1/F34-2	PP	65'-0"	AUTO/RUN SW	
** 35CRFU										
	HVAC	5		9321-F-40223	LOCAL	START, STOP	CB	68'-0"	PUSHBUTTONS	
				5008971 SH79	LOCAL	43	CB	68'-0"	"REMOTE-LOCAL" TRANS RW	
					480V SWGR 32	3-1/6A	CB	15'-0"	CV RLY	
					SAFEGUARD CAB G2	2/CRFS	CCR	53'-0"	AGA2412PD TO ALM RELAY	
					480V SWGR 32	27-6A/X2	CB	15'-0"	SG	
** ACF31										
	HVAC	5	10	9321-LL-31263 SH11	LOCAL A/C PNL	33-D1/OPEN	CB	15'-0"		
					ACU31	42/ACF31	CB	15'-0"		
					ACU31	30L1	CB	15'-0"		
					ACU31	30L2	CB	15'-0"		
					ACU31	30L3	CB	15'-0"		
					ACU31	BF1	CB	15'-0"		
					ACU31	43-ACF31/H-O-A	CB	15'-0"		
					ACU31	2-ACF31/T-D-O	CB	15'-0"		
					ACU31	2-ACF31	CB	15'-0"		
					LOCAL A/C PNL	20-D1	CB	15'-0"		
					ACU31	42a,o	CB	15'-0"		
					ACU31	3/ACC31A	CB	15'-0"	AUX.RLY.BF-22F	
					ACU31	3/ACC31B	CB	15'-0"	AUX.RLY.BF-22F	
					ACU31	RF	CB	15'-0"		
					ACU31	RF1	CB	15'-0"	AUX.RLY.BF-22F	
					ACU31	43C/L	CB	15'-0"		
					ACU31	BYPASS IL	CB	15'-0"		
					REMOTE A/C PNL	BYPASS IR	CB	53'-0"		
					ACU31	43C/R	CB	15'-0"		
					ACU31	42/ACI31A	CB	15'-0"		
					ACU31	42/ACC31B	CB	15'-0"		
** ACF32										
	HVAC	5	10	9321-LL-31263 SH13	LOCAL A/C PNL	33-02/OPEN	CB	15'-0"		
					ACU32	42/ACF32	CB	15'-0"		

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					ACU32	30L1	CB	15'-0"		
					ACU32	30L2	CB	15'-0"		
					ACU32	30L3	CB	15'-0"		
					ACU32	RF2	CB	15'-0"		
					ACU32	43-ACF32/H-O-A	CB	15'-0"		
					ACU32	2-ACF32/T-D-O	CB	15'-0"		
					ACU32	2-ACF32	CB	15'-0"		
					LOCAL A/C PNL	20-D2	CB	15'-0"		
					ACU32	42a,o	CB	15'-0"		
					ACU32	3/ACC32A	CB	15'-0"	AUX.RLY.BF-22F	
					ACU32	3/ACC32B	CB	15'-0"	AUX.RLY.BF-22F	
					ACU32	RF	CB	15'-0"		
					ACU32	RF2	CB	15'-0"	AUX.RLY.BF-22F	
					ACU32	432	CB	15'-0"	AUX.RLY.BF-22F	
					ACU32	43C/L	CB	15'-0"		
					ACU32	BYPASS 2L	CB	15'-0"		
					REMOTE A/C PNL	BYPASS 2R	CB	53'-0"		
					ACU32	43C/R	CB	15'-0"		
					ACU32	42/ACI32A	CB	15'-0"		
					ACU32	42/ACC32B	CB	15'-0"		
** ACU31										
	HVAC	5	10	9321-LL-31263 SH9-16A	ACU31	1RR3	CB	15'-0"	RESET RLY	
				9321-F-40593	ACU31	10L1	CB	15'-0"	RESET RLY	
				9321-F-41023	ACU31	1CT	CB	15'-0"	COMP.TOTAL	
					ACU31	1HIP	CB	15'-0"	HI PRESS.CUT OUT	
					ACU31	1LOP	CB	15'-0"	LO PRESS.CUT OUT	
					ACU31	10L2	CB	15'-0"		
					ACU31	1RR	CB	15'-0"	RESET RELAY	
					ACU31	2RR3	CB	15'-0"	RESET RELAY	
					ACU31	20L1	CB	15'-0"		
					ACU31	2CT	CB	15'-0"	COMP.TOTAL	
					ACU31	2HIP	CB	15'-0"	HI PRESS CUT OUT	
					ACU31	2LOP	CB	15'-0"	LO PRESS CUT OUT	
					ACU31	20L2	CB	15'-0"		
					ACU31	2RR	CB	15'-0"	RESET RELAY	
					ACU31	1CR Inst	CB	15'-0"		
					ACU31	1RR2	CB	15'-0"	RESET RELAY	
					ACU31	42/ACC31A	CB	15'-0"	AC SW ON/OFF	
					ACU31	42/ACF31	CB	15'-0"	MOTOR STARTER	
					ACU31	2CR Inst	CB	15'-0"		
					ACU31	2RR2	CB	15'-0"	RESET RELAY	
					ACU31	42/ACC31B	CB	15'-0"	MOTOR STARTER	
					LOCAL CNTRL PNL	43/ACC31A	CB	15'-0"	ON/OFF SW	
					LOCAL CNTRL PNL	43/ACC31B	CB	15'-0"	ON/OFF SW	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					ACU31	1CR	CB	15'-0"	TIME DLY RLY AGA 2412	
					ACU31	2CR	CB	15'-0"	TIME DLY RLY AGA 2412	
					ACU31	1st STG.COOL.	CB	15'-0"		
					ACU31	2nd STG.COOL.	CB	15'-0"		
** ACU32	HVAC	5	10	9321-LL-31263 SH9-16A	ACU32	1RR3	CB	15'-0"	RESET RELAY	
				9321-F-40593	ACU32	10L1	CB	15'-0"		
				9321-F-41023	ACU32	1CT	CB	15'-0"	COMP.TOTAL	
					ACU32	1HIP	CB	15'-0"	HI PRESS.CUT OUT	
					ACU32	1LOP	CB	15'-0"	LO PRESS.CUT OUT	
					ACU32	10L2	CB	15'-0"		
					ACU32	1RR	CB	15'-0"	RESET RELAY	
					ACU32	2RR3	CB	15'-0"	RESET RELAY	
					ACU32	20L1	CB	15'-0"		
					ACU32	2CT	CB	15'-0"	COMP.TOTAL	
					ACU32	2HIP	CB	15'-0"	HI PRESS.CUT OUT	
					ACU32	2LOP	CB	15'-0"	LO PRESS.CUT OUT	
					ACU32	20L2	CB	15'-0"		
					ACU32	2RR	CB	15'-0"	RESET RELAY	
					ACU32	1CR Inst	CB	15'-0"		
					ACU32	1RR2	CB	15'-0"	RESET RELAY	
					ACU32	42/ACC32A	CB	15'-0"	MOTOR STARTER	
					ACU32	42/ACF32	CB	15'-0"	MOTOR STARTER	
					ACU32	2/CR Inst	CB	15'-0"		
					ACU32	2RR2	CB	15'-0"	RESET RELAY	
					ACU32	42/ACC32B	CB	15'-0"	MOTOR STARTER	
					LOCAL CNTRL PNL	43/ACC32A	CB	15'-0"	ON/OFF.	
					LOCAL CNTRL PNL	43/ACC32B	CB	15'-0"	ON/OFF	
					ACU31	1CR	CB	15'-0"	TIME DLY RLY AGA 2412	
					ACU31	2CR	CB	15'-0"	TIME DLY RLY AGA 2412	
					ACU31	1st STG.COOL	CB	15'-0"		
					ACU31	2nd STG.COOL	CB	15'-0"		
** DG-31VL	HVAC	5	9	9321-LL-31333 SH14		42a/EF14	DG		MOTOR STARTER EXH.DMPR.	
				9321-F-41023		42a/EF15	DG		MOTOR STARTER EXH.DMPR.	
					DG CNTRL BOARD	CVX/EG1	DG	15'-0"		
						20EF4	DG		EXH.DMPR.	
						EP2	DG		EXH.DMPR.	
						EP2a	DG		EXH.DMPR.	
						20IL-1	DG		INLET LOUVER	
** DG-32VL	HVAC	5	9	9321-LL-31333 SH14		42a/EF16	DG		MOTOR STARTER EXH.DMPR.	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
				9321-F-41023		42a/EF17	DG		MOTOR STARTER EXH.DMPR.	
					DG CNTRL BOARD	CVX/EG2	DG	15'-0"		
						20EF6	DG		EXH.DMPR.	
						EP2	DG		EXH.DMPR.	
						EP2a	DG		EXH.DMPR.	
						20IL-2	DG		INLET LOUVER	
** DG-20VL										
	HVAC	5	9	9321-LL-31333 SH14		42a/EF18	DG		MOTOR STARTER EXH.DMPR.	
				9321-F-41023		42a/EF19	DG		MOTOR STARTER EXH.DMPR.	
					DG CNTRL BOARD	CVX/EG3	DG	15'-0"		
						20EF8	DG		EXH.DMPR.	
						EP-2	DG		EXH.DMPR.	
						EP-2a	DG		EXH.DMPR.	
						20IL-3	DG		INLET LOUVER	
** F-216										
	HVAC	5	9	9321-LL-31333 SH8,9A	LOCAL	23-4	DG	15'-0"	TEMP.CNTRL.	
					MCC-36A	42	PA	55'-0"	MOTOR STARTER	
					MCC-36A	42(a,b)	PA	55'-0"		
					MCC-36A	49	PA	55'-0"	THERMAL OVERLOAD	
** F-215										
	HVAC	5	9	9321-LL-31333 SH10,11A	LOCAL	23-5	DG	15'-0"	TEMP.CNTRL.	
					MCC-36B	42	PA	55'-0"	MOTOR STARTER	
					MCC-36B	42(a,b)	PA	55'-0"		
					MCC-36B	49	PA	55'-0"	THERMAL OVERLOAD	
** F-216										
	HVAC	5	9	9321-LL-31333 SH8,9A	LOCAL	23-6	DG	15'-0"		
					MCC-36A	42	PA	55'-0"		
					MCC-36A	42(a,b)	PA	55'-0"		
					MCC-36A	49	PA	55'-0"		
** F-217										
	HVAC	5	9	9321-LL-31333 SH10,11A	LOCAL	23-7	DG	15'-0"		
					MCC-36B	42	PA	55'-0"		
					MCC-36B	42(a,b)	PA	55'-0"		
					MCC-36B	49	PA	55'-0"		
** F-318										
	HVAC	5	9	9321-LL-31333 SH8,9A	LOCAL	23-8	DG	15'-0"		

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IF-2
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					MCC-36A	42	PA	55'-0"		
					MCC-36A	42(a,b)	PA	55'-0"		
					MCC-36A	49	PA	55'-0"		
** F-219	HVAC	5	9	9321-LL-31333 SH10.11A	LOCAL	22-9	DG	15'-0"		
					MCC-36B	42	PA	55'-0"		
					MCC-36B	42(a,b)	PA	55'-0"		
					MCC-36B	49	PA	55'-0"		
** [illegible]	34	5	12	9321-LL-31293 SHT 2	LOCAL CMPR CTRL PNL	1/1AC31	CB	15'-0"	"HAND-OFF-AUTO" manual switch	
					LOCAL CMPR CTRL PNL	63-2	CB	15'-0"	PC-1164S	
					LOCAL CMPR CTRL PNL	63-1	CB	15'-0"	PC-1162S	
					LOCAL CMPR CTRL PNL	TD	CB	15'-0"	Time Delay Rly	
					LOCAL AT COMPRESSOR	23-1	CB	15'-0"	TC-1104S	
					LOCAL AT COMPRESSOR	23-2	CB	15'-0"	TC-1106S	
					MCC-39 COMPT.3M	42, 42a, 42b	CB	33'-0"	MOTOR STARTER CONTACTS	
					MCC-39 COMPT.3M	49	CB	33'-0"	THERMAL OVERLOAD CONTACT	
** [illegible]	34	5	12	9321-LL-31243 SHT 10	LOCAL CMPR CTRL PNL	1/1AC32	CB	15'-0"	"HAND-OFF-AUTO" manual switch	
					LOCAL CMPR CTRL PNL	63-2	CB	15'-0"	PC-1165S	
					LOCAL CMPR CTRL PNL	63-1	CB	15'-0"	PC-1163S	
					LOCAL CMPR CTRL PNL	TD	CB	15'-0"	Time Delay Rly	
					LOCAL AT COMPRESSOR	23-1	CB	15'-0"	TC-1105S	
					LOCAL AT COMPRESSOR	23-2	CB	15'-0"	TC-1107S	
					MCC-34	42, 42a, 42b	TB	33'-0"	MOTOR STARTER CONTACTS	
					MCC-39 COMPT.3M	49	TB	33'-0"	THERMAL OVERLOAD CONTACT	
** [illegible]	34	5	12	9321-F-20363 9321-LL-31293 SH2	LOCAL AT COMPRESSOR	23-1	CB	15'-0"	TC-1104S	
					MCC-39	42, 42a, 42b	CB	33'-0"	MOTOR STARTER CONTACTS	
					LOCAL COMPR.CNTRL.PNL.	1/1AC31	CB	15'-0"	HAND-OFF-AUTO SWITCH	
					LOCAL AT COMPRESSOR	23-2	CB	15'-0"	TC-1106S	
					MCC-39	49	CB	33'-0"	THERMAL OVERLOAD CONTACT	
						63-2	CB	15'-0"	PC-1164S PRESS SW	
						63-1	CB	15'-0"	PC-1162S PRESS SW	
						74	CB	15'-0"	ALARM RELAY	
						20-1	CB	15'-0"	SOV-1178	
						20-2	CB	15'-0"	SOV-1199	
** [illegible]	34	5	12	9321-F-2036	LOCAL COMP.CNTRL.PNL.	1/1AC32	CB	15'-0"	HAND-OFF-AUTO SW	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
				9321-LL-31243 SH10	LOCAL AT COMPRESSOR	23-1	CB	15'-0"	TC-1105S TEMP SW	
					LOCAL AT COMPRESSOR	23-2	CB	15'-0"	TC-1107S TEMP SW	
					MCC-34	42, 42a, 42b	T/GB	15'-0"	MOTOR STARTER CONTACTS	
					MCC-34	49	T/GB	15'-0"	THERMAL OVERLOAD CONTACT	
						63-2	CB	15'-0"	PC-1165S PRESS SW	
						63-1	CB	15'-0"	PC-1163S PRESS SW	
						74	CB	15'-0"	ALARM RELAY	
						20-1	CB	15'-0"	SOV-1178	
						20-2	CB	15'-0"	SOV-1199	
** 0021CLWP	IACC	5	5	9321-LL-31293 SHT 5	IACC CIRC PMP CONT STA.	1/CSP21	CB	15'-0"	"ON-OFF-STANDBY" manual switch	
					IACC CIRC PMP CONT STA.	1/CSP22	CB	15'-0"	"ON-OFF-STANDBY" manual switch	
					MCC-29, COMPT. 4K	42, 42a, 42b	CB	33'-0"	motor starter contacts	
					MCC-29, COMPT. 4K	49	CB	33'-0"	thermal element	
					MCC-34	42b/CSP22	TB	15'-0"	motor starter contact	
					LOCAL AT 0022CLWP	63/CSP22	CB	15'-0"	press. rly. PC-1174S	
					LOCAL AT 0022CLWP	63/CSP	CB	15'-0"	press. rly. PC-1177S	
** 0022CLWP	IACC	5	5	9321-LL-31243 SHT 11	IACC CIRC PMP CONT STA.	1,CSP31	CB	15'-0"	"ON-OFF-STANDBY" manual switch	
					IACC CIRC PMP CONT STA.	1/CSP32	CB	15'-0"	"ON-OFF-STANDBY" manual switch	
					MCC-34	42, 42a, 42b	TB	15'-0"	motor starter contacts	
					MCC-34	49	TB	15'-0"	thermal element	
					MCC-29	42b/CSP31	CB	33'-0"	motor starter contact	
					LOCAL AT 0021CLWP	63/CSP31	CB	15'-0"	press. rly. PC-1173S	
** 21CLWP	IACC	5	5	9321-F-2722	LOCAL PUMP CNTRL STA	1/CSP21	CB	15'-0"	ON-OFF-STANDBY SW	
				A249955	MCC-29	42, 42a, 42b	CB	33'-0"	MOTOR STARTER CONTACTS	
				9321-LL-3129 SH5	LOCAL PUMP CONT STA	1/CSP22	CB	15'-0"	ON-OFF-STANDBY SW	
					MCC-29	49	CB	33'-0"	THERMAL ELEMENT	
					MCC-24	42b/CSP22	T/GB	15'-0"	MOTOR STARTER CONTACT	
					LOCAL AT 0022CLWP	63/CSP22	CB	15'-0"	PRESS RLY PC-1174S	
					LOCAL AT 0022CLWP	63/CSP	CB	15'-0"	PRESS RLY PC-1177S	
** 22CLWP	IACC	5	5	9321-F-2722	LOCAL PUMP CNTRL STA	1/CSP21			ON-OFF-STANDBY SW	
				9321-LL-3124 SH11	LOCAL PUMP CNTRL STA	1/CSP22			ON-OFF-STANDBY SW	
					MCC-24	42, 42a, 42b	T/GB	15'-0"	MOTOR STARTER CONTACTS	
					MCC-24	49	T/GB	15'-0"	THERMAL ELEMENT	
					MCC-29	42b/CSP21	CB	33'-0"	MOTOR STARTER CONTACT	
					LOCAL AT 0021CLWP	63/CSP21			PRESS RLY PC-1173S	

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** SOV-1177										
	IACC	5	EB	9321-F-2036	LOCAL	1/IAC21			HAND-OFF-AUTO MAN SWITCH	
				9321-LL-31129 SH2	LOCAL	23-1			TC-1104S	
					LOCAL	23-2			TC-1106S	
					MCC-29	42, 42a, 42b	CB	33'-0"	MOTOR STARTER CONTACTS	
					MCC-29	49	CB	33'-0"	THERMAL OVERLOAD CONTACT	
					MCC-29	63-2	CB	33'-0"	PC-1164S	
					MCC-29	63-1	CB	33'-0"	PC-1162S	
** SOV-1178										
	IACC	5	EB	9321-F-2036	LOCAL	1/IAC22			HAND-OFF-AUTO MAN SW	
				9321-LL-31243 SH10	LOCAL	23-1			TC-1105S	
					LOCAL	23-2			TC-1107S	
					MCC-24	42, 42a, 42b	T/GB	15'-0"	MOTOR STARTER CONTACTS	
					MCC-24	49	T/GB	15'-0"	THERMAL OVERLOAD CONTACT	
					MCC-24	63-2	T/GB	15'-0"	PC-1165S	
					MCC-24	63-1	T/GB	15'-0"	PC-1163S	
** PCV-1141										
	IA	5	7	9321-F-70483,-20363	AIR SUPERVISORY PANEL	TD1X	CB	53'-0"	ABLX RELAY BF40F	
				9321-F-31313 SH5,	AIR SUPERVISORY PANEL	TD1	CB	53'-0"	TD RELAY ACA 2422	
				9321-F-31293 SH2,	CONTROL BUILDING	33-2/5A-AC	CB	53'-0"	VALVE LIMIT SWITCHES	
				9321-F-31173 SH11,	CONTROL BUILDING	33-2/5A-BO	CB	53'-0"	VALVE LIMIT SWITCHES	
				9321-F-31243 SH10	CONTROL BUILDING	63-2/5A (PC11685)	CB	53'-0"	PRESSURE SWITCH	
					480V SWGR #31	52B-52/SAC	CB	15'-0"	SRVC AIR COMPR.BRKR.SWTCHS.	
					480V SWGR #31	H-52/SAC	CB	15'-0"	SRVC AIR COMPR.BRKR.SWTCHS.	
					480V MCC 34	42B/IAC 32			MCC CONTACTOR RELAY	
					480V MCC 39	42B/IAC 31			MCC CONTACTOR RELAY	
** PCV-1142										
	IA	5	7	9321-F-70483,-20363	AIR SUPERVISORY PANEL	TD1X	CB	53'-0"	ABLX RELAY BF40F	
				9321-LL-31313 SH5,	AIR SUPERVISORY PANEL	TD1	CB	53'-0"	TD RELAY ACA 2422	
				9321-LL-31293 SH2,	CONTROL BUILDING	33-1/IA-AC	CB	53'-0"	VALVE LIMIT SWITCHES	
				9321-LL-31173 SH11,	CONTROL BUILDING	33-1/IA-BO	CB	53'-0"	VALVE LIMIT SWITCHES	
				9321-LL-31243 SH10	CONTROL BUILDING	63-1/IA (PC11685)	CB	53'-0"	PRESSURE SWITCH	
					480V SWGR #31	52B-52/SAC	CB	15'-0"	SRVC AIR COMPR.BRKR.SWTCHS.	
					480V SWGR #31	H-52/SAC	CB	15'-0"	SRVC AIR COMPR.BRKR.SWTCHS.	
					480V MCC 34	42B/IAC 32			MCC CONTACTOR RELAY	
					480V MCC 39	42B/IAC 31			MCC CONTACTOR RELAY	
** PCV-1142										
	IA	5	7	9321-F-70483,-20363	CNTRL RM/AIR SUPR.PNL	TD1X	CB	53'-0"	ABLX RELAY BF40F	
				9321-LL-31313 SH5	CNTRL RM/AIR SUPR.PNL	TD1	CB	53'-0"	TD RELAY ACA 2422	
				9321-LL-31293 SH2	CONTROL BUILDING	33-2/IA-AC	CB	53'-0"	VALVE LIMIT SWITCHES	
				9321-LL-31173 SH11	CONTROL BUILDING	33-2/IA-BO	CB	53'-0"	VALVE LIMIT SWITCHES	

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SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
				9321-LL-31243 SH10	CONTROL ROOM	63-2/IA (PC11705)	CB	53'-0"	PRESSURE SWITCH	
					480V SWGR #31	52B-52/SAC	CB	15'-0"	SRVC AIR COMPR.BRKR.SWTCHS.	
					480V SWGR #31	H-52/SAC	CB	15'-0"	SRVC AIR COMPR.BRKR.SWTCHS.	
					480V MCC 34	42B/IAC 32			MCC CONTACTOR RELAY	
					480V MCC 39	42B/IAC 31			MCC CONTACTOR RELAY	
** SOV-1177										
	IA		B	9321-LL-31793 SH2	LCL COMPR.CNTRL.PNL	1/IAC21	CB	15'-0"	H-O-A MANUAL SWITCH	
					LOCAL @ COMPRESSOR	TC-1104S	CB	15'-0"	TC-1104S	
					LOCAL @ COMPRESSOR	TC-1106S	CB	15'-0"	TC-1106S	
					MCC-29	42, 42a, 42b	CB	33'-0"	MOTOR STARTER CONTACTS	
					MCC-29	49	CB	33'-0"	THERMAL OVERLOAD CONTACT	
					LCL COMPR.CNTRL.PNL.	63-2	CB	15'-0"	PC-1164S	
					LCL COMPR.CNTRL.PNL.	63-1	CB	15'-0"	PC-1163S	
					LCL COMPR.CNTRL.PNL.	TD	CB	15'-0"	TIME DELAY RELAY	
** SOV-1178										
	IA		B	9321-LL-31243 SH10	LCL COMPR.CNTRL.PNL.	1/IAC22	CB	15'-0"	H-O-A MANUAL SWITCH	
					LCL COMPR.CNTRL.PNL.	TD	CB	15'-0"	TIME DELAY RELAY	
					LCL COMPR.CNTRL.PNL.	63-2	CB	15'-0"	PC-1165S	
					LCL COMPR.CNTRL.PNL.	63-1	CB	15'-0"	PC-1163S	
					LOCAL @ COMPRESSOR	23-1	CB	15'-0"	TC-1105S	
					LOCAL @ COMPRESSOR	23-2	CB	15'-0"	TC-1107S	
					MCC-24	42, 42a, 42b	TB	15'-0"	MOTOR STARTER CONTACTS	
					MCC-24	49	TB	15'-0"	THERMAL OVERLOAD CONTACT	
** SOV-1198										
	IA		B	9321-LL-31293 SH2	LCL.COMPR.CNTRL.PNL.	1/IAC21			H-O-A MANUAL SWITCH	
					LCL.COMPR.CNTRL.PNL.	TD			TIME DELAY RELAY	
					LCL.COMPR.CNTRL.PNL.	63-2			PC-1164S	
					LCL.COMPR.CNTRL.PNL.	63-1			PC-1163S	
					LOCAL @ COMPRESSOR	23-1	CB	15'-0"	TC-1104S	
					LOCAL @ COMPRESSOR	23-2	CB	15'-0"	TC-1106S	
					MCC-29	42, 42a, 42b	CB	33'-0"	MOTOR STARTER CONTACTS	
					MCC-29	49	CB	33'-0"	THERMAL OVERLOAD CONTACT	
** SOV-1199										
	IA		B	9321-LL-31243 SH10	LCL.COMPR.CNTRL.PNL.	1/IAC22	CB	15'-0"	H-O-A MANUAL SWITCH	
					LCL.COMPR.CNTRL.PNL.	TD	CB	15'-0"	TIME DELAY RELAY	
					LCL.COMPR.CNTRL.PNL.	63-2	CB	15'-0"	PC-1165S	
					LCL.COMPR.CNTRL.PNL.	63-1	CB	15'-0"	PC-1163S	
					LOCAL @ COMPRESSOR	23-1	CB	15'-0"	TC-1105S	
					LOCAL @ COMPRESSOR	23-2	CB	15'-0"	TC-1107S	
					MCC-34	42, 42a, 42b	TB	15'-0"	MOTOR STARTER CONTACTS	
					MCC-34	49	TB	15'-0"	THERMAL OVERLOAD CONTACT	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
** SOV-1428										
	IA	5	8B	9321-F-2036		1/IA1V	CCR	53'-0"	CLOSE-OPEN SWITCH	
				C208414	RACK 7	C-A23X	CCR	53'-0"	BFD-48S RELAY	
				9321-LL-3131 SH19	RACK E8	C-A13X	CCR	53'-0"	BFD-48S RELAY	
				110E089 SH1-6	RACK E8	C-A13X	CCR	53'-0"	BFD-48S RELAY	
					VALVE MTD.	33-7/bo, 33-7/bc			VALVE POSITION SWITCHES	
	IA	5	8	113E303 SH6	SUPERVIS.PNL.SHR.	IR28	CB	53'-0"	AUX.RELAY (WESTINGHSE)	
				113E303 SH8	SUPERVIS.PNL.SMF.	PB28	CB	53'-0"	PUSH BUTTON	
				9321-LL-31313 SH19	SUPERVIS.PNL.SN.	1/IA1V	CB	53'-0"	CLOSE-OPEN SWITCH	
					SAFEGUARD CAB G4	C-A13X	CB	53'-0"	BFD-48S RELAY	
					SAFEGUARD CAB G6	C-A23X	CB	53'-0"	BFD-48S RELAY	
					LOCAL AT VALVE	33-7 (ac,bo,bc)	PP	41'-0"	VALVE POSITION SWITCHES	
** MS-1-31										
	MS	4	7	9321-F-20173,-70093	RACK G-6	MS11	CB	53'-0"	AUX RLY WHSE BFD66S	
				9321-F-31313 SH.21	RACK G-4	MS1	CB	53'-0"	AUX RLY WHSE BFD66S	
				113E303 SH. 5	PANEL SB	SEL. SW. 1/MS-1-31	CB	53'-0"	"TRIP-AUTO-RESET" SPRING RETURN TO AUTO	
				113E303 SH. 8						
** MS-1-32										
	MS	4	7	9321-F-20173,-70093	RACK G-6	MS12	CB	53'-0"	AUX RLY WHSE BFD66S	
				9321-F-31313 SH.21	RACK G-4	MS2	CB	53'-0"	AUX RLY WHSE BFD66S	
				113E303 SH. 5	PANEL SB	SEL. SW. 1/MS-1-32	CB	53'-0"	"TRIP-AUTO-RESET" SPRING RETURN TO AUTO	
				113E303 SH. 8						
** MS-1-33										
	MS	4	7	9321-F-20173,-70093	RACK G-6	MS13	CB	53'-0"	AUX RLY WHSE BFD66S	
				9321-F-31313 SH.21	RACK G-4	MS3	CB	53'-0"	AUX RLY WHSE BFD66S	
				113E303 SH. 5	PANEL SB	SEL. SW. 1/MS-1-33	CB	53'-0"	"TRIP-AUTO-RESET" SPRING RETURN TO AUTO	
				113E303 SH. 8						
** MS-1-34										
	MS	4	7	9321-F-20173,-70093	RACK G-6	MS14	CB	53'-0"	AUX RLY WHSE BFD66S	
				9321-F-31313 SH.21	RACK G-4	MS4	CB	53'-0"	AUX RLY WHSE BFD66S	
				113E303 SH. 5	PANEL SB	SEL. SW. 1/MS-1-34	CB	53'-0"	"TRIP-AUTO-RESET" SPRING RETURN TO AUTO	
				113E303 SH. 8						
** PCV-1310A										
	MS	4	7	9321-F-20173	PANEL SC	1/AFPS1	CB	53'-0"	CONTROL SW. "OPEN/CLOSE"	
				9321-LL-31313 SH.29	PANEL SC	TC-1113A/X	CB	53'-0"	AUX RLY	
					LOCAL AT EQUIPMENT	TC-1112A	AB	30'-0"	TEMP CONTROLLER	

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** PCV-1310B										
	MS	4	7	9321-F-20173	PANEL SC	1/AFPSS2	CB	53'-0"	CONTROL SW. "OPEN/CLOSE"	
				9321-LL-31313 SH.29	PANEL SC	TC-1113A/X	CB	53'-0"	AUX RLY	
					LOCAL AT EQUIPMENT	TC-1113A	AB	36'-0"	TEMP CONTROLLER	
** G-1										
		5	18	113E302 SH3,4	RACK G-1	LC-9204/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-9208/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-921/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-934A/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-934B/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-934C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-934D/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-934E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-934F/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-934G/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-934H/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-935A/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-935B/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-935C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-935D/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-935E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-935F/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-935G/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-935H/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-4034/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-9364/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-936B/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-936C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-936D/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-936E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-936F/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-936G/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-936H/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-937A/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-937B/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-937C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-937D/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-937E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-937F/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-937G/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-937H/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	RTAL/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	LC-4171/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-4271/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-4371/X	CB	53'-0"	RELAY BF22F	

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					RACK G-1	LC-447J/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-403B/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	LC-486/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-487/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-492/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-493/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	RCP-31HI/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	RCP-31LO/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	RCP-32HI/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	RCP-32LO/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	RCP-33HI/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	RCP-33LO/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	RCP-34HI/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	RCP-34LO/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-488/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-489/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-490/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	LC-491/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-418C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	FC-418E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	FC-428C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	FC-428E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	FC-438C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	FC-438E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	FC-448C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	FC-448E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	FC-417J/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	FC-427J/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	FC-437J/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	FC-447J/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	1/NC-31A/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	1/NC-32A/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	1/TC-412A/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/TC-422A/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/TC-432A/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/TC-442A/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	NC-32C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-31C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-32H/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-31H/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-35K/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-36K/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-41T/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-42T/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-43T/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-44T/X	CB	53'-0"	RELAY BF22F	

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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					RACK G-1	NC-46B/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NM-31D/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NM-32D/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NM-35C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NM-36C/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NM-41E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NM-42E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NM-43E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NM-44E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NM-37E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-35M/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-36M/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-41L/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	NC-42L/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	NC-43L/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	NC-44L/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/NC-41L/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/NC-42L/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/NC-43L/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/NC-44L/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	TC-411/BX	CB	53'-0"	RELAY BF66F	
					RACK G-1	TC-421/BX	CB	53'-0"	RELAY BF66F	
					RACK G-1	TC-431/BX	CB	53'-0"	RELAY BF66F	
					RACK G-1	TC-441/BX	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/TC-411/BX	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/TC-411/DX	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/TC-421/BX	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/TC-421/DX	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/TC-431/BX	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/TC-431/DX	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/TC-441/BX	CB	53'-0"	RELAY BF66F	
					RACK G-1	1/TC-441/DX	CB	53'-0"	RELAY BF66F	
					RACK G-1	TC-411D/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	TC-421D/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	TC-431D/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	TC-441D/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	TC/D	CB	53'-0"	RELAY BF22F	
					RACK G-1	TC/B	CB	53'-0"	RELAY BF22F	
					RACK G-1	V731-33	CB	53'-0"	RELAY BF22F	
					RACK G-1	V731-33ac/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	S2	CB	53'-0"	RELAY BF66F	
					RACK G-1	NC-35E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	NC-36E/X	CB	53'-0"	RELAY BF22F	
					RACK G-1	PC-412/AX	CB	53'-0"	RELAY BF22F	
					RACK G-1	TC-412A/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	TC-422A/X	CB	53'-0"	RELAY BF66F	

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					RACK G-1	TC-432A/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	TC-442A/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	TURB./B	CB	53'-0"	RELAY BF22F	
					RACK G-1	RC-19/X	CB	53'-0"	RELAY BF66F	
					RACK G-1	RS/1	CB	53'-0"	RELAY BF66F	
					RACK G-1	RSC/1	CB	53'-0"	RELAY BF22F	
					RACK G-1	STO	CB	53'-0"	SYRACUSE ON-OFF TIMER MODEL TFR-210-312	
** G-2										
		5	18	113E302 SH1,2	RACK G-2	LC-459C/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	LC-459E/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	LC-459F/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-459G/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-460C/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	LC-460D/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-470A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-470B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-102A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-402A/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	PC-455F/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	PC-455I/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-455J/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	PC-456F/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	PC-456G/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-457F/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-472?X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-474B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	71-SG1/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	71-SG2/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	71-SG3/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	71-SG4/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	TC-401/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-411F/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	YC-411A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	YC-411B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-412B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-421F/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	YC-421A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	YC-421B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-422B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-431F/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	YC-431A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	YC-431B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-432B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-441F/X	CB	53'-0"	RELAY BF22F	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					RACK G-2	YC-4414/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-412/1-X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-412/K-X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-412/L-X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-412/L-X-2	CB	53'-0"	RELAY BF66F	
					RACK G-2	YC-441E/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-SAT-1	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-442B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-450/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-451/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-452/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-453/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-454/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-463/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-465/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-467/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-469/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-471/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-1064/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-SAT-2	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-412/QX	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-412/RX	CB	53'-0"	RELAY BF22F	
					RACK G-2	P5	CB	53'-0"	RELAY BF66F	
					RACK G-2	FC-134/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-156A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-156B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-1574/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-1576/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-1584/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-1588/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-1594/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-1598/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-601A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-601B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-102/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-106/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-112A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-112B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-112C/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	TC-102/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-107/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-122/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-127/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-129/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-140/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-602A/X	CB	53'-0"	RELAY BF22F	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					RACK G-2	TC-917A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	TC-917E/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-628A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-628B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-629A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	LC-629B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	S1	CB	53'-0"	RELAY BF66F	
					RACK G-2	TUBB.A	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-124/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-131/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-135B/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-139/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-145/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-919/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-402B/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	PC-602E/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-600A/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	PC-600B/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	YC-110/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	YC-111/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-183/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-186/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-187/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-188/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	BSX/1	CB	53'-0"	RELAY BF66F	
					RACK G-2	BSX/2	CB	53'-0"	RELAY BF66F	
					RACK G-2	BSX/3	CB	53'-0"	RELAY BF66F	
					RACK G-2	BSX/4	CB	53'-0"	RELAY BF66F	
					RACK G-2	BSX/4X1	CB	53'-0"	RELAY BF66F	
					RACK G-2	2-BSX/6	CB	53'-0"	AGA TDC 2414 AD	
					RACK G-2	2-BSX/7	CB	53'-0"	AGA TDC 2414 AD	
					RACK G-2	V-730-33ac/X	CB	53'-0"	RELAY BF66F	
					RACK G-2	FC-946A/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-946E/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	PC-947/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-946C/X	CB	53'-0"	RELAY BF22F	
					RACK G-2	FC-946D/X	CB	53'-0"	RELAY BF22F	
** G-3										
		5	1B	113E3C3	RACK G-3	LC-459B/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-455E/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-455C/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-419A/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-419D/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-419A/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-429A/X1	CB	53'-0"	RELAY BF66F	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					RACK G-3	FC-439A/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	FC-449A/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	TC-412D/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	LC-427C/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	LC-437C/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-439C/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-439D/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	TC-412M/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PB/SITR1	CB	53'-0"	PUSHBUTTON	
					RACK G-3	PB/VTR1	CB	53'-0"	PUSHBUTTON	
					RACK G-3	PB/RTT1	CB	53'-0"	PUSHBUTTON	
					RACK G-3	PB/CATR1	CB	53'-0"	PUSHBUTTON	
					RACK G-3	FC-419A/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	FC-429A/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	FC-439A/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	FC-449A/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	TC-412D/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-455C/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	LC-459B/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-455E/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-419D/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-439C/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-419A/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-439D/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	LC-427C/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	LC-437C/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	TC-412M/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-429E/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-429A/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	TC-432D/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-457C/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	LC-461B/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-457E/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-429G/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-429H/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	LC-427E/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	LC-437E/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	LC-417E/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	LC-447E/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-948B/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-949B/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	PC-948E/X1T	CB	53'-0"	TEST SWITCH	
					RACK G-3	LC-461B/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-457E/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-457C/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-429G/X1	CB	53'-0"	RELAY BF66F	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					RACK G-3	PC-429H/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	TC-432D/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-429E/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-433A/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-948E/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-943B/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	PC-949B/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	LC-417E/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	LC-427E/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	LC-437E/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	LC-447E/X1	CB	53'-0"	RELAY BF66F	
					RACK G-3	SI1	CB	53'-0"	MG-6	
					RACK G-3	SI11	CB	53'-0"	MG-6	
					RACK G-3	2-SI-D1	CB	53'-0"	AGA 2412-PE 120 SEC.	
					RACK G-3	SIR1	CB	53'-0"	BFD 66S	
					RACK G-3	SIB1	CB	53'-0"	BFD 66S	
					RACK G-3	SI10X	CB	53'-0"	BFD 75S	
					RACK G-3	SI11X	CB	53'-0"	BFD 120S	
					RACK G-3	SI12X	CB	53'-0"	BFD 48S	
					RACK G-3	SI13X	CB	53'-0"	BFD 48S	
					RACK G-3	F1X	CB	53'-0"	BFD 66S	
					RACK G-3	F2X	CB	53'-0"	BFD 66S	
					RACK G-3	F3X	CB	53'-0"	BFD 66S	
					RACK G-3	F4X	CB	53'-0"	BFD 66S	
					RACK G-3	FWX-3T	CB	53'-0"	BFD 66S	
					RACK G-3	RTX1	CB	53'-0"	BFD 66S	
					RACK G-3	FWX1	CB	53'-0"	BFD 66S	
					RACK G-3	FWX2	CB	53'-0"	BFD 48S	
** G-4										
		5		18 113E303	SAFEGUARDS RACK G-4	LC-460B/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-456E/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-456C/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-429A/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-429C/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	FC-419B/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	FC-429B/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	FC-439B/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	TC-422D/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-949C/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	LC-417C/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	LC-447C/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-419B/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-419E/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PB/STR1	CB	53'-0"	PUSHBUTTON	
					SAFEGUARDS RACK G-4	PB/OBTR1	CB	53'-0"	PUSHBUTTON	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					SAFEGUARDS RACK G-4	PB/T1	CB	53'-0"	PUSHBUTTON	
					SAFEGUARDS RACK G-4	PB/TR1	CB	53'-0"	PUSHBUTTON	
					SAFEGUARDS RACK G-4	1/FW1DA	CB	53'-0"	CONTROL SWITCH	
					SAFEGUARDS RACK G-4	FC-429B/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	FC-419B/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	FC-449B/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	FC-429B/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	TC-422D/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-456C/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	LC-460B/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-456E/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-429A/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-419E/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-419B/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-429C/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	LC-417C/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	LC-447C/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-948C/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-949C/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-948F/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-419G/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-449A/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	TC-442D/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-419C/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-419F/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	LC-427A/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	LC-437A/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	LC-417A/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	LC-447A/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-948A/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-949A/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-948D/X1T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-4	PC-419C/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-419F/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	TC-442D/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-419G/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-449A/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-948D/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-948A/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	PC-949A/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	LC-417A/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	LC-427A/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	LC-437A/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	LC-447A/X1	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-4	C-A1	CB	53'-0"	MG-6	
					SAFEGUARDS RACK G-4	C-A11	CB	53'-0"	MG-6	

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					SAFEGUARDS RACK G-4	S1	CB	53'-0"	MG-6	
					SAFEGUARDS RACK G-4	C-B1	CB	53'-0"	MG-6	
					SAFEGUARDS RACK G-4	V1	CB	53'-0"	MG-6	
					SAFEGUARDS RACK G-4	V1-1X	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	SL1	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	MS1	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	MS2	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	MS3	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	MS4	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	74X1	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	AS1	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	S1-1X	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	CB-1R	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	C-B11X	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	CA-1R	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	C-A11X	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-4	C-A12X	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-4	C-A13X	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-4	C-A14X	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-4	CS-1R	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	74-X3	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-4	TR1-1	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-4	TR2-1	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-4	TR3-1	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-4	C-A15X	CB	53'-0"	GOULD J13F30	
					SAFEGUARDS RACK G-4	62	CB	53'-0"	TDPU 0.5 TO 5 SEC, SET @ 2 SEC.	
** G-5										
		5	18	113E303	SAFEGUARDS RACK G-5	LC-459B/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-455E/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-455C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-419A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-419D/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	FC-419A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	FC-429A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	FC-439A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	FC-449A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	TC-412D/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	LC-427C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	LC-437C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-439C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-439D/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	TC-412M/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PB/SITR2	CB	53'-0"	PUSHBUTTON	
					SAFEGUARDS RACK G-5	PB/UTR2	CB	53'-0"	PUSHBUTTON	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					SAFEGUARDS RACK G-5	PB/RT12	CB	53'-0"	PUSHBUTTON	
					SAFEGUARDS RACK G-5	PB/CATR2	CB	53'-0"	PUSHBUTTON	
					SAFEGUARDS RACK G-5	FC-419A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	FC-429A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	FC-439A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	TC-412D/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-455C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	LC-459B/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-455E/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-419D/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-439C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-419A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-439A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	LC-427C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	LC-437C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	TC-412M/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-429E/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-429A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	TC-432D/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-457C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	LC-461B/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-457E/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-429G/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-429H/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	LC-427E/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	LC-437E/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	LC-417E/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	LC-447E/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-948B/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-949B/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	PC-948E/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-5	LC-461B/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-457E/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-457C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-429G/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-429H/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	TC-432D/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-429E/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-433A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-948E/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-943B/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	PC-949B/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	LC-417E/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	LC-427E/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	LC-437E/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-5	LC-447E/X2	CB	53'-0"	RELAY BF66F	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					SAFEGUARDS RACK G-5	SI2	CB	53'-0"	MG-6	
					SAFEGUARDS RACK G-5	SI12	CB	53'-0"	MG-6	
					SAFEGUARDS RACK G-5	2-SI-D2	CB	53'-0"	AGA 2412-PE 120 SEC.	
					SAFEGUARDS RACK G-5	SIR2	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-5	SIS2	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-5	SI20X	CB	53'-0"	BFD 75S	
					SAFEGUARDS RACK G-5	SI21X	CB	53'-0"	BFD 120S	
					SAFEGUARDS RACK G-5	SI22X	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-5	SI22X	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-5	F11X	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-5	F12X	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-5	F13X	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-5	F14X	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-5	FWX-13T	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-5	RTX11	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-5	FWX11	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-5	FWX12	CB	53'-0"	BFD 48S	
** G-6										
		5		18 113E323	SAFEGUARDS RACK G-6	LC-440B/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-456E/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-456C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-429A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-429C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	FC-419B/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	FC-429B/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	FC-439B/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	FC-449B/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	TC-422D/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-948F/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-948C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-949C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	LC-417C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	LC-447C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-419B/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-419E/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PB/STR2	CB	53'-0"	PUSHBUTTON	
					SAFEGUARDS RACK G-6	PB/CBTR2	CB	53'-0"	PUSHBUTTON	
					SAFEGUARDS RACK G-6	PB/T2	CB	53'-0"	PUSHBUTTON	
					SAFEGUARDS RACK G-6	PB/TR2	CB	53'-0"	PUSHBUTTON	
					SAFEGUARDS RACK G-6	1/FW10B	CB	53'-0"	CONTROL SWITCH	
					SAFEGUARDS RACK G-6	FC-429S/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	FC-419B/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	FC-449B/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	FC-439B/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	TC-422D/X2T	CB	53'-0"	TEST SWITCH	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					SAFEGUARDS RACK G-6	PC-456C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	LC-460B/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-456E/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-429A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-419E/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-419B/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-429C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	LC-417C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	LC-447C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-948C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-949C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-948E/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-419G/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-449A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	TC-442D/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-419C/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-419F/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	LC-427A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	LC-437A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	LC-417A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	LC-447A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-945A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-949A/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-948D/X2T	CB	53'-0"	TEST SWITCH	
					SAFEGUARDS RACK G-6	PC-419C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-419F/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	TC-442D/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-419G/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-449A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-948C/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	PC-949A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	LC-417A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	LC-427A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	LC-437A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	LC-447A/X2	CB	53'-0"	RELAY BF66F	
					SAFEGUARDS RACK G-6	C-A2	CB	53'-0"	MG-6	
					SAFEGUARDS RACK G-6	C-A12	CB	53'-0"	MG-6	
					SAFEGUARDS RACK G-6	S1	CB	53'-0"	MG-6	
					SAFEGUARDS RACK G-6	C-B2	CB	53'-0"	MG-6	
					SAFEGUARDS RACK G-6	V2	CB	53'-0"	MG-6	
					SAFEGUARDS RACK G-6	V2-1X	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	SL2	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	MS11	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	MS12	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	MS13	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	MS14	CB	53'-0"	BFD 66S	

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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					SAFEGUARDS RACK G-6	74X2	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	AS22	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	S2-1X	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	CB-2R	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	C-B21X	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	CA-2R	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	C-A21X	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-6	C-A22X	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-6	C-A23X	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-6	C-A24X	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-6	CS-2R	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	74-X4	CB	53'-0"	BFD 66S	
					SAFEGUARDS RACK G-6	TR1-2	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-6	TR2-2	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-6	TR3-2	CB	53'-0"	BFD 48S	
					SAFEGUARDS RACK G-6	C-A25X	CB	53'-0"	GOULD J13P30	
					SAFEGUARDS RACK G-6	62-1	CB	53'-0"	TDPU 0.5 TO 5 SEC. SET @ 2 SEC.	
** PCV-455C										
	RCS	2	7	5008971 SH 106,124E	PANEL FCF	1/455C	CB	53'-0"	CONTROL SW "CLOSE/AUTO/OPEN" MAINTAINED	
				9321-LL-31373 SH	PANEL FCF	PC-455F/X	CB	53'-0"	AUX RELAY WHSE BF66F	
				16,16A,17,18A	PANEL FCF	PC-474B/X	CB	53'-0"	AUX RELAY WHSE BF22F	
				113E202 SH 1	VALVE PCV-455C	33(ac,bo)	VC	"-124"	CONTROL AUX CONTACTS	
					RACK H-4	OPXB	CB	53'-0"	AUX RLY BF	
					RACK H-4	OPXB2	CB	53'-0"	AUX RLY BF	
					RACK H-4	PC-443XB	CB	53'-0"	PRESSURE CONTROL RELAY	
					RACK H-4	PC-413XB	CB	53'-0"	PRESSURE CONTROL RELAY	
					RACK H-4	TC-435XB	CB	53'-0"	TEMPERATURE CONTROL RELAY	
					RACK H-4	TC-433XB2	CB	53'-0"	TEMPERATURE CONTROL RELAY	
					RACK H-4	TC-435XB	CB	53'-0"	TEMPERATURE CONTROL RELAY	
					RACK H-4	TC-443XB2	CB	53'-0"	TEMPERATURE CONTROL RELAY	
					RACK H-4	TC-413XB2	CB	53'-0"	TEMPERATURE CONTROL RELAY	
					RACK H-3	PC-443XB2	CB	53'-0"	DIFF.BI-STABLE ALARM UNIT	
					RACK H-2	TC-433L	CB	53'-0"	ALARM BI-STABLE	
					RACK H-1	TC-413L	CB	53'-0"	ALARM BI-STABLE ALARM UNIT	
					RACK H-1	PC-413	CB	53'-0"	DIFF.BI-STABLE ALARM UNIT	
** PCV-456										
	RCS	2	7	5008971 SH106	FLIGHT PNL FCF	1/456	CB	53'-0"	CNTRL SWITCH CLOSE/AUTO/OPEN MAINTAINED	
				5008971 SH129E	FLIGHT PNL FCF	PC-456 F/X	CB	53'-0"	AUX.RELAY	
				9321-LL-31463 SH21	FLIGHT PNL FCF	PC-457 F/X	CB	53'-0"	WHSE #BFD	
				9321-LL-31373	VALVE PCV-455C	33 (ac,bo)	VC	"-124"	VALVE AUX.CONTACTS	
				SH 16,16A,127,17A,18A	RACK H5	OPXA	CB	53'-0"	AUX.RELAY BF	

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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
				113E302 SH1	RACK H5	OPX42	CB	53'-0"	AUX.RELAY BF	
					RACK H5	PC443XA	CB	53'-0"	PRESSURE CNTRL RELAY	
					RACK H5	PC413XA	CB	53'-0"	PRESSURE CNTRL RELAY	
					RACK H5	TC433XA	CB	53'-0"	TEMP.CNTRL RELAY	
					RACK H5	PC433XA	CB	53'-0"	PRESSURE CNTRL RELAY	
					RACK H5	TC443XA2	CB	53'-0"	TEMP.CNTRL RELAY	
					RACK H5	TC413XA2	CB	53'-0"	TEMP.CNTRL RELAY	
					RACK H5	TC433XA2	CB	53'-0"	TEMP.CNTRL RELAY	
** RC-516										
	RCS	2	7	9321-F-27473	RC-516 (VLV MTD)	33(ac,bo)	VL	46'-0"	VLV.AUX.CONTACTS	
				5008971 SH91	SPVSRY PNL SAF	1/516	CB	53'-0"	CONTROL SW (CLOSE/OPEN)	
				5008971 SH120						
** RC-519										
	RCS	2	7	5008971 SH91	SAFEGUARD CAB G4	C-A11X	CB	53'-0"	AUX.RELAY WHSE #BFE485	
				9321-F-27472	SPVSRY PNL SAF	1/V519	CB	53'-0"	CONTROL SW (CLOSE/OPEN)	
				5008971 SH124A	SPVSRY PNL SNF	PB8	CB	53'-0"	PUSH BUTTON SW	
				5008971 SH10	RELAY PANEL SHR	IR8			GOULD RELAY J13	
				113E700 SH33	VALVE 519	33(ac,bc,bo)	PA	41'-0"	VLV AUX CONTACTS	
				113E303 SH6.8						
** RC-523										
	RCS	2	7	5008971 SH91	SPVSRY PNL SAF	1/523	CB	53'-0"	CONTROL SW (CLOSE/OPEN)	
				5008971 SH120	VALVE 523	33(ac,bo)	VL	46'-0"	VLV AUX. CONTACTS	
** RC-544										
	RCS	2,3	7	5008971 SH91	RC-544 (VLV MTD)	33(ac,bo)	VL	46'-0"	VLV AUX. CONTACTS	
				5008971 SH120	SUPERVISORY PNL SAF	1/544	CB	53'-0"	CLOSE/OPEN SWITCH	
** RC-549										
	RCS	1,2,3	7	5008971 SHT.10, 91, 124A	SUPVSRY PNL SNF	1/LCV459	CB	53'-0"	SELECTOR SWITCH (CLOSE/REMOTE)	
				9321-F-27363, 113E303 SHT. 6	SUPVSRY PNL SNF	PB33	CB	53'-0"	PUSHBUTTON	
					MIS. RLY RACK G6	C-A21X	CB	53'-0"	AUX RLY WHSE #BFE485	
					GAS ANAYZER PNL	GAS ANALYZER			PERMISSIVE RLY	
					SUPVSRY PNL SHR	IR-33	CB	53'-0"	GOULD RLY J33	
** RC-552										
	RCS	2	7	5008971 SH 91	SAFEGUARD CAB F7	CA-21X	CB	53'-0"	AUX.RELAY WHSE #BFE485	
				5008971 SH124A	SPVSRY PNL SAF	1/V552	CB	53'-0"	CONTROL SW (CL/OP)	
				5008971 SH10	SPVSRY PNL SNF	PB31	CB	53'-0"	PUSH BUTTON	
				113E303 SH6.8	VALVE 552 (VLV.MTD)	33(ab,bc,bo)	CB	53'-0"	VLV. AUX.CONTACTS	
				113E700 SH33	RELAY PANEL SHR	IR 31	CB	53'-0"	GOULD RELAY J13	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
** RC-560										
	RCS			5008971 SH93	SPVSRY PNL SAF	1/560	CB	53'-0"	CONTROL SW (CL/OP)	
				5009971 SH10,120	VALVE 560 (VLV MTD)	33(ac,bo)	VC	46'-0"	VLV AUX CONTACTS	
** RC-MOV-0535										
	RCS	2,3	8	5008971 SH110.125D	PANEL FCF	CS	CB	53'-0"	MANUAL SWITCH	
				9321-LL-31403 SH21	PANEL FCF	V536	CB	53'-0"	CONTROL SWITCH	
					MCC-26A CMPT-1H	42 CONTACTS	PAB	96'-0"	MOTOR STARTER CONTACTS	
					MCC-26A CMPT-1H	49	PAB	96'-0"	THERMAL ELEMENT	
					RACK H-5	OPXA1	CB	53'-0"	EFD66	
					RACK H-5	TC413XA1	CB	53'-0"	BF53	
					RACK H-5	TC433XA1	CB	53'-0"	BF53	
					RACK H-5	TC443XA1	CB	53'-0"	BF53	
					0536 (VLV MTD)	33(ao,ac,bo,bc)	CB	53'-0"	VLV.AUX.LIMIT SWITCHES	
					0536 (VLV MTD)	33(to,r)	CB	53'-0"	VLV.AUX.TORQUE SWITCH	
** 0743										
	RHR	4	8	5008971 SH 132	743 (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	PP	51'-0"	MOV AUX CONTACTS	
				9321-LL-31403 SH 22	MCC-36A, COMPT. 7RM	42/C	PA	55'-0"	CLOSE CONTACTOR	
				9321-F-27513	MCC-36A, COMPT. 7RM	42/O	PA	55'-0"	CLOSE CONTACTOR	
					PANEL SB1F	CONTROL SW	CB	53'-0"	"CLOSE/OPEN"	
					PANEL SB1F	43/RS-5	CB	53'-0"	SELECTOR SWITCH	
** 0744										
	RHR	4	8	5008971 SH 141	744 (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	PP	51'-0"	MOV AUX CONTACTS	
				9321-LL-31403 SH 22	MCC-36A, COMPT. 4FD	42/C	PA	55'-0"	CLOSE CONTACTOR	
				9321-F-27513	MCC-36A, COMPT. 4FD	42/O	PA	55'-0"	CLOSE CONTACTOR	
					PANEL SB1F	1/744	CB	53'-0"	"CLOSE/OPEN" CONTROL SWITCH	
					PANEL SB1F	43/RS-3	CB	53'-0"	SELECTOR SWITCH	
** 0745A										
	RHR	4	8	5008971 SH 135	745A (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	VC	66'-0"	MOV AUX CONTACTS	
				9321-F-27203	MCC-36B, COMPT. 2FD	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36B, COMPT. 2FD	42/O	PA	55'-0"	OPEN CONTACTOR	
					PANEL SB1F	1/745A	CB	53'-0"	"CLOSE/OPEN" CONTROL SWITCH	
** 0745B										
	RHR	4	8	5008971 SH 135	745B (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	VC	66'-0"	MOV AUX CONTACTS	
				9321-F-27203	MCC-36A, COMPT. 2FD	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36A, COMPT. 2FD	42/O	PA	55'-0"	OPEN CONTACTOR	
					PANEL SB1F	1/745B	CB	53'-0"	"CLOSE/OPEN" CONTROL SWITCH	
** 0746										
	RHR	4	8	5008971 SH 132	746 (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	VC	66'-0"	MOV AUX CONTACTS	
				9321-F-27353 SH 1	MCC-36A, COMPT. 2FH	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36A, COMPT. 2FH	42/O	PA	55'-0"	OPEN CONTACTOR	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR 1P-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					PANEL SGF	1/746	CB	53'-0"	"CLOSE/AUTO/OPEN" CONTROL SWITCH	
					PANEL SGF	43/RS-5	CB	53'-0"	SELECTOR SWITCH	
					RACK G-3	51-5A1	CB	53'-0"	RELAY WHSE BFD48S	
** 0747										
	RHR	4	B	5008971 SH 132	747 (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	VC	68'-0"	MOV AUX CONTACTS	
				9321-F-27353 SH 1	MCC-36A, COMPT. 6RM	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36A, COMPT. 6RM	42/O	PA	55'-0"	OPEN CONTACTOR	
					PANEL SGF	1/747	CB	53'-0"	"CLOSE/AUTO/OPEN" CONTROL SWITCH	
					PANEL SGF	43/RS-5	CB	53'-0"	SELECTOR SWITCH	
					RACK G-3	51-5A1	CB	53'-0"	RELAY WHSE BFD48S	
** 0889A										
	RHR	4	B	5008971 SH 126	MCC-36A, COMPT. 4RM	42	PA	55'-0"	MOTOR STARTER CONTACTS	
				9321-F-27353 SH 1	MCC-36A, COMPT. 4RM	49	PA	55'-0"	THERMAL OVERLOAD	
					MCC-36A, COMPT. 4RM	1/889A	PA	55'-0"	"CLOSE/AUTO/OPEN" CONTROL SWITCH SPR RET TO AUTO	
					889A (VALVE MOUNTED)	33(ao,ac,bo,bc)	VC	72'-0"	VLV AUX LIMIT SWITCHES	
					889A (VALVE MOUNTED)	33(tc,to)	VC	72'-0"	VLV AUX TORQUE SWITCHES	
** 0889B										
	RHR	4	B	5008971 SH 126	MCC-36B, COMPT. 4RM	42	PA	55'-0"	MOTOR STARTER CONTACTS	
				9321-F-27353 SH 1	MCC-36B, COMPT. 4RM	49	PA	55'-0"	THERMAL OVERLOAD	
					MCC-36B, COMPT. 4RM	1/889B	PA	55'-0"	"CLOSE/AUTO/OPEN" CONTROL SWITCH SPR RET TO AUTO	
					889B (VALVE MOUNTED)	33(ao,ac,bo,bc)	VC	72'-0"	VLV AUX LIMIT SWITCHES	
					889B (VALVE MOUNTED)	33(tc,to)	VC	72'-0"	VLV AUX TORQUE SWITCHES	
** 1870										
	RHR	4	B	5008971 SH 132	1870 (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	PP	51'-0"	MOV AUX CONTACTS	
				9321-F-27513 SH 1	MCC-36B, COMPT. 7RM	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36B, COMPT. 7RM	42/O	PA	55'-0"	OPEN CONTACTOR	
					PANEL S81	1/1870	CB	53'-0"	"CLOSE/OPEN" CONTROL SWITCH	
					PANEL SNF	43/RS5	CB	53'-0"	SELECTOR SWITCH	
** ACPRH1										
	RHR	4	6	5008971 SH 31	SAFEGUARD CAB F8	51/3A1	CB	53'-0"	RELAY WHSE BFD	
				9321-F-27513 SH 1	RACK G-1	27-3A/X2	CB	53'-0"	RELAY WHSE BFD120S	
					RACK G-1	2/RHR1	CB	53'-0"	TIME DELAY RELAY AGF 2412PD	
					RACK G-2	3-1/3A	CB	53'-0"	RELAY WHSE BFD120S	
					PANEL SGF	1/RHR1	CB	53'-0"	CONTROL SWITCH	
					PANEL S81F	43/RS-3	CB	53'-0"	SELECTOR SWITCH	
					PANEL SG	74 (ALARM)	CB	53'-0"	RELAY WHSE BFD20S	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
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** ACAPRH2										
	RHR	4	6	5008971 SH 75	SAFEGUARD CAB F8	51/6A1	CB	53'-0"	RELAY WHSE BFD	
				9321-F-27513 SH 1	RACK G-1	27-6A'X2	CB	53'-0"	RELAY WHSE BFD120S	
					RACK G-2	2/RHR2	CB	53'-0"	TIME DELAY RELAY AGA 2412PD	
					RACK G-2	3-1/6A	CB	53'-0"	RELAY WHSE BFD120S	
					PANEL SGF	1/RHR2	CB	53'-0"	CONTROL SWITCH	
					PANEL SBIF	43/RS-3	CB	53'-0"	SELECTOR SWITCH	
					PANEL SG	74 (ALARM)	CB	53'-0"	RELAY WHSE BFD20S	
** HCV-63B										
	RHR	4	8	5008971 SH 137	HCV-63B (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	VC	66'-0"	MOV AUX CONTACTS	
				9321-F-27353 SH 1	MCC-36B, COMPT. 8RM	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36B, COMPT. 8RM	42/O	PA	55'-0"	OPEN CONTACTOR	
					PANEL SGF	1/63B	CB	53'-0"	"CLOSE/OPEN" CONTROL SWITCH	
** HCV-640										
	RHR	4	8	5008971 SH 137	HCV-640 (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	VC	66'-0"	MOV AUX CONTACTS	
				9321-F-27353 SH 1	MCC-36A, COMPT. 6RM	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36A, COMPT. 6RM	42/O	PA	55'-0"	OPEN CONTACTOR	
					PANEL SGF	1/64C	CB	53'-0"	"CLOSE/OPEN" CONTROL SWITCH	
** RC-730										
	RHR	4	7	5008971 SH 134	RACK G-2	PC-402AX	CB	53'-0"	RELAY WHSE BF66F	
				9321-F-27203	RACK G-2	PC-402BX	CB	53'-0"	RELAY WHSE BF66F	
				113E302 SH 1,2	MCC-36A, COMPT. 2FM	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36A, COMPT. 2FM	42/O	PA	55'-0"	OPEN CONTACTOR	
					RACK G-2	730/33acX	CB	53'-0"	RELAY WHSE BF66F	
					PANEL SGF	1/730	CB	53'-0"	"CLOSE/AUTO/OPEN" CONTROL SWITCH	
					730 (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	VC	56'-0"	VLV AUX CONTACTS	
					730 (VALVE MOUNTED)	49	VC	56'-0"	THERMAL OVERLOAD	
** RC-731										
	RHR	4	7	5008971 SH 134	RACK G-2	PC-403AX	CB	53'-0"	RELAY WHSE BF66F	
				9321-F-27203	RACK G-2	PC-403BX	CB	53'-0"	RELAY WHSE BF66F	
				113E302 SH 3,4	MCC-36B, COMPT. 2FM	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36B, COMPT. 2FM	42/O	PA	55'-0"	OPEN CONTACTOR	
					RACK G-2	731/33acX	CB	53'-0"	RELAY WHSE BF66F	
					PANEL SGF	1/731	CB	53'-0"	"CLOSE/AUTO/OPEN" CONTROL SWITCH	
					731 (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	VC	59'-0"	VLV AUX CONTACTS	
					731 (VALVE MOUNTED)	49	VC	59'-0"	THERMAL OVERLOAD	
** SI-885A										
	SIS	4	8	5008971 SH 115, 128	SI-885A (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	PA	34'-0"	MOV AUX CONTACTS	
					MCC-36A, COMPT 3RM	42/C	PA	55'-0"	CLOSE CONTACTOR	

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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				113E302 SH 2	MCC-36A, COMPT 3RH	42/0	PA	55'-0"	OPEN CONTACTOR	
				9321-F-27503	MCC-36A, COMPT 3RH	42ao,42ac,42b,42bc	PA	55'-0"	CONTACTOR AUX CONTACTS	
					MCC-36A, COMPT 3RH	49	PA	55'-0"	THERMAL OVERLOAD	
					RACK G-2	73-33acx	CB	53'-0"	AUX RELAY WHSE BF66F	
					PANEL SB1F	1/6B5A	CB	53'-0"	"CLOSE/AUTO/OPEN" CONTROL SWITCH	
** SI-0B55B										
	SIS	4	6	5008971 SH 10, 113,128	SI-885B (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	PA	34'-0"	MOV AUX CONTACTS	
				113E302 SH 2	MCC-36B, COMPT 3RH	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36B, COMPT 3RH	42/0	PA	55'-0"	OPEN CONTACTOR	
					MCC-36B, COMPT 3RH	42ao,42ac,42bo,42bc	PA	55'-0"	CONTACTOR AUX CONTACTS	
					MCC-36B, COMPT 3RH	49	PA	55'-0"	THERMAL OVERLOAD	
					RACK G-1	731-33acx	CB	53'-0"	AUX RELAY WHSE BF66F	
					PANEL SB1F	1/6B5B	CB	53'-0"	"CLOSE/AUTO/OPEN" CONTROL SWITCH	
** SI-0882										
	SIS	1,4	7	5008971 SH 10, 13,113,141	882 (VALVE MOUNTED)	33(ac,ac,bo,bc)	PA	15'-0"	VLV AUX LIMIT SWITCHES	
				9321-F-27503	882 (VALVE MOUNTED)	33(tc,to)	PA	15'-0"	VLV AUX TORQUE SWITCHES	
					MCC-36B, COMPT. 4FD	42	PA	55'-0"	MOTOR STARTER CONTACTS	
					MCC-36B, COMPT. 4FD	49	PA	55'-0"	THERMAL ELEMENT	
					PANEL SB1F	1/E82	CB	53'-0"	"CLOSE/AUTO/OPEN" SWITCH	
					PANEL SB1F	43/RS-3	CB	53'-0"	"ON/OFF" MAINTAINED	
** SI-0885A										
	SIS	4	8	5008971 SH 10, 14,113,127	SI-888A (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	PA	51'-0"	MOV AUX CONTACTS	
				113E302 SH 2	MCC-36A, COMPT. 4RH	42/C	CB	53'-0"	CLOSE CONTACTOR	
				9321-F-27503	MCC-36A, COMPT. 4RH	42/0	CB	53'-0"	OPEN CONTACTOR	
				9321-LL-31173	RACK G-3	SI-11X	CB	53'-0"	RELAY BFD48S	
				SH 3, 5	RACK G-2	73C-33ac-x	CB	53'-0"	RELAY BFD66F	
					480V SWGR 31, COMPT. 25H	SI-541	CB	15'-0"	RELAY BFDB4S	
					PANEL SB	1/B85A	CB	53'-0"	"CLOSE/AUTO/OPEN" SWITCH	
					PANEL SB	43/RS5	CB	53'-0"	"OFF/ON" SWITCH	
** SI-0888B										
	SIS	4	8	5008971 SH 10, 14,113,127	SI-888B (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	PA	51'-0"	MOV AUX CONTACTS	
				113E302 SH 4	MCC-36B, COMPT. 4RH	42/C	CB	53'-0"	CLOSE CONTACTOR	
				9321-F-27503	MCC-36B, COMPT. 4RH	42/0	CB	53'-0"	OPEN CONTACTOR	
				9321-LL-31183	RACK G-5	SI-21X	CB	53'-0"	RELAY BFD48S	
				SH 3, 4	RACK G-1	731-33acx	CB	53'-0"	RELAY BFD66F	
					480V SWGR 32, COMPT. 8H	SI-641	CB	15'-0"	RELAY BFDB4S	
					PANEL SB	1/B8B	CB	53'-0"	"CLOSE/AUTO/OPEN" SWITCH	
					PANEL SB	43/RS5	CB	53'-0"	"OFF/ON" SWITCH	

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** SI-0889A										
	SIS	4	B	5008971 SH 10,	PANEL SB1F	1/889A	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS, SPR RET TO AUTO	
				113,126	SI-889A (VALVE MOUNTED)	33(tc,to,ao,bc,bo,ac)	VC	72'-0"	MOV AUX CONTACTS	
				9321-F-27353	MCC-36A, COMPT 4RM	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36A, COMPT 4RM	42/O	PA	55'-0"	OPEN CONTACTOR	
					MCC-36A, COMPT 4RM	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	
					MCC-36A, COMPT 4RM	49	PA	55'-0"	THERMAL OVERLOAD	
** SI-0889B										
	SIS	4	B	5008971 SH 10,	PANEL SB1F	1/889B	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS, SPR RET TO AUTO	
				114,126	SI-889B (VALVE MOUNTED)	33(tc,to,ao,bc,bo,ac)	VC	72'-0"	MOV AUX CONTACTS	
				9321-F-27353	MCC-36B, COMPT 4RM	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36B, COMPT 4RM	42/O	PA	55'-0"	OPEN CONTACTOR	
					MCC-36A, COMPT 4RM	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	
					MCC-36A, COMPT 4RM	49	PA	55'-0"	THERMAL OVERLOAD	
** SI-0894A										
	SIS	2,3,4	B	5008971 SH 10,	PANEL SMF	1/0894A	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS SPR RET TO AUTO	
				114,140	MCC-36A, COMPT 3RM	42/C	PA	55'-0"	CLOSE CONTACTOR	
				113E303 SH 4,8	MCC-36A, COMPT 3RM	42/O	PA	55'-0"	OPEN CONTACTOR	
				9321-F-27353	MCC-36A, COMPT 3RM	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	
					MCC-36A, COMPT 3RM	49	PA	55'-0"	THERMAL OVERLOAD	
					SI-894A (VALVE MOUNTED)	33(tc,to,ao,bc,bo,ac)	VC	46'-0"	MOV AUX CONTACTS	
					RACK G-3	SI-12X	CB	53'-0"	RELAY BFD48S	
** SI-0894B										
	SIS	2,3,4	B	5008971 SH 10,	PANEL SMF	1/0894B	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS SPR RET TO AUTO	
				114,140	MCC-36B, COMPT 3RM	42/C	PA	55'-0"	CLOSE CONTACTOR	
				113E303 SH 4,8	MCC-36B, COMPT 3RM	42/O	PA	55'-0"	OPEN CONTACTOR	
				9321-F-27353	MCC-36B, COMPT 3RM	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	
					MCC-36B, COMPT 3RM	49	PA	55'-0"	THERMAL OVERLOAD	
					SI-894B (VALVE MOUNTED)	33(tc,to,ao,bc,bo,ac)	VC	46'-0"	MOV AUX CONTACTS	
					RACK G-5	SI-22X	CB	53'-0"	RELAY BFD48S	
** SI-0894C										
	SIS	2,3,4	B	5008971 SH 10,	PANEL SMF	1/0894C	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS SPR RET TO AUTO	

LIST OF RELAYS AFFECTING
SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
				114,140	MCC-36A, COMPT 2RD	42/C	PA	55'-0"	CLOSE CONTACTOR	
				113E303 SH 4,8	MCC-36A, COMPT 2RD	42/O	PA	55'-0"	OPEN CONTACTOR	
				9321-F-27353	MCC-36A, COMPT 2RD	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	
					MCC-36A, COMPT 2RD	49	PA	55'-0"	THERMAL OVERLOAD	
					SI-894C (VALVE MOUNTED)	33(tc,to,ao,bc,bo,ac)	VC	46'-0"	MOV AUX CONTACTS	
					RACK G-3	SI-12X	CB	53'-0"	RELAY BFD48S	
** SI-0894D										
	SIS	2,3,4	8	5008971 SH 10,	PANEL SMF	1/0894D	CB	53'-0"	CONTROL SWITCH "CLOSE/AUTO/OPEN" 3-POS SPR RET TO AUTO	
				114,140	MCC-36B, COMPT 2RD	42/C	PA	55'-0"	CLOSE CONTACTOR	
				113E303 SH 4,8	MCC-36B, COMPT 2RD	42/O	PA	55'-0"	OPEN CONTACTOR	
				9321-F-27353	MCC-36B, COMPT 2RD	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	
					MCC-36B, COMPT 2RD	49	PA	55'-0"	THERMAL OVERLOAD	
					SI-894D (VALVE MOUNTED)	33(tc,to,ao,bc,bo,ac)	VC	46'-0"	MOV AUX CONTACTS	
					RACK G-5	SI-22X	CB	53'-0"	RELAY BFD48S	
** SI-1802A										
	SIS	4	8	5008971 SH 114,131	SI-1802A (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	VC	46'-0"	MOV AUX CONTACTS	
					MCC-36A, COMPT 3RD	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36A, COMPT 3RD	42/O	PA	55'-0"	OPEN CONTACTOR	
					MCC-36A, COMPT 3RD	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	
					PANEL SB1F	1/1802A	CB	53'-0"	"CLOSE/AUTO/OPEN" SWITCH	
					PANEL SB1F	43/RS-4	CB	53'-0"	"OFF/ON" SWITCH	
** SI-1802B										
	SIS	4	8	5008971 SH 114,131	SI-1802B (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	VC	46'-0"	MOV AUX CONTACTS	
					MCC-36B, COMPT 3RD	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36B, COMPT 3RD	42/O	PA	55'-0"	OPEN CONTACTOR	
					MCC-36B, COMPT 3RD	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	
					PANEL SB1F	1/1802B	CB	53'-0"	"CLOSE/AUTO/OPEN" SWITCH	
					PANEL SB1F	43/RS-4	CB	53'-0"	"OFF/ON" SWITCH	
** SI-1810										
	SIS	1	7	5008971 SH 10, 13,114,141	SI-1810 (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	PA	15'-0"	MOV AUX CONTACTS	
					MCC-36A, COMPT BFD	42/C	PA	55'-0"	CLOSE CONTACTOR	
					MCC-36A, COMPT BFD	42/O	PA	55'-0"	OPEN CONTACTOR	
					MCC-36A, COMPT BFD	42ac,42ao,42bc,42bo	PA	55'-0"	CONTACTOR AUX CONTACTS	
					MCC-36A, COMPT BFD	49	PA	55'-0"	THERMAL OVERLOAD	
					PANEL SB1F	1/1810	CB	53'-0"	"CLOSE/AUTO/OPEN" SWITCH	
					PANEL SB1F	43/RS-8	CB	53'-0"	"OFF/ON" SWITCH	
** SI-1869A										
	SIS	4	8	5008971 SH 10, 116,135	SI-1869A (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	PA	15'-0"	MOV AUX CONTACTS	
					MCC-36A, COMPT. TFH	42/C	PA	55'-0"	CLOSE CONTACTOR	

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
				9321-F-27353	MCC-36A, COMPT. 7FH	42/0	PA	55'-0"	OPEN CONTACTOR	
					MCC-36A, COMPT. 7FH	42ac,ao,bc,bo	PA	55'-0"	CONTACTOR AUX CONTACTS	
					MCC-36A, COMPT. 7FH	49	PA	55'-0"	THERMAL OVERLOAD	
					PANEL SB1F	1/18698	CB	53'-0"	"CLOSE/AUTO/OPEN" SWITCH	
** SI-18698										
	SIS	4	8	5008971 SH 10,	SI-18698 (VALVE MOUNTED)	33(tc,to,ac,ao,bc,bo)	PA	15'-0"	MOV AUX CONTACTS	
				116,135	MCC-36B, COMPT. 7FH	42/C	PA	55'-0"	CLOSE CONTACTOR	
				9321-F-27353	MCC-36B, COMPT. 7FH	42/0	PA	55'-0"	OPEN CONTACTOR	
					MCC-36B, COMPT. 7FH	42ac,ao,bc,bo	PA	55'-0"	CONTACTOR AUX CONTACTS	
					MCC-36B, COMPT. 7FH	49	PA	55'-0"	THERMAL OVERLOAD	
					PANEL SB1F	1/18698	CB	53'-0"	"CLOSE/AUTO/OPEN" SWITCH	
** 953										
	SP	1	7	5008971 SH 120	SAMPLING PANEL PGS	1/953			"CLOSE/OPEN" SWITCH TWO POSITION MAINTAINED	
				5008971 SH 95	LOCAL AT VALVE	33(ac,bo)	VC	73'-0"	LIMIT SWITCHES	
** 955A										
	SP	1	7	5008971 SH 95	SAMPLING PANEL PGS	1/955A			"CLOSE/OPEN" SWITCH	
				5008971 SH 124C	SAMPLING PANEL PGS	SS-34			SWITCH	
					955A (VALVE MOUNTED)	33(ac,bo)	VC	62'-0"	VLV AUX LIMIT SWITCHES	
** 955B										
	SP	1	7	5008971 SH 95	SAMPLING PANEL PGS	1/955B			"CLOSE/OPEN" SWITCH	
				5008971 SH 124C	SAMPLING PANEL PGS	SS-35			SWITCH	
					955B (VALVE MOUNTED)	33(ac,bo)	VC	62'-0"	VLV AUX LIMIT SWITCHES	
** 956C										
	SP	1	7	5008971 SH 10,	RACK G-4	C-A12X	CB	53'-0"	RELAY BF04ES	
				13,95,124B	SAMPLING SYSTEM PANEL	IR42			RELAY	
				113E303 SH 6	SAMPLING SYSTEM PANEL	PB-42			PUSHBUTTON	
				9321-F-27453	SAMPLING SYSTEM PANEL	1/S1			"CLOSE/OPEN" CONTROL SWITCH 2-POSITION MAINTAINED	
					PANEL SNF	1/956C	CB	53'-0"	REMOTE/LOCAL CONTROL SWITCH 2-POSITION MAINTAINED	
					956C (VALVE MOUNTED)	33(bo,ac,bc)	PP	41'-0"	VALVE POSITION SWITCHES	
** 956D										
	SP	1	7	5008971 SH 10,	RACK G-6	C-A22X	CB	53'-0"	RELAY BF04ES	
				13,95,124B	SAMPLING SYSTEM PANEL	IR47			RELAY	
				113E303 SH 6	SAMPLING SYSTEM PANEL	PB-47			PUSHBUTTON	
				9321-F-27453	SAMPLING SYSTEM PANEL	1/S1			"CLOSE/OPEN" CONTROL SWITCH 2-POSITION MAINTAINED	
					PANEL SNF	1/956D	CB	53'-0"	REMOTE/LOCAL CONTROL SWITCH 2-POSITION MAINTAINED	

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SAFE SHUTDOWN EQUIPMENT FOR IP-3
SORTED BY: EQUIPMENT ID NUMBER

EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
					956D (VALVE MOUNTED)	33(bo,ac,bc)	PP	41'-0"	VALVE POSITION SWITCHES	
** 956E										
	SP	1	7	5008971 SH 10,	RACK G-4	C-A12X	CB	53'-0"	RELAY BFD48S	
				13,96,124B	SAMPLING SYSTEM PANEL	IR3C			RELAY	
				113E303 SH 6	SAMPLING SYSTEM PANEL	PB-36			PUSHBUTTON	
				9321-F-27453	SAMPLING SYTEM PANEL	1/S1			"CLOSE/OPEN" SWITCH 2-POSITION MAINTAINED	
					OUTSIDE OF SAMP. ROOM	PB-36A			PUSHBUTTON	
					PANEL SNF	1/956E	CB	53'-0"	REMOTE/LOCAL CONTROL SWITCH 2-POSITION MAINTAINED	
					956E (VALVE MOUNTED)	33(bo,ac,bc)	PP	41'-0"	VALVE POSITION SWITCHES	
** 956F										
	SP	1	7	5008971 SH 10,	RACK G-6	C-A22X	CB	53'-0"	RELAY BFD48S	
				13,96,124B	SAMPLING SYSTEM	IR41			RELAY	
				113E303 SH 6	SAMPLING SYSTEM	PB-41			PUSHBUTTON	
				9321-F-27453	SAMPLING SYSTEM	1/S1			"CLOSE/OPEN" SWITCH 2-POSITION MAINTAINED	
					OUTSIDE OF SAMP. ROOM	PB-41A			PUSHBUTTON	
					PANEL SNF	1/956E	CB	53'-0"	REMOTE/LOCAL CONTROL SWITCH 2-POSITION MAINTAINED	
					956F (VALVE MOUNTED)	33(bo,ac,bc)	PP	41'-0"	VALVE POSITION SWITCHES	
** 959										
	SP	1	7	5008971 SH 10,	RACK G-6	C-A24X	CB	53'-0"	RELAY BFD48S	
				96,124C	SAMPLING PANEL	IR49			RELAY	
				113E303 SH 6	SAMPLING PANEL	PB-49			PUSHBUTTON	
				9321-F-27453	SAMPLING PANEL	1/S1			"CLOSE/OPEN" SWITCH 2-POSITION MAINTAINED	
** 31 SW PUMP										
	SWN	5	6	5008971 SH 33	LOCAL	43	CB	15'-0"	TRANSFER SW REMOTE/LOCAL	
				9321-F-27223	480V SWGR 31	27-5A/X3	CB	15'-0"	AUX RELAY WHSE BFD120S	
				9321-LL-31173	480V SWGR 31	2SW1	CB	15'-0"	TIME DELAY RLY AGA 2412	
				SH 5,6B	480V SWGR 31	3-1/5A	CB	15'-0"	RELAY WHSE BFD120S	
					480V SWGR 31	3-2/5A	CB	15'-0"	RELAY WHSE BFD40S	
					480V SWGR 31	3-4/5A	CB	15'-0"	RELAY WHSE BFD22S	
					480V SWGR 31	S1/5A	CB	15'-0"	RELAY WHSE BFD84S	
					PANEL SJF	43/SW	CB	53'-0"	1,2,3-4,5,6 TRANSFER SWITCH	
					PANEL SJF	1/SW1	CB	53'-0"	PULLOUT/STOP-AUTO-START SWITCH	
					PANEL SB	43/RS-2	CB	52'-0"	RECIRC PHASE SW OFF-ON	
** 32 SW PUMP										
	SWN	5	6	5008971 SH 42	LOCAL	43	CB	15'-0"	TRANSFER SW REMOTE/LOCAL	
				9321-F-27223	480V SWGR 31	52/EGX	CB	15'-0"	RELAY WHSE BFD66S	

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EQUIPMENT ID NUMBER	SYS	FUNCTION	EQ CL	ASSOCIATED CONTACT DRAWING NUMBER(S)	MOUNTING STRUCTURE	CONTACT/CONTACT GROUP	BLDG	ELEV	CONTACT RELAY TYPE	EVALUATION
				9321-LL-31173	480V SWGR 31	27-2A/X2	CB	15'-0"	RELAY WHSE BFD120S	
				SH 5,6B	480V SWGR 31	3-2/2A	CB	15'-0"	RELAY WHSE BFD84S	
					480V SWGR 31	3-1/2A	CB	15'-0"	RELAY WHSE BFD84S	
					480V SWGR 31	2SW2	CB	15'-0"	TIME DELAY RELAY AGA 2412	
					480V SWGR 31	SW2-1	CB	15'-0"	RELAY WHSE BFD86S	
					480V SWGR 31	52/SW1X	CB	15'-0"	RELAY WHSE BFD66S	
					RACK G-1	51/2A	CB	53'-0"	RELAY WHSE BFD120S	
					RACK G-1	27-3A/X13	CB	53'-0"	RELAY WHSE BFD120S	
					RACK G-1	2SW2	CB	53'-0"	TIME DELAY RELAY AGA 2412	
					PANEL SB	43/SW	CB	53'-0"	SELECTOR SW (1,2,3-4,5,6)	
					PANEL SJ	1/SW2	CB	53'-0"	PULLOUT/STOP/AUTO/START	
** 33 SW PUMP										
	SWN	S	6	5008971 SH 44	LOCAL	43	CB	15'-0"	TRANSFER SWITCH REMOTE/LOCAL	
				9321-F-27223	480V SWGR 32	3-1/6A	CB	15'-0"	RELAY WHSE BFD120S	
				9321-LL-31173	480V SWGR 32	3-2/6A	CB	15'-0"	RELAY WHSE BFD80S	
				SH 5,6B	480V SWGR 32	2SW3	CB	15'-0"	TIME DELAY RELAY AGA 2412	
					480V SWGR 32	27-6A/X2	CB	15'-0"	RELAY WHSE BFD120S	
					480V SWGR 32	3-4/6A	CB	15'-0"	RELAY WHSE BFD22S	
					480V SWGR 32	51/6A	CB	15'-0"	RELAY WHSE BFD54S	
					480V SWGR 31	2/SW3-1	CB	15'-0"	RELAY	
					480V SWGR 31	2/SW3-2	CB	15'-0"	RELAY	
					480V SWGR 31	52/SW1X	CB	15'-0"	RELAY	
					480V SWGR 31	52/SW2X	CB	15'-0"	RELAY	
					480V SWGR 31	52/EGX	CB	15'-0"	RELAY	
					PANEL SB	43/SW	CB	53'-0"	SELECTOR SWITCH	
					PANEL SJ	1/SW3	CB	53'-0"	CONTROL SWITCH PULLOUT/STOP-AUTO-START	
** 34 SW PUMP										
	SWN	S	6	5008971 SH 76	LOCAL	43	CB	15'-0"	TRANSFER SW REMOTE/LOCAL	
				9321-F-27223	480V SWGR 31	3-1/5A	CB	15'-0"	RELAY WHSE BFD66S	
					480V SWGR 31	3-2/5A	CB	15'-0"	RELAY WHSE BFD120S	
					480V SWGR 31	3-4/5A	CB	15'-0"	RELAY WHSE BFD66S	
					480V SWGR 31	27-5A/X3	CB	15'-0"	RELAY WHSE BFD120S	
					480V SWGR 31	51/5A	CB	15'-0"	RELAY WHSE BFD66S	
					480V SWGR 31	2SW4	CB	15'-0"	TIME DELAY RELAY AGA 2412	
					PANEL SJ	1/SW4	CB	53'-0"	RELAY WHSE BFD120S	
					PANEL SB	43/SW	CB	53'-0"	RECIRC PHASE SW OFF-ON	
					PANEL SB	43/RS-2	CB	53'-0"	RECIRC PHASE SW OFF-ON	
					PANEL SB	43/SW	CB	53'-0"	1,2,3-4,5,6 TRANSFER SW	
** 35 SW PUMP										
	SWN	S	6	5008971, SHT 34	480V SWGR 32	2SW5	CB	15'-0"	TIME DELAY RLY AGA 2412	
				9321-F-27223	LOCAL	43	CB	53'-0"	TRANSFER SW REMOTE/LOCAL	
					480V SWGR 31	27-3A/X2	CB	15'-0"	AUX RLY WHSE BSFD120S	

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					SAFEGUARD CAB E7	52/E6X	CCR	53'-0"	AUX RLY WHSE #BFD66S	
					SPVSRY PNL SB	43/SW	CCR	53'-0"	SELECTOR SW (1,2,3-4,5,6)	
					SPVSRY PNL SJ	1/SW5	CCR	53'-0"	PULLOUT/STOP-AUTO-START	
					480V SWGR 32	2/SW5-1	CCR	53'-0"	PULLOUT/STOP-AUTO-START	
					SPVSRY PNL SJ	1/SW3	CB	53'-0"	CONTROL SWITCH	
					SAFEGUARD CAB E7	1/SW4X	CCR	53'-0"	AUX RLY WHSE #BFD66S	
** 36 SW PUMP										
	SWN	5	6	5008971, SHT 89	480V SWGR 31	52/SW5X	CB	15'-0"	AUX RLY WHSE #BFD120S	
				9321-F-2722	480V SWGR 31	2/S6-1	CB	15'-0"	AUX RLY WHSE #BFD66S	
					SPVSRY PNL SB1	43/RS-2	CB	15'-0"	TRANSFER SW OFF-ON	
					480V SWGR 32	27-6A/X2	CCR	53'-0"	AUX RLY WHSE #BFD120S	
					480V SWGR 32	3-1/6A	CCR	53'-0"	AUX RLY WHSE #BFD120S	
					SPVSRY PNL SB1	43/SWA	CCR	53'-0"	SELECTORS SW (1,2,3-4,5,6)	
					480V SWGR 32	3-2/6A	CCR	53'-0"	AUX RLY WHSE #BFD80S	

APPENDIX K

RESUMES

The following resumes are included:

Jon E. Thompson, P.E.,	Project Manager/Lead Relay Reviewer, Atometrics, Inc.
Lou L. Trow, P.E.	Senior Project Engineer/Systems Engineer, Atometrics, Inc.
Babu R. Gupta, P.E.	Senior Electrical Engineer/Relay Reviewer, Atometrics, Inc.
Eung Park	Seismic Capability Engineer, Atometrics, Inc.

JON E. THOMPSON, P.E.
PROJECT MANAGER/LEAD RELAY REVIEWER

EDUCATION: University of Rhode Island, B.S. Civil/Environmental Engineering - 1974

REGISTRATIONS: Pennsylvania, New York, and Florida

EXPERIENCE SUMMARY:

- Over 21 years of engineering experience.
- Assigned to supervisory positions with responsibilities for performing, directing and implementing engineering, design, and construction efforts.
- Assigned projects have involved planning, procedure development, studies, original detail design, modification of systems and facilities, and construction management services for municipal, utility, and nuclear utility projects.
- As Project Manager/Project Engineer, have been responsible for project staffing, project scheduling, interoffice and site liaison, client interface, subconsultant coordination, project presentations, and day-to-day project administration.
- Have supervised project staffs of two to seventy.
- Have provided construction management services including bid evaluation, contract administration, shop drawing review, construction schedule monitoring, inspection, contractor billing verification, and processing of construction change orders.
- Have attended the SQUG/EPRI sponsored SQUG Training seminar for SSEL preparation and Relay Review (Certificates attached).

AFFILIATIONS: American Society of Mechanical Engineers

DETAILED EXPERIENCE:

ATOMETRICS, Incorporated, West Nyack, New York
April 1990 to Present:

April 1994 to Present:
Limerick Generating Station - BWR and Peach Bottom Atomic Power Station - BWR, Philadelphia Electric Company (PECo)

Currently the Project Coordinator for the Drafting Organization of Choice contract with PECO Energy Company. This project involves providing as-building, drafting, CAD, and other document update services to the Nuclear Engineering Department and both the

Limerick Generating Station and the Peach Bottom Atomic Power Station.

June 1993 to Present:
Indian Point Nuclear Generating Station Unit 3, New York {power Authority (NYPA)

Project Manager and Lead Relay Reviewer for the development and documentation of the resolution of Unresolved Safety Issue (USI) A-46. Project includes the development of the Safe Shutdown Equipment List (SSEL), preparation of relay reviews, coordination of the seismic screening walkdown, and preparation of the supporting documentation in accordance with the Generic Implementation Procedure (GIP).

July 1993 to Present:
City of New York Department of Sanitation

Project Manager/Engineer for the rehabilitation of seven Marine Transfer Stations. These stations are used to transfer garbage from New York City to a land fill via river barge. Project included the preparation of as-built drawings prior to investigating and recommending rehabilitation of the HVAC, Water Spray Dust Supression Systems, Fendering Systems, Marine Hardware, access ramp and tipping floor surfacing materials, and litter containment. Project scope includes conceptual design, final design, permitting, bid assistance, and construction management services.

May 1992 to June 1993:
Oyster Creek Nuclear Generating Station - BWR - GPU Nuclear

Involved with the finalization of the Safe Shutdown Equipment List (SSEL) and preparation of the relay reviews in accordance with the Generic Implementation Procedure (GIP) for the resolution of Unresolved Safety Issue (USI) A-46.

June to July 1993
B.L.England Generating Station - Atlantic Electric Company

Provided consulting services for the evaluation of the piping and pipe supports associated with the Main Steam, Cold Reheat, and Hot Reheat Systems on Unit 3. While completing the report associated with the piping evaluations, an operational transient occurred during start-up of the unit damaging the same systems. Provided consulting services with regard to determining the reason for and the extent of damage caused by the transient. Services included field survey of the damaged systems, coordinating the non-destructive testing of system piping and supports and providing recommendations for repair.

JON E. THOMPSON, P.E.
PROJECT MANAGER/LEAD RELAY REVIEWER

May 1990 to May 1992:
Limerick Generating Station - BWR and Peach Bottom Atomic Power Station - BWR, Philadelphia Electric Company (PECo)

Assigned to the Nuclear Engineering Department at the PECo Nuclear Group Headquarters, assisted in the development of a common Modification Process to be used to perform modifications at either plant. Also assisted in the maintenance and improvement of existing procedures, master planning of other procedures for their revision into common procedures, and the development of new procedures for programs such as cable management, set point changes, and internal hazards.

James M. Montgomery Consulting Engineers, Inc., Florida, September, 1984 to April, 1990

As a Supervising Engineer, was assigned as Project Manager/Project Engineer for various municipal projects including master planning, engineering and design of a water and wastewater treatment plant modifications, the computerized hydraulic analyses of water distribution and wastewater collection systems, as well as miscellaneous studies. Specific projects are summarized below.

Palm Beach County Water Utilities Department, Palm Beach County, Florida

- Design and construction of WWTP #9N Odor Control Facilities. Project Manager, Construction Manager. Engineering Cost: $80,000, Construction Cost: $500,000

- Water Treatment Plant #3 Expansion. Project Manager, Mechanical and Civil Design Engineer. Engineering Cost: $150,000, Construction Cost: $1.3M

- Design of Water Distribution System Improvements. Project Manager, Project Engineer. Engineering Cost: $120,000, Construction Cost: $900,000

- Water Utilities Department Master Plan, Project Engineer, Engineering cost: $200,000. Project included computerized hydraulic analysis of the water distribution and wastewater collection systems.

Washington D.C. Water and Sewer Authority, Washington D.C.

- Design of Central Maintenance Facility Warehouse Interior Design. Project Manager, Mechanical Design Engineer. Engineering Cost: $160,000, Construction Cost: $2.0M

JON E. THOMPSON, P.E.
PROJECT MANAGER/LEAD RELAY REVIEWER

City of Sunrise, Florida

- Design of Water and Sewer Utility Relocations. Project Manager, Project Engineer. Engineering Cost: $35,000, Construction Cost: $750,000

- Design of Natural Gas System Improvements. Project Manager, Project Engineer. Engineering Costs: $20,000, Construction Cost: $200,000

City of Margate, Florida

- Design of a 2400 Kw Emergency Generator Facility. Project Manager. Engineering Costs: $120,000, Construction Cost: $1.2M

- Hydraulic analysis of the water distribution and wastewater collection systems. Project Manager/Project Engineer. Engineering cost $60,000.

Broward County Utilities Department, Broward County, Florida

- Water/wastewater Master Plan, Project Manager/Project Engineer, Engineering Cost: $300,000. Project included computerized analysis of the water distribution and wastewater collection systems.

- Master Lift Station Evaluation and Planning Study, Project Manager/Project Engineer. Engineering cost: $120,000.

Various reports, and studies. Project Manager, Project Engineer. Engineering Cost: $10,000 to $60,000.

Stone and Webster Engineering Corporation, New York, New York
December, 1980 to May, 1984 and September, 1977 to March, 1980

As a Power Engineer, was assigned to various support and supervisory positions on various nuclear power plant projects. Responsibilities included the design of various water piping systems, preparation of the system design calculations, computerized hydraulic analysis of pipng systems, and the preparation of bid and purchase specifications. Other project responsibilities included the establishment of mechanical equipment qualification programs, preparation of engineering and design packages of plant modifications, development of electrical equipment environmental qualification programs, and meeting with regulatory agencies. Projects also included the preparation and revision of procedures to implement programs. As a Project Manager, day to day responsibilities included providing direction and supervision to staffs ranging in number from ten (10) to

seventy (70) people. Specific projects assignments are summarized below.

August 1983 to May 1984:
Wm. H. Zimmer Nuclear Power Station - BWR, Cincinnati Gas and Electric Company

Task Leader responsible for the establishment of the Mechanical Equipment Qualification Program. Project included the development of the Master Equipment List and environmental data sheets. Responsibilities included preparation of new procedures and the revision of existing procedures to implement the new program.

February 1983 to August 1983:
Shoreham Nuclear Power Station, Unit 1 - BWR, Long Island Lighting Company

Responsible for preparation of design packages for plant modifications, preparing and expediting the documentation to support fuel load, and resolving outstanding items identified in the Mechanical Equipment Qualification Program.

November 1982 to January 1983:
Washington Nuclear Power Station Unit 2 - PWR, Washington Public Power Supply System

Assigned as the Data Package Coordinator for the Mechanical Equipment Qualification effort. Responsibilities included providing direction and supervision to ensure that data and evaluations were complete and documented in packages for inclusion in the final report.

October 1981 to November 1982:
Pilgrim Nuclear Power Station Unit 1 - BWR, Boston Edison Company

As Lead Engineer, was responsible for the development of the Environmental Qualification Program including the preparation of the Justifications for Continued Operation (JCOs) in response to NRC bulletin 79-01B. Responsibilities included independent review of equipment qualification documentation and meetings with the NRC to discuss the JCOs.

March 1981 to September 1981 and April 1979 to March 1980:
James A. FitzPatrick Nuclear Power Plant - BWR, Power Authority of the State of New York

Assistant Project Manager/Project Engineer for the completion of the seismic reanalysis of Class 1 piping in response to an NRC show cause order. Project Engineer responsible for the preparation of

the Class 1E electrical equipment Master List and environmental worksheets for equipment subject to a mild environment. Responsibilities included the supervision of a staff of seventy engineers.

December 1980 to March 1981:
North Anna Nuclear Power Plant Units 1 & 2 - PWRs, Virginia Electric Power Company

As Principal Engineer, was responsible for a portion of the multiple ARS reanalysis effort. Project involved the seismic analysis of Class 1 piping between buildings and differing floor levels. Responsibilities included the supervision of a staff of forty engineers.

September 1978 to March 1979:
Beaver Valley Nuclear Power Station - PWR, Duquesne Light Company

Responsible for the design of the nuclear equipment vent and drain system and the demineralized water and cask wash down system. Responsibilities included specification preparation, and equipment purchase.

October 1977 to March 1978:
Jamesport Nuclear Power Station - PWR, Long Island Lighting Company

Responsible for the preparation of the design calculations and computerized hydraulic analysis of the circulating water, service water and moisture separator drain systems and preparation of the bid and purchase specifications for these systems.

EDS Nuclear (Impell), Melville, New York
March to December 1980:

Responsible for the preparation and analyses for an equipment Environmental Qualification Program for an electric generating station. Responsibilities included supervision of personnel assigned to the task and meetings with regulatory agencies to discuss program results.

General Dynamics/Electric Boat Division, Groton, Conn.
February 1974 to September 1977

As an Engineer in the fluid systems area, was involved in the design of various fresh water and sea water cooling, and high pressure hydraulic systems on nuclear powered submarines. Responsibilities included preparation and maintenance of system flow diagrams, system calculations, review and approval of construction plans and vendor drawings, equipment purchase, and

preparation of ships system instruction and maintenance manuals. Was initially involved with the Trident Program and later provided support for ships requiring overhaul. System responsibilities included high pressure hydraulics, engine room fresh water and sea water cooling, and diesel generator support systems such as cooling and fuel oil handling.

SQUG

Certificate of Archievement

This is to Certify that

Jon Thompson

has Completed the
SQUG Equipment Selection Training Course
Held August 25-27, 1992

Paul W. Hayes, MPR Associates

Richard G. Starck II, MPR Associates

SQUG

Certificate of Achievement

This is to Certify that

Jon Thompson

has Completed the
SQUG Relay Evaluation Training Course
Held August 25-27, 1992

Jess O. Betlack, MPR Associates

LOUIS L. TROW, P.E.
SENIOR PROJECT ENGINEER

EDUCATION Newark College of Engineering - B.S. in Mechanical Engineering, 1964
Seton Hall University - Masters of Business Administration, 1973

LICENSES Professional Engineer - New Jersey, Pennsylvania

SUMMARY Mr. Trow has 27 years of diversified experience in the design, project management, systems engineering, outage support, and field construction of nuclear and fossil fueled power plants, providing power/process systems expertise in varied levels of supervisory and technical responsibility.

He has directed system modifications, plant betterment and capital improvements including construction management, cost/schedule appraisal and technical supervision.

Mr. Trow is presently Lead Systems Engineer for Indian Point Unit 3 Resolution of Unresolved Safety Issue A-46 in accordance with the SQUG methodology.

He has been responsible for modifications involving fire protection, HVAC, radwaste processing systems, and control panels. This has included operational analysis, engineering, construction, trouble-shooting, and start-up.

He has provided engineering services and outage supervision for the implementation of numerous plant modifications including the RTD Bypass Piping Modification, Narrow Range RTD Temperature Monitoring System, traveling screens and backwash and the Bottom Mounted Flux/Thimble/Thermocouple Incore Monitoring System. He contributed as a Task Force Member during the Spare CRDM Nozzle Repairs for Unit 1.

As a Mechanical Systems Engineer, he was responsible for the analysis, engineering, design, and construction of NSSS and BOP systems for the Salem and Hope Creek Nuclear Generating Stations.

Additionally, he was a member of the TMI-2 task force to design and install key backup systems to secure and maintain unit shutdown.

DETAIL EXPERIENCE

Atometrics, Incorporated
West Nyack, New York

Mr. Trow is presently a Senior Project Engineer responsible for establishing the safe shutdown methodology for the New York Power Authority's Indian Point Unit-3 Nuclear Power Plant to verify the seismic adequacy of essential plant equipment. He developed the preferred systems of choice to achieve controlled reactor cool down following a postulated SSE. He reviewed system P&ID's, control schematics, elementary/wiring diagrams to prepare the relay functionality evaluation. He assessed the consequences of relay "chatter" in essential circuits to assure shutdown objectives are attained. He assembled the 700 component Safe Shutdown Equipment List (SSEL) and the 3000 component relay list to support the field walkdowns. He prepared the project report describing the technical approach, findings and recommendations and presented the shutdown sequence to New York Power Authority engineering and operations personnel for concurrence with SOP.

As Assistant Project Manager for the Salem Units 1 & 2 Nuclear Power Station, Mr. Trow supervised the engineering task development from project scope proposal initiation to design change package close-out. His assignment included augmenting the utility management staff contributing towards various plant system upgrades/capital improvements including project milestone event planning, funding, cost and schedule performance monitoring. He acted in this capacity during five (5) refueling outages responsible for various major projects which included CWS fish trough replacement, 12E heater MSR tube bundle replacement, RHR vent addition, CRDM nozzle repair, RTD Bypass Elimination and Bottom Mounted Instrumentation-Flux Thimble Thermocouple Monitoring Systems. Mr. Trow was responsible for the engineering and systems aspects required to prepare the Design Change Packages from inception through start-up and successful turnover to the Station.

During the 7th (Salem 1) and 4th (Salem 2) Refueling Outages, he participated as part of the Outage Project Team in the capacity of Lead Engineer and Assistant Project Manager to direct the implementation phase of the NSSS modifications and emergency repairs to the Unit 1 CRDM canopy seal welds. He also assisted in the conceptual design for the FTTC back-up and redundant seals.

Professional Systems Associates, Inc.
PSE&G Salem Generating Station, E&PB Department
Newport, Delaware

Mr. Trow directed 10-15 various small projects during all phases from conceptual evaluation, budget approval, design change package preparation, implementation and close-out. Monitored contractor's schedule and cost parameters against target figures and supervised engineering and field construction forces to implement outage/non-outage projects utilizing a single design-build contractor adhering to a Guaranteed Maximum Price proposal. He reported directly to the Manager of Projects.

Mr. Trow was Technical Coordinator for the Salem Material Condition Revitalization Project. He evaluated feasibility of proposed capital improvements to the Salem Station. Investigated root cause of problem and potential engineering fixes. Determined lowest cost economic evaluation meeting established payback parameters and performance requirements. Prepared Project Scope Proposal documents for client approval of system upgrades.

Burns & Roe, Incorporated
Oradell, New Jersey

As Project Engineer for GPU Nuclear's Oyster Creek Generating Station, he was responsible for coordinating field construction of A/E packages during 10M refueling outage to support extensive Fire Protection System upgrades in compliance with 10 CFR 50 Appendix R regulatory requirements. Responsible for system's modifications including 480v Switchgear Room HVAC expansion, control panel installation, Reactor/Turbine Buildings penetration sealing, conduit/ductwork firewrap, emergency lighting and fire zone preservation for each controlled shutdown path philosophy. During 11R outage, supervised a group of job monitors as Production Department Representative (on-loan). Responsible for planning/scheduling work sequences and designated electrical bus outages to implement various WMS construction packages. Provided technical liaison between utility engineers, construction forces, and A/E staff for various modifications comprising FHA commitment. Reported to GPU Nuclear Construction Manager, MCF Production Department.

As Lead Mechanical Systems Engineer on loan to augment PSE&G's Salem Generating Station, Radwaste Systems Group, he directed liquid waste expansion and evaporator retrofit projects at twin 1000 Mw PWR station. He was responsible for preparation of design change packages, construction, and start-up activities. He sponsored the I&C upgrade program to trouble-shoot and resolve batch-out problems on initial unit and developed the concept to optimize liquid waste system flexibility enabling simultaneous

evaporation/demineralization operations during peak outage periods. He counseled junior engineers in systems engineering approach to capital improvement projects. Provided consulting services to assist relocated Nuclear Department with on-site task development and work activity consolidation.

As Project Engineer for GPU Nuclear's Oyster Creek Generating Station, Radwaste Task Force Group, he assisted on-site Tech Functions Department with conversion of UF solidification system to cement at 640 Mw BWR station. He directed the field effort for site-developed capital modifications to upgrade radwaste processing capabilities and provided trouble shooting analysis, operations surveillance, preventative maintenance recommendations, and engineering consultation services to plant engineering and operations staff. He also coordinated interdisciplinary activities and resolved field conflicts to facilitate project completion.

As Project Engineer for GPU Nuclear's Three Mile Island Generating Station, TMI II Post Accident Recovery Effort, he volunteered for emergency 24-hour task force program to design, procure and install key backup/support systems (e.g., steam generator cooldown, "Mini"-Condensate) and safeguard provisions to secure and maintain controlled shutdown of 940 Mw PWR unit. Mr. Trow participated in a continuous two-shift rotation as an on-site Recovery Team member.

Stone and Webster Engineering Corporation
Cherry Hill, New Jersey

As Principal Mechanical Engineer, Mr. Trow supervised task activities of Power Division support engineers for major nuclear and fossil generating station projects including GSU River Bend Station, NMPC Nine Mile Point Station, and Tampa Electric Company Big Bend, Gannon, and Hookers Point Generating Stations.

Major Design Projects

As Principal Systems Engineer he supervised the engineering for the following nuclear and fossil fuel projects:

River Bend Nuclear Station, Gulf States Utilities
Nine Mile Point Unit-2, Niagara Mohawk Power Company
Big Bend, Gannon Generating Station, Hookers Point Generating Station, Tampa Electric Company

BABU R. GUPTA, P.E.
SENIOR ELECTRICAL ENGINEER/RELAY REVIEWER

EDUCATION

Roorkee University, India
B.S. Electrical Engineering - 1961

LICENSES AND REGISTRATION

Professional Engineer - Pennsylvania

SUMMARY

Mr. Gupta has 27 years of experience in the engineering industry of which 15 years are in Instrumentation and Electrical Controls field of Nuclear Power.

He was involved with the response to the NRC's Unresolved Safety Issue USI A-46 using SQUG methodology and preparation of the Appendix R analysis for the River Bend Nuclear Power Station including the shutdown model and exemption requests.

His experience includes preparation of the following documents and programs: FSAR/UFSAR, Technical Specifications, Appendix R, Failue Modes and Effects Analysis, Setpoint Calculations, Station Blackout, Post Accident Monitoring, Post Accident Sampling, Inoperability Bypass, Safety Parameter Display, Emergency Response Facility, Equipment Qualification, 10CFR50.55e Deficiency Reports and 10CFR50.59 Evaluations.

Mr. Gupta is experienced in performing instrument setpoint calculations in accordance with ISA 67.04, Westinghouse and General Electric methodologies, evaluations in determining instrument drift, calibration test procedures, operation surveillance procedures and maintenance test procedures.

DETAILED EXPERIENCE

Indian Point Unit 3 Nuclear Generating Station
New York Power Authority

He assisted in the relay review for the resolution of the NRC's Unresolved Safety Issue USI A-46 using SQUG Methodology. This included the analysis of the circuitry to determine the effect of relay chatter on the ability of the plant to achieve and maintain a safe shutdown in the event of an earthquake.

River Bend Station Unit 1
Gulf States Utilities Company

As Control Systems Engineer, he was responsible for the preparation and review of control systems drawings including set point determination, instrument drift evaluations, elementary, logic, loop and analog wiring diagrams. He was also responsible for the review of reference and interface documents like flow diagrams, electrical one-line diagrams, electrical calculations, and vendor drawings. In addition, his responsibilities also involved electrical and control systems technical support for licensing activities. This involved interpretation and implementation of NRC Guides (e.g. RG 1.47, RG 1.97, Appendix R, etc.) and Bulletins, Technical Specifications, FSAR changes and technical evaluation for reportability of design deficiency cases.

Susquehanna Nuclear Power Station
Pennsylvania Power & Light Company

He was responsible for the relay life extension program and the 10CFR50 Appendix R analysis related to common power supplies. The Appendix R task involved multi-high impedance fault analysis for associated circuits in accordance with NRC Generic letter 86-10 breaker/fuse coordination for fire induced short circuits in associated cables, identification of instrument power supplies for safe shutdown components and identification of cable requiring relocation or protection.

Ebasco Services Incorporated
New York, New York

As Instrumentation and Controls Engineer, he was responsible for writing the system descriptions for excore and incore neutron monitoring and steam generator blowdown systems for the Waterford project. He was also responsible for the layout arrangement of the main control board for the Shearon Harris Nuclear Power Plant project.

Nine Mile Point Unit 2
Niagara Mohawk Power Company

As Control Systems Engineer, he was responsible for system control functions with particular emphasis on set point determination, elementary, loop, and logic diagrams.

Johnson Controls Incorporated
Philadelphia, Pennsylvania

As Senior Controls Engineer, he was responsible for HVAC system instrumentation and controls for Hope Creek Nuclear Generating Station. The scope of work involved selection of instruments and evaluation of their environmental and seismic qualification with respect to IEEE Standards 323 and 344.

United Engineers & Constructors, Inc.
Philadelphia, Pennsylvania

As Design Engineer, he was responsible for the preparation and checking of elementary and other drawings; coordinating the work of P & ID, logic diagrams, instrument schedules, etc. between electrical and other disciplines; checking of vendor drawings for Brunswick and WPPS projects. He was also assigned for two (2) years to the construction site on the Brunswick project. During this assignment, his responsibilities included evaluating, analyzing, and solving the problems developed during construction, startup, and operation stages.

Various Nuclear Power Projects

Hope Creek	Prepared 10CFR50.59 Safety Evaluations of Change Packages.
Oyster Creek	Independent Reviewer for Control Room HVAC System modification.
Peach Bottom	Responsible for the update of FSAR logic diagrams for modifications.
Nine Mile Point Unit 2	Responsible for the Failure Mode and Effects Analyses for Diesel Load Sequencing system.
Susquehanna	Responsible for Instrumentation and Controls

	input for a diesel modification study.
Davis-Besse	Developed Design Modification Packages.
River Bend Unit 1	Developed system design basis documentation, 10CFR50.59 Evaluations, Prudency Root Causes data, and Station Blackout Study.
Browns Ferry Unit 2	Independent Reviewer as part of an Engineering Assurance Oversight Review Team for plant configuration control efforts.
Comanche Peak	Created design criteria documents and verified system design for Post Accident Monitoring and Post Accident Sampling systems.
Enrico Fermi Unit 2	Prepared and verified design changes and system modifications.

EUNG I. PARK
TASK LEADER - STRUCTURAL ENGINEERING

EDUCATION

M.S. in Civil Engineering, Polytechnic Institute of New York, 1976
B.S. in Civil Engineering, Han Yank University, 1969

EXPERIENCE SUMMARY

Mr. Park has over 22 years of varied engineering experience in the power and commercial industries. This has included the analysis and design of concrete and steel structures, pipe supports, duct supports and, cable tray and conduit supports. In addition to designing and analyzing cable tray and conduit supports Mr. Park has designed the routing for cable trays and conduits. Mr. Park is proficient in computer analysis of structural systems using the following software tools: ADLPIPE, NUPIPE, STRUDL, STRUDAT, SANDUL, PITRIF, PILUG and DAP II.

As Lead Structural Engineer, Mr. Park has been responsible for the support design required for fire protection piping at various electrical substations. He has also been responsible for the analysis/design of power plant safety-related pipe, conduit and cable tray supports.
In addition, he has also participated in the design of various concrete and steel structures for various substations, power plants, industrial and commercial facilities, and hospitals.

Previously at **Commanche Peak** Nuclear Power Station, Mr. Park was responsible for resolving outstanding confirmation items for pipe supports. He was group supervisor over 16 engineers in this effort and was responsible for the review of over 16,000 pipe support documents for support of NIS-2 certification. In addition, he performed analysis/design for generic type supports for use throughout the plant which include stiffness analysis of frames.

Mr. Park was assigned as a Level II Test Engineer at **Shoreham** Nuclear Power Station during power ascension testing. He was involved with recording and analyzing data on CAT I/High Energy Piping Systems and performing visual inspections inside the drywell, reactor and turbine building. Any problem areas were corrected prior to completion of power ascension. He provided engineering support to the construction group during the move and storage of Colt diesel engines. In addition, he performed the design of steel platforms and ladders in the reactor building, tank supporting frames and analyzed/designed electrical cable tray and conduit supporting frames. He was also involved with the layout design of cable trays and conduits.

For various other nuclear power plant projects, Mr. Park's responsibilities included the analysis and design of duct supports, pipe supports, cable trays and conduit supports. He performed these functions in both the design and outage stages. Some of these projects included:

* **Browns Ferry** Nuclear Project
* **Salem** Nuclear Power Station Unit 1 & 2
* **James A. Fitzpatrick** Nuclear Power Station
* **River Bend** Nuclear Power Station
* **Surry** Nuclear Power Station Unit 1 & 2

ADDITIONAL RESUMES

NYPA REVIEWERS

JOHN F. BRETTI
NUCLEAR SYSTEM ANALYSIS ENGINEER

SUMMARY: Mr. Bretti has over six years of experience in the area of Probabilistic Risk Assessment (PRA). He has actively participated in the development of the Individual Plant Examinations (IPEs) for the Seabrook Station and Indian Point Unit 3 (IP3) nuclear power plants. In addition to experience performing systems and event tree analyses and quantification, Mr. Bretti was responsible for the human reliability analyses for Seabrook Station and IP3. He has a working knowledge of the IP3 Emergency Operating Procedures (EOPs).

EXPERIENCE:

9/92 - Present

New York Power Authority

Nuclear Systems Analysis Engineer, Nuclear Generation Department
Provide engineering support in the area of Probabilistic Risk Assessment for the IP3 and James A. Fitzpatrick (JAF) nuclear power plants. Responsibilities include performing system and human reliability analyses and performing engineering evaluations to support plant operation. Currently assisting in the external events analysis for JAF. Major accomplishments include:

- Performed human reliability analysis (HRA) for the IP3 IPE, which resulted in improvements to plant emergency operating procedures.
- Provided HRA training to site personnel.
- Prioritized motor-operated valves (MOVs) to support Generic Letter 89-10 MOV program at IP3.

6/89 - 9/92

Yankee Atomic Electric Company

Nuclear Engineer, Safety Assessment Group, Nuclear Engineering Department
Provided engineering support in the area of Probabilistic Risk Assessment for the Seabrook Nuclear Power Station. Responsibilities included performing system and event tree analyses and maintaining "living" Seabrook Station Probabilistic Safety Study (SSPSS). Performed engineering evaluations to support maintenance prioritization activities and technical specification modifications. Major accomplishments include:

- Co-authored the Seabrook Station IPE Report.

EXPERIENCE (Continued):

- Assisted in the seismic and fire risk analyses for Seabrook Station's IPEEE Report.
- Performed human reliability analysis for Seabrook Station, which resulted in improvements to plant emergency operating procedures.

6/88 - 9/88 **Yankee Atomic Electric Company**

Intern, Safety Assessment Group, Nuclear Engineering Department
Provided technical assistance in the area of Probabilistic Risk Assessment for the Yankee and Maine Yankee nuclear power stations, including utilization of applicable computer codes.

7/87 - 1/88 **Pilgrim Nuclear Power Station**

Intern, Computer Engineering, Nuclear Operations Department
Provided technical assistance with the maintenance of the database for the Emergency and Plant Information Computer (EPIC) System.

EDUCATION:

M.S., University of Massachusetts at Lowell, 1993
Major: Energy Engineering
G.P.A. 3.8/4.0
I.N.P.O. Fellowship

B.S., University of Lowell (Massachusetts), 1988
Major: Nuclear Engineering
G.P.A. 3.7/4.0
Magna Cum Laude
I.N.P.O. Scholarship
Member *Alpha Nu Sigma* (Nuclear Engineering Honor Society)
Academic All-American

AFFILIATIONS: Member American Nuclear Society

REFERENCES: Excellent references available upon request.

JOHN A. FAVARA

TITLE: Nuclear System Analysis Engineer

SPECIAL SKILLS:

Computer Languages; Fortran, Basic and Vector Fortran.
Experience in NOS and Vector (205) operating systems JCL.
Experience in DOS and MS-DOS software applications.
Experience in operating the following Probabilistic Risk Assessment (PRA) computer programs:

- Set Equation Transformation System (SETS)
- Event Tree Analysis (ETA-II)
- Meltdown Accident Response Characteristics (MARCH 3.0)
- Modular Accident Analysis Program for Pressurized Water Reactor (MAAP/PWR)
- Boiling Water Reactor Severe Accident Response code (BWRSAR)
- Event Progress Analysis Code (EVNTRE).

EDUCATIONAL TRAINING:

Manhattan College, Riverdale, New York
Bachelor of Mechanical Engineering (1982)
Master of Mechanical Engineering (1987)

Attended short courses in CAFTA and SETS computer codes, IPEEE, root cause analysis, human reliability analysis, system reliability engineering, probabilistic risk assessment, risk base technical specification evaluations, component failure data analysis, common cause failure analysis, GO modeling, fault tree modeling, and nuclear power plant generation technology.

PROFESSIONAL SOCIETIES:

Member of American Society of Mechanical Engineers

WORK EXPERIENCE:

1982 - PRESENT: NEW YORK POWER AUTHORITY

- Assisted in the development of safety analysis computer codes for severe accident evaluations by debugging and rewriting of the MARCH computer program and the CONTEMPT-DG program.

- Assisted in developing the containment model used in the main steam line analysis for IP3NPP, along with performing calculations in support of the analysis.

- Assisted on shielding calculations done in support of the IP3NPP Hydrogen Recombiner Panel accessibility during post-accident operations analysis.

- Assisted in obtaining and debugging the implementation of various code modifications for the purpose of improving the NYPA version of the NRC source term computer code set (TRAPMELT, CORSOR, MERGE, and MATADOR) used in the source term study for NYPA IP3NPP and JAFNPP, respectively.

- Assisted in the development of coupling the CORCON computer code to MARCH 3.0 in order to account for physical phenomenon that occurs between core-concrete interactions and its effects on containment integrity.

- Performed thermal balance of plant calculations for JAFNPP using the computer code PEPSE.

- Involved in field work at IP3 and JAF, where I supported site personnel in such areas as steam generators maintenance activities involving deconning operations, sludge lancing operations, and tube plugging operations. During the IP3 summer/fall 1985 outage I was in charged of the night shift program for the inspection and maintenance of safety related limitorque actuators under the environmental qualification program. During the JAF winter 1986 outage I was in charged of the both main boiler feedpump turbine maintenance activities.

- Developed DBASE IV program establishing a component failure database in support of the JAF Individual Plant Examination (IPE) study.

- Developed JAF IPE system's fault tree models for the plant cooling water and balance of plant systems.

- Involved in calculating in the JAF IPE pre-accident human error probability (HEP) analysis in regards to post test and maintenance restoration errors, and instrument miscalibration errors.

- Developed for both JAF and IP3 IPE, event trees depicting various accident progressions that follow the occurrence of an initiating event.

- Developed for both JAF and IP3 IPE, success criteria through the use of numerous thermal-hydraulics calculations.

- Responsible engineer for both the JAF and IP3 IPE containment performance analysis.

- Developed accident progressions scenarios for implementation on both the JAF and IP3 simulators in support of calculating post-accident HEP for both the JAF and IP3 IPE.

- Supported the development for both JAF and IP3 maintenance rule compliance.

- Supported the development for both JAF and IP3, " Verification of Seismic Adequacy of Equipment in Operating Plants," (USI A-46).

- Developed the Probabilistic Risk Assessment of the effects of postulated events with 360° shroud through-wall crack for JAF.

- Provided the analysis that examined the effects of a hydrogen explosion in the JAF Turbine Building.

- Developed the Probabilistic Risk Assessment for a tornado-induced station blackout at the Fitzpatrick plant.

- Provided the analysis that examined the effects of additional Feedwater/Condensate on JAF containment pressure analysis for LOCAs.

- Performed the IP3 Control Building 15 Foot Elevation Room Heat-up calculations.

- Developed information on NRC Information Notice 92-36: Intersystem LOCA Outside Containment.

- Performed calculations of Pump Room Temperatures in the Event of a Screenwell Fire for JAF.

- Supported numerous JAF and IP3 request for information regarding thermal-hydraulic behavior of the primary system and containment, Appendix R issues, changes in core damage frequency given pre-existing conditions.

PRIIT OKAS, P.E.
NEW YORK POWER AUTHORITY
123 MAIN STREET, WHITE PLAINS, NY 10601

EXPERIENCE SUMMARY:

Registered Professional Engineer with over twenty-five years of experience in areas of project management, project engineering, analysis and design of structures and components, equipment qualification, procurement, construction supervision and inspection of nuclear/fossil power plants and ancillary structures.

Responsible Engineer for the implementation of diversified projects from inception to completion. Established project objectives; prepared cost estimates, schedules, conceptual designs and assessed the economic benefits of projects for senior management approval through formal presentations. Prepared bid solicitation documents; evaluated proposals; and made recommendations for contract awards. Supervised in-house work, and work of the Architect-Engineer and Constructor. Performed facility inspections and retrofit work. Participated in contract litigations, claim analysis and dispute resolutions. Prepared project reports and appraised senior management of progress. Interacted with vendors, clients, general contractors, and regulators.

EDUCATION:

MBA; Finance and Management
Adelphi University, NY, 1987

BE; Civil Engineering
City College of New York, 1974

Other: SQUG/EPRI USI A-46; Walkdown Screening and Seismic Evaluation Training Course, 1994.

Management Studies; New York University
School of Continuing Education, 1987

BWR Operating Fundamentals Course
GE Nuclear Training Services, 1986

Dynamics of Structures Course
Polytechnic Institute of New York, 1976

PROFESSIONAL AFFILIATIONS:

Professional Engineer in New York (054843) and in New Jersey (GE22323)

EPRI/SQUG Representative for NYPA; EPRI PBI and Plant Materials Subcommittee Member

PRIIT OKAS,P.E.

EXPERIENCE:

1984 to Present	New York Power Authority, White Plains, NY Position: Senior Project Engineer; Supervisory Engineer

Managing the resolution of USI A-46 for JAFNPP and for IP#3NPP; using SQUG methodology. Responsible Engineer for implementation of new facilities at the JAFNPP plant for support and for administrative functions. Inspected and upgraded plant structures and equipment supports for code compliance. Supervised and reviewed detailed engineering, modification packages and construction work. Performed equipment qualification and procurement. Interfaced with industry regulators.

1975 to 1984	Ebasco Services Inc., NYC and Long Island Position: Senior Engineer

Supervised engineering and construction activities from corporate office and from sites, for new nuclear power plant design, and for facility retrofit work. Performed design, review and inspection of steel and concrete structures. Prepared design and procurement specifications. Field liaison from home office for construction related problems. Used computer programs to optimize the design.

1972 to 1975	American Electric Power, New York Position: Structural Design Engineer

Performed analysis, design and review of structures for the construction of new power plant facilities. Reviewed the design of a 1,200 feet tall steel stack liner.

1969 to 1972	Gibbs and Hill, Inc., New York Position: Associate Design Engineer

Performed steel and concrete design work for support of railroad electrification structures. Scope included site inspection and structural assessment.

1965 to 1969	Ebasco Services, Inc., New York Office Position: Structural Designer

Performed structural design, layouts and detailing for the construction of new power plant facilities. Reviewed shop drawings.

PERSONAL:

Date of Birth:	September 28, 1942
Citizenship:	USA

REFERENCES: Will furnish upon request.

SQUG

Certificate of Achievement

This is to Certify that

Priit Okas

has Completed the SQUG Walkdown Screening and Seismic Evaluation Training Course Held February 28 – March 4, 1994

David A. Freed, MPR Associates
SQUG Training Coordinator

Neil P. Smith, Commonwealth Edison
SQUG Chairman

Robert P. Kassawara, EPRI
SQUG Program Manager

Present Position: Operations Engineering Supervisor at IP3 NPP

Robert A. Schimpf

9 Sky Drive
Cornwall, NY 12518
(914) 534-2501

Objective: To obtain a responsible position in the electric utility industry that is commensurate with my experience and education.

Education: Western New England College, Springfield, Massachusetts. Degree BSEE-1972

Professional License: Senior Reactor Operator License No. SOP-10039 (Expired)

Experience:

5/89 - Present

New York Power Authority, 123 Main Street, White Plains, NY 10601

Department: Nuclear Engineering & Design
Position: Instrumentation & Control Engineering Manager

Responsible for the Instrumentation & Control and Fire Protection Engineering Group. This group performed the design engineering and associated functions, studies, and services in support of the instrumentation and control systems and the fire protection/Appendix R systems/functions at IP3 and JAF.

1/88 - 5/89

Department: Nuclear Engineering & Design
Position: Senior I&C Engineer

Responsible for assigned engineering and design functions, studies, and services in support of instrumentation and control modification activities at IP3 and JAF Nuclear Power Plants.

3/86 - 1/88

Department: Appraisal and Compliance Services
Position: Senior Appraisal Engineer

Responsible for developing appraisals, along with criteria for review of associated evaluations and for implementing the related appraisal process. Prepared appraisal reports and presented evaluations to project and upper management and made comments, observations, and recommendations to various departments.

3/84 - 3/86

Department: Project Engineering (PWR)
Position: Project Support Engineer

Responsible for supervision, reviews, and coordination of engineering and design activities to include monitoring of progress, schedule, and cost. Evaluated proposals for consultant services, conducted bid evaluations, and provided technical support to the site during outages.

6/80 - 3/84

Department: Technical Services
Positions: *Senior Plant Engineer 6/82 - 3/84; Plant Engineer 6/80 - 6/82.*

Responsible for the design of assigned plant modifications; reviewed modifications designed by other engineering organizations; assisted the Technical Services Engineer in the development of administrative procedures; provided technical assistance to other departments; preparation of engineering evaluation; and assumed the position of Technical Services Engineer during his absence.

6/77 - 6/80

Department: Quality Assurance
Position: Quality Assurance Engineer

Responsible for assisting the Quality Assurance Superintendent in the development and implementation of the Authority's published commitment to the Nuclear Regulatory Commission for IP3NPP and the monitoring of quality related activities performed at IP3NPP by internal organizations and contractors.

12/72 - 6/77

Orange & Rockland Utilities, One Blue Hill Plaza, Pearl River, NY 10965

Department: Construction/Power Development
Position: Construction Coordinator/Associate Engineer/Assistant Engineer

Responsible for the coordination of all assigned construction projects with the Engineering, Operations, and other departments and plant betterment at Bowline Point Station.

Activities: Member of Institute of Electrical and Electrical Engineers.

References: Supplied upon request.

Frederick A. Weinert

Experience:

2/95 to Present — **New York Power Authority - Indian Point 3** — **Buchanan, NY**
Electrical Design Engineer - Programs

- Responsible for Emergency Diesel Generator Transient Load Study.
- Perform/review Nuclear Safety Evaluations, calculations and reports for power plant electrical systems.

6/93 to 2/95 — **New York Power Authority - White Plains Office** — **White Plains, NY**
Electrical Engineer

- Performed electrical system design basis reviews, calculations and evaluations for power plant electrical systems.
- Coordinate consultants performing in-depth calculations and reports.

6/89 to 6/93 — **New York Power Authority - J.A. FitzPatrick** — **Lycoming, NY**
System Engineer - Electrical

- Provided technical support for AC distribution systems including 345 KV and 115 KV switchyards, 24 KV isophase bus, 4160 V, 600 V, and 120 V switchgear.
- Responsible for Emergency Diesel Generators (electrical), Plant UPS and Reactor Protection System power systems.

9/77 to 9/83 — **United States Navy** — **Groton, CT**
First Class Electrician (submarine qualified)

- Maintained and operated a nuclear plant as an electrician, electrical plant operator, and shutdown reactor operator.

Education:

Clarkson University — **Potsdam, NY**
BS, Electrical Engineering (Power) — 5/89

Orange County Community College — **Middletown, NY**
AS, Engineering Science — 5/87

License: New York State EIT, 1989

Awards: J.A. FitzPatrick 1992 Employee of the Quarter

References: **Available upon request**

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Experience:

Over twenty-four years experience in probabilistic risk and reliability analyses and applications, nuclear power plant system safety reviews, licensing and radiological assessment.

1986-date Supervisory Engineer II - Reactor Engineering/Nuclear System Analysis. New York Power Authority.

Supervising Nuclear System Analysis (NSA) team performing James A. FitzPatrick Nuclear Power Plant Individual Plant Examination by the External Events (IPEEE) study.

Led NSA team completed both James A. FitzPatrick (JAF) and Indian Point unit 3 (IP3) Nuclear Power Plants Individual Plant Examination (IPE) studies. Provided principal technical guidelines on fault tree model development, component failure data and maintenance unavailability analyses, human reliability and recovery analyses and living IPEs.

Interacted with plant staff and provided support in the application of the IPE insights to review engineering modification packages, and safety related functional assessment, improve procedures, evaluate surveillance test interval and allowable outage time relaxation. Participated in the system performance monitoring and trending, GL 89-10 MOVs risk ranking and prioritization, maintenance rule compliance, on-line maintenance, graded quality assurance, USI A-46 and severe accident management guidelines development programs.

Developed IPE training modules and conducted IPE training seminars for WPO, IP3 and JAF staff.

Led NSA team to susscessfully defend JAF IPE on NRC step 2 review and harden vent study to avoid costly modification.

Performed a reliability assessment of recirculation pump trip coil for James A. FitzPatrick to avoid ATWS modifications.

Performed a reliability study of feedwater turbine oil control system for Indian Point 3.

Performed a reliability study and spare parts management of SCADA system for the Niagara hydro projects.

1980-1986 Principal Engineer - Risk Assessment.
Ebasco Services, Inc.

Lead Engineer - Plant Modeling, Responsible for supervising and performing risk/reliability studies for Ebasco power projects and other stand-alone work including:

- Risk analysis of diesel generator spare parts study for Turkey Point Units 3 & 4, and St Lucie Units 1 & 2.
- RAM program development and evaluation on the conceptual design of electrical distribution system expansion/upgrade for Indian Point Unit 3.
- Fault tree verification on the pipe damage study for Commanche Peak Steam Electric Station Units 1 & 2.
- Control room fire spurious signal analysis for Sandia National Laboratory (as subcontractor to the NRC).
- Fault tree development and evaluation on the USI A-47 "Safety Implication of Control Systems" for Waterford Steam Electric Station Unit 3 and Shearon Harris Unit 1.
- Fault tree development and analysis on the Appendix R spurious signal analysis for Waterford Steam Electric Station Unit 3.
- Fault tree development, analysis and procedure enhancement on the IE Bulletin 79-27 "Loss of Non-Class 1E Instrumentation and Control Power System during Operation" for Waterford Steam Electric Station Unit 3.
- Simplified flow diagram, instrumented fault tree development and analysis of safety systems on the System Operability Assurance Review Program for Waterford Steam Electric Station Unit 3.

Senior Engineer - Nuclear Licensing.

Responsible for detailed PSAR defense review with respect to NRC Standard Review Plans, Regulatory Guides and development of feasible recommendations on non-compliance regulatory positions for WPPSS Units 3 & 5.

1972-1980 Nuclear Engineer. Gibbs & Hill, Inc.

Lead Job Engineer - Responsible for accident analysis, radiological assessment, SAR, ER preparation and review for various domestic and foreign nuclear power plants.

1970-1972 Physicist. Taiwan Power Company.

Responsible for safety anlysis, system design review and fuel cycle cost evaluations for Chin Shan Nuclear Power Stations, Units 1 & 2.

Education:

ME, Mechanical Engineering, Stevens Institute of Technology, 1980

ME, Nuclear Engineering, New York University, 1975

BS, Mathematics, National Cheng Kung University, Taiwan, 1969.

Attended short courses in fire risk analysis, root cause analysis, human reliability, reliability engineering, risk assessment, risk based technical specification evaluations, component failure data analysis, common cause failure analysis, reactor safety and environmental impact assessment, and nuclear power plant generation technology.

Member -- ASME, ANS and EPRI Risk and Reliability Target Steering committee.

APPENDIX L

IP-3 SAFE SHUTDOWN SYSTEM DIAGRAMS (COLOR CODED)

(Provided Separately)

APPENDIX M

LIST OF ABREVIATIONS

INDIAN POINT NUCLEAR GENERATING STATION UNIT 3
SAFE SHUTDOWN EQUIPMENT SELECTION AND
RELAY/CONTACT EVALUATION REPORT
LIST OF ABREVIATIONS

AB/AFPB	Auxiliary Feed Pump Building
ACS	Auxiliary Cooling System
AF	Amplification factor
AFW	Auxiliary Feed Water System
CA	Chatter Acceptable
CB	Control Building
CCR	Central Control Room
CCW	Component Cooling Water System
Cond	Condensate System
CR	Corrective Action Required
CRD	Control Rod Drive System
CST	Condensate Storage Tank
CVCS	Chemical and Volume Control System
DBE	Design Basis Earthquake
DC	Direct Current System
DG	Diesel Generator Building
DNBR	Departure from Nuclear Boiling Ration
EDG	Emergency Diesel Generator System
ET	Electrical Tunnel
FR	Fan Room
FW	Feed Water System
GAS	N2 and H2 Supply Systems
GERS	Generic Equipment Response Spectra
GIP	Generic Implementation Procedure
HVAC	Heating, Ventilation, and Air Conditioning System
IA	Instrument Air System
IRS	Instructure Response Spectra
LAR	Limited Analysis Review
MCC	Motor Control Center
MS	Main Steam System
NA	Not Applicable
NIS	Nuclear Instrumentation System
NV	Not Vulnerable

LIST OF ABBREVIATIONS

OA	Operator Action
OBE	Operating Basis Earthquake
OSVS	Outlier Seismic Verification Sheet
PA/PAB	Primary Auxiliary Building
PASS	Plant Area Summary Sheet
PORV	Power Operated Relief Valve
PP	Piping Penetration Area
PRT	Pressure Relief Tank
PSA	Peak Spectral Acceleration
PW	Primary Water System
PWST	Primary Water Storage Tank
RCS	Reactor Coolant System
RHR	Residual Heat Removal System
RSEF	Relay Screening and Evaluation Forms - Relay Tabulation
RVLIS	Reactor Vessel Level Indication System
RWST	Refueling Water Storage Tank
SBS	Seismic Class 1 Buildings and Structures
SER	Seismic Evaluation Report
SEWS	Screening Evaluation Work Sheet
SF	Safety Factor
SIS	Safety Injection System
SP	Sampling System
SQUG	Seismic Qualification Utility Group
SRT	Seismic Review Team
SSE	Safe Shutdown Earthquake
SSEL	Safe Shutdown Equipment List
SSER	Supplemental Safety Evaluation Report
SSRAP	Senior Seismic
SVDS	Screening Verification Data Sheet
SW/SWS/SWN	Service Water System
SWGR	Switchgear
TB	Turbine Building
UFSAR	Updated Final Safety Analysis Report
USI	Unresolved Safety Issue
VC	Containment Building
YD	Yard