ENCLOSURE 1

Seismic Walkdown Report In Response To The 50.54(f) Information Request Regarding
Fukushima Near-Term Task Force Recommendation 2.3: Seismic
Updated Transmittal # 1 for the Oyster Creek Generating Station
Correspondence No. RS-13-065

(713 Pages)

SEISMIC WALKDOWN REPORT

IN RESPONSE TO THE 50.54(f) INFORMATION REQUEST REGARDING FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATION 2.3: SEISMIC

UPDATED TRANSMITTAL # 1

for the

OYSTER CREEK GENERATING STATION UNIT 1
ROUTE 9 SOUTH, P.O. BOX 388, FORKED RIVER, NJ 08731
Renewed Facility Operating License No. DPR-16
NRC Docket No. 50-219
Correspondence No.: RS-13-065

Exelon

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SEISMIC WALKDOWN REPORT

IN RESPONSE TO THE 50.54(f) INFORMATION REQUEST REGARDING FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATION 2.3: SEISMIC

for the

OYSTER CREEK GENERATING STATION UNIT 1
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Executive Summary

The purpose of this report is to provide information as requested by the Nuclear Regulatory Commission (NRC) in its March 12, 2012 letter issued to all power reactor licensees and holders of construction permits in active or deferred status. (Ref. 13) In particular, this report provides information requested to address Enclosure 3, Recommendation 2.3: Seismic, of the March 12, 2012 letter. (Ref. 13)

Following the accident at the Fukushima Dai-ichi nuclear power plant resulting from the March 11, 2011, Great Tohoku Earthquake and subsequent tsunami, the NRC established the Near Term Task Force (NTTF) in response to Commission direction. The NTTF issued a report - *Recommendations for Enhancing Reactor Safety in the 21st Century: The Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident* - that made a series of recommendations, some of which were to be acted upon "without unnecessary delay." (Ref. 14) On March 12, 2012, the NRC issued a letter to all power reactor licensees in accordance with 10CFR50.54(f). The 50.54(f) letter requests information to assure that certain NTTF recommendations are addressed by all U.S. nuclear power plants. (Ref. 13) The 50.54(f) letter requires, in part, all U.S. nuclear power plants to perform seismic walkdowns to identify and address degraded, non-conforming or unanalyzed conditions and to verify the current plant configuration is within the current seismic licensing basis. This report documents the seismic walkdowns performed at Oyster Creek Generating Station Unit 1 in response, in part, to the 50.54(f) letter issued by the NRC.

The Nuclear Energy Institute (NEI), supported by industry personnel, cooperated with the NRC to prepare guidance for conducting seismic walkdowns as required in the 50.54(f) letter, Enclosure 3, Recommendation 2.3: Seismic. (Ref. 13) The guidelines and procedures prepared by NEI and endorsed by the NRC were published through the Electric Power Research Institute (EPRI) as EPRI Technical Report 1025286, *Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic,* dated June 2012; henceforth, referred to as the "EPRI guidance document." (Ref. 1) Exelon/Oyster Creek has utilized this NRC endorsed guidance as the basis for the seismic walkdowns and this report. (Ref. 1)

The EPRI guidance document was used to perform the engineering walkdowns and evaluations described in this report. In accordance with the EPRI guidance document, the following topics are addressed in the subsequent sections of this report.

- Seismic Licensing Basis
- Personnel Qualifications
- Selection of Systems, Structures, and Components (SSC)
- Seismic Walkdowns and Area Walk-Bys
- Seismic Licensing Basis Evaluations
- IPEEE Vulnerabilities Resolution Report
- Peer Review

Seismic Licensing Basis

The Seismic Licensing Basis is briefly described in Section 2 of this report. The original seismic design for the Oyster Creek Nuclear Generating Station critical structures and equipment is based on dynamic analyses using acceleration response spectrum curves which were based on a peak ground acceleration of 0.22g for the Safe Shutdown Earthquake (SSE). Beginning in September, 1995, seismic design of equipment and structures is based on a peak ground acceleration of 0.184g for the SSE. (Ref. 2 section 3.7)

Personnel Qualifications

Personnel qualifications are discussed in Section 3 of this report. The personnel who performed the key activities required to fulfill the objectives and requirements of the 50.54(f) letter are qualified and trained as required in the EPRI guidance document. (Ref. 1) These personnel are responsible for:

- Selecting the SSCs that should be placed on the Seismic Walkdown Equipment List (SWEL),
- Performing the Seismic Walkdowns and Area Walk-Bys,
- Performing the seismic licensing basis evaluations, as applicable,
- Identifying the list of plant-specific vulnerabilities identified during the IPEEE program and describing the actions taken to eliminate or reduce them,
- Performing the peer reviews

Selection of SSCs

Selection of SSCs is discussed in Section 4 of this report. The process used to select the items that were included in the overall Seismic Walkdown Equipment List (SWEL) is described in detail in the EPRI guidance document, Section 3: Selection of SSCs. (Ref. 1) The SWEL is comprised of two groups of items, which are described at a high level in the following subsections.

Sample of Required Items for the Five Safety Functions – SWEL 1

Screen #1 narrowed the scope of SSCs in the plant to those that are designed to Seismic Category I requirements because they have a seismic licensing basis.

Screen #2 narrowed the scope of SSCs by selecting only those that do not regularly undergo inspections to confirm that their configuration continues to be consistent with the plant licensing basis.

Screen #3 narrowed the scope of SSCs included on SWEL 1 as only those associated with maintaining the five safety functions. These five safety functions include the four safe shutdown functions (reactor reactivity control, reactor coolant pressure control, reactor coolant inventory control, and decay heat removal, which includes the Ultimate Heat Sink), plus the containment functions.

Screen #4 was a process intended to result in a SWEL 1 that sufficiently represented the broader population of plant equipment and systems needed to meet the objectives of the 50.54(f) letter. The following five sample attributes were used:

- A variety of types of systems

- Major new or replacement equipment
- A variety of types of equipment
- A variety of environments
- Equipment enhanced due to vulnerabilities identified during the IPEEE program

Spent Fuel Pool Related Items – SWEL 2

Screen #1 and Screen #2 were used to narrow the scope of spent fuel pool related SSCs to those that have a seismic licensing basis and those that are appropriate for an equipment walkdown process. Screen #3 was a process intended to result in SWEL 2 that sufficiently represents the broader population of spent fuel pool Seismic Category I equipment and systems to meet the objectives of the 50.54(f) letter, and included the following sample selection attributes:

- A variety of types of systems
- Major new or replacement equipment
- A variety of types of equipment
- A variety of environments

Screen #4 identified items of the spent fuel pool that could potentially cause a rapid drain-down of the pool, even if such items are not Seismic Category I. Rapid drain-down is defined as lowering of the water level to the top of the fuel assemblies within 72 hours after the earthquake. Any items identified as having the potential for rapidly draining the spent fuel pool were to be added to SWEL 2.

For Oyster Creek Unit 1, the SWEL is comprised of:

- SWEL 1 resulted with 98 items for walkdown.
- SWEL 2 resulted with 19 items for walkdown.
- No items associated with spent fuel pool rapid drain-down are included on SWEL 2.

Seismic Walkdowns and Area Walk-Bys

Section 5, Appendix C, and Appendix D of this report documents the equipment Seismic Walkdowns and the Area Walk-Bys. The online seismic walkdowns for Oyster Creek Unit 1 were performed during the week of August 20, 2012. During the majority of the walkdown activities, the walkdown team consisted of two (2) Seismic Walkdown Engineers (SWE), the station Lead Responsible Engineer (LRE), and a station Operations person.

The seismic walkdowns focused on the seismic adequacy of the items on the SWEL. The walkdowns focused on the following:

- Adverse anchorage conditions
- Adverse seismic spatial interactions
- Other adverse seismic conditions (e.g., degradation, configuration, etc.,)

Area Walk-Bys were conducted in each area of the plant that contained an item on the SWEL (generally within 35 feet of the SWEL component). The Area Walk-By was performed to identify potentially adverse seismic conditions associated with other SSCs located in the vicinity of the SWEL item. The key examination factors that were considered in the Area Walk-Bys included the following:

- Anchorage conditions (if visible without opening equipment)
- Significantly degraded equipment in the area
- Potential seismic interaction
- A visual assessment (from the floor) of cable/conduit raceways and HVAC ducting (e.g., condition of supports or fill conditions of cable trays)
- Potential adverse interactions that could cause flooding/spray and fire in the area
- Other housekeeping items, including temporary installations

The seismic walkdown team inspected 101 of the 117 components on the SWEL (comprised of SWEL 1 and SWEL 2). Walkdowns for 16 components were deferred due to accessibility issues such as being located in containment or energized equipment. The 16 remaining Unit 1 items will be walked down during a unit outage or another time when the equipment is accessible, as appropriate. Anchorage verification was required for a minimum of 30 components. (Ref. 1) A total of 47 anchorage configurations were confirmed to be installed in accordance with the station documentation.

Following the completion of the online seismic walkdowns, the industry was made aware that the NRC staff had clarified a position on opening electrical cabinets to inspect for other adverse seismic conditions. Supplemental inspections of 16 electrical cabinets are planned and will be completed, as required, during a unit outage or another time when the equipment becomes accessible. The list of electrical cabinets along with the milestone completion schedule is provided in Table E-2.

During the seismic walkdowns at Oyster Creek Unit 1 ten (10) Issue Reports (IRs) were issued for observed conditions. After evaluation through the CAP, it was determined that none of the conditions identified in the IRs were found to be adverse seismic conditions.

Seismic Licensing Basis Evaluations

The EPRI guidance document, Section 5: Seismic Licensing Basis Evaluation provides a detailed process to perform and document seismic licensing basis evaluations of SSCs identified when potentially adverse seismic conditions are identified. The process provides a means to identify, evaluate and document how the identified potentially adverse seismic condition meets a station's seismic licensing basis without entering the condition into a station's Corrective Action Program (CAP). In lieu of this process, Exelon/Oyster Creek utilized the existing processes and procedures (Site CAP Expectations) to identify, evaluate and document conditions identified during the Seismic Walkdowns.

In accordance with Exelon/Oyster Creek processes and procedures, all questionable conditions identified by the SWEs during the walkdowns were entered into the station CAP to be further evaluated and addressed as required. The SWEs provided input to support the identification and evaluation (including seismic licensing basis evaluations, as required) of the potentially adverse seismic conditions entered into the CAP. The

station corrective action program is a more robust process than that provided in the EPRI guidance document; in part, ensuring each condition is properly evaluated for conformance with design and licensing bases and corrected as required.

Conditions identified during the walkdowns were documented on the SWCs, AWCs, and entered into the CAP. For those conditions that required, seismic licensing basis evaluations were completed and documented within the IR. Tables 5-2 and 5-3 in the report provide the IR, a summary of the condition, and the action completion status.

IPEEE Vulnerabilities

IPEEE vulnerabilities are addressed in Section 7 of this report. No vulnerabilities were identified as a result of the effort that addressed the Individual Plant Examination of External Events (IPEEE). (Ref. 10) All IPEEE plant improvements and associated actions are complete.

Peer Reviews

A peer review team consisting of at least two individuals was assembled and peer reviews were performed in accordance with Section 6: Peer Reviews of the EPRI guidance document. The Peer Review process included the following activities:

- Review of the selection of SSCs included on the SWEL
- Review of a sample of the checklists prepared for the Seismic Walkdowns and Area Walk-Bys
- Review of licensing basis evaluations, as applicable
- Review of the decisions for entering the potentially adverse conditions into the CAP process
- Review of the submittal report
- Provided a summary report of the peer review process in the submittal report

Section 8 of this report contains a summary of the Peer Review. The Peer Review determined that the objectives and requirements of the 50.54(f) letter are met. Further, it was concluded by the peer reviews that the efforts completed and documented within this report are in accordance with the EPRI guidance document.

Summary

In summary, seismic walkdowns have been performed at the Oyster Creek Generating Station Unit 1 in accordance with the NRC endorsed walkdown methodology. All potentially degraded, nonconforming, or unanalyzed conditions identified as a result of the seismic walkdowns have been entered into the corrective action program.

Evaluations of the identified conditions are complete and documented within the CAP. These evaluations determined the Seismic Walkdowns resulted with no adverse anchorage conditions, no adverse seismic spatial interactions, and no other adverse seismic conditions associated with the items on the SWEL. Similarly, the Area Walk-Bys resulted with no adverse seismic conditions associated with other SSCs located in the vicinity of the SWEL item(s).

The Seismic Walkdowns identified a limited set of minor conditions with no discernible trend. Other than these minor conditions, the Seismic Walkdowns identified no degraded, nonconforming, or unanalyzed conditions that required either immediate or

follow-on action. No planned or newly identified protection or mitigation features have resulted from the efforts to address the 50.54(f) letter.

Follow-on activities required to complete the efforts to address Enclosure 3 of the 50.54(f) letter include inspection of 16 items deferred due to inaccessibility along with supplemental inspections of 16 electrical cabinets. Area Walk-Bys will be complete, as required, during these follow-on activities.

To address the items deferred due to inaccessibility and the supplemental inspections of electrical cabinets, follow-on Seismic Walkdowns and Area Walk-Bys were conducted during the fourth quarter of 2012. No degraded, nonconforming, or unanalyzed conditions that required either immediate or follow-on actions were identified.

Annex A to this report provides:

1) Additional information obtained from these follow-on inspections performed on the open items listed on Table E-1 and E-2.

2) Status updates on the conditions identified during the previous Walkdowns and Walk-Bys, listed on Table 5-2 and Table 5-3.

As of December 31, 2012, follow-on activities required to complete the efforts to address Enclosure 3 of the 50.54(f) letter include inspection of one item deferred due to inaccessibility, as listed on Table AE-1 of Annex A.

1 Introduction

1.1 PURPOSE

The purpose of this report is to provide information as requested by the Nuclear Regulatory Commission (NRC) in its March 12, 2012 letter issued to all power reactor licensees and holders of construction permits in active or deferred status. (Ref. 13) In particular, this report provides information requested to address Enclosure 3, Recommendation 2.3: Seismic, of the March 12, 2012 letter. (Ref. 13)

1.2 BACKGROUND

Following the accident at the Fukushima Dai-ichi nuclear power plant resulting from the March 11, 2011, Great Tohoku Earthquake and subsequent tsunami, the NRC established the Near Term Task Force (NTTF) in response to Commission direction. The NTTF issued a report - *Recommendations for Enhancing Reactor Safety in the 21st Century: The Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident* - that made a series of recommendations, some of which were to be acted upon "without unnecessary delay." (Ref. 14) On March 12, 2012, the NRC issued a letter to all power reactor licensees in accordance with 10CFR50.54(f). The 50.54(f) letter requests information to assure that certain NTTF recommendations are addressed by all U.S. nuclear power plants. (Ref. 5) The 50.54(f) letter requires, in part, all U.S. nuclear power plants to perform seismic walkdowns to identify and address degraded, non-conforming or unanalyzed conditions and to verify the current plant configuration is within the current seismic licensing basis. This report documents the seismic walkdowns performed at Oyster Creek Generating Station Unit 1 in response, in part, to the 50.54(f) letter issued by the NRC.

The Nuclear Energy Institute (NEI), supported by industry personnel, cooperated with the NRC to prepare guidance for conducting seismic walkdowns as required in the 50.54(f) letter, Enclosure 3, Recommendation 2.3: Seismic. (Ref. 13) The guidelines and procedures prepared by NEI and endorsed by the NRC were published through the Electric Power Research Institute (EPRI) as EPRI Technical Report 1025286, *Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic,* dated June 2012; henceforth, referred to as the "EPRI guidance document." (Ref. 1) Exelon/Oyster Creek has utilized this NRC endorsed guidance as the basis for the seismic walkdowns and this report. (Ref. 1)

1.3 PLANT OVERVIEW

The Oyster Creek Nuclear Generating Station, a single unit facility, is located in Lacey Township, Ocean County, New Jersey. The unit was placed in commercial operation on December 23, 1969 under a Provisional Operating License. On July 2, 1991, the NRC issued a Full Term Operating License (No. DPR-16) permitting steady-state reactor core power levels not in excess of 1930 megawatts (thermal). The General Electric Company,

the prime contractor, utilized the services of Burns and Roe, Inc. for engineering support and construction management. The unit's steam is generated by a Boiling Water Reactor (BWR-2) with a Mark I type Containment designed by the Chicago Bridge and Iron Company under contract to Burns and Roe, Inc. (Ref. 2 section 1.1)

1.4 APPROACH

The EPRI guidance document is used for the Oyster Creek engineering walkdowns and evaluations described in this report. In accordance with Reference 1, the following topics are addressed in the subsequent sections of this report:

- Seismic Licensing Basis
- Personnel Qualifications
- Selection of SSCs
- Seismic Walkdowns and Area Walk-Bys
- Licensing Basis Evaluations
- IPEEE Vulnerabilities Resolution Report
- Peer Review

1.5 CONCLUSION

Seismic Walkdowns have been performed at the Oyster Creek Generating Station Unit 1 in accordance with the NRC endorsed walkdown methodology. All potentially degraded, nonconforming, or unanalyzed conditions identified as a result of the seismic walkdowns have been entered into the corrective action program.

Evaluations of the identified conditions are complete and documented within the CAP. These evaluations determined the Seismic Walkdowns resulted with no adverse anchorage conditions, no adverse seismic spatial interactions, and no other adverse seismic conditions associated with the items on the SWEL. Similarly, the Area Walk-Bys resulted with no adverse seismic conditions associated with other SSCs located in the vicinity of the SWEL item(s).

The Seismic Walkdowns identified a limited set of minor conditions with no discernible trend. Other than these minor conditions, the Seismic Walkdowns identified no degraded, nonconforming, or unanalyzed conditions that required either immediate or follow-on action. No planned or newly identified protection or mitigation features have resulted from the efforts to address the 50.54(f) letter.

Follow-on activities required to complete the efforts to address Enclosure 3 of the 50.54(f) letter include inspection of 16 items deferred due to inaccessibility along with supplemental inspections of 16 electrical cabinets. Area Walk-Bys will be complete, as required, during these follow-on activities.

2 Seismic Licensing Basis

2.1 OVERVIEW

This section of the report summarizes the seismic licensing basis for the Oyster Creek Nuclear Generating Station Unit 1. The safe shutdown earthquake and a summary of the codes, standards, and methods used in the design of Seismic Category I SSCs are presented. This section does not establish or change the seismic licensing basis of the facility and is intended to provide a fundamental understanding of the seismic licensing basis of the facility.

2.2 SAFE SHUTDOWN EARTHQUAKE (SSE)

The original seismic design for the Oyster Creek Nuclear Generating Station critical structures and equipment is based on dynamic analyses using acceleration response spectrum curves which were based on a peak ground acceleration of 0.22g for the Safe Shutdown Earthquake (SSE). Beginning in September, 1995, seismic design of equipment and structures is based on a peak ground acceleration of 0.184g for the SSE. (Ref. 2 section 3.7)

2.3 DESIGN OF SEISMIC CATEGORY I SSCS

A full description of the Safe Shutdown Earthquake along with the codes, standards, and methods used in the design of the Seismic Category I SSCs for meeting the seismic licensing basis requirements is provided in the following Oyster Creek Generating Station UFSAR sections:

- 3.7 Seismic Design
- 3.8 Design of Category I Structures
- 3.9 Mechanical Systems and Components
- 3.10 Seismic Qualification of Seismic Category I Instrumentation and Electrical Equipment

These UFSAR sections should be referred to for a detailed understanding of the seismic licensing basis.

2.3.1 Summary of Seismic Design

The original seismic design for the Oyster Creek Nuclear Generating Station critical structures and equipment is based on dynamic analyses using acceleration response spectrum curves which were based on a peak ground acceleration of 0.11g for the Operating Basis Earthquake (OBE) and 0.22g for the Safe Shutdown Earthquake (SSE).

Beginning in September, 1995, seismic design of equipment and structures is based on a peak ground acceleration of 0.092g for the OBE and 0.184g for the SSE. (Ref. 2 section 3.7)

The design of Class I structures and major pieces of equipment (UFSAR Table 3.7-1) was based on a dynamic analysis using the acceleration response spectrum curves shown in UFSAR Figure 3.2-1 which are based upon the recommendations of Dr. George W. Housner. These curves are based on the seismology, geology, and other pertinent data at the site. (Ref. 2 section 3.7)

Beginning in September, 1995, equipment, components, supports and structural subsystems are designed on the basis of the SSE design response spectra shown in UFSAR Figures 3.7-18 and 3.7-19. The SSE Site Specific Response Spectra (SSRS) have a peak ground acceleration of 0.184g horizontal and 0.0952g vertical. (Ref. 2 section 3.7)

An acceleration time history for the Oyster Creek Site was developed by URS/Blume, and reported in the "Seismic Acceleration Floor Response Spectra for the Reactor Building at Oyster Creek Nuclear Power Plant", in December 1981. This report is included as UFSAR Appendix 3.7A. (Ref. 2 section 3.7)

For the SSI analysis using the SSRS developed by Weston, three artificial time histories (two horizontal and one vertical) are generated by EQE International. These time histories are shown in UFSAR Figures 3.7-20 to 3.7-22. The time histories envelope the SSE target spectra in that no more than 5 points of the time history response spectra fall below the target spectra and no more than 10% below at any point. The comparisons of the time history response spectra and the SSRS are shown in UFSAR Figures 3.7-23 to 3.7-25. (Ref. 2 section 3.7)

The percentages of critical damping used for the seismic analyses of Class I structures, systems and components are listed in UFSAR Table 3.7-2. The percentages of critical damping values used for the recirculation system piping and the Seismic Category I structures and components in the New Radwaste Building are those specified in NRC Regulatory Guide 1.61. (Ref. 2 section 3.7)

The percentages of critical damping used for seismic analysis after September, 1995, are those specified in NRC Regulatory Guide 1.61 or ASME Code Case N-411 for piping. (Ref. 2 section 3.7)

2.3.2 Summary of Codes and Standards

1. Concrete Containment

The design, materials, fabrication, construction and inspection of the Containment System conform to, but are not necessarily limited to, the applicable sections of the following codes and specifications which are used to establish or implement design bases and methods, analytical techniques, material properties, construction techniques and quality control provisions.

American Society of Mechanical Engineers

- Boiler and Pressure Vessel Code, Sections VIII and IX, latest edition at the time of design, with all applicable addenda; nuclear case interpretation 1270 N-5, 1271 N, 1272 N-5 and other applicable case interpretations.
- Boiler and Pressure Vessel Code, Section II, latest edition at the time of design with all applicable addenda, for the following material specifications:
  - SA-201 Carbon-Silicon Steel Plates of Intermediate Tensile Ranges for Fusion-Welded Boilers and Other Pressure Vessels
  - SA-212 High Tensile Strength Carbon-Silicon Steel Plates for Boilers and Other Pressure Vessels
  - SA-300 Steel Plates for Pressure Vessels for Service at Low Temperature
  - SA-333 Seamless and Welded Steel Pipe for Low Temperature Service
  - SA-350 Forged or Rolled Carbon and Alloy Steel Flanges, Forged Fittings, and Valves and Parts for Low Temperature Service

American Society for Testing and Materials Standards

- A36 Structural Steel
- A193 Specification for Alloy Steel and Stainless Steel Bolting Material for High Temperature Service
- A307 Specification for Low Carbon Steel Externally and Internally Threaded Standard Fasteners

American Institute of Steel Construction

- Specification for the design, fabrication and erection of structural steel for buildings

Modifications subsequent to the basic Containment System design and construction have transpired over a number of years after being initiated in 1975. As such, numerous codes and code revisions have been utilized in carrying out the design and construction efforts.

The following codes, standards and specifications have been supplied to indicate the basic nature of the documents being employed. Specific information relative to actual governing documents used, must be obtained from the individual modification's "System Design Description" for the Oyster Creek plant.

American Society of Mechanical Engineers

- ASME Boiler and Pressure Vessel Code, Section III, Subsection NE," Class MC Components," (1977 Edition through Summer 1977 Addenda).
- ASME Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," Division 1, (1977 Edition through Summer 1978 Addenda).
- ASME Boiler and Pressure Vessel Code, Section II, "Material Specifications," (1977 Edition through Summer 1978 Addenda).
- ASME Boiler and Pressure Vessel Code, Section III, Subsection NF, "Component Supports," (1977 Edition through Summer 1977 Addenda).

American Concrete Institute

- ACI 349-76, "Code Requirements for Nuclear Safety-Related Concrete Structures," (through 1979 Supplement).

2. Other Seismic Category I Structures

The design, materials, fabrication, construction and inspection of other seismic Category I structures (including concrete and steel internal structures of steel or concrete containments) conform to, but are not necessarily limited to, the applicable sections of the listed codes and specifications which are used to establish or implement design bases and methods, analytical techniques, material properties, construction techniques and quality control provisions.

American Concrete Institute Publications

- ACI 315, Manual of Standard Practice for Detailing Reinforced Concrete Structures
- ACI 318, Building Code Requirements for Reinforced Concrete
- ACI 347, Recommended Practice for Concrete Formwork
- ACI 613, Recommended Practice for Selecting Proportions for Concrete
- ACI SP-4, Formwork for Concrete

American Institute of Steel Construction Publications:

- Code of Standard Practice for Steel Buildings and Bridges
- Specifications for Structural Joints Using ASTM A325 Bolts
- Specification for the Design, Fabrication and Erection of Structural Steel for Buildings

Concrete Reinforcing Steel Institute

- CRSI, A Manual of Standard Practice for Reinforced Concrete Construction

Other Codes and Specifications

- UBC-1964 Uniform Building Code

3. Codes and Specifications Used for the Ventilation Stack

- ACI-505-54, American Concrete Institute Specification for the Design of Reinforced Concrete Chimneys
- ACI-318-63, Building Code Requirement for Reinforced Concrete
- ASCE Paper No. 3269, Wind Forces on Structures, Final Report of the Task Committee on Wind Forces

4. Codes and Specifications Used for the New Radwaste Building

- ACI 318-71, Building Code Requirement for Reinforced Concrete
- ACI 301-72, Specifications for Structural Concrete for Buildings
- ACI 306, Recommended Practice for Cold Weather Concreting
- ACI 311, Manual of Concrete Inspection

- ACI 315,Manual of Standard Practice for Detailing Reinforced Concrete Structures
- ACI 347, Recommended Practice for Concrete Formwork
- ACI 605 ,Recommended Practice for Hot Weather Concreting
- ACI 614, Recommended Practice for Measuring, Mixing and Placing Concrete
- ACI 211, Recommended Practice for Selecting Proportions for Concrete
- ACI 214, Recommended Practice for Evaluation of Compression Test Results of Field Concrete
- AISC, Specification for the Design, Fabrication and Erection of Structural Steel Buildings
- AISC, Code of Standard Practice
- AISC, Specification for Structural Joints Using ASTM A325 or A490 Bolts
- AWS, Code for Welding in Buildings D1.1
- ASME, Boiler and Pressure Vessel Code, Section VIII, Pressure Vessel, Division I
- ASCE Paper No. 3269, Task Committee Report "Wind Forces on Structures"
- UBC-1973, Uniform Building Code of the International Conference of Building Officials
- BOCA, The BOCA Basic Building Code

5. Seismic Category I Instrumentation and Electrical Equipment

The design of the Oyster Creek Nuclear Generating Station (OCNGS) began approximately in January 1964. At that time, the seismic design for equipment structures was based on dynamic analyses using acceleration response spectrum curves which were based on a ground motion of 0.11 g. The intent for the design was to ensure a safe shutdown for ground motions of 0.22 g. For further information on seismic input refer to UFSAR Section 3.7. (Ref. 2, section 3.10)

The NRC initiated a generic program to develop criteria for the seismic qualification of electrical and mechanical equipment in operating plants as an unresolved safety issue (USI A-46). Under this program, an explicit set of guidelines that should be used to judge the adequacy of the seismic qualifications of safety related equipment at all operating plants was developed. (Ref. 2, section 3.10)

The resolution of USI A-46 for Oyster Creek was by implementation of the generic criteria and methodology of the Generic Implementation Procedure for seismic verification of Nuclear Plant Equipment developed by the Seismic Qualification Utility Group. (Ref. 2, section 3.10)

3 Personnel Qualifications

3.1 OVERVIEW

This section of the report identifies the personnel that participated in the NTTF 2.3 Seismic Walkdown efforts. A description of the responsibilities of each Seismic Walkdown participant's role(s) is provided in Section 2 of the EPRI guidance document. Resumes provided in Appendix A provide detail on each person's qualifications for his or her role.

3.2 PROJECT PERSONNEL

Table 3-1 below summarizes the names and corresponding roles of personnel who participated in the NTTF 2.3 Seismic Walkdown effort.

Table 3-1. Personnel Roles

Name	Equipment Selection Engineer	Plant Operations	Seismic Walkdown Engineer (SWE)	Licensing Basis Reviewer	IPEEE Reviewer	Peer Reviewer
A. Perez						X(1)
K. Hull	X					
T.K. Ram	X					
M. Etre			X	X		
S. Baker			X	X		
W. Ho (Exelon)			X	X	X	
T. Bacon						X
W. Djordjevic						X(2)
E. DeMonch (Exelon)		X				

Notes:
1. Peer Review Team member for SWEL review only.
2. Peer Review Team Leader.

3.2.1 Stevenson & Associates Personnel

The following provides a synopsis of each individual's background and experiences.

Antonio Perez, P.E.: Mr. Perez is a Senior Engineer III and serves as the General Manager of the S&A Hudson, WI office. He earned his Bachelor of Science degree in Mechanical Engineering at Michigan Technological University and is a licensed Professional Engineer in the states of Wisconsin and Minnesota. Mr. Perez has over 15 years of experience in project management, project engineering, equipment design, and mechanical systems design and has served in the nuclear power industry for over 11 years. He has extensive experience in Program and Design Engineering and has held positions such as MOV Engineer, Responsible Design Engineer, Design Engineering Supervisor and STA Trainee in the nuclear power industry. Throughout his years serving in the nuclear power industry, Mr. Perez has gained knowledge of plant operations, documentation, and SSCs necessary to capably select a broad distribution of SSCs for the SWEL. In addition, his experiences have provided him with knowledge of IPEEE and USI A-46 programs. Mr. Perez has successfully completed the Near-Term Task Force Recommendation 2.3 – Plant Seismic Walkdowns Training Course.

Kim Hull: Mr. Hull is a Senior Engineer III in the S&A Hudson, WI office. He earned his Master of Science degree in Mechanical Engineering at Michigan State University. Mr. Hull has over 30 years of experience in the nuclear power industry and has held positions such as Shift Technical Advisor, Principal Engineer, Senior Instructor, and Mechanical Design Supervisor. He has an extensive background in all aspects of nuclear power plant modifications with a thorough understanding of configuration control/management along with design and licensing basis of nuclear power plants. Throughout his years serving in the nuclear power industry, Mr. Hull has gained knowledge of plant operations, documentation, and SSCs necessary to capably select a broad distribution of SSCs for the SWEL. In addition, his experiences have provided him with knowledge of IPEEE and USI A-46 programs. Mr. Hull has successfully completed the Near-Term Task Force Recommendation 2.3 – Plant Seismic Walkdowns Training Course.

Tribhawan K. Ram, P.E.: Mr. Ram is a Senior Engineer III in the S&A Phoenix, AZ Office. He has over 28 year experience in the nuclear power industry with expertise in plant systems and design engineering. Currently, Mr. Ram is leading the electrical engineering effort in support of Post-Fukushima Seismic Margin Analysis (SMA) for two Taiwan nuclear stations (PWR and BWR). This effort, in support of the plant Safe Shutdown Equipment List (SSEL), consists of relay list development, relay screening (using GERS, SQURTS or other available testing data), and relay chatter analysis. Mr. Ram was involved in resolving USI A-46 relay outliers for several plants (Dresden, Quad Cities, Millstone, Palisades, and Pilgrim). He evaluated dozens of control circuits for relay chattering issues. To replace outliers, Mr. Ram developed and/or supervised the development of modification packages including: replacement relay selection; relay testing specification preparation; and seismic testing facility visits for relay qualification. As a systems manager, Mr. Ram conducted periodic system walkdowns to discover and then pursue resolutions for any design, maintenance or operational issues with equipment. He has developed test plans for circuit breaker and other electrical equipment replacement, including involvement in test plan execution during refueling outages. Mr. Ram has interfaced, with NRC in their biennial Component Design Basis

Inspections (CDBI), and with INPO in their biennial evaluations. Throughout his years serving in the nuclear power industry, Mr. Ram has gained knowledge of plant operations, documentation, and SSCs necessary to capably select a broad distribution of SSCs for the SWEL. In addition, his experiences have provided him with knowledge of IPEEE and USI A-46 programs. Mr. Ram has MS degrees in Nuclear and Electrical Engineering from the University of Cincinnati, and an MBA from Bowling Green State University. He is a licensed Professional Engineer (electrical) in Ohio. Mr. Ram has completed a six month training course in BWR systems.

Mark Etre: Mr. Etre is a Senior Engineer III in the S&A Boston, MA office. He has managed and led seismic walkdowns and analyses of structures and components. Mr. Etre has more than 20 years of seismic experience serving the nuclear industry. Mr. Etre has participated in numerous USI A-46 and IPEEE projects in response to the requirements of Generic Letters 87-02 and 88-20. Mr. Etre has a Master of Science in Structural Engineering from the Worcester Polytechnic Institute. He has received industry training as a Seismic Capability Engineer (EPRI 5-day SQUG training) and has successfully completed the Near-Term Task Force Recommendation 2.3 – Plant Seismic Walkdowns Training Course.

Seth Baker: Mr. Baker is a Senior Engineer I in the S&A Boston, MA office, where he joined in 2008. He has performed seismic and other dynamic evaluations on a variety of nuclear structures including buildings, equipment frames, and cabinets, as well as having designed several structural modifications. He has completed the NTTF Recommendation 2.3 Training Course and has subsequently performed seismic walkdowns on seven US nuclear units. Mr. Baker holds a Master of Science degree in Civil Engineering from Stanford University and a Bachelor of Science degree from the Worcester Polytechnic Institute.

Todd Bacon: Mr. Bacon is a Senior Consultant in the S&A Boston, MA office. He has over 30 years of experience in evaluations of nuclear systems, structures and components, with specialization in the dynamic analysis and design of piping systems, structures and equipment for seismic, other dynamic, fluid, and wind loads. He has managed various ASME Code related tasks for numerous US and international utilities. Mr. Bacon has been involved with the dynamic analyses of systems associated with the Main Steam and other NSSS systems, as well as many other plant systems. In addition, Mr. Bacon has led the analysis and subsequent regulatory response for a number of issues including GL 96-03 and masonry block wall assessments related to IEB 80-11. He is a licensed Professional Engineer (civil) in the states of California, Ohio, and Georgia. Mr. Bacon has successfully completed the Near-Term Task Force Recommendation 2.3 – Plant Seismic Walkdowns Training Course.

Walter Djordjevic, P.E. Mr. Djordjevic is a Senior Consultant and serves as President of S&A with specialization in the dynamic analysis and design of structures and equipment for seismic, blast, fluid, and wind loads. He has managed and led seismic walkdowns and fragility analyses of structures and components for use in probabilistic risk assessments. Mr. Djordjevic has 37 years of seismic experience serving the nuclear industry. Mr. Djordjevic performed and managed more than 20 USI A-46 and IPEEE projects in response to the requirements of Generic Letters 87-02 and 88-20. Mr. Djordjevic has a Master of Science in Structural Engineering from the Massachusetts Institute of Technology. He has received industry training as a Seismic Capability Engineer (EPRI SQUG training), EPRI IPEEE Add-on, Seismic Fragility and Seismic Walkdown Engineer (SWE).

3.2.2 Additional Personnel

Exelon Plant Operations, E. DeMonch reviewed the SWEL. Mr. DeMonch was an operator on shift for 25 years in many positions from Entry level Control Room Licensed Operator up to a Shift Manager. From 2000 to 2010 he supported maintenance as the Fin SRO. From 2010 to 2011 he supported Operations Training as a (SME) SRO instructor. He is currently working as Operations representative, Previous SRO, Supervisor supporting the Fukushima Response project at Oyster Creek Station. He is familiar with all aspects of the station operating procedures.

Various station personnel also provided support to the SWEL preparer in identifying major equipment or system modifications, equipment and systems located in different environments, and equipment and systems that would be accessible for inspection during the plant walkdowns, in accordance with Reference 1.

Exelon Engineering staff member Mr. Wing Ho performed the IPEEE Vulnerabilities Review based, in part, on the Oyster Creek IPEEE submittal along with subsequent correspondence and station records. (Ref. 3) Mr. Ho is a Structural Engineer in the Exelon Engineering Department. He has worked at Oyster Creek since 2009. He has successfully completed the Near-Term Task Force Recommendation 2.3 – Plant Seismic Walkdowns Training Course.

4 Selection of SSCs

4.1 OVERVIEW

This section of the report describes the process used to select structures, systems, and components, (SSCs) that were included in the Seismic Walkdown Equipment List (SWEL). The actual equipment lists that were developed in this process are found in Appendix B and are as follows:

- Table B-1, Base List 1
- Table B-2, Base List 2
- Table B-3, SWEL 1
- Table B-4, SWEL 2

4.2 SWEL DEVELOPMENT

The selection of SSCs process described in EPRI Technical Report 1025286, *Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic*, dated June 2012 (Ref. 1), was utilized to develop the SWEL list for Oyster Creek Generating Station.

The SWEL is comprised of two groups of items:

- SWEL 1 is a sample of items to safely shut down the reactor and maintain containment integrity
- SWEL 2 is a list of spent fuel pool related items

4.3 SWEL 1 DEVELOPMENT

4.3.1 SWEL 1 – Sample of Required Items for the Five Safety Functions

The process for selecting a sample of SSCs for shutting down the reactor and maintaining containment integrity began with the Oyster Creek Individual Plant Examination for External Events (IPEEE) (Ref. 3). Table 3-3, *Oyster Creek PRA Comp. List*, and Table 3-4, *Additional Components*, of Reference 3 were utilized as the initial list of equipment. The information provided in the Reference 3 tables was supplemented with two Excel Spreadsheets: a) "OC Q Component List.xls" (Ref, 5) and b) "Oyster Creek SSEL.xls" (Ref. 6). The three datasets were compiled into a single list of SSCs. The components on this initial list were then subjected to the following four (4) screens to identify the items to be included on the first Seismic Walkdown Equipment List (SWEL 1):

1. Screen #1 – Seismic Category 1

As described in Reference 1, only items that have a defined seismic licensing basis are to be included in SWEL 1. Each item on the initial list was reviewed to determine if it had a defined seismic licensing basis. All items identified as Class I, as defined in the Oyster Creek UFSAR Chapter 3, were identified as having a defined seismic licensing basis. (Ref. 2) Electrical enclosures containing Class I electrical devices were identified as Class I. Class I determination was made through a review of current design and licensing basis documentation.

As a means to expedite this process, the list of SSCs provided in Reference 5 included a QA Class and Seismic Cat. All items with a QA Class of "Q" and Seismic Cat of "W" or "X" were considered Class I. QA Class "Q" items are defined as Safety Related; Seismic Cat "W" items are defined as Seismic Class I, operable during and after an SSE; and Seismic Cat "X" items are defined as Seismic Class I, operable after an SSE.

Screen # 1 reduced the scope of items of the initial list to include only Class I items.

2. Screen #2 – Equipment or Systems

This screen narrowed the scope of items to include only those that do not regularly undergo inspections to confirm that their configuration is consistent with the plant licensing basis. This screen further reduced the components on the list of any Safety Category I Structures, Containment Penetrations, Safety Category I Piping Systems, cable/conduit raceways and HVAC ductwork.

3. Screen #3 – Support for the Five Safety Functions

This screen narrowed the scope of items included on the SWEL 1 to only those associated with maintaining the following five safety functions:

A. Reactor Reactivity Control (RRC)

B. Reactor Coolant Pressure Control (RCPC)

C. Reactor Coolant Inventory Control (RCIC)

D. Decay Heat Removal (DHR)

E. Containment Function (CF)

The first four functions are associated with bringing the reactor to a safe shutdown condition. The fifth function is associated with maintaining containment integrity.

As described in Appendix E of Reference 1, the safety function for each item on the final SWEL 1 list was identified. It is noted that items on SWEL 1 with a specific safety function(s) are considered frontline systems. Items with a safety-function designation of 'Support System HVAC', 'Support System AC Power', 'Support System DC Power', or 'Cooling Water' may be a frontline or support system. Items with a safety-function designation of 'Support System HVAC (SSHVAC), 'Support System AC Power' (SSAC), 'Support System DC Power' (SSDC), 'Support System Compressed Air' (SSCA) or 'Cooling Water' (UHS) support at least one of the five safety functions.

The resultant equipment list after Screen #3 is defined in the EPRI guidance document as Base List 1 and is included in Appendix B. (Ref. 1)

4. Screen #4 – Sample Considerations

This screen is intended to result in a SWEL 1 that sufficiently represents a broad population of plant Seismic Category 1 equipment and systems to meet the objectives of the NRC 50.54(f) Letter. The following attributes were considered in the selection process for items included on SWEL 1:

A. A variety of types of systems

The system is identified for each item on SWEL 1. The equipment included on SWEL 1 is a representative sample of several systems that perform one or more safety functions. Further, the systems represented include both frontline and support systems as listed in Reference 1 Appendix E: Systems to Support Safety Function(s).

B. Major new and replacement equipment

The equipment included on SWEL 1 includes several items that have been modified or replaced over the past several years. Each item on SWEL 1 that is new or replaced is identified.

C. A variety of types of equipment

The equipment class is identified for each item on SWEL 1. The equipment included on SWEL 1 is a representative sample from each of the classes of equipment listed in Reference 1 Appendix B: Classes of Equipment. Where appropriate, at least one piece of equipment from each class is included on SWEL 1. Screening #1, #2, and #3 resulted in no equipment in the following classes:

- (10) Air Handlers
- (11) Chillers
- (12) Compressors

D. A variety of environments

The location for each item is identified on SWEL 1. The equipment included on SWEL 1 is a representative sample from a variety of environments (locations) in the station.

E. Equipment enhanced due to vulnerabilities identified during the IPEEE program

A review of the IPEEE documents indicate no enhancements of Class I equipment resulted from the IPEEE program. (Ref. 3 and 10) This was confirmed in NRC IPEEE SER that two IPEEE program-related modifications involved non-safety related Combustion Turbines. (Section 2.16 of Attachment 1 of Ref. 10)

F. Contribution to risk

In selecting items for SWEL 1 that met the attributes above, some items with similar attributes were selected based on their higher risk-significance. To determine the relative risk-significance, the Risk Achievement Worth (RAW) and Fussell-Vesely importance for a Loss of Off-Site Power (LOOP) scenario from the internal plant PRA were used. Additionally, the list of risk-significant components for the LOOP PRA were compared with the draft SWEL 1 to

confirm that a reasonable sample of risk-significant components (relevant for a seismic event) were included on SWEL 1. (Ref. 12)

4.4 SWEL 2 DEVELOPMENT

4.4.1 SWEL 2 – Spent Fuel Pool Related Items

The process for selecting a sample of SSCs associated with the spent fuel pool (SFP) began with a review of the station design and licensing basis documentation for the SFP and the interconnecting SFP cooling system. The following four screens narrowed the scope of SSCs to be included on the second Seismic Walkdown Equipment List (SWEL 2):

1. **Screen #1 - Seismic Category 1**

   As described in Reference 1, the adequacy of the SFP structure is assessed by analysis as a Seismic Category 1 structure. Therefore, the SFP structure is assumed to be seismically adequate for the purposes of this program and is not included in the scope of items included on SWEL 2.

   As per Licensing Design Basis Memo MCC-E1 C320-92-1075, three portions of the SFPCS are regulatory required (RR), summarized as: a) the part of the SFPCS bounded by valves V-18-2 and V-18-19; b) the part bounded by valves V-18-2, 3, 4, 19, 25 to 28, 47, and 116. It includes "------ *other portions of the original SFPCS to the extent that they will not become missiles*----" and c) *"----the balance of the RR scope ---- is that required by UFSAR section 9.1.3.1.*" (Ref. 9)

   As per the UFSAR Section 9.1.3.3,

   > *"During 1986, a seismic analysis of the SFPC System revealed that the Original SFPC System did not satisfy Seismic Class 1 stress criteria. However, the Augmented SFPC System, added as part of the SFSP expansion described in Amendment 78 of the original FDSAR was found to satisfy Seismic Class 1 stress criteria.*
   >
   > *A portion of the Original SFPC System was upgraded to Seismic Class I during the 1986 Cycle 11 Refueling Outage. Seismic qualification was based upon the SEP response spectra and and operability criteria consistent with ASME Section III, Division I, Appendix F. The non upgraded portion of the original SFPCS piping is located in the old Radwaste Building and the connecting tunnel. This piping became isolatable by the addition of a new gate valve, V-18-116, to the system."*

   Therefore, these portions described above are considered Seismic Class I components and representative elements are added to the SWEL 2.

   The process for selecting the equipment sample came from searching the "OC Q Component List.xls", and the Oyster Creek Excel Spreadsheet titled "OC SFP Component List.xls" that meet the above licensing design basis and UFSAR requirements. (Ref. 5 & 8) The components listed on the three documents were then subjected to the following four screens to identify the items to be included on the second Seismic Walkdown Equipment List (SWEL 2):

2. **Screen #2 – Equipment or Systems**

   This screen considers only those items associated with the SFP that are appropriate for an equipment walkdown process.

3. **Screen #3 – Sample Considerations**

   This screen represents a process that is intended to result in a SWEL 2 that sufficiently represents a population of SFP Seismic Category 1 equipment and systems to meet the objectives of the NRC 50.54(f) letter. The following attributes were considered in the development of SWEL 2:

4. **A variety of types of systems**

   The equipment included on SWEL 2 is a representative sample of the systems associated with the SFP and its cooling systems (Spent Fuel Pool Cooling and Augmented Spent Fuel Pool Cooling).

   A. Major new and replacement equipment

      Though there are no major new or replacement equipment, Mod Package ECR 08-01114 provided the ability to connect fire water system to the SPFCS via new valves. Seismic Class I valve V-18-1266 has been added to SWEL 2 to account for this modification

   B. A variety of types of equipment

      The equipment class is identified for each item on SWEL 2. The equipment included on SWEL 2 is a representative sample from each of the classes of equipment listed in Reference 1 Appendix B: Classes of Equipment. Where appropriate, at least one piece of equipment from each class is included on SWEL 2.

      The classes/types of equipment include; (00) Other (manual valves), (05) Horizontal Pumps, (18) Instrument Racks, (19) Temperature Sensors, and (21) Tanks and Heat Exchangers.

   C. A variety of environments

      The location for each item is identified on SWEL 2. The equipment included on SWEL 2 should be a representative sample from a variety of environments (locations) for equipment associated with the SFP and its cooling system. All items are in the reactor building.

5. **Screen #4 – Rapid Drain-Down**

   This screen identifies items that could allow the spent fuel pool to drain rapidly. Consistent with Reference 1, the scope of items included in this screen is limited to the hydraulic lines connected to the SFP and the equipment connected to those lines. For the purposes of this program it is assumed the SFP gates are installed and the SFP cooling system is in its normal alignment for power operations. The SFP gates are passive devices that are integral to the SFP. As such, they are considered capable of withstanding a design basis earthquake without failure and do not allow for a rapid drain-down of the SFP.

   The SSCs identified in this screen are not limited to Seismic Category 1 (Class I) items, but is limited to those items that could allow rapid drain-down of the SFP. Rapid drain-down is defined as lowering of the water level to the top of the fuel assemblies within 72 hours after the earthquake.

Excerpts from the Oyster Creek UFSAR sections state:

> *9.1.2.2.1: "...The liner is liquid tight, serving as a barrier to any moisture loss from the concrete."*
>
> *"...To avoid unintentional draining of the pool, there are no penetrations that would permit the pool to be drained below one foot above the active fuel. All lines extending below this level are equipped with suitable valving to prevent backflow."*
>
> *9.1.3.3: "The SFPC System is designed to prevent the loss of pool water inventory by providing suction for the system flow from the surface of the pool, and returning the coolant through diffusers, which are provided with backflow prevention devices to eliminate the potential for siphoning"*

The Class I spent fuel cooling system shown in Drawing GE 237E756 consists of two complete cooling trains. (Ref. 4)

Oyster Creek UFSAR section 9.1.2.2.1 states:

> *"----The spent fuel storage pool is a reinforced concrete structure, completely lined with seam welded stainless steel sheets, themselves welded to reinforcing members embedded in the concrete. The pool was designed to withstand the anticipated earthquake loadings as a Class I structure."*

With this design feature in place, rapid drain-down associated with cracking of the SFP structure is not considered a credible event during the postulated earthquake. No rapid drain-down components are included on the SWEL 2 list.

5 Seismic Walkdowns and Area Walk-Bys

5.1 OVERVIEW

Seismic Walkdowns and Area Walk-Bys were conducted by a two (2) person team of trained Seismic Walkdown Engineers (SWEs), in accordance with the EPRI guidance document during the week of August 20, 2012. The Seismic Walkdowns and Area Walk-Bys are discussed in more detail in the following sub-sections.

Consistent with the EPRI guidance document, Section 4: Seismic Walkdowns and Area Walk-Bys, the SWEs used their engineering judgment, based on their experience and training, to identify potentially adverse seismic conditions. Where needed, the engineers were provided the latitude to rely upon new or existing analyses to inform their judgment.

The SWEs conducted the Seismic Walkdowns and Area Walk-Bys together as a team. During the evaluations, the SWEs actively discussed their observations and judgments with each other. The results of the Seismic Walkdowns and Area Walk-Bys reported herein are based on the comprehensive agreement of the SWEs.

5.2 SEISMIC WALKDOWNS

The Seismic Walkdowns focused on the seismic adequacy of the items on the SWEL (SWEL 1 and SWEL 2) as provided in Appendix B of this report. The Seismic Walkdowns also evaluated the potential for nearby SSCs to cause adverse seismic interactions with the SWEL items. The Seismic Walkdowns focused on the following adverse seismic conditions associated with the subject item of equipment:

- Adverse anchorage conditions
- Adverse seismic spatial interactions
- Other adverse seismic conditions

The results of the Seismic Walkdowns have been documented on the Seismic Walkdown Checklist (SWC) provided in the EPRI guidance document, Appendix C. Seismic Walkdowns were performed and a SWC completed for 101 of the 117 items identified on the Oyster Creek Generating Station SWEL. Additionally, photos have been included with most SWCs to provide a visual record of the item along with any comments noted on the SWC. Drawings and other plant records are cited in some of the SWCs, but are not included with the SWCs because they are readily retrievable documents through the station's document management system.

Seismic Walkdowns are deferred for the remaining 16 items to a time when the equipment is accessible. These items could not be walked down during the 180-day period following the issuance of the 10CFR50.54(f) letter due to their being inaccessible. Inaccessibility of this equipment was either based on the location of the equipment (environment that posed personnel safety concerns while the unit is operating) or due to the electrical safety hazards posed while the equipment is operating. Appendix E of this

report identifies the inaccessible equipment along with the plan for future Seismic Walkdowns.

The following subsections describe the approach followed by the SWEs to identify potentially adverse anchorage conditions, adverse seismic interactions, and other adverse seismic conditions during the Seismic Walkdowns.

5.2.1 *Adverse Anchorage Conditions*

Guidance for identifying anchorage that could be degraded, non-conforming, or unanalyzed relied on visual inspections of the anchorage and verification of anchorage configuration. Details for these two types of evaluations are provided in the following two subsections.

The evaluation of potentially adverse anchorage conditions described in this subsection applies to the anchorage connections that attach the identified item of equipment to the civil structure on which it is mounted. For example, the welded connections that secure the base of a Motor Control Center (MCC) to the steel embedment in the concrete floor would be evaluated in this subsection. Evaluation of the connections that secure components within the MCC is covered later in the subsection "Other Adverse Seismic Conditions."

Visual Inspections

The purpose of the visual inspections was to identify whether any of the following potentially adverse anchorage conditions were present:

- Bent, broken, missing, or loose hardware
- Corrosion that is more than mild surface oxidation
- Visible cracks in the concrete near the anchors
- Other potentially adverse seismic conditions

Based on the results of the visual inspection, the SWEs judged whether the anchorage was potentially degraded, non-conforming, or unanalyzed. The results of the visual inspection were documented on the SWC, as appropriate. If there was clearly no evidence of degraded, nonconforming, or unanalyzed conditions, then it was indicated on the checklist and a licensing basis evaluation was not necessary. However, if it was not possible to judge whether the anchorage is degraded, nonconforming, or unanalyzed, then the condition was entered into the Corrective Action Program as a potentially adverse seismic condition.

5.2.2 *Configuration Verification*

In addition to the visual inspections of the anchorage as described above, the configuration of the installed anchorage was verified to be consistent with existing plant documentation for at least 50% of the items on the SWEL.

Line-mounted equipment (e.g., valves mounted on pipelines without separate anchorage) was not evaluated for anchorage adequacy and was not counted in establishing the 50% sample size.

Examples of documentation that was considered to verify that the anchorage installation configurations are consistent with the plant documentation include the following:

- Design drawings

- Seismic qualification reports of analyses or shake table tests
- IPEEE program documentation, as applicable

The Table C-1 of Appendix C indicates the anchorage verification status for components as follows:

N/A: components that are line-mounted and/or are not directly anchored (with separate anchorage) to the civil structure and therefore do not count in the anchorage confirmation total

Y: components that are anchored to the civil structure which were confirmed to be consistent with design drawings and/or other plant documentation

N: components that are anchored to the civil structure for which anchorage drawings were not identified and/or retrieved

See Table 5-1 below for the accounting of the 50% anchorage configuration confirmations, and the individual SWC forms in Appendix C for the specific drawings used for each anchorage verification confirmation.

Table 5-1. Anchorage Configuration Confirmation

SWEL	No. of SWEL Items (A)	N/A Items (B)	Required to Confirm? (A-B)/2	Items Confirmed
Total of SWEL 1 and SWEL 2	**117**	**58**	**30**	**47**

5.2.3 Adverse Seismic Spatial Interactions

An adverse seismic spatial interaction is the physical interaction between the SWEL item and a nearby SSC caused by relative motion between the two during an earthquake. An inspection was performed in the area adjacent to and surrounding the SWEL item to identify any seismic interaction conditions that could adversely affect the capability of that SWEL item to perform its intended safety-related functions.

The three types of seismic spatial interaction effects that were considered are as follows:

- Proximity
- Failure and falling of SSCs (Seismic II over I)
- Flexibility of attached lines and cables

Detailed guidance for evaluating each of these types of seismic spatial interactions is described in the EPRI guidance document, Appendix D: Seismic Spatial Interaction.

The Seismic Walkdown Engineers exercised their judgment to identify seismic interaction hazards. Section 5.2.5 provides a summary of issues identified during the Seismic Walkdowns.

5.2.4 *Other Adverse Seismic Conditions*

In addition to adverse anchorage conditions and adverse seismic interactions, described above, other potentially adverse seismic conditions that could challenge the seismic adequacy of a SWEL item could have been present. Examples of the types of conditions that could pose potentially adverse seismic conditions include the following:

- Degraded conditions
- Loose or missing fasteners that secure internal or external components to equipment
- Large, heavy components mounted on a cabinet that are not typically included by the original equipment manufacturer
- Cabinet doors or panels that are not latched or fastened
- Other adverse conditions

Any identified other adverse seismic conditions are documented on the items' SWC, as applicable.

5.2.5 *Conditions Identification during Seismic Walkdowns*

Table 5-2 provides a summary of conditions identified during the equipment Seismic Walkdowns. The equipment Seismic Walkdowns resulted in a total of five (5) conditions identified and each of these was entered into the station's CAP. All of the identified conditions were assessed and it was concluded that the condition would not prevent the associated equipment from performing its safety-related function(s). None of the conditions identified by the SWEs during the equipment Seismic Walkdowns were concluded to be adverse seismic conditions.

5.3 AREA WALK-BYS

The purpose of the Area Walk-Bys is to identify potentially adverse seismic conditions associated with other SSCs located in the vicinity of the SWEL items. Vicinity is generally defined as the room containing the SWEL item. If the room is very large (e.g., Turbine Hall), then the vicinity is identified based on judgment, e.g., on the order of about 35 feet from the SWEL item. This vicinity is described on the Area Walk-By Checklist (AWC), shown in Appendix D of this report. A total of 28 AWCs were completed for Oyster Creek Unit 1.

The key examination factors that were considered during Area Walk-Bys include the following:

- Anchorage conditions (if visible without opening equipment)
- Significantly degraded equipment in the area
- A visual assessment (from the floor) of cable/conduit raceways and HVAC ducting (e.g., condition of supports or fill conditions of cable trays)
- Potentially adverse seismic interactions including those that could cause flooding, spray, and fires in the area
- Other housekeeping items that could cause adverse seismic interaction (including temporary installations and equipment storage)

- Scaffold construction was inspected to meet Exelon Procedure MA-AA-796-024, Scaffold Installation Inspection and Removal
- Seismic housekeeping was examined to meet station procedure 119.5, Loose Equipment Storage

The Area Walk-Bys are intended to identify adverse seismic conditions that are readily identified by visual inspection, without necessarily stopping to open cabinets or taking an extended look. Therefore, the Area Walk-By took significantly less time than it took to conduct the Seismic Walkdowns described above for a SWEL item. If a potentially adverse seismic condition was identified during the Area Walk-By, then additional time was taken, as necessary, to evaluate adequately whether there was an adverse condition and to document any findings.

The results of the Area Walk-Bys are documented on the AWCs included in Appendix D of this report. A separate AWC was filled out for each area inspected. A single AWC was completed for areas where more than one SWEL item was located.

Additional details for evaluating the potential for adverse seismic interactions that could cause flooding, spray, or fire in the area are provided in the following two subsections.

Seismically-Induced Flooding/Spray Interactions

Seismically-induced flooding/spray interactions are the effect of possible ruptures of vessels or piping systems that could spray, flood or cascade water into the area where SWEL items are located. This type of seismic interaction was considered during the IPEEE program. Those prior evaluations were considered, as applicable, as information for the Area Walk-Bys.

One area of particular concern to the industry is threaded fire protection piping with long unsupported spans. If adequate seismic supports are present or there are isolation valves near the tanks or charging sources, flooding may not be a concern. Numerous failures have been observed in past earthquakes resulting from sprinkler head impact. Less frequent but commonly observed failures have occurred due to flexible headers and stiff branch pipes, non-ductile mechanical couplings, seismic anchor motion and failed supports.

Examples where seismically-induced flooding/spray interactions could occur include the following:

- Fire protection piping with inadequate clearance around fusible-link sprinkler heads
- Non-ductile mechanical and threaded piping couplings can fail and lead to flooding or spray of equipment
- Long, unsupported spans of threaded fire protection piping
- Flexible headers with stiffly supported branch lines
- Non-Seismic Category I tanks

The SWEs exercised their judgment to identify only those seismically-induced interactions that could lead to flooding or spray.

Seismically-Induced Fire Interactions

Seismically-induced fire interactions can occur when equipment or systems containing hazardous/flammable material fail or rupture. This type of seismic interaction was

considered during the IPEEE program. Those prior evaluations were considered, as applicable, as information for the Area Walk-Bys.

Examples where seismically-induced fire interactions could occur include the following:

- Hazardous/flammable material stored in inadequately anchored drums, inadequately anchored shelves, or unlocked cabinets
- Natural gas lines and their attachment to equipment or buildings
- Bottles containing acetylene or similar flammable chemicals
- Hydrogen lines and bottles

Another example where seismically-induced fire interaction could occur is when there is relative motion between a high voltage item of equipment (e.g., 4160 volt transformer) and an adjacent support structure when they have different foundations. This relative motion can cause high voltage busbars, which pass between the two, to short out against the grounded bus duct surrounding the busbars and cause a fire.

The Seismic Walkdown Engineers exercised their judgment to identify only those seismically-induced interactions that could lead to fires.

5.3.1 Conditions Identification during Area Walk-bys

Table 5-3 at the end of this section provides a summary of the conditions identified during the Area Walk-Bys. Five (5) conditions were identified during the Area Walk-Bys and entered into the station CAP. No potentially adverse seismic conditions were identified that resulted in a seismic licensing basis evaluation. No seismically-induced flooding or spray interactions were identified during the Area Walk-Bys. No seismically-induced fire interactions were identified during the Area Walk-Bys.

5.4 SUPPLEMENTAL INFORMATION ON ELECTRICAL CABINET INSPECTIONS

Following the completion of the online seismic walkdowns, the industry was made aware that the NRC staff had clarified a position on opening electrical cabinets to inspect for other adverse seismic conditions. The purpose for opening these cabinets is to inspect for evidence of:

- internal components not being adequately secured,
- whether fasteners securing adjacent cabinets together are in place, and
- other adverse seismic conditions.

Appendix E of this report includes Table E-2 which identifies components in the specified equipment classes that would be considered as electrical cabinets:

1. Motor Control Centers and Wall-Mounted Contactors
2. Low Voltage Switchgear and Breaker Panels
3. Medium Voltage, Metal-Clad Switchgear
4. Transformers
14. Distribution Panels and Automatic Transfer Switches
16. Battery Chargers and Inverters
20. Instrumentation and Control Panels

Components that are identified on Table E-1 (inaccessible and deferred components) are not listed on Table E-2 to avoid redundancy. Table E-2 indicates internal accessibility of each cabinet. Cabinets that have been identified as requiring these supplemental internal inspections are those with doors or panels with latches or thumbscrews and can be readily opened during normal maintenance activities. Also provided for each cabinet is a proposed milestone schedule for performing these internal inspections and the associated station tracking number (IR number).

The Seismic Walkdown Checklists (SWC) for the components identified in Table E-2 that can be opened for internal inspections will be revised at the time of the supplemental walkdown to indicate the results of these internal inspections.

Table 5-2. Conditions Identified during Seismic Walkdowns

Item ID	Description of Issue	Action Request ID (IR)	Actions Complete Yes/No
1A2-460V	Loose bolts at 1A2-460V USS	1403294	No
DC-F	Loose thermometer at DC-F panel	1406823	Yes
1A21B-460V MCC	Open hooks at 1A21B-460V MCC	1403305	No
H-21-1A	Broken bolts at containment spray heat exchangers H-21-1A and -1B	1403183	Yes
V-15-133	Seismic interaction between valves V-15-133 and V-6-2917	1403039	No

Notes:

1) "Yes" indicates that any corrective actions resulting from the issue are complete

2) "No" indicates that any corrective actions resulting from the issue are NOT complete. Actions are tracked by the IR number in the station CAP.

Table 5-3. Conditions Identified during Area Walk-Bys

Item ID	Description of Issue	Action Request ID (IR)	Actions Complete Yes/No
RK-3 Area	Bent hanger rod by RB 51' airlock.	1402715	No
Diesel Fuel Oil Storage	Loose ladder adjacent to diesel oil tank	1405874	Yes
A-480V Switchgear Room	Bent hanger rod at 1A23-460V MCC	1403359	Yes
4160V A&B Room	Loose nut at strap hanger adjacent to 1B-4160V switchgear	1405576	No
DG 1 Room	Mislabeled level indicators at EDG day tanks	1405561	No

Notes:
1) "Yes" indicates that any corrective actions resulting from the issue are complete
2) "No" indicates that any corrective actions resulting from the issue are NOT complete. Actions are tracked by the IR number in the station CAP.

6 Licensing Basis Evaluations

The EPRI guidance document, Section 5: Seismic Licensing Basis Evaluation provides a detailed process to perform and document seismic licensing basis evaluations of SSCs identified when potentially adverse seismic conditions are identified. The process provides a means to identify, evaluate and document how the identified potentially adverse seismic condition meets a station's seismic licensing basis without entering the condition into a station's Corrective Action Program (CAP). In lieu of this process, Exelon/Oyster Creek utilized the existing processes and procedures (Site CAP Expectations) to identify, evaluate and document conditions identified during the Seismic Walkdowns.

In accordance with Exelon/Oyster Creek processes and procedures, all questionable conditions identified by the SWEs during the walkdowns were entered into the station CAP to be further evaluated and addressed as required. The SWEs provided input to support the identification and evaluation (including seismic licensing basis evaluations, as required) of the potentially adverse seismic conditions entered into the CAP. The station corrective action program is a more robust process than that provided in the EPRI guidance document; in part, ensuring each condition is properly evaluated for conformance with design and licensing bases and corrected as required.

Conditions identified during the walkdowns were documented on the SWCs, AWCs, and entered into the CAP. For those conditions that required, seismic licensing basis evaluations were completed and documented within the IR. Tables 5-2 and 5-3 in the report provide the IR, a summary of the condition, and the action completion status.

7

IPEEE Vulnerabilities Resolution Report

The term vulnerability is defined as any core damage sequence whose frequency exceeds 1E-4 per year or any large early containment failure sequence whose frequency exceeds 1E-6 per year (see Section 1.5.3 of the IPEEE Submittal Report (Ref. 3).

The Oyster Creek IPEEE Submittal Report (Ref. 3) did not identify any vulnerability, outlier, anomaly, or enhancement. However, the IPEEE report (Ref. 3) recommended two "improvements" on the Combustion Turbines:

Improvement 1: Ensure all bolts on the Forked River Combustion Turbine fin-fan coolers are installed and torqued properly. Although adequate capacity for withstanding the range of potential ground motions exist, additional margin could be obtained by ensuring all bolts are installed and torqued properly.

Improvement 2: Consider the addition of battery spacers in the Combustion Turbine battery compartments. Although the current battery spacing is sufficient to prevent battery failure due to interactions, additional margin could result with the use of battery spacers.

Based on the Oyster Creek Nuclear Generating Station letter to the NRC, "Response to the Supplemental Request for Additional Information, Oyster Creek Nuclear Generating Station, Seismic Portion of the Oyster Creek Individual Plant Examination for External Events," dated June 29, 2000, a third walkdown performed in support of these recommendations verified that little improvement would be achieved as a result of modifications to the battery compartments and the recommendation for Improvement 2 was closed. Fin-fan cooler bolts were added and torqued to complete Improvement 1. (Ref. 15)

The NRC Staff Evaluation Report (see section 2.16 of Attachment 1, Reference 10) concurred that no vulnerability exists in Oyster Creek, and accepted the disposition of the improvements described above. Therefore, no open items exist as a result of the seismic portion of the IPEEE program.

8 Peer Review

A peer review team consisting of at least two individuals was assembled and peer reviews were performed in accordance with Section 6: Peer Reviews of the EPRI guidance document. The Peer Review process included the following activities:

- Review of the selection of SSCs included on the SWEL
- Review of a sample of the checklists prepared for the Seismic Walkdowns and Area Walk-Bys
- Review of Licensing basis evaluations, as applicable
- Review of the decisions for entering the potentially adverse conditions into the CAP process
- Review of the submittal report
- Provide a summary report of the peer review process in the submittal report

The peer reviews were performed independently from this report and the summary Peer Review Report is provided in Appendix F of this report.

9 References

Reference drawings related to SWEL items are provided in the Seismic Walkdown Checklists and if applicable, in the Area-Walkdown Checklists.

1. EPRI Technical Report 1025286, Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic, dated June 2012.

2. Oyster Creek Generating Station Updated Final Safety Analysis Report (UFSAR) Revision 17, dated October 2011

3. Oyster Creek Individual Plant Examination for External Events (IPEEE), dated December 1995 (OC-IPE-03)

4. Oyster Creek Station Drawing GE 237E756 Rev. 53, Spent Fuel Cooling System

5. Oyster Creek Excel Spreadsheet titled: "OC Q Component List

6. Oyster Creek Excel Spreadsheet titled: "Oyster Creek SSEL"

7. Not used

8. Oyster Creek Excel Spreadsheet: "SFP Component List"

9. Oyster Creek Licensing Design Basis for the Spent Fuel Pool Cooling Systems Memo MCC-E1 C320-92-1075, dated March 13, 1992

10. NRC Letter from Helen N. Pastis to Ronald DeGrgorio, Dated February 8, 2001, Subject: Review of Oyster Creek Nuclear Generating Station (Oyster Creek) Individual Plant Examination of External Events (IPEEE) Submittal (TAC NO. M83652)

11. Not used

12. Internal RM Document, OC-MISC-009, Rev. 0, Oyster Creek Risk Importance listing to Support Development of the Seismic Walkdown Equipment List (SWEL)

13. NRC (E Leeds and M Johnson) Letter to All Power Reactor Licensees et al., "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendation 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," Enclosure 2.3, "Recommendation 2.3: Seismic," dated March 12, 2012

14. "Recommendations for Enhancing Reactor Safety in the 21st Century: The Near-term Task Force Review of Insights from the Fukushima Dai-ichi Accident," ADAMS Accession No. ML11186107, July 12, 2011

15. Oyster Creek Letter from Sander Levin to U.S. Nuclear Regulatory Commission, Subject: "Reply to a Response for Additional Information: Individual Plant Examination of External Events," dated June 29, 2000

A

Project Personnel Resumes and SWE Certificates

Resumes and certificates (where applicable) for the following people are found in Appendix A:

Tribhawan Ram

EDUCATION:

B.S. - Electrical Engineering, Punjab University, India, 1972
M.S. - Electrical Engineering, University of Cincinnati, 1977
M.S. - Nuclear Engineering, University of Cincinnati, 1982
M.B.A. - Bowling Green State University, 1996

PROFESSIONAL REGISTRATION:

State of Ohio

PROFESSIONAL HISTORY:

Stevenson & Associates, Inc., Senior Engineer, 2011 - present
Public Service Electric & Gas Co., Senior Plant Systems Engineer, Hancock Bridge, NJ, 2007 - 2011
Entergy Corporation, Plymouth, Massachusetts, Senior Design Engineer, 2002-2007
Various Companies, Contract Consulting Project Engineer, 1996 – 2002
Public Service Electric & Gas Co., Senior Staff Engineer, Hancock Bridge, NJ, 1983-1990
Toledo Edison Co., Toledo, Ohio, Senior Assistant Engineer, Associate Engineer, 1978-1983

PROFESSIONAL EXPERIENCE:

- Electrical and Controls Design Engineering
- Plant Systems Engineering
- Transformer and Relay(s) Spec Developer
- Plant Modification Engineering
- Systems and Component Test Engineering
- Factory Testing Witness
- 6 Month BWR Systems Engineering Training
- ETAP Trained
- Arc Flash IEEE 1584 Trained

Mr. Ram has over 28 years of electrical project, design and systems engineering experience in US nuclear plants. As part of the Seismic Margin Analysis (SMA) team, in 2012, Mr. Ram is leading the electrical engineering EPRI methodology effort to perform Post-Fukushima relay list development and evaluation to support Safe Shutdown Equipment List (SSEL), including relay functional screening and chatter analysis, for Taiwan nuclear plants (both PWR and BWR). In this effort, he is preparing the final reports including recommendations to replace any bad actor relays. Mr. Ram is preparing proposals to replace these bad actors including modification package development for field replacement of these relays. He has prepared proposals to lead similar forthcoming relay evaluation efforts for several Westinghouse plants in the USA. Mr. Ram has either prepared or peer reviewed the Seismic Walkdown Equipment Lists (SWEL 1 & 2) for several Exelon Plants.

As a senior plant systems engineer, Mr. Ram has: 1. Developed several test plans for modification packages for the replacement of low and medium voltage circuit breakers (ABB K-Line to Square D Masterpact; GE Magneblast to Wyle Siemens) and for the replacement of the entire Pressurizer Heater Bus switchgear; 2. Personally been involved in execution of these test plans during refueling outages; 3. Witnessed factory testing of Pressurizer Heater Bus Switchgear; 4. Interfaced with NRC in their biennial Component Design Basis Inspections (CDBI); Interfaced with INPO in their biennial evaluations; 5. Developed and executed Performance Centered Maintenance (PCM) strategies for Motor Control Centers (MCCs) and low and medium voltage circuit breakers and switchgear; 6. Developed and executed margin improvement strategies for pressurizer heater busses, for twin units, through obtaining funds and then equipment replacement; 7. Developed refueling outage scoping for low and medium voltage circuit breakers and MCCs through working with outage group, maintenance, operations, and work MGMT; 8. Resolved breaker grease hardening issue for ABB K-Line breakers, over a two year period, through working with maintenance and work MGMT in implementing accelerated overhauls with better grease; 9. Trained operations and engineering personnel in the Engaging People and Behavior Change process, as part of a case study team and; 10. Resolved day to day operations and maintenance issues with systems of responsibility (low and medium voltage systems)

Mr. Ram has regularly participated in the EPRI annual circuit breaker user group conferences; at the 2011 meeting, he made a presentation on circuit breaker as found testing vis-à-vis protection of equipment, cables, and containment penetrations, and selective coordination preservation.

As a Senior Design Engineer, Mr. Ram has: 1. Developed specifications and procured 345/4.16/4.16 kV and 23/4.16/4.16 kV transformers (ranging up to $1.25 million); 2. Prepared a modification package to install the 23 kV/4.16 kV/4.16 kV transformer, including leading the project team to get this transformer successfully installed, tested, and placed in service; 3. Developed ETAP scenarios and performed load flow studies to successfully support the 2006 INPO evaluation; 4. Performed arc flash calculations per IEEE 1584 methodology for 4 kV, 480V Load Centers, and MCCs, enabling a justification of reduced arc flash rated clothing, thereby allowing conversion of OUTAGE PMs into ONLINE PMs and; 5. Performed single point system vulnerability analysis.

As a Consulting Lead Project Engineer, Mr. Ram was heavily involved in resolution of the USI A-46 for several plants. He performed an extensive review of dozens of control circuits for relay chattering issues. To replace bad relay actors, Mr. Ram developed and/or supervised the development of many modification packages including: selection of replacement relays (both protective and auxiliary); preparation of relay testing specification with civil engineering input; working with and visiting seismic testing facilities for relay qualification and; developing pre and post installation instructions including test procedures. He worked closely with teams consisting of maintenance, operations, and work MGMT during the development and implementation of these projects. Besides the A-46 issue, Mr. Ram first developed and then was personally involved in the implementation of modification packages consisting of Cable, Conduit, Circuit Breaker and motor starter (contactor) replacements.

The following provides a list of USI A-46 resolution projects:

Northeast Utilities – Millstone Station
Consumers Power Co. - Palisades Nuclear Station
Boston Edison Co. - Pilgrim Nuclear Power Station
Commonwealth Edison Company- Dresden Station, Quad Cities Station

KIM L. HULL

BACKGROUND SUMMARY

Accomplished **Lead Engineer/ Project Manager** with significant experience in commercial nuclear power industry. Demonstrated ability to lead and contribute on cross-functional project teams. Possess strong analytical, problem resolution, collaboration, and communication skills when interacting with diverse audiences including regulatory inspectors, internal inspectors, management, and employees. Respected trainer with ability to develop and present information and measure effectiveness through evaluation techniques. Strengths include:

Project Management	Design Modifications	Plant Operational Support
Procurement	Management/Leadership	Regulatory Compliance
Training/Coaching	Auditing	Inspections

KEY ACCOMPLISHMENTS

- Served as KNPP Lead Engineer/ Project Supervisor for approximately 125 plant design changes.
- Experienced in all aspects of nuclear power plant modification packages including development of calculations, design, engineering, and procurement specifications.
- Thorough understanding of configuration control, management, and preparation of 10CFR50.59 analyses.
- Participated in several regulatory and industry audits, including CDBI and INPO assessments.
- Experienced as a Technical Specialist performing NUPIC Audits.
- Well-developed communication skills for preparing technical presentations including lesson plans, project reports, and meetings in support of regulatory activities and inspections.
- Qualified Shift Technical Advisor for KNPP Operations Group (1980s).

PROFESSIONAL EXPERIENCE

STEVENSON & ASSOCIATES – Project Manager **2010 - Current**
National consulting engineering firm specializing in civil, structural and mechanical engineering for power, industrial and advanced technology facilities.

Project Manager
- Development of plant specific Seismic Walkdown Equipment Lists for multiple Units in response to NRC 50.54(f) requirements regarding Recommendation 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident,'' Enclosure 2.3, ''Recommendation 2.3: Seismic.''
- Onsite at Kewaunee Power Station Consultant support to resolve Q-list Open Items
- On-site at Kewaunee Power Station Consultant support for Auxiliary Feedwater Flow Control Modification including preparation and review of design documentation.

WISCONSIN PUBLIC SERVICE RESOURCES / Nuclear Management Company
DOMINION ENERGY - Kewaunee, WI **1982 to 2010**

Senior Instructor (Maintenance) (2009 - 2010)
- Developed lesson plans and taught Basic Systems and Continuing Training Topics for Engineering and Technical Support training program.

Engineer III/Principal Engineer (2004 - 2009)
- Responsible for modifications and emergent issues including Steam Exclusion Boundaries, Fuel Transfer Carriage, Frazil Ice development on the KPS Circulating Water Intake, and NRC 96-06 Two Phase flow.
- Member of Dominion Fleet Calculation Quality Review Team and Mentor for Calculation training.
- Outage nightshift Lead Mechanical Design Engineer/Back-up Supervisor.
- KPS Engineering representative on the Independent Review Team developed to address CDBI

inspection findings. Assigned to review all calculations, modification packages, 10CFR 50.59 screenings, evaluations, and procurement packages.
- Technical Instructor for Administrative Process training for new engineers.

Mechanical Design Supervisor (2002 - 2004)
- Supervised nine engineers, analysts, and technicians assigned to the KNPP Mechanical Design Group.
- Provided Mechanical Design Oversight for all vendor activities impacting KNPP Mechanical Design Bases.
- Provided support for emergent plant issues, NRC Inspections, and Physical Change Packages.
- Subject Matter Expert Instructor for 10CFR 50.59 process training for new engineers.

Principal Engineer (Analytical Group SGR Project) (1998 - 2002)
- Contract Manager for Steam Generator Replacement (SGR).
- Responsible for coordination of SGE design, fabrication and installation contracts.
- Provided outage schedule development, coordination, and work process integration between Bechtel and KNPP.
- Coordinated contractor mobilization, badging, and plant specific training.
- Technical Specialist for Quality Assurance audits of vendors.
- SGR Shift Manager for night shift
- Responsible Engineer for SGR related Physical Change Packages.
- Responsible for SGR budget development up to 1998.
- Prepared, reviewed, and awarded Bechtel Installation contract.
- Participated in review and award of Ansaldo Fabrication contract.
- Served on team to review and award Westinghouse Design contract.
- Selected to work at Arkansas Nuclear One for their steam generator installation.

Senior Engineer (Analytical Group) (1994–1998)
- Responsible Engineer for Physical Change Packages.
- Member KNPP Engineering Reorganization Team.
- Recognized Technical Expert for KNPP systems.

Senior Project Supervisor (1992–1994)
- Provided project management and engineering services for KNPP DCR packages.
- Supervisor of KNPP NPM Project Attendants responsible for modification package organization and close out.

Nuclear Services Supervisor (1991–1992)
- Supervised initial Steam Generator replacement project effort.
- Provided specification development for services and major plant components.

Prior to 1992 – Held engineering positions from Associate Engineer to Nuclear Design Engineering Supervisor.

EDUCATION

Masters Program Coursework - Mechanical Engineering; Michigan State University - E. Lansing, MI
B.S. - Mechanical Engineering - Michigan State University - E. Lansing, MI
B.A. - Biology - Albion College - Albion, MI

Certificate of Completion

Kim Hull

Successfully Completed

Training on Near Term Task Force
Recommendation 2.3 – Plant Seismic Walkdowns

Bruce M. Lory (16 PDH)
Bruce M. Lory - Instructor
NTTF 2.3 Seismic Walkdown Course

Date: 06/26/12

Mark S. Etre

EDUCATION:

MBA, Rensselaer Polytechnic Institute - Hartford Graduate Center, Hartford, CT
MS, Mechanical Engineering, Rensselaer Polytechnic Institute - Hartford Graduate Center, Hartford, CT
BS, Civil Engineering – Worcester Polytechnic Institute, Worcester, MA

PROFESSIONAL HISTORY:

Stevenson & Associates, Inc., Woburn Massachusetts, Project Manager, 2009 - Present.
Pratt & Whitney Power Systems, East Hartford, CT, Project Manager, 2000 - 2009.
Northeast Utilities, Millstone, Waterford, CT, Engineering Supervisor, 1981 - 2000.
Pratt & Whitney Aircraft, East Hartford, CT, Analytical Engineer, 1978 - 1981.

PROFESSIONAL EXPERIENCE:

Mr. Etre is a result oriented Manager with extensive experience working on the design basis reconstruction, evaluation and construction of nuclear power plants and assessment of components. Significant accomplishments in the areas of licensing; engineering reviews, welding evaluations, quality program evaluation and implementation, project coordination, and ASME interpretation and training. He has testified as a witness before regulatory groups on topics such as design basis criteria, engineering analysis, fabrication techniques, material and welding applications, material control, and construction practices. Known for and have demonstrated skills and capabilities in:

Managing Resources	Safety Analysis
Erosion-corrosion criteria	Project Management
ASME Section III, IX, XI, B31.1	NRC GL 89-13
High Energy Line Break	Seismic Assessments

RESPONSIBILITIES AND ACCOMPLISHMENTS

Stevenson & Associates, Woburn, MA

Director of Projects **2009 - Present**

Advises leadership and/or office managers at the highest levels about the project portfolio, status and resource planning for delivering strategic business Initiatives. Plans, directs, and ensures the successful management of designed business solutions utilizing the complete resources of the staff and assigned project management teams. Provides technical assistance in identifying, evaluating and developing methods and procedures that are efficient, effective and meet good business practice. Maintains communication with upper management both within and across organizations to ensure smooth running of all projects undertaken by team. Responsible for leading in a mature and organization-focused manner, providing help where necessary to project a professional image. Has expert experience in Project/Program Management and able to lead in the coaching and mentoring of team members to help them achieve individual expectations and deliverables. Assesses resource loads and makes appropriate individual assignments.

Pratt & Whitney Power Systems, Windsor, CT

Project Manager **2000 - 2009**

Responsible for the organization of proposal teams and the Project management function of a $56 million power plant. Coordinated the priorities of management and personnel to ensure goals.

Ensured customer satisfaction while maintaining high quality and controlling costs.
Managed the Engineering function of the design, analysis and manufacturing of rotating and static structures.
Demonstrated versatility, coordinated diverse activities, i.e., proposals, projects on through to job implementation.
Routinely oversee multiple proposals and projects.
Created and negotiated realistic proposals and schedules that satisfied customer requirements and resulted in accurate outcomes on time and within financial targets.

Northeast Utilities, Millstone, Waterford, CT

Manager, Engineering Backlog **1999 - 2000**
Responsible for the Design Basis Reconstruction.

Managed turnaround of the Design Basis Reconstruction that resulted in a 30% increase in production.
Implemented a process to prioritize projects and other initiatives, which resulted in a 90% reduction in our design and calculations basis backlog while ensuring the documentation was current.
Created and negotiated realistic budgets and schedules, which satisfied NRC regulatory requirements and resulted in on-time completion within budget constraints.
Maintained a bottom line focus in scheduling and budgeting that allowed for the completion of backlog ahead of schedule.
Eliminated projects that had limited added value to the bottom-line performance.

Engineering Supervisor ***1992 - 1999***
Managed the Mechanical/Civil engineering function at Millstone Unit 3 with a professional staff of 15. Coordinated the priorities of management and personnel to ensure goals.

Ensured customer satisfaction while maintaining high quality and controlling costs.
Demonstrated versatility, coordinated diverse activities, i.e., construction, purchasing on through to job completion. Routinely oversaw multiple projects.
Managed the implementation of NRC GL 89-13, Erosion-corrosion assessments, Reg Guide 1.97 and USI A-46.

Senior Engineer ***1981 - 1992***
Various engineering assignments designed to enhance performance throughout manufacturing and power generation facilities.

Demonstrated track record for translating technical knowledge and leadership to bottom line results.
Reviewed and approved engineering documents such as calculations, specifications and drawings for adherence to regulatory and code requirements. This included design, analysis, fabrication, and erection of pressure vessels and piping components at several nuclear power plants.

Pratt & Whitney, East Hartford, CT ***1978 - 1981***

Analytical Engineer
Responsible for evaluation and improving jet engine designs.

Performed Critical Speed and Forced Response Analysis.
Conducted test demonstrations to ensure design compliance.

Certificate of Completion

Mark Etre

Successfully Completed

Training on Near Term Task Force
Recommendation 2.3 – Plant Seismic Walkdowns

Bruce M. Lory - Instructor
NTTF 2.3 Seismic Walkdown Course

Date: 06/26/12

SETH BAKER

275 Mishawum Rd Suite 200 Woburn, MA 01801
sbaker@vecsa.com 781-932-9580 ext 105

EDUCATION

2012	**Stanford University**, MS, Civil/Structural Engineering	
2008	**Worcester Polytechnic Institute**, BS, Civil Engineering	

PROFESSIONAL HISTORY

6/12 – pres	**Stevenson & Associates**, Senior Engineer I	Woburn, MA
5/08 - 6/10	**Stevenson & Associates**, Staff Engineer	Woburn, MA

Focus on structural engineering analysis & design, finite element analysis, structural mechanics evaluations, seismic qualification

PROFESSIONAL PROJECTS

Evaluation of underground utilities at the Cooper Nuclear Station for large overburden loads associated with the hauling of spent fuel casks to the independent spent fuel storage facility.

Evaluated concrete structures for the Salt Water Processing Facility at the Savannah River nuclear plant.

Performed a detailed seismic analysis of the service water building at the Ginna nuclear station. Development of GTSTRUDL 3D model and dynamic response analysis. Was also responsible for load and stress analysis of the steel structural members and connections.

Analyzed the washdown area for larger fuel casks at Cooper nuclear station. This work lead to design retrofits to locally strengthen the supporting floor beams and additionally brace the spent fuel cask.

Review and evaluation of seismic and tornado vulnerabilities associated with maintaining the component cooling water systems within the Turbine Building at Prairie Island nuclear plant.

Participated in on-site staff augmentation at Point Beach nuclear station for duration of 1.5 months. Authored a report that that analyzed and articulated the design of a flood relief louver system in the circulating water pump house.

Evaluating repair options for a personnel hatch containment penetration at Brunswick nuclear station. Design will involve placing a 10' concentric sleeve within the existing penetration sleeve. Extensive ASME work was performed.

PROFESSIONAL PROJECTS (cont.)

	Seismic evaluation and redesign of equipment frames for Shaw/Areva Mixed Oxide facility using GTSTRUDL model.
	Main Steam Line inspections at Cooper nuclear station to determine locations for additional dampers.
	Design of equipment support frames to resist blast load at Palo Verde nuclear station

MISC.

SOFTWARE	GTSTRUDL, ETABS, ANSYS, MATLAB, AutoCAD, MathCAD, Revit Architecure
CODES	AISC 6th, 7th, 9th, 13th Editions, IBC

Certificate of Completion

Seth Baker

Successfully Completed

Training on Near Term Task Force
Recommendation 2.3 – Plant Seismic Walkdowns

Bruce M. Lory

Bruce M. Lory - Instructor
NTTF 2.3 Seismic Walkdown Course

Date: 06/26/12

WING HO, P.E.

PROFESSIONAL EXPERIENCE

Exelon Nuclear, Oyster Creek Nuclear Generating Station, NJ

Structural Engineer (2009 – present)
Designed plant modifications, defended plant design basis, specialized in seismic qualification of nuclear power plant equipment using SQUG-GIP, IEEE, STERI, NARE, SQURTS

- Modification design for: Drywell penetration, main transformer foundation, conduit supports, pipe supports, boiler house, feed pump skid and feed pump motor foundation
- Seismic qualification of equipment
- Lead shield supports
- Rigging and hauling
- Scaffolding
- Structures monitoring
- Pipe stress analyses

Di Stasio & Van Buren, Mountainside, NJ

Project Manager, (2004 – 2009)
Provided technical support and project management for parking garages, health care and research facilities, marine structures, bridges, paper mills and building projects

CUH2A, Princeton, NJ

Director of Structural Engineering/Senior Associate, (1989 – 2003)
Led a group of 25 structural engineers and CADD draftspersons
Managed design teams for major building projects, many over 1,000,000 square feet

- Provided design services to Fortune 500 companies and government agencies such as Merck, Pfizer, Bristol Myers Squibb, Schering Plough, Procter and Gamble, Rorer, Astra Zeneca, US Department of Agriculture (USDA), National Institute of Health (NIH). Applied building codes and design standards flexibly to achieve optimum effects of construction budgets. Codes and standards included the New Jersey Uniform Construction Code (NJUCC), BOCA, UBC, IBC, OSHA, Factory Mutual (FM) Loss Prevention Data, American Institute of Steel Construction (AISC) and American Concrete Institute (ACI)

REGISTRATION & EDUCATION

- **Professional Engineer:** New Jersey, New York
- **Master of Structural Engineering:** University of Toronto, Toronto, Canada

PUBLICATIONS

- "Keeping Corrosion Contained", ***AISC Modern Steel Construction***, Feb. 2009, on the rehabilitation of heavily corroded steel structures in harsh environment
- ***AISC Modern Steel Construction***, Oct. 2002, p.10, on seismic spatial interactions
- ***AISC Modern Steel Construction***, Dec. 1999, p.10, on steel moment frame design
- ***AISC Modern Steel Construction***, Jan. 1998, p.10, on design of columns with knee braces
- ***AISC Modern Steel Construction***, Feb. 1997, p.10, on structural steel end-plate connections
- ***American Concrete Institute (ACI), SP-63***, p.497-513, on the design of concrete shear walls under seismic torsion
- ***Building & Environment***, United Kingdom, Vol. 12, p.199-204, on the design of concrete shear walls subjected to seismic bending

EPRI | ELECTRIC POWER RESEARCH INSTITUTE

Certificate of Completion

Wing Ho

Training on Near Term Task Force Recommendation 2.3 - Plant Seismic Walkdowns

June 21, 2012
Date

R.P. Kassawara
Robert K. Kassawara
EPRI Manager,
Structural Reliability & Integrity

Stevenson & Associates

Antonio J. Perez, P.E.

SUMMARY

Mr. Perez has over 15 years of experience in project management, project engineering, equipment design, and mechanical systems layout for nuclear and industrial facilities.

EDUCATION

B.S. – Mechanical Engineering
Michigan Technological University, Houghton, MI
Magna cum Laude

LICENSES

Professional Engineer, Wisconsin: September 2002
Minnesota: December 2010

PROFESSIONAL EXPERIENCE

Stevenson & Associates, Green Bay, WI

General Manager October 2010 – Present

- Responsible for interfacing with clients with a focus on continuously improving relationships.
- Responsible for managing staff resources to meet or exceed clients' needs.
- Responsible for recruiting and hiring staff necessary to meet resource requirements while effectively increasing capacity.
- Responsible for providing Engineering Consultation services to clients.

Project Manager March 2007 – October 2010

- Performing Project Management tasks including development of project plans, identification of resource needs, estimating task durations, developing project schedules, and monitoring budgets.
- Lead design team efforts at the Kewaunee Power Station on multiple projects that include two separate Auxiliary Feedwater flow control modifications, Auxiliary Feedwater flow monitoring instrumentation modifications, and Auxiliary Building roof modifications.
- Supported the Calculation Reconstitution and Improvement Project at the Prairie Island Nuclear Generating Plant by mapping calculations associated with the RHR system.

Dominion Energy Kewaunee (formerly Nuclear Management Company 2001 - 2005)
Kewaunee Power Station, Kewaunee, WI

Shift Technical Advisor (trainee) January 2006 – March 2007

- Trainee in a Senior Reactor Operator Certificate training program.

Stevenson & Associates

Antonio J. Perez, P.E.

Engineering Supervisor – ME/CE/SE Design May 2004 – January 2006

- Supervised a staff of 12 to 15 engineers (mechanical, civil, and structural design) who were charged with developing design changes, maintaining design and licensing basis documentation and supporting maintenance.
- Integrated the civil/structural engineering group and the mechanical engineering group into a cohesive unit that resulted in gained efficiency and a net reduction of one full time equivalent engineer.
- Substantially increased the quality of engineering products developed and published by the ME/CE/SE Design Engineering group through coaching and feedback as a result of increased supervisory oversight of engineering products.
- Developed a work management system for the group that provided a means for prioritizing activities, estimating the level of effort, and scheduling of activities. This system allowed for an increased understanding of workload and became an invaluable tool for prioritizing work and managing resources.
- Increased communications within the group by holding daily 15 minute meetings where station messages were delivered and where the group's resources were assessed and redirected as necessary to meet commitments. This resulted in an increase in morale and an increase in commitments met.
- Increased communications with other departments by establishing a central point of contact for the group and by assuring that the ME/CE/SE Design Engineering group was represented at Planning and Scheduling meetings.

Motor Operated Valve Engineer

June 2001 – May 2004

- Established a project plan and led the implementation effort that re-organized the Motor-Operated Valve Program at KPS. This effort consisted of developing a Program Manual, developing controlled calculations, performing Design Basis Reviews, and compiling and/or establishing plant positions on known industry issues. The result of this effort was a reduction of full time equivalent engineers, from 3 to 1, required to maintain the Program.
- Performed and reviewed MOV safety related calculations including Minimum Required Stem Thrust, Weak Link Analysis, and Available Margin.
- Assisted in MOV testing by providing engineering support to maintenance personnel.

DISTRIBUTION PLANNING, INC., Grandville, MI
Systems Mechanical Engineer 2000 – 2001

- Integrated mechanical systems and designed equipment for material handling systems.
- Procured equipment and coordinated delivery schedules with vendors.

Stevenson & Associates

Antonio J. Perez, P.E.

SMS SANDMOLD SYSTEMS, INC., Newaygo, MI
Project Engineer /Manager 1998 – 2000

- Led multi-discipline project design teams for several projects that ranged in size from a few thousand dollars up to $2.2 million.
- Coordinated efforts with engineering, manufacturing, and installation groups to establish and maintain project schedules that met or exceeded the client's expectations.
- Procured equipment and coordinated delivery schedules with vendors.
- Acted as the company's liaison with clients to work through issues that arose during projects. Provided project status updates to clients and management.
- Designed equipment such as sand storage bins – up to 540-ton live load capacity, bucket elevators, belt conveyors, screw conveyors, and mixers. Most of this equipment was for handling of bulk solids (foundry sand).
- Analyzed and designed structural support members for various types of equipment such as vibratory conveyors, mixers, and conveyors. Designed access structures such as stair towers, service platforms and catwalks.
- Calculated foundation loads and point loads of equipment support points.

LIFT-TECH INTERNATIONAL, Muskegon, MI
Project Engineer 1997 – 1998

- Performed engineering analyses, wrote critiques, and recommended design modifications of structural members for the purpose of upgrading bridge cranes and hoists.
- Implemented engineering design changes to enhance product development.

Certificate of Completion

Tony Perez

Successfully Completed

Training on Near Term Task Force
Recommendation 2.3 – Plant Seismic Walkdowns

Bruce M. Lory (16 PDH)
Bruce M. Lory – Instructor
NTTF 2.3 Seismic Walkdown Course

Date: 06/26/12

Stevenson & Associates
Engineering Solutions for Nuclear Power

275 Mishawum Road, Suite 200, Woburn, MA 01801
Tel (781) 932-9580 Fax (781) 933-4428
www.vecsa.com

Todd A Bacon

Education

1976 – 1980 University of Illinois – Urbana-Champaign
Bachelor of Science – Civil Engineering

Registration / Certification

Professional Engineer: California License No. C-0336104 (Civil), Georgia License. No. 015562, Ohio License No. E-57497

Professional History

2012 – Present Stevenson & Associates, Charlotte, North Carolina, Senior Consultant and General Manager, Charlotte, NC Office
1980 – 2012 AREVA Inc., Charlotte, NC, Engineering Manager

Professional Experience

Mr. Bacon has thirty years of experience in the design and modification of mechanical and structural systems. His responsibilities as an Engineering Manager have included work from the conceptual design through to the installation support phases of projects. Mr. Bacon has served as Project Engineer and Project Manager for numerous work scope efforts, including coordination of personnel in multiple locations. The efforts have also included significant client and/or regulatory interface, as required. These activities have also included responsibility for budgets, schedules and the technical accuracy of work performed. In addition, he has extensive experience in proposal and report development, as well as personnel training activities.

Mr. Bacon has thirty years of experience in the design and modification of mechanical and structural systems. His responsibilities as an Engineering Manager have included work from the conceptual design through to the installation support phases of projects. Mr. Bacon has served as Project Engineer and Project Manager for numerous work scope efforts, including coordination of personnel in multiple locations. The efforts have also included significant client and/or regulatory interface, as required. These activities have also included responsibility for budgets, schedules and the technical accuracy of work performed. In addition, he has extensive experience in proposal and report development, as well as personnel training activities.

Mr. Bacon's work has involved extensive use of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, including various piping system related committees. These have included the design group for the HDPE buried pipe group of Section III, and the Flaw Analysis group of Section XI. Other Code experience includes the American Institute of Steel Construction (AISC), American Concrete

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Institute (ACI), and ASME (ANSI) B31.1 and B31.3 codes. He serves on the AREVA College of Experts in the areas of structural and dynamic analysis and is also fluent in using numerous piping and finite element computer programs, as well as in typical frame analysis programs.

Engineering Manager, Civil and Layout Department
AREVA NP Inc.

Mr. Bacon served as an Engineering Manager in the Civil and Layout Department in Charlotte, North Carolina. In this role he was responsible for the efforts involving work on the 3D model for an AREVA US EPR plant being designed for the Calvert Cliffs site in Maryland. His areas of responsibility also included the balance of plant piping system design efforts for the plant. In this role, he was involved with interfaces with numerous groups utilizing the 3D model information, as well as consortium partner Bechtel Power, and AREVA offices throughout the US and Europe who served as subcontractors for various portions of the overall project scope of work. This included coordinating the efforts of approximately fifty individuals for these efforts involving technical resolution of issues, manpower planning, personnel issues, and development of the group.

In addition to the managerial responsibilities, he was a member of the AREVA College of Experts in the area of mechanics and fluid mechanics. This group was comprised of approximately one percent of the company worldwide which served as the technical leaders for the company, sharing best practices and knowledge throughout the global organization.

In addition to the New Plants activities in the US, Mr. Bacon supported efforts involving current activities for the International Thermonuclear Experimental Reactor (ITER) effort in which AREVA had the responsibility for the Cooling System involving the piping system evaluations and development of Technical Guides and impact to the building resulting from the piping system.

He previously served as an Engineering Manager in the Structural and Engineering Mechanics Group, working on projects involving operating plants. As a Project Engineer and Manager, he helds responsibility for leading project teams in technical areas, as well as in budget and schedule item tracking functions.

Examples of typical projects include the following:

Mixed Oxide (MOX) Fuel Fabrication Facility, Savannah River Site - Conducted third party review of overall project identifying ways to achieve efficiencies and improve production rates for the building design and construction effort. This resulted in numerous recommendations for the site to improve production in the areas of scheduling, group interfacing (engineering disciplines, construction, etc.), procedural development as well as improvements through procedural revisions. This also included performing as the lead engineer on projects for the facility involving development of procedures for field routing of small bore piping systems, as well as conduit runs.

ECCS Debris Blockage Issue, Tokyo Electric Power Company (TEPCO) – Established contact and led proposal efforts to obtain contracts for ECCS suction strainer replacements for first plant performing this

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scope in Japan. Subsequently won contracts for two additional TEPCO units as well, resulting in $ 8M in revenue for AREVA. This work involved extensive interface and oversight of the strainer hardware vendor during the design, fabrication and construction phases of the projects.

ASME BPVC Work, Various Facilities - Served in positions of increasing responsibility performing and reviewing ASME Boiler and Pressure Vessel Code work in the Structural and Engineering Mechanics Group. Work included Class 1 analyses of flued heads, mechanical equipment evaluations and numerous piping system analyses.

ECCS Debris Blockage Issue, involving numerous US BWR clients - Served in various roles including Project Engineer, Project Manager, and Technical Consultant. Had a significant amount of involvement with this issue including involvement with the BWR Owner's Group for this issue spanning numerous years.

GL 96-06 Operability and Design Basis Resolution, Oconee Nuclear Station, Duke Power - Served as the Project Engineer for the Operability Evaluation for the Oconee Nuclear Station in an effort to show all three units operable under the additional loadings resulting from the USNRC Generic Letter. This assessment included evaluation of the LPSW system, including piping, supports, equipment nozzles, as well as structural platforms and associated components. In addition, operability guidelines were developed for Oconee during this effort.

Reactor Cavity Drain Line Modifications, Palisades Nuclear Power Plant, Consumers Power - Project Manager for the Reactor Cavity Drain Line modifications and letdown piping support modifications at the Palisades Plant. Work scopes included both engineering functions and the generation of modification package paperwork.

NRC Bulletin 79-14 Large-Bore Piping Project Evaluation, D. C. Cook Nuclear Power Plant, Indiana/Michigan Power - Work included serving as Project Engineer to evaluate the adequacy of D.C. Cook's NRC Bulletin 79-14 Large-Bore Piping Project. The work scope involved supervising a project team performing piping and piping support evaluations. Conclusions drawn from this study have enabled the client to realize significant cost savings during recent maintenance outages through discrepancy trending and margin assessment studies.

Reactor Pressure Vessel Bottom Head Drain Line Unplugging Project, Dresden Nuclear Generating Station Units 2 & 3, Commonwealth Edison. Included serving as Project Engineer responsible for unplugging reactor pressure vessel bottom head drain lines for Dresden Units 2 and 3. This project was successfully completed within schedule and budget constraints, and also was part of the Unit 2 critical path outage work.

HPCI System Sparger Modification, Quad Cities Nuclear Generating Station, ComEd - Served as the Structural and Engineering Mechanics Project Engineer and Manager for Quad Cities Unit 1 and 2 high pressure coolant injection (HPCI) system modification, which resulted in the addition of a sparger assembly inside the torus. The project also included the addition of platforms to provide accessibility for personnel performing maintenance activities at both units.

Hardened Wetwell Vent Project Third Party Reviews, Dresden and Quad Cities Nuclear Generating

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Stations, ComEd - Led the third party reviews of the hardened wetwell vent projects for the Dresden and Quad Cities stations. These projects involved the evaluation of existing, as well as new, piping and auxiliary steel. Design codes used for the mechanical work included ASME Section III, Subsections NC, ND, NE and NF, as well as AISC and Uniform Building Code (UBC) standards for the structural evaluations.

Structural Projects, Various Facilities - Past projects have included extensive structural experience, such as the Hope Creek Nuclear Generating Station's drywell inner water seal plate analysis, and also Mark I piping and pipe support evaluations. Previous work also included extensive experience working on various mechanical and structural design projects.

Licensing and Special Projects, Comanche Peak Steam Electric Station, TU Electric - Involved in licensing and special studies projects for the Comanche Peak Station.

SSFI Audit Responses, ComEd - Participated in responding to concerns raised during safety system functional inspection (SSFI) audits.

Project Summary Reports and Operability Guidelines, ComEd and AEPSC - Wrote numerous project summary reports and operability guidelines for Commonwealth Edison (ComEd) and American Electric Power Company (AEPC).

Piping, Piping Support and HVAC Modifications, Various Facilities - Served as Project Engineer for piping, piping support and HVAC modification work for various nuclear plants, including Dresden Units 2 and 3, Quad Cities Units 1 and 2, D. C. Cook Units 1 and 2, and Duane Arnold. Project Engineer responsibilities included coordinating schedule and budget issues, as well as addressing technical questions as they arose.

Control Rod Drive Frame Analysis, Browns Ferry Nuclear Power Plant, Tennessee Valley Authority (TVA) - Involved in the analysis of the control rod drive frames for the Browns Ferry Plant.

Certificate of Completion

Todd Bacon

Successfully Completed

Training on Near Term Task Force Recommendation 2.3 – Plant Seismic Walkdowns

Bruce M. Lory (16 PDH)
Bruce M. Lory - Instructor
NTTF 2.3 Seismic Walkdown Course

Date: 06/26/12

Walter Djordjevic

EDUCATION:

B.S. - Civil Engineering, University of Wisconsin at Madison, 1974
M.S. - Structural Engineering, Massachusetts Institute of Technology, 1976

PROFESSIONAL REGISTRATION:

State of California, State of Wisconsin, Commonwealth of Massachusetts, State of Michigan, State of Arizona, State of Missouri

PROFESSIONAL HISTORY:

Stevenson & Associates, Inc., President 1996 - present; Vice President and General Manager of the Boston area office, 1983 - 1995
URS/John A. Blume & Associates, Engineers, Boston, Massachusetts, General Manager, 1980 - 1983; San Francisco, California, Supervisory Engineer, 1979 - 1980
Impell Corporation, San Francisco, California, Senior Engineer, 1976 - 1979
Stone & Webster Engineering Corporation, Boston, Massachusetts, Engineer, 1974 - 1976

PROFESSIONAL EXPERIENCE:

- Structural Engineering
- Structural Dynamics
- Seismic Engineering
- Construction
- Vibration Engineering
- Expert Witness
- Committee Chairman

Mr. Djordjevic founded the Stevenson & Associates Boston area office in 1983 and serves as President and General Manager. Mr. Djordjevic is expert in the field of structural engineering – more specifically, in the areas of structural vulnerabilities to the effects of seismic and other extreme loading phenomena. As a structural dynamicist, Mr. Djordjevic also heads the Vibration Engineering Consultants corporate subsidiary of Stevenson & Associates for which he has overseen numerous designs of vibration sensitive microelectronics facilities for such clients as IBM, Intel, Motorola and Toshiba. He has personally been involved in such projects as resolving vibration problems due to construction activities for the Central Artery Project (Big Dig) in Boston for which he was retained by Massport. Finally, Mr. Djordjevic has been personally retained as an Expert Witness a number of times relating to cases involving construction, structural and mechanical issues.

He has performed over a thousand hours of onsite seismic and other natural phenomena (including tornados, hurricanes, fire, and flooding) inspection walkdowns to assess structural soundness and vulnerabilities. He has inspected microelectronics fabrication facilities, power facilities, and hazardous material government and military reservations. He is one of the most experienced seismic walkdown

inspection screening and verification engineers having personally participated in seismic walkdowns at over 50 U.S. nuclear units.

In recent years, he has concentrated on screening inspection walkdowns and assessments for resolution of the USI A-46 and seismic IPEEE issues, on numerous facilities. The following provides a partial list of recent projects:

American Electric Power - D.C. Cook Station
Boston Edison Co. - Pilgrim Nuclear Power Station (SPRA)
Commonwealth Edison Company- Braidwood Station[PM], Byron Station[PM], Dresden Station[PM], Quad Cities Station[PM]
Consumers Power Co. - Palisades Nuclear Station[PM]
Entergy - Arkansas Nuclear One
Florida Power & Light - Turkey Point Station
New York Power Authority - James A. Fitzpatrick Nuclear Power Plant
Niagara Mohawk Power Corporation - Nine Mile Point Station[PM]
Northern States Power Co. - Monticello Nuclear Generating Plant
Northern States Power Co. - Prairie Island Nuclear Generating Plant
Omaha Public Power District – Fort Calhoun Station (SPRA)
Public Service Electric & Gas - Salem Nuclear Station
Rochester Gas & Electric - R.E. Ginna Station
Wisconsin Electric - Point Beach Nuclear Station[PM] (SPRA)
Wisconsin Public Service - Kewaunee Nuclear Power Plant[PM] (SPRA)
[PM] Indicates projects where Mr. Djordjevic served as Project Manager
Hanford Reservation
Savannah River Plant Reservation
Rocky Flats Reservation
Tooele US Army Depot
Anniston US Army Reservation
Umatilla US Army Reservation
Newport US Army Reservation
Aberdeen US Army Reservation

He is a member of the IEEE 344 Standards Committee, Chairman of the ASCE Working Group for Seismic Evaluation of Electrical Raceways, and Chairman of the IES Committee for Microelectronics Cleanroom Vibrations

Representative projects include overseeing the SEP shake-table testing of electrical raceways, in-situ testing of control panels and instrumentation racks at various nuclear facilities, equipment anchorage walkdowns and evaluations at various nuclear facilities. He is the principal author of the *CERTIVALVE* software package to evaluate nuclear service valves, and contributing author in the development of the *ANCHOR* and *EDASP* software packages commercially distributed by S&A.

Mr. Djordjevic is expert in the area of seismic fragility analysis and dynamic qualification of electrical and mechanical equipment. He has participated in and managed over twenty major projects involving the evaluation and qualification of vibration sensitive equipment and seismic hardening of equipment. As demonstrated by his committee work and publications, Mr. Djordjevic has participated in and contributed steadily to the development of equipment qualification and vibration hardening methodology.

PROFESSIONAL GROUPS

Member, Institute of Electrical and Electronics Engineers, Nuclear Power Engineering Committee Working Group SC 2.5 (IEEE-344)

Chairman, American Society of Civil Engineers Nuclear Structures and Materials Committee, Working Group for the Analysis and Design of Electrical Cable Support Systems

Member, American Society of Mechanical Engineers Operation, Application, and Components Committee on Valves, Working Group SC-5

Chairman. Institute of Environmental Sciences, Working Group foe Standardization of Reporting and Measuring Cleanroom Vibrations

PARTIAL LIST OF PUBLICATIONS

1979 ASME PVP Conference, San Francisco, California, "Multi-Degree-of-Freedom Analysis of Power Actuated Valves", Paper No. 79-PVP-106.

1983 ASME PVP Conference, Portland, Oregon, "A Computer Code for Seismic Qualification of Nuclear Service Valves", Paper No. 83-PVP-81.

1983 ASME PVP Conference, Portland, Oregon, "Qualification of Electrical and Mechanical Equipment at Rocky Flats Reservation Using Prototype Analysis".

1984 ANS Conference, "Qualification of Class 1E Devices Using In-Situ Testing and Analysis."

1986 Testing of Lithography Components for Vibration Sensitivity, Microelectronics, Cahners Publishing

1990 Nuclear Power Plant Piping and Equipment Conference, "Development of Generic Amplification Factors for Benchboard and Relay Cabinet Assemblies", Paper No. 106, Structures and Components Symposium, held by North Carolina State University

1991 Electric Power Research Institute, "Development of In-Cabinet Response Spectra for Benchboards and Vertical Panels," EPRI Report NP-7146

Certificate of Completion

Walter Djordjevic

Successfully Completed

Training on Near Term Task Force Recommendation 2.3 – Plant Seismic Walkdowns

Bruce M. Lory (16 PDH)
Bruce M. Lory - Instructor
NTTF 2.3 Seismic Walkdown Course

Date: 06/26/12

B

Equipment Lists

Appendix B contains the equipment lists that were developed during SWEL development.

The following contents are found in Appendix B:

Stevenson & Associates

Seismic Walkdown Interim Report, Rev. 2
In Response to NTTF Recommendation 2.3: Seismic

Oyster Creek Generating Station - Unit 1

TK Ram	TK Ram	09/26/2012
Equipment Selection Preparer		date
Kim Hall		09/27/2012
Equipment Selection Reviewer		date
Eric De Monch	Eric DeMonch	09/26/2012
Station Operations Staff Member Refer to Attachment 3 for synopsis of Station Operations role and responsibility.		date

Table B-1. Base List 1

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
BATTERY BANK B	VITAL BANK 'B' STATION BATTERY (LEAD ACID)	735	OB	35	OC,MOB 35' 125v BATTERY ROOM
BATTERY BANK C	VITAL BANK 'C' STATION BATTERY (LEAD ACID)	735	TB	23	OC,TB SOUTH MEZZANINE 4160 VOLT SWITCHGEAR ROOM
DG-1 BATTERY BANK	DIESEL GENERATOR UNIT #1 STARTING BATTERIES	741	DG	23	OC,DIESEL GEN BLDG 23' 0"
DG-2 BATTERY BANK	DIESEL GENERATOR UNIT #2 STARTING BATTERIES	741	DG	23	OC,DIESEL GEN BLDG 23' 0"
BTCHG C1	'C' STATION BATTERY SOLID STATE STATIC CHARGER C1	735	TB	23	OC,TB SOUTH MEZZANINE 4160 VOLT SWITCHGEAR ROOM
BTCHG C2	'C' STATION BATTERY SOLID STATE STATIC CHARGER C2	735	TB	23	OC,TB SOUTH MEZZANINE 4160 VOLT SWITCHGEAR ROOM
DG-1 BATTERY CHARGER	DIESEL GENERATOR UNIT #1 BATTERY CHARGER	741	DG	23	OC,DIESEL GEN BLDG 23' 0"
DG-2 BATTERY CHARGER	DIESEL GENERATOR UNIT #2 BATTERY CHARGER	741	DG	23	OC,DIESEL GEN BLDG 23' 0"
STATIC CHGR	'A/B' STATION BATTERIES S OLID STATE STATIC CHARGER	735	OB	35	OC,MOB 35' 125v BATTERY ROOM
1A2-460V	480V UNIT SUBSTATION 1A2 FOR REACTOR BLDG	732	RB	23	460V SWITCHGEAR ROOM
1B2-460V	480V UNIT SUBSTATION 1B2 FOR REACTOR BLDG	732	RB	23	460V SWITCHGEAR ROOM
FN-56-4	SWGR ROOM 'A' SUPPLY FAN	823	RB	23	OC,460V SWITCHGEAR ROOM
FN-56-7	SWGR ROOM 'A' EXHAUST FAN	823	RB	23	OC,460V SWITCHGEAR ROOM
FN-56-8	480V SWITCHGEAR ROOM "A" ALTERNATE EXHAUST FAN	823	RB	23	OC,460V SWITCHGEAR ROOM
FN-59-6	'C' BATTERY ROOM VENT FAN 1-1	732	RB	23	OC,460V SWITCHGEAR ROOM
FN-59-7	480V BREAKER 'C' BATTERY ROOM VENT FAN 1-2 @ VMCC 1A2-(B06)	732	RB	23	OC,460V SWITCHGEAR ROOM
M-39-1	EMERGENCY DIESEL GENERATOR #1	741	DG	23	OC,DIESEL GEN BLDG 23' 0"
M-39-2	EMERGENCY DIESEL GENERATOR #2	741	DG	23	OC,DIESEL GEN BLDG 23' 0"

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
ROTARY INVERTER\AC	AC GENERATOR FOR 120V AC SUPPLY FOR CIP-3	733	OB	35	OC,MOB 35' 125v BATTERY ROOM
IN	120V AC SUPPLY FOR CIP-3 208/120V,3PH,4W	733	OB	35	OC,MOB 35' 125v BATTERY ROOM
1A21-460V	MCC 1A21 460V,3PH,3W,60HZ FOR TURBINE BUILDING	732	RB	23	OC,460V SWITCHGEAR ROOM
1A21A-460V	MCC 1A21A 460V,3P,3W,60HZ FOR REACTOR BUILDING	732	RB	23	OC,RX 23' S. WALL ACCESS AREA - S. TORUS CTRL AREA - MCC 1AZ1A
1A21B-460V	MCC 1A21B 460V,3P,3W,60HZ FOR REACTOR BUILDING	732	RB	23	OC,460V SWITCHGEAR ROOM
1A23-460V	MCC 1A23 460V,3PH,3W,60HZ FOR REACTOR BUILDING	732	RB	23	OC,460V SWITCHGEAR ROOM
1A24-460V	MCC 1A24 460V,3PH,3W,60HZ FOR STACK	732	HBH	23	OC,BOILER HOUSE 23' ALL AREAS
1A2-460V	460V UNIT SUBSTATION 1A2 FOR REACTOR BUILDING	732	RB	23	OC,460V SWITCHGEAR ROOM
1AB2-460V	ISOLATION VALVES MCC 1AB2 460V,3PH,3W,60HZ	732	RB	23	OC,RX 23' OUTSIDE LABRYNTH AREA-D/W PARTICULATE MONITOR-02 ANALY
1B21-460V	MCC 1B21 460V,3PH,3W,60HZ FOR REACTOR BUILDING	732	RB	23	OC,460V SWITCHGEAR ROOM
1B21A-460V	MCC 1B21A 460V,3P,3W,60HZ FOR REACTOR BUILDING	732	RB	23	OC,460V SWITCHGEAR ROOM
1B21B-460V	MCC 1B21B 460V,3P,3W,60HZ FOR REACTOR BUILDING	732	RB	23	OC,460V SWITCHGEAR ROOM
1B23-460V	MCC 1B23 460V,3PH,3W,60HZ FOR REACTOR BUILDING	732	HBH	23	OC,460V SWITCHGEAR ROOM
1B24-460V	MCC 1B24 460V,3PH,3W,60HZ FOR HEATING BOILER HOUSE	732	HBH	23	OC,BOILER HOUSE 23' ALL AREAS
1B2-460V	VITAL MCC 1B2 460V,3PH,3W 60HZ,FOR REACTOR BUILDING	732	RB	23	OC,460V SWITCHGEAR ROOM
DC-1 125VDC	125VDC ISOLATION VALVES MOTOR CONTROL CENTER	735	RB	23	OC,RX 23' SOUTHEAST ACCESS AREA - MCC DC-1

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
DC-2 125VDC	125VDC MOTOR CONTROL CTR FOR REACTOR BUILDING	735	RB	23	OC,RX 75' EMRGNCY CONDENSER RETURN VALVE AREA
1C	4160V 1C BUS & EMERGENCY SWITCHGEAR	731	TB	23	OC,TB SOUTH MEZZANINE 4160 VOLT SWITCHGEAR ROOM
1D	4160V 1D BUS & EMERGENCY SWITCHGEAR	731	TB	23	OC,TB SOUTH MEZZANINE 4160 VOLT SWITCHGEAR ROOM
DG-1 SWGR	DIESEL GENERATOR #1 UNIT SWITCHGEAR	741	DG	23	DIESEL GENERATOR BUILDING #1,NORTH WALL
DG-2 SWGR	DIESEL GENERATOR UNIT #2 SWITCHGEAR	741	DG	23	DIESEL GENERATOR BUILDING #2,NORTH WALL
10F	MAIN CONTROL ROOM AREA & PROCESS RADIATION PANEL	611	TB	46	MAIN CONTROL ROOM AREA EAST SIDE
10R	MAIN CONTROL ROOM PNL 10R PROCESS INSTR EQUIPMENT	611	TB	46	MAIN CONTROL ROOM AREA NORTHWEST SIDE
11F	MAIN CONTROL RM ISOLATION PANEL	611	TB	46	MAIN CONTROL ROOM AREA EAST SIDE
11R	MAIN CONTROL ROOM PNL 11R GAS TREATMENT/VENTILATION	611	TB	46	MAIN CONTROL ROOM AREA NORTHWEST SIDE
11XR	CONTROL ROOM PANEL 11XR TELEMTR/GENERA PROTECTION	611	TB	46	MAIN CONTROL ROOM AREA SW CORNER
12R	MAIN CONTROL ROOM PNL 12R GENERATOR/XFMR PROTECTION	611	TB	46	MAIN CONTROL ROOM AREA SOUTHWEST SIDE
12XR	MAIN CONTROL RM PNL 12XR TURBINE/AUX SYSTEM TEMP.	611	TB	46	MAIN CONTROL ROOM AREA NORTHWEST SIDE
16R	MAIN CONTROL ROOM PNL 16R CONT AIR H2&O2 ANALYZING	611	TB	46	MAIN CONTROL ROOM AREA,SOUTHWEST CORNER
17R	MAIN CONTROL ROOM PNL 17R WIDE RANGE RX LEVEL	611	TB	46	CONTROL ROOM SW CORNER ON WEST WALL
18R	MAIN CONTROL ROOM PNL 18R REACTOR PROTECTION SYSTEM	611	TB	46	MAIN CONTROL ROOM NORTHWEST CORNER
19R	MAIN CONTROL ROOM PNL 19R REACTOR PROTECTION SYSTEM	611	TB	46	MAIN CONTROL ROOM NORTHWEST CORNER
1F/2F	MAIN CONTROL ROOM REACTOR & DRYWELL COOLING PANEL	611	TB	46	OC,MAIN CONTROL ROOM

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
2R	MAIN CONTROL ROOM AREA & RADIATION MONITOR PANEL	611	TB	46	OC,MAIN CONTROL ROOM
3F	MAIN CONTROL ROOM CLEANUP & RECIRCULATION PANEL	611	TB	46	5 FEET NORTH OF SHIFT SUPERVISORS OFFICE
3R	MAIN CONTROL ROOM NEUTRON MONITORS PANEL	611	TB	46	5 FEET FROM SOUTH WALL CONTROL
4F	MAIN CONTROL ROOM REACTOR CONTROL ROD PANEL	611	TB	46	8 FEET SOUTHWEST OF RECORD & COMM DESK
4R	MAIN CONTROL ROOM NEUTRON FLUX CALIBRATION PANEL	611	TB	46	MAIN CONTROL ROOM AREA 5FT FROM S WALL
5F/6F	MAIN CONTROL ROOM PANEL FEEDWATER & CONDENSATE	611	TB	46	OC,MAIN CONTROL ROOM
5R	MAIN CONTROL ROOM PNL 5R NEUTRON MONITORS	611	TB	46	5 FEET FROM SOUTH WALL CONTROL ROOM
6R	MAIN CONTROL RM PANEL 6R REACTOR PROTECTION CH.1	641	TB	46	MAIN CONTROL ROOM AREA SW OF COL.8A/FA
6XR	MAIN CONTROL ROOM PNL 6XR PROTECT SYSTEM OPERATIONS	641	TB	46	MAIN CONTROL ROOM AREA SOUTHWEST SIDE
7R	MAIN CONTROL RM PANEL 7R REACTOR PROTECTION CH.2	641	TB	46	MAIN CONTROL ROOM AREA WEST OF COL.8A/FA
8F/9F	MAIN CONTROL ROOM PANEL GENERATOR & AUX POWER	611	TB	46	OC,MAIN CONTROL ROOM
8R	MAIN CONTROL ROOM PNL 8R TEMPERATURE RECORDERS	611	TB	46	OC,MAIN CONTROL ROOM
9R	MAIN CONTROL ROOM PNL 9R FEEDWATER & RECIRCULATION	611	TB	46	MAIN CONTROL ROOM NW OF COLUMN 8A/FA
CIP-3	CONTINUOUS INSTRUMENT PNL NO.3 208/120V,3PH,4W,60HZ	733	RB	23	480V SWGR ROOM,SOUTH OF USS 1A2-460V
DC-B 125V	125VDC DISTRIBUTION PANEL 'B'	735	OB	35	A/B BATTERY ROOM NORTH WALL
DC-C 125V	125V DC DISTRIBUTION CENTER 'C'	735	TB	23	4160V SWITCHGEAR RM SOUTH WALL (TEH91NE)
DC-D	125VDC POWER PANEL'D'	735	OB	35	A/B BATTERY ROOM NORTH WALL

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
DC-F	125VDC POWER PANEL DC-F	735	RB	23	480V SWGR ROOM,SOUTHEAST OF MCC 1A2-460V
DG-1 GOV CONT PNL	DIESEL GENERATOR UNIT #1 AC PANEL(GEN & GOV CONTR)	741	DG	23	INSIDE ELECTRICAL CONTROL CABINET
DG-1 MASTER PANEL	DIESEL GENERATOR UNIT #1 MASTER EXTRA PANEL	741	DG	23	INSIDE ELECTRICAL CONTROL CABINET
DG-1 SEQUENCE PANEL	DIESEL GENERATOR UNIT #1 SEQUENCE CONTROL PANEL	741	DG	23	INSIDE ELECTRICAL CONTROL CABINET
DG-1 STARTING PANEL	DIESEL GENERATOR UNIT #1 STARTING CONTROL PANEL	741	DG	23	INSIDE ELECTRICAL CONTROL CABINET
DG-1 UNIT PANEL	DIESEL GENERATOR #1UNIT EXTRA PANEL (DEADLINE)	741	DG	23	INSIDE ELECTRICAL CONTROL CABINET
DG-2 GOV CONT PNL	DIESEL GENERATOR UNIT #2 AC PANEL(GEN & GOV CONTR)	741	DG	23	INSIDE ELECTRICAL CONTROL CABINET
DG-2 MASTER PANEL	DIESEL GENERATOR UNIT #2 MASTER EXTRA PANEL	741	DG	23	INSIDE ELECTRICAL CONTROL CABINET
DG-2 SEQUENCE PANEL	DIESEL GENERATOR UNIT #2 SEQUENCE CONTROL PANEL	741	DG	23	INSIDE ELECTRICAL CONTROL CABINET
DG-2 STARTING PANEL	DIESEL GENERATOR UNIT #2 STARTING CONTROL PANEL	741	DG	23	INSIDE ELECTRICAL CONTROL CABINET
DG-2 UNIT PANEL	DIESEL GENERATOR UNIT #2 EXTRA PANEL (DEADLINE)	741	DG	23	INSIDE ELECTRICAL CONTROL CABUINET
ER18A	CORE SPRAY/AUTO DEPRESS'N SYSTEM RELAY LOGIC PANEL	642	RB	23	480V SWGR ROOM,SOUTH OF USS 1A2-460V
ER18B	CORE SPRAY/AUTO DEPRESS'N SYSTEM RELAY LOGIC PANEL	642	RB	23	OC,460V SWITCHGEAR ROOM
ER-642-112	AUXILIARY RELAY CABINET - CORE SPRAY PS-RV0046A	642	RB	51	OC,RX 51' CORE SPRAY BOOSTER PUMPS NZ03A & NZ03C

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
ER-642-113	AUXILIARY RELAY CABINET - CORE SPRAY PS-RV0046B	642	RB	51	OC,RX 51' CORE SPRAY BOOSTER PUMPS NZ03A & NZ03C
ER-642-114	AUXILIARY RELAY CABINET - CORE SPRAY PS-RV0046C	642	RB	51	OC,RX 51' CORE SPRAY BOOSTER PUMPS NZ03A & NZ03C
ER-642-115	AUXILIARY RELAY CABINET - CORE SPRAY PS-RV0046D	642	RB	51	OC,RX 51' CORE SPRAY BOOSTER PUMPS NZ03A & NZ03C
ER-642-78	AUXILIARY RELAY PNL-ESAS ACTUATION PS-RV0046A TO D	642	OB	46	NORTH OF STAIRWAY TO PERSONNEL LOCK
ER-642-79	AUXILIARY RELAY PANEL FOR ADS VALVES/INSTRUMENTS	642	RB	23	OC,RX 23' SOUTH ACCESS CORRIDOR (MOTOR GENERATOR ROOM)
ER7A	FUSE PANEL GROUP I SCRAM PILOT SOLENOID VALVES	225	RB	23	OC,RX 23' NORTH WEST ACCESS AREA
ER7B	FUSE PANEL GROUP II SCRAM PILOT SOLENOID VALVES	225	RB	23	OC,RX 23' NORTH WEST ACCESS AREA
ER7C	FUSE PANEL GROUP 3 SCRAM PILOT SOLENOID VALVES	225	RB	23	OC,RX 23' NORTH WEST ACCESS AREA
ER7D	FUSE PANEL GROUP IV SCRAM PILOT SOLENOID VALVES	225	RB	23	OC,RX 23' NORTH WEST ACCESS AREA
ER7E	FUSE PANEL GROUP I SCRAM PILOT SOLENOID VALVES	225	RB	23	OC,RX 23' S. WALL ACCESS AREA - S. TORUS CTRL AREA - MCC 1AZ1A
ER7F	FUSE PANEL GROUP II SCRAM PILOT SOLENOID VALVES	225	RB	23	OC,RX 23' S. WALL ACCESS AREA - S. TORUS CTRL AREA - MCC 1AZ1A
ER7G	FUSE PANEL GROUP 3 SCRAM PILOT SOLENOID VALVES	225	RB	23	OC,RX 23' S. WALL ACCESS AREA - S. TORUS CTRL AREA - MCC 1AZ1A
ER7H	FUSE PANEL GROUP IV SCRAM PILOT SOLENOID VALVES	225	RB	23	OC,RX 23' S. WALL ACCESS AREA - S. TORUS CTRL AREA - MCC 1AZ1A

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
ER8A	CONTAINMENT SPRAY SYSTEM/ RELAY LOGIC PANEL	642	RB	23	480V SWGR ROOM,SOUTH OF USS 1A2-460V
ER8B	CONTAINMENT SPRAY SYSTEM/ RELAY LOGIC PANEL	642	RB	23	480V SWGR ROOM,SOUTH OF USS 1A2-460V
IP-4	120VAC INSTRUMENT PANEL 4 - 208/120V,3PH,4W	733	RB	23	IN 480V SWGR RM,SOUTH OF USS 1A2-460V
IP-4A	208/120VAC INSTRUMENT PNL 4A - 208/120V,3PH,4W,60HZ	733	RB	23	480V SWGR ROOM,SOUTH OF USS 1A2-460V
IP-4B	208/120VAC INSTRUMENT PNL 4B - 208/120V,3PH,4W,60HZ	733	RB	23	480V SWGR ROOM,SOUTH OF USS 1A2-460V
IP-4C	208/120VAC INSTRUMENT PNL 4C - 208/120V,3PH,4W,60HZ	733	RB	23	480V SWGR ROOM,SOUTH OF USS 1A2-460V
LSP-1A2	LOCAL SHUTDOWN PANEL- USS 1A2 PUMP/BREAKER CONTROL	615	OB	23	480V SWGR RM, 4 FT WEST OF USS 1A2-460V
LSP-1AB2	LOCAL SHUTDOWN PANEL FOR V-37-0054 & V-17-0019&54	615	RB	23	OC,RX 23' OUTSIDE LABRYNTH AREA-D/W PARTICULATE MONITOR-02 ANALY
VACP-1	120V VITAL AC POWER PANEL 208/120V,3PH,4W,60HZ	733	RB	23	OC,460V SWITCHGEAR ROOM
1A2-460V XF	USS 1A2-460V TRANSFORMER 4160-480V/277V 3PH 60HZ	732	RB	23	OC,460V SWITCHGEAR ROOM
1B2-460V XF	USS 1B2-460V TRANSFORMER 4160-480V/277V 3PH 60HZ	732	RB	23	OC,460V SWITCHGEAR ROOM
CT5B	DIESEL GENERATOR UNIT #2 TRANSFORMER	741	DGB	23	OC,DIESEL GEN BLDG 23' 0"
IT-3	POTENTIAL TRANSFORMER FOR MCC 1A2-460V TO CIP-3	733	RB	23	OC,460V SWITCHGEAR ROOM
IT-4A	POTENTIAL AC TRANSFORMER FROM MCC 1A2-460V TO IP-4	733	RB	23	OC,460V SWITCHGEAR ROOM
IT-4B	POTENTIAL AC TRANSFORMER FROM MCC 1B2-460V TO IP-4	733	RB	23	OC,460V SWITCHGEAR ROOM
PS-1	480/120VAC TRANSFORMER TO PROTECTION SYS PANELS 1&2	733	TB	36	OC,OLD CABLE SPREADING ROOM
VACP-1 XF	120V VITAL AC POWER PANEL TRANSFORMER 480/208/120V	733	RB	23	OC,460V SWITCHGEAR ROOM

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
PI-305-131\06-15	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\06-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\06-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\06-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\06-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\06-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\06-39	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\10-07	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\10-11	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\10-15	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\10-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\10-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\10-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\10-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\10-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\10-39	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\10-43	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
PI-305-131\10-47	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\14-07	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\14-11	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\14-15	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\14-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\14-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\14-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\14-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\14-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\14-39	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\14-43	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\14-47	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-03	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-07	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-11	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-15	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
PI-305-131\18-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-39	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-43	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-47	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\18-51	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-03	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-07	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-11	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-15	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
PI-305-131\22-39	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-43	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-47	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\22-51	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-03	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-07	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-11	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-15	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-39	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-43	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-47	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\26-51	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
PI-305-131\30-03	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-07	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-11	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-15	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-39	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-43	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-47	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\30-51	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-03	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-07	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-11	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-15	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
PI-305-131\34-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-39	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-43	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-47	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\34-51	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\38-07	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\38-11	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\38-15	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\38-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\38-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\38-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\38-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\38-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
PI-305-131\38-39	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\38-43	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\38-47	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\42-07	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\42-11	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\42-15	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\42-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\42-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\42-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\42-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\42-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\42-39	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\42-43	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\42-47	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\46-11	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\46-15	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\46-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
PI-305-131\46-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\46-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\46-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\46-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\46-39	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\46-43	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\50-19	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\50-23	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\50-27	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\50-31	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
PI-305-131\50-35	ACCUMULATORS GAS PRESSURE INDICATOR	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
RK-1	REACTOR PROTECTION SYSTEM 1A,2A INSTRUMENT RACK A,B	614	RB	51	OC,RX 51' INSTRUMENT RACK RK-01 (ACCESS FROM RX-75' AREA RFG)
RK-2	REACTOR PROTECTION SYSTEM 1B,2B INSTRUMENT RACK A,B	614	RB	51	OC,RX 51' INSTRUMENT RACK RK-02
RK-3	INSTRUMENT RACK RECIRC'N PUMP REACTOR PROTECTION	614	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
RK-4	INSTRUMENT RACK FOR RPS & RECIRC PUMP & NSS SYSTEMS	614	RB	-1	OC,RX -1' CONTROL ROD DRIVE SYSTEM PUMP (RK-04)
RK-411-1	MSIV'S SOLENOID AIR VALVE & EQUIPMENT MOUNTING RACK	411	TB	23	OC,TRUNION ROOM GENERAL ALL AREAS
DPIS-IB0005A1	EMERGENCY CONDENSER NE01A HIGH SYSTEM FLOW SWITCH	211	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
DPIS-IB0005A2	EMERGENCY CONDENSER NE01A HIGH SYSTEM FLOW SWITCH	211	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPIS-IB0005B1	EMERGENCY CONDENSER NE01B HIGH SYSTEM FLOW SWITCH	211	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPIS-IB0005B2	EMERGENCY CONDENSER NE01B HIGH SYSTEM FLOW SWITCH	211	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPIS-IB0011A1	EMERGENCY CONDENSER NE01A HIGH CONDENSATE LINE FLOW	211	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPIS-IB0011A2	EMERGENCY CONDENSER NE01A HIGH CONDENSATE LINE FLOW	211	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPIS-IB0011B1	EMERGENCY CONDENSER NE01B HIGH CONDENSATE LINE FLOW	211	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPIS-IB0011B2	EMERGENCY CONDENSER NE01B HIGH CONDENSATE LINE FLOW	211	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
LIS-RE0018A	REACTOR VESSEL LOW LEVEL INDICATING SWITCH	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-01 (ACCESS FROM RX-75' AREA RFG)
LIS-RE0018B	REACTOR VESSEL LOW LEVEL INDICATING SWITCH	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-02
LIS-RE0018C	REACTOR VESSEL LOW LEVEL INDICATING SWITCH	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-01 (ACCESS FROM RX-75' AREA RFG)
LIS-RE0018D	REACTOR VESSEL LOW LEVEL INDICATING SWITCH	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-02
LS-862-10B	LO-LO LEVEL (START NORMAL PUMP) ON TANK T-39-003	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
LS-862-10C	HI-HI LEVEL(PUMP CUT-OFF) ON TANK T-39-003	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
LS-862-11A	LO-LO LEVEL(START BACK-UP PUMP) ON TANK T-39-004	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
LS-862-11B	HIGH LEVEL (STOP PUMP) ON TANK T-39-004	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
LS-862-12B	LO LEVEL(START NORM PUMP) ON TANK T-39-004	862	DG	23	OC,DIESEL GEN BLDG 23' 0"

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
LS-862-12C	HI-HI LEVEL(PUMP CUT-OFF) ON TANK T-39-004	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
LS-862-9A	LO-LO LEVEL(START BACK-UP PUMP)ON TANK T-39-003	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
LS-862-9B	HIGH LEVEL(STOP PUMP)FUEL OIL TANK T-39-003	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
LS-IG0003A	EMERGENCY CONDENSER NE01A LEVEL SWITCH(HI/LO ALARM)	211	TB	46	OC,MAIN CONTROL ROOM
LS-IG0003B	EMERGENCY CONDENSER NE01B LEVEL SWITCH(HI/LO ALARM)	211	TB	46	OC,MAIN CONTROL ROOM
LS-RD0087C	NORTH SDIV LEVEL SWITCH (LEVEL HI-HI CH.1-SCRAM)	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
LS-RD0088B	NORTH SDIV LEVEL SWITCH (LEVEL HI-HI CH.2-SCRAM)	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
LS-RD0091A	SOUTH SDIV LEVEL SWITCH (LEVEL HI-HI CH.1-SCRAM)	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
LS-RD0092D	SOUTH SDIV LEVEL SWITCH (LEVEL HI-HI CH.2-SCRAM)	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
PS-IA0083A	EMRV NR108A HIGH PRESSURE SWITCH	622	RB	51	OC,RX 51' GENERAL ALL AREAS
PS-IA0083B	EMRV NR108B HIGH PRESSURE SWITCH	622	RB	51	OC,RX 51' NORTHWEST CONTROL AREA
PS-IA0083C	EMRV NR108C HIGH PRESSURE SWITCH	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-02
PS-IA0083D	EMRV NR108D HIGH PRESSURE SWITCH	622	RB	51	OC,RX 51' EAST CORRIDOR/WALKWAY
PS-IA0083E	EMRV NR108E HIGH PRESSURE SWITCH	622	RB	51	OC,RX 51' NORTHWEST CONTROL AREA
PS-RE0017A	LOW REACTOR PRESS. SWITCH READIES CORE SPRAY VALVES	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-01 (ACCESS FROM RX-75' AREA RFG)
PS-RE0017B	LOW REACTOR PRESS. SWITCH READIES CORE SPRAY VALVES	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-02

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
PS-RE0017C	LOW REACTOR PRESS. SWITCH READIES CORE SPRAY VALVES	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-01 (ACCESS FROM RX-75' AREA RFG)
PS-RE0017D	LOW REACTOR PRESS. SWITCH READIES CORE SPRAY VALVES	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-02
PS-RV0029A	CS PUMP NZ01-A DISCHARGE PRESSURE SWITCH(SYSTEM I)	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM NORTH WEST (NZ01A & NZ01C)
PS-RV0029B	CS PUMP NZ01-B DISCHARGE PRESSURE SWITCH(SYS.II)	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM WEST (NZ01B & NZ01D)
PS-RV0029C	CS PUMP NZ01-C DISCHARGE PRESSURE SWITCH(SYS.I)	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM NORTH WEST (NZ01A & NZ01C)
PS-RV0029D	CS PUMP NZ01-D DISCHARGE PRESSURE SWITCH(SYS.II)	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM WEST (NZ01B & NZ01D)
PS-RV0046A	DRYWELL HIGH PRESSURE SWITCH-AUTO STARTS PUMPS	243	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
PS-RV0046B	DRYWELL HIGH PRESSURE SWITCH-AUTO STARTS PUMPS	243	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
PS-RV0046C	DRYWELL HIGH PRESSURE SWITCH-AUTO STARTS PUMPS	243	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
PS-RV0046D	DRYWELL HIGH PRESSURE SWITCH-AUTO STARTS PUMPS	243	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPT-5-IA0091A	FUEL ZONE LEVEL 'A' WIDE RANGE LEVEL TRANSMITTER	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPT-622-1009	REACTOR FUEL ZONE LEVEL WIDE RANGE IXMITR(CH.C)	622	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
DPT-622-1011	REACTOR FUEL ZONE LEVEL WIDE RANGE IXMITR(CH.D)	622	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
DPT-6-IA0091B	FUEL ZONE LEVEL 'B' WIDE RANGE LEVEL TRANSMITTER	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPT-822-13	RX BUILDING DIFFERENTIAL PRESSURE TRANSMITTER	822	RB	119	OC,RX 119' WEST FLOOR AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
DPT-IA0050A	RECIRCULATION PUMP NG01-A LOOP 'A' D/P TRANSMITTER	223	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPT-IA0050B	RECIRCULATION PUMP NG01-B LOOP 'B' D/P TRANSMITTER	223	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPT-IA0050C	RECIRCULATION PUMP NG01-C LOOP 'C' D/P TRANSMITTER	223	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPT-IA0050D	RECIRCULATION PUMP NG01-D LOOP 'D' D/P TRANSMITTER	223	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPT-IA0050E	RECIRCULATION PUMP NG01-E LOOP 'E' D/P TRANSMITTER	223	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
DPT-IP0005A	CONTAINMENT SPRAY HTEXCHG 1A ESW D/P TRANSMITTER	241	RB	23	OC,RX 23' NORTH BANK CONTAINMENT SPRAY HEAT EXCHANGERS (1-1 &1-2)
DPT-IP0005B	CONTAINMENT SPRAY HTEXCHG 1B ESW D/P TRANSMITTER	241	RB	23	OC,RX 23' NORTH BANK CONTAINMENT SPRAY HEAT EXCHANGERS (1-1 &1-2)
DPT-IP0005C	CONTAINMENT SPRAY HTEXCHG 1C ESW D/P TRANSMITTER	241	RB	23	OC,RX 23' SOUTH BANK CONTAINMENT SPRAY HEAT EXCHANGERS (1-3 &1-4)
DPT-IP0005D	CONTAINMENT SPRAY HTEXCHG 1D ESW D/P TRANSMITTER	241	RB	23	OC,RX 23' SOUTH BANK CONTAINMENT SPRAY HEAT EXCHANGERS (1-3 &1-4)
DPT-RD0004	CRD SYSTEM DRIVE WATER/RX VESSEL D/P TRANSMITTER	225	RB	23	OC,RX 23' CRD SYSTEM FILTER/VALVING AREA (FILTERS=NC06 A&B)
DPT-RD0005	CRD SYSTEM COOLING WATER/ RX VESSEL D/P TRANSMITTER	225	RB	23	OC,RX 23' CRD SYSTEM FILTER/VALVING AREA (FILTERS=NC06 A&B)
LT-RE0005A	REACTOR VESSEL LOW WATER LEVEL REACTOR SCRAM	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-01 (ACCESS FROM RX-75' AREA RFG)
LT-RE0005B	REACTOR VESSEL LOW WATER LEVEL REACTOR SCRAM	622	RB	51	OC,RX 51' INSTRUMENT RACK RK-02
EF-1-8	SBGTS SYSTEM EXHAUST FAN (FN-28-028)	822	RB	23	OC,RX 23' OUTSIDE SOUTH

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
FN-732-1	USS 1A2-460V TRANSFORMER COOLING FAN	732	RB	23	OC,460V SWITCHGEAR ROOM
FN-732-2	USS 1A2-460V TRANSFORMER COOLING FAN	732	RB	23	OC,460V SWITCHGEAR ROOM
FN-732-3	USS 1A2-460V TRANSFORMER COOLING FAN	732	RB	23	OC,460V SWITCHGEAR ROOM
FN-732-4	USS 1B2-460V TRANSFORMER COOLING FAN	732	RB	23	OC,460V SWITCHGEAR ROOM
FN-732-5	USS 1B2-460V TRANSFORMER COOLING FAN	732	RB	23	OC,460V SWITCHGEAR ROOM
FN-732-6	USS 1B2-460V TRANSFORMER COOLING FAN	732	RB	23	OC,460V SWITCHGEAR ROOM
CD-14-1A	EMERGENCY CONDENSER NE01A	211	RB	95	OC,RX 95' "A" EMERGENCY CONDENSER NE01-A
CD-14-1B	EMERGENCY CONDENSER NE01B	211	RB	95	OC,RX 95' "B" EMERGENCY CONDENSER NE01-B
H-21-1A	CONTAINMENT SPRAY SYSTEM HEAT EXCHANGER 1-1	241	RB	23	OC,RX 23' NORTH BANK CONTAINMENT SPRAY HEAT EXCHANGERS (1-1 &1-2)
H-21-1B	CONTAINMENT SPRAY SYSTEM HEAT EXCHANGER 1-2	241	RB	23	OC,RX 23' NORTH BANK CONTAINMENT SPRAY HEAT EXCHANGERS (1-1 &1-2)
H-21-1C	CONTAINMENT SPRAY SYSTEM HEAT EXCHANGER 1-3	241	RB	23	OC,RX 23' SOUTH BANK CONTAINMENT SPRAY HEAT EXCHANGERS (1-3 &1-4)
H-21-1D	CONTAINMENT SPRAY SYSTEM HEAT EXCHANGER 1-4	241	RB	23	OC,RX 23' SOUTH BANK CONTAINMENT SPRAY HEAT EXCHANGERS (1-3 &1-4)
H-39-1	M-39-1 OIL COOLER	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
H-39-2	M-39-2 OIL COOLER	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
M-39-10	M-39-2 RADIATOR 'B'	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
M-39-7	M-39-1 RADIATOR 'A'	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
M-39-8	M-39-1 RADIATOR 'B'	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
M-39-9	M-39-2 RADIATOR 'A'	861	DG	23	OC,DIESEL GEN BLDG 23' 0"

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
P-20-1A	CORE SPRAY PUMP NZ01-A	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM NORTH WEST (NZ01A & NZ01C)
P-20-1B	CORE SPRAY PUMP NZ01-B	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM WEST (NZ01B & NZ01D)
P-20-1C	CORE SPRAY PUMP NZ01-C	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM NORTH WEST (NZ01A & NZ01C)
P-20-1D	CORE SPRAY PUMP NZ01-D	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM WEST (NZ01B & NZ01D)
P-20-2A	CORE SPRAY BOOSTER PUMP NZ03-A	212	RB	51	OC,RX 51' CORE SPRAY BOOSTER PUMPS NZ03A & NZ03C
P-20-2B	CORE SPRAY BOOSTER PUMP NZ03-B	212	RB	23	OC,RX 23' CORE SPRAY BOOSTER PUMPS NZ03B & BZ03D
P-20-2C	CORE SPRAY BOOSTER PUMP NZ03-C	212	RB	51	OC,RX 51' CORE SPRAY BOOSTER PUMPS NZ03A & NZ03C
P-20-2D	CORE SPRAY BOOSTER PUMP NZ03-D	212	RB	23	OC,RX 23' CORE SPRAY BOOSTER PUMPS NZ03B & BZ03D
P-21-1A	CONTAINMENT SPRAY PMP 1-1 (51A)	241	RB	-19	OC,RX -19' CONTAINMENT SPRAY PUMP ROOM NORTH EAST (1-1 & 1-2)(1-6 SUMP
P-21-1B	CONTAINMENT SPRAY PMP 1-2 (51B)	241	RB	-19	OC,RX -19' CONTAINMENT SPRAY PUMP ROOM SOUTH EAST (1-3 & 1-4)(1-7 SUMP
P-21-1C	CONTAINMENT SPRAY PMP 1-3 (51C)	241	RB	-19	OC,RX -19' CONTAINMENT SPRAY PUMP ROOM SOUTH EAST (1-3 & 1-4)(1-7 SUMP
P-21-1D	CONTAINMENT SPRAY PMP 1-4 (51D)	241	RB	-19	OC,RX -19' CONTAINMENT SPRAY PUMP ROOM SOUTH EAST (1-3 & 1-4)(1-7 SUMP

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
P-3-3A	EMERGENCY SERVICE WATER PUMP 1-1 (52A)	532	IS	6	OC,INTAKE STRUCTURE 6 FT ELEVATION
P-3-3B	EMERGENCY SERVICE WATER PUMP 1-2 (52B)	532	IS	6	OC,INTAKE STRUCTURE 6 FT ELEVATION
P-3-3C	EMERGENCY SERVICE WATER PUMP 1-3 (52C)	532	IS	6	OC,INTAKE STRUCTURE 6 FT ELEVATION
P-3-3D	EMERGENCY SERVICE WATER PUMP 1-4 (52D)	532	IS	6	OC,INTAKE STRUCTURE 6 FT ELEVATION
P-39-13	FUEL OIL PUMP TO DAY TANK T-39-3	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-14	FUEL OIL PUMP TO DAY TANK T-39-3	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-15	FUEL OIL PUMP TO DAY TANK T-39-4	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-16	FUEL OIL PUMP TO DAY TANK T-39-4	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-17	DIESEL GENERATOR UNIT #1 ENGINE DRIVEN FUEL PUMP	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-18	DIESEL GENERATOR UNIT #2 ENGINE DRIVEN FUEL PUMP	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-19	M-39-1 LEFT BEARING COOLING WATER PUMP	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-20	M-39-1 RIGHT BEARING COOLING WATER PUMP	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-21	M-39-2 LEFT BEARING COOLING WATER PUMP	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-22	M-39-2 RIGHT BEARING COOLING WATER PUMP	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-23	AC TURBO LUBE OIL PUMP	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-24	DC TURBO BACKUP LUBE OIL PUMP	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-25	AC TURBO LUBE OIL PUMP	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-26	DC TURBO BACKUP LUBE OIL PUMP	861	DG	23	OC,DIESEL GEN BLDG 23' 0"

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
P-39-3	M-39-1 LUBE OIL CIRCULATING PUMP	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
P-39-4	M-39-2 LUBE OIL CIRCULATING PUMP	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
305-125\02-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\02-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\02-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\02-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\02-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\06-11	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\06-15	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\06-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\06-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\06-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\06-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\06-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\06-39	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\06-43	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\10-07	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
305-125\10-11	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\10-15	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\10-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\10-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\10-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\10-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\10-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\10-39	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\10-43	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\10-47	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\14-07	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\14-11	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\14-15	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\14-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\14-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\14-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\14-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
305-125\14-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\14-39	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\14-43	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\14-47	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-03	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\18-07	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-11	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-15	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-39	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-43	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-47	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\18-51	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
305-125\22-03	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\22-07	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\22-11	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\22-15	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\22-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\22-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\22-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\22-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\22-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\22-39	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\22-43	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\22-47	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\22-51	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\26-03	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\26-07	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\26-11	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\26-15	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
305-125\26-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\26-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\26-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\26-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\26-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\26-39	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\26-43	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\26-47	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\26-51	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\30-03	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\30-07	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\30-11	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\30-15	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\30-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\30-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\30-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\30-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
305-125\30-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\30-39	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\30-43	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\30-47	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\30-51	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\34-03	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\34-07	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\34-11	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\34-15	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\34-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\34-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\34-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\34-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\34-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\34-39	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\34-43	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\34-47	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
305-125\34-51	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
305-125\38-07	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\38-11	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\38-15	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\38-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\38-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\38-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\38-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\38-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\38-39	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\38-43	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\38-47	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\42-07	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\42-11	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\42-15	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\42-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\42-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
305-125\42-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\42-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\42-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\42-39	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\42-43	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\42-47	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\46-11	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\46-15	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\46-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\46-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\46-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\46-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\46-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\46-39	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\46-43	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\50-19	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\50-23	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
305-125\50-27	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\50-31	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
305-125\50-35	SCRAM ACCUMULATOR-H2O	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
CV-305-126\02-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
CV-305-126\02-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\02-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
CV-305-126\02-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\02-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\06-11	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\06-15	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\06-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\06-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\06-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-126\06-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\06-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\06-39	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\06-43	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\10-07	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\10-11	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\10-15	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\10-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\10-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\10-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\10-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-126\10-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\10-39	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\10-43	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\10-47	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\14-07	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\14-11	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\14-15	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\14-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
CV-305-126\14-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\14-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\14-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
CV-305-126\14-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-126\14-39	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\14-43	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\14-47	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\18-03	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\18-07	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\18-11	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\18-15	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\18-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\18-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\18-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\18-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\18-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-126\18-39	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\18-43	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\18-47	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\18-51	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\22-03	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\22-07	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\22-11	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\22-15	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\22-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\22-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\22-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\22-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-126\22-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\22-39	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\22-43	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\22-47	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\22-51	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\26-03	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\26-07	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\26-11	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\26-15	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\26-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\26-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\26-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\26-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-126\26-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\26-39	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\26-43	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\26-47	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\26-51	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\30-03	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\30-07	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\30-11	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\30-15	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\30-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\30-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\30-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\30-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
CV-305-126\30-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\30-39	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\30-43	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-126\30-47	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\30-51	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\34-03	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\34-07	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
CV-305-126\34-11	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\34-15	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\34-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\34-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\34-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
CV-305-126\34-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\34-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\34-39	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\34-43	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\34-47	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\34-51	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-126\38-07	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-126\38-11	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\38-15	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\38-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\38-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\38-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\38-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\38-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\38-39	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\38-43	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\38-47	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\42-07	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\42-11	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\42-15	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\42-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\42-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\42-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\42-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-126\42-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\42-39	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\42-43	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\42-47	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\46-11	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\46-15	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\46-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\46-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\46-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\46-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\46-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\46-39	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\46-43	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\50-19	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\50-23	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\50-27	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-126\50-31	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-126\50-35	CRD INLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\02-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\02-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\02-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\02-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\02-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\06-11	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\06-15	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\06-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\06-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\06-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\06-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-127\06-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\06-39	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\06-43	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\10-07	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\10-11	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\10-15	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\10-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\10-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\10-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\10-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\10-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-127\10-39	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\10-43	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\10-47	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\14-07	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\14-11	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\14-15	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\14-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\14-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\14-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\14-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
CV-305-127\14-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\14-39	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-127\14-43	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\14-47	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-03	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-07	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-11	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-15	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-127\18-39	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-43	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-47	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\18-51	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
CV-305-127\22-03	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\22-07	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\22-11	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\22-15	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\22-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\22-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\22-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\22-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-127\22-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\22-39	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\22-43	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\22-47	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\22-51	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\26-03	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\26-07	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\26-11	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\26-15	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\26-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\26-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\26-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\26-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-127\26-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\26-39	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\26-43	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\26-47	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\26-51	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\30-03	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\30-07	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\30-11	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\30-15	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\30-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\30-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\30-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\30-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\30-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\30-39	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\30-43	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-127\30-47	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\30-51	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\34-03	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\34-07	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\34-11	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\34-15	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\34-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
CV-305-127\34-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\34-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\34-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\34-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\34-39	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\34-43	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\34-47	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
CV-305-127\34-51	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
CV-305-127\38-07	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-127\38-11	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\38-15	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\38-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\38-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\38-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\38-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\38-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\38-39	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\38-43	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\38-47	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\42-07	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\42-11	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\42-15	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\42-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\42-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\42-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\42-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-127\42-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\42-39	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\42-43	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\42-47	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\46-11	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\46-15	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
CV-305-127\46-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\46-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\46-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\46-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\46-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\46-39	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\46-43	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\50-19	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\50-23	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\50-27	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
CV-305-127\50-31	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
CV-305-127\50-35	CRD OUTLET SCRAM VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
T-39-2	DIESEL GENERATOR FUEL OIL STORAGE TANK	862	DG	18	OC,DIESEL GEN BLDG 18' 4"
T-39-3	DIESEL GENERATOR UNIT #1 FUEL OIL DAY TANK	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
T-39-4	DIESEL GENERATOR UNIT #2 FUEL OIL DAY TANK	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
T-39-5	M-39-1 COOLING WATER TANK	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
T-39-6	M-39-2 COOLING WATER TANK	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
EMRV	ELECTROMATIC RELIEF VALVE SERIAL NO. BY8791	212	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
EMRV\BY8791	ELECTROMATIC RELIEF VALVE SERIAL NO. BY8791	212	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
SO-305-117\06-11	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 1)	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\06-15	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 4)	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\06-19	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 2)	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\06-23	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 3)	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\06-27	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 1)	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\06-31	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 4)	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\06-35	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 2)	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\06-39	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 3)	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\06-43	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 4)	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-03	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 2)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-117\30-07	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 3)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-11	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 1)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-15	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 4)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-19	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 2)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-23	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 3)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-27	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 1)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-31	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 4)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-35	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 2)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-39	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 3)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-43	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 1)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-47	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 4)	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-117\30-51	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 2)	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\02-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\02-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\02-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\02-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\02-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-120\06-11	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\06-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\06-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\06-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\06-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\06-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\06-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\06-39	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\06-43	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\10-07	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\10-11	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\10-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\10-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\10-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\10-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\10-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\10-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-120\10-39	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\10-43	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\10-47	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\14-07	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\14-11	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\14-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\14-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\14-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\14-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\14-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\14-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\14-39	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\14-43	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\14-47	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-03	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-07	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-11	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-120\18-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-39	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-43	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-47	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\18-51	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-03	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-07	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-11	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-120\22-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-39	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-43	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-47	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\22-51	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-03	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-07	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-11	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-39	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-43	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-120\26-47	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\26-51	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-03	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-07	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-11	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-39	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-43	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-47	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\30-51	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-03	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-07	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-120\34-11	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-39	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-43	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-47	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\34-51	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\38-07	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\38-11	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\38-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\38-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\38-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\38-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-120\38-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\38-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\38-39	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\38-43	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\38-47	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\42-07	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\42-11	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\42-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\42-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\42-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\42-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\42-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\42-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\42-39	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\42-43	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\42-47	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\46-11	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-120\46-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\46-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\46-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\46-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\46-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\46-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\46-39	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\46-43	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\50-19	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\50-23	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\50-27	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\50-31	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-120\50-35	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\02-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\02-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\02-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\02-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-121\02-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\06-11	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\06-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\06-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\06-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\06-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\06-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\06-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\06-39	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\06-43	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\10-07	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\10-11	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\10-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\10-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\10-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\10-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\10-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-121\10-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\10-39	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\10-43	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\10-47	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\14-07	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\14-11	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\14-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\14-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\14-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\14-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\14-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\14-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\14-39	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\14-43	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\14-47	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-03	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-07	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-121\18-11	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-39	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-43	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-47	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\18-51	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-03	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-07	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-11	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-121\22-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-39	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-43	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-47	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\22-51	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-03	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-07	DIRECTIONAL FLOW CONTROL INSERT SOLINOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-11	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-39	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-121\26-43	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-47	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\26-51	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-03	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-07	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-11	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-39	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-43	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-47	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\30-51	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-03	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-121\34-07	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-11	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-39	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-43	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-47	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\34-51	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\38-07	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\38-11	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\38-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\38-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\38-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-121\38-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\38-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\38-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\38-39	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\38-43	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\38-47	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\42-07	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\42-11	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\42-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\42-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\42-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\42-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\42-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\42-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\42-39	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\42-43	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\42-47	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
SO-305-121\46-11	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\46-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\46-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\46-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\46-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\46-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\46-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\46-39	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\46-43	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\50-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\50-23	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\50-27	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\50-31	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
SO-305-121\50-35	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE	225	RB	23	OC,RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)
V-1-10	MAIN STEAM LINE'B' OUTLET ISOLATION VALVE(NS04-B)	411	TB	23	OC,TRUNION ROOM MAIN STEAM ISOLATION VALVE (MSIV) NS-04B
V-1-106	MAIN STEAM LINE 'A' DRAIN VALVE	411	DW	23	OC,DRYWELL 23' GENERAL ALL AREAS
V-1-107	MAIN STEAM LINE 'B' DRAIN VALVE	411	DW	23	OC,DRYWELL 23' GENERAL ALL AREAS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-1-110	MAIN STEAM LINE DRAIN VALVE	411	TB	23	OC,TRUNION ROOM GENERAL ALL AREAS
V-1-160	SAFETY RELIEF VALVE NR28D (SOUTH HEADER)	411	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-161	SAFETY RELIEF VALVE NR28E (SOUTH HEADER)	411	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-162	SAFETY RELIEF VALVE NR28F (SOUTH HEADER)	411	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-163	SAFETY RELIEF VALVE NR28G (SOUTH HEADER)	411	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-164	SAFETY RELIEF VALVE NR28H (NORTH HEADER)	411	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-165	SAFETY RELIEF VALVE NR28J (NORTH HEADER)	411	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-166	SAFETY RELIEF VALVE NR28K (NORTH HEADER)	411	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-167	SAFETY RELIEF VALVE NR28L (NORTH HEADER)	411	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-168	SAFETY RELIEF VALVE NR28M (NORTH HEADER)	411	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-173	ELECTROMATIC RELIEF VALVE NR108-A(SOUTH HEADER)	212	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-174	ELECTROMATIC RELIEF VALVE NR108-B(SOUTH HEADER)	212	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-175	ELECTROMATIC RELIEF VALVE NR108-C(NORTH HEADER)	212	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-176	ELECTROMATIC RELIEF VALVE NR108-D(NORTH HEADER)	212	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-1-177	ELECTROMATIC RELIEF VALVE NR108-E(SOUTH HEADER)	212	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-15-119	NORTH SCRAM DISCHARGE HDR VENT VALVE(NC51-A)	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
V-15-120	SOUTH SCRAM DISCHARGE HDR VENT VALVE(NC53-A)	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-15-121	SOUTH SCRAM DISCHG VOLUME DRAIN VALVE(NC50-A)	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
V-15-133	NORTH SCRAM DISCHG VOLUME DRAIN VALVE(NC52-A)	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
V-15-134	SOUTH SCRAM DISCHG VOLUME DRAIN VALVE(NC50-B)	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
V-15-135	NORTH SCRAM DISCHG VOLUME DRAIN VALVE(NC52-B)	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
V-15-136	NORTH SCRAM DISCHARGE HDR VENT VALVE(NC51-B)	225	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS
V-15-137	SOUTH SCRAM DISCHARGE HDR VENT VALVE(NC53-B)	225	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA
V-16-1	CU INLET ISOLATION VALVE FROM REACTOR VESSEL	215	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-16-133	V-16-1 TEST BARRIER VALVE	215	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-16-134	DRAIN VALVE TO HEADER 'A' (L.C.)	215	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-16-135	DRAIN VALVE TO HEADER 'A'	215	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-16-136	TEST CONNECTION FOR VALVE V-16-1(L.C.)	215	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-16-137	TEST CONNECTION FOR VALVE V-16-1	215	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-16-14	CLEAN-UP INLET ISOLATION VALVE	215	RB	51	OC,RX 51' CLEANUP SYSTEM VALVE NEST (ELEV = 64)
V-16-140	TEST VALVE INSIDE DRYWELL	215	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-16-141	TEST VALVE INSIDE DRYWELL	215	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-16-142	DRAIN TO HEADER 'A'	215	DW	23	OC,DRYWELL 23' GENERAL ALL AREAS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-16-143	DRAIN TO HEADER 'A'	215	DW	23	OC,DRYWELL 23' GENERAL ALL AREAS
V-16-144	INLET VALVE TO V-16-0030	215	RB	51	OC,RX 51' SAMPLE SINK AREA
V-16-145	DRAIN AND TEST VALVE FOR V-16-0030	215	RB	51	OC,RX 51' SAMPLE SINK AREA
V-16-2	INLET ISOLATION VALVE TO CLEANUP AUXILIARY PUMP	215	RB	51	OC,RX 51' CLEANUP SYSTEM VALVE NEST (ELEV = 64)
V-16-221	H.P. VENT VALVE AND T.C.	215	RB	51	OC,RX 51' CLEANUP SYSTEM VALVE NEST (ELEV = 64)
V-16-222	H.P. VENT VALVE AND T.C.	215	RB	51	OC,RX 51' CLEANUP SYSTEM VALVE NEST (ELEV = 64)
V-16-223	H.P. VENT VALVE AND T.C. (LOCKED CLOSED)	215	RB	51	OC,RX 51' CLEANUP SYSTEM VALVE NEST (ELEV = 64)
V-16-224	VENT VALVE	215	RB	51	OC,RX 51' SAMPLE SINK AREA
V-16-287	RW CLEANUP CHEMICAL FLUSH CONNECTION OUTLET VALVE	215	DW	23	OC,DRYWELL 23' GENERAL ALL AREAS
V-16-288	RW CLEANUP CHEMICAL FLUSH CONNECTION OUTLET VALVE	215	DW	23	OC,DRYWELL 23' GENERAL ALL AREAS
V-16-289	RW CLEANUP CHEMICAL FLUSH CONNECTION INLET VALVE	215	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-16-290	RW CLEANUP CHEMICAL FLUSH CONNECTION INLET VALVE	215	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-16-3	AUXILIARY PUMP LINE DRAIN VALVE ON 6-ND-1 TO RBEDT	215	RB	51	OC,RX 51' CLEANUP SYSTEM VALVE NEST (ELEV = 64)
V-16-30	RELIEF TO TORUS TELL-TALE DRAIN VALVE	215	RB	51	OC,RX 51' CLEANUP FILTER SLUDGE PUMP HALLWAY ND-12
V-16-319	ISOL'N VALVE OFF CLEAN-UP RELIEF LINE TO TORUS	215	RB	-19	OC,RX -19' TOP OF TORUS S/W
V-16-320	ISOL'N VALVE OFF CLEAN-UP RELIEF LINE TO TORUS	215	RB	-19	OC,RX -19' TOP OF TORUS S/W
V-16-4	AUXILIARY PUMP LINE DRAIN VALVE ON 6-ND-1 TO RBEDT	215	RB	51	OC,RX 51' CLEANUP SYSTEM VALVE NEST (ELEV = 64)
V-16-61	REGENERATIVE HT EXCHANGER OUTLET TO REACTOR VESSEL	215	RB	51	OC,RX 51' CLEANUP SYSTEM VALVE NEST (ELEV = 64)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-16-62	CLEANUP DEMINERALIZER SYS RETURN CHECK VALVE	215	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-16-63	REGENERATIVE HT EXCHANGER OUTLET TO REACTOR (L.O.)	215	DW	23	OC,DRYWELL 23' GENERAL ALL AREAS
V-16-64	REGENERATIVE HT EXCHANGER OUTLET LINE DRAIN VALVE	215	RB	51	OC,RX 51' CLEANUP SYSTEM HEAT EXCHANGER RM (REGEN=ND03 NON-REGEN=ND04)
V-16-65	REGENERATIVE HT EXCHANGER OUTLET LINE DRAIN(L.C.)	215	RB	51	OC,RX 51' CLEANUP SYSTEM HEAT EXCHANGER RM (REGEN=ND03 NON-REGEN=ND04)
V-16-76	DEMINERALIZER LINE RELIEF VALVE TO SUPPRESSION POOL	215	RB	51	OC,RX 51' CLEANUP SYSTEM PUMP AREA (ND02A & ND02B + AUX PUMP)
V-16-84	CHECK VALVE DISCHARGE TO SUPPRESSION POOL	215	RB	51	OC,RX 51' GENERAL ALL AREAS
V-1-7	MAIN STEAM LINE'A' OUTLET ISOLATION VALVE(NS03-A)	411	DW	23	OC,DRYWELL 23' GENERAL ALL AREAS
V-17-1	SDC LOOP 'A' PUMP SUCTION VALVE	214	RB	38	OC,RX 38' SHUTDOWN COOLING PUMP ROOM EAST
V-17-19	SHUTDOWN COOLING DRYWELL INLET ISOLATION VALVE	214	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-17-2	SDC LOOP 'B' PUMP SUCTION VALVE	214	RB	38	OC,RX 38' SHUTDOWN COOLING PUMP ROOM EAST
V-17-20	INLET HEADER DRAIN VALVE TO RBEDT	214	RB	38	OC,RX 38' SHUTDOWN COOLING PUMP ROOM EAST
V-17-205	SHUTDOWN COOLING LOOP 'A' OUTLET ISOLATION VALVE	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)
V-17-206	SHUTDOWN COOLING LOOP 'B' OUTLET ISOLATION VALVE	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-17-207	SHUTDOWN COOLING LOOP 'C' OUTLET ISOLATION VALVE	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)
V-17-208	SDC LOOP'C' OUTLET HEADER VENT VALVE(L.C.)	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)
V-17-209	SDC LOOP'C' OUTLET HEADER VENT VALVE(L.C.)	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)
V-17-21	INLET HEADER CONDENSATE FILL/DRAIN TO RBEDT	214	RB	38	OC,RX 38' SHUTDOWN COOLING PUMP ROOM EAST
V-17-210	SDC LOOP'B' OUTLET HEADER VENT VALVE(L.C.)	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)
V-17-211	SDC LOOP'B' OUTLET HEADER VENT VALVE(L.C.)	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)
V-17-212	SDC LOOP'A' OUTLET HEADER VENT VALVE	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)
V-17-213	SDC LOOP'A' OUTLET HEADER VENT VALVE(L.C)	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)
V-17-54	SHUTDOWN COOLING DRYWELL OUTLET ISOLATION VALVE	214	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-17-55	SHUTDOWN COOLING LOOP 'A' OUTLET ISOLATION VALVE	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)
V-17-56	SHUTDOWN COOLING LOOP 'B' OUTLET ISOLATION VALVE	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)
V-17-57	SHUTDOWN COOLING LOOP 'C' OUTLET ISOLATION VALVE	214	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-1-8	MAIN STEAM LINE'B' OUTLET ISOLATION VALVE(NS03-B)	411	DW	23	OC,DRYWELL 23' GENERAL ALL AREAS
V-1-9	MAIN STEAM LINE'A' OUTLET ISOLATION VALVE(NS04-A)	411	TB	23	OC,TRUNION ROOM MAIN STEAM ISOLATION VALVE(MSIV) NS-04A
V-20-1	CORE SPRAY SYSTEM COND.STORAGE TANK SUPPLY ISOLATION VALVE	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM NORTH WEST (NZ01A & NZ01C)
V-20-12	CORE SPRAY PUMP DISCHARGE VALVE(SYSTEM I)	212	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
V-20-15	CORE SPRAY SYS.I PARALLEL ISOLATION VALVE	212	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
V-20-17	CORE SPRAY SYS1 ISOLATION VALVE (INSIDE DRYWELL)	212	DW	46	OC,DRYWELL 46' ELEVATION GENERAL
V-20-2	CONDENSATE TRANSFER VALVE TO NZ01-B SUCTION(L.C.)	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM WEST (NZ01B & NZ01D)
V-20-21	CORE SPRAY SYS.2 PARALLEL ISOLATION VALVE	212	RB	75	OC,RX 75' CLEANUP CONTROL PRECOAT TANK AREA
V-20-23	CORE SPRAY SYS2 ISOLATION VALVE (INSIDE DRYWELL)	212	DW	75	OC,DRYWELL 75' GENERAL ALL AREAS
V-20-250	CS PUMP NZ01-C SEAL WATER VENT VALVE	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM WEST (NZ01B & NZ01D)
V-20-251	CORE SPRAY SYSTEM II FLOW REGULATING THRU ORIFICE	212	RB	75	OC,RX 75' CLEANUP CONTROL PRECOAT TANK AREA
V-20-252	CORE SPRAY SYS.II RECIRC. LINE ISOLATION VALVE	212	RB	75	OC,RX 75' CLEANUP CONTROL PRECOAT TANK AREA
V-20-3	PUMP NZ01-A SUCTION VALVE FROM TORUS	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM NORTH WEST (NZ01A & NZ01C)
V-20-32	MAIN PUMP NZ01-C SUCTION VALVE FROM TORUS	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM NORTH WEST (NZ01A & NZ01C)
V-20-33	PUMP NZ01-D SUCTION VALVE FROM TORUS	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM WEST (NZ01B & NZ01D)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-20-34	CONDENSATE TRANSFER SUPPLY TO NZ01-C MAIN PUMP ISOLATION	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM NORTH WEST (NZ01A & NZ01C)
V-20-35	CONDENSATE TRANSFER TO PUMP NZ01-D SUCTION(L.C.)	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM WEST (NZ01B & NZ01D)
V-20-4	PUMP NZ01-B SUCTION VALVE FROM TORUS	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM WEST (NZ01B & NZ01D)
V-20-40	CORE SPRAY SYS.I PARALLEL ISOLATION VALVE	212	RB	51	OC,RX 51' INSTRUMENT RACK RK-03 AREA
V-20-41	CORE SPRAY SYS.2 PARALLEL ISOLATION VALVE	212	RB	75	OC,RX 75' CLEANUP CONTROL PRECOAT TANK AREA
V-20-5	CST SUPPLY TO MAIN PUMP NZ01-A ISOLATION VALVE	212	RB	-19	OC,RX -19' CORE SPRAY PUMP ROOM NORTH WEST (NZ01A & NZ01C)
V-21-5	CONTAINMENT SPRAY SYS 2 DRYWELL SPRAY DISCHARGE VALVE	241	RB	23	OC,RX 23' AREA WEST OF RAILROAD AIRLOCK
V-21-7	CONTAINMENT SPRAY SYS 1 PUMP 51B SUCTION VALVE	241	RB	-19	OC,RX -19' CONTAINMENT SPRAY PUMP ROOM NORTH EAST (1-1 & 1-2)(1-6 SUMP
V-21-75	CONTAINMENT ISOLATION FOR TORUS WATER CLEAN-UP	241	RB	-19	OC,RX -19' CONTAINMENT SPRAY PUMP ROOM SOUTH EAST (1-3 & 1-4)(1-7 SUMP
V-21-76	CONTAINMENT ISOLATION FOR TORUS WATER CLEAN-UP	241	RB	-19	OC,RX -19' CONTAINMENT SPRAY PUMP ROOM SOUTH EAST (1-3 & 1-4)(1-7 SUMP
V-21-77	CONTAINMENT ISOLATION FOR TORUS WATER CLEAN-UP	241	RB	23	OC,RX 23' SOUTHEAST ACCESS AREA - MCC DC-1
V-21-78	CONTAINMENT ISOLATION FOR TORUS WATER CLEAN-UP	241	RB	23	OC,RX 23' SOUTHEAST ACCESS AREA - MCC DC-1
V-23-258	ISOLATION FOR N2 MAKE-UP TO DRYWELL	242	RB	75	OC,RX 75' WEST CONTROL AREA
V-23-259	ISOLATION VLV FOR V-23-16 TORUS N2 MAKEUP	242	RB	23	OC,RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-23-263	N2 PURGE HEADER TRAP Y-23-2 INLET VALVE	242	RB	-19	OC,RX -19' CONTAINMENT SPRAY PUMP ROOM NORTH EAST (1-1 & 1-2)(1-6 SUMP
V-23-264	NITORGEN SUPPLY VALVE TO SHUTDOWN COOLING HX ROOM	242	RB	51	OC,RX 51' NE ACCESS CORRIDOR QA/QC EQUIPMENT STORAGE CAGE
V-23-265	NITROGEN SUPPLY VALVE TO SDC HEAT EXCHANGER ROOM ISOL. VALVE	242	RB	51	OC,RX 51' S/D COOLING HEAT EXCHANGER RM (NU01A & NU01C)
V-2-35	FEEDWATER SYSTEM REACTOR ISOLATION VALVE	422	DW	23	OC,DRYWELL 23' GENERAL ALL AREAS
V-2-36	FEEDWATER SYSTEM REACTOR ISOLATION VALVE	422	DW	23	OC,DRYWELL 23' GENERAL ALL AREAS
V-23-70	N2 SOLENOID VALVE FOR TIP PURGE TO INDEXERS	242	RB	33	OC,RX 33' TIP SHIELD RM #3 & #4 SHIELD AREA
V-25-21	REACTOR HEAD VENT VALVE	221	DW	95	OC,DRYWELL 95' GENERAL ALL AREAS
V-25-22	REACTOR HEAD VENT VALVE	221	DW	95	OC,DRYWELL 95' GENERAL ALL AREAS
V-25-23	REACTOR HEAD VENT VALVE	221	DW	95	OC,DRYWELL 95' GENERAL ALL AREAS
V-26-1	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS ES/E (NORTH SIDE ACCESS HATCH)
V-26-10	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS WN/W
V-26-11	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS N/W
V-26-12	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS N/W
V-26-13	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS N/E
V-26-14	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS N/E
V-26-15	TORUS TO REACTOR BUILDING VACUUM BREAKER VALVE	243	RB	23	OC,RX 23' TORUS TO RX BLDG VACUUM BREAKERS AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-26-16	RX BUILDING TO TORUS AIR OPERATED VACUUM BREAKER	243	RB	23	OC,RX 23' TORUS TO RX BLDG VACUUM BREAKERS AREA
V-26-17	TORUS TO REACTOR BUILDING VACUUM BREAKER VALVE	243	RB	23	OC,RX 23' TORUS TO RX BLDG VACUUM BREAKERS AREA
V-26-18	RX BUILDING TO TORUS AIR OPERATED VACUUM BREAKER	243	RB	23	OC,RX 23' TORUS TO RX BLDG VACUUM BREAKERS AREA
V-26-2	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS ES/E (NORTH SIDE ACCESS HATCH)
V-26-3	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS S/E
V-26-4	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS S/E
V-26-5	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS S/W
V-26-6	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS S/W
V-26-7	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS WS/W (SOUTH SIDE ACCESS HATCH)
V-26-8	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS WS/W (SOUTH SIDE ACCESS HATCH)
V-26-9	TORUS TO DRYWELL VACUUM BREAKER	243	RB	-19	OC,RX -19' TOP OF TORUS WN/W
V-2-71	FEEDWATER ISOLATION CHECK VALVE TO REACTOR	422	TB	23	OC,TRUNION ROOM FEEDWATER CHECK VALVE V-2-71 AREA
V-27-1	R.B. DRYWELL VENTILATION ISOLATION VALVE	822	RB	-19	OC,RX -19' TOP OF TORUS EN/E
V-27-2	R.B. DRYWELL VENTILATION ISOLATION VALVE	822	RB	-19	OC,RX -19' TOP OF TORUS EN/E
V-27-3	DRYWELL PURGE ISOLATION VALVE	822	RB	75	OC,RX 75' WEST CONTROL AREA
V-27-4	DRYWELL PURGE ISOLATION VALVE	822	RB	75	OC,RX 75' WEST CONTROL AREA

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-28-1	RB VENTILATION ISOLATION VALVE TO EL.119-3	822	RB	119	OC,RX 119' WEST FLOOR AREA
V-28-10	RB VENTILATION ISOLATION VALVE TO EL.75-3	822	RB	75	OC,RX 75' CLEANUP VALVE AISLE
V-3-1119	ESW SYSTEM 1 ISOLATION AT CSHX	532	RB	23	OC,RX 23' NORTH BANK CONTAINMENT SPRAY HEAT EXCHANGERS (1-1 &1-2)
V-3-1120	ESW I/SERVICE WATER CROSS-CONNECT ISOLATION VLV	532	RB	23	OC,RX 23' NORTH BANK CONTAINMENT SPRAY HEAT EXCHANGERS (1-1 &1-2)
V-31-2	AIR-OPERATED REACTOR HEAD COOLING ISOLATION VALVE	216	RB	75	OC,RX 75' EMRGNCY CONDENSER RETURN VALVE AREA
V-31-5	REACTOR HEAD COOLING FLOW INLET VALVE TO REACTOR	216	RB	119	OC,RX 119' CAVITY
V-31-6	REACTOR HEAD COOLING SUPPLY TO RX ISOLATION VALVE	216	RB	75	OC,RX 75' EMRGNCY CONDENSER RETURN VALVE AREA
V-36-47	ALTERNATE SUPPLY TO DG NO.1 ISOL VALVE	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-36-48	ALTERNATE SUPPLY TO DG NO.2 ISOLATION VALVE	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-3-65	ESW PUMP 1-4 (52D) DISCHARGE CHECK VALVE	532	IS	6	OC,INTAKE STRUCTURE 6 FT ELEVATION
V-3-66	ESW PUMP 1-3 (52C) DISCHARGE CHECK VALVE	532	IS	6	OC,INTAKE STRUCTURE 6 FT ELEVATION
V-3-67	ESW PUMP 1-2 (52B) DISCHARGE CHECK VALVE	532	IS	6	OC,INTAKE STRUCTURE 6 FT ELEVATION
V-3-68	ESW PUMP 1-1 (52A) DISCHARGE CHECK VALVE	532	IS	6	OC,INTAKE STRUCTURE 6 FT ELEVATION
V-37-1	FT-IA0060A/FT-IA0060A1 HI PRESSURE SIDE ROOT VALVE	223	RB	23	OC,RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-3-88	CONTAINMENT SPRAY HTEXCHG 1-1 & 1-2 OUTLET VALVE	532	RB	23	OC,RX 23' NORTH BANK CONTAINMENT SPRAY HEAT EXCHANGERS (1-1 &1-2)
V-39-10	FUEL OIL TRANSFER PUMPS SUCTION VALVE	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-39-106	FUEL OIL SUPPLY ISOLATION VALVE	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-39-107	#2 DG FUEL OIL SYSTEM NORMAL SUPPLY ISOLATION VALVE	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-39-109	EDG1 PRIMING PUMP SUCTION VALVE	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-39-11	FUEL PUMP (P-39-18) SUCTION EMERGENCY SHUTOFF VALVE	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-39-110	EDG1 PRIMING PUMP DISCHARGE VALVE	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-39-111	EDG2 PRIMING PUMP SUCTION VALVE	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-39-14	CIRC, TURBO & TURBO BACKUP PUMPS SUCTION VALVE	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-39-16	AIR BOX DRAIN VALVE	861	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-39-17	EXTERNAL SUPPLY SHUTOFF VALVE	862	DG	18	OC,DIESEL GEN BLDG 18' 4"
V-39-18	EXTERNAL SUPPLY SHUTOFF VALVE	862	DG	18	OC,DIESEL GEN BLDG 18' 4"
V-39-19	EXTERNAL OIL SUPPLY CHECK VALVE	862	DG	18	OC,DIESEL GEN BLDG 18' 4"
V-39-2	ISOLATION VALVE FOR TANK T-39-002 OUTLET	862	DG	18	OC,DIESEL GEN BLDG 18' 4"
V-39-20	EXTERNAL OIL SUPPLY CHECK VALVE	862	DG	18	OC,DIESEL GEN BLDG 18' 4"
V-39-3	FUEL OIL TRANSFER PUMPS SUCTION VALVE	862	DG	23	OC,DIESEL GEN BLDG 23' 0"
V-39-41	DG FUEL DAY TANK TRANSFER PUMP P-39-016 DISCHARGE	862	DG	23	OC,DIESEL GEN BLDG 23' 0"

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-39-42	DF FUEL DAY TANK TRANSFER PUMP P-39-015 DISCHARGE	862	DG	23	OC,DIESEL GEN BLDG 23' 0"

Table B-2. Base List 2

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
IN0010	SPENT FUEL POOL WATER HI TEMPERATURE CONTROLLER	251	RB	119	NORTH FLOOR AREA NORTH WALL (RH118II)
FE-3A	MEASURE FLOW TO FUEL POOL CLEANUP RETURN DIFFUSERS	251	RB	75	NORTHWEST SIDE
FI-3A	MEASURE FLOW TO FUEL POOL CLEANUP RETURN DIFFUSERS	251	RB	75	ENTRANCE TO INSTRUMENT RACK RK01
LI-18-169	SPENT FUEL STORAGE POOL LEVEL INDICATOR	251	RB	119	NORTH OF FUEL POOL
LI-18-170	SKIMMER SURGE TANK'A'FUEL POOL LEVEL INDICATOR	251	RB	119	NORTH OF FUEL POOL
LS-53A	SPENT FUEL POOL HI WATER LEVEL SWITCH	251	RB	119	NORTH FLOOR AREA (RH118II)
LS-53B	SPENT FUEL POOL LOW WATER LEVEL SWITCH	251	RB	119	NORTH FLOOR AREA (RH118II)
LS-55A	SKIMMER SURGE TANK WATER LEVEL LOW SWITCH	251	RB	119	NORTH FLOOR AREA PANEL ER9 (RH118II)
LS-55B	SKIMMER SURGE TANK LO-LO WATER LEVEL SWITCH	251	RB	119	NORTH FLOOR AREA PANEL ER9 (RH118II)
LSH-54	SKIMMER SURGE TANK WATER LEVEL HIGH SWITCH	251	RB	119	NORTH FLOOR AREA PANEL ER9 (RH118II)
H-18-1C	AUGMENTED SPENT FUEL POOL HEAT EXCHANGER(NN02-C)	251	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18HM)
P-18-1A	SPENT FUEL POOL COOLING PUMP (NN01-A)	251	RB	75	FUEL POOL HEAT EXCHANGERS/PUMPS(RFH18PM)
P-18-1B	SPENT FUEL POOL COOLING PUMP (NN01-B)	251	RB	75	FUEL POOL HEAT EXCHANGERS/PUMPS(RFH18PM)
SPENT FUEL POOL	SPENT FUEL STORAGE POOL (SEE SYSTEM 161)	251	RB	119	NORTH OF REACTOR CAVITY (RHB18TM)
T-18-1A	SKIMMER SURGE TANK'A' FOR SPENT FUEL STORAGE POOL	251	RB	119	NORTH SIDE OF FUEL POOL (RHH18TM)
T-18-1B	SKIMMER SURGE TANK'B' FOR SPENT FUEL STORAGE POOL	251	RB	119	NORTH SIDE OF FUEL POOL (RHI18TM)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
251	SPENT FUEL POOL COOLING SYSTEM-PIPING	251	RB		SPENT FUEL POOL COOLING
V-18-1	SKIMMER SURGE TANK DRAIN VALVE 'A'	251	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18VM)
V-18-116	FUEL POOL CLG TO AUG SYS ISOLATION VALVE	251	RB	75	WEST CONTROL AREA (RFG18VM)
V-18-1201	FE-0003A LINE DRAIN VALVE	251	RB	75	NORTHWEST SIDE
V-18-1202	FE-0003A LINE DRAIN VALVE	251	RB	75	NORTHWEST SIDE
V-18-1203	FE-0003A LINE DRAIN VALVE	251	RB	75	NORTHWEST SIDE
V-18-1204	FE-0003A LINE DRAIN VALVE	251	RB	75	NORTHWEST SIDE
V-18-1205	FI-0003A HIGH SIDE BLOCK VALVE	251	RB	75	NORTHWEST SIDE
V-18-1206	FI-0003A CROSS CONNECT VALVE	251	RB	75	NORTHWEST SIDE
V-18-1207	FI-0003A LOW SIDE BLOCK VALVE	251	RB	75	NORTHWEST SIDE
V-18-1215	FI-0003A LO PRESSURE SIDE ISOLATION VALVE	251	RB	75	NORTHWEST SIDE
V-18-1216	FI-003A HI SIDE ISOLATION VALVE	251	RB	75	NORTHWEST SIDE
V-18-2	AUGMENTED SPENT FUEL POOL SYSTEM INLET VALVE	251	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18VM)
V-18-24	FUEL STORAGE POOL RECIRC. VALVE	251	RB	75	NORTHWEST SIDE
V-18-25	RECIRC VALVE TO FUEL POOL DIFFUSER 'A'	251	RB	75	FUEL POOL HEAT EXCHANGERS/PUMPS(RFH18VM)
V-18-26	SPENT FUEL STORAGE POOL CHECK VALVE	251	RB	75	NORTH SIDE OF FUEL POOL
V-18-27	RECIRC VALVE TO FUEL POOL DIFFUSER 'B'	251	RB	75	FUEL POOL HEAT EXCHANGERS/PUMPS(RFH18VM)
V-18-28	SPENT FUEL STORAGE POOL CHECK VALVE	251	RB	75	NORTH SIDE
V-18-3	SFP COOLING PUMP (NN01-A) SUCTION ISOLATION VALVE	251	RB	75	FUEL POOL HEAT EXCHANGERS/PUMPS(RFH18VM)
V-18-4	SFP COOLING PUMP (NN01-B) SUCTION ISOLATION VALVE	251	RB	75	FUEL POOL HEAT EXCHANGERS/PUMPS(RFH18VM)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-18-47	DRAIN FROM REACTOR WELL BACK TO FUEL POOL PUMPS	251	RB	75	FUEL POOL HEAT EXCHANGERS/PUMPS(RFH18VM)
P-18-1C	AUGMENTED SPENT FUEL POOL PUMP (NN01-C) CONTROL SWITCH	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18PM)
P-18-1D	AUGMENTED SPENT FUEL POOL PUMP (NN01-D) CONTROL SWITCH	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18PM)
PI-18-81	AUGMENTED SPENT FUEL PUMP NN01-C,D SUCTION PRESSURE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18II)
PI-18-82	AUGMENTED SFP COOLING PMP NN01-C DISCHARGE PRESSURE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18II)
PI-18-88	AUGMENTED SFP COOLING PMP NN01-D DISCHARGE PRESSURE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18II)
PI-18-89	ASFP COOLING HT EXCHANGER NN02-C INLET PRESSURE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18II)
PI-18-90	ASFP COOLING HT EXCHANGER NN02-C OUTLET PRESSURE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18II)
TI-18-267	ASFP HEAT EXCHANGER NN02C OUTLET TEMPERATURE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18II)
TX-18-271	ASFP HEAT EXCHANGER NN02C INLET TEMPERATURE WELL	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18XM)
PS-18-79	ASFP COOLING PUMP NN01-C LOW SUCTION PRESSURE TRIP	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18II)
PS-18-80	ASFP COOLING PUMP NN01-D LOW SUCTION PRESSURE TRIP	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18II)
P-18-1C	AUGMENTED SPENT FUEL POOL PUMP (NN01-C)	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18PM)
P-18-1D	AUGMENTED SPENT FUEL POOL PUMP (NN01-D)	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18PM)
V-18-111	ASFP COOLING PUMP NN01-C CASING VENT VALVE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18VM)
V-18-112	ASFP COOLING PUMP NN01-D CASING VENT VALVE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18VM)

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
V-18-1266	FUEL POOL MAKEUP ISOLATION VALVE	255	RB	75	NORTHWEST QUADRANT OF 75'
V-18-1267	FUEL POOL MAKEUP CHECK VALVE	255	RB	75	NORTHWEST QUADRANT OF 75'
V-18-179	PS-18-0079 TEST ISOLATION VALVE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18VM)
V-18-19	AUGMENTED FUEL POOL COOLING OUTLET VALVE	255	RB	75	NORTHWEST SIDE
V-18-74	AUGMENTE FUEL POOL CLG PUMP NN01-D DISCHARGE VALVE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18VM)
V-18-77	P-18-001C DISCHARGE CHECK VALVE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18VM)
V-18-78	AUGMENTED SPENT FUEL POOL PUMP(NN01-D)SUCTION VALVE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18VM)
V-18-79	AUGMENTED SPENT FUEL POOL PUMP(NN01-C)SUCTION VALVE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18VM)
V-18-80	PI-18-88 ISOLATION VALVE	255	RB	75	NORTHWEST SIDE
V-18-81	PS-18-0080 ISOLATION ROOT VALVE	255	RB	75	NORTHWEST QUADRANT
V-18-82	PS-18-0079 ISOLATION ROOT VALVE	255	RB	75	NORTHWEST SIDE
V-18-83	PI-18-82 ISOLATION VALVE	255	RB	75	NORTHWEST SIDE
V-18-86	PI-18-89 ISOLATION VALVE	255	RB	75	NORTHWEST QUADRANT
V-18-87	PI-18-90 ISOLATION VALVE	255	RB	75	NORTHWEST QUADRANT
V-18-88	AUGMENTED FPC SYSTEM VENT VALVE	255	RB	75	ASFP HEAT EXCHANGERS/PUMPS AREA(RFJ18VM)
V-18-89	AUG FUEL POOL CLG SYS OUTLET LINE DRAIN VALVE	255	RB	75	NORTHWEST QUADRANT
V-18-92	AUGMENTED FUEL POOL CLG THROTTLE VALVE	255	RB	75	WEST SIDE

Table B-3. SWEL 1

ID	DESCRIPTION	CLASS	Building	Elevation	Location	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace?	IPEEE Enhance-ment?	Comments
1A21-460V	MCC 1A21 460V,3PH,3W,60HZ FOR TURBINE BUILDING	(1) MCCs	RB	23'	480V SWGR ROOM,EAST WALL NEAR DOOR	460VAC	Y	SSAC			
1A21A-460V	MCC 1A21A 460V,3P,3W,60HZ FOR REACTOR BUILDING	(1) MCCs	RB	23'	S. WALL ACCESS AREA - S. TORUS CTRL AREA - MCC 1AZ1A	460VAC	Y	SSAC			
1A21B-460V	MCC 1A21B 460V,3P,3W,60HZ FOR REACTOR BUILDING	(1) MCCs	RB	23'	460V SWITCHGEAR ROOM; SOUTHEAST QUADRANT NEAR COL.RB/R3	460VAC	Y	SSAC			
1A23-460V	MCC 1A23 460V,3PH,3W,60HZ FOR REACTOR BUILDING	(1) MCCs	RB	23'	SOUTHEAST CORNER 480V SWITCHGEAR ROOM	460VAC	Y	SSAC			
1A2-460V	460V UNIT SUBSTATION 1A2 FOR REACTOR BUILDING	(2) Low Voltage Switchgear	RB	23'	460V SWITCHGEAR ROOM, NEAR COL.RG/R6	460VAC	Y	SSAC			
1A2-460V XF	USS 1A2-460V TRANSFORMER 4160-480V/277V 3PH 60HZ	(4) Transformers	RB	23'	480V SWGR RM,USS 1A2-460V 031B	460VAC	Y	SSAC			
1C	4160V BUS 1C SWITCHGEAR	(3) Medium Voltage, Metal-Clad Switchgear	TB	23'	SOUTH MEZZANINE 4160 VOLT SWITCHGEAR ROOM	4KV	Y	SSAC			F-V = 3.67E - 03
305-125\06-15	SCRAM ACCUMULATOR-H2O	(21) Tanks and Heat Exchangers	RB	23'	NORTH BANK CRD ACCUMULATORS	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
305-125\06-19	SCRAM ACCUMULATOR-H2O	(21) Tanks and Heat Exchangers	RB	23'	NORTH BANK CRD ACCUMULATORS	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
305-125\26-11	SCRAM ACCUMULATOR-H2O	(21) Tanks and Heat Exchangers	RB	23'	SOUTH BANK CRD ACCUMULATORS	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
305-125\26-19	SCRAM ACCUMULATOR-H2O	(21) Tanks and Heat Exchangers	RB	23'	SOUTH BANK CRD ACCUMULATORS	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
6R	MAIN CONTROL RM PANEL 6R REACTOR PROTECTION CH.1	(20) Instrumentation and Control Panels	MAIN CONTROL ROOM	46'	MAIN CONTROL ROOM, SW OF COL.8A/FA	RPS	Y	RCPC			
7R	MAIN CONTROL RM PANEL 7R REACTOR PROTECTION CH.2	(20) Instrumentation and Control Panels	MAIN CONTROL ROOM	46'	MAIN CONTROL ROOM, WEST OF COL.8A/FA	RPS	Y	RCPC			
BATTERY BANK C	VITAL BANK 'C' STATION BATTERY (LEAD ACID)	(15) Battery racks	TB	23'	C BATTERY ROOM, SOUTH MEZZANINE 4160 VOLT SWITCHGEAR ROOM	125VDC BATTERY	Y	SSDC			F-V = 5.32E - 02
BTCHG C1	'C' STATION BATTERY SOLID STATE STATIC CHARGER C1	(16) Battery Chargers and Inverters	TB	23'	SOUTH MEZZANINE 4160 VOLT SWITCHGEAR ROOM WEST WALL	125VDC BATTERY	Y	SSDC			
CIP-3	CONTINUOUS INSTRUMENT PNL NO.3 208/120V,3PH,4W,60HZ	(14) Distribution Panels	RB	23'	480V SWGR ROOM, SOUTH OF USS 1A2-460V	208/120VAC	Y	SSAC			
CV-305-126\10-31	CRD INLET SCRAM VALVE (North)	(07) Fluid-Operated Valves	RB	23'	NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
CV-305-126\10-39	CRD INLET SCRAM VALVE (North)	(07) Fluid-Operated Valves	RB	23'	NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12

ID	DESCRIPTION	CLASS	Building	Elevation	Location	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace?	IPEEE Enhance-ment?	Comments
CV-305-126\30-03	CRD INLET SCRAM VALVE (South)	(07) Fluid-Operated Valves	RB	23'	SOUTH SCRAM DISCHARGE VOLUME AREA	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
CV-305-126\30-07	CRD INLET SCRAM VALVE (South)	(07) Fluid-Operated Valves	RB	23'	SOUTH SCRAM DISCHARGE VOLUME AREA	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
CV-305-127\06-15	CRD OUTLET SCRAM VALVE (North)	(07) Fluid-Operated Valves	RB	23'	NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
CV-305-127\22-31	CRD OUTLET SCRAM VALVE (North)	(07) Fluid-Operated Valves	RB	23'	NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
CV-305-127\30-03	CRD OUTLET SCRAM VALVE (South)	(07) Fluid-Operated Valves	RB	23'	SOUTH SCRAM DISCHARGE VOLUME AREA	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
CV-305-127\30-07	CRD OUTLET SCRAM VALVE (South)	(07) Fluid-Operated Valves	RB	23'	SOUTH SCRAM DISCHARGE VOLUME AREA	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
DC-C 125V	125VDC POWER PANEL DC-C CENTER 'C'	(14) Distribution Panels	TB	23'	4160V SWITCHGEAR RM SOUTH WALL (TEH91NE)	125VDC	Y	SSDC			F-V = 1.95E - 03
DC-F	125VDC POWER PANEL DC-F	(14) Distribution Panels	RB	23'	480V SWGR ROOM,SOUTHEAST OF MCC 1A2-460V	125VDC	Y	SSDC			
DG-1 BATTERY BANK	DIESEL GENERATOR UNIT #1 STARTING BATTERIES	(15) Battery racks	DG BLDG	23'	DG UNIT # 1	120VDC DG START BATTERY	Y	SSDC			
DG-1 BATTERY CHARGER	DIESEL GENERATOR UNIT #1 BATTERY CHARGER	(16) Battery Chargers and Inverters	DG BLDG	23'	DG UNIT # 1	120VDC DG START BATTERY	Y	SSDC			
DG-1 SWGR	DIESEL GENERATOR #1 UNIT SWITCHGEAR	(20) Instrumentation and Control Panels	DG BLDG	23'	DG UNIT # 1	EMER PWR	Y	SSAC			
DPIS-IB0005A1	EMERGENCY CONDENSER NE01A HIGH SYSTEM FLOW SWITCH	(18) Instrument racks	RB	51'	RX 51' INSTRUMENT RACK RK-03 AREA	ISOLATION CONDENSER	Y	DHR			
DPT-6-IA0091B	FUEL ZONE LEVEL 'B' WIDE RANGE LEVEL TRANSMITTER	(18) Instrument racks	RB	51'	RX 51' INSTRUMENT RACK RK-03 AREA	RVLIS	Y	RCIC			
ER18A	CORE SPRAY/AUTO DEPRESS'N SYSTEM RELAY LOGIC PANEL	(20) Instrumentation and Control Panels	RB	23'	460V SWITCHGEAR ROOM, SOUTH OF USS 1A2-460V	CORE SPRAY/ADS	Y	RRIC/RCPC			
FN-56-4	"A" 480 SWGR RM SUPPLY FAN	(9) Fans	RB	23'	460V SWITCHGEAR ROOM, NEAR COLUMN.RG/R6	HVAC	Y	SSHVAC			
FN-732-1	USS 1A2-460V TRANSFORMER COOLING FAN	(9) Fans	RB	23'	480V SWGR ROOM, USS 1A2-460V COMPT 031B	460VAC	Y	SSAC			
FN-732-2	USS 1A2-460V TRANSFORMER COOLING FAN	(9) Fans	RB	23'	480V SWGR ROOM, USS 1A2-460V COMPT 031B	460VAC	Y	SSAC			
FN-732-3	USS 1A2-460V TRANSFORMER COOLING FAN	(9) Fans	RB	23'	480V SWGR ROOM, USS 1A2-460V COMPT 031B	460VAC	Y	SSAC			

ID	DESCRIPTION	CLASS	Building	Elevation	Location	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace?	IPEEE Enhance-ment?	Comments
H-21-1A	CONTAINMENT SPRAY SYS HEAT EXCHANGER 1-1	(21) Heat Exchangers	RB	23'	NORTH BANK CTMT SPRAY HT EXCHANGERS	CTMT SPRAY	Y	DHR/UHS			
IP-4	120VAC INSTRUMENT PANEL 4 - 208/120V,3PH,4W	(14) Distribution Panels	RB	23'	IN 480V SWGR RM,SOUTH OF USS 1A2-460V	120VAC	Y	SSAC			
IT-4A	TRANSFORMER FROM MCC 1A2-460V TO IP-4	(4) Transformers	RB	23'	480V SWITCHGEAR ROOM,SOUTH SIDE		Y	SSAC			
LIS-RE0018A	REACTOR VESSEL LOW LEVEL INDICATING SWITCH	(18) Instrument racks	RB	51'	RX 51' INSTRUMENT RACK RK-01 (ACCESS FROM RX-75' AREA RFG)	RVLIS	Y	RCPC/DHR			
LIS-RE0018C	REACTOR VESSEL LOW LEVEL INDICATING SWITCH	(18) Instrument racks	RB	51'	RX 51' INSTRUMENT RACK RK-01 (ACCESS FROM RX-75' AREA RFG)	RVLIS	Y	RCPC/DHR			
LS-862-10B	LO-LO LEVEL (START NORMAL PUMP) ON TANK T-39-003	(0) other	DG BLDG	23'	DG UNIT # 1	DG OIL SYSTEM	Y	SSAC			
LS-862-10C	HI-HI LEVEL(PUMP CUT-OFF) ON TANK T-39-003	(0) other	DG BLDG	23'	DG UNIT # 1	DG OIL SYSTEM	Y	SSAC			
LSP-1A2	LOCAL SHUTDOWN PANEL- USS 1A2 PUMP/BREAKER CONTROL	(20) Instrumentation and Control Panels	OB	23'	480V SWGR RM, 4 FT WEST OF USS 1A2-460V	LSP	Y	SSAC			
LT-RE0005B	REACTOR VESSEL LOW WATER LEVEL REACTOR SCRAM	(18) Instrument racks	RB	51'	INSTRUMENT RACK RK-02	RVLIS	Y	RCPC			
M-39-1	EMERGENCY DIESEL GENERATOR #1	(17) Engine Generators	DG BLDG	23'	DG UNIT # 1	DG	Y	SSAC			
P-20-1A	CORE SPRAY PUMP NZ01-A	(5) Horizontal Pumps	RB	19'	CORE SPRAY PUMP ROOM NORTH WEST	CORE SPRAY	Y	RCIC/DHR			See Dwg. 4074-5 sheet 2 rev. 5
P-20-1A (NZ01A)	CORE SPRAY PUMP "A" - SYS. I	(5) Horizontal Pumps	RB	19'	CORE SPRAY PUMP ROOM NORTH WEST	CORE SPRAY	Y	RCIC/DHR			F-V = 1.10E - 03
P-20-2A	CORE SPRAY BOOSTER PUMP NZ03-A	(5) Horizontal Pumps	RB	51'	CORE SPRAY BOOSTER PUMPS AREA	CORE SPRAY	Y	RCIC/DHR			F-V = 1.02E - 03; See Dwg. 4074-5 sheet 2 rev. 5
P-3-3A	EMERGENCY SERVICE WATER PUMP 1-1 (52A)	(6) Vertical Pumps	IS	6'	NW SIDE OF IS	ESW	Y	UHS			
P-39-13	FUEL OIL PUMP TO DAY TANK T-39-3	(5) Horizontal Pumps	DG BLDG	23'	DG UNIT # 1	DG OIL SYSTEM	Y	SSAC			
P-39-17	DIESEL GENERATOR UNIT #1 ENGINE DRIVEN FUEL PUMP	(5) Horizontal Pumps	DG BLDG	23'	DG UNIT # 1	DG OIL SYSTEM	Y	SSAC			
P-39-19	M-39-1 LEFT BEARING COOLING WATER PUMP	(5) Horizontal Pumps	DG BLDG	23'	DG UNIT # 1	DG COOLING	Y	SSAC			
P-39-25	AC TURBO LUBE OIL PUMP	(5) Horizontal Pumps	DG BLDG	23'	DG UNIT # 2	DG OIL SYSTEM	Y	SSAC			
PI-305-131\06-15	ACCUMULATORS GAS PRESSURE INDICATOR	(0) other	RB	23'	RX 23' N. BANK HCU'S (CRD ACCUMULATORS)	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
PI-305-131\26-03	ACCUMULATORS GAS PRESSURE INDICATOR	(0) other	RB	23'	RX 23' SOUTH BANK HCU'S (CRD ACCUMULATORS)	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
PS-1	480/120VAC TRANSFORMER TO PROTECTION SYS PANELS 1&2	(4) Transformers	TB	36'	OLD CABLE SPREADING ROOM EL.36-0	208/120VAC	Y	SSAC			

ID	DESCRIPTION	CLASS	Building	Elevation	Location	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace?	IPEEE Enhance-ment?	Comments
PS-IA0083A	EMRV NR108A HIGH PRESSURE SWITCH	(18) Instrument racks	RB	51'	INSTRUMENT RACK RK01, NORTHWEST QUADRANT	ADS	Y	RCPC/DHR			
PS-IA0083C	EMRV NR108C HIGH PRESSURE SWITCH	(18) Instrument racks	RB	51'	RX 51' INSTRUMENT RACK RK-02	ADS	Y	RCPC/DHR			
PS-RE0017A	LOW REACTOR PRESS. SWITCH READIES CORE SPRAY VALVES	(18) Instrument racks	RB	51'	OC,RX 51' INSTRUMENT RACK RK-01 (ACCESS FROM RX-75' AREA RFG)	CORE SPRAY	Y	RCIC/DHR			
PS-RV0046A	DRYWELL HIGH PRESSURE SWITCH-AUTO STARTS PUMPS	(18) Instrument racks	RB	51'	RX 51' INSTRUMENT RACK RK-03 AREA	CORE SPRAY/ADS	Y	RCIC/DHR			
RK-1	REACTOR PROTECTION SYSTEM 1A,2A INSTRUMENT RACK A,B	(18) Instrument racks	RB	51'	INSTRUMENT RACK RK-01 EL.66-6 (ACCESS FROM RX-75' AREA RFG)	RPS	Y	RCPC			
RK-3	INSTRUMENT RACK RECIRC'N PUMP REACTOR PROTECTION	(18) Instrument racks	RB	51'	RX 51' INSTRUMENT RACK RK-03 AREA	RPS	Y	RCPC			
RK-411-1	MSIV'S SOLENOID AIR VALVE & EQUIPMENT MOUNTING RACK	(18) Instrument racks	TB	23'	TRUNION ROOM EL.23-6 GENERAL ALL AREAS	Nuclear Boiler System	Y	RCIC			
ROTARY INVERTER\AC	AC GENERATOR FOR 120V AC SUPPLY FOR CIP-3	(13) Motor Generators	OB	35'	125VDC BATTERY ROOM SOUTHWEST CORNER	120VAC	Y	SSAC			
SO-305-117\06-15	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 1) (North)	(08) Motor-Operated and Solenoid-Operated Valves	RB	23'	N. BANK HCU'S (CRD ACCUMULATORS)	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
SO-305-117\06-19	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 2) (North)	(08) Motor-Operated and Solenoid-Operated Valves	RB	23'	N. BANK HCU'S (CRD ACCUMULATORS)	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
SO-305-117\30-03	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 2) (South)	(08) Motor-Operated and Solenoid-Operated Valves	RB	23'	SOUTH BANK HCU'S (CRD ACCUMULATORS)	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
SO-305-117\30-07	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 3) (South)	(08) Motor-Operated and Solenoid-Operated Valves	RB	23'	SOUTH BANK HCU'S (CRD ACCUMULATORS)	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
SO-305-120\06-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE (North)	(08) Motor-Operated and Solenoid-Operated Valves	RB	23'	N. BANK HCU'S (CRD ACCUMULATORS); N. BANK HCU DIRECTIONAL CONTROL UNIT	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
SO-305-120\30-03	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE (South)	(08) Motor-Operated and Solenoid-Operated Valves	RB	23'	SOUTH BANK HCU'S (CRD ACCUMULATORS)	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
SO-305-121\06-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE (North)	(08) Motor-Operated and Solenoid-Operated Valves	RB	23'	N. BANK HCU'S (CRD ACCUMULATORS); N. BANK HCU DIRECTIONAL CONTROL UNIT	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12

ID	DESCRIPTION	CLASS	Building	Elevation	Location	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace?	IPEEE Enhance-ment?	Comments
SO-305-121\06-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE (South)	(08) Motor-Operated and Solenoid-Operated Valves	RB	23'	OC,RX 23' N. BANK HCU'S (CRD ACCUMULATORS)	CRD SYSTEM	Y	RRC			See VM-OC-0226 Rev. 12
T-39-2	DIESEL GENERATOR FUEL OIL STORAGE TANK	(21) Tanks and Heat Exchangers	DG BLDG	18'	DG BLDG 18' 4", NORTH WALL TANK CELL	DG OIL SYSTEM	Y	SSAC			F-V = 1.20E - 02; RAW = 1150
T-39-3	DIESEL GENERATOR UNIT #1 FUEL OIL DAY TANK	(21) Tanks and Heat Exchangers	DG BLDG	23'	DG UNIT # 1	DG OIL SYSTEM	Y	SSAC			
T-39-5	M-39-1 COOLING WATER TANK	(21) Tanks and Heat Exchangers	DG BLDG	23'	DG UNIT # 1	EMER PWR	Y	SSAC			
V-1-10	MAIN STEAM LINE'B' OUTLET ISOLATION VALVE(NS04-B)	(07) Fluid-Operated Valves	TB	23'	TRUNION ROOM EL.27.0; MAIN STEAM ISOLATION VALVE (MSIV) NS-04B	Nuclear Boiler System	Y	RRC			
V-1-106	MAIN STEAM LINE 'A' DRAIN VALVE	(0) other	DW	23'	DW NORTH WEST EL.27'	Nuclear Boiler System	Y	CF	ECR 09-00484		
V-1-160	SAFETY RELIEF VALVE NR28D (SOUTH HEADER)	(07) Fluid-Operated Valves	DW	46'	DRYWELL SOUTHWEST EL.51-3	Nuclear Boiler System	Y	RCPC			
V-1-164	SAFETY RELIEF VALVE NR28H (NORTH HEADER)	(07) Fluid-Operated Valves	DW	46'	DRYWELL NORTHWEST EL.51-3	Nuclear Boiler System	Y	RCPC			
V-1-173	ELECTROMATIC RELIEF VALVE NR108-A(SOUTH HEADER)	(07) Fluid-Operated Valves	DW	46'	DRYWELL SOUTHWEST EL.51-3	ADS	Y	DHR/RCPC			
V-1-175	ELECTROMATIC RELIEF VALVE NR108-C(NORTH HEADER)	(07) Fluid-Operated Valves	DW	46'	DW51-03, NORTHWEST (ICA01VM)	ADS	Y	DHR/RCPC			
V-1-177	ELECTROMATIC RELIEF VALVE NR108-E(SOUTH HEADER)	(07) Fluid-Operated Valves	DW	46'	DRYWELL SOUTHWEST EL.51-3	ADS	Y	RCPC/DHR			F-V = 3.62E - 02
V-15-120	SOUTH SCRAM DISCHARGE HDR VENT VALVE(NC53-A)	(07) Fluid-Operated Valves	RB	23'	RX 23' SOUTH SCRAM DISCHARGE VOLUME AREA	CRD SYSTEM	Y	RRC			
V-15-133	NORTH SCRAM DISCHG VOLUME DRAIN VALVE(NC52-A)	(08) Motor-Operated and Solenoid-Operated Valves	RB	23'	RX 23' NW-NORTH SCRAM DSCHRG VOL - TORUS TOP ACCESS	CRD SYSTEM	Y	RRC			
V-16-1	CU INLET ISOLATION VALVE FROM REACTOR VESSEL	(08) Motor-Operated and Solenoid-Operated Valves	DW	46'	DRYWELL EL.64-3 AZ 90 DEGREES	RWCU	Y	CF			
V-1-7	MAIN STEAM LINE'A' OUTLET ISOLATION VALVE(NS03-A)	(07) Fluid-Operated Valves	DW	23'	DRYWELL WEST SIDE EL.27-0	Nuclear Boiler System	Y	CF			
V-17-1	SDC LOOP 'A' PUMP SUCTION VALVE	(08) Motor-Operated and Solenoid-Operated Valves	SDC	38'	SHUTDOWN COOLING PUMP ROOM EAST	SDC	Y	DHR			
V-17-212	SDC LOOP'A' OUTLET HEADER VENT VALVE	(08) Motor-Operated and Solenoid-Operated Valves	SDC	51'	RX 51' S/D COOLING HEAT EXCHANGER RM	SDC	Y	CF/DHR			

ID	DESCRIPTION	CLASS	Building	Elevation	Location	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace?	IPEEE Enhance-ment?	Comments
V-20-12	CORE SPRAY PUMP DISCHARGE VALVE(SYSTEM I)	(08) Motor-Operated and Solenoid-Operated Valves	RB	51'	RX 51' INSTRUMENT RACK RK-03 AREA	CORE SPRAY	Y	RCIC/DHR			
V-20-15	"A" CONTAINMENT ISO. VALVE - SYS. I	(08) Motor-Operated	RB	51'	INSTRUMENT RACK RK-03 AREA	CORE SPRAY	Y	CF			
V-20-3	CORE SPRAY PUMP "A" SUCTION VALVE FROM TORUS	(08) Motor-Operated and Solenoid-Operated Valves	RB	19'	CORE SPRAY PUMP ROOM NORTH WEST	CORE SPRAY	Y	RCIC/DHR/CF			
V-21-75	CONTAINMENT ISOLATION FOR TORUS WATER CLEAN-UP	(08) Motor-Operated and Solenoid-Operated Valves	RB	19'	CONTAINMENT SPRAY PUMP ROOM SOUTH EAST (1-3 & 1-4)(1-7 SUMP	TORUS WTR CLEANUP	Y	CF			
V-39-109	EDG1 PRIMING PUMP SUCTION VALVE	(0) other	DG BLDG	23'	DG UNIT # 1	DG	Y	SSAC	ECR 03-00731		
V-39-110	EDG1 PRIMING PUMP DISCHARGE VALVE	(0) other	DG BLDG	23'	DG UNIT # 1	DG	Y	SSAC	ECR 03-00731		
V-39-2	ISOLATION VALVE FOR TANK T-39-002 OUTLET	(0) other	DG BLDG	18'	FO TANK T-39-002 VAULT	DG	Y	SDAC			RAW = 1060
VACP-1	120V VITAL AC POWER PANEL 208/120V,3PH,4W,60HZ	(14) Distribution Panels	RB	23'	460V SWITCHGEAR ROOM, SOUTHWEST CORNER	208/120VAC	Y	SSAC			
VACP-1 XF	120V VITAL AC POWER PANEL TRANSFORMER 480/208/120V	(4) Transformers	RB	23'	OC,460V SWITCHGEAR ROOM, SOUTHWEST CORNER	208/120VAC	Y	SSAC			

Table B-4. SWEL 2

ID	DESCRIPTION	CLASS	BUILDING	ELEVATION	LOCATION	SYSTEM	Seismic Cat 1?	Associated with Rapid Draindown ?	*Comments*
H-18-1C	AUGMENTED SPENT FUEL POOL HEAT EXCHANGER(NN02-C)	(21) Heat exchanger	RB	75'	RX 75' AUGMENTED SFP HX & PUMPS	FC	Y	N	
LI-18-170	SKIMMER SURGE TANK'A'FUEL POOL LEVEL INDICATOR	(18) Instrument on Rack	RB	119'	NORTH FLOOR AREA	FC	Y	N	
LS-53B	SPENT FUEL POOL LOW WATER LEVEL SWITCH	(18) Instrument on Rack	RB	119'	NORTH FLOOR AREA	FC	Y	N	
P-18-1A Or 1B	SPENT FUEL POOL COOLING PUMP (NN01-B)	(05) Horizontal Pumps	RB	75'	RX 75' OLD SFP HX & PUMP AREA	FC	Y	N	
P-18-1C	AUGMENTED SPENT FUEL POOL PUMP (NN01-C)	(05) Horizontal Pumps	RB	75'	RX 75' AUGMENTED SFP HX & PUMPS	FC	Y	N	
PI-18-82	AUGMENTED SFP COOLING PMP NN01-C DISCHARGE PRESSURE	(18) Instrument on Rack	RB	75'	RX 75' AUGMENTED SFP HX & PUMPS	FC	Y	N	
PS-18-79	ASFP COOLING PUMP NN01-C LOW SUCTION *PRESSURE TRIP*	(18) Instrument on Rack	RB	75'	RX 75' AUGMENTED SFP HX & PUMPS	FC	Y	N	
TI-18-267	ASFP HEAT EXCHANGER NN02C OUTLET TEMPERATURE	(19) Temperature Sensers	RB	75'	RX 75' AUGMENTED SFP HX & PUMPS	FC	Y	N	
V-18-112	ASFP COOLING PUMP NN01-D CASING VENT VALVE	(00) other	RB	75'	RX 75' AUGMENTED SFP HX & PUMPS	FC	Y	N	
V-18-1266	FUEL POOL MAKEUP ISOLATION VALVE	(00) other	RB	75'	RX 75' OLD SFP HX & PUMP AREA	FC	Y	N	ECR 08-01114
V-18-19	AUGMENTED FUEL POOL COOLING OUTLET VALVE	(00) other	RB	75'	RX 75' OLD SFP HX & PUMP AREA; NORTHWEST SIDE	FC	Y	N	
V-18-2	AUGMENTED SPENT FUEL POOL SYSTEM INLET VALVE	(00) Other	RB	75'	RX 75' AUGMENTED SFP HX & PUMPS	FC	Y	N	
V-18-3	SFP COOLING PUMP (NN01-A) SUCTION ISOLATION VALVE	(00) Other	RB	75'	RX 75' AUGMENTED SFP HX & PUMPS	FC	Y	N	
V-18-47	DRAIN FROM REACTOR WELL BACK TO FUEL POOL PUMPS	(00) Other	RB	75'	RX 75' AUGMENTED SFP HX & PUMPS	FC	Y	N	
V-18-74	AUGMENTE FUEL POOL CLG PUMP NN01-D DISCHARGE VALVE	(00) other	RB	75'	RX 75' AUGMENTED SFP HX & PUMPS	FC	Y	N	
V-18-80	PI-18-88 ISOLATION VALVE	(00) other	RB	75'	RX 75' OLD SFP HX & PUMP AREA; NORTHWEST SIDE	FC	Y	N	
V-18-81	PS-18-0080 ISOLATION ROOT VALVE	(00) other	RB	75'	RX 75' OLD SFP HX & PUMP AREA; NORTHWEST QUADRANT	FC	Y	N	
V-18-88	AUGMENTED FPC SYSTEM VENT VALVE	(00) other	RB	75'	RX 75' AUGMENTED SFP HX & PUMPS	FC	Y	N	
V-18-92	AUGMENTED FUEL POOL CLG THROTTLE VALVE	(00) other	RB	75'	RX 75' WEST CONTROL AREA	FC	Y	N	

C

Seismic Walkdown Checklists (SWCs)

Table C-1 provides a description of each item, anchorage verification confirmation, a list of Area Walk-By Checklists associated with each item, comments, and page numbers of each Seismic Walkdown Checklist.

Table C-1. Summary of Seismic Walkdown Checklists

ID	DESCRIPTION	Anchorage Configuration Confirmed?	Area Walk-by	Comments	Page
1A21-460V	MCC 1A21 460V,3PH,3W,60HZ FOR TURBINE BUILDING	Y	9	Bus Outage	
1A21A-460V	MCC 1A21A 460V,3P,3W,60HZ FOR REACTOR BUILDING	Y	8		C- 8
1A21B-460V	MCC 1A21B 460V,3P,3W,60HZ FOR REACTOR BUILDING	Y	7	Bus Outage	
1A23-460V	MCC 1A23 460V,3PH,3W,60HZ FOR REACTOR BUILDING	Y	9	Bus Outage	
1A2-460V	460V UNIT SUBSTATION 1A2 FOR REACTOR BUILDING	N	11	Equipment always energized. Opening of doors will introduce undue safety and operational hazard	
1A2-460V XF	USS 1A2-460V TRANSFORMER 4160-480V/277V 3PH 60HZ	Y	11		C- 11
1C	4160V BUS 1C SWITCHGEAR	N/A	28	Bus Outage	
305-125\06-15	SCRAM ACCUMULATOR-H2O	N/A	13		C - 15
305-125\06-19	SCRAM ACCUMULATOR-H2O	N/A	13		C - 18
305-125\26-11	SCRAM ACCUMULATOR-H2O	N/A	8		C - 21
305-125\26-19	SCRAM ACCUMULATOR-H2O	N/A	8		C - 24
6R	MAIN CONTROL RM PANEL 6R REACTOR PROTECTION CH.1	Y	27		C - 27
7R	MAIN CONTROL RM PANEL 7R REACTOR PROTECTION CH.2	Y	27		C - 29
BATTERY BANK C	VITAL BANK 'C' STATION BATTERY (LEAD ACID)	Y	25		C - 31
BTCHG C1	'C' STATION BATTERY SOLID STATE STATIC CHARGER C1	Y	26		C - 37
CIP-3	CONTINUOUS INSTRUMENT PNL NO.3 208/120V,3PH,4W,60HZ	Y	12		C - 40

ID	DESCRIPTION	Anchorage Configuration Confirmed?	Area Walk-by	Comments	Page
CV-305-126\10-31	CRD INLET SCRAM VALVE (North)	N/A	13		C - 44
CV-305-126\10-39	CRD INLET SCRAM VALVE (North)	N/A	13		C - 47
CV-305-126\30-03	CRD INLET SCRAM VALVE (South)	N/A	8		C - 50
CV-305-126\30-07	CRD INLET SCRAM VALVE (South)	N/A	8		C - 53
CV-305-127\06-15	CRD OUTLET SCRAM VALVE (North)	N/A	13		C - 56
CV-305-127\22-31	CRD OUTLET SCRAM VALVE (North)	N/A	13		C - 59
CV-305-127\30-03	CRD OUTLET SCRAM VALVE (South)	N/A	8		C - 62
CV-305-127\30-07	CRD OUTLET SCRAM VALVE (South)	N/A	8		C - 65
DC-C 125V	125VDC POWER PANEL DC-C CENTER 'C'	Y	26	Bus Outage	
DC-F	125VDC POWER PANEL DC-F	Y	12		C - 68
DG-1 BATTERY BANK	DIESEL GENERATOR UNIT #1 STARTING BATTERIES	N	1		C - 72
DG-1 BATTERY CHARGER	DIESEL GENERATOR UNIT #1 BATTERY CHARGER	N	1		C - 75
DG-1 SWGR	DIESEL GENERATOR #1 UNIT SWITCHGEAR	Y	1		C - 78
DPIS-IB0005A1	EMERGENCY CONDENSER NE01A HIGH SYSTEM FLOW SWITCH	Y	6		C - 81
DPT-6-IA0091B	FUEL ZONE LEVEL 'B' WIDE RANGE LEVEL TRANSMITTER	Y	6		C - 84
ER18A	CORE SPRAY/AUTO DEPRESS'N SYSTEM RELAY LOGIC PANEL	Y	12		C - 87
FN-56-4	"A" 480 SWGR RM SUPPLY FAN	Y	14		C - 90

ID	DESCRIPTION	Anchorage Configuration Confirmed?	Area Walk-by	Comments	Page
FN-732-1	USS 1A2-460V TRANSFORMER COOLING FAN	Y	16		C - 93
FN-732-2	USS 1A2-460V TRANSFORMER COOLING FAN	Y	16		C - 96
FN-732-3	USS 1A2-460V TRANSFORMER COOLING FAN	Y	16		C - 99
H-18-1C	AUGMENTED SPENT FUEL POOL HEAT EXCHANGER(NN02-C)	Y	21	SWEL 2	C - 102
H-21-1A	CONTAINMENT SPRAY SYS HEAT EXCHANGER 1-1	Y	13		C - 105
IP-4	120VAC INSTRUMENT PANEL 4 - 208/120V,3PH,4W	Y	12		C - 108
IT-4A	TRANSFORMER FROM MCC 1A2-460V TO IP-4	Y	12		C - 112
LI-18-170	SKIMMER SURGE TANK'A'FUEL POOL LEVEL INDICATOR	N/A	20	SWEL 2	C - 116
LIS-RE0018A	REACTOR VESSEL LOW LEVEL INDICATING SWITCH	Y	15		C - 119
LIS-RE0018C	REACTOR VESSEL LOW LEVEL INDICATING SWITCH	Y	15		C - 121
LS-53B	SPENT FUEL POOL LOW WATER LEVEL SWITCH	Y	20	SWEL 2	C - 123
LS-862-10B	LO-LO LEVEL (START NORMAL PUMP) ON TANK T-39-003	N/A	1		C - 126
LS-862-10C	HI-HI LEVEL(PUMP CUT-OFF) ON TANK T-39-003	N/A	1		C - 129
LSP-1A2	LOCAL SHUTDOWN PANEL- USS 1A2 PUMP/BREAKER CONTROL	Y	16		C - 132
LT-RE0005B	REACTOR VESSEL LOW WATER LEVEL REACTOR SCRAM	Y	17		C - 135
M-39-1	EMERGENCY DIESEL GENERATOR #1	Y	1		C - 137
P-18-1B	SPENT FUEL POOL COOLING PUMP (NN01-B)	Y	21	SWEL 2	C - 140
P-18-1C	AUGMENTED SPENT FUEL POOL PUMP (NN01-C)	Y	21	SWEL 2	C - 143
P-20-1A	CORE SPRAY PUMP NZ01-A	Y	18		C - 146
P-20-1A (NZ01A)	CORE SPRAY PUMP "A" - SYS. I	Y	18		C - 149
P-20-2A	CORE SPRAY BOOSTER PUMP NZ03-A	Y	6		C - 152
P-3-3A	EMERGENCY SERVICE WATER PUMP 1-1 (52A)	Y	4		C - 155

ID	DESCRIPTION	Anchorage Configuration Confirmed?	Area Walk-by	Comments	Page
P-39-13	FUEL OIL PUMP TO DAY TANK T-39-3	N	1		C - 158
P-39-17	DIESEL GENERATOR UNIT #1 ENGINE DRIVEN FUEL PUMP	N	1		C - 161
P-39-19	M-39-1 LEFT BEARING COOLING WATER PUMP	N/A	1		C - 164
P-39-25	AC TURBO LUBE OIL PUMP	N	2		C - 167
PI-18-82	AUGMENTED SFP COOLING PMP NN01-C DISCHARGE PRESSURE	N/A	21	SWEL 2	C - 170
PI-305-131\06-15	ACCUMULATORS GAS PRESSURE INDICATOR	N/A	13		C - 173
PI-305-131\26-03	ACCUMULATORS GAS PRESSURE INDICATOR	N/A	8		C - 176
PS-1	480/120VAC TRANSFORMER TO PROTECTION SYS PANELS 1&2	N	24		C - 179
PS-18-79	ASFP COOLING PUMP NN01-C LOW SUCTION PRESSURE TRIP	N/A	21	SWEL 2	C - 182
PS-IA0083A	EMRV NR108A HIGH PRESSURE SWITCH	Y	15		C - 185
PS-IA0083C	EMRV NR108C HIGH PRESSURE SWITCH	Y	17		C - 187
PS-RE0017A	LOW REACTOR PRESS. SWITCH READIES CORE SPRAY VALVES	Y	15		C - 189
PS-RV0046A	DRYWELL HIGH PRESSURE SWITCH-AUTO STARTS PUMPS	Y	6		C - 191
RK-1	REACTOR PROTECTION SYSTEM 1A,2A INSTRUMENT RACK A,B	Y	15		C - 194
RK-3	INSTRUMENT RACK RECIRC'N PUMP REACTOR PROTECTION	Y	6		C - 196
RK-411-1	MSIV'S SOLENOID AIR VALVE & EQUIPMENT MOUNTING RACK	N/A		Outage	
ROTARY INVERTER\AC	AC GENERATOR FOR 120V AC SUPPLY FOR CIP-3	Y	5		C - 199
SO-305-117\06-15	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 1) (North)	N/A	13		C - 202
SO-305-117\06-19	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 2) (North)	N/A	13		C - 205

ID	DESCRIPTION	Anchorage Configuration Confirmed?	Area Walk-by	Comments	Page
SO-305-117\30-03	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 2) (South)	N/A	8		C - 208
SO-305-117\30-07	CHANNEL I SCRAM AIR PILOT SOLENOID VALVE(GROUP 3) (South)	N/A	8		C - 211
SO-305-120\06-15	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE (North)	N/A	13		C - 214
SO-305-120\30-03	DIRECTIONAL FLOW CONTROL WITHDRAW SOLENOID VALVE (South)	Y	8		C - 217
SO-305-121\06-15	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE (North)	N/A	13		C - 220
SO-305-121\06-19	DIRECTIONAL FLOW CONTROL INSERT SOLENOID VALVE (South)	N/A	13		C - 223
T-39-2	DIESEL GENERATOR FUEL OIL STORAGE TANK	Y	3		C - 226
T-39-3	DIESEL GENERATOR UNIT #1 FUEL OIL DAY TANK	N	1		C - 230
T-39-5	M-39-1 COOLING WATER TANK	N	1		C - 233
TI-18-267	ASFP HEAT EXCHANGER NN02C OUTLET TEMPERATURE	N	21	SWEL 2	C - 236
V-1-10	MAIN STEAM LINE'B' OUTLET ISOLATION VALVE(NS04-B)	N/A		Outage	
V-1-106	MAIN STEAM LINE 'A' DRAIN VALVE	N/A		Outage	
V-1-160	SAFETY RELIEF VALVE NR28D (SOUTH HEADER)	N/A		Outage	
V-1-164	SAFETY RELIEF VALVE NR28H (NORTH HEADER)	N/A		Outage	
V-1-173	ELECTROMATIC RELIEF VALVE NR108-A(SOUTH HEADER)	N/A		Outage	
V-1-175	ELECTROMATIC RELIEF VALVE NR108-C(NORTH HEADER)	N/A		Outage	
V-1-177	ELECTROMATIC RELIEF VALVE NR108-E(SOUTH HEADER)	N/A		Outage	
V-15-120	SOUTH SCRAM DISCHARGE HDR VENT VALVE(NC53-A)	N/A	8		C - 239
V-15-133	NORTH SCRAM DISCHG VOLUME DRAIN VALVE(NC52-A)	N/A	13		C - 242
V-16-1	CU INLET ISOLATION VALVE FROM REACTOR VESSEL	N/A		Outage	

ID	DESCRIPTION	Anchorage Configuration Confirmed?	Area Walk-by	Comments	Page
V-1-7	MAIN STEAM LINE'A' OUTLET ISOLATION VALVE(NS03-A)	N/A		Outage	
V-17-1	SDC LOOP 'A' PUMP SUCTION VALVE	N/A	22		C - 245
V-17-212	SDC LOOP'A' OUTLET HEADER VENT VALVE	N/A	23		C - 248
V-18-112	ASFP COOLING PUMP NN01-D CASING VENT VALVE	N/A	21	SWEL 2	C - 251
V-18-1266	FUEL POOL MAKEUP ISOLATION VALVE	N/A	21	SWEL 2	C - 254
V-18-19	AUGMENTED FUEL POOL COOLING OUTLET VALVE	N/A	21	SWEL 2	C - 257
V-18-2	AUGMENTED SPENT FUEL POOL SYSTEM INLET VALVE	N/A	21	SWEL 2	C - 260
V-18-3	SFP COOLING PUMP (NN01-A) SUCTION ISOLATION VALVE	N/A	21	SWEL 2	C - 263
V-18-47	DRAIN FROM REACTOR WELL BACK TO FUEL POOL PUMPS	N/A	21	SWEL 2	C - 266
V-18-74	AUGMENTE FUEL POOL CLG PUMP NN01-D DISCHARGE VALVE	N/A	21	SWEL 2	C - 269
V-18-80	PI-18-88 ISOLATION VALVE	N/A	21	SWEL 2	C - 272
V-18-81	PS-18-0080 ISOLATION ROOT VALVE	N/A	21	SWEL 2	C - 275
V-18-88	AUGMENTED FPC SYSTEM VENT VALVE	N/A	21	SWEL 2	C - 278
V-18-92	AUGMENTED FUEL POOL CLG THROTTLE VALVE	N/A	21	SWEL 2	C - 281
V-20-12	CORE SPRAY PUMP DISCHARGE VALVE(SYSTEM I)	N/A	6		C - 284
V-20-15	"A" CONTAINMENT ISO. VALVE - SYS. I	N/A	6		C - 287
V-20-3	CORE SPRAY PUMP "A" SUCTION VALVE FROM TORUS	N/A	18		C - 290
V-21-75	CONTAINMENT ISOLATION FOR TORUS WATER CLEAN-UP	N/A	19		C - 293
V-39-109	EDG1 PRIMING PUMP SUCTION VALVE	N	1		C - 296
V-39-110	EDG1 PRIMING PUMP DISCHARGE VALVE	N	1		C - 299
V-39-2	ISOLATION VALVE FOR TANK T-39-002 OUTLET	N/A	3		C - 302
VACP-1	120V VITAL AC POWER PANEL 208/120V,3PH,4W,60HZ	Y	10		C - 305
VACP-1 XF	120V VITAL AC POWER PANEL TRANSFORMER 480/208/120V	Y	10		C - 308

Table C-1 Page 6 of 6

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 1A21A-460V

Equipment Class: (1) Motor Control Centers

Equipment Description: MCC 1A21A 460V,3P,3W,60HZ FOR REACTOR BUILDING

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 08

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	Yes
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Yes
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 1A21A-460V

Equipment Class: (1) Motor Control Centers

Equipment Description: MCC 1A21A 460V,3P,3W,60HZ FOR REACTOR BUILDING

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

External Anchorage was completed during online walk down. External anchorage as documented in SQ-OC-1A2A-460V-MCC
External Supports are consistent with Calculation C-1302-732-5320-014 Rev 0

Evaluated by: Mark S. Etre Date: 10/10/2012

Seth W. Baker 10/10/2012

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 1A21A-460V

Equipment Class: (1) Motor Control Centers

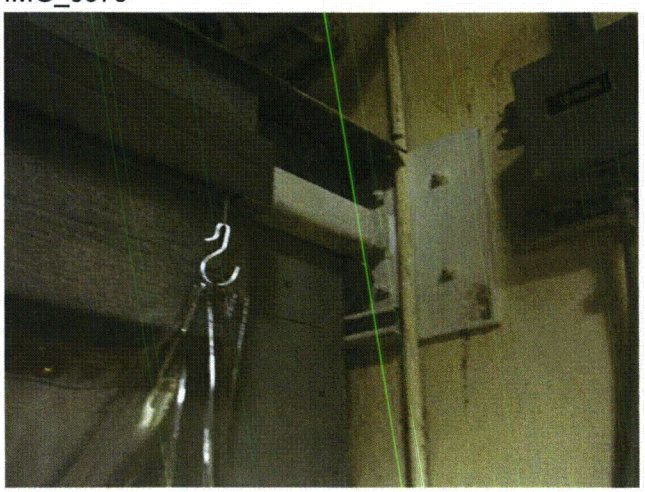
Equipment Description: MCC 1A21A 460V,3P,3W,60HZ FOR REACTOR BUILDING

Photos

IMG_0974

IMG_0975

IMG_0976



IMG_0978

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 1A2-460V XF

Equipment Class: (4) Transformers

Equipment Description: USS 1A2-460V TRANSFORMER 4160-480V/277V 3PH 60HZ

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 11

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	Yes
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Yes
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 1A2-460V XF

Equipment Class: (4) Transformers

Equipment Description: USS 1A2-460V TRANSFORMER 4160-480V/277V 3PH 60HZ

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

External Anchorage was completed during online walk down. See Seismic Qualification SQ-OC-1A2-XFMR-USS Rev 0

Nearby masonry block Wall is braced. Calculation C-1302X-322C-A06 qualifies the Oyster Creek safety-related masonry walls for seismic to address NRC IE Bulletin 80-11.

Evaluated by: Mark S. Etre Date: 10/10/2012

Seth W. Baker 10/10/2012

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

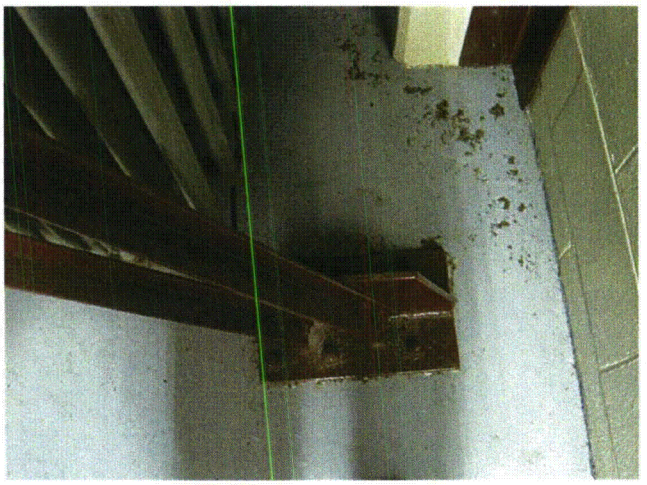
Equipment ID No.: 1A2-460V XF

Equipment Class: (4) Transformers

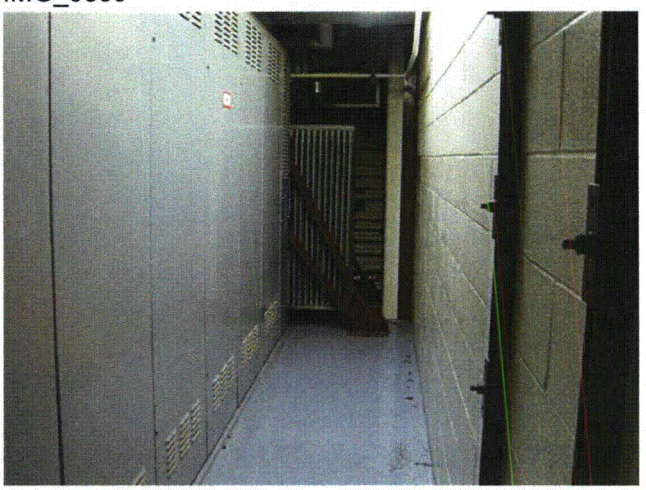
Equipment Description: USS 1A2-460V TRANSFORMER 4160-480V/277V 3PH 60HZ

Photos

IMG_0859



IMG_0864



IMG_0869

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 1A2-460V XF

Equipment Class: (4) Transformers

Equipment Description: USS 1A2-460V TRANSFORMER 4160-480V/277V 3PH 60HZ

SQUG SEWS

EBASCO SERVICES INCORPORATED
Two World Trade Center, New York, N.Y. 10048

EBASCO

April 29, 1981

GPU Services Incorporated
Attention: Mr. Leon Garibian
100 Interpace Parkway
Parsippany, NJ 07054

Dear Leon:

Re: OYSTER CREEK NUCLEAR STATION
FINAL SUBMITTAL OF MASONRY WALL
EVALUATION CALCULATION BOOKS

I am sending to you, together with this letter, 20 volumes of calculation books and 11 volumes of computer output. This will mark the end of our involvement for the re-evaluation of the Safety-Related Concrete Masonry Walls as required by NRC IE Bulletin 80-11.

Should you have any questions regarding the calculations and sketches, please do not hestitate to call. We will be glad to help.

Very truly yours,

E Odar
Assistant Chief Civil Engineer

GW:dl

cc: K D Chiu
G Wu

C1302X322CA06 VOL 1, 19810427, REEVALUATION OF CONCRETE MASONRY WALL NRC IE BULLETIN 80-11 GENERAL

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\06-15

Equipment Class: (21) Tanks and Heat Exchangers

Equipment Description: SCRAM ACCUMULATOR-H2O

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 13

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\06-15

Equipment Class: (21) Tanks and Heat Exchangers

Equipment Description: SCRAM ACCUMULATOR-H2O

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See Calculation C-1302-225-E310-049, Rev. 0

See Calculation C-1302-225-E310-050, Rev. 0

See drawing BR 4059, sheet 3

Equipment was verified as consistent with SQ-OC-HCU-305-XX-XX, Rev. 1

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\06-15

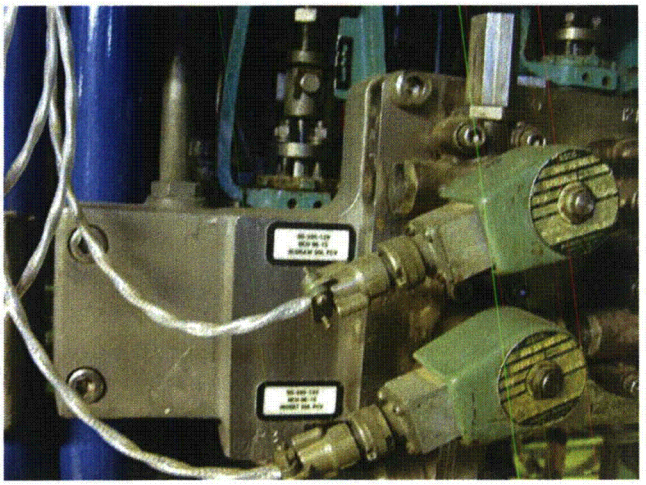
Equipment Class: (21) Tanks and Heat Exchangers

Equipment Description: SCRAM ACCUMULATOR-H2O

Evaluated by: Mark Etre Date: 10/15/12

Seth Baker 10/15/12

Photos



IMG_0756

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\06-19

Equipment Class: (21) Tanks and Heat Exchangers

Equipment Description: SCRAM ACCUMULATOR-H2O

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 13

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\06-19

Equipment Class: (21) Tanks and Heat Exchangers

Equipment Description: SCRAM ACCUMULATOR-H2O

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

Calculation C-1302-225-E310-049, Rev. 0

See Calculation C-1302-225-E310-050, Rev. 0

See drawing BR 4059, sheet 3

Equipment was verified as consistent with SQ-OC-HCU-305-XX-XX, Rev. 1

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\06-19

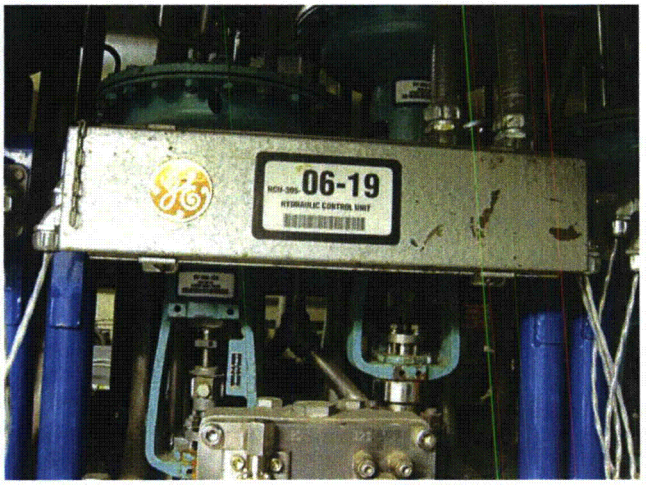
Equipment Class: (21) Tanks and Heat Exchangers

Equipment Description: SCRAM ACCUMULATOR-H2O

Evaluated by: Mark Etre Date: 10/15/12

Seth Baker 10/15/12

Photos



IMG_0749

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\26-11

Equipment Class: (21) Tanks and Heat Exchangers

Equipment Description: SCRAM ACCUMULATOR-H2O

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 08

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\26-11

Equipment Class: (21) Tanks and Heat Exchangers

Equipment Description: SCRAM ACCUMULATOR-H2O

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

Accumulator was missing label.

See Calculation C-1302-225-E310-049, Rev. 0

See Calculation C-1302-225-E310-050, Rev. 0

See drawing BR 4059, sheet 3

Equipment was verified as consistent with SQ-OC-HCU-305-XX-XX, Rev. 1

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\26-11

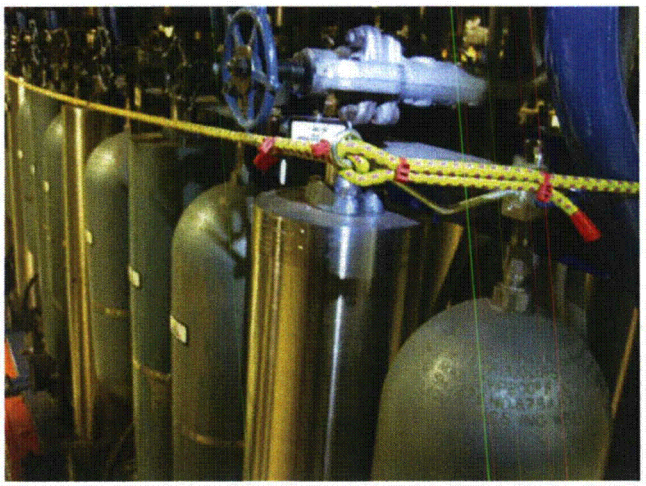
Equipment Class: (21) Tanks and Heat Exchangers

Equipment Description: SCRAM ACCUMULATOR-H2O

Evaluated by: Mark Etre Date: 10/15/12

Seth Baker 10/15/12

Photos



IMG_0783

IMG_0784

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\26-19

Equipment Class: (21) Tanks and Heat Exchangers

Equipment Description: SCRAM ACCUMULATOR-H2O

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 08

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\26-19

Equipment Class: (21) Tanks and Heat Exchangers

Equipment Description: SCRAM ACCUMULATOR-H2O

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See Calculation C-1302-225-E310-049, Rev. 0

See Calculation C-1302-225-E310-050, Rev. 0

See drawing BR 4059, sheet 3

Equipment was verified as consistent with SQ-OC-HCU-305-XX-XX, Rev. 1

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 305-125\26-19

Equipment Class: (21) Tanks and Heat Exchangers

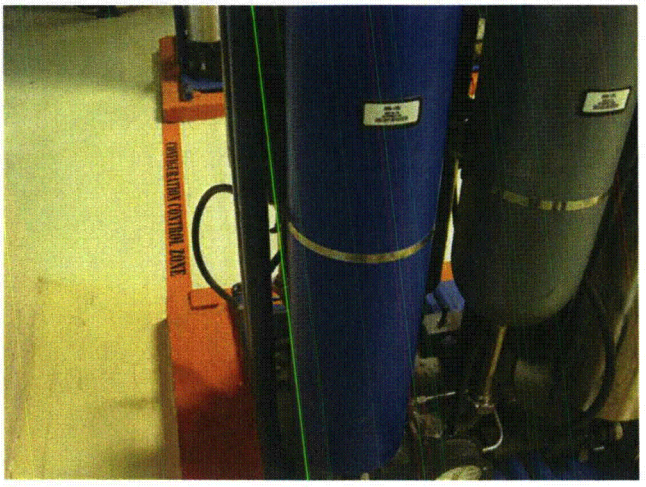
Equipment Description: SCRAM ACCUMULATOR-H2O

Evaluated by: Mark Etre Date: 10/15/12

Seth Baker 10/15/12

Photos

IMG_0829



IMG_0830

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 6R

Equipment Class: (20) Instrumentation and Control Panels and Cabinets

Equipment Description: MAIN CONTROL RM PANEL 6R REACTOR PROTECTION CH.1

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): TB, 46.00 ft, 27

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	Yes
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Yes
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 6R

Equipment Class: (20) Instrumentation and Control Panels and Cabinets

Equipment Description: MAIN CONTROL RM PANEL 6R REACTOR PROTECTION CH.1

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See SQ-OC-6R Rev 03

Able to verify accessible anchorage in (inside) back of cabinet. Interior inspection completed during online walkdown.

Evaluated by: Mark Etre Mark Etre Date: 10/10/12

Seth Baker Seth Baker 10/10/12

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 7R

Equipment Class: (20) Instrumentation and Control Panels and Cabinets

Equipment Description: MAIN CONTROL RM PANEL 7R REACTOR PROTECTION CH.2

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): TB, 46.00 ft, 27

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	Yes
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Yes
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: 7R

Equipment Class: (20) Instrumentation and Control Panels and Cabinets

Equipment Description: MAIN CONTROL RM PANEL 7R REACTOR PROTECTION CH.2

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See SQ-OC-7R Rev 02

Able to verify accessible anchorage in (inside) back of cabinet. Interior inspection completed during online walkdown.

Evaluated by: Mark Etre — Mark Etre — Date: 10/10/12

Seth Baker — Seth Baker — 10/10/12

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: BATTERY BANK C

Equipment Class: (15) Batteries on Racks

Equipment Description: VITAL BANK 'C' STATION BATTERY (LEAD ACID)

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): TB, 23.00 ft, 25

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	Yes
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Yes
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: BATTERY BANK C

Equipment Class: (15) Batteries on Racks

Equipment Description: VITAL BANK 'C' STATION BATTERY (LEAD ACID)

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See SQ-OC-BATTERY BANK C Rev 01

Tech Eval A2057072-08 Rev 0, concluded that the 0.5" gap on the end rails is acceptable.

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: BATTERY BANK C

Equipment Class: (15) Batteries on Racks

Equipment Description: VITAL BANK 'C' STATION BATTERY (LEAD ACID)

Photos

IMG_1052

IMG_1053

IMG_1055

IMG_1058

IMG_1062

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: BATTERY BANK C

Equipment Class: (15) Batteries on Racks

Equipment Description: VITAL BANK 'C' STATION BATTERY (LEAD ACID)

SQUG SEWS

PAGE 0001

E C R Printout

ECR NUMBER: OC 04-00923 000 ECR TYPE: IEC

ASSIGNED ORG: OWSP PRINT DATE/TIME: 11/04/04 06:11
ASSIGNED INDV: BEEFERMAN, MARVIN REQUIRED DATE: 11/10/04
INITIATOR: KALENAK ECR STATUS: APPVD
REQUEST ORG: OWSP STATUS DATE: 11/04/04
A/R NO: A2008592 INIT. DATE: 11/03/04
PROJECT NO: A/R STATUS: ASIGND

A/R SUBJECT: 204 12642: REPLACEMENT OF "C" STATION BATTERIES

==========

A. IDENTIFICATION:

SYSTEM: 735 COMP ID: OC 1 735 E BT C STATION BATTERIES
INIT OPER: QA CLASS: POTL REPT:
TECH SPEC: REQD IN MODES:
PAGES ATTACHED: Y NO. OF PAGES: 3 ID/DATE: MPB0 11/03/04

PROBLEM DESCRIPTION and PROPOSED DISPOSITION:

INSTALLED STATION "C" BATTERIES, GNB MODEL NCX-1200, HAVE BEEN REPLACED BY GNB MODEL NCN-17. THE ORIGINAL AND REPLACEMENT BATTERIES WERE FURNISHED BY NUCLEAR LOGISTICS INC. (NLI). THIS IEC WILL RECONCILE DIFFERENCES IN THE TWO MODELS USING THE REPLACEMENT EVALUATION PROVIDED BY NLI (CALC. # ERC-53, REV. 1).

B. EVALUATION:

50.59 REVIEW REQD: N ORIG 50.59 REVIEW AFFECTED: 50.59 SE REQD:
REPORTABLE: N DATE/TIME:
STATION PROC/PROGRAM REVIEW COMPLT: CAUSE: I
FINAL OPERABILITY: COMP: SYSTEM: PLANT:
SSV NAME: SSV DATE/TIME:
SCHED CODE/WINDW:
ADVANCED WORK AUTH: FINAL DISP: INTERIM DISP:

APPROVED DISPOSITION:

DESCRIPTION AND SCOPE
****

NOTE1: IT IS UNACCEPTABLE TO PROCESS AN IEC THAT EVALUATES CHANGES TO FIT/FORM/FUNCTION AND PROCESS/LOGIC/PARAMETERS OUTSIDE OF DESIGN TOLERANCES OR PRE-ENGINEERED SOLUTIONS. THESE CHANGES INCLUDE, BUT ARE NOT LIMITED TO COMPLEX PIPE ROUTING, SEISMIC CALCULATIONS, SETPOINTS, PROCESS PARAMETERS, POWER REQUIREMENTS, ELECTRICAL LOADING, MONITORING, AND OPERATIONS OR LICENSING/DESIGN CRITERIA. THESE CHANGES WILL BE PROCESSED OR SUPPLEMENTED BY DESIGN ENGINEERING THROUGH AN APPROVED DESIGN CHANGE

04-00923, Rev 0, 20041104, BLANKET AR FOR ITEM EQUIVALENCY EVAL (IEEIEC)

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: BATTERY BANK C

Equipment Class: (15) Batteries on Racks

Equipment Description: VITAL BANK 'C' STATION BATTERY (LEAD ACID)

*** ACTION REQUEST *** PAGE: 01

A/R TYPE : CM ECR
REQUEST ORG : OEPE
REQUEST DATE: 10MAR03
REQUESTED BY: HECK, MICHAEL

A/R NUMBER : A2057072
A/R STATUS : ASIGND
STATUS DATE: 03NOV04
LAST UPDATE: 20NOV04
PRINT DATE : 20NOV04

EVALUATION NBR: 08
EVALUATING ORG: OEDM
EVAL ASIGND TO: NIOGI, SUJIT
EVAL REQUEST ORG: OEPE
EVAL REQUESTOR: HECK, MIKE
EVAL RETURNED BY: RAY, F.H.

ORIG DATE ASSIGNED:
EVAL DUE DATE: 18NOV04
DATE ASSIGNED: 06OCT04
EVAL STATUS : COMPLT

IMPORTANCE CODE: OEAP: SCHEDULE CODE: DATE FIXED:

EVAL DESC: PERFROM SQUG WALKDOWN OF NEW C BATTERY AFTER INSTALLATION.

ADD TO YOUR SCHEDULE. FHR	FHR1 06OCT04
.	SNN1 18NOV04
ENGINEERING RESPONSE:	SNN1 18NOV04
.	SNN1 18NOV04
REASON FOR EVALUATION/SCOPE:	SNN1 18NOV04
.	SNN1 18NOV04
SQUG WALK DOWN OF THE 'C' BATTERY WAS PERFORMED AND	SNN1 18NOV04
IT WAS NOTED DURING WALK DOWN THAT THERE IS	SNN1 18NOV04
APPROXIMATELY 1/2 INCH GAP BETWEEN THE HORIZONTAL	SNN1 18NOV04
RAIL AND THE BATTERY CELLS. THE SEISMIC	SNN1 18NOV04
QUALIFICATION OF THE BATTERY WITH THE RACK WAS	SNN1 18NOV04
PERFORMED AT THE WYLE LABORATORIES AND IS	SNN1 18NOV04
DOCUMENTED IN REFERENCE 1. THE SEISMIC TESTING WAS	SNN1 18NOV04
PERFORMED WITHOUT ANY GAP BETWEEN THE BATTERY CELLS	SNN1 18NOV04
AND THE RACK HORIZONTAL RAILS. REASON FOR THIS	SNN1 18NOV04
EVALUATION IS TO JUSTIFY SEISMIC QUALIFICATION OF	SNN1 18NOV04
THE BATTERY AND THE BATTERY RACK WITH THE 1/2-INCH	SNN1 18NOV04
GAP.	SNN1 18NOV04
.	SNN1 18NOV04
THIS RESPONSE WILL BE PROVIDED IN THE FORM OF A	SNN1 18NOV04
TECHNICAL EVALUATION PREPARED IN ACCORDANCE WITH	SNN1 18NOV04
CC-AA-309-101 REV 7.	SNN1 18NOV04
.	SNN1 18NOV04
DETAILED EVALUATION:	SNN1 18NOV04
.	SNN1 18NOV04
THE BATTERY RACK IS LOCATED AT TURBINE BUILDING EL.	SNN1 18NOV04
23'-6". THE RACK IS A PRIMARILY BOLTED STRUCTURE	SNN1 18NOV04
AND IS BOLTED TO THE FLOOR (REFERENCE 2) PROVIDES	SNN1 18NOV04
THE PLAN, SECTIONS AND DETAILS OF THE RACK. FROM	SNN1 18NOV04
REFERENCE 3 DAMPING VALUE FOR BOLTED STRUCTURE IS	SNN1 18NOV04
7% FOR SSE. THE PEAK ACCELERATIONS AT THAT	SNN1 18NOV04
LOCATION FOR 7% DAMPING FROM REFERENCE 4 IS 0.35G	SNN1 18NOV04
IN THE HORIZONTAL DIRECTIONS AND 0.24G IN THE	SNN1 18NOV04
VERTICAL DIRECTION. THE BATTERY CELLS ARE MADE OF	SNN1 18NOV04
PLASTIC (REFERENCE 5). FROM REFERENCE 6,	SNN1 18NOV04
COEFFICIENT OF FRICTION BETWEEN STEEL AND	SNN1 18NOV04
POLYSTYRENE OR BAKELITE IS 0.3. THE WEIGHT OF THE	SNN1 18NOV04
BATTERY CELL IS 269 POUNDS (REFERENCE 5). THERE	SNN1 18NOV04
ARE 15 CELLS PER RACK. THE LENGTH OF THE RACK IS	SNN1 18NOV04
APPROXIMATELY 10 FEET (REFERENCE 2). TOTAL WEIGHT	SNN1 18NOV04
OF THE CELLS IS 15 X 269 = 4035 POUNDS. THEREFORE,	SNN1 18NOV04
HORIZONTAL FORCE ON THE RACK DUE TO HORIZONTAL	SNN1 18NOV04

A2057072 E08, Rev NA, 20041120, PERFORM SQUG WALKDOWN OF NEW C BATTERY

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: BATTERY BANK C

Equipment Class: (15) Batteries on Racks

Equipment Description: VITAL BANK 'C' STATION BATTERY (LEAD ACID)

Doc Number: SQ-OC-BATTERY BANK C
Sheet:
Date: 10/17/2011
Mjr Rev: 000
Mnr Rev:

Dept Trans: D177718
Facility: OYS
SRRS ID: 3A.114
Doc Type: SQB
Sub Type:
Addl Type:

DocTitle:
DIVISION C BATTERIES

0900e54e814d1c8f

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: BTCHG C1

Equipment Class: (16) Inverters

Equipment Description: 'C' STATION BATTERY SOLID STATE STATIC CHARGER C1

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): TB, 23.00 ft, 26

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	Yes
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Yes
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: BTCHG C1

Equipment Class: (16) Inverters

Equipment Description: 'C' STATION BATTERY SOLID STATE STATIC CHARGER C1

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See SQ-OC-BT CHG C1 & C2 Rev 00

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

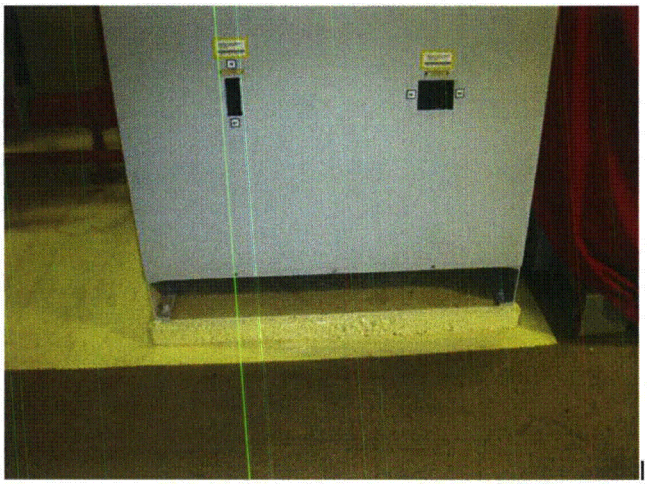
Equipment ID No.: BTCHG C1

Equipment Class: (16) Inverters

Equipment Description: 'C' STATION BATTERY SOLID STATE STATIC CHARGER C1

Photos

MG_1068



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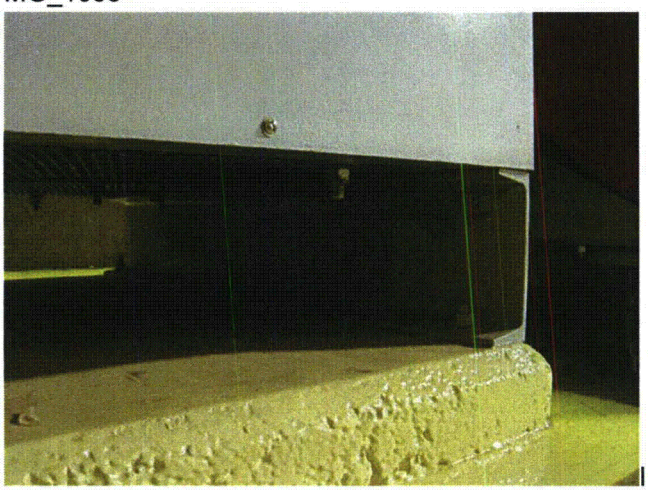

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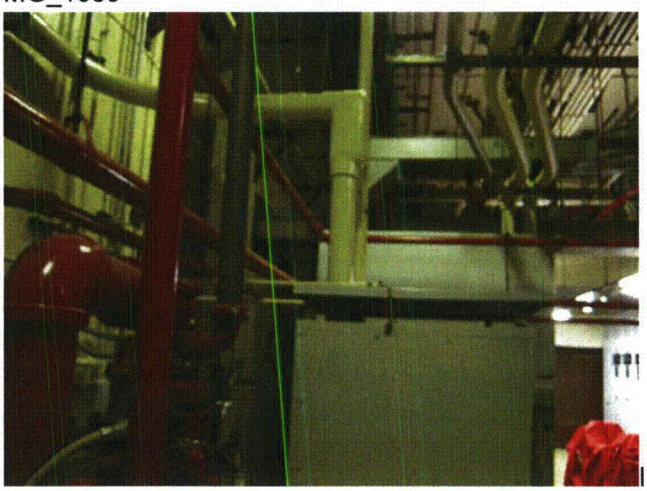


MG_1073

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CIP-3

Equipment Class: (14) Distribution Panels

Equipment Description: CONTINUOUS INSTRUMENT PNL NO.3 208/120V,3PH,4W,60HZ

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 12

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	Yes
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Yes
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CIP-3

Equipment Class: (14) Distribution Panels

Equipment Description: CONTINUOUS INSTRUMENT PNL NO.3 208/120V,3PH,4W,60HZ

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See Seismic Qualification SQ-OC-CIP-3 Rev 0

Calculation C-1302X-322C-A06 qualifies the Oyster Creek safety-related masonry walls for seismic to address NRC IE Bulletin 80-11.

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

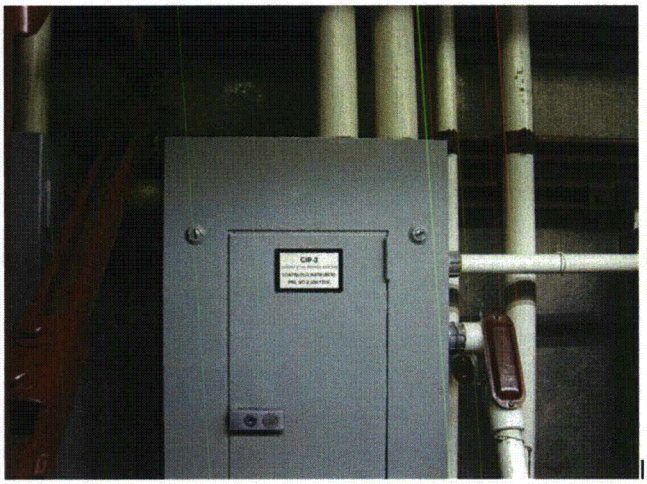
Seismic Walkdown Checklist (SWC)

Equipment ID No.: CIP-3

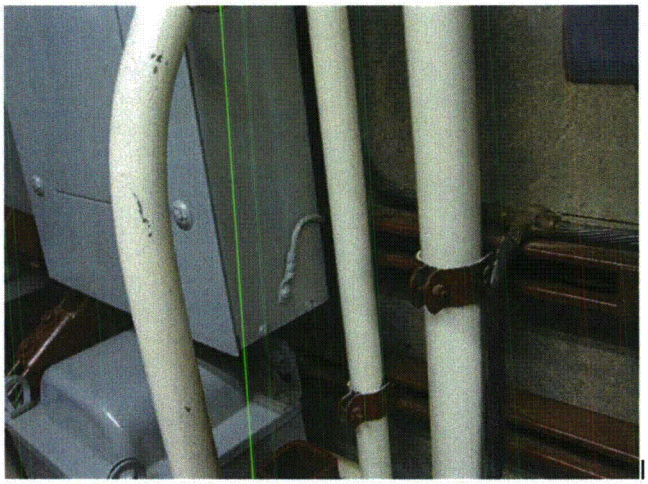
Equipment Class: (14) Distribution Panels

Equipment Description: CONTINUOUS INSTRUMENT PNL NO.3 208/120V,3PH,4W,60HZ

Photos



MG_0874



MG_0875

MG_0879

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CIP-3

Equipment Class: (14) Distribution Panels

Equipment Description: CONTINUOUS INSTRUMENT PNL NO.3 208/120V,3PH,4W,60HZ

SQUG SEWS

EBASCO SERVICES INCORPORATED EBASCO
Two World Trade Center, New York, N.Y. 10048

April 29, 1981

GPU Services Incorporated
Attention: Mr. Leon Garibian
100 Interpace Parkway
Parsippany, NJ 07054

Dear Leon:

Re: OYSTER CREEK NUCLEAR STATION
FINAL SUBMITTAL OF MASONRY WALL
EVALUATION CALCULATION BOOKS

I am sending to you, together with this letter, 20 volumes of calculation books and 11 volumes of computer output. This will mark the end of our involvement for the re-evaluation of the Safety-Related Concrete Masonry Walls as required by NRC IE Bulletin 80-11.

Should you have any questions regarding the calculations and sketches, please do not hestitate to call. We will be glad to help.

Very truly yours,

E Odar
Assistant Chief Civil Engineer

GW:dl

cc: K D Chiu
G Wu

C1302X322CA06 VOL 1, 19810427, REEVALUATION OF CONCRETE MASONRY WALL NRC IE BULLETIN 80-11 GENERAL

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\10-31

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (North)

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 13

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\10-31

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (North)

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See Calculation's C-1302-225-E310-049, Rev. 0 and C-1302-225-E310-050, Rev. 0

SQ-OC-HCU-305-XX-XX, Rev 1

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

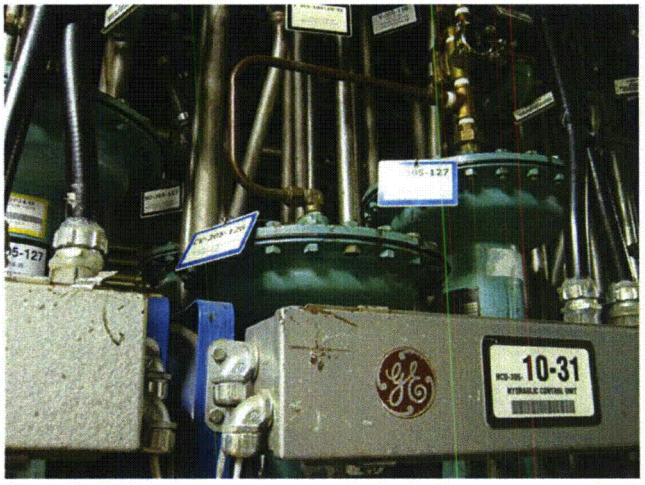
Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\10-31

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (North)

Photo



IMG_0731

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\10-39

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (North)

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 13

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\10-39

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (North)

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

In-line equipment.

See Calculation's C-1302-225-E310-049, Rev. 0 and C-1302-225-E310-050, Rev. 0

SQ-OC-HCU-305-XX-XX, Rev 1

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\10-39

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (North)

Photo

IMG_0734

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\30-03

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (South)

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 08

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\30-03

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (South)

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

In-line equipment.

See Calculation's C-1302-225-E310-049, Rev. 0 and C-1302-225-E310-050, Rev. 0

SQ-OC-HCU-305-XX-XX, Rev 1

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

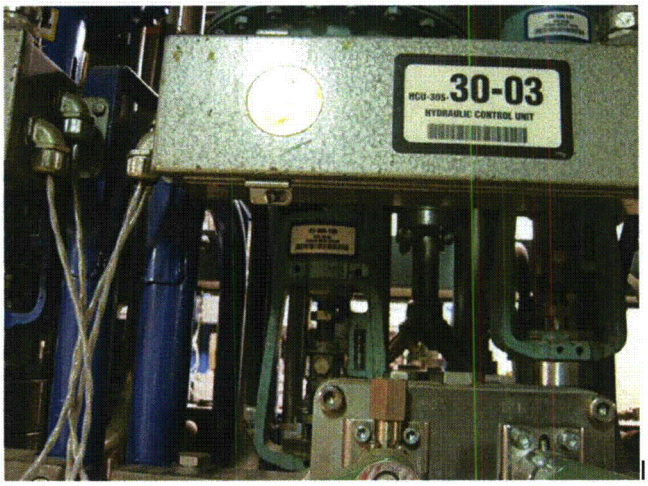
Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\30-03

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (South)

Photos



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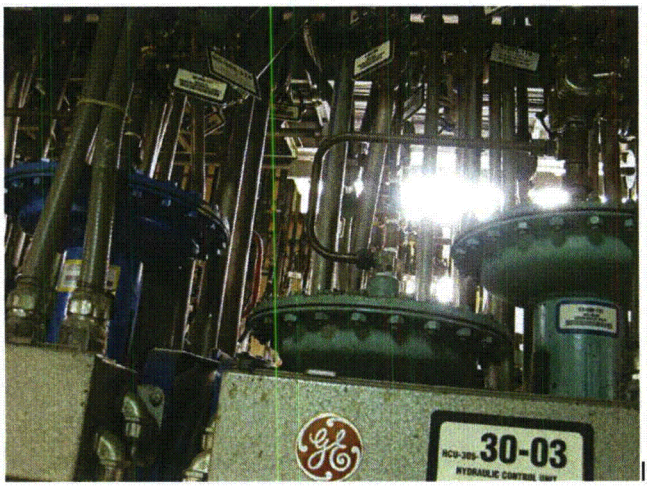


MG_0806

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\30-07

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (South)

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 08

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\30-07

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (South)

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

In-line equipment.

See Calculation's C-1302-225-E310-049, Rev. 0 and C-1302-225-E310-050, Rev. 0

SQ-OC-HCU-305-XX-XX, Rev 1

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

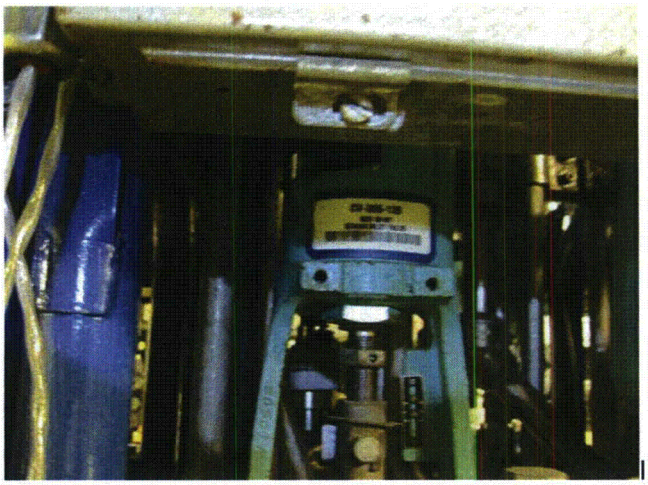
Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-126\30-07

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD INLET SCRAM VALVE (South)

Photos



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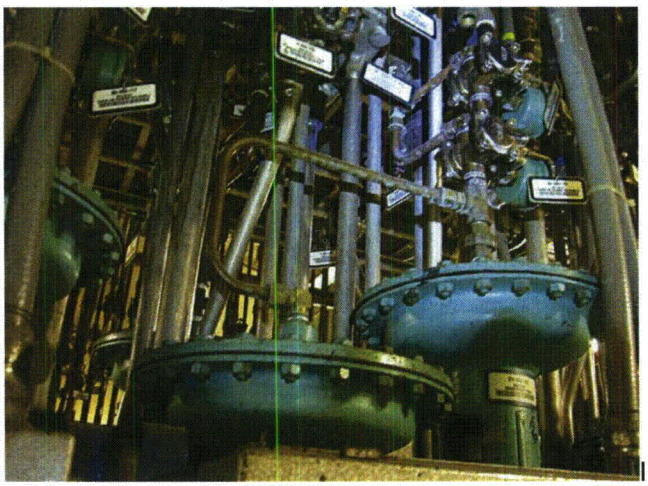


MG_0789

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\06-15

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (North)

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 13

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\06-15

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (North)

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See Calculation's C-1302-225-E310-049, Rev. 0 and C-1302-225-E310-050, Rev. 0

SQ-OC-HCU-305-XX-XX, Rev 1

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

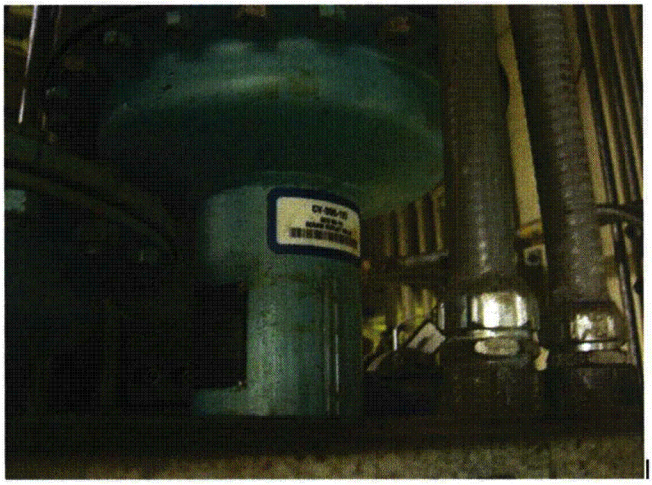
Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\06-15

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (North)

Photo



IMG_0743

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\22-31

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (North)

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 13

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\22-31

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (North)

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

In-line equipment.

See Calculation's C-1302-225-E310-049, Rev. 0 and C-1302-225-E310-050, Rev. 0

SQ-OC-HCU-305-XX-XX, Rev 1

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

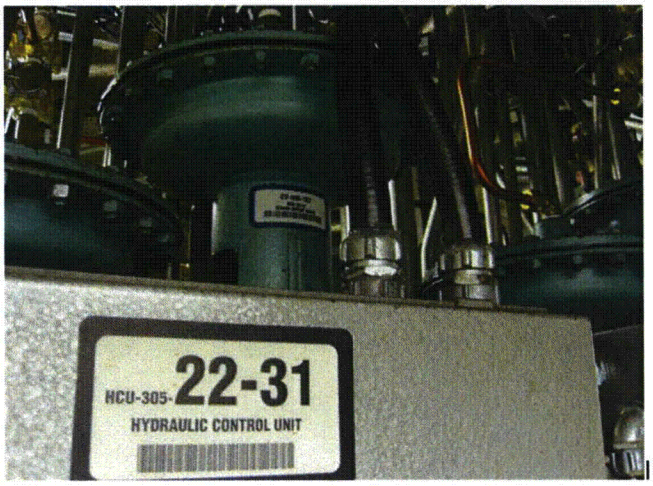
Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\22-31

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (North)

Photo



IMG_0738

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\30-03

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (South)

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 08

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\30-03

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (South)

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

In-line equipment.

See Calculation's C-1302-225-E310-049, Rev. 0 and C-1302-225-E310-050, Rev. 0

SQ-OC-HCU-305-XX-XX, Rev 1

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\30-03

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (South)

Photo

IMG_0811

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\30-07

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (South)

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 08

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Not Applicable
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Not Applicable
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Not Applicable
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\30-07

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (South)

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

In-line equipment.

See Calculation's C-1302-225-E310-049, Rev. 0 and C-1302-225-E310-050, Rev. 0

SQ-OC-HCU-305-XX-XX, Rev 1

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: CV-305-127\30-07

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CRD OUTLET SCRAM VALVE (South)

Photo

IMG_0794

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DC-F

Equipment Class: (14) Distribution Panels

Equipment Description: 125VDC POWER PANEL DC-F

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 23.00 ft, 12

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	Yes
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Yes
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DC-F

Equipment Class: (14) Distribution Panels

Equipment Description: 125VDC POWER PANEL DC-F

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See Seismic Qualification No. SQ-OC-DC-F, Rev 000

Unsecured thermometer above panel was resolved by Operations and is being tracked by IR 1406823.

Calculation C-1302X-322C-A06 qualifies the Oyster Creek safety-related masonry walls for seismic to address NRC IE Bulletin 80-11.

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

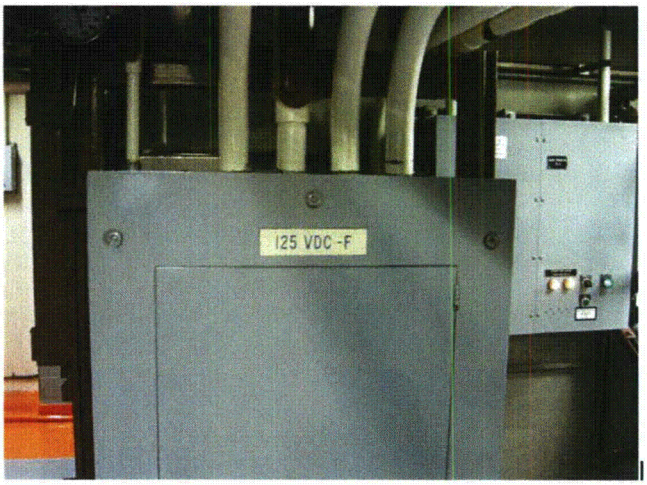
Seismic Walkdown Checklist (SWC)

Equipment ID No.: DC-F

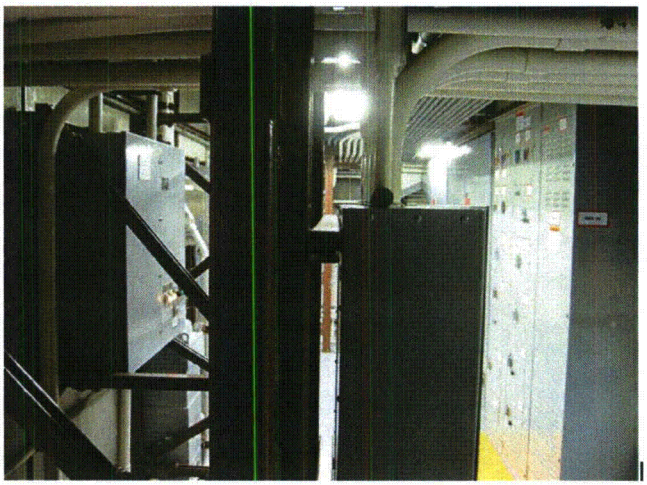
Equipment Class: (14) Distribution Panels

Equipment Description: 125VDC POWER PANEL DC-F

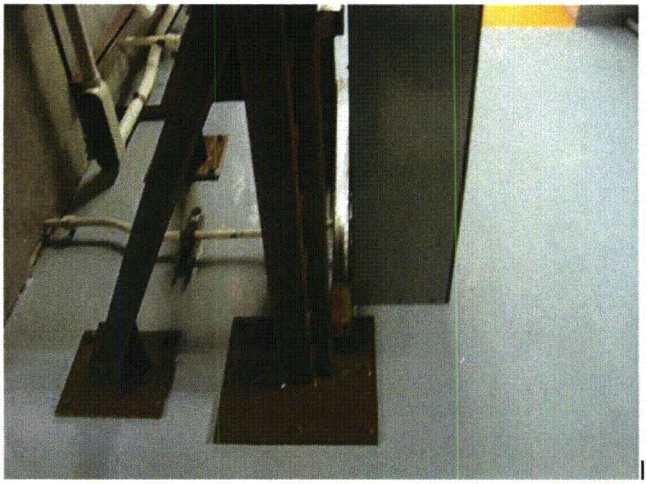
Photos



MG_0895



MG_0896



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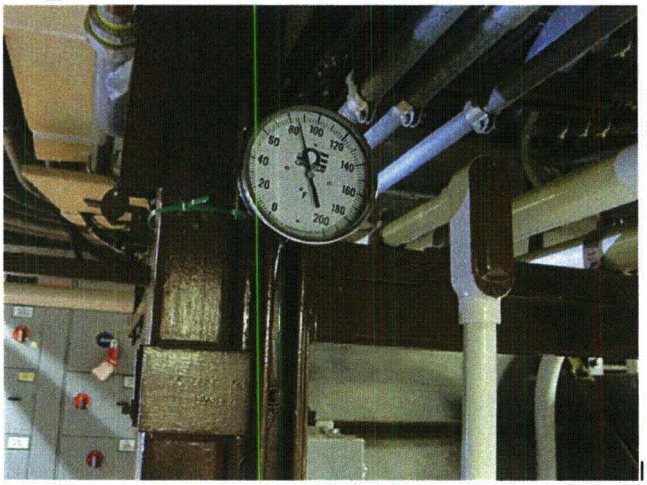


MG_0904

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DC-F

Equipment Class: (14) Distribution Panels

Equipment Description: 125VDC POWER PANEL DC-F

SQUG SEWS

EBASCO SERVICES INCORPORATED
Two World Trade Center, New York, N.Y. 10048

EBASCO

April 29, 1981

GPU Services Incorporated
Attention: Mr. Leon Garibian
100 Interpace Parkway
Parsippany, NJ 07054

Dear Leon:

Re: OYSTER CREEK NUCLEAR STATION
FINAL SUBMITTAL OF MASONRY WALL
EVALUATION CALCULATION BOOKS

I am sending to you, together with this letter, 20 volumes of calculation books and 11 volumes of computer output. This will mark the end of our involvement for the re-evaluation of the Safety-Related Concrete Masonry Walls as required by NRC IE Bulletin 80-11.

Should you have any questions regarding the calculations and sketches, please do not hestitate to call. We will be glad to help.

Very truly yours,

E Odar

E Odar
Assistant Chief Civil Engineer

GW:dl

cc: K D Chiu
G Wu

C1302X322CA06 VOL 1, 19810427, REEVALUATION OF CONCRETE MASONRY WALL NRC IE BULLETIN 80-11 GENERAL

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DG-1 BATTERY BANK

Equipment Class: (15) Batteries on Racks

Equipment Description: DIESEL GENERATOR UNIT #1 STARTING BATTERIES

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): DG BLDG, 23.00 ft, 01

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DG-1 BATTERY BANK

Equipment Class: (15) Batteries on Racks

Equipment Description: DIESEL GENERATOR UNIT #1 STARTING BATTERIES

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See SQ-OC-M-39-001 Rev 06

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

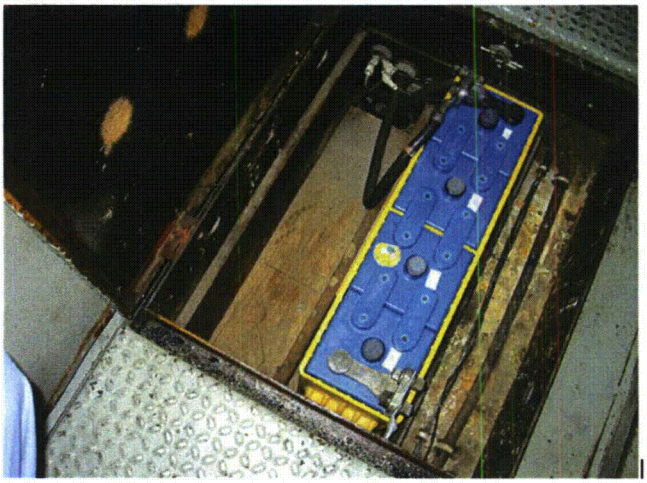
Seismic Walkdown Checklist (SWC)

Equipment ID No.: DG-1 BATTERY BANK

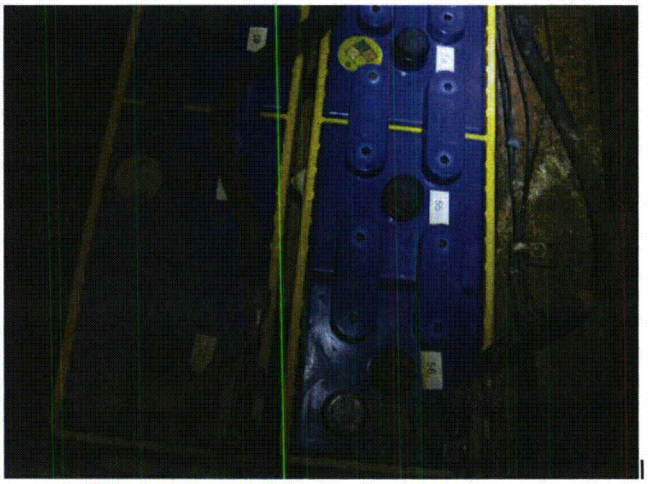
Equipment Class: (15) Batteries on Racks

Equipment Description: DIESEL GENERATOR UNIT #1 STARTING BATTERIES

Photos



MG_1145



MG_1149

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DG-1 BATTERY CHARGER

Equipment Class: (16) Inverters

Equipment Description: DIESEL GENERATOR UNIT #1 BATTERY CHARGER

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): DG BLDG, 23.00 ft, 01

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	No
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Not Applicable
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DG-1 BATTERY CHARGER

Equipment Class: (16) Inverters

Equipment Description: DIESEL GENERATOR UNIT #1 BATTERY CHARGER

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See SQ-OC-M-39-001 Rev 06

Evaluated by: Mark S Etre — Mark Etre — Date: 10/10/12

Seth Baker — 10/10/12

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

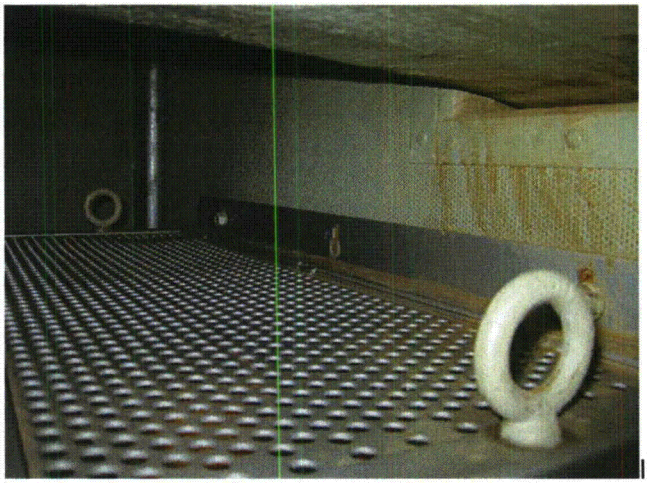
Equipment ID No.: DG-1 BATTERY CHARGER

Equipment Class: (16) Inverters

Equipment Description: DIESEL GENERATOR UNIT #1 BATTERY CHARGER

Photos

MG_1184



MG_1185

MG_1186

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.:	DG-1 SWGR
Equipment Class:	(20) Instrumentation and Control Panels and Cabinets
Equipment Description:	DIESEL GENERATOR #1 UNIT SWITCHGEAR
Project:	Oyster Creek SWEL
Location (Bldg, Elev, Room/Area):	DG BLDG, 23.00 ft, 01
Manufacturer/Model:	

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	Yes
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Yes
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DG-1 SWGR

Equipment Class: (20) Instrumentation and Control Panels and Cabinets

Equipment Description: DIESEL GENERATOR #1 UNIT SWITCHGEAR

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See Seismic Qualification No. SQ-OC-DG-1-SWGR

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

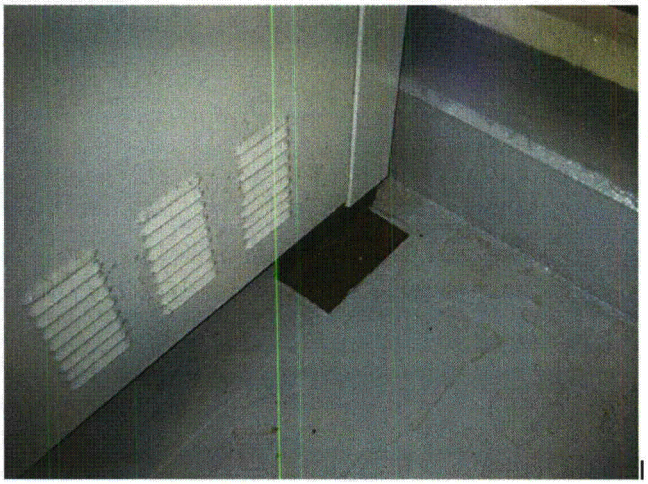
Equipment ID No.: DG-1 SWGR

Equipment Class: (20) Instrumentation and Control Panels and Cabinets

Equipment Description: DIESEL GENERATOR #1 UNIT SWITCHGEAR

Photos

MG_1190



MG_1195

MG_1196

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DPIS-IB0005A1

Equipment Class: (18) Instruments on Racks

Equipment Description: EMERGENCY CONDENSER NE01A HIGH SYSTEM FLOW SWITCH

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 51.00 ft, 06

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	Yes
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Yes
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DPIS-IB0005A1

Equipment Class: (18) Instruments on Racks

Equipment Description: EMERGENCY CONDENSER NE01A HIGH SYSTEM FLOW SWITCH

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See SQUG SEWS (SQ-OC-RK03) Rev 000

Evaluated by: Mark Etre Date: 10/10/12

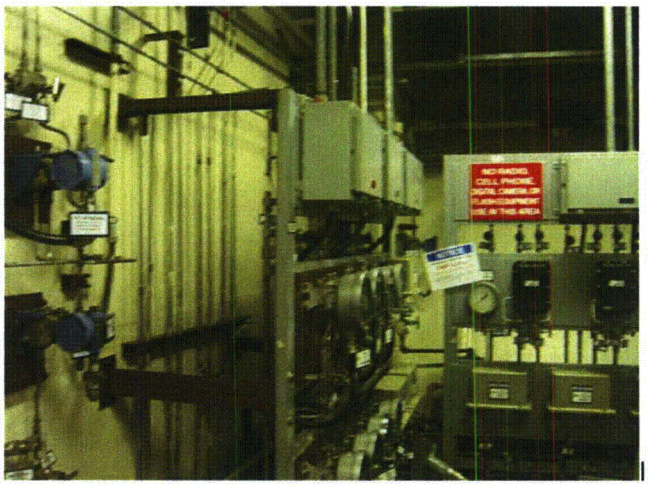
Seth Baker 10/10/12

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.:	DPIS-IB0005A1
Equipment Class:	(18) Instruments on Racks
Equipment Description:	EMERGENCY CONDENSER NE01A HIGH SYSTEM FLOW SWITCH

Photo



IMG_0680

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DPT-6-IA0091B

Equipment Class: (18) Instruments on Racks

Equipment Description: FUEL ZONE LEVEL 'B' WIDE RANGE LEVEL TRANSMITTER

Project: Oyster Creek SWEL

Location (Bldg, Elev, Room/Area): RB, 51.00 ft, 06

Manufacturer/Model:

Instructions for Completing Checklist

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

Anchorage

1.	Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?	Yes
2.	Is the anchorage free of bent, broken, missing or loose hardware?	Yes
3.	Is the anchorage free of corrosion that is more than mild surface oxidation?	Yes
4.	Is the anchorage free of visible cracks in the concrete near the anchors?	Yes
5.	Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)	Yes
6.	Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: DPT-6-IA0091B

Equipment Class: (18) Instruments on Racks

Equipment Description: FUEL ZONE LEVEL 'B' WIDE RANGE LEVEL TRANSMITTER

Interaction Effects

7.	Are soft targets free from impact by nearby equipment or structures?	Yes
8.	Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?	Yes
9.	Do attached lines have adequate flexibility to avoid damage?	Yes
10.	Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?	Yes

Other Adverse Conditions

11.	Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?	Yes

Comments

See SQUG SEWS (SQ-OC-RK03) Rev 000

See Seismic Qualification SQ-OC-DPT-6-IA0091B Rev 0

Evaluated by: Mark Etre Date: 10/10/12

Seth Baker 10/10/12

Status: [Y] N U

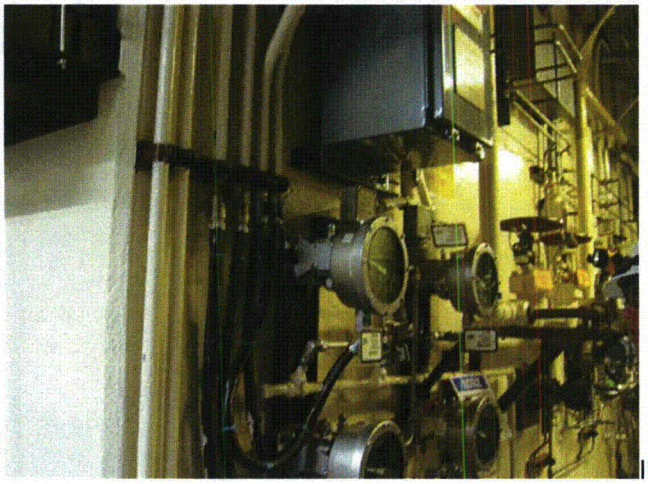
Seismic Walkdown Checklist (SWC)

Equipment ID No.: DPT-6-IA0091B

Equipment Class: (18) Instruments on Racks

Equipment Description: FUEL ZONE LEVEL 'B' WIDE RANGE LEVEL TRANSMITTER

Photos



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